Abstracts

A compact coaxial waveguide combiner design for broadband power amplifiers

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We report an enhanced broadband passive combiner structure using a dense slot-line antenna array in an oversized coaxial waveguide. A significant reduction in size has been achieved while maintaining a 6-18 GHz bandwidth and capacity for 32 MMIC amplifiers. A broadband slotline to microstrip line transition is developed and monolithically integrated with the slotline antennas, to eliminate a troublesome bond-wire transition in an earlier design and provide better compatibility with commercial MMICs. The Spectral Domain Method (SDM) is applied to compute the field in the structure, and the small reflection theory is extended to synthesize the waveguide taper and optimized slotline taper array.

❑ Return to main document.