

R&S®ATS1800C

CATR BASED COMPACT 5G NR

mmWAVE TEST CHAMBER

5G NR compliant device test and antenna
characterization in a small footprint



Product Flyer
Version 01.00

ROHDE & SCHWARZ

Make ideas real



AT A GLANCE

The R&S®ATS1800C CATR based compact 5G NR mmWave test chamber is fully shielded from the outside world to provide the ideal environment for uninterrupted measurements of 5G antenna, module and device characterization throughout the entire lifecycle from R&D to conformance for both active and passive measurements.

The R&S®ATS1800C is the turnkey chamber for far-field over-the-air RF measurements of 5G related devices and components. The chamber itself is easily transportable with wheels and has a footprint small enough to go through most doors, so it easily fits into R&D labs or test houses of all sizes.

Inside the fully shielded chamber is the compact antenna test range (CATR) consisting of a feed antenna, a bidirectional parabolic reflector and a 3D positioner. The parabolic reflector is specially designed and manufactured by Rohde&Schwarz with optimized rolled edges that promise a well distributed power of the collimated beams after reflection. Moreover, the reflector has an extremely high-precision surface roughness, which minimizes the errors introduced by the reflection. This allows the reflector to be used in a very wide frequency range for accurate measurement results.

Due to the CATR technology, the generated quiet zone is 30 cm to accommodate both a black box measurement approach and large DUTs. Heavy DUTs can be placed on the highly accurate and stable 3D positioner so that parameters such as TRP, EIRP and EIS can be automated and measured. The stability and device weight specifications of the positioner also allow for CTIA frequency range 2 (FR2) antenna performance tests where phantom heads and hands are to be used.

The compact setup of the R&S®ATS1800C can act as your best assistant from R&D to product validation. At early stages, it can help improve the overall performance of RF modules, greatly reducing the risk of costly and time-consuming modifications of prototypes at later stages. During design optimization, specific beam characterization can be measured to verify the beamforming capabilities of modules and devices.

Rohde&Schwarz is the one-stop-shop solution provider, offering the full range of testing equipment required to complement the R&S®ATS1800C and enable 5G conformance testing in the mmWave range. The solution is thus fully compliant with 3GPP standards, making it the most complete 5G test chamber.

Key facts

- ▶ Very compact and mobile far-field over-the-air (OTA) test system based on compact antenna test range (CATR) technology
- ▶ State-of-the-art CATR reflector with optimized edges for uniform power distribution and high-precision surface finishing for minimal deviations in quiet zone
- ▶ Very high frequency range, including 5G frequency range 2 (dependent on CATR feed antenna)
- ▶ High shielding effectiveness of 100 dB
- ▶ Large, 3GPP compliant quiet zone
- ▶ Highly accurate spherical 3D positioner with built-in hardware triggering functionality for significantly shorter test times
- ▶ Suitable for conformance testing as specified by 3GPP as well as CTIA antenna performance testing and device beam characterization



Interior view

SPECIFICATIONS IN BRIEF

Specifications in brief		
In-band frequency range	feed antenna	23.5 GHz to 44 GHz
Out-of-band frequency range	chamber	6 GHz to 110 GHz
Shielding effectiveness ¹⁾	chamber	> 90 dB (typ.)
Polarization	feed antenna	dual polarized
RF connectors	feed antenna	2 × 2.4 mm
Quiet zone quality ²⁾	reflector	Ø 30 cm (taper < 1.5 dB, ripple < 0.5 dB)
Angular resolution ³⁾	positioner (optical encoder)	0.03° (azimuth, elevation)
Accumulated positioner error ^{3), 4)}	positioner	< 0.5° (azimuth, elevation)
Rotating angle	positioner	> 360° (azimuth, elevation)
DUT load capability	positioner	8 kg, centered
Hardware triggering	positioner	yes (BNC)
Positioner API	positioner	yes (C / C++ / C# / VB.NET / MATLAB®)
Power supply	power filter	100 V to 230 V (AC), 13 A
Internal power socket outlet	power filter	100 V to 230 V (AC), 2 A
Weight	chamber	approx. 500 kg (1102.31 lb)
Dimensions (W × H × D)	chamber	0.90 m × 1.99 m × 1.53 m (2.95 ft × 6.53 ft × 5.02 ft)
Wheels	chamber	4
Door operation	chamber	manually operated, electrical closing mechanism

For more information, see data sheet (PD 3608.1298.22)

¹⁾ From 650 MHz to 60 GHz.

²⁾ From 23.5 GHz to 44 GHz.

³⁾ DUT weight used for testing; 2.5 kg.

⁴⁾ Measured worst-case scenario (i.e.: positioner at 90°).

ORDERING INFORMATION

For ordering information, see data sheet (PD 3608.1298.22) and www.rohde-schwarz.com

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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

Sustainable product design

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Certified Quality Management

ISO 9001

Certified Environmental Management

ISO 14001

Rohde & Schwarz training

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