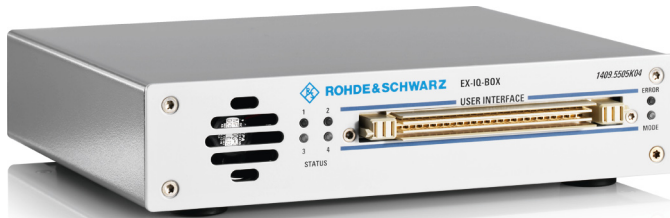


Test your remote radio head solutions

Signal generators and analyzers from Rohde & Schwarz are the ideal solution for testing your RRH not only at the RF, but - using the R&S®EX-IQ-Box - also via the digital I/Q interface



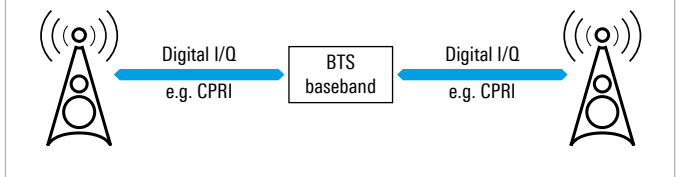
R&S®EX-IQ-Box.

Your task

Remote radio head (RRH) applications are increasingly being implemented in today's mobile radio networks with distributed base transceiver station (BTS) configurations. Having one baseband (BB) module controlling several RRHs by means of a digital interface - either optical or electrical - enables both equipment vendors and network operators to reduce costs and optimize their solutions. The industry has agreed upon defining common digital interface protocol standards, including the common public radio interface (CPRI™).

For verification of RRH modules (= radio equipment, RE), test solutions need to support the digital interface protocol

Architecture of a distributed network



Distributed networks and RRH architectures apply digital I/Q interface protocol standards, like CPRI.

standards and offer the flexibility for proprietary interfaces. In addition, the signal generators and analyzers used must support all major cellular standards.

T & M solution

Rohde & Schwarz offers a complete test setup for RRH verification based on the R&S®SMU200A vector signal generator or R&S®AMU200A baseband signal generator and the R&S®FSQ signal analyzer. The R&S®EX-IQ-Box digital interface module (variant K04) provides the digital baseband connection to the RRH. As a result, the same T&M equipment can be used for tests at the RF as well as for tests via the digital baseband interface. Switching between different tools for RF and digital baseband signals is a thing of the past.

The R&S®EX-IQ-Box is a digital interface module that seamlessly works with different digital I/Q specifications, including CPRI. It provides flexible digital I/Q inputs and outputs for signal generators and analyzers from Rohde & Schwarz, as well as a digital interface to the device under test (DUT) by means of a CPRI breakout board (R&S®EXBOX-B85 option) and the CPRI RE test software option (R&S®EXBOX-K10). Small form-factor pluggable (SFP) connections are used for the optical link between the DUT and the R&S®EX-IQ-Box breakout board. The test solution covers individual uplink or downlink operation as well as full duplex operation.

The R&S®EX-IQ-Box is controlled via the R&S®DigiConf digital interface configurator software running on an external PC. The R&S®EX-IQ-Box is easily configured through the R&S®DigiConf software via a USB connection. R&S®DigiConf can also be operated remotely via a local area network (LAN).

The test setup below is used to perform **transmitter tests** on RRH modules.

The R&S®SMU200A or R&S®AMU200A signal generator provides digital baseband signals for all major mobile radio and wireless communications standards such as LTE, WCDMA/HSPA(+), GSM/EDGE, CDMA2000®, WiMAX™ IEEE 802.16 and WLAN IEEE 802.11 in a single box. Enhanced functions such as fading, AWGN or I/Q impairments are also available. The R&S®EX-IQ-Box converts the generated signals into the digital interface format of choice, e.g. CPRI, before feeding them to the DUT via the optical link. The RRH then upconverts these signals to the RF. The R&S®FSQ signal analyzer is used to perform RF analysis on the DUT and to check that the baseband signals are correctly transmitted by the RRH.

To carry out RRH **receiver tests**, the signal generator is used to provide the required standard-compliant RF signals, which are downconverted by the RRH. The R&S®EX-IQ-Box converts the resulting baseband signals from the RRH before they are analyzed by the R&S®FSQ signal analyzer.

Rohde&Schwarz offers you a complete test solution for functional and performance tests of remote radio heads. Multistandard platforms for signal generation and analysis ensure maximum flexibility and scalability.

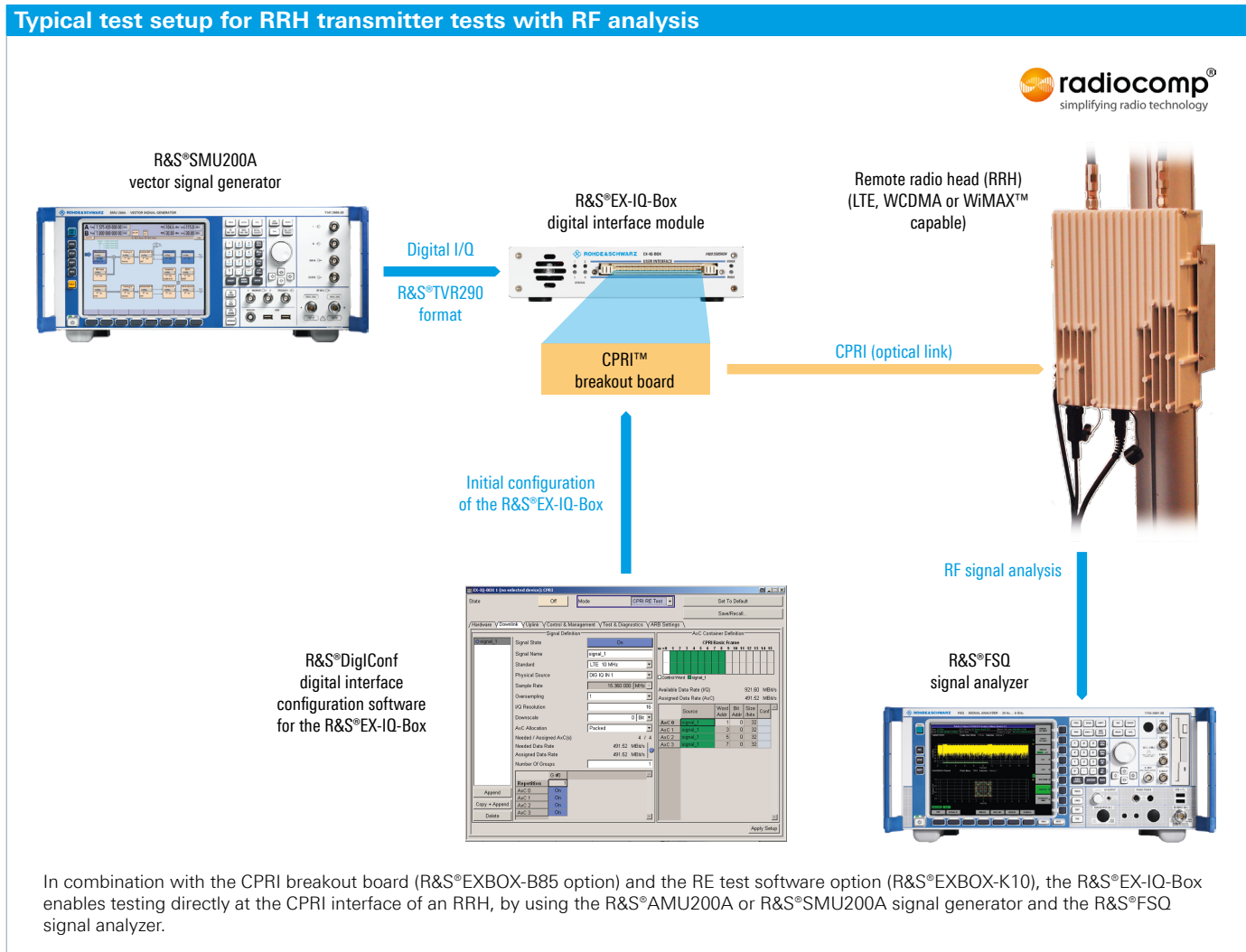
See also:

www.rohde-schwarz.com/technologies
www.rohde-schwarz.com/product/ex-iq-box

“CPRI” is a trademark of Nokia Siemens Networks.

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

“WiMAX” is a registered trademark of the WiMAX Forum.



Rohde & Schwarz GmbH & Co. KG

Europe, Africa, Middle East +49 89 4129 137 74
 customersupport@rohde-schwarz.com
 North America 1 888 TEST RSA (1 888 837 8772)
 customer.support@rsa.rohde-schwarz.com
 Latin America +1 410 910 7988 | customersupport.la@rohde-schwarz.com
 Asia/Pacific +65 65 13 04 88 | customersupport.asia@rohde-schwarz.com
 www.rohde-schwarz.com

R&S® is a registered trademark of Rohde & Schwarz GmbH & Co. KG
 Trade names are trademarks of the owners | Printed in Germany (sv)
 Test your remote radio head solutions | PD 5214.3200.92
 Version 02.00 | March 2010
 Data without tolerance limits is not binding | Subject to change
 © 2010 Rohde & Schwarz GmbH & Co. KG | 81671 München, Germany