



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 | |

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

Technical Data Sheet

Rosenberger

RPC-2.40

Calibration Kit
Plug

09S30R-MSOS3

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 |
|----------------|-----------|

Packing

| | |
|----------|--------------|
| Standard | 1 pce in bag |
| Weight | 28 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 | 11.01.19 | Markus Müller | 22.04.20 | b00 | 19-2083 | Marion Striegler | 22.04.20 |
| Rosenberger Hochfrequenztechnik GmbH & Co. KG P.O.Box 1260 D-84526 Tittmoning Germany www.rosenberger.de | | | | | | Tel. : +49 8684 18-0 Email : info@rosenberger.de | |
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