

# CTH100A/ CTH200A Radio Test Set Specifications



  
**ROHDE & SCHWARZ**

## CONTENTS

<b>Definitions</b> .....	<b>3</b>
<b>Specifications</b> .....	<b>5</b>
Receiver test mode.....	5
Transmitter test mode.....	5
Cable fault finder (R&S®CTH200A only).....	6
<b>General data</b> .....	<b>7</b>
<b>Ordering information</b> .....	<b>10</b>

# Definitions

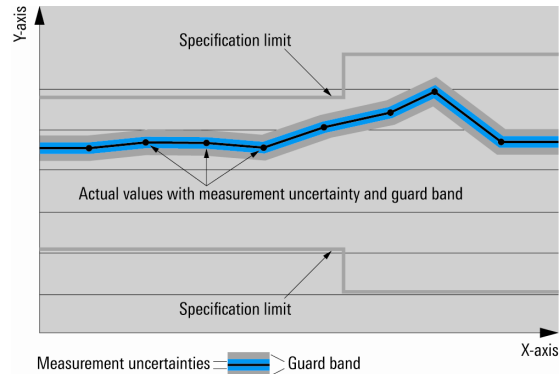
## General

Product data applies under the following conditions:

- One hour storage at ambient temperature followed by 10 minutes 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.



**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.

Typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

# Specifications

## Receiver test mode

<b>Transmit signal</b>		at RADIO connector
Frequency range		30 MHz to 512 MHz
Channel spacing	R&S <sup>®</sup> CTH100A	5 MHz
	R&S <sup>®</sup> CTH200A	5 MHz, 2 MHz, 1 MHz, 500 kHz, 200 kHz, 100 kHz
RF output level	5 MHz channel spacing	-97 dBm to -120 dBm
RF output level uncertainty		3 dB
RF modulation	CW or FM or voice reporting (R&S <sup>®</sup> CTH200A only)	
	FM composite signal	150 Hz and 900 Hz dual tones
	FM composite signal uncertainty	2 Hz
	FM deviation, after performing transmitter test	1.75 kHz to 3.5 kHz

## Transmitter test mode

<b>Power measurement</b>	forward power or reverse power, CW or FM signals (constant envelope)	
Frequency range		30 MHz to 512 MHz
Power level range		0.1 W to 50 W
Absolute maximum input power	at both connectors, < 200 MHz	100 W
	at both connectors, ≥ 200 MHz	50 W
Power measurement uncertainty		0.8 dB

<b>Frequency measurement</b>		
Frequency range		30 MHz to 512 MHz
Frequency measurement uncertainty		2 kHz
Frequency counter resolution		100 Hz

<b>Over-the-air (OTA) measurement (R&amp;S®CTH200A only)</b>	power level	bargraph
	frequency counter	numeric display
Dynamic range		60 dB
Frequency range		30 MHz to 512 MHz

## Cable fault finder (R&S®CTH200A only)

<b>Cable fault finder</b>		at ANT connector
Nominal cable impedance		50 Ω
Velocity factor (VF)	settable	66 % to 100 %, default 66 % (PE cable)
Measurement range	3 ranges	3 m to 120 m/240 m/480 m, default 120 m
Measurement resolution and uncertainty	length < 120 m	VF × 1.5 m
	length < 240 m	VF × 3 m
	length < 480 m	VF × 6 m
Minimal reflection of detectable fault		-10 dB

## General data

<b>RF connectors</b>		BNC connectors
ANT	impedance	50 $\Omega$
RADIO	impedance	50 $\Omega$

<b>Environmental conditions</b>		
Temperature	operating temperature range	-20 °C to +50 °C
	storage temperature range	-55 °C to +85 °C
Damp heat		+40 °C/95 % rel. humidity, steady state, in line with EN 60068-2-78
Maximum altitude	storage, operating	up to 4600 m
Water resistance		drip-proof in line with MIL-PRF-28800F <sup>1</sup>
Sand and dust resistance		in line with MIL-STD-810F method 510.4, proc. II (blowing sand)
Fungus resistance		in line with MIL-STD-810F, method 508.5 <sup>1</sup>
Salt atmosphere		in line with MIL-PRF-28800F <sup>1</sup>
Solar radiation		in line with MIL-PRF-28800F <sup>1</sup>

<sup>1</sup> The R&S®CTH is designed to be routinely used in rugged operational environments with an unprotected, uncontrolled climate (MIL Class 2 equipment).

<b>Mechanical resistance</b>		
Vibration	sinusoidal	5 Hz to 150 Hz, 0.15 mm amplitude const., 55 Hz to 150 Hz, 0.5 g const., in line with IEC 60068-2-6
	random	10 Hz to 500 Hz, in line with MIL-PRF-28800F <sup>2</sup>
Shock		30 g shock spectrum, in line with MIL-PRF-28800F <sup>2</sup>

<b>Power rating</b>		
Rated voltage	battery operated	3 batteries, non-rechargeable or rechargeable, DC 4.5 V (3 × IEC LR6/AA)
Battery current draw	off	< 0.5 mA (meas.)
	on, depending on active measurement mode	25 mA to 105 mA (meas.)
	low battery warning	approx. 15 minutes before switchoff

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<sup>2</sup> The R&S<sup>®</sup>CTH is designed to be routinely used in rugged operational environments with an unprotected, uncontrolled climate (MIL Class 2 equipment).



<b>Product conformity</b>		
Electromagnetic compatibility	EU: EMC Directive 2004/108/EC	in line with EN 61326-1 (industrial environment), EN 61326-2-1, EN 55011 (class B)
Electrical safety	EU	in line with EN 61010-1
	USA/Canada	in line with UL 61010-1 (second edition), CAN C22.2 No. 61010.1-04
International safety approvals	CSA – Canadian Standards Association	cCSA <sub>US</sub> mark: certificate number: 2355532
	VDE – Association for Electrical, Electronic and Information Technologies	GS mark: certificate number: 40031889
	Korea Certification (KC) mark	registration number: KCC-REM-RnS-CTH-2011-01-0
<b>Display</b>		
	display light	2 × 16 characters adjustable in 5 levels from max. to off
<b>Dimensions</b>		
	W × H × D	102.9 mm × 202 mm × 36.8 mm (4.05 in × 7.95 in × 1.45 in)
<b>Weight</b>	R&S <sup>®</sup> CTH100A, without batteries	532 g (1.17 lb)
	R&S <sup>®</sup> CTH200A, without batteries	539 g (1.19 lb)
<b>Calibration interval</b>		
		12 months

## Ordering information

<b>Designation</b>	<b>Type</b>	<b>Order No.</b>
Radio Test Set, with operating manual (quick start guide)	R&S <sup>®</sup> CTH100A	1207.1000.04
Radio Test Set with OTA and Cable Fault Finder, with operating manual (quick start guide)	R&S <sup>®</sup> CTH200A	1207.1000.02
Hardcase, for radio test set and accessories	R&S <sup>®</sup> CTH-Z20	1207.1900.02
<b>Accessories</b>		
50 W Load, BNC Adapters and Cables	R&S <sup>®</sup> CTH-Z30	1207.1700.02

<b>Service options</b>		
Extended Warranty, one year	R&S®WE1CTH	Please contact your local Rohde & Schwarz sales office.
Extended Warranty, two years	R&S®WE2CTH	
Extended Warranty, three years	R&S®WE3CTH	
Extended Warranty, four years	R&S®WE4CTH	
Extended Warranty with Calibration Coverage, one year	R&S®CW1CTH	
Extended Warranty with Calibration Coverage, two years	R&S®CW2CTH	
Extended Warranty with Calibration Coverage, three years	R&S®CW3CTH	
Extended Warranty with Calibration Coverage, four years	R&S®CW4CTH	

#### **Extended warranty with a term of one to four years (WE1 to WE4)**

Repairs carried out during the contract term are free of charge<sup>3</sup>. Necessary calibration and adjustments carried out during repairs are also covered. Simply contact the forwarding agent we name; your product will be picked up free of charge and returned to you in top condition a couple of days later.

#### **Extended warranty with calibration (CW1 to CW4)**

Enhance your extended warranty by adding calibration coverage at a package price. This package ensures that your Rohde & Schwarz product is regularly calibrated, inspected and maintained during the term of the contract. It includes all repairs<sup>3</sup> and calibration at the recommended intervals as well as any calibration carried out during repairs or option upgrades.

**For product brochure, see PD 5214.4671.12 and [www.rohde-schwarz.com](http://www.rohde-schwarz.com)**

<sup>3</sup> Excluding defects caused by incorrect operation or handling and force majeure. Wear-and-tear parts are not included.

## Service you can rely on

- | Worldwide
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## Environmental commitment

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- | ISO 14001-certified environmental management system

Certified Quality System

**ISO 9001**

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