Abstracts

Conical Cavity for Surface Resistance Measurements of High Temperature Superconductors

B. Mayer, A. Reccius and R. Knochel. "Conical Cavity for Surface Resistance Measurements of High Temperature Superconductors." 1992 Transactions on Microwave Theory and Techniques 40.2 (Feb. 1992 [T-MTT]): 228-236.

A new conically-shaped cavity is presented which intrinsically avoids mode-degeneration while maintaining the advantages of cylindrical resonators. The cavity is applied to surface resistance measurements of YBaCuO thin films on MgO substrates at 18 GHz. The lowest measured value was 4.5 m omega ± 2.1 m omega for a 10 mm x 10 mm laser ablated film at 77 K. An error analysis is carried out which leads to an accuracy of ±2.1 m omega for samples with 9 mm diameter and an accuracy of ±0.5 m omega for samples with 20 mm diameter.

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