Abstracts

Design and Characterization of a 250-350-GHz Fixed-Tuned Superconductor-Insulator-Superconductor Receiver

C.-Y.E. Tong, R. Blundell, S. Paine, D.C. Papa, J. Kawamura, X. Zhang, J.A. Stern and H.G. LeDuc. "Design and Characterization of a 250-350-GHz Fixed-Tuned Superconductor-Insulator-Superconductor Receiver." 1996 Transactions on Microwave Theory and Techniques 44.9 (Sep. 1996 [T-MTT]): 1548-1556.

A fixed-tuned superconductor-insulator-super-conductor (SIS) receiver has been designed to operate in the 250-350-GHz frequency band. This receiver has a double-sideband noise temperature of between 35 and 45 K, or about 3hv/kB, over its entire operating band. Extensive characterization of the receiver has been carried out using techniques developed for submillimeter waves. The input noise, side-band ratio, 1 dB compression point, optimum LO drive level, and vector near-field beam profile have all been measured experimentally. The measurement techniques and results are presented and discussed.

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