



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

**Interface**

According to IEC 61169-35  
 Mechanically compatible with RPC-3.50 and SMA

**Documents**

Application note AN001 "Calibration Services"

**Material and plating**

**Connector parts**

Center conductor	<b>Material</b> CuBe	<b>Plating</b> Gold, min. 1.27 µm, over chemical nickel
Outer conductor	Brass	Gold, min. 1.27 µm, over chemical nickel
Coupling nut	Stainless steel	Passivated

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**Electrical data**

Insertion loss  $\leq 0.50$  dB at 40 GHz

**Mechanical data**

Mating cycles  $\geq 500$   
 Maximum torque 1.70 Nm  
 Recommended torque 0.90 Nm  
 Airline dimensions at 23 °C:  
 - Diameter outer conductor 2.9235 mm  $\pm$  0.005 mm  
 - Diameter inner conductor 1.270 mm  $\pm$  0.005 mm  
 - Length outer conductor 75.00 mm + 0.02 mm  
 - Length inner conductor 75.00 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  $\Omega$   $\pm$  0.40  $\Omega$   
 Return loss<sup>2</sup>  $\geq 38$  dB, 0.3 GHz to 4 GHz  
 $\geq 35$  dB, 4 GHz to 18 GHz  
 $\geq 30$  dB, 18 GHz to 40 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  $Z_o$  / Impedance /  $Z_o$  50  $\Omega$   
 - Offset Delay 250.288 ps  
 - Length (electrical) / Offset Length 75.034 mm  
 - Offset Loss 2.40 G $\Omega$ /s  
 - Loss 0.0522 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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