R&S®ZV-Z170
Calibration Kit
Specifications

ROHDE&SCHWARZ

Test & Measurement

Data Sheet | 02.00

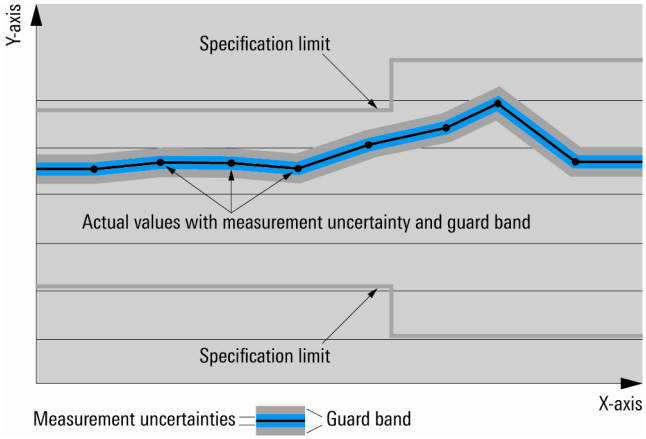
CONTENTS

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 <, ≤, >, ≥, ±, 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

Mechanical data

Connector type	R&S®ZV-Z170 model.02	Type N, 50 Ω, male,
	R&S®ZV-Z170 model.03	Type N, 50 Ω, female
Gauge	R&S®ZV-Z170 model.02	5.28 mm to 5.44 mm
	R&S®ZV-Z170 model.03	5.10 mm to 5.26 mm
Inner conductor material		Au-plated age-hardened CuBe alloy
Outer conductor material		CuSnZn-plated Cu alloy
Body		Blue anodized Al

Electrical data of R&S®ZV-Z170 (type N, 50 Ω, female)

Frequency range		0 Hz to 9 GHz
Through standard		
Return loss	0 Hz to 4 GHz	typ. 39 dB
	4 GHz to 8 GHz	typ. 34 dB
	8 GHz to 9 GHz	typ. 31 dB
Insertion loss		nom. 0.02 dB · $\sqrt{f/GHz}$
Electrical length		nom. 72.30 mm
Open standard		
Fringing capacitance	C_0	–4.631 fF
	C_1	1.966 fF/GHz
	C_2	0.2097 fF/GHz^2
	C_3	–0.04228 fF/GHz^3
Offset length		16.02 mm
Loss		nom. 0.015 dB · $\sqrt{f/GHz}$
Short standard		
Inductance	L_0	74.4 pH
	L_1	–43.99 pH/GHz
	L_2	8.242 pH/GHz^2
	L_3	–0.4658 pH/GHz^3
Offset length		16.02 mm
Loss		nom. 0.015 dB · $\sqrt{f/GHz}$
Match standard		
DC resistance		50.0 Ω ± 0.5 Ω
Return loss	0 Hz to 6 GHz	typ. 46 dB
	6 GHz to 9 GHz	typ. 38 dB
Maximum input power		0.5 W
Effective system data		
Directivity	0 Hz to 6 GHz	> 42 dB
	6 GHz to 9 GHz	> 35 dB
Source match	0 Hz to 6 GHz	> 33 dB
	6 GHz to 9 GHz	> 30 dB
Reflection tracking	0 Hz to 6 GHz	< 0.025 dB
	6 GHz to 9 GHz	< 0.03 dB
Load match	0 Hz to 6 GHz	> 41 dB
	6 GHz to 9 GHz	> 34 dB
Transmission tracking	0 Hz to 6 GHz	< 0.2 dB
	6 GHz to 9 GHz	< 0.25 dB

Electrical data of R&S®ZV-Z170 (type N, 50 Ω, male)

Frequency range		0 Hz to 9 GHz
Through standard		
Return loss	0 Hz to 4 GHz	typ. 39 dB
	4 GHz to 8 GHz	typ. 34 dB
	8 GHz to 9 GHz	typ. 31 dB
Insertion loss		nom. 0.015 dB · $\sqrt{\text{f/GHz}}$
Electrical length		nom. 72.30 mm
Open standard		
Fringing capacitance	C_0	–13.63 fF
	C_1	2.833 fF/GHz
	C_2	0.1235 fF/GHz^2
	C_3	–0.02662 fF/GHz^3
Offset length		16.02 mm
Loss		nom. 0.01 dB · $\sqrt{\text{f/GHz}}$
Short standard		
Inductance	L_0	38.47 pH
	L_1	–13.06 pH/GHz
	L_2	1.518 pH/GHz^2
	L_3	–0.05594 pH/GHz^3
Offset length		16.02 mm
Loss		nom. 0.01 dB · $\sqrt{\text{f/GHz}}$
Match standard		
DC resistance		50.0 Ω ± 0.5 Ω
Return loss	0 Hz to 6 GHz	typ. 46 dB
	6 GHz to 9 GHz	typ. 38 dB
Maximum input power		0.5 W
Effective system data		
Directivity	0 Hz to 6 GHz	> 42 dB
	6 GHz to 9 GHz	> 35 dB
Source match	0 Hz to 6 GHz	> 33 dB
	6 GHz to 9 GHz	> 30 dB
Reflection tracking	0 Hz to 6 GHz	< 0.025 dB
	6 GHz to 9 GHz	< 0.03 dB
Load match	0 Hz to 6 GHz	> 41 dB
	6 GHz to 9 GHz	> 34 dB
Transmission tracking	0 Hz to 6 GHz	< 0.2 dB
	6 GHz to 9 GHz	< 0.25 dB

General data

Temperature loading	operating temperature range	+18 °C to +28 °C
	permissible temperature range	+5 °C to +40 °C
	storage temperature range	–40 °C to +70 °C, in line with EN 60068-2-1 and EN 60068-2-2
Standards	R&S®ZV-Z170	IEC 61169-16
Recommended calibration interval		1 year
Dimensions (W × H × D)	R&S®ZV-Z170 model.02	65 mm × 22 mm × 90 mm, (2.6 in × 0.9 in × 3.6 in)
Dimensions (W × H × D)	R&S®ZV-Z170 model.03	74 mm × 22 mm × 95 mm, (2.9 in × 0.9 in × 3.7 in)
Weight	R&S®ZV-Z170	225 g (0.5 lb)
Shipping weight		1 kg (2.2 lb)

Ordering information

Designation	Type	Order No.
Calibration Kit (type N, 50 Ω, male)	R&S®ZV-Z170	1317.7683.02
Calibration Kit (type N, 50 Ω, female)	R&S®ZV-Z170	1317.7683.03

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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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