Abstracts

22-kW Next Generation Low Cost S-Band Solid State Transmitter for Surveillance and Air Traffic Control Radars

M. Kumar, M. Hanczor, H. Voigt, G. Cambigianis, R. Sachs and C. Bonilla. "22-kW Next Generation Low Cost S-Band Solid State Transmitter for Surveillance and Air Traffic Control Radars." 1995 MTT-S International Microwave Symposium Digest 95.3 (1995 Vol. III [MWSYM]): 1601-1604.

This paper presents the development of a low-cost 22-kW Solid-State Transmitter (SST) operating over 2.7-2.9 GHz, for modern surveillance and air-traffic control radars. 22kW peak power with a pulse width of 50 ps and 5% duty cycle is achieved by combining fitly 500-W High Power Solid-State Amplifiers using a low-loss (0.2 dB) radial combiner. Other key performance parameters are: pulse-to-pulse stability (MTI improvement factor) >75 dBc, pulse droop < 0.6 dB, MTBCF >100,000 hours, instantaneous bandwidth of 200 MHz, extremely high pulse fidelity, and self pulsing low voltage operation for safety and high efficiency. The design has following additional features: modular, front accessibility of components, hot replacement of power supplies and high power amplifiers for easy maintenance, complete remote monitoring and maintenance system (RMMS), use of commercial off-the-shelf (COTS) components, fail-soft operation and redundancy of critical components such as power supplies, driver amplifiers and fans for cooling.

❑ Return to main document.