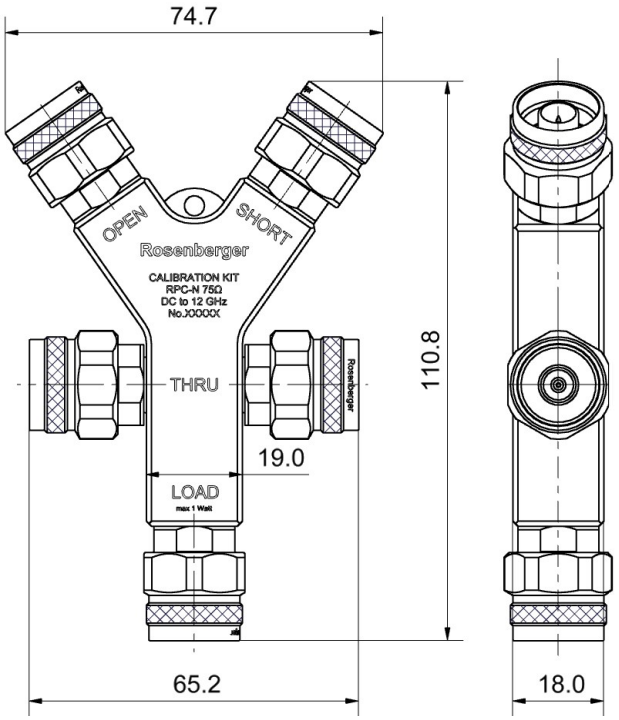
Technical Data Sheet

Rosenberger

RPC-N 75 Ω	Calibration Kit Plug	P5S30R-MSOTS3



All dimensions are in mm; tolerances according to ISO 2768 m-H

Interface

According to IEC 61169-16

Contents and Documentation

This kit is delivered with

- **Standard Definitions Card**
  Printed Standard Definitions that can be used on nearly all Vector Network Analyzers
- **Test Results Documentation**
- **Lanyard**
- **Hard Shell Case**
- **Protection Caps**

Material and plating

Connector parts	**Material**	**Plating**
Center conductor	CuBe	Gold, min. 1.27 µm, over nickel
Outer conductor	Stainless steel	Passivated
Coupling nut	Stainless steel	Passivated
Body	Aluminum	black anodized
Dielectric	PS	
Substrate	Al_2O_3	

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Electrical data

Frequency range	DC to 12 GHz
Thru	
Return loss	≥ 36 dB, DC to 4 GHz ≥ 27 dB, 4 GHz to 8 GHz ≥ 25 dB, 8 GHz to 12 GHz
Open	
Error from nominal phase[1]	≤ 3.0°, DC to 4 GHz ≤ 5.0°, 4 GHz to 8 GHz ≤ 6.0°, 8 GHz to 12 GHz
Short	
Error from nominal phase[2]	≤ 2.5°, DC to 4 GHz ≤ 4.0°, 4 GHz to 8 GHz ≤ 5.0°, 8 GHz to 12 GHz
Load	
Return loss	≥ 38 dB, DC to 4 GHz ≥ 32 dB, 4 GHz to 8 GHz ≥ 30 dB, 8 GHz to 12 GHz
DC-Resistance	75 Ω ± 0.75 Ω
Power handling (at 25 °C, sea level)	≤ 1.0 W, derate by 0.01 W/K

[1] The nominal phase is defined by the Offset Delay, the Offset Loss and the Fringing Capacitances

[2] The nominal phase is defined by the Offset Delay, the Offset Loss and the Short Inductance

Mechanical data

Mating cycles	≥ 500
Maximum torque	1.70 Nm
Recommended torque	1.10 Nm
Gauge	5.28 mm to 5.36 mm

General standard definitions

For proper operation the vector network analyzer (VNA) needs a model describing the electrical behaviour of this calibration standard. The different models, units, and terms used will depend on the VNA type and they will have to be entered into the VNA. All values are based on typical geometry and plating.

Thru	
Offset Z_o / Impedance / Z_o	75 Ω
Offset Delay	214.148 ps
Length (electrical) / Offset Length	64.20 mm
Offset Loss	1.20 GΩ/s
Loss	0.0149 dB/$\sqrt{\text{GHz}}$
Line Loss @ 1GHz	0.0002 dB/mm
Open	
Offset Z_o / Impedance / Z_o	75 Ω
Offset Delay	41.095 ps
Length (electrical) / Offset Length	12.32 mm
Offset Loss	1.20 GΩ/s
Loss	0.0057 dB/$\sqrt{\text{GHz}}$
Fringing Capacitances	C_0 = -5.66000 x 10^{-15} F / -5.66000 fF
	C_1 = -320.000 x 10^{-27} F/Hz / -0.32000 fF /GHz
	C_2 = 188.000 x 10^{-36} F/Hz^2 / 0.18800 fF /GHz^2
	C_3 = -9.40000 x 10^{-45} F/Hz^3 / -0.00940 fF /GHz^3

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Short

Offset Z_o / Impedance / Z_o	75 Ω
Offset Delay	41.095 ps
Length (electrical) / Offset Length	12.32 mm
Offset Loss	1.20 GΩ/s
Loss	0.0057 dB/ $\sqrt{GHz}$
Short Inductance	L_0 = 22.8000 x 10^{-12} H / 22.8000 pH
	L_1 = -1630.00 x 10^{-24} H/Hz / -1.63000 pH/GHz
	L_2 = 23.0000 x 10^{-33} H/Hz^2 / 0.02300 pH/GHz^2
	L_3 = -2.40000 x 10^{-42} H/Hz^3 / -0.00240 pH/GHz^3

Load

Offset Z_o / Impedance / Z_o	50 Ω
Offset Delay	0.0000 ps
Length (electrical) / Offset Length	0.000 mm
Offset Loss	0.00 GΩ/s
Loss	0.0000 dB/ $\sqrt{GHz}$

Environmental data

Operating temperature range[3]	+20 °C to +26 °C
Rated temperature range of use[4]	0 °C to +50 °C
Storage temperature range	-40 °C to +85 °C
RoHS	compliant

[3] Temperature range over which these specifications are valid.

[4] This range is underneath and above the operating temperature range, within the calibration kit is fully functional and could be used without damage

Declaration of documentation

Standard delivery for this kit includes Test Results. The documentation issued reports which quantities were tested individually, traceable to national / international standards. Model based standard definitions of the calibration standards are reported in Agilent / Keysight, Rohde & Schwarz and Anritsu compatible VNA format.

Inspection interval

Recommendation	12 months

Packing

Standard	1 pce in bag
Weight	257 g/pce

Draft	Date	Approved	Date
Marcel Panicke	14.01.16	Markus Müller	06.05.20

Rev.	Engineering change number	Name	Date
e00	19-2083	Marion Striegler	06.05.20

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