Abstracts

Novel Truncated Cone Cavity for Surface Resistance Measurements of High T/sub c/ Superconducting Thin Films

B. Mayer, R. Knochel and A. Reccius. "Novel Truncated Cone Cavity for Surface Resistance Measurements of High T/sub c/ Superconducting Thin Films." 1991 MTT-S International Microwave Symposium Digest 91.3 (1991 Vol. III [MWSYM]): 1019-1022.

A new truncated cone cavity is described which avoids degeneration between the TE/sub o1n/ and TM/sub 11n/ modes occuring in the most often used circular cylindrical cavities for material measurements. Analytical expressions for the field components are given. An error analysis is carried out which yields a sensitivity of 2.3 mOmega for surface resistance measurements at 18 GHz using samples with a diameter of 9 mm. One cavity was built and measurement results are given for the surface resistance of various YBa/sub 2/Cu/sub 3/ O/sub x/ thin films on MgO substrates. The samples were manufactured by means of laser ablation and magnetron sputtering.

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