Abstracts

A high-power Ka-band quasi-optical amplifier array

S.C. Ortiz, J. Hubert, L. Mirth, E. Schlecht and A. Mortazawi. "A high-power Ka-band quasi-optical amplifier array." 2002 Transactions on Microwave Theory and Techniques 50.2 (Feb. 2002 [T-MTT]): 487-494.

Results for a high-power Ka-band quasi-optical amplifier array are presented in this paper. The amplifier consists of a 45-element double-sided active array with a hard-horn feed. Excess heat is removed via a metal carrier integrated into the array with liquid cooling at the periphery. Each unit cell of the array consists of transmitting and receiving patch antennas, driver and power amplifier monolithic microwave integrated circuits on input and output layers, and a through-plate coaxial transition, which connects the input and output layers. An estimated 25 W is radiated when the amplifier is used as an antenna feed, otherwise 13 W is collected into waveguide. Experimental results and construction details are discussed.

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