# Abstracts

## Analysis and Measurement of Transducer End Radiation in SAW Filters on Strongly Coupling Substrates

*A.R. Baghai-Wadji, O. Manner and R. Ganss-Puchstein. "Analysis and Measurement of Transducer End Radiation in SAW Filters on Strongly Coupling Substrates." 1989 Transactions on Microwave Theory and Techniques 37.1 (Jan. 1989 [T-MTT]): 150-158.*

We present the analysis and measurement of spurious responses generated at the ends of surface acoustic wave (SAW) interdigital transducers (IDT's). Filters fabricated on LiNbO/sub 3/ show an unwanted passband ripple whose period indicates additional generation of acoustic waves at the IDT end. As this effect cannot be explained by methods of analysis based on the infinite array approximation, an exact analysis of the complex-valued, frequency-dependent electric charge distribution on the finite IDT structure is required. Utilizing the method of moments, our analysis is based on a Green's function concept and a spectral-domain representation. Three effects are shown: The first is the charge accumulation of grounded guard fingers located closely to the IDT end, resulting in unwanted end radiation. The second is acoustic end reflections in split-finger IDT's, occurring at the transition from the periodic finger structure to the free substrate. The third is the finger charge induced by the metallic ground plane when the transducer is driven unbalanced to ground. Computer simulations based on our method agree well with measurements.

❑ Return to main document.