

Characteristics of Power Handling Capability for HTS Multiplexer

고온초전도 멀티플렉서의 마이크로파 고출력 특성 연구

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We report a power handling capabilities characteristics of YBCO high temperature superconductor multiplexer (HTSM). The HTSM was designed with a center frequency of 10.9 GHz and a bandwidth of 100 MHz. The HTSM consists of above two duplexeres that have two branch line hybrids and two identical parallel coupled line type bandpass filters. The YBCO thin films were prepared on $3 \times 3 \text{ cm}^2$ MgO substrates by DC hollow cathode sputtering system. The measured microwave responses of the HTSM were observed 0.8 dB insertion loss and 100 MHz bandwidth at $P_{in} = 10 \text{ dBm}$. Power handling capabilities using single intermodulation distortion measurements for the HTSM at $T = 80 \text{ K}$ were obtained the third order intercept of 94 dBm and the fifth order intercept point of 86 dBm.