

**SAW filters for CDMA**

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Code Devision Multiple Access (CDMA) systems have recently found numerous applications in cellular systems, Personal Communication Systems (PCS) and Wireless Lines (WLL). A narrow band CDMA system with 1.25 MHz passband is used today in digital systems. New 5 and 10 MHz broadband systems (15 and 25 MHz in prospect) will be able to provide audio-, video-, and multimedia service in addition.

The requirements for SAW filters which are used in base and personal CDMA terminals are different. Filters for base stations should first of all ensure a high selectivity and linearity of phase response. SAW filters for personal terminals must exhibit low insertion loss and small size providing a low cost in mass production.

In the paper, some designs of SAW filters with frequencies within the range of 70-200 MHz for user's terminals are presented. These filters were fabricated on ST-quartz substrates and assembled in SMD-type packages. Dependent on the requirements to electrical parameters the filters were implemented in two different constructive variants:

- single channel filters based on SPUDT transducers;
- multichannel filters.

The first type structure is used to meet the strict requirements for selectivity (form-factors are about 1.6-1.8), and to provide minimum amplitude and phase ripples (0.5 dB and 5 deg. respectively) in filters with low insertion losses 7-8 dB. An averaged package dimensions for these filters are 13.3x6.5 mm.

Implementing of multichannel (3-channel) structure with different distances between transducers in channels allows to decrease the package dimensions up to 7x5 mm. However, some degradation of the electrical performance has been observed in such filters. For instance, the insertion loss increases by about 2 dB.

Resonant SPUDTs is a basic type of transducer in mentioned structures. Different variants of such transducers providing correction of S21 and phase responses are presented in the paper. The experimental filter responses are compared with the simulated ones.