Abstracts

A Microwave Gaussian-Beam Launcher with an Active Aperture-Blockage to Control the Spot-Size of the Beam (Short Papers)

C. Gu, P.S. Neelakanta, V. Ungvichian and P.F. Wahid. "A Microwave Gaussian-Beam Launcher with an Active Aperture-Blockage to Control the Spot-Size of the Beam (Short Papers)." 1994 Transactions on Microwave Theory and Techniques 42.3 (Mar. 1994 [T-MTT]): 520-522.

A method of controlling the spot-size of a focused microwave Gaussian-beam using an active aperture-blockage is described. The Gaussian-beam launcher consists of an open-ended scalar-horn with a dielectric hyperhemisphere at its aperture. Also included is an AgI-pellet at the aperture-center with a provision to heat it with an external dc source. The scalar-horn plus the dielectric lens Iaunch a Gaussian-beam; and, the AgI pellet when heated, becomes a supersonic conductor offering an aperture-blockage. This results in a variation of the spot-size of the emergent-beam. Theoretical results and experimental data are furnished and compared.

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