

Characteristic Cable Impedance

Method 1: Measure C and L of a known cable length

For a transmission line:

$$Z_0 = \text{SQRT}(L' / C')$$

where:

L' = inductance per meter (H/m)

C' = capacitance per meter (F/m)

Step 1: Measure capacitance

Take a known cable length l . Leave the far end open-circuit. Measure the capacitance between center conductor and shield:

$$C' = C_{\text{measured}} / l$$

Step 2: Measure inductance

Short the far end. Measure the inductance seen from the near end. For a shorted transmission line at sufficiently low frequency:

$$L' = L_{\text{measured}} / l$$

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