Abstracts

Generation of Microwave Power with a Spark-Gap Cavity

V.M. Ristic and T.P. Sorensen. "Generation of Microwave Power with a Spark-Gap Cavity." 1978 Transactions on Microwave Theory and Techniques 26.5 (May 1978 [T-MTT] (Special Issue on High-Power Microwaves)): 369-374.

A theory of a lambda/4 transmission line resonator containing a spark gap is developed and parameters such as output spectrum, bandwidth, Q factor, and efficiency are derived. Equivalent circuits incorporating different spark-gap parameters are presented and used for numerical simulation of cavity output. Several fixed and variable frequency cavities are constructed and tested. Typical peak power outputs are 7.2 kW into 50-Omega line at a frequency of 2.1 GHz, and 27 kW into 50-Omega line at a frequency of 1.5 GHz. For proper operation of this device the spark resistance must fall to a value less than the characteristic impedance of the line in a time less than T where f/sub 0/= 1/2T is the required frequency.

❑ Return to main document.