

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
Open	Phase Error ¹
DC - 4 GHz	≤ 2°
4 GHz - 26.5 GHz	≤ 4°
26.5 GHz - 50 GHz	≤ 6°
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

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

Environmental Data

Operating temperature³	20°C to 26°C
Storage temperature	-40°C to +85°C



Coefficients

Open	$C_0 = 4.3 \times 10^{-15} \text{ F}$	
	$C_1 = -718 \times 10^{-27} \text{ F/Hz}$	
	$C_2 = 28.7 \times 10^{-36} \text{ F/Hz}^2$	
	$C_3 = -0.3 \times 10^{-45} \text{ F/Hz}^3$	
	Electrical (Offset) delay	23.350 ps
	Electrical (Offset) loss	3.2 GΩ/s
Short	$L_0 = 4 \times 10^{-12} \text{ H}$	
	$L_1 = 0 \times 10^{-24} \text{ H/Hz}$	
	$L_2 = 0 \times 10^{-33} \text{ H/Hz}^2$	
	$L_3 = 0 \times 10^{-42} \text{ H/Hz}^3$	
	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 Capacitances. [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. © Copper Mountain Technologies - www.coppermountaintech.com - Rev. 2018Q2

