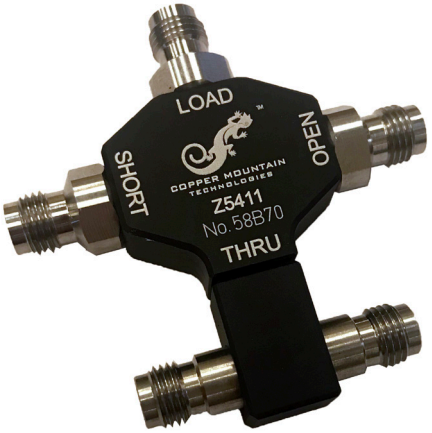
# Z5411 Calibration Kit

The Z5411 is a 50Ω, 50 GHz, 2.4 mm calibration kit.




## Electrical Data

| | |
|---|---|
| **Impedance** | 50Ω |
| **Frequency range** | DC to 50 GHz |
| **Connector Type** | 2.4 mm |
| **Mating cycles** | ≥ 500 |
| **Maximum torque** | 1.65 Nm |
| **Recommended torque** | 0.90 Nm |
| **Short** | Phase Error[2] |
| DC - 4 GHz | ≤ 1.5° |
| 4 GHz - 26.5 GHz | ≤ 3° |
| 26.5 GHz - 50 GHz | ≤ 4.5° |
| **Load** | |
| **Resistance** | 50Ω ± 0.5Ω |
| **Return Loss** | |
| DC - 4 GHz | ≥ 36 dB |
| 4 GHz - 26.5 GHz | ≥ 30 dB |
| 26.5 GHz - 50 GHz | ≥ 22 dB |
| **Power Handling** | ≤ 0.5 W |
| **Thru** | |
| **Electrical (Offset) delay** | 87.394 ps |
| **Return loss** | |
| DC - 4 GHz | ≥ 30 dB |
| 4 GHz - 26.5 GHz | ≥ 24 dB |
| 26.5 GHz - 50 GHz | ≥ 17 dB |

## Environmental Data

| | |
|---|---|
| **Operating temperature[3]** | 20°C to 26°C |
| **Storage temperature** | -40°C to +85°C |

## Mechanical Data

| | |
|---|---|
| **Connector Type** | 2.4 mm |
| **Mating cycles** | ≥ 500 |
| **Maximum torque** | 1.65 Nm |
| **Recommended torque** | 0.90 Nm |
| **Gauge** | 0.00 mm to 0.05 mm |

## Coefficients

| | | |
|---|---|---|
| **Open** | $C_0 = 4.3 \times 10^{-15}$ F | |
| | $C_1 = -718 \times 10^{-27}$ F/Hz | |
| | $C_2 = 28.7 \times 10^{-36}$ F/Hz$^2$ | |
| | $C_3 = -0.3 \times 10^{-45}$ F/Hz$^3$ | |
| | Electrical (Offset) delay | 23.350 ps |
| | Electrical (Offset) loss | 4.0 GΩ/s |
| **Short** | $L_0 = 4 \times 10^{-12}$ H | |
| | $L_1 = 0 \times 10^{-24}$ H/Hz | |
| | $L_2 = 0 \times 10^{-33}$ H/Hz$^2$ | |
| | $L_3 = 0 \times 10^{-42}$ H/Hz$^3$ | |
| | Electrical (Offset) delay | 23.350 ps |
| | Electrical (Offset) loss | 3.5 GΩ/s |
| **Load** | Electrical (Offset) delay | 0.0 ps |
| | Electrical (Offset) loss | 0.0 GΩ/s |
| **Thru** | Electrical (Offset) delay | 87.394 ps |
| | Electrical (Offset) loss | 4.0 GΩ/s |

*[1] The nominal phase is defined by the Offset Delay, the Offset Loss, and the Fringing Capacitancies. [2] The nominal phase is defined by the Offset Delay, the Offset Loss, and the Short Inductant. [3] Temperature range over which these specifications are valid.* 

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