



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  $\leq 0.14$  dB at 50 GHz

**Mechanical data**

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

**Calculated data (non warranted)**

Lossless characteristic impedance<sup>1</sup> 50  $\Omega$   $\pm$  0.95  $\Omega$   
 Return loss<sup>2</sup>  $\geq 36$  dB, 0.4 GHz to 4 GHz  
 $\geq 30$  dB, 4 GHz to 26.5 GHz  
 $\geq 26$  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  $\Omega$   
 - Offset Delay 43.4108 ps  
 - Length (electrical) / Offset Length 13.014 mm  
 - Offset Loss 3.40 G $\Omega$ /s  
 - Loss 0.0127 dB/ $\sqrt{\text{GHz}}$

**Environmental data**

Operating temperature range<sup>3</sup> +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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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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