



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

**Interface**

According to

IEC 60169-11, DIN 47231

**Contents and Documentation**

This kit is delivered with

- **Standard Definitions Card**  
Printed Standard Definitions that can be used on nearly all Vector Network Analyzers
- **Certificate of Testing**
- **Lanyard**
- **Hard Shell Case**
- **Protection Caps**
- **User Manual**

**Material and plating**

**Connector parts**

- Center conductor
- Outer conductor
- Coupling nut
- Body
- Dielectric
- Substrate

**Material**

- CuBe
- Stainless steel
- Brass
- Brass
- PTFE
- Al<sub>2</sub>O<sub>3</sub>

**Plating**

- Gold, min. 1.27 µm, over nickel
- Passivated
- White bronze(e.g. Optalloy®) powder-coated

**Electrical data**

Frequency range DC to 6 GHz

**Open**

Return loss  $\leq 0.15$  dB, DC to 6 GHz

Error from nominal phase<sup>1</sup>  $\leq 3.0^\circ$ , DC to 6 GHz

**Short**

Return loss  $\leq 0.15$  dB, DC to 6 GHz

Error from nominal phase<sup>2</sup>  $\leq 2.0^\circ$ , DC to 6 GHz

**Load**

Return loss  $\geq 42$  dB, DC to 2.5 GHz

$\geq 38$  dB, 2.5 GHz to 6 GHz

DC-Resistance  $50 \Omega \pm 0.5 \Omega$

Power handling (at 25 °C, sea level)  $\leq 1.0$  W, derate by 0.01 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  $\geq 500$

Maximum torque 15 Nm

Recommended torque 2 Nm

Gauge 5.05 mm to 5.13 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  $Z_0$  / Impedance /  $Z_0$  50  $\Omega$

Offset Delay 90.830 ps

Length (electrical) / Offset Length 27.23 mm

Offset Loss 0.70 G $\Omega$ /s

Loss 0.0110 dB/  $\sqrt{\text{GHz}}$

Fringing Capacitances  $C_0 = -7.42660 \times 10^{-15}$  F / -7.42660 fF

$C_1 = 1625.84 \times 10^{-27}$  F/Hz / 1.62584 fF /GHz

$C_2 = 657.180 \times 10^{-36}$  F/Hz<sup>2</sup> / 0.65718 fF /GHz<sup>2</sup>

$C_3 = -139.680 \times 10^{-45}$  F/Hz<sup>3</sup> / -0.13968 fF /GHz<sup>3</sup>

**Short**

Offset $Z_o$ / Impedance / $Z_o$	50 $\Omega$
Offset Delay	90.830 ps
Length (electrical) / Offset Length	27.23 mm
Offset Loss	0.70 G $\Omega$ /s
Loss	0.0110 dB/ $\sqrt{\text{GHz}}$
Short Inductance	$L_0 = 0.0000 \times 10^{-12} \text{ H} \quad / \quad 0.0000 \text{ pH}$ $L_1 = 0.0000 \times 10^{-24} \text{ H/Hz} \quad / \quad 0.0000 \text{ pH/GHz}$ $L_2 = 0.0000 \times 10^{-33} \text{ H/Hz}^2 \quad / \quad 0.0000 \text{ pH/GHz}^2$ $L_3 = 0.0000 \times 10^{-42} \text{ H/Hz}^3 \quad / \quad 0.0000 \text{ pH/GHz}^3$

**Load**

Offset $Z_o$ / Impedance / $Z_o$	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>	0 °C to +50 °C
Storage temperature range	-55 °C to +90 °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

**Packing**

Weight 241 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.

For the installation of the electrotechnical equipment, particular electrotechnical expertise is required.



Draft	Date	Approved	Date	Rev.	Engineering change number	Name	Date
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