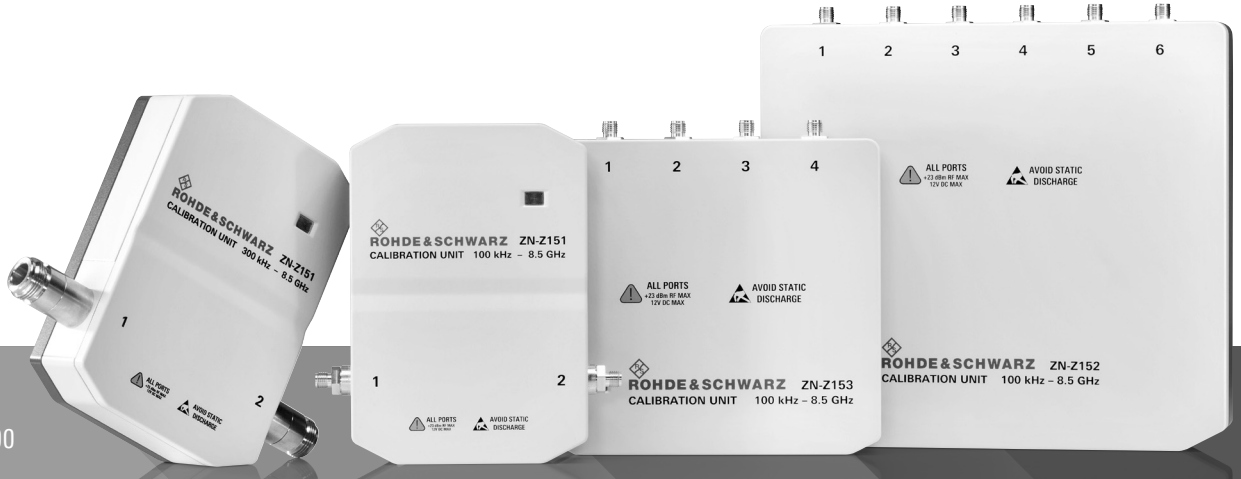
R&S®ZN-Zxxx
CALIBRATION UNITS

Specifications

R&S®ZN-Z50/-Z51/-Z52/-Z53/-Z54/-Z55
R&S®ZN-Z150/-Z151/-Z152/-Z153/-Z154/-Z156



Data Sheet
Version 07.00

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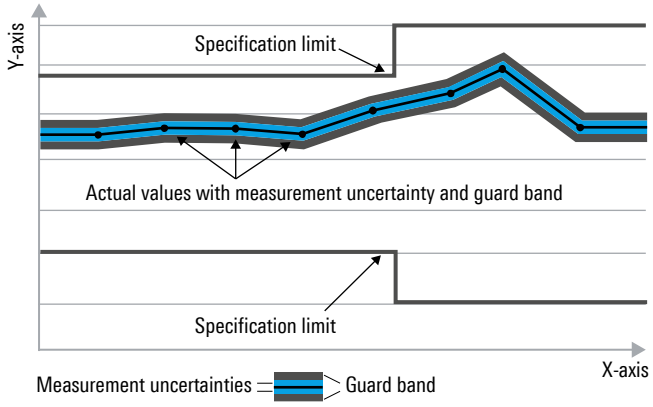
CONTENTS

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.



Non-traceable specifications with limits (n. trc.)
Represent product performance that is specified and tested as described under “Specifications with limits” above. However, product performance in this case cannot be warranted due to the lack of measuring equipment traceable to national metrology standards. In this case, measurements are referenced to standards used in the Rohde & Schwarz laboratories.

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”.

Non-traceable specifications with limits, typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

In line with the 3GPP/3GPP2 standard, chip rates are specified in million chips per second (Mcps), whereas bit rates and symbol rates are specified in billion bit per second (Gbps), million bit per second (Mbps), thousand bit per second (kbps), million symbols per second (Msps) or thousand symbols per second (ksps), and sample rates are specified in million samples per second (Msample/s). Gbps, Mcps, Mbps, Msps, kbps, ksps and Msample/s are not SI units.

Specifications

Impedance		50 Ω

Calibration units for automatic calibration – economy

Type	Model	Connector	Number of ports	Frequency range
R&S®ZN-Z150	.72	N (f)	2	5 kHz to 6 GHz
R&S®ZN-Z151	.72	N (f)	2	100 kHz to 8.5 GHz
	.32	SMA (f)	2	
R&S®ZN-Z152	.36	SMA (f)	6	
R&S®ZN-Z153	.34	SMA (f)	4	
R&S®ZN-Z154	.02	SMA (f)	6	
R&S®ZNZ154-B22 option	.22	SMA (f)	6 (ports 7 to 12)	
R&S®ZNZ154-B32 option	.32	SMA (f)	6 (ports 13 to 18)	
R&S®ZNZ154-B42 option	.42	SMA (f)	6 (ports 19 to 24)	

Calibration units for automatic calibration – high-end

Type	Model	Connector	Number of ports	Frequency range
R&S®ZN-Z50	.30	3.5 mm (f)	2	9 kHz to 9 GHz
	.32	3.5 mm (f)	2	9 kHz to 26.5 GHz
R&S®ZN-Z51	.32	3.5 mm (f)	2	100 kHz to 8.5 GHz
	.34	3.5 mm (f)	4	
	.72	N (f)	2	
	.74	N (f)	4	
R&S®ZN-Z52	.30	3.5 mm (f)	4	100 kHz to 26.5 GHz
R&S®ZN-Z53	.32	3.5 mm (f)	2	100 kHz to 26.5 GHz
	.72	N (f)	2	100 kHz to 18 GHz
R&S®ZN-Z54	.92	2.92 mm (f)	2	9 kHz to 40 GHz, characterized up to 43.5 GHz
R&S®ZN-Z55	.42	2.4 mm (f)	2	9 kHz to 50 GHz
R&S®ZN-Z156	.02	1.85 mm (f)	2	5 GHz to 67 GHz
	.03	1.85 mm (f)	2	10 MHz to 67 GHz

Input power limits

Nominal input level range	R&S®ZN-Z50/-Z54/-Z55	–45 dBm to +20 dBm
	R&S®ZN-Z51/-Z52/-Z53	–45 dBm to +20 dBm
	R&S®ZN-Z150/-Z151/-Z152/-Z153/-Z154	–45 dBm to +10 dBm
	R&S®ZN-Z156	–45 dBm to +10 dBm
Damage level	R&S®ZN-Z50/-Z54/-Z55	+20 dBm
	R&S®ZN-Z51/-Z52/-Z53	+23 dBm
	R&S®ZN-Z150/-Z151/-Z152/-Z153/-Z154	
	R&S®ZN-Z156	
Damage DC voltage	R&S®ZN-Z50/-Z54/-Z55	0 V
	R&S®ZN-Z51/-Z52/-Z53	12 V
	R&S®ZN-Z150/-Z151/-Z152/-Z153/-Z154	
	R&S®ZN-Z156	

Effective system data

Data in the following tables are valid for an ambient temperature between +18 °C and +28 °C, a measurement bandwidth of 10 Hz and a nominal power of –10 dBm at the calibration ports.

R&S®ZN-Z150 (2 ports, N connector)

Specified values in dB			
	5 kHz to 1 MHz	**1 MHz to 3 GHz**	**3 GHz to 6 GHz**
Directivity	≥ 38	≥ 40	≥ 38
Source match and load match	≥ 36	≥ 38	≥ 36
Reflection tracking and transmission tracking	≤ 0.18	≤ 0.10	≤ 0.14

R&S®ZN-Z151 (2 ports, N or SMA connector), R&S®ZN-Z153 (4 ports, SMA connector), R&S®ZN-Z152 (6 ports, SMA connector)

Specified values in dB			
	100 kHz to 10 MHz	**10 MHz to 4 GHz**	**4 GHz to 8.5 GHz**
Directivity	≥ 38	≥ 40	≥ 38
Source match and load match	≥ 32	≥ 36	≥ 32
Reflection tracking and transmission tracking	≤ 0.20	≤ 0.10	≤ 0.20

R&S®ZN-Z154 (up to 24 ports, SMA connector)

Specified values in dB			
	100 kHz to 10 MHz	**10 MHz to 4 GHz**	**4 GHz to 8.5 GHz**
Directivity	≥ 38	≥ 40	≥ 36
Source match and load match	≥ 20	≥ 36	≥ 32
Reflection tracking and transmission tracking	≤ 0.20	≤ 0.10	≤ 0.20

R&S®ZN-Z51 (2 or 4 ports, multiple connector options)

Specified values in dB (without optional port connectors)			
	100 kHz to 10 MHz	**10 MHz to 4 GHz**	**4 GHz to 8.5 GHz**
Directivity	≥ 40	≥ 46	≥ 40
Source match	≥ 34	≥ 40	≥ 36
Load match	≥ 40	≥ 46	≥ 40
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.04	≤ 0.10

Typical values in dB			
	100 kHz to 10 MHz	**10 MHz to 4 GHz**	**4 GHz to 8.5 GHz**
Directivity	42	46	42
Source match	38	40	38
Load match	42	46	42
Reflection tracking and transmission tracking	0.08	0.04	0.08

Specified values in dB with optional port connectors (see Port options for the R&S®ZN-Z51 calibration units on page 12)			
	100 kHz to 10 MHz	**10 MHz to 4 GHz**	**4 GHz to 8.5 GHz**
Directivity	≥ 40	≥ 40	≥ 36
Source match	≥ 34	≥ 36	≥ 30
Load match	≥ 40	≥ 36	≥ 32
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.06	≤ 0.12

R&S®ZN-Z50 (2 ports, 3.5 mm connector, model .30)

Specified values in dB				
	9 kHz to 100 kHz	**100 kHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 9 GHz**
Directivity	≥ 40	≥ 44	≥ 41	≥ 41
Source match and load match	≥ 36	≥ 42	≥ 39	≥ 38
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.05	≤ 0.07	≤ 0.07

Typical values in dB				
	9 kHz to 100 kHz	**100 kHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 9 GHz**
	typical	**typical**	**typical**	**typical**
Directivity	42	45	43	43
Source match and load match	38	43	40	39
Reflection tracking and transmission tracking	0.08	0.04	0.06	0.06

R&S®ZN-Z50 (2 ports, 3.5 mm connector, model .32)

Specified values in dB						
	9 kHz to 100 kHz	**100 kHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 26.5 GHz**
Directivity	≥ 40	≥ 44	≥ 41	≥ 41	≥ 39	≥ 37
Source match and load match	≥ 36	≥ 42	≥ 39	≥ 38	≥ 36	≥ 34
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.05	≤ 0.07	≤ 0.07	≤ 0.09	≤ 0.12

Typical values in dB						
	9 kHz to 100 kHz	**100 kHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 26.5 GHz**
Directivity	42	45	43	43	41	39
Source match and load match	38	43	40	39	37	36
Reflection tracking and transmission tracking	0.08	0.04	0.06	0.06	0.08	0.10

R&S®ZN-Z52 (4 ports, 3.5 mm connector)

Specified values in dB						
	100 kHz to 1 MHz	**1 MHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 26.5 GHz**
Directivity	≥ 40	≥ 44	≥ 41	≥ 41	≥ 39	≥ 37
Source match and load match	≥ 38	≥ 42	≥ 39	≥ 37	≥ 35	≥ 33
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.05	≤ 0.07	≤ 0.07	≤ 0.09	≤ 0.12

Typical values in dB						
	100 kHz to 1 MHz	**1 MHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 26.5 GHz**
Directivity	42	45	43	43	41	39
Source match and load match	40	43	40	38	36	35
Reflection tracking and transmission tracking	0.08	0.04	0.06	0.06	0.08	0.10

R&S®ZN-Z53 (2 ports, 3.5 mm connector, model .32)

Specified values in dB						
	100 kHz to 1 MHz	**1 MHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 26.5 GHz**
Directivity	≥ 40	≥ 44	≥ 41	≥ 41	≥ 39	≥ 37
Source match and load match	≥ 38	≥ 42	≥ 39	≥ 37	≥ 35	≥ 33
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.05	≤ 0.07	≤ 0.07	≤ 0.09	≤ 0.12

Typical values in dB						
	100 kHz to 1 MHz	**1 MHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 26.5 GHz**
Directivity	42	45	43	43	41	39
Source match and load match	40	43	40	38	36	35
Reflection tracking and transmission tracking	0.08	0.04	0.06	0.06	0.08	0.10

R&S®ZN-Z53 (2 ports, N connector, model .72)

Specified values in dB					
	100 kHz to 1 MHz	**1 MHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 10 GHz**	**10 GHz to 18 GHz**
Directivity	≥ 40	≥ 44	≥ 41	≥ 41	≥ 39
Source match and load match	≥ 38	≥ 42	≥ 39	≥ 37	≥ 35
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.05	≤ 0.07	≤ 0.07	≤ 0.09

Typical values in dB					
	100 kHz to 1 MHz	**1 MHz to 2 GHz**	**2 GHz to 6 GHz**	**6 GHz to 10 GHz**	**10 GHz to 18 GHz**
Directivity in dB	42	45	43	43	41
Source match and load match in dB	40	43	40	38	36
Reflection tracking and transmission tracking in dB	0.08	0.04	0.06	0.06	0.08

R&S®ZN-Z54 (2 ports, 2.92 mm connector)

Specified values in dB						
	9 kHz to 100 kHz	**100 kHz to 2 GHz**	**2 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 30 GHz**	**30 GHz to 40 GHz**
Directivity	≥ 40	≥ 44	≥ 40	≥ 38	≥ 36	≥ 34
Source match and load match	≥ 37	≥ 41	≥ 37	≥ 34	≥ 32	≥ 30
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.05	≤ 0.07	≤ 0.09	≤ 0.12	≤ 0.15

Typical values in dB (if not otherwise stated)							
	9 kHz to 100 kHz	**100 kHz to 2 GHz**	**2 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 30 GHz**	**30 GHz to 40 GHz**	**40 GHz to 43.5 GHz**
Directivity	41	45	41	40	38	36	≥ 34 (meas.)
Source match and load match	39	42	38	35	34	32	≥ 30 (meas.)
Reflection tracking and transmission tracking	0.08	0.04	0.06	0.08	0.10	0.12	≤ 0.15 (meas.)

R&S®ZN-Z55 (2 ports, 2.4 mm connector)

Specified values in dB							
	9 kHz to 100 kHz	**100 kHz to 2 GHz**	**2 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 30 GHz**	**30 GHz to 40 GHz**	**40 GHz to 50 GHz**
Directivity	≥ 40	≥ 44	≥ 39	≥ 37	≥ 35	≥ 34	≥ 32
Source match and load match	≥ 37	≥ 41	≥ 36	≥ 34	≥ 31	≥ 30	≥ 27
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.05	≤ 0.07	≤ 0.09	≤ 0.12	≤ 0.15	≤ 0.20

Typical values in dB							
	9 kHz to 100 kHz	**100 kHz to 2 GHz**	**2 GHz to 10 GHz**	**10 GHz to 20 GHz**	**20 GHz to 30 GHz**	**30 GHz to 40 GHz**	**40 GHz to 50 GHz**
Directivity	41	45	41	39	37	36	34
Source match and load match	40	42	38	36	33	32	29
Reflection tracking and transmission tracking	0.08	0.04	0.06	0.08	0.10	0.12	0.14

R&S®ZN-Z156 (2 ports, 1.85 mm connector, model .03)

Specified values in dB					
	10 MHz to 10 GHz	**10 GHz to 20 GHz**	**20 GHz to 40 GHz**	**40 GHz to 50 GHz**	**50 GHz to 67 GHz**
Directivity	≥ 45	≥ 43	≥ 41	≥ 36	≥ 35
Source match and load match	≥ 42	≥ 39	≥ 36	≥ 30	≥ 29
Reflection tracking and transmission tracking	≤ 0.05	≤ 0.05	≤ 0.07	≤ 0.10	≤ 0.10

Typical values in dB					
	10 MHz to 10 GHz	**10 GHz to 20 GHz**	**20 GHz to 40 GHz**	**40 GHz to 50 GHz**	**50 GHz to 67 GHz**
Directivity	46	44	42	37	37
Source match and load match	43	40	38	31	30
Reflection tracking and transmission tracking	0.03	0.04	0.05	0.07	0.08

R&S®ZN-Z156 (2 ports, 1.85 mm connector, model .02)

Specified values in dB				
	5 GHz to 20 GHz	**20 GHz to 40 GHz**	**40 GHz to 60 GHz**	**60 GHz to 67 GHz**
Directivity	≥ 36	≥ 32	≥ 30	≥ 30
Source match and load match	≥ 34	≥ 30	≥ 26	≥ 26
Reflection tracking and transmission tracking	≤ 0.10	≤ 0.15	≤ 0.20	≤ 0.20

Typical values in dB				
	5 GHz to 20 GHz	**20 GHz to 40 GHz**	**40 GHz to 60 GHz**	**60 GHz to 67 GHz**
Directivity	42	36	34	34
Source match and load match	38	34	32	30
Reflection tracking and transmission tracking	0.08	0.10	0.12	0.15

General data

Temperature loading	operating temperature range	+5 °C to +40 °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
Damp heat		+40 °C at 85 % relative humidity
Mechanical resistance	vibration test, sinusoidal	5 Hz to 55 Hz, displacement: 0.15 mm constant amplitude (1.8 g at 55 Hz); 55 Hz to 150 Hz, acceleration: 0.5 g constant; in line with IEC 60068-2-6
	vibration test, random	10 Hz to 300 Hz, acceleration 1.2 g (RMS), in line with IEC 60068-2-64
	shock test	40 g shock spectrum, in line with MIL-STD-810E, method no. 516.4, procedure I
Calibration interval		12 months
Electromagnetic compatibility	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 EC2014/30/EU, including IEC/EN 61326-1 (immunity test requirement for industrial environment, EN 61326 table 2)
Electrical safety [1]		in line with • IEC 61010-1 • EN 61010-1 • UL 61010-1, CSA C22.2 No. 61010.1
Power supply	R&S®ZN-Z50/-Z51/-Z52/-Z53/-Z54/-Z55, R&S®ZN-Z152/-Z153	via USB, 5 V, 450 mA, max. 500 mA
	R&S®ZN-Z150/-Z151	via USB, 5 V, 300 mA
	R&S®ZN-Z154	100 V to 240 V (AC) ± 10 %, 50 Hz to 60 Hz/400 Hz ± 5 %, safety class I to VDE 411
	R&S®ZN-Z156	via USB, 5 V, 220 mA
Power consumption	R&S®ZN-Z50/-Z51/-Z52/-Z53/-Z54/-Z55, R&S®ZN-Z152/-Z153	2.3 W
	R&S®ZN-Z150/-Z151	1.5 W
	R&S®ZN-Z154	≤ 130 VA
	R&S®ZN-Z156	1.1 W

Dimensions and weight

Designation	Dimensions (W × H × D)	Weight	Shipping weight
R&S®ZN-Z5x	118 mm × 35 mm × 125 mm (4.65 in × 1.38 in × 4.92 in)	1 kg (2.2 lb)	3 kg (6.61 lb)
R&S®ZN-Z150 and R&S®ZN-Z151, model .72	124 mm × 34 mm × 142 mm (4.88 in × 1.34 in × 5.59 in)	900 g (1.98 lb)	2 kg (4.41 lb)
R&S®ZN-Z151, model .32	124 mm × 37 mm × 112 mm (4.88 in × 1.46 in × 4.41 in)	780 g (1.63 lb)	1.9 kg (4.19 lb)
R&S®ZN-Z152	175 mm × 38 mm × 167 mm (6.89 in × 1.50 in × 6.57 in)	1.4 kg (3.09 lb)	2.5 kg (5.5 lb)
R&S®ZN-Z153	124 mm × 38 mm × 125 mm (4.88 in × 1.50 in × 4.92 in)	790 g (1.74 lb)	2 kg (4.4 lb)
R&S®ZN-Z154	445 mm × 88 mm × 300 mm (17.52 in × 3.46 in × 11.81 in)	5 kg to 7 kg (11 lb to 15.4 lb)	10 kg (22.05 lb)
R&S®ZN-Z156	51 mm × 28 mm × 134 mm (2.01 in × 1.10 in × 5.28 in)	80 g (0.18 lb)	1 kg (2.2 lb)

[1] Applies only to R&S®ZN-Z154.

Ordering information

Designation	Type	Frequency range	Order No.
Calibration units for automatic calibration – economy			
Calibration unit, 2 ports, N (f)	R&S®ZN-Z150	5 kHz to 6 GHz	1335.6710.72
Calibration unit, 2 ports, SMA (f)	R&S®ZN-Z151	100 kHz to 8.5 GHz	1317.9134.32
Calibration unit, 2 ports, N (f)	R&S®ZN-Z151	100 kHz to 8.5 GHz	1317.9134.72
Calibration unit, 4 ports, SMA (f)	R&S®ZN-Z153	100 kHz to 8.5 GHz	1319.6178.34
Calibration unit, 6 ports, SMA (f)	R&S®ZN-Z152	100 kHz to 8.5 GHz	1319.6003.36
Calibration unit, 6 ports, SMA (f), rackmount form factor	R&S®ZN-Z154	100 kHz to 8.5 GHz	1319.5120.02
Additional ports 7 to 12, SMA (f) [2]	R&S®ZNZ154-B22	100 kHz to 8.5 GHz	1319.5136.22
Additional ports 13 to 18, SMA (f) [3]	R&S®ZNZ154-B32	100 kHz to 8.5 GHz	1319.5136.32
Additional ports 19 to 24, SMA (f) [4]	R&S®ZNZ154-B42	100 kHz to 8.5 GHz	1319.5136.42
Calibration units for automatic calibration – high-end			
Calibration unit, 2 ports, N (f)	R&S®ZN-Z51	100 kHz to 8.5 GHz	1319.5507.72
Calibration unit, 2 ports, 3.5 mm (f)	R&S®ZN-Z51	100 kHz to 8.5 GHz	1319.5507.32
Calibration unit, 4 ports, N (f)	R&S®ZN-Z51	100 kHz to 8.5 GHz	1319.5507.74
Calibration unit, 4 ports, 3.5 mm (f)	R&S®ZN-Z51	100 kHz to 8.5 GHz	1319.5507.34
Calibration unit, 2 ports, 3.5 mm (f)	R&S®ZN-Z50	9 kHz to 9 GHz	1335.6904.30
Calibration unit, 2 ports, 3.5 mm (f)	R&S®ZN-Z50	9 kHz to 26.5 GHz	1335.6904.32
Calibration unit, 4 ports, 3.5 mm (f)	R&S®ZN-Z52	100 kHz to 26.5 GHz	1335.6991.30
Calibration unit, 2 ports, 3.5 mm (f)	R&S®ZN-Z53	100 kHz to 26.5 GHz	1335.7046.32
Calibration unit, 2 ports, N (f)	R&S®ZN-Z53	100 kHz to 18 GHz	1335.7046.72
Calibration unit, 2 ports, 2.92 mm (f)	R&S®ZN-Z54	9 kHz to 40 GHz, characterized up to 43.5 GHz	1335.7117.92
Calibration unit, 2 ports, 2.4 mm (f)	R&S®ZN-Z55	9 kHz to 50 GHz	1335.7181.42
Calibration unit, 2 ports, 1.85 mm (f)	R&S®ZN-Z156	5 GHz to 67 GHz	1332.7239.02
Calibration unit, 2 ports, 1.85 mm (f)	R&S®ZN-Z156	10 MHz to 67 GHz	1332.7239.03
Recommended extra			
19" rack adapter	R&S®ZZA-KN2		1175.3010.00
Port options for the R&S®ZN-Z51 calibration units [5]			
Connector port 1, 3.5 mm (f)	R&S®ZNZ51-B130		1319.5720.11
Connector port 2, 3.5 mm (f)	R&S®ZNZ51-B230		1319.5720.12
Connector port 3, 3.5 mm (f)	R&S®ZNZ51-B330		1319.5720.13
Connector port 4, 3.5 mm (f)	R&S®ZNZ51-B430		1319.5720.14
Connector port 1, 3.5 mm (m)	R&S®ZNZ51-B131		1319.5736.11
Connector port 2, 3.5 mm (m)	R&S®ZNZ51-B231		1319.5736.12
Connector port 3, 3.5 mm (m)	R&S®ZNZ51-B331		1319.5736.13
Connector port 4, 3.5 mm (m)	R&S®ZNZ51-B431		1319.5736.14
Connector port 1, N (m)	R&S®ZNZ51-B171		1319.5713.11
Connector port 2, N (m)	R&S®ZNZ51-B271		1319.5713.12
Connector port 3, N (m)	R&S®ZNZ51-B371		1319.5713.13
Connector port 4, N (m)	R&S®ZNZ51-B471		1319.5713.14
Connector port 1, 7/16 (f)	R&S®ZNZ51-B160		1319.5742.11
Connector port 2, 7/16 (f)	R&S®ZNZ51-B260		1319.5742.12
Connector port 3, 7/16 (f)	R&S®ZNZ51-B360		1319.5742.13
Connector port 4, 7/16 (f)	R&S®ZNZ51-B460		1319.5742.14
Connector port 1, 7/16 (m)	R&S®ZNZ51-B161		1319.5759.11
Connector port 2, 7/16 (m)	R&S®ZNZ51-B261		1319.5759.12
Connector port 3, 7/16 (m)	R&S®ZNZ51-B361		1319.5759.13
Connector port 4, 7/16 (m)	R&S®ZNZ51-B461		1319.5759.14
Connector port 1, 4.3-10 (f)	R&S®ZNZ51 B140		1319.5871.11
Connector port 2, 4.3-10 (f)	R&S®ZNZ51 B240		1319.5871.12
Connector port 3, 4.3-10 (f)	R&S®ZNZ51 B340		1319.5871.13
Connector port 4, 4.3-10 (f)	R&S®ZNZ51 B440		1319.5871.14

[2] Requires R&S®ZN-Z154.

[3] Requires R&S®ZNZ154-B22.

[4] Requires R&S®ZNZ154-B32.

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

Accredited calibration			
DAkkS calibration for			
R&S®ZN-Z50, model .30	R&S®ACAZN-Z50		3598.0466.03
R&S®ZN-Z50, model .32	R&S®ACAZN-Z50		3598.0495.03
R&S®ZN-Z51, model .32	R&S®ACAZN-Z51		3596.0517.03
R&S®ZN-Z51, model .34	R&S®ACAZN-Z51		3596.0530.03
R&S®ZN-Z51, model .72	R&S®ACAZN-Z51		3596.0523.03
R&S®ZN-Z51, model .74	R&S®ACAZN-Z51		3596.0546.03
R&S®ZN-Z52, model .30	R&S®ACAZN-Z52		3598.0472.03
R&S®ZN-Z53, model .32	R&S®ACAZN-Z53		3598.0489.03
R&S®ZN-Z53, model .72	R&S®ACAZN-Z53		3598.0508.03
R&S®ZN-Z54, model .92	R&S®ACAZN-Z54		3598.0514.03
R&S®ZN-Z55, model .42	R&S®ACAZN-Z55		3598.0520.03
R&S®ZN-Z150, model .72	R&S®ACAZN-Z150		3598.1310.03
R&S®ZN-Z151, model .32	R&S®ACAZN-Z151		3596.2461.03
R&S®ZN-Z151, model .72	R&S®ACAZN-Z151		3595.9910.03
R&S®ZN-Z151, model .73	R&S®ACAZN-Z151		3595.9927.03
R&S®ZN-Z152, model .36	R&S®ACAZN-Z152		3596.1094.03
R&S®ZN-Z153, model .34	R&S®ACAZN-Z153		3596.1542.03
R&S®ZN-Z154, model .02	R&S®ACAZN-Z154		3596.1536.03
R&S®ZN-Z156, model .02	R&S®ACAZN-Z156		3596.8130.03
R&S®ZN-Z156, model .03	R&S®ACAZN-Z156		3598.9363.03

Service options

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 accredited calibration coverage, one year	R&S®AW1	
Extended warranty with accredited calibration coverage, two years	R&S®AW2	
Extended warranty with accredited calibration coverage, three years	R&S®AW3	
Extended warranty with accredited calibration coverage, four years	R&S®AW4	

Extended warranty with a term of one to four years (WE1 to WE4)
Repairs carried out during the contract term are free of charge [6]. Necessary calibration and adjustments carried out during repairs are also covered.

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 [6] and calibration at the recommended intervals as well as any calibration carried out during repairs or option upgrades.

Extended warranty with accredited calibration (AW1 to AW4)
Enhance your extended warranty by adding accredited calibration coverage at a package price. This package ensures that your Rohde & Schwarz product is regularly calibrated under accreditation, inspected and maintained during the term of the contract. It includes all repairs [6] and accredited calibration at the recommended intervals as well as any accredited calibration carried out during repairs or option upgrades.

[6] 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

Rohde&Schwarz

The Rohde&Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test&measurement, technology systems and networks&cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

www.rohde-schwarz.com

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

Rohde&Schwarz training

www.training.rohde-schwarz.com

Rohde&Schwarz customer support

www.rohde-schwarz.com/support

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R&S®ZN-Zxxx Calibration Units
Data without tolerance limits is not binding | Subject to change

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