



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

Interface

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

Documents

Application note AN001 "Calibration Services"

Material and plating

Connector parts
Center conductor
Outer conductor
Coupling nut

Material
CuBe
Brass
Stainless steel

Plating
Gold, min. 1.27 µm, over chemical nickel
Gold, min. 1.27 µm, over chemical nickel
Passivated

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RF_35/09;14/6.2

Electrical data

Insertion loss ≤ 0.14 dB at 50 GHz

Mechanical data

Mating cycles ≥ 500
 Maximum torque 1.65 Nm
 Recommended torque 0.90 Nm
 Airline dimensions at 23 °C:
 - Diameter outer conductor 2.400 mm ± 0.005 mm
 - Diameter inner conductor 1.042 mm ± 0.005 mm
 - Length outer conductor 13.00 mm + 0.02 mm
 - Length inner conductor 13.00 mm - 0.02 mm
 - Length difference ≤ 0.04 mm
 (outer conductor – inner conductor)

Calculated data (non warranted)

Lossless characteristic impedance¹ 50 $\Omega \pm 0.95 \Omega$
 Return loss² ≥ 36 dB, 0.4 GHz to 4 GHz
 ≥ 30 dB, 4 GHz to 26.5 GHz
 ≥ 26 dB, 26.5 GHz to 50 GHz

1. The lossless characteristic impedance is calculated from the specified diameters of the inner and outer conductor.
2. The return loss is calculated from the characteristic impedance, the skin depth and the connector interface.

General standard definitions

For proper work the vector network analyzer (VNA) used needs a model describing the electrical behaviour of this calibration standard. Depending on the VNA type different models, units and terms are used and have to be entered into the VNA. All values are based on typical geometry and plating.

- Offset Z_0 / Impedance / Z_0 50 Ω
 - Offset Delay 43.4108 ps
 - Length (electrical) / Offset Length 13.014 mm
 - Offset Loss 3.40 G Ω /s
 - Loss 0.0127 dB/ $\sqrt{\text{GHz}}$

Environmental data

Operating temperature range³ +20 °C to +26 °C
 Storage temperature range 0 °C to +50 °C
 RoHS compliant

3. This range is a recommendation. However, the airline can be used in a wider range. Any temperature change from 23 °C results in dimensional changes.

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RF_35/09;14/6.2

RPC-2.40

Airline Plug / Jack

09S101-K013

Declaration of calibration options

Factory Calibration

Standard delivery for this calibration standard includes a Factory Calibration. The Calibration Certificate issued reports individual mechanical calibration results, traceable to national / international standards. Model based standard definitions are reported in an Agilent/Keysight, Rohde & Schwarz and Anritsu compatible VNA format.

Accredited Calibration

Not available.

For further, more detailed information see application note AN001 on the Rosenberger homepage.

Calibration interval

Recommendation 12 months

Packing

Standard 1 pce in box
 Weight 4.2 g/pce
 Center conductor loose in an acrylic glass tube

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
Herbert Babinger	24.03.15	Martin Moder	24.03.15	e00	14-1492	Herbert Babinger	24.03.15

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