

Resonance of High T_c Superconducting Microstrip Patch in a Substrate-Superstrate Configuration

Siham BENKOUDA, Tarek FORTAKI, Mounir AMIR, Abdelmadjid BENGHALIA

Abstract: The effect of a protecting dielectric superstrate on the resonance of a high T_c superconducting microstrip patch is investigated. The analysis approach is based on the spectral-domain method of moments in conjunction with the complex resistive boundary condition. The complex surface impedance of the superconducting thin film is determined using London's equation and the two-fluid model of Gorter and Casimir. Numerical results show that the resonant frequency of the high T_c superconducting rectangular patch decreases monotonically with increasing superstrate thickness, the decrease being greater for high permittivity loading.

Keywords : Resonance, Microstrip antenna, Superstrate