Abstracts

Millimeter-Wave Imaging Using Preamplified Diode Detector

W. Lam, P. Lee, L. Yujiri, J. Berenz and J. Pearlman. "Millimeter-Wave Imaging Using Preamplified Diode Detector." 1992 Microwave and Guided Wave Letters 2.7 (Jul. 1992 [MGWL]): 276-277.

A 2-pixel imaging array was developed to demonstrate millimeter-wave imaging. Each pixel consists of a Q-band Vavaldi antenna and a preamplifier diode detector, using InGaAs pseudomorphic HEMT MMIC low noise amplifiers (LNA) and beam-lead Schottky-diode detector. The approach does not require local oscillator (LO) power, is compatible with MMIC technology, and can reduce the complexity and manufacturing cost of millimeter-wave imaging arrays. The preamplifier diode detector exhibited 17 V/uW responsivity at 44 GHz and -75 dBm tangential sensitivity at 1-MHz video bandwidth. The array demonstrated millimeter-wave imaging of three vehicles in a parking lot.

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