Abstracts

12-kW S-Band Solid-State Transmitter for Modern Radar Systems

M. Hanczor and M. Kumar. "12-kW S-Band Solid-State Transmitter for Modern Radar Systems." 1993 Transactions on Microwave Theory and Techniques 41.11 (Dec. 1993 [T-MTT] (1993 Symposium Issue)): 2237-2242.

This paper presents the development of a 12-kW solid-state transmitter, operating over 2.7-2.9 GHz, used in modern surveillance and air-traffic control (i.e., MATCALS AN/TPS-73) radars. 12 kW of peak power with a pulse width of 100 µs and duty cycle of 10 percent is achieved by combining 56 300 W high-power solid-state amplifiers. Other key performance parameters are pulse-to-pulse stability (MTI improvement factor of >90 dB), MTBF of >22 000 h, instantaneous bandwidth of 200 MHz, extremely high pulse fidelity and self-pulsing, low-voltage operation for high efficiency.

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