

ACCELERATE QUALITY AND EFFICIENCY IN AUTOMOTIVE RADAR PRODUCTION

In the fast-paced world of automotive manufacturing, ensuring reliability and precision in radar sensors is paramount. Rohde & Schwarz provides advanced production testing solutions for automotive radar sensors and empowers tier 1 suppliers to deliver exceptional performance, safety and efficiency.



AREG800A automotive radar echo generator with mmWave remote frontend

Your task

When producing automotive radars, tier 1 suppliers rigorously test target detection accuracy, measure EIRP and bandwidth, and calibrate radar sensors.

For test cases, radar target simulators are essential tools in automotive radar sensor production. They are used to mimic real-world objects with independent range, speed and radar cross section (RCS), allowing manufacturers to test and validate performance and calibrate radar sensors under controlled and repeatable conditions.

Radar target simulators enable the high throughput testing crucial for large-scale production. They allow rapid and efficient testing of each radar unit, ensuring that production lines keep up with demand without compromising quality. This efficiency is vital for tier 1 suppliers who need to meet tight production schedules while maintaining high quality standards.

Incorporating radar target simulators into the production process is a cost-effective way to accomplish quality

assurance. By catching defects and performance issues during production, suppliers can reduce warranty claims and avoid costly recalls. This proactive approach to quality control saves money, enables suppliers to bring their products to market with confidence and protects their reputation as suppliers of high-quality products.

Rohde & Schwarz solution

With precision engineering, advanced technology and an optimized feature set, the AREG800A R&S®AREG-P fixed product configuration versions are the perfect choice for ensuring accuracy, efficiency and reliability in the end-of-line production testing process for automotive radar sensors.

The R&S®AREG-P solutions from Rohde & Schwarz ensure a seamless transition of radar sensors from R&D to production for tier 1 suppliers that develop automotive radars using the AREG800A automotive radar echo generator.

Rohde & Schwarz production solutions offer both technology and business benefits. Technology benefits include automotive radar echo generator (AREG) technology transition, variable object distance, waveform agnostic, minimum distance equal to air gap and compact antenna test range (CATR) reflector technology transition for vertical and horizontal systems. Among the business benefits these solutions offer are capital expenditure (CAPEX) reduction and distribution, operating expenses (OPEX) reduction and optimization, time to market (TTM) minimization, failure risk reduction, production process optimization and improvement of the connection between R&D and production.

Application Card | Version 01.01

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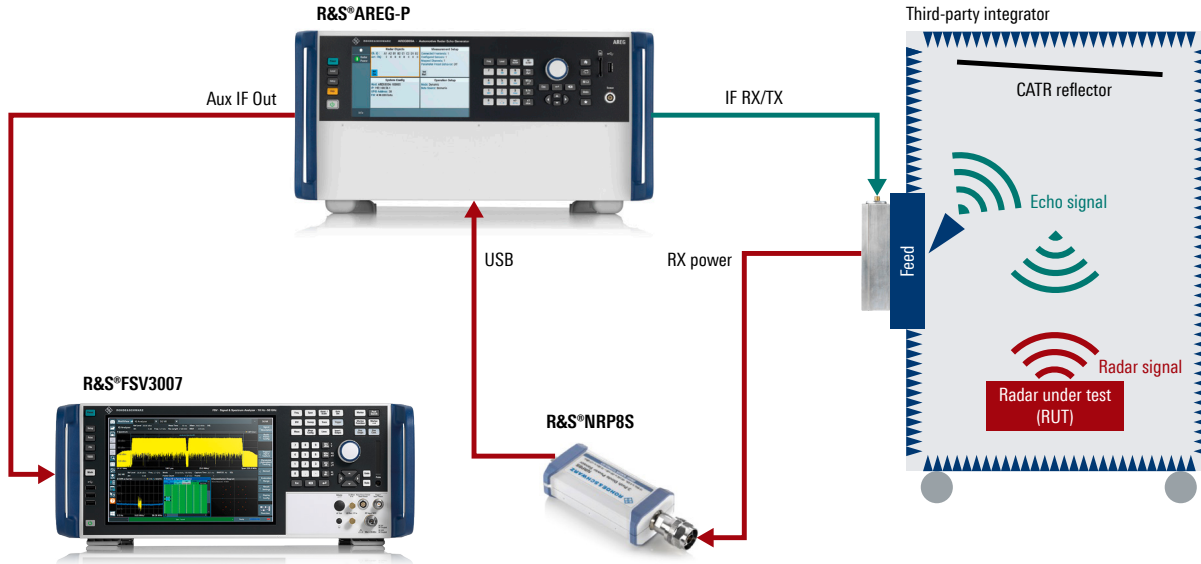
Make ideas real



The R&S®AREG-P solutions excel with outstanding specifications such as:

- ▶ Full-range coverage from airgap to 350 m
- ▶ RF instantaneous bandwidth: 5 GHz
- ▶ Range step size: 1 cm
- ▶ Range accuracy: ±5 cm
- ▶ Doppler range: ±500 km/h
- ▶ Doppler step size: 0.05 km/h
- ▶ Doppler accuracy: ≤ 0.05 km/h
- ▶ RCS range: 90 dB
- ▶ RCS step size: 0.1 dB

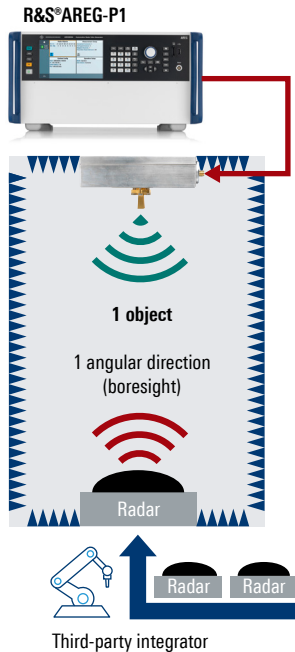
Basic setup using a CATR based OTA test chamber



R&S®AREG-P CONFIGURATIONS FOR AUTOMOTIVE RADAR PRODUCTION TEST

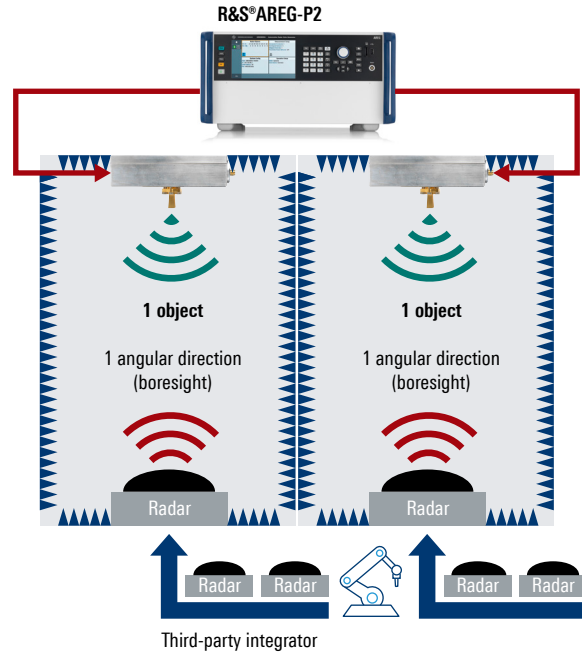
Radar mini

The R&S®AREG-P1 configuration with one base unit and one mmWave remote frontend enables seamless adoption of the Rohde & Schwarz radar test technology in radar production.



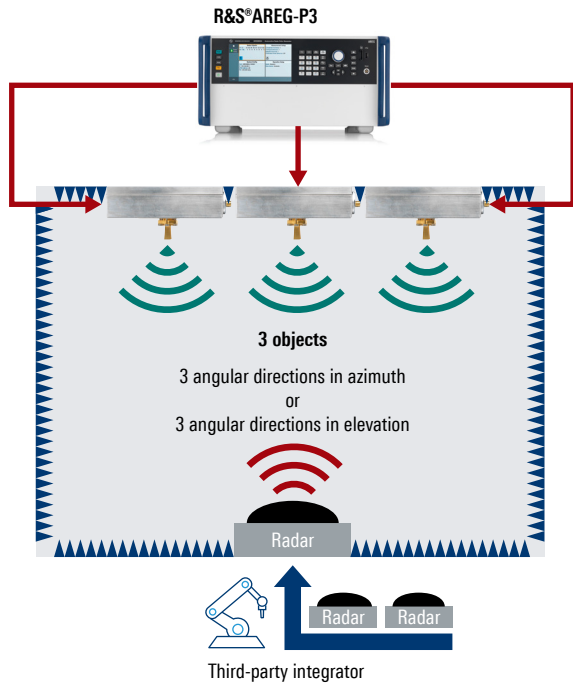
Radar golden

The R&S®AREG-P2 configuration with one base unit and two mmWave remote frontends allows parallel testing of two radars in two different chambers simultaneously using the same base unit.



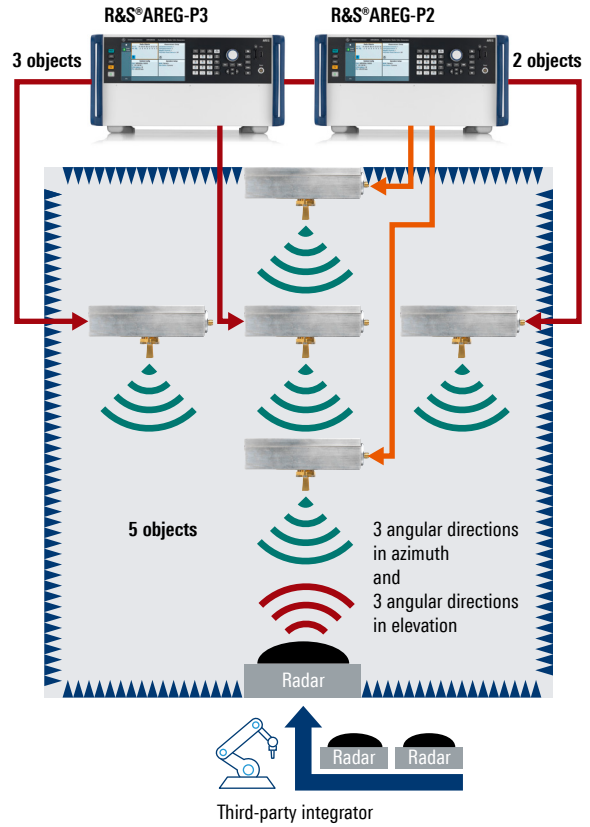
Radar pro

The R&S®AREG-P3 configuration with one base unit and three mmWave remote frontends enables an environment that prevents either azimuth sweep or elevation sweep, which minimizes test time in production.



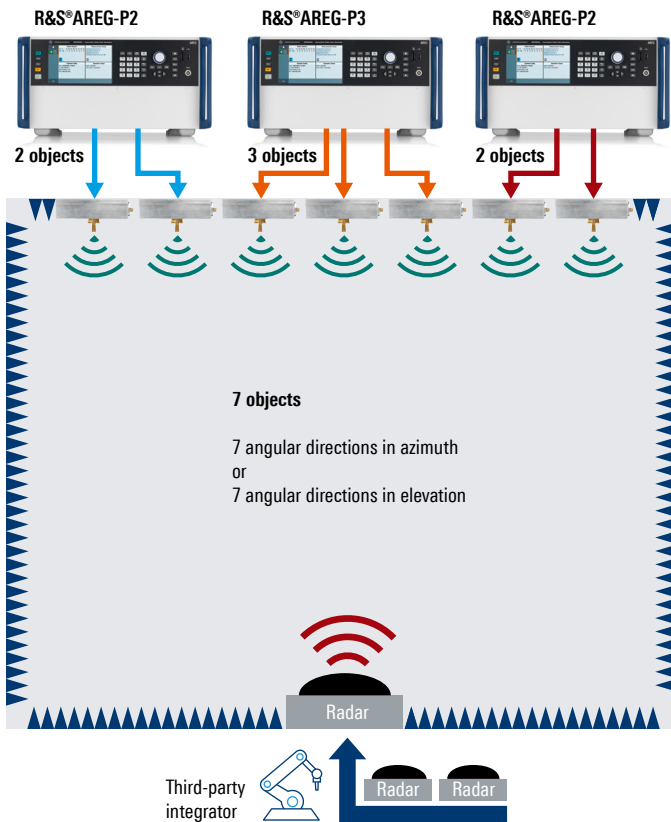
Radar golden pro

This configuration (1 × R&S®AREG-P2 and 1 × R&S®AREG-P3) contains two base units and five frontends. The solution creates an environment that prevents both azimuth sweep and elevation sweep, which minimizes test time in production.



Radar golden pro evo

This most advanced configuration (2 × R&S®AREG-P2 and 1 × R&S®AREG-P3) contains three base units and seven mmWave remote frontends covering seven angular directions. This solution is suitable for the most advanced imaging radars.



Application

The compact antenna test range (CATR) or direct far field (DFF) method for end-of-line test and calibration of automotive radar sensors, including object generation (R&S®AREG-P), EIRP (R&S®NRP8S) and bandwidth measurement (R&S®FSV3007).

Summary

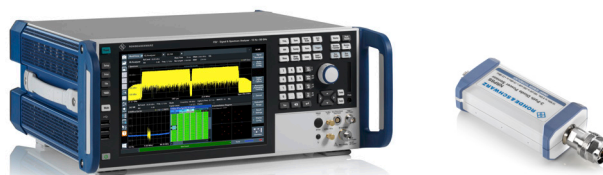
Rohde&Schwarz automotive radar production testing solutions fulfill both commercial and technical market requirements while being scalable and future-proof.

The R&S®AREG-P solutions are based on the AREG800A, the world's leading radar testing technology, and create an enabling environment for seamless transition of radar sensors from R&D to production.

R&S®AREG-P provides an efficient, professional, safe and clear path towards production process optimization while reducing testing time.



Connect up to three mmWave frontends to a single AREG800A base unit.



Measure RF bandwidth with an additional R&S®FSV3007 signal and spectrum analyzer (left) and the EIRP of the RUT with an additional R&S®NRP8S three-path diode power sensor (right).

See also

www.rohde-schwarz.com/product/areg800a

For more details see the AREG800A R&S®AREG-P fixed product configuration versions specifications document. Search for PD number 3673.1447.22 on our website: www.rohde-schwarz.com

Ordering information

Designation	Type	Order No.
Fixed product configuration versions		
Radar mini	R&S®AREG-DBP1	1437.9676P02
Radar golden	R&S®AREG-DBP2	1437.9682P02
Radar pro	R&S®AREG-DBP3	1437.9699P02
Monostatic frontend, for production	R&S®AREG-MFP	1437.9701P02
Bistatic frontend, for production	R&S®AREG-BFP	1437.9718P02
Three-path diode power sensor, 100 pW to 200 mW, 10 MHz to 8 GHz	R&S®NRP8S	1419.0006.02
Signal and spectrum analyzer, 10 Hz to 7.5 GHz	R&S®FSV3007	1330.5000.07

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