

WLAN IEEE 802.11ad Production Test Solution



Overview

IEEE 802.11ad devices deliver data rates in the order of a few gigabits. This is achieved by using a channel bandwidth of 2 GHz at frequencies between 57 GHz and 66 GHz bringing a data rate of about 7 Gbit/s over short distances. Due to the high frequency, the transceivers typically have multiple transmitters and receivers together with integrated antennas on a single chip. Beamforming is used to increase the transmission and reception range. The measurements have to be performed over the air (OTA), and the beamforming capabilities of the DUT have to be verified in a production environment.

The Rohde&Schwarz WLAN IEEE 802.11ad production system fast and precisely measures transmitter and receiver modes of IEEE 802.11ad chips and modules. The system consists of an R&S®SMW200 vector signal generator for generating wideband signals, an R&S®UD1065 up/downconverter for up- and downconverting and an R&S®RTO2044 digital oscilloscope for digitizing the I/Q outputs of the R&S®UD1065.

Measurements

The production test system can be automated. It comes with signal analysis software for controlling the complete measurement setup. The software provides a graphical user interface for manual operation or can be remote controlled. It runs either on the R&S®RTO2044 or an optional PC. The software provides fast demodulation and measurements of all important transmitter parameters.

The software delivers a range of results, where the most important ones are:

- EVM
- Power
- Spectrum emission mask
- CW power
- Rise and fall time
- Clock error
- Center frequency error

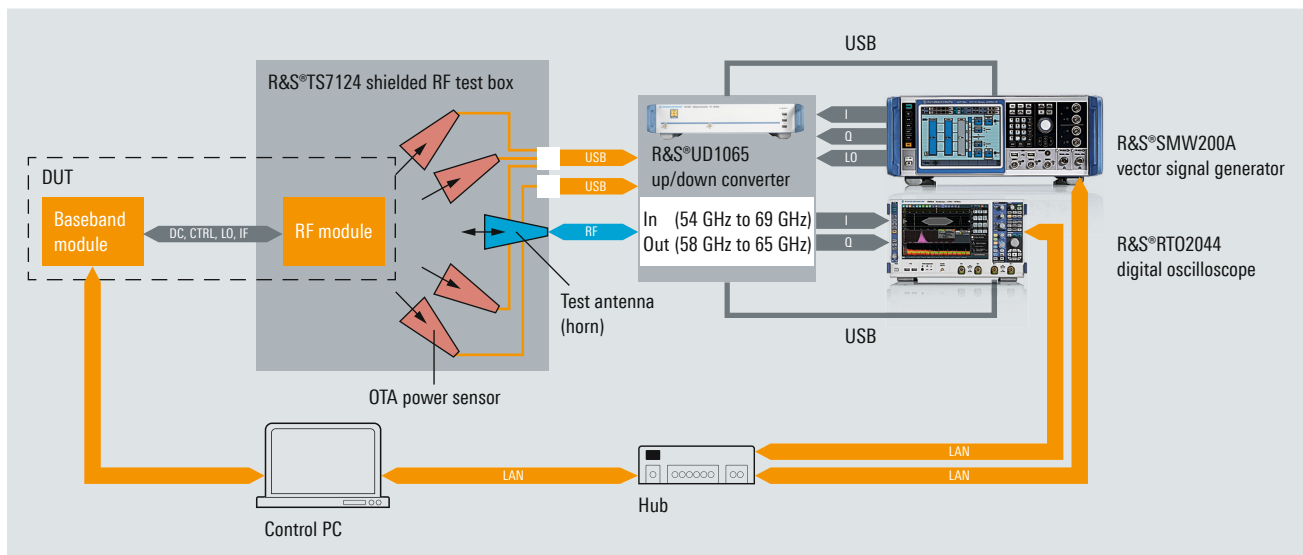
The R&S®SMW200A with its wideband baseband generates physical layer signals in line with the IEEE 802.11ad standard for receiver tests ¹⁾.

Internal calibration

The R&S®UD1065 ensures optimum performance by internal alignment procedures of both the transmitter and receiver.

¹⁾ The R&S®SMW200A used in the WLAN802.11ad production system is only usable within this test system.

Complete test system with optional external PC, shielded RF test box and OTA power sensors



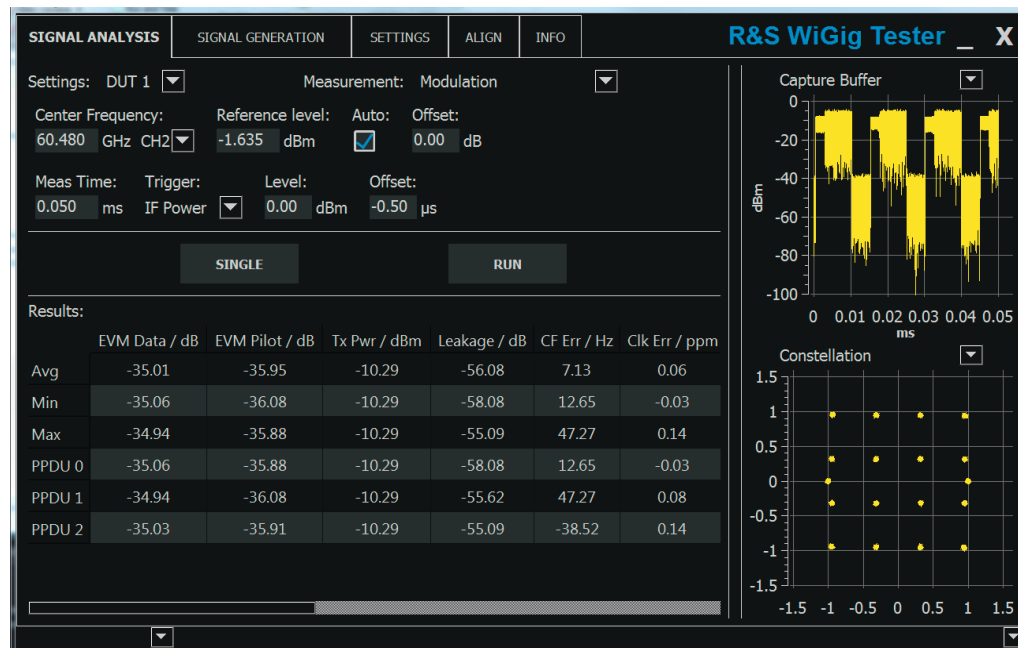
Specifications in brief

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Connector type		waveguide WR15
Frequency range	transmitter tests	54.32 GHz to 68.80 GHz
	receiver tests	58.32 GHz to 64.48 GHz
Inherent EVM for signal analysis	f = 60.48 GHz, level = -22 dBm	≤ -30 dB
Transmitter level measurement uncertainty	+20 °C to +30 °C	±2.5 dB
Signal generation level range		-80 dBm to +5 dBm (PEP)

Ordering information

Designation	Type	Order No.
WLAN802.11ad Production Test Solution		1178.5008B03
Optional material		
Three-Channel Sensor Module, for R&S®NRPM-A66 antenna modules	R&S®NRPM3	1425.8563.02
Single-Polarized Antenna Module, with integrated diode detector from 27.5 GHz to 75 GHz	R&S®NRPM-A66	1425.8740.02
RF Shielded Box	R&S®TS7124M	1525.8564.02 ¹⁾

¹⁾ See www.rohde-schwarz.com, search term TS7124.



R&S®WiGig tester control software with displayed signals.

Service that adds value

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

Rohde & Schwarz

The Rohde & Schwarz electronics group offers innovative solutions in the following business fields: test and measurement, broadcast and media, secure communications, cybersecurity, monitoring and network testing. Founded more than 80 years ago, the independent company which is headquartered in Munich, Germany, has an extensive sales and service network with locations in more than 70 countries.

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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