Abstracts

41 GHz 10 Watt Solid State Amplifier

D.W. Mooney and F.J. Bayuk. "41 GHz 10 Watt Solid State Amplifier." 1982 MTT-S International Microwave Symposium Digest 82.1 (1982 [MWSYM]): 497-499.

This paper describes the results of the study, design, development and test of a 10-watt, 41 GHz solid state amplifier employing rectangular waveguide resonant cavity mode combining of high frequency diodes. This development effort is of significance because it extends beyond 40 GHz the ability to design high power, broadband, multistage amplifiers with reasonable efficiencies suitable for spacecraft applications. Specifically, an amplifier with a power level of more than 10 watts and gain level of greater than 30 dB and a bandwidth of 250 MHz at 41 GHz was demonstrated. This development offers an alternative to the traveling wave tube amplifier in the millimeter wave spectrum. Such an amplifier has projected high reliability and less complexity, size, and weight than a TWTA and is therefore particularly suitable for space applications.

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