

R&S® ZV-Z2xx Calibration Kits Specifications



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Rohde & Schwarz equipment is designed for reliable operation up to an altitude of 3000 m above sea level, and for transport up to an altitude of 4500 m above sea level.

Definitions

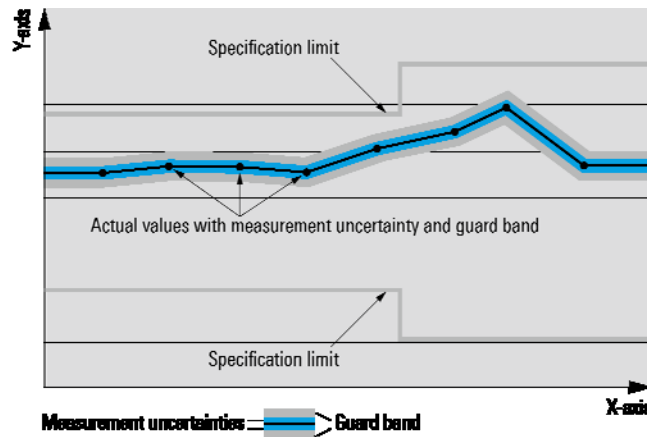
General

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.

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

Specifications

Measurement range

Impedance		50 Ω
Frequency range	R&S [®] ZV-Z270	0 Hz to 18 GHz
	R&S [®] ZV-Z235	0 Hz to 24 GHz
	R&S [®] ZV-Z229	0 Hz to 40 GHz
	R&S [®] ZV-Z224	0 Hz to 50 GHz
	R&S [®] ZV-Z218	0 Hz to 67 GHz
Connectors	R&S [®] ZV-Z270	Type N female and male
	R&S [®] ZV-Z235	3.5 mm female and male
	R&S [®] ZV-Z229	2.92 mm female and male
	R&S [®] ZV-Z224	2.4 mm female and male
	R&S [®] ZV-Z218	1.85 mm female and male

Effective system data of R&S[®]ZV-Z270

The specified effective system data are established after performing a suitable system error calibration, e.g. TOSM, at a R&S[®]ZVA, R&S[®]ZVB, or R&S[®]ZVT vector network analyzer, using the characteristic data of the calibration kit, which are stored on a provided USB stick. This data is valid between +18 °C and +28 °C, at a measurement bandwidth of 10 Hz, and a nominal power of –10 dBm at the calibration ports. The calibration kit is fully functional down to 0 Hz, with effective system data as specified below, although the data is only verified for frequencies as stated.

Directivity	10 MHz to 700 MHz	> 36 dB, typ. 46 dB
	700 MHz to 18 GHz	> 40 dB, typ. 46 dB
Source match	10 MHz to 700 MHz	> 30 dB, typ. 43 dB
	700 MHz to 18 GHz	> 36 dB, typ. 43 dB
Reflection tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.04 dB
	700 MHz to 18 GHz	< 0.1 dB, typ. 0.02 dB
Load match	10 MHz to 700 MHz	> 36 dB, typ. 46 dB
	700 MHz to 18 GHz	> 40 dB, typ. 46 dB
Transmission tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.04 dB
	700 MHz to 18 GHz	< 0.1 dB, typ. 0.02 dB

Effective system data of R&S[®]ZV-Z235

The specified effective system data are established after performing a suitable system error calibration, e.g. TOSM, at a R&S[®]ZVA, R&S[®]ZVB, or R&S[®]ZVT vector network analyzer, using the characteristic data of the calibration kit, which are stored on a provided USB stick. This data is valid between +18 °C and +28 °C, at a measurement bandwidth of 10 Hz, and a nominal power of –10 dBm at the calibration ports. The calibration kit is fully functional down to 0 Hz, with effective system data as specified below, although the data is only verified for frequencies as stated.

Directivity	10 MHz to 700 MHz	> 36 dB, typ. 46 dB
	700 MHz to 24 GHz	> 40 dB, typ. 46 dB
Source match	10 MHz to 700 MHz	> 30 dB, typ. 43 dB
	700 MHz to 24 GHz	> 36 dB, typ. 43 dB
Reflection tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.04 dB
	700 MHz to 24 GHz	< 0.1 dB, typ. 0.02 dB
Load match	10 MHz to 700 MHz	> 36 dB, typ. 46 dB
	700 MHz to 24 GHz	> 40 dB, typ. 46 dB
Transmission tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.04 dB
	700 MHz to 24 GHz	< 0.1 dB, typ. 0.02 dB

Effective system data of R&S®ZV-Z229

The specified effective system data are established after performing a suitable system error calibration, e.g. TOSM, at a R&S®ZVA, R&S®ZVB, or R&S®ZVT vector network analyzer, using the characteristic data of the calibration kit, which are stored on a provided USB stick. This data is valid between +18 °C and +28 °C, at a measurement bandwidth of 10 Hz, and a nominal power of –10 dBm at the calibration ports. The calibration kit is fully functional down to 0 Hz, with effective system data as specified below, although the data is only verified for frequencies as stated.

Directivity	10 MHz to 700 MHz	> 33 dB, typ. 36 dB
	700 MHz to 24 GHz	> 38 dB, typ. 42 dB
	24 GHz to 40 GHz	> 33 dB, typ. 36 dB
Source match	10 MHz to 700 MHz	> 30 dB, typ. 36 dB
	700 MHz to 24 GHz	> 36 dB, typ. 40 dB
	24 GHz to 40 GHz	> 30 dB, typ. 36 dB
Reflection tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.1 dB
	700 MHz to 24 GHz	< 0.1 dB, typ. 0.05 dB
	24 GHz to 40 GHz	< 0.2 dB, typ. 0.1 dB
Load match	10 MHz to 700 MHz	> 33 dB, typ. 36 dB
	700 MHz to 24 GHz	> 38 dB, typ. 42 dB
	24 GHz to 40 GHz	> 33 dB, typ. 36 dB
Transmission tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.1 dB
	700 MHz to 24 GHz	< 0.1 dB, typ. 0.04 dB
	24 GHz to 40 GHz	< 0.2 dB, typ. 0.08 dB

Effective system data of R&S®ZV-Z224

The specified effective system data are established after performing a suitable system error calibration, e.g. TOSM, at a R&S®ZVA, R&S®ZVB, or R&S®ZVT vector network analyzer, using the characteristic data of the calibration kit, which are stored on a provided USB stick. This data is valid between +18 °C and +28 °C, at a measurement bandwidth of 10 Hz, and a nominal power of –10 dBm at the calibration ports. The calibration kit is fully functional down to 0 Hz, with effective system data as specified below, although the data is only verified for frequencies as stated.

Directivity	10 MHz to 700 MHz	> 33 dB, typ. 40 dB
	700 MHz to 24 GHz	> 40 dB, typ. 46 dB
	24 GHz to 50 GHz	> 33 dB, typ. 36 dB
Source match	10 MHz to 700 MHz	> 30 dB, typ. 40 dB
	700 MHz to 24 GHz	> 36 dB, typ. 40 dB
	24 GHz to 50 GHz	> 30 dB, typ. 36 dB
Reflection tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.1 dB
	700 MHz to 24 GHz	< 0.1 dB, typ. 0.05 dB
	24 GHz to 50 GHz	< 0.2 dB, typ. 0.1 dB
Load match	10 MHz to 700 MHz	> 33 dB, typ. 40 dB
	700 MHz to 24 GHz	> 38 dB, typ. 42 dB
	24 GHz to 50 GHz	> 33 dB, typ. 36 dB
Transmission tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.1 dB
	700 MHz to 24 GHz	< 0.1 dB, typ. 0.05 dB
	24 GHz to 50 GHz	< 0.2 dB, typ. 0.1 dB

Effective system data of R&S® ZV-Z218

The specified effective system data are established after performing a suitable system error calibration, e.g. TOSM, at a R&S® ZVA, R&S® ZVB, or R&S® ZVT vector network analyzer, using the characteristic data of the calibration kit, which are stored on a provided USB stick. This data is valid between +18 °C and +28 °C, at a measurement bandwidth of 10 Hz, and a nominal power of –10 dBm at the calibration ports. The calibration kit is fully functional down to 0 Hz, with effective system data as specified below, although the data is only verified for frequencies as stated.

Directivity	10 MHz to 700 MHz	> 30 dB, typ. 36 dB
	700 MHz to 24 GHz	> 36 dB, typ. 42 dB
	24 GHz to 67 GHz	> 32 dB, typ. 38 dB
Source match	10 MHz to 700 MHz	> 30 dB, typ. 36 dB
	700 MHz to 24 GHz	> 36 dB, typ. 42 dB
	24 GHz to 67 GHz	> 30 dB, typ. 36 dB
Reflection tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.1 dB
	700 MHz to 24 GHz	< 0.1 dB, typ. 0.05 dB
	24 GHz to 67 GHz	< 0.2 dB, typ. 0.1 dB
Load match	10 MHz to 700 MHz	> 30 dB, typ. 36 dB
	700 MHz to 24 GHz	> 36 dB, typ. 42 dB
	24 GHz to 67 GHz	> 30 dB, typ. 36 dB
Transmission tracking	10 MHz to 700 MHz	< 0.2 dB, typ. 0.1 dB
	700 MHz to 24 GHz	< 0.1 dB, typ. 0.05 dB
	24 GHz to 67 GHz	< 0.2 dB, typ. 0.1 dB

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
Calibration interval		in line with IEC 60068-2-1 and IEC 60068-2-2
Calibration interval		1 year
Dimensions (W × H × D)		400 mm × 70 mm × 260 mm (15.8 in × 2.8 in × 10.2 in)
Weight	R&S® ZV-Z270	1800 g (4 lb)
	R&S® ZV-Z235	1400 g (3 lb)
	R&S® ZV-Z229	1400 g (3 lb)
	R&S® ZV-Z224	1400 g (3 lb)
	R&S® ZV-Z218	1400 g (3 lb)
	shipping weight	4 kg (9 lb)

Ordering information

Designation	Type	Order No.
Calibration Kit, Type N, 0 Hz to 18 GHz	R&S® ZV-Z270	5011.6536.02
Calibration Kit, 3.5 mm, 0 Hz to 24 GHz	R&S® ZV-Z235	5011.6542.02
Calibration Kit, 2.92 mm, 0 Hz to 40 GHz	R&S® ZV-Z229	5011.6559.02
Calibration Kit, 2.4 mm, 0 Hz to 50 GHz	R&S® ZV-Z224	5011.6565.02
Calibration Kit, 1.85 mm, 0 Hz to 67 GHz	R&S® ZV-Z218	5011.6571.02

Service you can rely on

- | 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 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment

- | Energy-efficient products
- | Continuous improvement in environmental sustainability
- | ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

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