Abstracts

A Broad-Band Low-Noise SIS Receiver for Submillimeter Astronomy (Dec. 1988 [T-MTT])

T.H. Buttgenbach, R.E. Miller, M.J. Wengler, D.M. Watson and T.G. Phillips. "A Broad-Band Low-Noise SIS Receiver for Submillimeter Astronomy (Dec. 1988 [T-MTT])." 1988 Transactions on Microwave Theory and Techniques 36.12 (Dec. 1988 [T-MTT] (1988 Symposium Issue)): 1720-1726.

A quasi-optical heterodyne receiver using a Pb alloy superconductor-insulator-superconductor (SIS) tunnel junction as the detector and a planar logarithmic spiral antenna for the RF coupling is described, and its performance compared with a theoretical model. Noise measurements were made in the laboratory at frequencies between 115 GHz and 761 GHz, yielding double sideband (DSB) noise temperatures ranging from 33 K to 1100 K. The receiver has also been used for astronomical spectroscopy on the Caltech Submillimeter Observatory (Mauna Kea, Hawaii) at 115, 230, 345, and 492 GHz.

❑ Return to main document.