Abstracts

The Design and Applications of Highly Dispersive Acoustic Surface-Wave Filters

H.M. Gerard, W.R. Smith, W.R. Jones and J.B. Harrington. "The Design and Applications of Highly Dispersive Acoustic Surface-Wave Filters." 1973 Transactions on Microwave Theory and Techniques 21.4 (Apr. 1973 [T-MTT] (Special Issue on Microwave Acoustic Signal Processing)): 176-186.

The development of a low-loss broad-band linear FM dispersive filter having a time-bandwidth (TB) product of 1000 is discussed. Two systems applications for highly dispersive linear FM filters--pulse compression radar and a microscan receiver--are discussed with emphasis on filter performance requirements. The principal factors which influence the design of surface-wave filters are reviewed and theoretical design procedures are outlined. The 1000:1 filters, which are implemented on strong-coupling YZ lithium niobate, typically meet the design goal of a 100-MHZ rectangular passband and have a CW insertion loss of less than 35 dB. Measured data are presented for the filter performance in a pulse-compression loop and in a prototype broad-band microscan (compressive) receiver.

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