Designs and Characterizations of High-TC Superconducting Filters

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ABSTRACT

In this thesis, we have fabricated filters using double-sided YBCO thin films on LAO substrates. The filter has 1.92GHz center frequency 25MHz 3-dB bandwidth and 0.454 dB insertion loss at 77K. A HTS three-pole bandpass filter based on the structure of hairpin-comb filters within a 20-mm-square size has been design and fabricated. By mechanically changing the height of air gap between the filter pattern and the top housing plane, the center of frequency of the filter was varied from 1.92 to 2.0 GHz, corresponding to a frequency shift of about 5%.

Keywords : Filters ; High temperature superconductors ; Microwave devices ; planar transmission lines ; resonators

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