Abstracts

Experimental Attenuation of Rectangular Waveguides at Millimeter Wavelengths (Jan. 1979 [T-MTT)

F.J. Tischer. "Experimental Attenuation of Rectangular Waveguides at Millimeter Wavelengths (Jan. 1979 [T-MTT)." 1979 Transactions on Microwave Theory and Techniques 27.1 (Jan. 1979 [T-MTT]): 31-37.

The experimental values of attenuation of commercially available rectangular waveguides were determined at frequencies between 25 and 200 GHz with emphasis on high accuracy. They were compared with the theoretical values computed from the dc conductivities, taking into consideration temperature effects, work hardening, size effects, surface roughness, and a room-temperature anomaly of the skin effect. A new way to express the excess attenuation due to these effects was fomulated. Excess ratios of attenuation of coin-silver waveguides were found to be well below the values used in engineering in the past. They can satisfactorily be explained by surface roughness. The normalized excess attenuations of copper guides are higher than those of guides made of silver but lower than cited in the literature.

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