Abstracts

Design of Mobile Phone IIDT-Type SAW Filters with Block-Like Distribution of Transducers

G. Fischerauer, B. Bader, P. Russer and R. Weigel. "Design of Mobile Phone IIDT-Type SAW Filters with Block-Like Distribution of Transducers." 1994 Transactions on Microwave Theory and Techniques 42.7 (Jul. 1994, Part II [T-MTT] (Special Issue on Filters and Multiplexers)): 1380-1386.

Wide band low-loss SAW filters employing interdigitated interdigital transducers (IIDT's) and suitable for cellular radio applications are presented. After an investigation of the many design parameters that have to be taken into account, a new block-like distribution of transducers within the IIDT structure is studied in detail. This distribution leads to almost identical impedances at the filter input and output. An automatic optimization algorithm is also described. In particular, the finger numbers and the withdrawal weighting functions employed to increase the stopband rejection have been optimized by this algorithm. Filters fabricated on 36°rot Y, X-LiTaO/sub 3/ exhibit fractional bandwidths of up to 5.2% with passband ripples smaller than 1 dB at a center frequency of 500 MHz. The minimum insertion loss and the stopband rejection obtained were 1.8 and 23 dB, respectively.

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