

R&S® ZN-Z51

Calibration Unit

Specifications



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Definitions

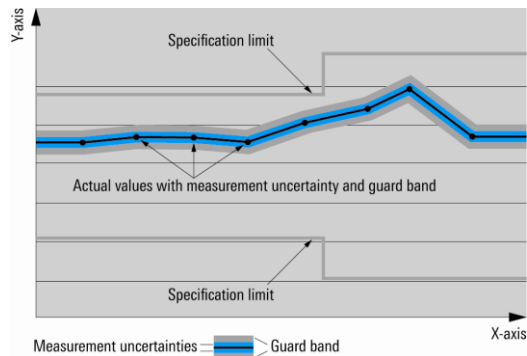
General

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
Calibration port connector type		type N (50 Ω) female or 3.5 mm female
	optional – the ports of models .72/.74 can be equipped with fixed adapters for	type N (50 Ω) male, 3.5 mm female and male, 7/16 female and male
Number of calibration ports		2 or 4
Frequency range	with 3.5 mm or type N connectors	100 kHz to 8.5 GHz
	with 7/16 connectors	100 kHz to 7.5 GHz
Nominal input level range		–45 dBm to +20 dBm
Damage level		+23 dBm
Damage DC voltage		12 V

Effective system data (ports without options)

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.

Directivity	100 kHz to 10 MHz	> 40 dB
	10 MHz to 4 GHz	> 46 dB
	4 GHz to 8.5 GHz	> 40 dB
Source match	100 kHz to 10 MHz	> 34 dB
	10 MHz to 4 GHz	> 40 dB
	4 GHz to 8.5 GHz	> 36 dB

Reflection tracking	100 kHz to 10 MHz	< 0.1 dB
	10 MHz to 4 GHz	< 0.04 dB
	4 GHz to 8.5 GHz	< 0.1 dB
Load match	100 kHz to 10 MHz	> 40 dB
	10 MHz to 4 GHz	> 46 dB
	4 GHz to 8.5 GHz	> 40 dB
Transmission tracking	100 kHz to 10 MHz	< 0.1 dB
	10 MHz to 4 GHz	< 0.04 dB
	4 GHz to 8.5 GHz	< 0.1 dB

Ports with optional port connectors

Directivity	100 kHz to 10 MHz	> 40 dB
	10 MHz to 4 GHz	> 40 dB
	4 GHz to 8.5 GHz	> 36 dB
Source match	100 kHz to 10 MHz	> 34 dB
	10 MHz to 4 GHz	> 36 dB
	4 GHz to 8.5 GHz	> 30 dB
Reflection tracking	100 kHz to 10 MHz	< 0.1 dB
	10 MHz to 4 GHz	< 0.06 dB
	4 GHz to 8.5 GHz	< 0.12 dB
Load match	100 kHz to 10 MHz	> 40 dB
	10 MHz to 4 GHz	> 36 dB
	4 GHz to 8.5 GHz	> 32 dB
Transmission tracking	100 kHz to 10 MHz	< 0.1 dB
	10 MHz to 4 GHz	< 0.06 dB
	4 GHz to 8.5 GHz	< 0.12 dB

General data

Temperature loading		in line with IEC 60068-2-1 and IEC 60068-2-2
	operation temperature range	+5 °C to +40 °C
	permissible temperature range	0 °C to +50 °C
	storage temperature range	−40 °C to +70 °C
Damp heat		+40 °C at 85 % rel. humidity
Mechanical resistance	vibration test, sinusoidal	5 Hz to 150 Hz, in line with IEC 60068-2-6
	vibration test, random	10 Hz to 300 Hz, in line with IEC 60068-2-64
	shock test	40 g shock spectrum, in line with IEC 60068-2-27, MIL-STD-810
Calibration interval		12 months
EMC	RF emission	in line with CISPR 11/EN 55011 group 1 class A (for a shielded test setup); instrument complies with the emission requirements stipulated by EN 55011 and EN 61326-1 class A making the instrument suitable for use in industrial environments
	immunity	in line with EMC Directive 2004/108/EC including: IEC/EN 61326-1 (immunity test requirement for industrial environment, EN 61326 table 2)
Safety		in line with IEC 31010-1, EN 61010-1, and UL 61010B-1, CSA C22.2 No. 61010.1

Power supply		5 V, 420 mA via universal serial bus (USB)
Power consumption		2 W
Dimensions	W × H × D	118 mm × 35 mm × 125 mm (4.6 in × 1.4 in × 4.9 in)
Weight		1 kg (2.2 lb)
Shipping weight		3 kg (6.61 lb)

Ordering information

Designation	Type	Order No.
Calibration Unit, 100 kHz to 8.5 GHz, 2 ports, 3.5 mm (f)	R&S®ZN-Z51	1319.5507.32
Calibration Unit, 100 kHz to 8.5 GHz, 2 ports, N (f)	R&S®ZN-Z51	1319.5507.72
Calibration Unit, 100 kHz to 8.5 GHz, 4 ports, 3.5 mm (f)	R&S®ZN-Z51	1319.5507.34
Calibration Unit, 100 kHz to 8.5 GHz, 4 ports, N (f)	R&S®ZN-Z51	1319.5507.74

Options

Designation	Type	Order No.
Connector port 1 3.5 mm (f) ¹	R&S®ZNZ51 B130	1319.5720.11
Connector port 2 3.5 mm (f) ¹	R&S®ZNZ51 B230	1319.5720.12
Connector port 3 3.5 mm (f) ¹	R&S®ZNZ51 B330	1319.5720.13
Connector port 4 3.5 mm (f) ¹	R&S®ZNZ51 B430	1319.5720.14
Connector port 1 3.5 mm (m) ¹	R&S®ZNZ51 B131	1319.5736.11
Connector port 2 3.5 mm (m) ¹	R&S®ZNZ51 B231	1319.5736.12
Connector port 3 3.5 mm (m) ¹	R&S®ZNZ51 B331	1319.5736.13
Connector port 4 3.5 mm (m) ¹	R&S®ZNZ51 B431	1319.5736.14
Connector port 1 N (m) ¹	R&S®ZNZ51 B171	1319.5713.11
Connector port 2 N (m) ¹	R&S®ZNZ51 B271	1319.5713.12
Connector port 3 N (m) ¹	R&S®ZNZ51 B371	1319.5713.13
Connector port 4 N (m) ¹	R&S®ZNZ51 B471	1319.5713.14
Connector port 1 7/16 (f) ¹	R&S®ZNZ51 B160	1319.5742.11
Connector port 2 7/16 (f) ¹	R&S®ZNZ51 B260	1319.5742.12
Connector port 3 7/16 (f) ¹	R&S®ZNZ51 B360	1319.5742.13
Connector port 4 7/16 (f) ¹	R&S®ZNZ51 B460	1319.5742.14
Connector port 1 7/16 (m) ¹	R&S®ZNZ51 B161	1319.5759.11
Connector port 2 7/16 (m) ¹	R&S®ZNZ51 B261	1319.5759.12
Connector port 3 7/16 (m) ¹	R&S®ZNZ51 B361	1319.5759.13
Connector port 4 7/16 (m) ¹	R&S®ZNZ51 B461	1319.5759.14
DAKKS calibration	R&S®ZNZ4-DAKKS	1319.5765.74

¹ Adapters are only available for models .72/.74. Only one option per port is possible as the adapters are not removable to assure accurate calibration results. The upper frequency limit of this ports with 7/16 adapters is reduced to 7.5 GHz.

Service options		
Extended warranty, one year	R&S®WE1ZN-Z51	Please contact your local Rohde & Schwarz sales office.
Extended warranty, two years	R&S®WE2ZN-Z51	
Extended warranty, three years	R&S®WE3ZN-Z51	
Extended warranty, four years	R&S®WE4ZN-Z51	
Extended warranty with Calibration Coverage, one year	R&S®CW1ZN-Z51	
Extended warranty with Calibration Coverage, two years	R&S®CW2ZN-Z51	
Extended warranty with Calibration Coverage, three years	R&S®CW3ZN-Z51	
Extended warranty with Calibration Coverage, four years	R&S®CW4ZN-Z51	

Extended warranty with a term of one to four years (WE1 to WE4)

Repairs carried out during the contract term are free of charge ². 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 ² and calibration at the recommended intervals as well as any calibration carried out during repairs or option upgrades

² 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

Sustainable product design

- ▮ Environmental compatibility and eco-footprint
- ▮ Energy efficiency and low emissions
- ▮ Longevity and optimized total cost of ownership

Certified Quality Management

ISO 9001

Certified Environmental Management

ISO 14001

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PD 3606.8995.22 | Version 02.00 | August 2014 (as/ft)

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Data without tolerance limits is not binding | Subject to change

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