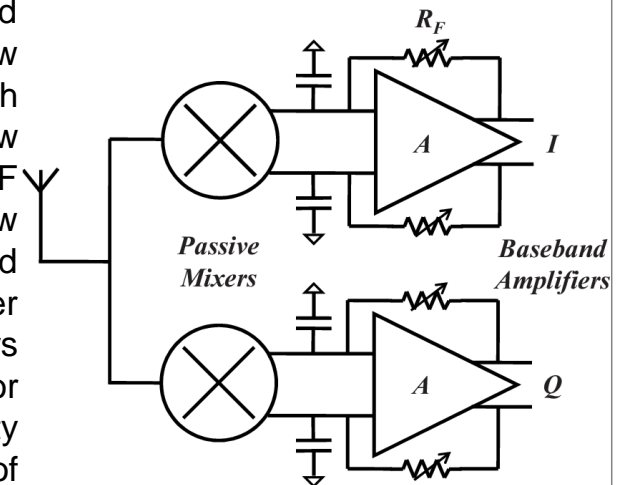


Mixer First Receiver

Due to the crowded available wireless spectrum, the interference from the adjacent spectrum bandwidth is becoming more serious problem. This brings strong demand for receiver architectures which have higher linearity and lower noise figure. A low noise amplifier (LNA) is always appearing in traditional receivers, which must be high gain, low noise with good input impedance matching. However, the demand of low noise and high linearity of LNA is always challenging for designers. In design of RF front-end, LNA can be considered as bottleneck for the linearity purpose. Thus a new concept is introduced, which is mixer first receiver, and simply contains mixer and baseband amplifier. Furthermore, modern receivers have to support a growing number of frequency bands to increase data rate and coverage. In order to do this, receivers need to withstand strong blockers without compressing the wanted-signal or degradation in receiver noise figure (NF). These days receivers use high-linearity SAW/FBAR filters for blocker filtering. These filters are non-tunable and several of them are needed to cover the entire operation band which results in a large area footprint for the receiver and increased cost. Recently, the use of higher order filtering in mixer-first receivers has gained interest towards realizing a SAW-less receiver. This seminar addresses analysis of receiver with mixer first topology through a comprehensive literature review.



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[1] C.Andrews, 2012, "Analysis And Design Of Wideband Passive Mixer-First Receivers", PhD Thesis, Cornell University, New York