Abstracts

Millimeter and Submillimeter Wave Quasi-Optical Oscillator with Gunn Diodes

J. Bae, Y. Aburakawa, H. Kondo, T. Tanaka and K. Mizuno. "Millimeter and Submillimeter Wave Quasi-Optical Oscillator with Gunn Diodes." 1993 Transactions on Microwave Theory and Techniques 41.9 (Oct. 1993 [T-MTT] (Special Issue on Quasi-Optical Techniques)): 1851-1855.

The grooved mirror type Fabry-Perot (GFP) oscillator is used for coherent power-combining of multi-elements in millimeter and submillimeter wave region. The admittance of the Gunn diode in oscillation has been measured experimentally in the millimeter wave region for designing the GFP oscillator. The gain characteristics of the diode has been found at the frequencies from 42 to 48 GHz from the measured results. With this Gunn diode in the GFP resonator, the oscillation has been observed. These experimental results indicated that for impedance matching between the diode and the resonant cavity the groove height must be adjusted.

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