



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**

**Material and plating**

**Connector parts**

Center conductor  
Outer conductor  
Coupling nut  
Body  
Dielectric  
Substrate

**Material**

Brass  
Brass  
Brass  
Brass  
PTFE / PPE  
Al<sub>2</sub>O<sub>3</sub>

**Plating**

Gold, min. 1.27 μm, over nickel  
Flash white bronze over silver(e.g. Optargen®)  
White bronze(e.g. Optalloy®)  
powder-coated

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**Electrical data**

Frequency range DC to 8 GHz

**Open**

Error from nominal phase<sup>1</sup>  
 ≤ 3.0°, DC to 6 GHz  
 ≤ 5.0°, 6 GHz to 8 GHz

**Short**

Error from nominal phase<sup>2</sup>  
 ≤ 2.0°, DC to 6 GHz  
 ≤ 4.0°, 6 GHz to 8 GHz

**Load**

Return loss  
 ≥ 42 dB, DC to 2.5 GHz  
 ≥ 38 dB, 2.5 GHz to 6 GHz  
 ≥ 35 dB, 6 GHz to 8 GHz

DC Resistance 50 Ω ± 0.5 Ω

Power handling ≤ 1.0 W

<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 1.10 Nm  
 Gauge 5.28 mm to 5.84 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.

**Open**

Offset Z<sub>o</sub> / Impedance / Z<sub>o</sub> 50 Ω  
 Offset Delay 67.78 ps  
 Length (electrical) / Offset Length 20.32 mm  
 Offset Loss 0.80 GΩ/s  
 Loss 0.0094 dB/√GHz  
 Fringing Capacitances  
 C<sub>0</sub> = -11.4000 x 10<sup>-15</sup> F / -11.4000 fF  
 C<sub>1</sub> = 9000.00 x 10<sup>-27</sup> F/Hz / 9.00000 fF /GHz  
 C<sub>2</sub> = -1180.00 x 10<sup>-36</sup> F/Hz<sup>2</sup> / -1.18000 fF /GHz<sup>2</sup>  
 C<sub>3</sub> = 20.0000 x 10<sup>-45</sup> F/Hz<sup>3</sup> / 0.02000 fF /GHz<sup>3</sup>

**Short**

Offset $Z_o$ / Impedance / $Z_o$	50 Ω	
Offset Delay	67.78 ps	
Length (electrical) / Offset Length	20.32 mm	
Offset Loss	0.80 GΩ/s	
Loss	0.0094 dB/√GHz	
Short Inductance	$L_0 = 28.0000 \times 10^{-12}$ H	/ 28.0000 pH
	$L_1 = -4200.00 \times 10^{-24}$ H/Hz	/ -4.20000 pH/GHz
	$L_2 = -2000.00 \times 10^{-33}$ H/Hz <sup>2</sup>	/ -2.00000 pH/GHz <sup>2</sup>
	$L_3 = 333.000 \times 10^{-42}$ H/Hz <sup>3</sup>	/ 0.33300 pH/GHz <sup>3</sup>

**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/√GHz

**Environmental data**

Operating temperature range <sup>3</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.

**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
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**Packing**

Standard	1 pce in bag
Weight	140 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	26.11.14	Herbert Babinger	19.10.17	c00	17-s336	M. Knoll	19.10.17

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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