Abstracts

An all solid-state superconducting heterodyne receiver at terahertz frequencies

C.E. Tong, R. Blundell, D.C. Papa, M. Smith, J. Kawamura, G. Gol''tsman, E. Gershenzon and B. Voronov. "An all solid-state superconducting heterodyne receiver at terahertz frequencies." 1999 Microwave and Guided Wave Letters 9.9 (Sep. 1999 [MGWL]): 366-368.

A superconducting hot-electron bolometer mixer-receiver operating from 1 to 1.26 THz has been developed. This heterodyne receiver employs two solid-state local oscillators each consisting of a Gunn oscillator followed by two stages of varactor frequency multiplication. The measured receiver noise temperature is 1350 K at 1.035 THz and 2700 K at 1.26 THz. This receiver demonstrates that tunable solid-state local oscillators, supplying only a few micro-watts of output power, can be used in terahertz receiver applications.

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