Abstracts

Design of Unapodized Surface-Wave Transducers with Spectral Weighting

G.R. Nudd, M. Waldner and R.L. Zimmerman. "Design of Unapodized Surface-Wave Transducers with Spectral Weighting." 1974 Transactions on Microwave Theory and Techniques 22.1 (Jan. 1974 [T-MTT]): 25-32.

The technique commonly employed to provide a wide-band surface-wave transducer with a specific conversion loss as a function of frequency uses the linear frequency-modulation (LFM) (quadratic-phase) design. This provides the necessary dispersion, and anodization is then employed to obtain the required conversion loss. In some applications the anodization presents complications in that the beam generated has nonuniform width, and diffraction and phase-front problems can result. An alternate technique is described that relies on varying the number of effective transducer elements as a function of frequency to provide the conversion-loss variation. As examples of this technique, a flat bandpass filter for a nonlinear convolver and a very large fractional-bandwidth transducer (with spectral weighting to provide sidelobe control) for a memory application are described.

❑ Return to main document.