

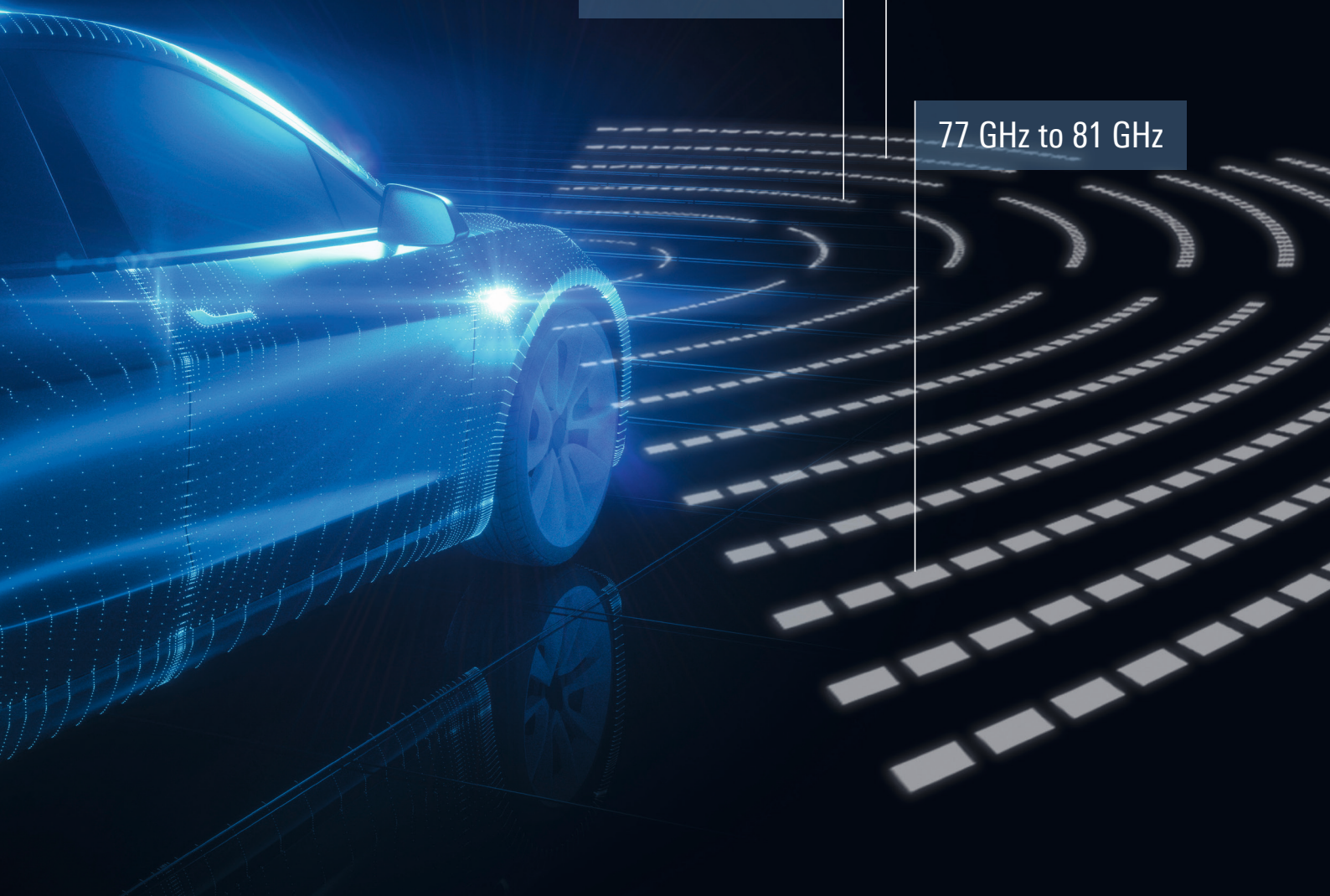
ROHDE & SCHWARZ

Make ideas real



TEST TODAY'S AND TOMORROW'S RADAR SENSORS

The new R&S[®]AREG100A automotive radar echo generator



24 GHz to 24.25 GHz

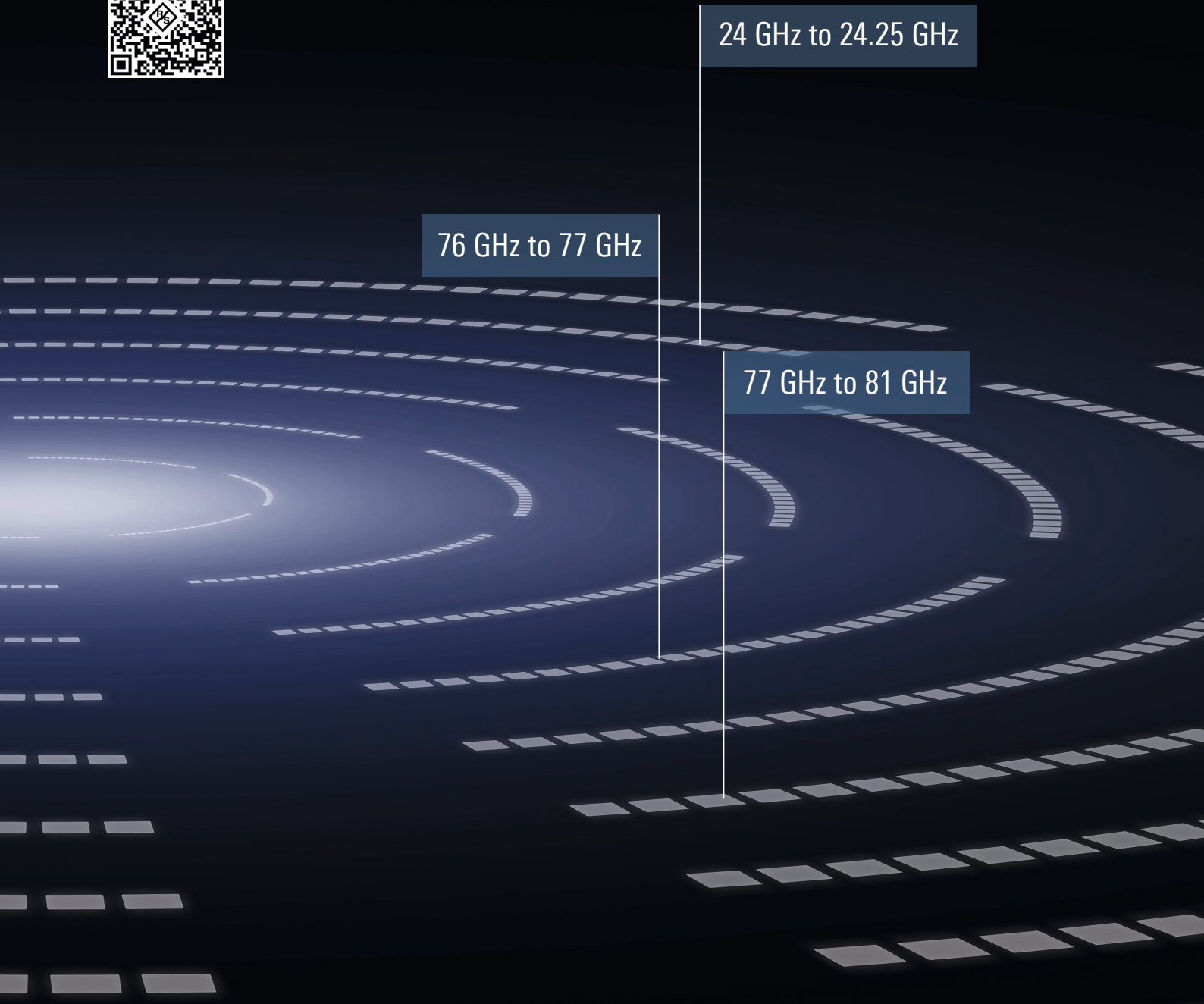
76 GHz to 77 GHz

77 GHz to 81 GHz

The R&S®AREG100A automotive radar echo generator is an intelligent and robust solution for testing automotive radar sensors in production. The echo generator gives production engineers the advantage of test case flexibility combined with simple and robust operation. Thanks to the experience of Rohde & Schwarz in mmWave technology, OEMs and tier 1 sensor suppliers benefit from innovative frontend designs for the 24 GHz ISM band and E-band. The E-band frontend is available from 76 GHz to 77 GHz for testing long range radar sensors and from 76 GHz to 81 GHz for testing today's long range radar sensors and tomorrow's most advanced short range radar sensors with an instantaneous bandwidth up to 4 GHz.

Find out more about challenges and our solutions here:

www.rohde-schwarz.com/automotive-radar-testing



24 GHz to 24.25 GHz

76 GHz to 77 GHz

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BENEFITS OF THE R&S® AREG100A

Automotive Radar Echo Generator

The R&S® AREG100A automotive radar echo generator is the core element for performing radar tests at the end of production lines. The echo generator gives production engineers the advantage of test case flexibility combined with simple and robust operation.

Simple and stable operation

The Linux based operating system is optimized for maximum software stability. An intuitive GUI for user-friendly operation and an SCPI macro recorder with automatic code generator help engineers quickly configure test cases.

Reliable and flexible echo generation

Production engineers profit from test case flexibility combined with simple and robust operation. Up to four artificial objects at fixed distances starting at 4 m can be simulated. Test engineers define the fixed object distances at the time of order for maximum test case flexibility and a cost-optimized tester. A fully calibrated delay path throughout the tester, including the frontend, ensures maximum accuracy of the inserted delay. An additional Doppler offset can be configured for each object to simulate radial velocity.

Worldwide service and 3-year warranty

The Rohde & Schwarz service network in over 70 countries ensures optimum on-site support with minimal turnaround times. The 3-year warranty safeguards customers' investments.

Ready for RED – simple and repeatable interferer generation

An automotive radar sensor's immunity to interferers is one of its key performance indicators. Verify the robustness of radar sensors to in-band interferers – with a connected analog or vector signal generator – and simulate wanted echoes together with interfering signals.

Ready for RED – precise EIRP measurement

Automotive radar sensor transmitters must comply with the applicable RED standards. The sensor's equivalent radiated isotropic power (EIRP) can be measured in line with the applicable standards by connecting a R&S® NRP8S(N) power sensor. Occupied bandwidth and spurious emissions can be measured by connecting a signal and spectrum analyzer.



Test today's and tomorrow's radar sensors

Choose a 24 GHz ISM band frontend or an E-band frontend with a single-antenna configuration for superior MIMO testing or a two-antenna configuration for high isolation between the RX and TX antenna. Benefit from a future-proof, wideband E-band frontend with 4 GHz instantaneous bandwidth for short range radar sensor tests with any FMCW or I/Q modulated radar signal.

SPECIFICATIONS IN BRIEF

Specifications in brief

Frequency

Frequency range	R&S®AREG-B124S/-B124D	24.0 GHz to 24.25 GHz, single or dual antenna
	R&S®AREG-B177S/-B177D	76.0 GHz to 77.0 GHz, single or dual antenna
	R&S®AREG-B181S/-B181D	76.0 GHz to 81.0 GHz, single or dual antenna

Signal bandwidth

Instantaneous bandwidth	R&S®AREG-B124S/-B124D	250 MHz
	R&S®AREG-B177S/-B177D	1 GHz
	R&S®AREG-B181S/-B181D	4 GHz from 76 GHz to 81 GHz (configurable: either 76 GHz to 80 GHz or 77 GHz to 81 GHz)

Artificial objects

Object type		fixed distance
Total number of objects		4
Object distances with R&S®AREG-B61	up to one R&S®AREG-B61 option	3.2 m (nom.) + air gap
Object distances with R&S®AREG-B62	up to three R&S®AREG-B62 options, desired distance (incl. air gap) for each option must be specified during the ordering process along with the desired air gap valuedistance	4.2 m to 299.2 m (nom.) + air gap
Air gap	The distance between frontend reference plane and DUT must be defined at time of ordering. A change after ordering is possible, but object distances and resulting object radar cross sections will change accordingly.	recommendation: air gap should be large enough to match far field condition of radar under test

Radial velocity

Doppler frequency shift	with R&S®AREG-K799 Doppler frequency shift, for all artificial objects together	yes
Individual Doppler frequency shift	with R&S®AREG-B60 ¹⁾ Doppler frequency shift, for each artificial object individually	yes
Velocity setting range	R&S®AREG-B60 and R&S®AREG-K799	±500 km/h

Level

Absolute maximum RX power at frontend RX waveguide port	R&S®AREG-B124S/-B124D	0 dBm (nom.)
	R&S®AREG-B177S/-B177D	-7 dBm (nom.)
	R&S®AREG-B181S/-B181D	-7 dBm (nom.)
Maximum TX power at frontend TX waveguide port	R&S®AREG-B124S/-B124D	≥ 15 dBm (meas.)
	R&S®AREG-B177S/-B177D	≥ 20 dBm (meas.)
	R&S®AREG-B181S/-B181D	≥ 18 dBm (meas.)
Receive/transmit gain control setting range	all artificial objects together	> 90 dB (meas.)
	each object individually	55 dB (meas.)
Receive/transmit gain control step size		0.5 dB (nom.)

IF input/IF output

IF input/output interfaces	with R&S®AREG-B17 option	calibrated IF outputs on frontend and base unit calibrated IF input on base unit
IF input gain	from auxiliary TX IF In port (at IF frequency) to frontend TX waveguide output (at RF frequency)	
	R&S®AREG-B124S/-B124D, RF frequency = 24.125 GHz	20 dB (meas.)
	R&S®AREG-B177S/-B177D, RF frequency = 76.5 GHz	20 dB (meas.)
	R&S®AREG-B181S/-B181D, RF frequency = 78 GHz or 79 GHz	20 dB (meas.)
IF input compression P1dB	level at TX IF In port (at IF frequency)	
	R&S®AREG-B124D	1 dBm (meas.)
	R&S®AREG-B177D	1 dBm (meas.)
	R&S®AREG-B181D	-5 dBm (meas.)

Connectivity

Remote control		Ethernet
	with R&S®AREG-B86 option	GPIB, USB

¹⁾ Under development.

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.

www.rohde-schwarz.com

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- | Local and personalized
- | Customized and flexible
- | Uncompromising quality
- | Long-term dependability

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- ▶ Energy efficiency and low emissions
- ▶ Longevity and optimized total cost of ownership

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ISO 9001

Certified Environmental Management

ISO 14001

Rohde & Schwarz training

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