Abstracts

Transverse and Longitudinal Modes in Waveguide-Coupled Resonators

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Surface acoustic wave (SAW) waveguide-coupled (WGC) resonators are of considerable interest for narrow-band filter applications though until recently there has been little published on the acoustic details of their operation. As in any resonator, one must fully understand its mode structure and herein we study the SAW mode profiles in these devices. Transverse and longitudinal mode profiles in the resonant cavity of the device were measured at various frequencies of interest using a knife-edge laser probe. In addition we predict the mode profiles for the device structure by two independent methods. One is a stack-matrix approach adapted from integrated optics and the other is a conventional analytical eigenrnode anatysis of the Helmholtz equation. Both modelling techniques are in good agreement with the measured results.

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