Abstracts

Gaussian Beam Representation of Aperture Fields in Layered, Lossy Media Simulation and Experiment (Comments and Reply)

P.S. Neelakanta, M.L.D. Lumori, J.B. Andersen, M.K. Gopal and T.C. Cetas. "Gaussian Beam Representation of Aperture Fields in Layered, Lossy Media Simulation and Experiment (Comments and Reply)." 1991 Transactions on Microwave Theory and Techniques 39.8 (Aug. 1991 [T-MTT]): 1441-1442.

In the above paper, the authors address the three-dimensional Gaussian-beam representation of an aperture-source-excited, linearly polarized electromagnetic wave propagating in a layered lossy medium and apply the relevant concept(s) to elucidate the power absorption in biological media. However, the basis of such representation, as applied to partial-body electromagnetic/microwave irradiation of biological media, is not new. The author of this communication had indicated in [1]-[12] a generalized Gaussian-Laguerre mode model of the emergent field from an aperture. He also indicated in [13]-[15] the partial-body, Gaussian-beam exposure strategies as applied to biological surfaces in determining the complex permittivity of a multilayered lossy medium such as the human skull (in vitro) and the medial palmar space (in vivo).

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