ROHDE&SCHWARZ

Make ideas real

R&S®AREG800A
AUTOMOTIVE RADAR ECHO GENERATOR

Accelerate your radar testing with the most advanced solution

YOUR CHALLENGE

Developers of new automotive radar sensors, radar based advanced driver assistance systems (ADAS) and autonomous driving (AD) features must deal with demanding challenges during each step of the development process.

Individual test scenarios or even the entire test philosophy can change during development when new unpredictable test cases emerge. Moreover, due to the increasing variety of radar sensors, growing modularity and higher number of ADAS functions as well as shorter sensor development cycles in upcoming vehicles, test procedures will become more complex. All of which require a dynamic, flexible and scalable test concept and test environment.

With the currently available test equipment, only a very limited set of test cases and scenarios can be simulated. The lack of RF stimulation solutions for radar sensors is a huge challenge today. As a result, radar sensors and ADAS functions cannot be consistently and reproducibly tested/verified throughout the sensor and ADAS feature development phases, as well as during the vehicle homologation phase on the test rig.

A new level of possibilities

The R&S®AREG800A meets today's and future test requirements and can easily be tailored to individual needs thanks to its flexible, software defined configuration concept.

The R&S®AREG800A generates multiple complex artificial objects with variable distance, radial velocity and RCS. It supports up to 4 GHz of instantaneous bandwidth in all automotive radar bands at 24 GHz and 77 GHz/79 GHz, ensuring compatibility with future short-range radar sensors and their applications, e.g. in collision avoidance systems.

Generation of dynamic objects
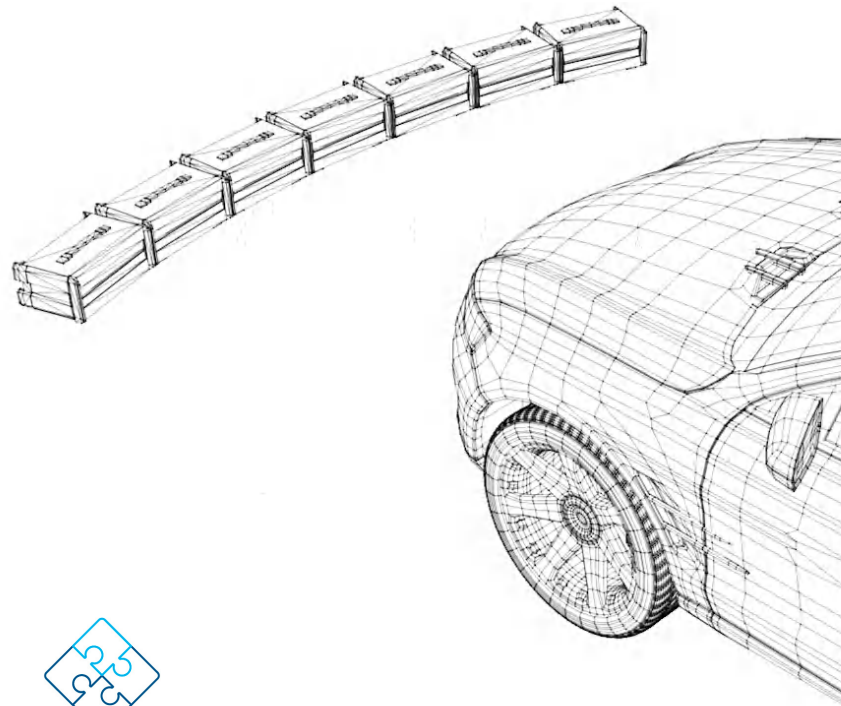
Seamless integration of R&S®AREG800A thanks to an open and standardized control interface

Open standard control interface

A robust, open real-time interface in line with the open simulation interface (OSI) specification permits control of the R&S®AREG800A in open-loop and closed-loop test environments.

## Realistic ADAS/AD scenario generation

A single R&S®AREG800A connected to an R&S®QAT100 advanced antenna array can generate echoes from up to eight different angular directions. Individual objects can be generated from all eight directions simultaneously (one per direction). Objects can have variable dynamic distance, velocity or object size (RCS). It is now possible for the first time to simulate realistic driving scenarios for automotive radar sensors during ADAS/AD tests.

Tailored to your needs

The R&S®AREG800A flexible design covers all applications from early radar sensor R&D to advanced full vehicle ADAS/AD test cases. Thanks to its field-upgradeable concept, extra features can be added easily by installing software keycodes on site. There is no need for service appointments and service turnaround times are avoided.

Scalable solution
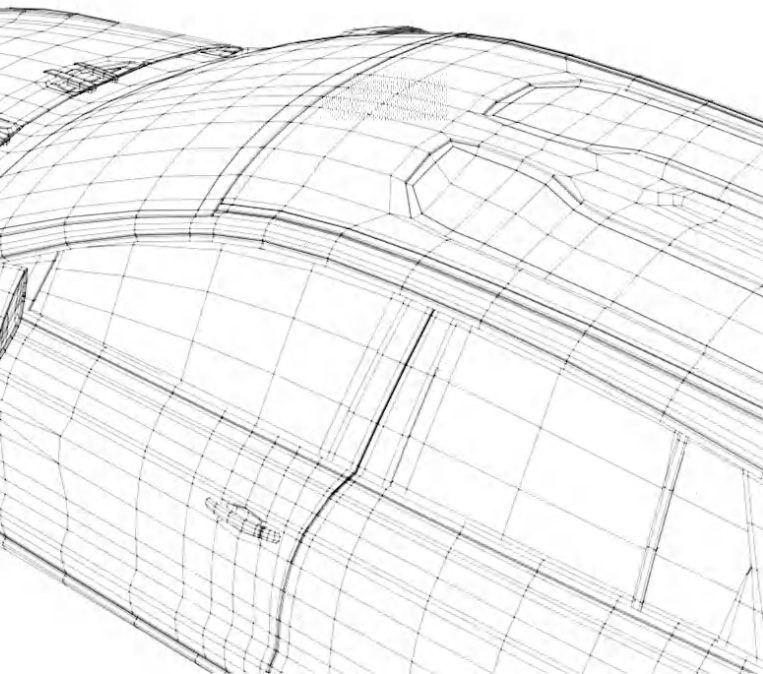
Multiple independent objects

Worldwide service and support

Worldwide service and support

The Rohde&Schwarz service network in over 70 countries ensures optimum on-site support with minimal turnaround times.

OUR SOLUTIONS

The R&S®AREG800A automotive radar echo generator is an innovative and versatile solution for testing automotive radar sensors. It supports test cases requiring single antenna frontends such as R&S®AREG8-81S or, together with the R&S®QAT100 advanced antenna array, multiple integrated antennas.

Thanks to the full harmonization of the R&S®AREG800A with the R&S®QAT100 advanced antenna array, all test requirements for the most advanced radar scenario simulations are covered.

Discover the most advanced automotive radar testing solution
The R&S®AREG800A is the key enabler for testing automotive radar sensors and ADAS/AD features. Complex artificial objects can be generated with variable distance, radial velocity, size (RCS) and azimuth angle. With an instantaneous bandwidth of 4 GHz ranging anywhere between 76 GHz and 81 GHz, the typical frequency range of today's and future automotive radar sensors is covered. Being able to simultaneously generate a large number of dynamic artificial objects makes it possible for the first time to run realistic and reproducible tests in lab environments.

Flexibility at its best
The R&S®AREG800A meets all requirements for demanding automotive radar echo generation applications:
▶ Simulation of objects with dynamic distance variation during early R&D, chipset development and radar sensor validation
▶ Hardware-in-the-loop (HiL) test cases during ADAS/AD feature and algorithm development
▶ Vehicle-in-the-loop (ViL) test cases with realistic driving scenarios on the roller dyno for vehicle certification and homologation
▶ Production of state-of-the-art 4D imaging radar sensors with high demands on the radar test equipment
▶ Simulation of angular echo distribution or multiple echoes from a single direction

Bring road reality to your lab
The R&S®AREG800A together with the R&S®QAT100 or an R&S®AREG8-xx frontend enables users to tackle major autonomous driving challenges. Driving tests for ADAS/AD feature development and validation can be transferred from the road to the test rig in a realistic manner. This streamlines R&D, testing and validation times, optimizes time to market for new radar sensors and ADAS/AD functions, and reduces R&D and test costs.

TEST IT. TRUST IT.

Easy and intuitive operation

► Intuitive graphical user interface with touchscreen control for manual operation and monitoring of the entire test setup
► Easy and straightforward test setup configuration directly on the R&S®AREG800A itself; no need for a PC
► Built-in SCPI macro recorder with code generator for easy integration into existing test software
► Linux based operating system provides maximum software stability for 24/7 test operation
► Scenario preview for fast debugging and overview

Frontends for every test case

The R&S®AREG800A perfectly addresses the industry's need for a versatile radar echo generator. With its RF frontend portfolio, the R&S®AREG800A can be tailored exactly to your application-specific testing needs:

► The innovative R&S®QAT100 advanced antenna array for generating artificial objects from varying angular directions, enabling ADAS/AD feature and scenario based test cases in the 76 GHz to 81 GHz frequency band
► Conventional millimeterwave (mmWave) remote frontends in all automotive radar bands at 24 GHz and 77 GHz to 79 GHz for benchtop sensor validation. All mmWave frontends are available in a single antenna configuration for optimized MIMO testing or in a two antenna configuration with high RX/TX isolation to minimize ringaround
► All supported RF frontends are connected by cable to the base unit and fully controlled by the R&S®AREG800A, enabling user-friendly, simple operation; the test setup works as a one-box solution
► Hot swapping between different radar bands is supported by frontend switching for maximum flexibility in the test setup

Scalability and flexibility

► Flexible, easy and sustainable adaption of test setups to new requirements and test cases thanks to a configuration concept that is mainly based on keycode-activated software options
► Incorporates simultaneous control for up to four conventional mmWave frontends or up to eight R&S®QAT100 advanced antenna arrays for a simple extension of test capabilities
► Calibrated IF input and output interfaces to connect further test and measurement equipment for automotive radar measurement tasks (for example, testing of robustness against interfering signals using a connected signal generator, or signal monitoring using a connected signal and spectrum analyzer)

DISCOVER THE MOST ADVANCED AUTOMOTIVE RADAR TESTING SOLUTION

Generation of dynamic artificial objects

▶ Generate multiple complex artificial objects with individually variable distance, radial velocity and object size (RCS) for advanced automotive radar test cases

▶ Together with the R&S®QAT100 advanced antenna array, generate artificial objects with individual angular directions for ADAS/AD scenario based testing

▶ Standard artificial object distances ranging from 17 m to > 1000 m

▶ Minimum object distance can be reduced down to < 4 m with an optional internal analog stepped delay line, e.g. for autonomous emergency braking (AEB) tests

▶ Designed for scenario generation: Simulate up to eight artificial objects with individual distance, object size, radial velocity and azimuth angular direction when used together with the R&S®QAT100

▶ Up to 32 objects with individual distance, object size and radial velocity when used together with four R&S®AREG800A mmWave frontends

Real-time interface

▶ Built-in real-time interface for hardware-in-the-loop and vehicle-in-the-loop test setups

▶ Support of the open simulation interface (OSI) as open and generic interface for environmental perception of ADAS/AD features with scenario update rates < 20 ms

▶ Synchronization of multiple R&S®QAT100 advanced antenna arrays and R&S®AREG800A automotive radar echo generators to generate dense scenarios with a large number of individual artificial objects

▶ Synchronous parallel over-the-air simulation of multiple automotive radar sensors to test advanced ADAS/AD features involving multiple radar sensors, and sensor data fusion

FLEXIBILITY AT ITS BEST FOR SENSOR VALIDATION IN R&D

Highest test case flexibility thanks to remote frontends

Performance-optimized T&M equipment is required for validating and optimizing future automotive radar sensors. Test cases typically include a wide range of RF parameters that need to be checked for final acceptance tests. As the core of radar test and validation setups, the R&S®AREG800A provides R&D engineers with a versatile and future-proof radar tester for evaluating all relevant sensor parameters. Thanks to the modular concept and support for the conventional mmWave frontends (R&S®AREG8-81S/D, R&S®AREG8-24S/D, etc.), it can easily be adapted to the testing requirements of different sensor products and OEMs. Separate frontends for 24 GHz and 77 GHz to 79 GHz permit hot swapping between different radar bands. If a radar sensor specification requires more advanced test cases, for example angular artificial object separability performance tests of a RUT, the R&S®AREG800A together with the R&S®QAT100 is the right solution for these challenges.

Validation of most modern 4D imaging radar sensors

The R&S®AREG800A together with the R&S®ATS1500C antenna measurement chamber forms a harmonized solution to accurately validate and calibrate automotive radars under far-field conditions to create a reliable basis for ADAS/AD features. The AREG800A easily integrates with the chamber. With the conventional mmWave frontends in single antenna configuration, DUTs can be tested under far-field conditions.

The R&S®ATS1500C, which was specially developed for testing the latest automotive radar sensors, is based on the compact antenna test range (CATR) principle to provide measurements under far-field conditions in a compact footprint, even for premium MIMO sensors. The R&S®AREG800A and conventional R&S®AREG mmWave frontends are perfect for this use case.

R&S®AREG800A and R&S®ATS1500C: A perfect team for the development of 4D imaging radars.

R&S®AREG800A: The right frontend for every test challenge.

Generation of dynamic artificial objects for every application

The R&S®AREG800A automotive radar echo generator can be operated with the R&S®QAT100 advanced antenna array or conventional mmWave frontends.

A single R&S®AREG800A connected to an R&S®QAT100 antenna can generate echoes from up to eight different angular directions. Individual objects can be generated from all eight directions simultaneously (one per direction) or from one direction after the other; an ideal solution for advanced scenario generation like the test cases defined by Euro NCAP.

When the R&S®AREG800A is used together with the remote mmWave frontends, up to four mmWave frontends can be connected to a single base unit with up to eight individual artificial objects per mmWave frontend.

Individual artificial objects can have variable, dynamic distance, velocity and object size (RCS).
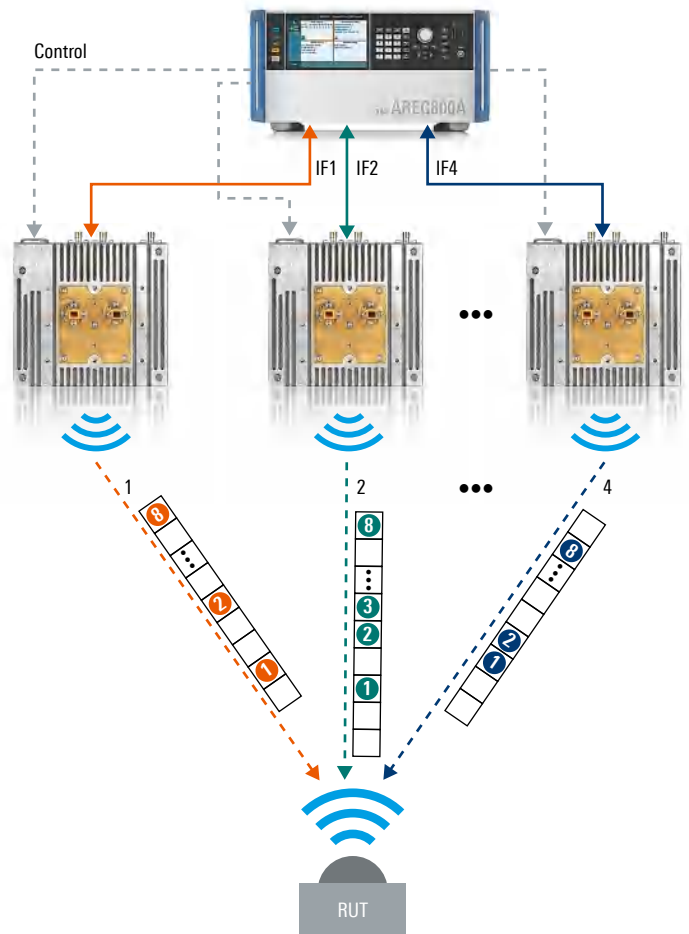
R&S®AREG800A together with R&S®QAT100

Up to eight independent angular directions with a maximum of one individual artificial object per direction.
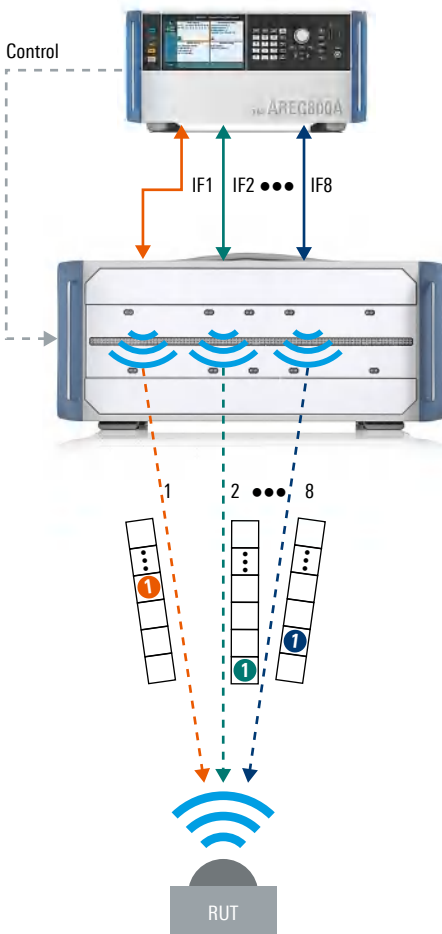
R&S®AREG800A together with mmWave remote frontends

Up to four mmWave frontends can be connected to a single base unit, with up to eight individual artificial objects generated per frontend.

# BRING ROAD REALITY TO YOUR LAB WITH REALISTIC HiL TESTING

When testing new ADAS/AD features, the first steps are performed in hardware-in-the-loop/closed-loop setups where the radar sensor and associated ADAS electronic control unit (ECU) are stimulated according to simulated driving scenarios.

Reliable closed-loop sensor tests require that the driving scenario parameters calculated by the scenario simulator are correctly synchronized for the test subsystems. The R&S®AREG800A as core element of a closed-loop test system has a built-in real-time control interface that can process artificial object data provided by the driving scenario simulator. With scenario update rates quicker than 20 ms and OSI support, the R&S®AREG800A perfectly addresses the requirements of closed-loop test systems for realistic and reproducible scenario generation.

ADAS/AD functions such as recognizing when a vehicle cuts in rely on fusing data from several radar sensors covering the front, side and back of the vehicle. The R&S®AREG800A together with the R&S®QAT100 is ideal for testing such highly complex scenarios. The

R&S®AREG800A enables synchronous parallel stimulation of multiple automotive radar sensors for testing challenging ADAS/AD functions.

Scenario based ADAS/AD function test with parallel sensor stimulation using R&S®AREG800A and R&S®QAT100
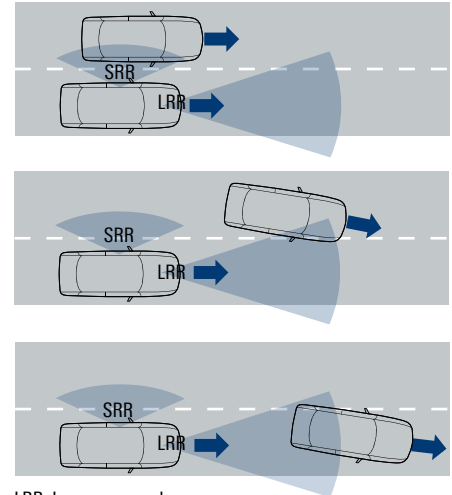
LRR: Long-range radar
SRR: Short-range radar

Example of a closed-loop test setup based on the R&S®AREG800A, with angular artificial object directions generated by the R&S®QAT100
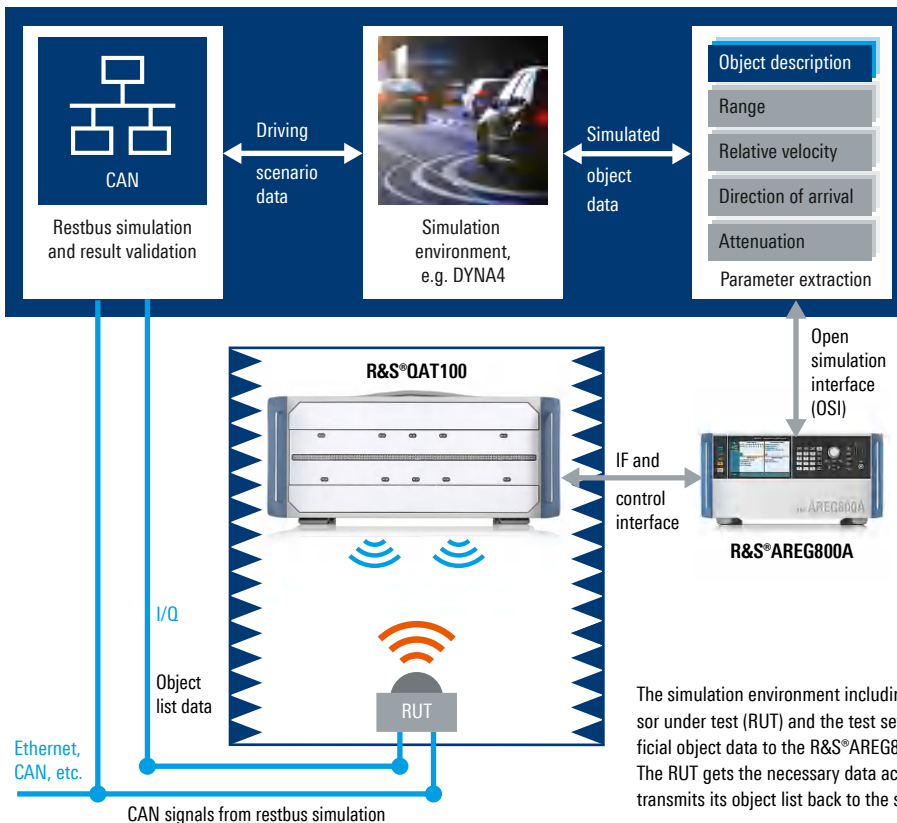
The simulation environment including restbus simulation closes the loop between the radar sensor under test (RUT) and the test setup. The simulation environment streams the simulated artificial object data to the R&S®AREG800A, which generates the objects using the R&S®QAT100. The RUT gets the necessary data according to the scenario from the restbus simulation and transmits its object list back to the simulation environment and to the result validation.

TEST LIKE IT IS REAL – FROM ROAD TO RIG FOR ViL TESTING

The R&S®AREG800A together with the R&S®QAT100 as part of the AVL DRIVINGCUBE™ opens a completely new field of possibilities for testing radar based ADAS and AD features, ensuring correct operation in vehicle-in-the-loop (ViL) test beds. Using the ready-to-drive vehicle mounted on a test bed increases efficiency and safety in scenario based testing during validation and certification of ADAS/AD features.

Reducing the number of accidents and severe injuries is one of the major goals of autonomous driving. Advanced driver assistance functions are just an intermediate step on the journey towards self-driving cars with full autonomy.

Some functions, like adaptive cruise control (ACC), increase driver comfort or compensate for a lack of driver attention. Other functions like autonomous emergency braking (AEB) are relevant for Euro NCAP testing and are therefore extensively tested.

With the R&S®AREG800A and the R&S®QAT100 integrated into the DRIVINGCUBE™ solution from AVL, defined Euro NCAP test cases can be executed with maximum repro-ducibility, thanks to the complete absence of mechanical moving components. The test setup is unaffected by the strong vibrations that typically occur on ViL test beds. No matter what your ViL testing challenge is, the flexible and scalable concept of the R&S®AREG800A and R&S®QAT100 always provides an appropriate solution. Multiple R&S®QAT100 can be combined to cover larger fields of view.

Rohde & Schwarz together with AVL: A successful partnership provides a game changing ViL solution

Scenario testing for ADAS and AD in line with Euro NCAP

Scenario	Covered by Rohde & Schwarz solution
Autonomous emergency braking (AEB) – city	yes
Autonomous emergency braking (AEB) – pedestrian	yes
Autonomous emergency braking (AEB) – cyclist	yes
Autonomous emergency braking (AEB) – interurban	yes
Lane support	yes
Adaptive cruise control (ACC)	yes

STAY SAFE ON THE ROAD – PRODUCE HIGH QUALITY 4D IMAGING RADAR SENSORS

Testing state-of-the-art automotive radar sensors in tier 1 production

The R&S®AREG800A together with its conventional mmWave frontends is a versatile tester for automotive radar sensors. It can be tailored to all manufacturing processes including initial sensor calibration, with test cases such as antenna pattern measurement and functional testing. Continuous product quality control can be ensured and faulty sensors can be reliably identified.

Being able to generate multiple artificial objects with dynamic distance, radial velocity and object size (RCS) means that maximum test case flexibility can be achieved. Production test engineers benefit from a flexible, future-proof and at the same time robust solution.
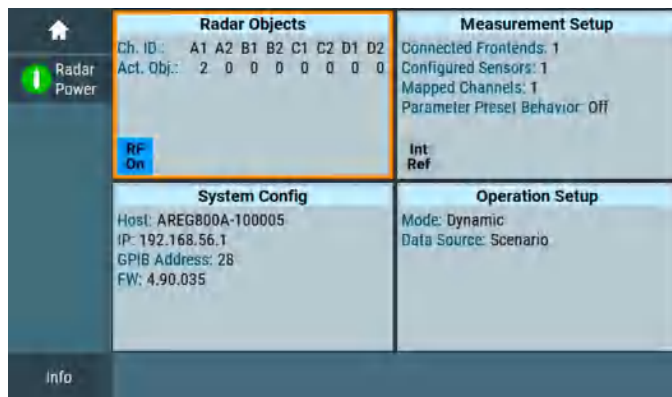
With a signal and spectrum analyzer connected to the IF output interface of the R&S®AREG800A, the relevant indicators for radar sensor quality, e.g. occupied bandwidth and equivalent isotropically radiated power (EIRP) of the radar sensor under test can be measured.

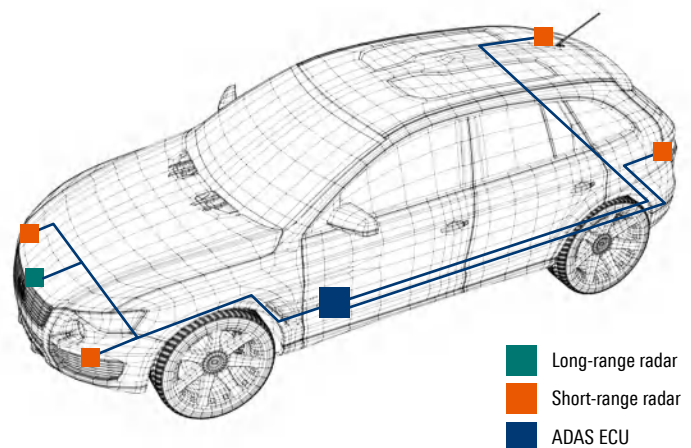## Radar sensor validation in OEM automotive assembly lines

To ensure customer satisfaction and reduce aftersales service effort for the OEM, the radar based ADAS sensors need to work as intended when a vehicle leaves the production line. After final integration of the automotive radar sensors into the car bumpers, conducting a function test and initializing the ADAS sensors are extremely important steps during final in-depth testing at the end of the vehicle assembly line.

Cars typically have one long-range radar (LRR) sensor for adaptive cruise control and multiple short-range radar (SRR) sensors for collision avoidance systems. All long-range radar sensors and short-range radar sensors installed in a car need to be examined. OEMs crosscheck the correct sensor mounting and overall functionality. With the R&S®AREG800A, these tests can be optimized as multiple synchronized frontends can be used together with one base unit. Synchronous sensor testing saves test time, reduces overall costs and minimizes the footprint in production.

With the simple and intuitive graphical user interface and the built-in R&S®AREG800A touchscreen, the status of the production test system can be easily monitored.

The R&S®AREG800A enables time, cost and footprint optimized testing of all SRRs and LRRs installed on a single vehicle at OEM assembly lines.

- Long-range radar
- Short-range radar
- ADAS ECU

PERFECTLY TAILORED TO YOUR TEST APPLICATIONS ALONG THE AUTOMOTIVE RADAR ECO CHAIN
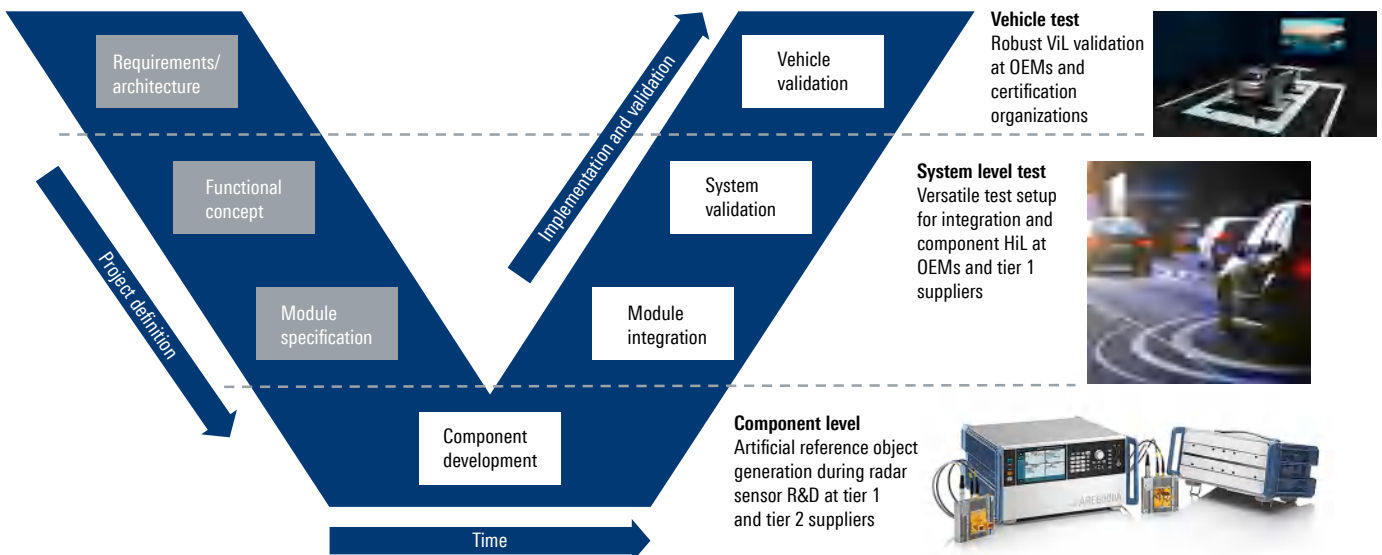
Seamless radar sensor validation in line with the V model

V models are often used in the automotive industry to optimize development project scheduling. Thanks to the flexibility of the R&S®AREG800A and the variety of applications that can be addressed with it, tailored reference solutions starting from component development up to vehicle validation are available:

► **Component level:**
  Generation of artificial objects with dynamic distances, object size and radial velocity during chipset development for tier 2 and radar sensor R&D for tier 1
► **System level test:**
  Hardware-in-the-loop (HiL) test cases; during radar sensor module integration and full system validation of ADAS/AD features at tier 1 and OEMs
► **Vehicle test:**
  Vehicle-in-the-loop (ViL) test cases with realistic driving scenarios on the roller dyno for vehicle certification and homologation at both the OEM and the certification organizations

The V model for automotive radar and ADAS/AD development

The R&S®AREG800A addresses all radar sensor tests during component R&D and ADAS/AD implementation and validation.

Vehicle test
Robust ViL validation at OEMs and certification organizations

System level test
Versatile test setup for integration and component HiL at OEMs and tier 1 suppliers

Component level
Artificial reference object generation during radar sensor R&D at tier 1 and tier 2 suppliers

FROM PRESALES TO SERVICE.
AT YOUR DOORSTEP.

The Rohde & Schwarz network in over 70 countries ensures optimum on-site support by highly qualified experts.

User risks are reduced to a minimum at all project stages:
▶ Solution finding/purchase
▶ Technical startup/application development/integration
▶ Training
▶ Operation/calibration/repair

SPECIFICATIONS IN BRIEF

Specifications in brief		
Remote frontends and general concept		
Echo generator type		dynamic artificial object generation
Echo generation concept		hybrid – analog stepped delay line for short object distances < 17 m; larger distances with fully digital implementation
Supported remote frontends	R&S®AREG8-24S/-24D/-81S/-81D	conventional mmWave frontends
	R&S®QAT100	innovative R&S®QAT100 electrically controllable antenna array
Maximum number of remote frontends per R&S®AREG800A base unit	R&S®AREG8-24S/-24D/-81S/-81D	up to 4 conventional mmWave frontends
	R&S®QAT100	up to 8 R&S®QAT100
Frequency range		
Instantaneous RF bandwidth	R&S®AREG8-B9	1 GHz
	R&S®AREG8-B9 with R&S®AREG8-K527	2 GHz
	R&S®AREG8-B9 with R&S®AREG8-K527 and R&S®AREG8-K528	4 GHz
RF frequency bands	with R&S®AREG8-24S/-24D	24 GHz to 24.25 GHz
	with R&S®AREG8-81S/-81D	76 GHz to 81 GHz
	with R&S®QAT100	76 GHz to 81 GHz
Artificial objects		
Minimum artificial object distance	R&S®AREG8-B9	< 17 m + air gap (meas.)
	R&S®AREG-B9 with R&S®AREG-B63	< 4 m + air gap (meas.)
Covered distance range of artificial objects	R&S®AREG-B9	< 17 m to 3 km (meas.)
	R&S®AREG-B9 with R&S®AREG-B63	< 4 m to 3 km (meas.)
Maximum number of artificial objects per R&S®AREG800A	with R&S®QAT100	
	artificial object distance < 4 m to 17 m + air gap	up to 4 with individual azimuth, distance, RCS, Doppler
	artificial object distance > 17 m + air gap	up to 8 with individual azimuth, distance, RCS, Doppler
	with R&S®AREG8-24S/-24D/-81S/-81D	
	artificial object distance < 4 m to 17 m + air gap	up to 4 (1 per frontend)
	artificial object distance > 17 m + air gap	up to 32 (up to 8 per frontend)
Object distance accuracy		±5 cm (meas.)
Object distance step size		< 2.5 cm (nom.)
Air gap	Object distances and resulting object radar cross-sections will change according to the distance between frontend reference plane and DUT.	recommendation: air gap should be large enough to match far-field condition of radar under test
Radial velocity		
Individual Doppler frequency shift for each artificial object		yes
Velocity setting range	R&S®AREG8-B9	±500 km/h
Velocity step size	R&S®AREG8-B9	0.001 km/h
Level		
Dynamic RCS range for all artificial objects on one IF path together	with R&S®AREG8-24S/-24D/-81S/-81D	90 dB
	with R&S®QAT100	> 60 dB
Dynamic RCS range for multiple objects per IF path	with R&S®AREG8-24S/-24D/-81S/-81D	60 dB
	with R&S®QAT100	–
RCS control step size		0.5 dB
Amplitude flatness	R&S®QAT100 standalone	< ±5 dB in 4 GHz bandwidth (meas.)

Specifications in brief

IF input/IF output interface

IF output port for radar signal analysis and EIRP measurements	R&S®AREG8-K740	IF outputs available on base unit
IF input port for superimposing interferers	R&S®AREG8-K741	IF inputs available on base unit

Hardware-in-the-loop (HiL) interface

Dedicated HiL interface	R&S®AREG8-K109	HiL coprocessor
Open standard protocol support		open simulation interface (OSI)

User interface and remote controls

Graphical user interface with touch controls		yes
Remote control interfaces		Ethernet
	R&S®AREG8-K986	GPIB
Remote control command set		SCPI

General parameters

Dimensions (W × H × D)	base unit	462 mm × 240 mm × 504 mm (18.15 in × 9.44 in × 19.81 in) 5 HU, 19" width
Weight	base unit (depends on options)	15 kg to 26 kg (33.07 lb to 57.32 lb)

ORDERING INFORMATION

R&S®AREG-Bxxx = hardware option; R&S®AREG-Kxxx = software/keycode option

Designation	Type	Order No.
Base unit		
Automotive radar echo generator, including power cable, quick start guide	R&S®AREG800A	1437.4400.02
Hardware options		
Baseband		
Digital baseband with 1 GHz IF bandwidth, 1 IF path and 1 individual artificial object	R&S®AREG8-B9	1437.8011.02
Analog stepped delay line, for short object generation with 1 IF path and 1 individual artificial object	R&S®AREG8-B63	1437.8205.02
Software options		
Bandwidth upgrade		
Baseband extension from 1 GHz to 2 GHz IF bandwidth, for 1 IF path	R&S®AREG8-K527	1437.9882.02
Baseband extension from 2 GHz to 5 GHz IF bandwidth, for 1 IF path	R&S®AREG8-K528	1437.9799.02
Baseband enhancements		
Activation of second IF path for one AREG8-B9 baseband with 1 GHz bandwidth and 1 individual object	R&S®AREG8-K570	1437.9899.02
One additional artificial object, for all IF paths	R&S®AREG8-K812	1437.9853.02
Extended Doppler frequency shift up to 10 MHz	R&S®AREG8-K813	1437.9901.02
Intermediate frequency ports and control interfaces		
Analog IF output interfaces	R&S®AREG8-K740	1437.9830.02
Analog IF input interface	R&S®AREG8-K741	1437.9847.02
Hardware-in-the-loop control interface	R&S®AREG8-K109	1437.9860.02
Synchronization interface, for multiple R&S®AREG800A generators	R&S®AREG8-K549	1437.9876.02
Remote control GPIB	R&S®AREG8-K986	1437.9818.02
Remote frontends		
mmWave remote frontends		
24 GHz to 24.25 GHz, single antenna, 250 MHz RF bandwidth	R&S®AREG8-24S	1437.8611.02
24 GHz to 24.25 GHz, two antennas, 250 MHz RF bandwidth	R&S®AREG8-24D	1437.8640.02
76 GHz to 81 GHz, single antenna, 4 GHz RF bandwidth	R&S®AREG8-81S	1437.8734.02
76 GHz to 81 GHz, two antennas, 4 GHz RF bandwidth	R&S®AREG8-81D	1437.8763.02
R&S®QAT100 advanced antenna array		
Advanced antenna array, from 76 GHz to 81 GHz	R&S®QAT100	1341.0004.02
Second line of 96 transmit antennas, for the R&S®QAT100	R&S®QAT-B2	1341.0162.02
Shielding system, for one R&S®QAT100, length: 50 cm	R&S®QAT-Z50	1341.0156.02

Warranty		
Base unit and all frontends (mmWave frontends and R&S®QAT100)		3 years
All other items [1]		1 year
Service options		
Extended warranty, one year	R&S®WE1	
Extended warranty, two years	R&S®WE2	
Extended warranty with calibration coverage, one year	R&S®CW1	Please contact your local Rohde&Schwarz sales office.
Extended warranty with calibration coverage, two years	R&S®CW2	
Extended warranty with accredited calibration coverage, one year	R&S®AW1	
Extended warranty with accredited calibration coverage, two years	R&S®AW2	

[1] For options installed, the remaining base unit warranty applies if longer than 1 year. Exception: all batteries have a 1 year warranty.

Rohde & Schwarz

The Rohde & Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test & measurement, technology systems and networks & cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

www.rohde-schwarz.com

Sustainable product design

► Environmental compatibility and eco-footprint
► Energy efficiency and low emissions
► Longevity and optimized total cost of ownership

Certified Quality Management	Certified Environmental Management
ISO 9001	ISO 14001

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