

Phase-coherent multichannel signal simulation

Application

Tester for phase-coherent measurements on radar frontends in development, production and service



Example configuration: three-channel tester for ATC monopulse radar.

Your task

To test and calibrate multichannel radar frontends in development, calibration and service, phase-coherent test signals are required. These may be modulated or unmodulated pulse sequences or even complex, real-world scenarios. Vital requirements for such signals are high level and phase accuracy over a wide dynamic range as well as high measurement speed and automated test sequences.

The high level and phase stability required for EUT testing and calibration must be ensured over an extended period of time and a wide temperature range.

T & M solution

The test system from Rohde&Schwarz provides an efficient solution for analyzing radar frontends by means of multichannel, phase-coherent signals.

High level and phase accuracy are ensured through a short recalibration of the test system, which is performed automatically each time the system is started and after each temperature change. In conjunction with the use of all-inclusive test routines, this simplifies tests in production and service. The system is controlled via a GUI or from the customer's main measurement software.

Flexible signal generation is a key requirement in the creation and simulation of radar scenarios. The test system from Rohde&Schwarz allows the use of predefined, manually created signal sequences or previously recorded sequences.

The test system can be precisely configured to match the specific application and the required parameters. With its high degree of scalability, the system can be tailored to offer the required functionality for any desired application from development through to servicing.

75 Years of Driving Innovation


ROHDE & SCHWARZ

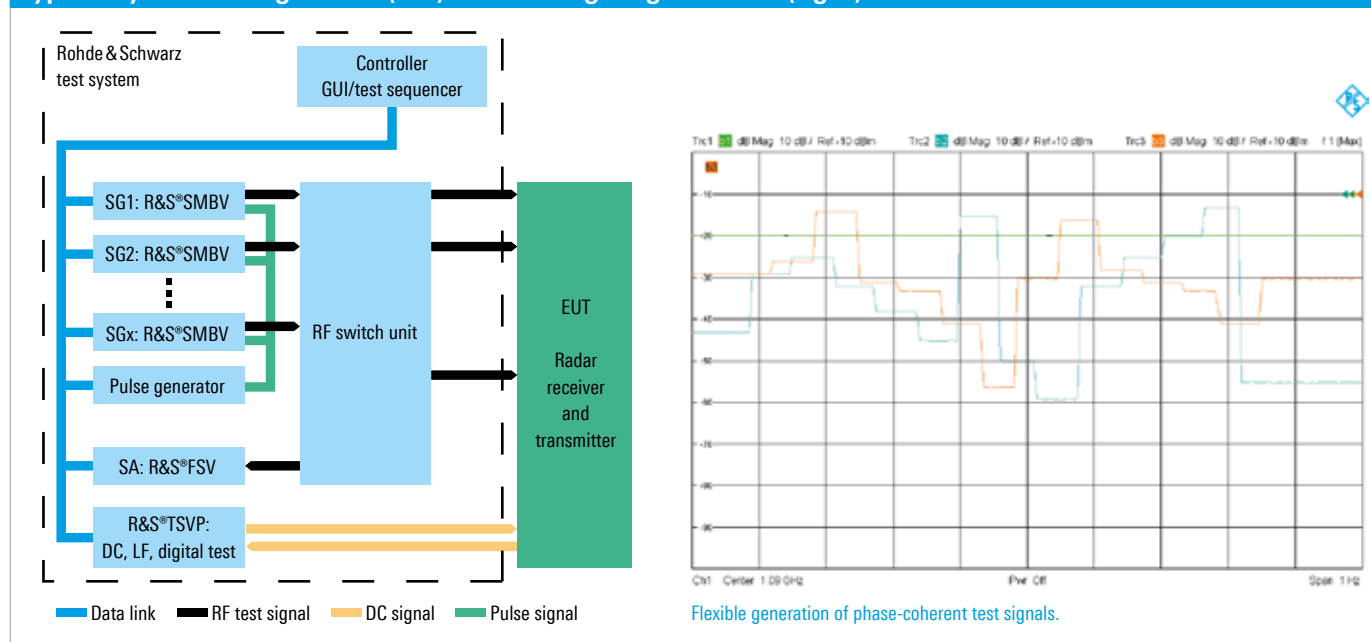
Aerospace & Defense
Test & Measurement

Application Card | 01.00
Phase-coherent multichannel signal simulation

The tester provides the following functions:

- Generation of up to ten phase-coherent, synchronous RF signals
- High-speed level and phase variation over 50 dB dynamic range by means of waveforms loaded into the tester (I/Q mode)
- CW and pulse mode
- Generation of I/Q data or use of existing I/Q data of customer-specific waveforms with up to 120 MHz bandwidth, through to the playback of realistic reception scenarios
- Analysis of transmit pulses including power measurement
- Measurement of analog and digital signals of EUT
- Integrated cTSVP PXI platform allowing expansion of tester to cover module tests
- EUT multiplexing
- Rapid, integrated temperature compensation of test system in less than 10 s by means of integrated power meter
- GUI for signal parameter setting and system calibration
- Full system calibration (level and phase) in less than 40 min by means of power meter and combiner
- Software libraries for easy integration into main test software

Typical system configuration (left) and test signal generation (right)



Technical information

Frequency range	1 GHz to 6 GHz
Signal generation	
Maximum number of RF channels	10
Level range	-135 dBm to -17 dBm
Phase	±360°
Fast leveling mode	< 1 μs/step over 50 dB dynamic range with 0.15 dB relative level accuracy (I/Q mode)
Signal types	<ul style="list-style-type: none"> continuous pulse (≥ 100 ns, 10 ns resolution) stored waveform (up to 120 MHz bandwidth, larger bandwidth on request)
Signal measurement	<ul style="list-style-type: none"> spectrum analysis analysis of analog and digital signals (cTSVP)
Interface to EUT	programmable digital interface for communication with EUT
Interface to test system	software driver for control via standard software (e.g. LabView)
Temperature range	+10°C to +40°C

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

Phase-coherent multichannel signal simulation | PD 5214.3052.92 | Version 01.00

September 2009 | Data without tolerance limits is not binding | Subject to change

Printed in Germany (sv)