Abstracts

Superconducting microstrip resonator with yttrium iron garnet single crystals

T. Fukusako and M. Tsutsumi. "Superconducting microstrip resonator with yttrium iron garnet single crystals." 1997 Transactions on Microwave Theory and Techniques 45.11 (Nov. 1997 [T-MTT]): 2013-2017.

A magnetically tunable microstrip superconducting resonator using an yttrium-iron-garnet (YIG) single crystal was demonstrated experimentally. Tunability of 200 MHz at a center frequency of 5.3 GHz was observed, and a quality factor of 965 with minimum insertion loss of 19.5 dB was measured for a half-wavelength microstrip line consisting of a YIG-YBCO-MgO composite structure. The dispersion relation of the resonator was analyzed using the spectral-domain method and discussed with experimental results on the mixed states of TEM and magnetostatic-wave modes. Power dependence of the characteristics is also discussed.

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