Abstracts

Controllable Liquid Artificial Dielectrics (Correspondence)

H.T. Buscher, R.M. McIntyre and S. Mikuteit. "Controllable Liquid Artificial Dielectrics (Correspondence)." 1971 Transactions on Microwave Theory and Techniques 19.12 (Dec. 1971 [T-MTT] (1971 Symposium Issue)): 950-951.

A novel approach to microwave phase control, utilizing liquid artificial dielectrics, is described. These media have been fabricated with permittivities which vary in magnitude and anistropy according to the strength of an applied electric control field. Continuously controlled permittivity increases of at least 20 percent in the electric field direction are realizable in liquid suspensions having low loss and very high dielectric strength. A simple waveguide liquid dielectric phase shifter has been built at Ku band and its operating characteristics measured. This approach can be applied to the design of electrically variable microwave lenses, power dividers, and resonant cavities as well as phase shifters.

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