

R&S® ATS1000

Antenna Test System

Specifications



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Description

The R&S®ATS1000 is a highly accurate solution for testing 5G antennas up to millimeterwave frequencies in a mobile shielded chamber. The R&S®ATS1000 includes multiple system components as listed below.

R&S®ATS1000 shielded chamber

Frequency range		18 GHz to 87 GHz ¹
Shielding effectiveness	18 GHz to 87 GHz	> 50 dB
Dimensions (W × H × D)	outside dimensions including handles	0.90 m × 1.99 m × 1.53 m ² (2.95 ft × 6.53 ft × 5.02 ft)
	inside width	0.47 m × 1.25 m × 0.92 m (1.54 ft × 4.10 ft × 3.02 ft)
Wheels		4
Absorber performance	reflectivity	< -45 dB
Weight	without positioner	300 kg (661.4 lb)
	with positioner	350 kg (771.6 lb)
	with positioner and wooden transportation box	540 kg (1190.5 lb)
Temperature range	operating temperature range	+10 °C to +27 °C
	storage temperature range	-20 °C to +60 °C
Relative humidity operation		75 % relative humidity, noncondensing at +10 °C to +40 °C
Power supply		100 V to 230 V (-5 %/+10 %), 50 Hz to 60 Hz, max. 13 A
	connector	C20
Door operation		manually operated, electrical closing mechanism
Laser for self-levelling ³	wavelength	650 nm
	output power	7 mW

R&S®ATS-CCP1 conical cut positioning system for R&S®ATS1000⁴

Angular resolution	azimuth/elevation	0.03°
Positioning repeatability	azimuth/elevation	0.1°
Rotating speed azimuth		up to 72°/s
Rotating angle azimuth	includes one RF rotary joint and multiple data cables: Ethernet, USB, LF lines	-10° to +365°, continuous
Rotating speed elevation		up to 20°/s
Rotating angle elevation	includes two rotary joints	-10° to +168°
Measurement range length	including holder for test antenna	50 cm (19.7 in)
	manual height adjustment	±7.5 cm (2.95 in)
Load capability	weight	20 kg (44.1 lb), centered
	maximum dimensions of the DUT	20 cm × 20 cm (7.9 in × 7.9 in)
Data interfaces to the controller		Ethernet
Transmission interfaces to the controller		fiber-optic cable
Voltage		100 V to 240 V AC, 47 Hz to 63 Hz
Temperature range	operating temperature range	+5 °C to +40 °C
Material	elevation arm	fiberglass
DUT fixtures	variable height adjustment fixture	±12 cm (4.7 in)
Included filtered feedthroughs, cables and rotary joints		<ul style="list-style-type: none"> • 1 Gbps Ethernet • USB 2.0 • D-Sub (25-9 pin) • 4 × 1.85 mm • 40 GHz or 50 GHz integrated rotary joints • 40 GHz or 50 GHz integrated cabling from measurement antenna to the rotary joints

¹ Measurement antenna up to 87 GHz. Direct RF measurements up to 50 GHz. Frequency extension on customer request.

² Outer dimensions including the R&S®ATS-LASER option: 0.984 m × 2.1 m × 1.53 m.

³ Optionally integratable outside the chamber on the right-hand side and cover.

⁴ The controller of the R&S®TC-CCPCTRL1 positioner is delivered separately.

R&S®TC-TA85CP cross-polarized Vivaldi test antenna

Frequency range	nominal	6 GHz to 85 GHz
	extended	4 GHz to 87 GHz
Polarization		dual polarized
RF connectors		2 x MMPX (male)
Impedance		50 Ω
Outer dimensions	W x H x D	78 mm x 30 mm x 30 mm (3.1 in x 1.18 in x 1.18 in)
Weight		approx. 0.1 kg (0.22 lb)
Temperature range	operating temperature range	+5 °C to +35 °C
	storage temperature range	-25 °C to +70 °C

R&S®AMS32 measurement software ⁵

Positioner controlling and passive antenna measurement	basic license	R&S®AMS32
	triggered VNA measurements with continuous mode of positioner	R&S®AMS32-K48
	visualization for far-field antenna tests	R&S®AMS32-K49

R&S®ATS-TEMP thermal solution for extreme temperature condition testing

Frequency range		18 GHz to 87 GHz
Material	dome	Rohacell
	rotary table	plastic
	pipes	silicon
Dome RF influence	26 GHz to 32 GHz	< 0.2 dB
	32 GHz to 40 GHz	1 dB
Load capability	weight	20 kg (44.1 lb), centered
	maximum dimensions of the DUT	250 mm diameter for a DUT thickness of 30 mm
Outer dimensions	diameter x height (dome)	320 mm x 180 mm (12.6 in x 7.1 in)
Weight	dome + rotary table + pipes	2 kg (4.4 lb)
Temperature range	operating temperature range for EIRP measurements	-40 °C to +85 °C
	operating temperature range for TRP measurements	-20 °C to +55 °C
Relative humidity range		75 % relative humidity, noncondensing at +10 °C to +40 °C
Controlling software		Not provided. Temperature to be controlled manually in the MPI thermostream ⁶

⁵ For additional near-field to far-field transformation options, see R&S®AMS32 data sheet (PD 3606.9062.22).

⁶ The MPI thermostream is not supplied by Rohde & Schwarz and is needed to generate the air flow.

Ordering information

Basic configuration

Designation	Type	Order No.
Shielded chamber		
Antenna test system	R&S®ATS1000	1532.1010.03
Mobile shielded chamber	R&S®ATS1000 KMAT	1532.1010K03
Positioner		
Conical cut positioning system	R&S®ATS-CCP1	1529.7340.04
Power filter, 230 V	R&S®ATS-F230V	1532.1161.02
RF cable set for R&S®ATS-CCP1 positioner, up to 40 GHz, incl. cables and rotary joints	R&S®ATS-CSRF1	1532.8243.02
Measurement antenna		
Cross-polarized Vivaldi antenna	R&S®TC-TA85CP	1531.8627.02
DUT control, support and alignment		
DUT control cable set , incl. connector plate and feedthroughs	R&S®ATS-CSCO1	1532.8220.02
DUT fixture for R&S®ATS-CCP1 positioner (azimuth turntable)	R&S®ATS-AZTAB1	1532.7624.02
Rohacell DUT adapter set	R&S®ATS-AZTAB2	1532.8189.02
Laser DUT alignment	R&S®ATS-LASER	1532.0394.02

Additional options

Designation	Type	Order No.
RF cable set for R&S®ATS-CCP1 positioner, up to 50 GHz, incl. cables and rotary joints	R&S®ATS-CSRF2	1532.8237.02
Thermal solution for extreme temperature condition testing	R&S®ATS-TEMP	1533.8147.02
Thermal solution for extreme temperature condition testing, upgrade kit	R&S®ATS-TEMPU1	1533.8153.02
Additional accessories for calibration		
Standard gain horn antenna for calibration, 18 GHz to 26.5 GHz	R&S®TC-SGH26	1530.8630.02
Standard gain horn antenna for calibration, 26.5 GHz to 40 GHz	R&S®TC-SGH40	1530.8617.02
Standard gain horn antenna for calibration, 40 GHz to 60 GHz	R&S®TC-SGH60	1530.8623.02
Software options		
Base license	R&S®AMS32	1508.6650.02
Triggered VNA measurements with continuous mode of positioner	R&S®AMS32-K48	1508.6680.48
Visualization for far-field antenna tests	R&S®AMS32-K49	1508.6680.49

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