Abstracts

A waveguide mode-converter feed for a 5-W, 34-GHz grid amplifier

Chun-Tung Cheung, J.B. Hacker, G. Nagy and D.B. Rutledge. "A waveguide mode-converter feed for a 5-W, 34-GHz grid amplifier." 2002 MTT-S International Microwave Symposium Digest 02.3 (2002 Vol. III [MWSYM]): 1523-1526 vol.3.

We have demonstrated a compact waveguide mode converter that excites a combination of TE/sub 10/ and TE/sub 30/ modes for feeding a grid amplifier. The length of the mode converter is only 13 mm. The effective transmitter power (ETP) at 34 GHz is 5 W, with a gain of 5.5 dB and a power-added efficiency (PAE) of 21%. The supply voltage is 3 V, with a bias current of 5.6 A. These results are comparable to those reported earlier for the same grid-amplifier design measured in free space. A spurious oscillation with a broad radiation pattern was observed at 33.6 GHz with an effective isotropic radiated power (EIRP) of 23 mW. This oscillation was suppressed when the grid was operating at high power levels, and disappeared entirely at output powers above 4.5 W.

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