Abstracts

A slotted-waveguide power amplifier for spatial power-combining applications

R. Bashirullah and A. Mortazawi. "A slotted-waveguide power amplifier for spatial power-combining applications." 2000 Transactions on Microwave Theory and Techniques 48.7 (Jul. 2000, Part I [T-MTT]): 1142-1147.

A power-amplifier array based on a slotted-waveguide power divider is presented for quasi-optical applications. The advantages of this structure are its low profile and ease of fabrication. Furthermore, efficient heat sinking of power devices is achieved. An X-band version of the power amplifier using eight MESFET's was designed and fabricated. An output power of 14 W was obtained. At 10 GHz, the amplifier gain and power-combining efficiency were 6.7 dB and 88%, respectively. The 3-dB bandwidth for the circuit was approximately 5%. This technique has the potential to meet the increasing demand for solid-state power amplifiers used in millimeter-wave communications and radar systems.

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