Abstracts

Measurements of the Characteristic Impedance of Coaxial Air Line Standards

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A method for electrically measuring the characteristic impedance of coaxial air line standards is described. This method, called the gamma method, determines the characteristic impedance of a coaxial air line from measurements of its propagation constant and capacitance per unit length. The propagation constant is measured on a network analyzer, and the capacitance per unit length is measured on a capacitance bridge at 1 kHz. The measurements of characteristic impedance with the gamma method are independent of any dimensional measurements. Measurements of the characteristic impedance using the gamma method are compared to theoretical predictions from dimensional measurements. Test results are shown for 14 mm, 7 mm, and 3.5 mm coaxial air tines.

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