

Technical Data Sheet

Rosenberger

RPC-2.40

Calibration Kit
Plug

09S30R-MSOS3



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

Interface

According to
Mechanically compatible with

IEC 61169-40
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

Center conductor
Outer conductor
Coupling nut
Body
Dielectric
Substrate

Material

CuBe
Stainless steel
Stainless steel
Aluminum
PS
Al₂O₃

Plating

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

Electrical data

Frequency range DC to 50.0 GHz

Open

Error from nominal phase¹

- ≤ 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 phase²

- ≤ 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, 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 0.03 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 23.350 ps
 Length (electrical) / Offset Length 7.00 mm
 Offset Loss 3.20 GΩ/s
 Loss 0.0130 dB/√GHz
 Fringing Capacitances

- C₀ = 2.30000 x 10⁻¹⁵ F / 2.30000 fF
- C₁ = -810.000 x 10⁻²⁷ F/Hz / -0.81000 fF /GHz
- C₂ = 35.0000 x 10⁻³⁶ F/Hz² / 0.03500 fF /GHz²
- C₃ = -0.40000 x 10⁻⁴⁵ F/Hz³ / -0.00040 fF /GHz³

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

Load

Offset Z_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
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Packing

Weight	28 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
Marcel Panicke	11.01.19	Lars Ramtke	13.06.23	c00	23-0004	Marion Striegler	23.05.23

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