



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

**Interface**

According to IEC 61169-35  
Mechanically compatible with RPC-3.50 and SMA

**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**
  - **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 <sub>2</sub> O <sub>3</sub>	

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**Electrical data**

Frequency range	DC to 40.0 GHz
<b>Thru</b>	
Return loss	≥ 32 dB, DC to 4 GHz ≥ 30 dB, 4 GHz to 26.5 GHz ≥ 28 dB, 26.5 GHz to 40 GHz
<b>Open</b>	
Error from nominal phase <sup>1</sup>	≤ 1.5°, DC to 4 GHz ≤ 4.0°, 4 GHz to 26.5 GHz ≤ 5.0°, 26.5 GHz to 40.0 GHz
<b>Short</b>	
Error from nominal phase <sup>2</sup>	≤ 1.5°, DC to 4 GHz ≤ 4.0°, 4 GHz to 26.5 GHz ≤ 5.0°, 26.5 GHz to 40.0 GHz
<b>Load</b>	
Return loss	≥ 40.0 dB, DC to 4 GHz ≥ 28.0 dB, 4 GHz to 26.5 GHz ≥ 25.0 dB, 26.5 GHz to 40.0 GHz
DC Resistance	50 Ω ± 0.5 Ω
Power handling (at 25 °C, sea level)	≤ 0.5 W, derate by 0.005 W/K

<sup>1</sup> The nominal phase is defined by the Offset Delay, the Offset Loss and the Fringing Capacitances

<sup>2</sup> 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	0.90 Nm
Gauge	0.00 mm to 0.08 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 <sub>0</sub> / Impedance / Z <sub>0</sub>	50 Ω
Offset Delay	83.057 ps
Length (electrical) / Offset Length	24.90 mm
Offset Loss	2.70 GΩ/s
Loss	0.0195 dB/√GHz
Line Loss @ 1GHz	0.0008 dB/mm

**Open**

Offset Z <sub>0</sub> / Impedance / Z <sub>0</sub>	50 Ω
Offset Delay	28.353 ps
Length (electrical) / Offset Length	8.50 mm
Offset Loss	2.40 GΩ/s
Loss	0.0118 dB/√GHz
Fringing Capacitances	C <sub>0</sub> = -7.38000 x 10 <sup>-15</sup> F / -7.38000 fF
	C <sub>1</sub> = 1180.00 x 10 <sup>-27</sup> F/Hz / 1.18000 fF /GHz
	C <sub>2</sub> = -44.8000 x 10 <sup>-36</sup> F/Hz <sup>2</sup> / -0.04480 fF /GHz <sup>2</sup>
	C <sub>3</sub> = 0.54000 x 10 <sup>-45</sup> F/Hz <sup>3</sup> / 0.00054 fF /GHz <sup>3</sup>

**Short**

Offset $Z_0$ / Impedance / $Z_0$	50 $\Omega$		
Offset Delay	28.353 ps		
Length (electrical) / Offset Length	8.50 mm		
Offset Loss	2.40 G $\Omega$ /s		
Loss	0.0118 dB/ $\sqrt{\text{GHz}}$		
Short Inductance	$L_0 = 0.0000 \times 10^{-12}$ H	/	0.0000 pH
	$L_1 = 0.0000 \times 10^{-24}$ H/Hz	/	0.0000 pH/GHz
	$L_2 = 0.0000 \times 10^{-33}$ H/Hz <sup>2</sup>	/	0.0000 pH/GHz <sup>2</sup>
	$L_3 = 0.0000 \times 10^{-42}$ H/Hz <sup>3</sup>	/	0.0000 pH/GHz <sup>3</sup>

**Load**

Offset $Z_0$ / Impedance / $Z_0$	50 $\Omega$
Offset Delay	0.0000 ps
Length (electrical) / Offset Length	0.000 mm
Offset Loss	0.00 G $\Omega$ /s
Loss	0.0000 dB/ $\sqrt{\text{GHz}}$

**Environmental data**

Operating temperature range <sup>3</sup>	+ 20 °C to +26 °C
Rated temperature range of use <sup>4</sup>	0 °C to +50 °C
Storage temperature range	- 40 °C to +85 °C
RoHS	compliant

<sup>3</sup> Temperature range over which these specifications are valid.

<sup>4</sup> 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 42 g/pce

While the information has been carefully compiled to the best of our knowledge, nothing is intended as representation or warranty on our part and no statement herein shall be construed as recommendation to infringe existing patents. In the effort to improve our products, we reserve the right to make changes judged to be necessary.

Draft	Date	Approved	Date	Rev.	Engineering change number	Name	Date
Marcel Panicke	05.11.15	Markus Müller	07.05.20	j00	20-1038	Marion Striegler	08.05.20

Rosenberger Hochfrequenztechnik GmbH & Co. KG P.O.Box 1260 D-84526 Tittmoning Germany www.rosenberger.de				Tel. : +49 8684 18-0 Email : info@rosenberger.de		Page 3 / 3
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