

High-Temperature Superconducting Band-pass Filters for the Base Transceiver Application of Digital Cellular Communication System

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Extremely selective high temperature superconducting (HTS) band-pass filters were developed for the base transceiver station applications of Digital Cellular communication Service (DCS). The filters have a bandwidth of 25MHz at a center frequency of 834MHz. There are 12 resonators which have spiral-meander microstrip-line structures in order to reduce far-field radiations with a reasonable tunability. As a result of this, the size of filters is 5mm*17mm*41mm. Device characteristics exhibited a low insertion loss of 0.4dB with a 0.2dB ripple and a return loss better than 10dB in the pass-band at 65K. The out-of-band signals were attenuated better than 60dB about 3.5MHz from the lower band edge, and 3.8MHz from the higher band edge.

keywords : Filter, HTS, RF, resonator, DCS