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The effect of a high temperature superconducting patch on a rectangular microstrip antenna

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Abstract:

The complex resonant frequency problem of a superconductor patch is formulated in terms of an integral equation which is the kernel of a dyadic Green's function. To include the effect of the superconductivity of the microstrip patch, the surface complex impedance of the superconductor film is introduced using the two fluids model of Gorter and Casimir. The Galerkin procedure is used in the resolution of the electric field integral equation. Numerical results concerning the effect of the operating temperature of a superconductor patch on the characteristics of the antenna are presented.

Keywords : Dyadic Green's function, Galerkin procedure, HTS microstrip patch, Microstrip antenna, Superconducting patch