Abstracts

A Two-Port Magnetoelastic Delay Line in the UHF Region

W. Skudera, Jr., R.H. Sproat, I. Bady and E. Gikow. "A Two-Port Magnetoelastic Delay Line in the UHF Region." 1967 Transactions on Microwave Theory and Techniques 15.2 (Feb. 1967 [T-MTT]): 96-100.

Results are presented on the investigation of an experimental two-port magnetoelastic delay line using a single crystal rod of yttrium-iron-garnet, over the frequency range of 200 to 1000 MHz. A magnetic bias field is applied parallel to the rod axis. Data is given on delay time and insertion loss as a function of bias field. Both a slow and fast variation of insertion loss with bias field are noted. The slow variation of insertion loss is quite flat and insertion loss is at a minimum, over the range of 900 to 1050 oersteds, for all frequencies from 200 to 1000 MHz. A study of the fast variation of insertion loss shows that this variation occurs only over a portion of the pulse and if the pulse is short enough the fast variation is absent. A study of the effects of small permanent magnets that supply a biasing field orothogonal to the primary biasing field is presented. Insertion loss and pulse distortion are substantially reduced by these magnets.

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