Abstracts

A 15 Element Focal Plane Array for 100 GHz

N.R. Erickson, P.F. Goldsmith, G. Novak, R.M. Grosslein , P.J. Viscuso, R.B. Erickson and C.R. Predmore. "A 15 Element Focal Plane Array for 100 GHz." 1992 Transactions on Microwave Theory and Techniques 40.1 (Jan. 1992 [T-MTT]): 1-11.

A focal plane imaging array receiver is described which covers the 86-115 GHz frequency range for radio astronomical observations. The 3 x 5 element array uses cryogenic Schottky diode mixers with integrated HEMT IF amplifiers. A cold quasioptical filter selects the desired sideband, and terminates the image at 20 K. Polarization interleaving is used to minimize the array size on the sky. LO power is provided by a frequency tripled YIG tuned oscillator. The average receiver noise temperature of the array pixels varies from 250-350 K SSB depending on the frequency. Only three mechanical tuners are used in the system and all functions are under computer control.

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