RPC-2.92  Calibration Kit  Plug

02S30R-MSOTS3

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

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

Material and plating

<table>
<thead>
<tr>
<th>Connector parts</th>
<th>Material</th>
<th>Plating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center conductor</td>
<td>Beryllium copper</td>
<td>Gold, min. 1.27 µm, over nickel</td>
</tr>
<tr>
<td>Outer conductor</td>
<td>Stainless steel</td>
<td>Passivated</td>
</tr>
<tr>
<td>Coupling nut</td>
<td>Stainless steel</td>
<td>Passivated</td>
</tr>
<tr>
<td>Body</td>
<td>Aluminum</td>
<td>black anodized</td>
</tr>
<tr>
<td>Dielectric</td>
<td>PS</td>
<td></td>
</tr>
<tr>
<td>Substrate</td>
<td>Al₂O₃</td>
<td></td>
</tr>
</tbody>
</table>
## Technical Data Sheet

**RPC-2.92**

**Calibration Kit**  
**Plug**  

**02S30R-MSOTS3**

### Electrical data

**Frequency range**  
DC to 40.0 GHz

**Thru**

- **Return loss**
  - ≥ 32 dB, DC to 4 GHz
  - ≥ 30 dB, 4 GHz to 26.5 GHz
  - ≥ 28 dB, 26.5 GHz to 40 GHz

**Open**

- **Error from nominal phase**
  - ≤ 1.5°, DC to 4 GHz
  - ≤ 4.0°, 4 GHz to 26.5 GHz
  - ≤ 5.0°, 26.5 GHz to 40.0 GHz

**Short**

- **Error from nominal phase**
  - ≤ 1.5°, DC to 4 GHz
  - ≤ 4.0°, 4 GHz to 26.5 GHz
  - ≤ 5.0°, 26.5 GHz to 40.0 GHz

**Load**

- **Return loss**
  - ≥ 40.0 dB, DC to 4 GHz
  - ≥ 28.0 dB, 4 GHz to 26.5 GHz
  - ≥ 25.0 dB, 26.5 GHz to 40.0 GHz

**DC Resistance**  
50 Ω ± 0.5 Ω

**Power handling**  
≤ 0.5 W

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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**  
  1.70 Nm

- **Recommended torque**  
  0.90 Nm

- **Gauge**  
  0.00 mm to 0.08 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.

#### Thru

- **Offset Z₀ / Impedance / Z₀**  
  50 Ω

- **Offset Delay**  
  83.057 ps

- **Length (electrical) / Offset Length**  
  24.90 mm

- **Offset Loss**  
  2.70 GΩ/s

- **Loss**  
  0.0195 dB/√GHz

- **Line Loss @ 1GHz**  
  0.0008 dB/mm

#### Open

- **Offset Z₀ / Impedance / Z₀**  
  50 Ω

- **Offset Delay**  
  28.353 ps

- **Length (electrical) / Offset Length**  
  8.50 mm

- **Offset Loss**  
  2.40 GΩ/s

- **Loss**  
  0.0118 dB/√GHz

- **Fringing Capacitances**
  
  - \( C₀ = -7.38000 \times 10^{-15} \text{ F} \) / -7.38000 fF
  - \( C₁ = 1180.00 \times 10^{-27} \text{ F/Hz} \) / 1.18000 fF / GHz
  - \( C₂ = -44.8000 \times 10^{-36} \text{ F/Hz}^2 \) / -0.04480 fF / GHz²
  - \( C₃ = 0.54000 \times 10^{-45} \text{ F/Hz}^3 \) / 0.00054 fF / GHz³
### Technical Data Sheet

**RPC-2.92**

**Calibration Kit**

**Plug**

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#### Short

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offset $Z_0$ / Impedance / $Z_0$</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Offset Delay</td>
<td>28.353 ps</td>
</tr>
<tr>
<td>Length (electrical) / Offset Length</td>
<td>8.50 mm</td>
</tr>
<tr>
<td>Offset Loss</td>
<td>2.40 GΩ/s</td>
</tr>
<tr>
<td>Loss</td>
<td>0.0118 dB/√GHz</td>
</tr>
<tr>
<td>Short Inductance</td>
<td>$L_0 = 0.0000 \times 10^{-12} \text{ H}$ / 0.0000 pH</td>
</tr>
<tr>
<td></td>
<td>$L_1 = 0.0000 \times 10^{-24} \text{ H/Hz}$ / 0.0000 pH/GHz</td>
</tr>
<tr>
<td></td>
<td>$L_2 = 0.0000 \times 10^{-33} \text{ H/Hz}^2$ / 0.0000 pH/GHz$^2$</td>
</tr>
<tr>
<td></td>
<td>$L_3 = 0.0000 \times 10^{-42} \text{ H/Hz}^3$ / 0.0000 pH/GHz$^3$</td>
</tr>
</tbody>
</table>

#### Load

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offset $Z_0$ / Impedance / $Z_0$</td>
<td>50 Ω</td>
</tr>
<tr>
<td>Offset Delay</td>
<td>0.0000 ps</td>
</tr>
<tr>
<td>Length (electrical) / Offset Length</td>
<td>0.000 mm</td>
</tr>
<tr>
<td>Offset Loss</td>
<td>0.00 GΩ/s</td>
</tr>
<tr>
<td>Loss</td>
<td>0.0000 dB/√GHz</td>
</tr>
</tbody>
</table>

#### Environmental data

- **Operating temperature range**: +20 °C to +26 °C
- **Rated temperature range of use**: 0 °C to +50 °C
- **Storage temperature range**: -40 °C to +85 °C
- **RoHS compliant**: Yes

#### 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**: 42 g/pce

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