Abstracts

MM-Wave Surface Resistance Measurements of HTS Films Using a Highly Sensitive Cavity

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For the precise measurement of surface resistance of high temperature superconductors (HTS) a systematic design theory for truncated cone cavities is given. This kind of cavity avoids mode degeneration, which is a problem if cylindrical cavities are used. Also it offers a considerably higher sensitivity with regard to surface resistance measurements. A measurement system at 52GHz is described and results for three samples are given. The residual resistances of the three films were in the range of 5mOmega to 10mOmega at 52GHz. A measurement accuracy of ±0.5mOmega has been achieved.

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