



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**

CuBe  
Stainless steel  
Stainless steel  
Aluminum  
PS  
Al<sub>2</sub>O<sub>3</sub>

**Plating**

Gold, min. 1.27 μm, over nickel  
Passivated  
Passivated  
black anodized

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RF\_35/09;14/6.2

**Electrical data**

Frequency range	DC to 12 GHz
<b>Thru</b>	
Return loss	≥ 36 dB, DC to 4 GHz ≥ 27 dB, 4 GHz to 8 GHz ≥ 25 dB, 8 GHz to 12 GHz
<b>Open</b>	
Error from nominal phase <sup>1</sup>	≤ 3.0°, DC to 4 GHz ≤ 5.0°, 4 GHz to 8 GHz ≤ 6.0°, 8 GHz to 12 GHz
<b>Short</b>	
Error from nominal phase <sup>2</sup>	≤ 2.5°, DC to 4 GHz ≤ 4.0°, 4 GHz to 8 GHz ≤ 5.0°, 8 GHz to 12 GHz
<b>Load</b>	
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	≤ 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 5.36 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 <sub>o</sub> / Impedance / Z <sub>o</sub>	75 Ω
Offset Delay	214.148 ps
Length (electrical) / Offset Length	64.20 mm
Offset Loss	1.20 GΩ/s
Loss	0.0149 dB/√GHz
Line Loss @ 1GHz	0.0002 dB/mm

**Open**

Offset Z <sub>o</sub> / Impedance / Z <sub>o</sub>	75 Ω
Offset Delay	41.095 ps
Length (electrical) / Offset Length	12.32 mm
Offset Loss	1.20 GΩ/s
Loss	0.0057 dB/√GHz
Fringing Capacitances	C <sub>0</sub> = -5.66000 x 10 <sup>-15</sup> F / -5.66000 fF C <sub>1</sub> = -320.000 x 10 <sup>-27</sup> F/Hz / -0.32000 fF /GHz C <sub>2</sub> = 188.000 x 10 <sup>-36</sup> F/Hz <sup>2</sup> / 0.18800 fF /GHz <sup>2</sup> C <sub>3</sub> = -9.40000 x 10 <sup>-45</sup> F/Hz <sup>3</sup> / -0.00940 fF /GHz <sup>3</sup>

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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/√GHz
Short Inductance	$L_0 = 22.8000 \times 10^{-12} \text{ H} \quad / \quad 22.8000 \text{ pH}$
	$L_1 = -1630.00 \times 10^{-24} \text{ H/Hz} \quad / \quad -1.63000 \text{ pH/GHz}$
	$L_2 = 23.0000 \times 10^{-33} \text{ H/Hz}^2 \quad / \quad 0.02300 \text{ pH/GHz}^2$
	$L_3 = -2.40000 \times 10^{-42} \text{ H/Hz}^3 \quad / \quad -0.00240 \text{ pH/GHz}^3$

**Load**

Offset $Z_o$ / Impedance / $Z_o$	75 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>	+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
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**Packing**

Standard	1 pce in bag
Weight	257 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	14.01.16	Markus Müller	26.10.16	d00	17-1795	Marion Striegler	26.10.17

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