Abstracts

An Absorber-Wall Parallel-Plate Waveguide

C.M. Knop, Y.B. Cheng and E.L. Ostertag. "An Absorber-Wall Parallel-Plate Waveguide." 1986 Transactions on Microwave Theory and Techniques 34.7 (Jul. 1986 [T-MTT]): 761-766.

The electromagnetic fields that can propagate through a parallel-plate waveguide having absorber walls are investigated, and it is shown that dominant TM/sup e//sub 10/ and TE/sup e//sub 10/ modes can propagate independently with both having a highly-tapered (cosine-type) transverse distribution, a phase velocity slightly exceeding the speed of light, and very low axial attenuation, especially for a wall-spacing large as compared to a free-space wavelength. In other words, such an absorber-guide acts life a corrugated waveguide having "lambda/4" teeth (balanced-hybrid mode) but it does so over virtually an unlimited bandwidth and with little sensitivity to the absorber's characteristics.

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