Abstracts

Superconducting Narrow Band Pass Filters for Advanced Multiplexers

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High temperature superconductivity can play an important role in miniaturizing multiplexer for communications applications. Filters for multiplexer can be built in miniature form with low loss and high selectivity. We have built X-band microstrip filters with a 50 MHz wide passband that provide 1.3 dB insertion loss at 77K using copper ground planes. Recent advances in double side coating of Lanthanum Aluminate substrates with YBa/sub 2/Cu/sub 3/O/sub 7-delta/ (YBCO) will lower this figure to 0.6 dB. Circuit designs were evaluated for intermodulation distortion effects and an improvement over previous designs has increased the third order output intercept point to +29 dBm. Methods of non-destructive dielectric and conductor loss testing were used to evaluate materials throughout the filter development.

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