R&S®CTH100A/ R&S®CTH200A Portable Radio Test Set

Always on duty

ROHDE&SCHWARZ

Test & Measurement

Product Brochure | 02.00

R&S®CTH100A/ R&S®CTH200A Portable Radio Test Set

At a glance

The R&S®CTH allows dependable testing of analog FM radio systems even under challenging environmental conditions. The radio test set was designed especially for outdoor use.

Ensuring the smooth functioning of transceivers is the key to successful communications. The R&S®CTH100A/ R&S®CTH200A performs this type of work without requiring expert knowledge. The user can simply connect the device under test (DUT) to the R&S®CTH100A/ R&S®CTH200A and immediately begin transmitter and receiver measurements.

The R&S®CTH100A/R&S®CTH200A includes all the measurement functions needed for reliable testing of transceivers. The measurement results are clearly presented on a display that is optimized for outdoor use so the measured values are easily readable even under difficult lighting conditions.

With its high measurement accuracy and straightforward operation, the R&S®CTH100A/R&S®CTH200A delivers unrivaled performance and functionality for its class.

R&S®CTH100A/ R&S®CTH200A Portable Radio Test Set

Benefits and key features

Extensive measurement capabilities

- Frequency measurement
- Power measurement
- VSWR (R&S®CTH200A)
- Over-the-air measurement (R&S®CTH200A)
- Distance-to-fault measurement (R&S®CTH200A)
- Voice reporting (R&S®CTH200A)

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Handy and ergonomic

- Well lit
- Functional form
- Standby
- Ergonomic operation
- Transit case

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Rugged and all-weatherproof

- Robust and shockproof
- Splashproof
- Wide temperature range

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Available models

	R&S®CTH100A	R&S®CTH200A
Transmitter measurements		
Forward power	•	•
Reflected power	•	•
VSWR		•
Frequency counter	•	•
FM receiver measurements		
Squelch	•	•
Demodulation	•	•
Additional measurements		
Over the air	–	•
Distance to fault	–	•
Voice reporting	–	•

Extensive measurement capabilities

Frequency measurement

As soon as the DUT is hooked up to the R&S®CTH100A/R&S®CTH200A via a BNC cable and an antenna or a load is connected, the R&S®CTH100A/R&S®CTH200A can start the measurements. If the transmitter is activated, e.g. by pushing the talk key, the test set begins by measuring the transmit frequency and shows the result on the display.

Power measurement

The R&S®CTH100A/R&S®CTH200A simultaneously measures the forward and reflected power along with the frequency and presents the results on the display. The measured values are updated continuously so that any changes that occur will be displayed immediately. In this manner, it is possible to determine whether the transceiver's transmit module outputs the desired power. Using this measurement, the R&S®CTH100A/R&S®CTH200A can reliably detect any decrease in transmit power or a transmitter failure. Plus, the R&S®CTH200A can determine and display the VSWR from the forward and reflected power.

The reflected power measurement allows the antenna matching to be determined for insight into the power that is actually radiated by the antenna.

Over-the-air measurement (R&S®CTH200A)

For a fast functional test of the transceiver, the R&S®CTH200A performs an over-the-air measurement. After the R&S®CTH200A's built-in antenna has been extended, the radio test set is able to detect and evaluate signals over the air. A bargraph provides information about the received power. Based on the transmit frequency which is also evaluated, it is possible to check the frequency accuracy and to verify whether the displayed power is output by the transceiver under test.

Using this simple test, the entire setup from the transceiver to the antenna can be checked. This is useful when radio systems need to be tested just before they are put into operation and there is insufficient time for a complete functional test, e.g. in applications involving fire brigades.

Cable fault finder (R&S®CTH200A)

If the antenna is located at a significant distance from the transceiver, the R&S®CTH200A can check the connection between the antenna and the transceiver with its built-in cable fault finder. Based on the velocity factor, the R&S®CTH200A can adapt to different types of cables and precisely determine the distance to the fault. The R&S®CTH200A indicates if no antenna is connected and whether the connection is fault-free. The distance-to-fault measurement has universal applications and is not limited to antenna systems.

Voice reporting (R&S®CTH200A)

The R&S®CTH200A can transmit the measured values via the RF connection to the transceiver for output over the DUT's loudspeaker. This makes for convenient operation even under extremely challenging conditions when it is impossible to directly read the display, e.g. in cramped environments or in the dark when there is no display lighting.

R&S®CTH100/R&S®CTH200A – the handy analog radio test set.

Handy and ergonomic

Well lit

The backlit display provides information about selected measurements, results and settings. The backlighting can be activated when necessary and dimmed in four steps for optimum readability of the displayed values.

Functional form

The lightweight test set is easy to transport even over large distances. Moreover, the compact R&S®CTH100A/ R&S®CTH200A fits practically anywhere. Using the built-in eyelet, the R&S®CTH100A/R&S®CTH200A can easily be attached to a backpack or belt for fast access at all times.

Standby

The R&S®CTH100A/R&S®CTH200A is operated using standard AA primary cells or rechargeable batteries. Various current-saving mechanisms are employed to ensure long operating and standby times. When the test set is not in use, it automatically activates the sleep mode to help minimize power consumption.

Ergonomic operation

All of the buttons are easy to operate. Plus, the test set is designed for operation with a single hand, providing equal convenience to both right-handed and left-handed users.

Transit case

The R&S®CTH100A/R&S®CTH200A fits perfectly into its watertight transit case. The case protects the R&S®CTH100A/R&S®CTH200A against water, dust and shock. All of the R&S®CTH100A/R&S®CTH200A's accessories fit into the case, too. This ensures that the load, BNC adapter, batteries and cables are well protected and always to hand.

The transit case has an automatic air pressure equalizing valve to make sure that the case opens easily even if air pressure conditions have changed. In the transit case, the R&S®CTH100A/R&S®CTH200A is well protected and immediately ready for use.

The R&S®CTH100A/R&S®CTH200A in its practical transit case.

Rugged and all-weatherproof

Robust and shockproof

The compact aluminum enclosure is rugged and very solid. The corners are rubber-reinforced, making the test set ideal for outdoor use.

Splashproof

Enclosure, battery compartment, keypad and display are absolutely splashproof. As a result, the R&S®CTH100A/ R&S®CTH200A is ideal even for operation under poor weather conditions.

Wide temperature range

All of the components are designed so that the R&S®CTH100A/R&S®CTH200A can be used over a wide temperature range. This means that the R&S®CTH100A/ R&S®CTH200A is the ideal companion for all seasons and climate zones.

The R&S®CTH100A/R&S®CTH200A on duty.

Specifications in brief

Specifications in brief		
Transmit signal		at RADIO connector
Frequency range	R&S®CTH100A	30 MHz to 512 MHz
	R&S®CTH200A	25 MHz to 500 MHz
Frequency setting	R&S®CTH100A	5 MHz channel spacing fixed (f = n × 5 MHz), no frequency setting necessary
	R&S®CTH200A	setting of user defined frequency or usage of counted TX frequency
RF output level	R&S®CTH100A	–97 dBm to –120 dBm
	R&S®CTH200A, f < 100 MHz	–97 dBm to –120 dBm
	R&S®CTH200A, f ≥ 100 MHz	–111 dBm to –134 dBm
RF output level uncertainty		3 dB
FM modulation	FM composite signal	150 Hz and 900 Hz dual tones
	FM composite signal uncertainty	2 Hz
Power measurement	forward power, reverse power, CW or FM signals (constant envelope), VSWR (R&S®CTH200A only)	
Frequency range	R&S®CTH100A	30 MHz to 512 MHz
	R&S®CTH200A	25 MHz to 500 MHz
Power level range		0.1 W to 50 W
Power measurement uncertainty		0.8 dB
Frequency measurement		
Frequency range	R&S®CTH100A	30 MHz to 512 MHz
	R&S®CTH200A	25 MHz to 500 MHz
Frequency counter resolution		100 Hz
General data		
Operating temperature range		–20 °C to +50 °C
Dimensions	W × H × D	102.9 mm × 202 mm × 36.8 mm (4.05 in × 7.95 in × 1.45 in)
Weight (without batteries)	R&S®CTH100A	532 g (1.17 lb)
	R&S®CTH200A	539 g (1.19 lb)

For data sheet, see PD 5214.4671.22 and www.rohde-schwarz.com

Ordering information

Designation	Type	Order no.
Portable Radio Test Set for analog transceivers, with operating manual	R&S®CTH100A	1207.1000.04
Portable Radio Test Set for analog transceivers, incl. OTA and cable fault finder, with operating manual	R&S®CTH200A	1207.1000.02
Accessories		
Transit Case for the portable radio test set and accessories	R&S®CTH-Z20	1207.1900.02
50 Ω Load, BNC Adapter and Cables	R&S®CTH-Z30	1207.1700.02

Service options	
Extended Warranty, one/two/three/four year(s)	Please contact your local Rohde&Schwarz sales office.
Extended Warranty with Calibration Coverage, one/two/three/four year(s)	