Abstracts

A 10-GHz high-efficiency active antenna sub-array

S. Paji and Z. Popovi. "A 10-GHz high-efficiency active antenna sub-array." 2002 MTT-S International Microwave Symposium Digest 02.3 (2002 Vol. III [MWSYM]): 1527-1530 vol.3.

This paper presents the design and implementation of a 10-GHz 4-element spatial power combiner. The GaAs-MESFET amplifiers are designed to operate in switched class-E mode, feeding dual-layer patch antennas. A Wilkinson combiner feed was designed for the input with 0.7 dB loss. The individual amplifiers operate at 64% drain efficiency and deliver 20.6 dBm output power. The total output power delivered from the active array is 26.6 dBm (0.46 W), for 20 dBm input power. The average drain efficiency of the amplifiers in the array is 70% and the power added efficiency is 57%.

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