Abstracts

SAW Microstrip Front-End for Mobile Communication Systems in the GHz Range

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Design, fabrication and performance of a SAW microstrip front-end circuit in the low GHz range for applications in time division multiple access (TDMA) systems are reported. The front-end consists of a transmitter part (containing a SAW filter for noise suppression, and amplifiers), a receiver part (containing a stripline filter for preelection, a SAW filter, and a low noise amplifier), and a duplexing circuit. Both the transmitter SAW filter and the receiver SAW filter are low-loss filters with a center frequency of 1.684 GHz, a fractional 3 dB-bandwidth of 3.5 %, and an insertion loss of 6 dB. Pin-diode switching is used in the duplexer. The front-end operates at 1.684 GHz and has a 1 dB-bandwidth of 30 MHz. The output power at the antenna port is 23 dBm. The transmitter-receiver isolation is better than 50 dB. The present work arose from a requirement of a minature low-cost front-end for the digital European cordless telephone. The paper also presents some new design techniques for low-loss SAW filters in the upper UHF band.

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