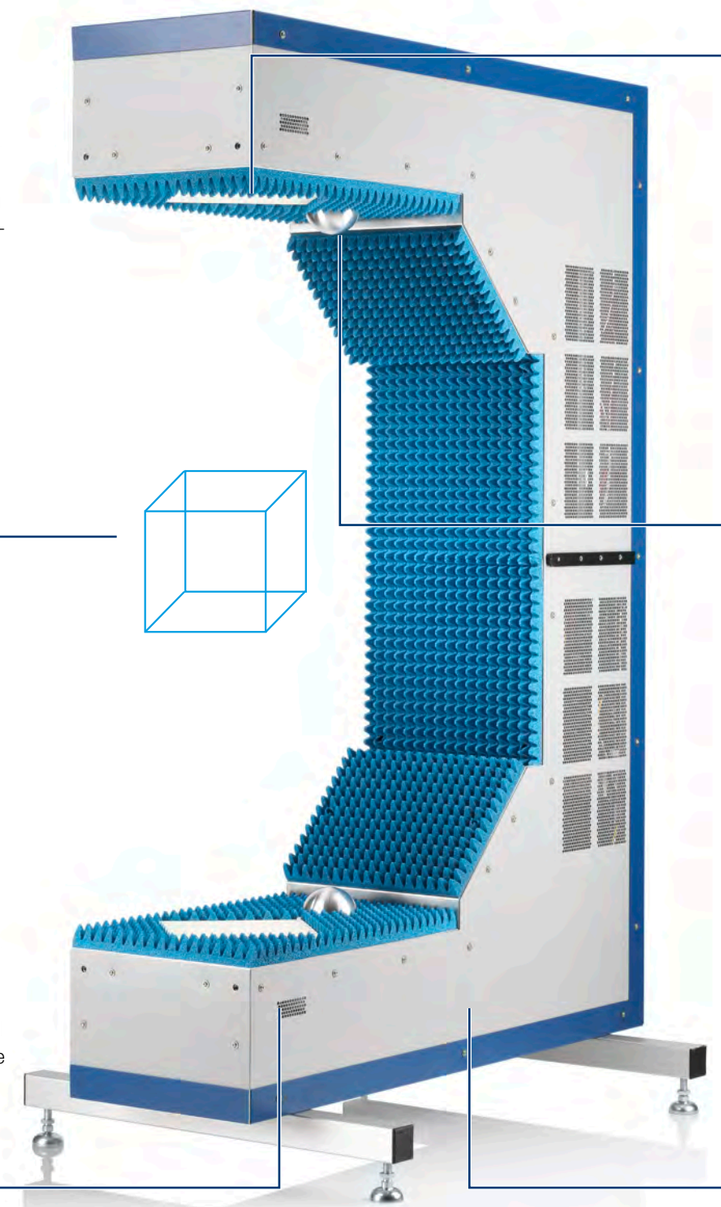
Тестер антенных обтекателей автомобильных радаров QAR50

AT A GLANCE

The R&S®QAR50 is the ideal tool for accurately testing the quality of radomes and bumpers in the automotive radar frequency range at the end-of-line (EOL). It features sufficient space to easily accommodate bulky bumpers combined with spatially resolved measurements to evaluate the homogeneity of design emblems. Its innovative hardware concept enables impressively fast measurement times whereas the modular software concept allows adaptation to your particular requirements. The R&S®QAR50 delivers fast and precise radome and bumper testing at a very attractive price.

Measurement area

The R&S®QAR50 uses hundreds of receive and transmit antennas to quickly characterize materials, bumpers and emblems. The microwave imaging technology with its electronic focusing allows more flexible positioning of the measurement antennas, thereby making space for the important part: your material under test.



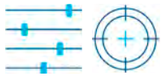
Measurement clusters

The key advantage of electronic focusing is the increased robustness of the setup: When using only a single antenna for the received and transmitted signals, the reflected energy needs to return exactly to its origin. The slightest deviation in angle has a massive effect on the measurement value. The larger antenna array of the R&S®QAR50 allows for looser positioning tolerances while still maintaining a precise measurement result.

Integrated calibration hardware

In order to calibrate standard T&M equipment, the instruments usually have to be detached and then set up in a special calibration procedure. Not the case for the R&S®QAR50: The instrument can potentially even remain in place. Using the built-in spherical reflectors, the instrument can calibrate itself in an instant.

With the optional verification set, the reflection and transmission loss values can be traced in line with national/international standards.



High accuracy and value

The software concept of the R&S®QAR50 provides flexibility in terms of instrument configuration. With the keycode-enabled software options, the instrument can be configured according to the specific measurement requirements. Starting with precise reflection and transmission loss measurements in the standard software, the instrument can be enhanced with the required measurement capabilities (see Measurements section).

Powerful calculation hardware

The R&S®QAR50 is capable of processing large amounts of data in a short amount of time. Resulting images and frequency plots are available in just a few seconds. Depending on the selection of parameters and data to be saved, extremely fast cycle times can be achieved. This makes the R&S®QAR50 the ideal test solution for high-throughput production lines.

MEASUREMENTS

Precise reflection measurements from both sides for customizable frequency bands

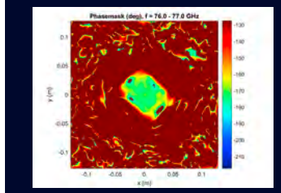
Precision, reliability and robustness are the core competencies of a measurement device aimed at production testing. Therefore, state-of-the-art transmission loss and reflection measurement capabilities count among the basic features of the R&S®QAR50.

R&S®QAR50-K10: frequency-resolved transmission loss measurement

Frequency response for both transmission loss and reflection measurements ranges from 72 GHz to 82 GHz and allows constant quality monitoring of the production process. Correct thickness adaptation, for example, can be easily monitored using the frequency response of the reflection measurement.

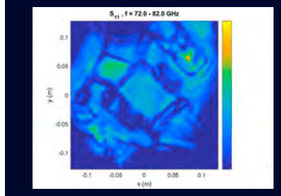
R&S®QAR50-K20: transmission phase measurement

High-resolution transmission phase imaging allows homogeneity analysis of the measured part. The radar-transparent area of the bumper can be depicted on the transmission phase image.



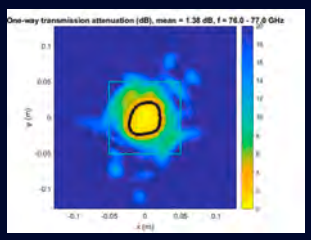
R&S®QAR50-K30: high-resolution reflection image

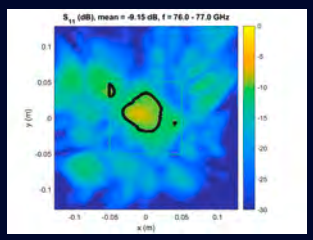
High-resolution reflection measurement for extensive analysis and error tracking in R&D and production processes. The mounting structure of the bumper is clearly visible in the high-resolution measurement result.

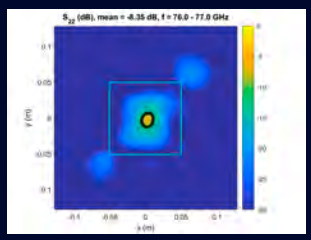


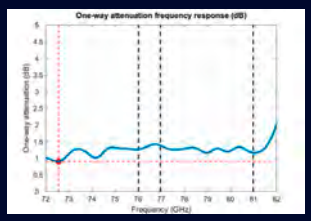
CUSTOMIZE THE INSTRUMENT FOR YOUR MEASUREMENT TASK

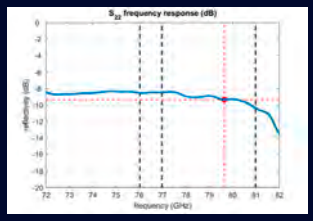
The software concept of the R&S®QAR50 maximizes flexibility. The available options allow the instrument to be customized to the specified requirements.

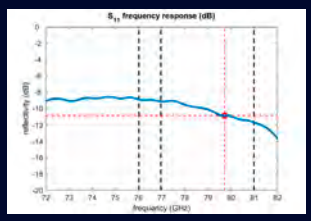












The results on this page show the measurements for an example bumper (left photo) with additional sensor mounting structure on the inside. The effects of the structure, as well as the curvature, can be seen on the respective images: A convex surface causes a smaller illuminated area since most signals are reflected away from the R&S®QAR50 module. For a concave surface, the illuminated area might be increased since the reflected signals are directed to the R&S®QAR50 module(s). The mounting structure on this side is clearly visible on the R&S®QAR50-K20 transmission phase and R&S®QAR50-K30 high-resolution reflection images.

Specifications in brief	
Measurement specification	
► Frequency range	► 72 GHz to 82 GHz
► Measured quantities	► one-way transmission loss, reflection, transmission phase
Mechanical properties	
► Distance between cluster	► 990 mm
► Dimensions	► C shape: 310 mm × 1420 mm × 970 mm/U shape: 310 mm × 970 mm × 1420 mm

SERVICE LEVEL AGREEMENTS

Everyone has different system and service requirements. In order to serve the diverse needs during R&D and production processes, various service levels are available for the R&S®QAR50. Ranging from the basic level with repair coverage up to guaranteed availability in production, our service contracts can be customized to satisfy your needs.

The four flexible levels of service level agreements for the R&S®QAR50

Basic

Estimated downtime: > 10 working days (WD)

- Repair within 10 working days

Standard

Estimated downtime: 3 working days (WD)

- Spare unit from Rohde&Schwarz pool is sent within 3 days

Advanced

Estimated downtime: approx. 4 hours (installation of spare unit)

- Rohde&Schwarz spare unit on site
- Repair of defective panel within 10 working days

Premium

Estimated downtime: approx. 4 hours (installation of spare unit)

- Rohde&Schwarz spare unit on site
- Spare unit from Rohde&Schwarz pool within 3 working days to avoid "single point of failure"

Maintenance and support	Warranty 1 year	Basic Estimated downtime: > 10 WD	Standard Estimated downtime: 3 WD	Advanced Estimated downtime: 4 h	Premium Estimated downtime: 4 h
Repair coverage in depot	•	10 WD (TAT)	10 WD (TAT)	10 WD (TAT)	•
Advanced replacement			3 WD		3 WD
Spare unit (on-site)				•	•
Technical training courses		•	•	•	•
24/7 problem reporting and overview of your requests via online ticketing system		•	•	•	•
Remote support		no time defined	6 hours	6 hours	2 hours
Software updates (software bug fixes)		•	•	•	•
Regular review meeting		•	•	•	•
Regular maintenance		optional	optional	optional	optional
On-site support "case by case" (per day for one technician)		on request	on request	on request	on request
Additional day of on-site support (per day for one technician)		on request	on request	on request	on request

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