Abstracts

High temperature superconductive Butler matrix beam former for satellite applications

S.F. Peik, B. Jolley and R.R. Mansour. "High temperature superconductive Butler matrix beam former for satellite applications." 1999 MTT-S International Microwave Symposium Digest 99.4 (1999 Vol. IV [MWSYM]): 1543-1546 vol.4.

This paper presents a novel configuration for a superconducting satellite beamforming network. The beamformer implements planar HTS 8/spl times/8 Butlers matrices with folded structures and multi-layer cross-overs. The matrix is optimized using full-EM simulation. Simulated and measured data are presented for the Butler matrix. The measurements show that the beamformer has an amplitude variation of less than 1 dB and a phase variation of less than 10/spl deg/. The proposed layout of a complete beamformer with sixteen 8/spl times/8 Butler matrices is given with performance comparisons to multi-layer and co-axial technology.

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