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Title:Dual-frequency behavior of stacked high T c superconducting microstrip patches
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Abstract:The dual-frequency behavior of stacked high T c superconducting rectangular microstrip patches fabricated on a two-layered substrate is investigated using a full-wave spectral analysis in conjunction with the complex resistive boundary condition. Using a matrix representation of each layer, the dyadic Green's functions of the problem are efficiently determined in the vector Fourier transform domain. The stationary phase method is used for computing the radiation electric field of the antenna. The proposed approach is validated by comparison of the computed results with previously published data. Variations of the lower and upper resonant frequencies, bandwidth and quality factor with the operating temperature are given. Results showing the effects of the bottom patch thickness as well as the top patch thickness on the dual-frequency behavior of the stacked configuration are also presented and discussed. Finally, for a better comprehension of the dual-frequency operation, a comparison between the characteristics of the lower and upper resonances is given.
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