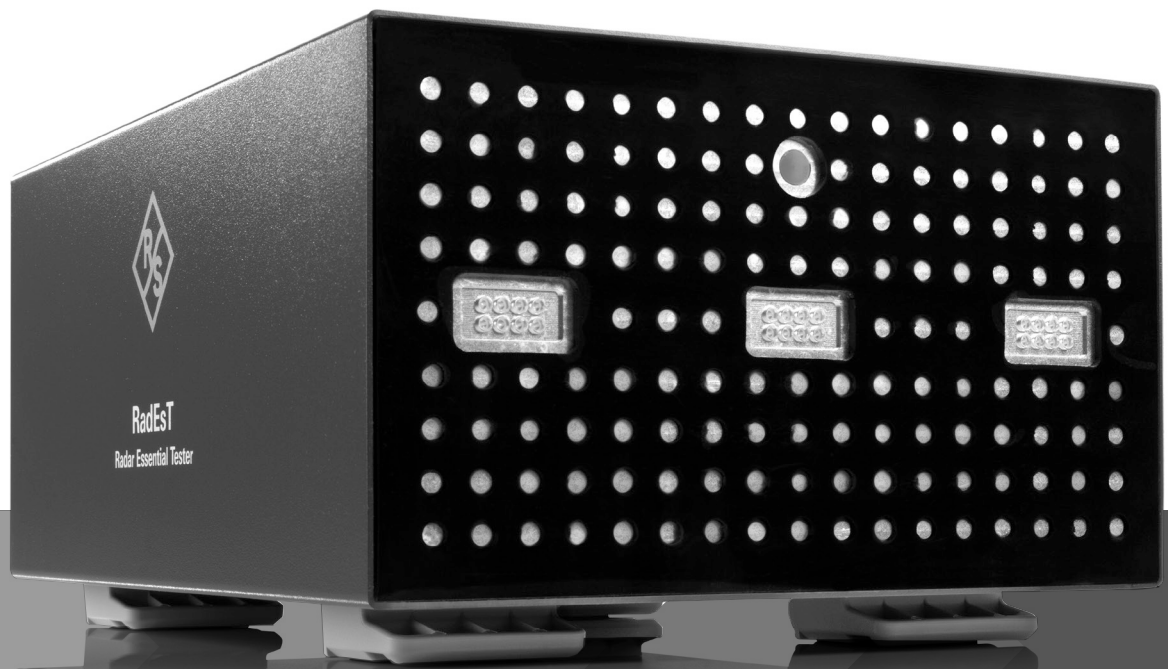


R&S® RadEsT

RADAR ESSENTIAL TESTER

Specifications



Specifications
Version 06.00

ROHDE & SCHWARZ

Make ideas real



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Definitions

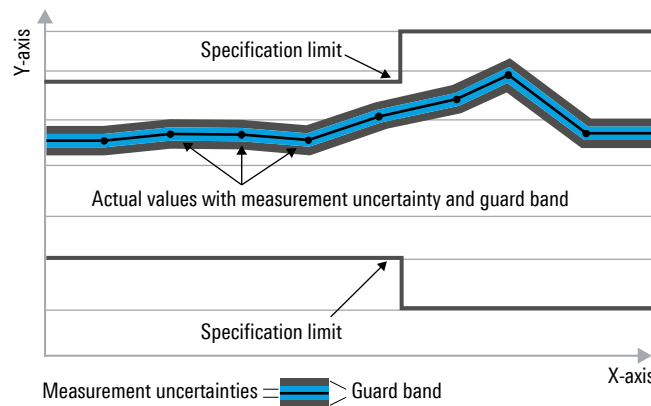
General

Product data applies under the following conditions:

- Three hours of storage at ambient temperature followed by 30 minutes of warm-up operation
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

Specifications with limits

Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as $<$, \leq , $>$, \geq , \pm or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



Non-traceable specifications with limits (n. trc.)

Represent product performance that is specified and tested as described under “Specifications with limits” above. However, product performance in this case cannot be warranted due to the lack of measuring equipment traceable to national metrology standards. In this case, measurements are referenced to standards used in the Rohde & Schwarz laboratories.

Specifications without limits

Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value, e.g. dimensions or resolution of a setting parameter. Compliance is ensured by design.

Typical data (typ.)

Characterizes product performance by means of representative information for the given parameter. When marked with $<$, $>$ or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

Nominal values (nom.)

Characterize product performance by means of a representative value for the given parameter, e.g. nominal impedance. In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

Measured values (meas.)

Characterize expected product performance by means of measurement results gained from individual samples.

Uncertainties

Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

Device settings and GUI parameters are designated with the format “parameter: value”.

Non-traceable specifications with limits, typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

In line with the 3GPP standard, chip rates are specified in million chips per second (Mcps), whereas bit rates and symbol rates are specified in billion bit per second (Gbps), million bit per second (Mbps), thousand bit per second (kbps), million symbols per second (MSPS) or thousand symbols per second (ksps), and sample rates are specified in million samples per second (Msample/s). Gbps, Mcps, Mbps, MSPS, kbps, ksps and Msample/s are not SI units.

Specifications

Frequency

RF frequency range	object simulation	76.0 GHz to 81.0 GHz
	power measurement	24 GHz, 76.0 GHz to 81.0 GHz

Object simulation

Distance ¹	range	3 m to 250 m
	resolution	0.04 m (typ.)
Doppler	range	0 km/h to ± 500 km/h
	resolution	1 km/h
Attenuation (RCS)	range	> 60 dB
	resolution	1 dB (typ.)
System phase noise	at maximum range	< -115 dBc

24 GHz power measurement

Power measurement range ¹	24 GHz	-60 dBm to -25 dBm (-5 dBm to 30 dBm EIRP)
Uncertainty for absolute power measurement ¹	24 GHz	± 1.5 dB
Uncertainty for relative power measurement ¹	24 GHz	± 0.5 dB

76 GHz to 81 GHz power measurement

Power measurement range ¹	76 GHz to 77 GHz	-54 dBm to -24 dBm (10 dBm to 40 dBm EIRP)
	> 77 GHz to 78 GHz	-54 dBm to -24 dBm (10 dBm to 40 dBm EIRP)
	> 78 GHz to 79 GHz	-54 dBm to -24 dBm (10 dBm to 40 dBm EIRP)
	> 79 GHz to 80 GHz	-49 dBm to -24 dBm (15 dBm to 40 dBm EIRP)
	> 80 GHz to 81 GHz	-49 dBm to -24 dBm (15 dBm to 40 dBm EIRP)
Uncertainty for absolute power measurement ¹	76 GHz to 77 GHz	± 1.5 dB
	> 77 GHz to 78 GHz	± 1.5 dB
	> 78 GHz to 79 GHz	± 1.5 dB
	> 79 GHz to 80 GHz	± 2 dB
	> 80 GHz to 81 GHz	± 2 dB
Uncertainty for relative power measurement ¹	76 GHz to 77 GHz	± 0.5 dB
	> 77 GHz to 78 GHz	± 0.5 dB
	> 78 GHz to 79 GHz	± 0.5 dB
	> 79 GHz to 80 GHz	± 0.5 dB
	> 80 GHz to 81 GHz	± 0.5 dB

Level

Maximum ratings	RX power at frontend ¹	+55 dBm EIRP
	TX power at frontend	+10 dBm EIRP

¹ At 0.5 m distance from the DUT.

Reference frequency

Reference frequency input

Connector type	“Ref In” on rear panel sine wave	SMA female 100 MHz (nom.)
Input level		–6 dBm to +13 dBm
Impedance		50 Ω (nom.)

Reference frequency output

Connector type	“Ref Out” on rear panel sine wave	SMA female 100 MHz (nom.) ± 50 ppm, derived from internal oscillator
Output level		–3 dBm ± 2 dBm
Impedance		50 Ω (nom.)

Frequency monitor output

Connector type	“Frequency monitor” on rear panel	SMA female 3.2 GHz to 8.2 GHz
Output level		–10 dBm (nom.)
Impedance		50 Ω (nom.)

Remote control

Ethernet/LAN interface		10/100BASE-T
Command set		SCPI 1999.5 or compatible command sets
Ethernet/LAN protocols and services		<ul style="list-style-type: none"> VISA VXI-11 (remote control) Telnet/RawEthernet (remote control)
Ethernet/LAN addressing		DHCP, static; support of Zeroconf and M-DNS to facilitate the direct connection to a system controller
USB interface		USB 2.0, high speed
Command set		SCPI 1999.5 or compatible command sets

Rear panel connectors of base unit

Trigger input	TTL compatible	BNC female
Ref Out	100 MHz reference frequency output	SMA female
Ref In	100 MHz reference frequency input	SMA female
Frequency monitor	corresponding to internal IF	SMA female
LAN	provides remote control functionality and other services, see section Remote control	RJ-45
USB		USB 2.0 high speed, USB type B
Power supply	+12 V DC, max. 2 A (nom.)	2-pin LEMOSA

General data

Environmental conditions		
Temperature	operating temperature range	+5 °C to +40 °C
	storage temperature range	-10 °C to +60 °C
Damp heat		+40 °C, 95 % rel. humidity, steady state, in line with EN 60068-2-78
Altitude	operating	4600 m (approx. 15100 ft)
	transport	4600 m (approx. 15100 ft)
Mechanical resistance		
Vibration	sinusoidal	5 Hz to 55 Hz, 0.15 mm amplitude const.; 55 Hz to 150 Hz, 0.5 g const.; in line with EN 60068-2-6
	random	8 Hz to 500 Hz, acceleration: 1.2 g RMS, in line with EN 60068-2-64
Shock		40 g shock spectrum, in line with MIL-STD-810E, method 516.4, procedure I
Power rating		
Rated voltage		100 V to 240 V AC ($\pm 10\%$)
Rated frequencies		50 Hz to 60 Hz ($\pm 5\%$)
Rated current		max. 1.8 A (50 Hz to 60 Hz)
Rated power		max. 60 W
Power factor correction		in line with EN 61000-3-2
External power supply		
DC output voltage range		+12 V $\pm 10\%$
Minimum output current		5 A
Power consumption		max. 60 W
Safety		in line with IEC/UL/EN 62368-1, CE, CB
Test marks		UL, GS, CE, FCC
Product conformity		
Electromagnetic compatibility	EU Radio Equipment Directive 2014/53/EU (article 3 and the other relevant provisions)	in line with <ul style="list-style-type: none"> • ETSI EN 301 489-1 • ETSI EN 301 489-3 • ISO 11452-2
Efficient use of radio spectrum	EU Radio Equipment Directive 2014/53/EU (article 3 and the other relevant provisions)	in line with relevant parts of <ul style="list-style-type: none"> • ETSI EN 305 550 • ETSI EN 302 264 • ETSI EN 301 091-1
Electrical safety	EU Radio Equipment Directive 2014/53/EU (article 3 and the other relevant provisions)	in line with EN 61010-1
Hazarduous substances	EU Restriction of the use of hazardous substances in electrical and electronic equipment (RoHS) 2011/65/EU	in line with EN 63000
EU legislation	EU: in line with Data Act – Regulation (EU) 2023/2854	for details, see user documentation
Recommended calibration interval	for highest accuracy	1 year
Display		1.4" OLED display
Dimensions (W x H x D)	with handle and stands	186.5 mm x 138.6 mm x 275 mm (7.34 in x 5.46 in x 10.83 in)
	without handle and stands	186.5 mm x 112.5 mm x 275 mm (7.34 in x 4.43 in x 10.83 in)
Weight		3.2 kg (8 lb)

Ordering information

Designation	Type	Order No.
Radar essential tester, including power supply and quick start guide	R&S®RadEsT	1344.0005.02
Shielding system, pyramidal, length: 50 cm	R&S®RadEsT-Z50	1341.0156.03
Shielding system, straight, length: 50 cm	R&S®RadEsT-Z55	1341.0156.04

Warranty and service

Warranty		
Base unit		1 year
All other items		1 year
Service options		
	Service plans	On demand
Calibration	up to five years ²	pay per calibration
Warranty and repair	up to five years ²	standard price repair
Contact your Rohde & Schwarz sales office for further details.		

² For extended periods, contact your Rohde & Schwarz sales office.

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ISO 9001

Certified Environmental Management

ISO 14001

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