Abstracts

Spatial power combining of Gunn diodes using an overmoded waveguide resonator at millimeter wavelengths

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An oscillator which incorporates an overmoded-waveguide resonator with an array of TE/sub 10/-mode waveguides containing Gunn diodes, has been developed as a means for achieving highly efficient spatial power combing. This oscillator makes use of mode conversion of radiation power from the Gunn diodes in the waveguide array to the overmoded-waveguide resonator, to produce high power at millimeter wavelengths. An efficiency of about 83% and an output power of 1.5 W (CW) at 61.4 GHz, has been achieved with a 3/spl times/3 waveguide Gunn diode array.

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