Abstracts

A cryogenic focal plane array for 85-115 GHz using MMIC preamplifiers (Dec. 1999 [T-MTT])

N.R. Erickson, R.M. Grosslein , R.B. Erickson and S. Weinreb. "A cryogenic focal plane array for 85-115 GHz using MMIC preamplifiers (Dec. 1999 [T-MTT])." 1999 Transactions on Microwave Theory and Techniques 47.12 (Dec. 1999 [T-MTT] (Special Issue on 1999 International Microwave Symposium)): 2212-2219.

A new focal plane array for 85-115 GHz is described in this paper. This array has 16 pixels, and uses InP monolithic-microwave integrated-circuit preamplifiers with 40-dB gain, followed by a wide-band subharmonic mixer to convert to a 5-20-GHz intermediate-frequency band. A low-loss isolator is used to achieve an excellent input match. Square corrugated feed horns are used for efficient filling of the focal plane. Critical components are operated at a temperature of 20 K. Noise temperature varies from 50 to 130 K, including all pixels across the full band.

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