



Thru can rotate 90°

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
 - **Test Results Documentation**
 - **Hard Shell Case**
 - **Protection Caps**

Material and plating

Connector parts	Material	Plating
Center conductor	CuBe	Gold, min. 1.27 µm, over nickel
Outer conductor	Stainless steel	Passivated
Coupling nut	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 phase¹ $\leq 2.0^\circ$, DC to 4 GHz
 $\leq 4.0^\circ$, 4 GHz to 26.5 GHz
 $\leq 6.0^\circ$, 26.5 GHz to 50.0 GHz

Short

Error from nominal phase² $\leq 1.5^\circ$, DC to 4 GHz
 $\leq 3.0^\circ$, 4 GHz to 26.5 GHz
 $\leq 4.5^\circ$, 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 $50 \Omega \pm 0.5 \Omega$

Power handling (at 25 °C, sea level) ≤ 0.5 W, derate 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 G Ω /s
 Loss 0.0304 dB/ $\sqrt{\text{GHz}}$
 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 G Ω /s
 Loss 0.0130 dB/ $\sqrt{\text{GHz}}$
 Fringing Capacitances $C_0 = 2.30000 \times 10^{-15}$ F / 2.30000 fF
 $C_1 = -810.000 \times 10^{-27}$ F/Hz / -0.81000 fF /GHz
 $C_2 = 35.0000 \times 10^{-36}$ F/Hz² / 0.03500 fF /GHz²
 $C_3 = -0.40000 \times 10^{-45}$ F/Hz³ / -0.00040 fF /GHz³

Short

Offset Z_o / Impedance / Z_o	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	$L_0 = 6.00000 \times 10^{-12} \text{ H} \quad / \quad 6.00000 \text{ pH}$
	$L_1 = 0.00000 \times 10^{-24} \text{ H/Hz} \quad / \quad 0.00000 \text{ pH/GHz}$
	$L_2 = 0.00000 \times 10^{-33} \text{ H/Hz}^2 \quad / \quad 0.00000 \text{ pH/GHz}^2$
	$L_3 = 0.00000 \times 10^{-42} \text{ H/Hz}^3 \quad / \quad 0.00000 \text{ pH/GHz}^3$

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	+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
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Packing

Standard	1 pce in bag
Weight	33 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	09.08.18	Markus Müller	22.04.20	c00	19-2083	Marion Striegler	22.04.20