# Abstracts

## Design and Performance of a High-T/sub c/ Superconductor Coplanar Waveguide Filter

*W. Chew, A.L. Riley, D.L. Rascoe, B.D. Hunt, M.C. Foote, T.W. Cooley and L.J. Bajuk. "Design and Performance of a High-T/sub c/ Superconductor Coplanar Waveguide Filter." 1991 Transactions on Microwave Theory and Techniques 39.9 (Sep. 1991 [T-MTT] (Special Issue on Microwave Applications of Superconductivity)): 1455-1461.*

Coplanar waveguide is a convenient structure for microwave circuits using high-critical-temperature superconductor thin films. The design of a coplanar waveguide low-pass filter made of YBa/sub 2/Cu/sub 3/O/sub 7-delta/ (YBCO) on an LaAlO/sub 3/ substrate is described. Measurements were incorporated into simple models for microwave CAD analysis to develop a final design. The patterned and packaged coplanar waveguide low-pass filter of YBCO, with dimensions suited for integrated circuits, exhibited measured insertion losses when cooled in liquid nitrogen superior to those of a similarly cooled thin-film copper filter throughout the 0 to 9.5 GHz passband, Coplanar waveguide models for use with thin-film normal metal (with thickness either greater or less than the skin depth) and YBCO are discussed and used to compare the losses of the measured YBCO and copper circuits.

❑ Return to main document.