Abstracts

The generation of 400-MW RF pulses at X-band using resonant delay lines

S.G. Tantawi, R.J. Loewen, C.D. Nantista and A.E. Vlieks. "The generation of 400-MW RF pulses at X-band using resonant delay lines." 1999 Transactions on Microwave Theory and Techniques 47.12 (Dec. 1999 [T-MTT] (Special Issue on 1999 International Microwave Symposium)): 2539-2546.

In this paper, we present theory and experimental data for a resonant-delay-line pulse-compression system. The system is fed by two high-power klystrons at X-band. The peak output power is four times the input power. The system produces flat-top output pulses. It uses evacuated room-temperature copper delay lines as a means of storing energy. These lines achieved a quality factor greater than 4.3/spl times/10/sup 5/, with total losses due to external components measured at 4%. We compare theory with experimental results. The system produced 150-ns pulses at power levels around 470 MW.

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