Abstracts

A 16-Element Subarray for Hybrid-Circuit Tile-Approach Spatial Power Combining

M.A. Gouker, J.T. Delisle and S.M. Duffy. "A 16-Element Subarray for Hybrid-Circuit Tile-Approach Spatial Power Combining." 1996 Transactions on Microwave Theory and Techniques 44.11 (Nov. 1996 [T-MTT]): 2093-2098.

Three designs for a 4-by-4 subarray are described for use in a spatial power-combined transmitter. The subarrays are constructed using a hybrid-circuit, tile-approach architecture and are composed of 16 cavity-backed, proximity-coupled microstrip antennas, each fed by a 0.5 watt amplifier. Both linearly and circularly polarized subarrays have been constructed for operation over a 10% band centered at 10 GHz. The linearly polarized subarray showed the following peak performance: EIRP greater than 27 dBW, effective transmitter power greater than 5 watts, de-RF efficiency greater than 20%, and excellent graceful degradation performance.

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