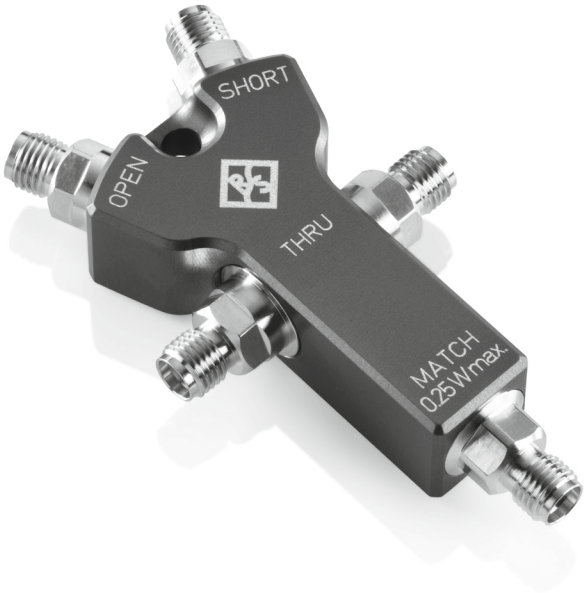
R&S®ZV-Z129
Calibration Kits
Specifications



ROHDE&SCHWARZ

Test & Measurement

Data Sheet | 01.00

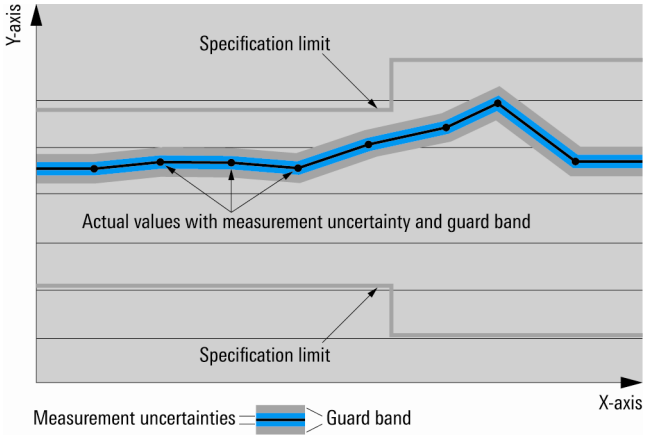
CONTENTS

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.

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

Mechanical data

Connector type	R&S®ZV-Z129 model.02	2.92 mm, male
	R&S®ZV-Z129 model.03	2.92 mm, female
Gauge	R&S®ZV-Z129 model.02	0 mm to 0.05 mm
	R&S®ZV-Z129 model.03	0 mm to 0.05 mm
Inner conductor material		Au-plated age-hardened CuBe alloy
Outer conductor material		Au-plated CuBe
Body		blue anodized Al

Electrical data of R&S®ZV-Z129 (2.92 mm, female)

Frequency range		0 Hz to 40 GHz
Through standard		
Return loss	0 Hz to 4 GHz	> 32 dB
	4 GHz to 26.5 GHz	> 28 dB
	26.5 GHz to 40 GHz	> 23 dB
Insertion loss		0.025 dB · $\sqrt{\text{f/GHz}}$ typ.
Electrical length		34.81 mm typ.
Open standard		
Fringing capacitance	C_0	7.915090 fF
	C_1	-1.268281 fF/GHz
	C_2	0.052788 fF/GHz^2
	C_3	-0.000585 fF/GHz^3
Offset length		9.465 mm
Loss		0.01 dB · $\sqrt{\text{f/GHz}}$
Short standard		
Inductance	L_0	-0.746991 pH
	L_1	-0.462930 pH/GHz
	L_2	0.033622 pH/GHz^2
	L_3	-0.000552 pH/GHz^3
Offset length		9.35 mm
Loss		0.01 dB · $\sqrt{\text{f/GHz}}$
Match standard		
DC resistance		50.0 Ω ±0.5 Ω
Return loss	0 Hz to 4 GHz	> 41 dB
	4 GHz to 10 GHz	> 35 dB
	10 GHz to 26.5 GHz	> 30 dB
	26.5 GHz to 40 GHz	> 26 dB
Maximum input power		0.25 W

Electrical data of R&S®ZV-Z129 (2.92 mm, male)

Frequency range		0 Hz to 40 GHz
Through standard		
Return loss	0 Hz to 4 GHz	> 32 dB
	4 GHz to 26.5 GHz	> 28 dB
	26.5 GHz to 40 GHz	> 23 dB
Insertion loss		0.025 dB · $\sqrt{f/GHz}$ typ.
Electrical length		34.83 mm typ.
Open standard		
Fringing capacitance	C_0	7.553857 fF
	C_1	-1.288152 fF/GHz
	C_2	0.053653 fF/GHz^2
	C_3	-0.000593 fF/GHz^3
Offset length		9.465 mm
Loss		0.01 dB · $\sqrt{f/GHz}$
Short standard		
Inductance	L_0	-8.271133 pH
	L_1	0.600664 pH/GHz
	L_2	-0.020529 pH/GHz^2
	L_3	0.00017 pH/GHz^3
Offset length		9.403 mm
Loss		0.01 dB · $\sqrt{f/GHz}$
Match standard		
DC resistance		50.0 Ω ±0.5 Ω
Return loss	0 Hz to 4 GHz	> 41 dB
	4 GHz to 10 GHz	> 35 dB
	10 GHz to 26.5 GHz	> 30 dB
	26.5 GHz to 40 GHz	> 26 dB
Maximum input power		0.25 W

Effective system data of R&S®ZV-Z129 (2.92 mm, female and male)

The specified effective system data is established after performing a UOSM system error calibration on a R&S®ZNB40 vector network analyzer using the calibration kit's characteristic data. 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.

Directivity	10 MHz to 4 GHz	> 38 dB
	4 GHz to 10 GHz	> 32 dB
	10 GHz to 26.5 GHz	> 27 dB
	26.5 GHz to 40 GHz	> 23 dB
Source match	10 MHz to 4 GHz	> 34 dB
	4 GHz to 10 GHz	> 29 dB
	10 GHz to 26.5 GHz	> 24 dB
	26.5 GHz to 40 GHz	> 22 dB
Reflection tracking	10 MHz to 4 GHz	< 0.025 dB
	4 GHz to 10 GHz	< 0.04 dB
	10 GHz to 26.5 GHz	< 0.06 dB
	26.5 GHz to 40 GHz	< 0.08 dB
Load match	10 MHz to 4 GHz	> 38 dB
	4 GHz to 10 GHz	> 32 dB
	10 GHz to 26.5 GHz	> 27 dB
	26.5 GHz to 40 GHz	> 23 dB
Transmission tracking	10 MHz to 4 GHz	< 0.1 dB
	4 GHz to 10 GHz	< 0.2 dB
	10 GHz to 26.5 GHz	< 0.5 dB
	26.5 GHz to 40 GHz	< 0.8 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-Z129	IEEE 287
Recommended calibration interval		1 year
Dimensions (W × H × D)	R&S®ZV-Z129 model.02	39 mm × 70 mm × 14 mm, (1.54 in × 2.76 in × 0.55 in)
Dimensions (W × H × D)	R&S®ZV-Z129 model.03	37 mm × 68 mm × 14 mm, (1.46 in × 2.68 in × 0.55 in)
Weight	R&S®ZV-Z129	55 g (0.12 lb)
Shipping weight		1 kg (2.2 lb)

Ordering information

Designation	Type	Order No.
Calibration Kit (2.92 mm, male)	R&S®ZV-Z129	1322.7471.02
Calibration Kit (2.92 mm, female)	R&S®ZV-Z129	1322.7471.03

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 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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