



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

Interface

According to

IEC 61169-4, EN 122190, DIN 47223

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
Body
Dielectric
Substrate

Material

CuBe
Brass
Brass
PP
Al₂O₃

Plating

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

Electrical data

Frequency range	DC to 6 GHz
Open	
Return loss	≤ 0.15 dB, DC to 6 GHz
Error from nominal phase ¹	≤ 3.0°, DC to 6 GHz
Short	
Return loss	≤ 0.15 dB, DC to 6 GHz
Error from nominal phase ²	≤ 3.0°, DC to 6 GHz
Load	
Return loss	≥ 40 dB, DC to 2.5 GHz ≥ 38 dB, 2.5 GHz to 6 GHz
DC-Resistance	50 Ω ± 0.5 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	30 Nm
Recommended torque	2.26 Nm
Gauge	1.77 mm to 2.07 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 _o / Impedance / Z _o	50 Ω
Offset Delay	87.394 ps
Length (electrical) / Offset Length	26.20 mm
Offset Loss	0.50 GΩ/s
Loss	0.0076 dB/√GHz
Fringing Capacitances	C ₀ = 177.000 x 10 ⁻¹⁵ F / 177.000 fF
	C ₁ = 7200.00 x 10 ⁻²⁷ F/Hz / 7.20000 fF /GHz
	C ₂ = -3300.00 x 10 ⁻³⁶ F/Hz ² / -3.30000 fF /GHz ²
	C ₃ = 386.000 x 10 ⁻⁴⁵ F/Hz ³ / 0.38600 fF /GHz ³

Short

Offset Z_o / Impedance / Z_o	50 Ω		
Offset Delay	96.734 ps		
Length (electrical) / Offset Length	29.00 mm		
Offset Loss	0.50 G Ω /s		
Loss	0.0084 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 ²	/	0.0000 pH/GHz ²
	$L_3 = 0.0000 \times 10^{-42}$ H/Hz ³	/	0.0000 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 G Ω /s
Loss	0.0000 dB/ $\sqrt{\text{GHz}}$

Environmental data

Operating temperature range ³	0 °C to +50 °C
Storage temperature range	- 55 °C to +90 °C
RoHS	compliant

³ 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

Weight	310 g/pce
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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
Kerstin Herzog	10.07.06	Lars Ramtke	13.06.23	j00	23-0004	Marion Striegler	25.05.23

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