Abstracts

Application of High T/sub c/ Superconductors as Frequency Selective Surfaces: Experiment and Theory

D. Zhang, Y. Rahmat-Samii, H.R. Fetterman, S. Prakash, R.F. Bunshah, M. Eddy and J.L. Nilsson. "Application of High T/sub c/ Superconductors as Frequency Selective Surfaces: Experiment and Theory." 1993 Transactions on Microwave Theory and Techniques 41.6 (Jun./Jul. 1993 [T-MTT]): 1032-1036.

YBa/sub 2/ Cu/sub 3/O/sub 7-x/ and T1/sub 2/CaBa/sub 2/CU/sub 2/O/sub 8/ high temperature superconducting thin films were utilized to fabricate frequency selective surfaces (FSS) at millimeter-wave frequencies (75-110 GHz). An analytical/numerical model was applied, using a Floquet expansion and the Method of Moments, to analyze bandstop superconducting frequency selective surfaces. Experimental results were compared with the model, and showed a good agreement with resonant frequency prediction with an accuracy of better than 1%. The use of the superconducting frequency selective surfaces as quasi-optical millimeter-wave bandpass filters was also demonstrated.

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