

# R&S® ZV-Z3xx T-Checker Specifications



## CONTENTS

<b>Definitions .....</b>	<b>3</b>
<b>Specifications.....</b>	<b>4</b>
Measurement range .....	4
Mechanical data .....	4
Electrical data of R&S®ZV-Z370 .....	4
Calibration data of R&S®ZV-Z370.....	4
Electrical data of R&S®ZV-Z335 .....	5
Calibration data of R&S®ZV-Z335.....	5
Electrical data of R&S®ZV-Z329 .....	6
Calibration data of R&S®ZV-Z329.....	6
Electrical data of R&S®ZV-Z324 .....	7
Calibration data of R&S®ZV-Z324.....	7
General data.....	8
<b>Ordering information .....</b>	<b>9</b>

# Definitions

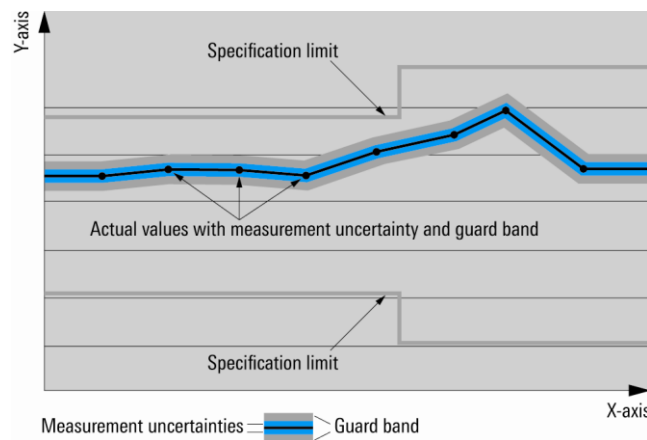
## General

Product data applies under the following conditions:

- Three hours storage at ambient temperature followed by 30 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.

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

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

# Specifications

## Measurement range

Impedance		50 $\Omega$
Frequency range	R&S®ZV-Z370	45 MHz to 18 GHz
	R&S®ZV-Z335	45 MHz to 26.5 GHz
	R&S®ZV-Z329	45 MHz to 40 GHz
	R&S®ZV-Z324	45 MHz to 50 GHz

## Mechanical data

Connector type	R&S®ZV-Z370	type N, female and male
	R&S®ZV-Z335	3.5 mm, female and male
	R&S®ZV-Z329	2.92 mm, female and male
	R&S®ZV-Z324	2.4 mm, female and male
Pin depth	R&S®ZV-Z370	5.22 mm to 5.26 mm (female) - 5.28 mm to - 5.32 mm (male)
	R&S®ZV-Z335	0 mm to - 0.035 mm
	R&S®ZV-Z329	0 mm to - 0.035 mm
	R&S®ZV-Z324	0 mm to - 0.035 mm
Inner conductor material		Au-plated age-hardened CuBe alloy
Outer conductor material		stainless steel

## Electrical data of R&S®ZV-Z370

T-Check (female to male)	return loss, 45 MHz to 18 GHz	8 dB to 12 dB
	insertion loss, 45 MHz to 18 GHz	3 dB to 5 dB

## Calibration data of R&S®ZV-Z370

The characteristic data of the verification standards are measured by a DAkkS accredited calibration laboratory.

The uncertainties are valid at the calibration frequencies.

<b>Calibration frequencies</b>	45/100/250 MHz; in steps of 250 MHz from 250 MHz to the upper frequency limit	
T-Check (female to male)	reflection magnitude uncertainty (linear), 45 MHz to 18 GHz	$\leq 0.008$
	reflection phase uncertainty	
	45 MHz to 10 GHz	$\leq 1.8^\circ$
	10 GHz to 18 GHz	$\leq 2^\circ$
	attenuation uncertainty	
	45 MHz to 10 GHz	$\leq 0.05$ dB
	10 GHz to 18 GHz	$\leq 0.06$ dB
	transmission phase uncertainty	
	45 MHz to 5 GHz	$\leq 0.75^\circ$
	5 GHz to 10 GHz	$\leq 1^\circ$
	10 GHz to 18 GHz	$\leq 1.5^\circ$

## Electrical data of R&S®ZV-Z335

T-Check (female to male)	return loss	
	45 MHz to 18 GHz	8 dB to 12 dB
	18 GHz to 26.5 GHz	8 dB to 14 dB
	insertion loss, 45 MHz to 26.5 GHz	
		3 dB to 5 dB

## Calibration data of R&S®ZV-Z335

The characteristic data of the verification standards are measured by a DAkkS accredited calibration laboratory.

The uncertainties are valid at the calibration frequencies.

<b>Calibration frequencies</b>	45/100/250 MHz; in steps of 250 MHz from 250 MHz to the upper frequency limit	
T-Check (female to male)	reflection magnitude uncertainty (linear)	
	45 MHz to 18 GHz	≤ 0.008
	18 GHz to 26.5 GHz	≤ 0.01
	reflection phase uncertainty	
	45 MHz to 18 GHz	≤ 2°
	18 GHz to 26.5 GHz	≤ 2.6°
	attenuation uncertainty	
	45 MHz to 18 GHz	≤ 0.06 dB
	18 GHz to 26.5 GHz	≤ 0.08 dB
	transmission phase uncertainty	
	45 MHz to 3 GHz	≤ 0.75°
	3 GHz to 8 GHz	≤ 1°
	8 GHz to 18 GHz	≤ 1.5°
	18 GHz to 26.5 GHz	≤ 2.25°

## Electrical data of R&S®ZV-Z329

T-Check (female to male)	return loss	
	45 MHz to 18 GHz	8 dB to 12 dB
	18 GHz to 40 GHz	7 dB to 14 dB
	insertion loss	
	45 MHz to 26.5 GHz	3 dB to 5 dB
	26.5 GHz to 40 GHz	3 dB to 5.5 dB

## Calibration data of R&S®ZV-Z329

The characteristic data of the verification standards are measured by a DAkkS accredited calibration laboratory.  
The uncertainties are valid at the calibration frequencies.

<b>Calibration frequencies</b>	45/100/250 MHz; in steps of 250 MHz from 250 MHz to the upper frequency limit	
T-Check (female to male)	reflection magnitude uncertainty (linear)	
	45 MHz to 18 GHz	≤ 0.011
	18 GHz to 26.5 GHz	≤ 0.013
	26.5 GHz to 40 GHz	≤ 0.015
	reflection phase uncertainty	
	45 MHz to 18 GHz	≤ 2.6°
	18 GHz to 26.5 GHz	≤ 3.2°
	26.5 GHz to 40 GHz	≤ 4.2°
	attenuation uncertainty	
	45 MHz to 18 GHz	≤ 0.06 dB
	18 GHz to 26.5 GHz	≤ 0.08 dB
	26.5 GHz to 40 GHz	≤ 0.12 dB
	transmission phase uncertainty	
	45 MHz to 3 GHz	≤ 0.75°
	3 GHz to 8 GHz	≤ 1°
	8 GHz to 18 GHz	≤ 1.5°
	18 GHz to 26.5 GHz	≤ 2.25°
	26.5 GHz to 32 GHz	≤ 2.8°
	32 GHz to 40 GHz	≤ 3.2°

## Electrical data of R&S®ZV-Z324

T-Check (female to male)	return loss	
	45 MHz to 18 GHz	8 dB to 12 dB
	18 GHz to 40 GHz	7 dB to 14 dB
	40 GHz to 50 GHz	6 dB to 15 dB
	insertion loss	
	45 MHz to 26.5 GHz	3 dB to 5 dB
	26.5 GHz to 40 GHz	3 dB to 5.5 dB
	40 GHz to 50 GHz	3 dB to 6 dB

## Calibration data of R&S®ZV-Z324

The characteristic data of the verification standards are measured by a DAkkS accredited calibration laboratory.

The uncertainties are valid at the calibration frequencies.

<b>Calibration frequencies</b>	45/100/250 MHz; in steps of 250 MHz from 250 MHz to the upper frequency limit	
T-Check (female to male)	reflection magnitude uncertainty (linear)	
	45 MHz to 18 GHz	≤ 0.012
	18 GHz to 26.5 GHz	≤ 0.014
	26.5 GHz to 40 GHz	≤ 0.018
	40 GHz to 50 GHz	≤ 0.021
	reflection phase uncertainty	
	45 MHz to 18 GHz	≤ 2.8°
	18 GHz to 26.5 GHz	≤ 3.4°
	26.5 GHz to 40 GHz	≤ 4.6°
	40 GHz to 50 GHz	≤ 6.4°
	attenuation uncertainty	
	45 MHz to 18 GHz	≤ 0.07 dB
	18 GHz to 26.5 GHz	≤ 0.09 dB
	26.5 GHz to 40 GHz	≤ 0.12 dB
	40 GHz to 50 GHz	≤ 0.14 dB
	transmission phase uncertainty	
	45 MHz to 3 GHz	≤ 0.85°
	3 GHz to 8 GHz	≤ 1.1°
	8 GHz to 18 GHz	≤ 1.6°
	18 GHz to 26.5 GHz	≤ 2.25°
	26.5 GHz to 32 GHz	≤ 2.8°
	32 GHz to 40 GHz	≤ 3.2°
	40 GHz to 50 GHz	≤ 4°

## General data

Temperature loading	operating temperature range	+18 °C to +28 °C
	permissible temperature range	0 °C to +50 °C
	storage temperature range	–40 °C to +70 °C
		in line with IEC 60068-2-1 and IEC 60068-2-2
Calibration interval		1 year
Dimensions	W × H × D	233 mm × 70 mm × 233 mm (9.2 in × 2.8 in × 9.2 in)
Weight	R&S®ZV-Z370	0.4 kg (0.9 lb)
	R&S®ZV-Z335	0.35 kg (0.8 lb)
	R&S®ZV-Z329	0.35 kg (0.8 lb)
	R&S®ZV-Z324	0.35 kg (0.8 lb)
	shipping weight	2 kg (4.4 lb)

## Ordering information

Designation	Type	Order No.
T-Checker	R&S®ZV-Z370	1319.1001.02
T-Checker	R&S®ZV-Z335	1319.1018.02
T-Checker	R&S®ZV-Z329	1319.1024.02
T-Checker	R&S®ZV-Z324	1319.1030.02

Service options		
Extended Warranty, one year	R&S®WE1	Please contact your local Rohde & Schwarz sales office.
Extended Warranty, two years	R&S®WE2	
Extended Warranty, three years	R&S®WE3	
Extended Warranty, four years	R&S®WE4	
Extended Warranty with Calibration Coverage, one year	R&S®CW1	
Extended Warranty with Calibration Coverage, two years	R&S®CW2	
Extended Warranty with Calibration Coverage, three years	R&S®CW3	
Extended Warranty with Calibration Coverage, four years	R&S®CW4	

### 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>1</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>1</sup> and calibration at the recommended intervals as well as any calibration carried out during repairs or option upgrades.

<sup>1</sup> Excluding defects caused by incorrect operation or handling and force majeure. Wear-and-tear parts are not included.





## Service that adds value

- ▮ Worldwide
- ▮ Local and personalized
- ▮ Customized and flexible
- ▮ Uncompromising quality
- ▮ Long-term dependability

## About Rohde & Schwarz

Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established more than 80 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

## Quality management and environmental management

Rohde & Schwarz is certified in line with the ISO 9001 and ISO 14001 management systems.

Certified Quality Management

**ISO 9001**

Certified Environmental Management

**ISO 14001**

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