



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

Interface

According to IEC 61169-40
Mechanically compatible with RPC-1.85

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**
 - **Hard Shell Case**
 - **Protection Caps**
 - **User Manual**

Material and plating

Connector parts	Material	Plating
Center conductor	CuBe	Gold, min. 1.27 µm, over nickel
Outer conductor	Stainless steel	Passivated
Body	Aluminum	black anodized
Dielectric	PS	
Substrate	Al ₂ O ₃	

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Electrical data

Frequency range	DC to 50.0 GHz
Thru	
Return loss	≥ 30 dB, DC to 4 GHz ≥ 24 dB, 4 GHz to 26.5 GHz ≥ 17 dB, 26.5 GHz to 50 GHz
Open	
Error from nominal phase ¹	≤ 2.0°, DC to 4 GHz ≤ 4.0°, 4 GHz to 26.5 GHz ≤ 6.0°, 26.5 GHz to 50.0 GHz
Short	
Error from nominal phase ²	≤ 1.5°, DC to 4 GHz ≤ 3.0°, 4 GHz to 26.5 GHz ≤ 4.5°, 26.5 GHz to 50.0 GHz
Load	
Return loss	≥ 36.0 dB, DC to 4 GHz ≥ 30.0 dB, 4 GHz to 26.5 GHz ≥ 22.0 dB, 26.5 GHz to 50.0 GHz
DC Resistance	50 Ω ± 0.5 Ω
Power handling (at 25 °C, sea level)	≤ 0.5 W, derated linearity by 0.005 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	1.65 Nm
Recommended torque	0.90 Nm
Gauge	0.00 mm to 0.05 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 ₀ / Impedance / Z ₀	50 Ω
Offset Delay	87.394 ps
Length (electrical) / Offset Length	26.20 mm
Offset Loss	4.00 GΩ/s
Loss	0.0304 dB/√GHz
Line Loss @ 1GHz	0.0012 dB/mm

Open

Offset Z ₀ / Impedance / Z ₀	50 Ω
Offset Delay	23.350 ps
Length (electrical) / Offset Length	7.00 mm
Offset Loss	3.20 GΩ/s
Loss	0.0130 dB/√GHz
Fringing Capacitances	C ₀ = 4.30000 x 10 ⁻¹⁵ F / 4.30000 fF C ₁ = -718.000 x 10 ⁻²⁷ F/Hz / -0.71800 fF /GHz C ₂ = 28.7000 x 10 ⁻³⁶ F/Hz ² / 0.02870 fF /GHz ² C ₃ = -0.30000 x 10 ⁻⁴⁵ F/Hz ³ / -0.00030 fF /GHz ³

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Short

Offset Z_0 / Impedance / Z_0	50 Ω	
Offset Delay	23.350 ps	
Length (electrical) / Offset Length	7.00 mm	
Offset Loss	3.50 G Ω /s	
Loss	0.0142 dB/ $\sqrt{\text{GHz}}$	
Short Inductance	$L_0 = 4.00000 \times 10^{-12} \text{ H}$	/ 4.00000 pH
	$L_1 = 0.00000 \times 10^{-24} \text{ H/Hz}$	/ 0.00000 pH/GHz
	$L_2 = 0.00000 \times 10^{-33} \text{ H/Hz}^2$	/ 0.00000 pH/GHz ²
	$L_3 = 0.00000 \times 10^{-42} \text{ H/Hz}^3$	/ 0.00000 pH/GHz ³

Load

Offset Z_0 / Impedance / Z_0	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	+20 °C to +26 °C
Rated temperature range of use ⁴	0 °C to +50 °C
Storage temperature range	-40 °C to +85 °C
RoHS	compliant

³ Temperature range over which these specifications are valid.

⁴ 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

Weight 36.3 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
Marcel Panicke	06.09.18	Lars Ramtke	13.06.23	e00	23-0004	Marion Striegler	23.05.23

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