

Abstract: The expanding growth of wireless communications has led to the proliferation of different standards. The highly competitive market demands low-cost, low-power, and small form-factor devices. This calls for the development of a single-chip, third-generation (3G) receiver capable of adapting to the various communications standards in a low-cost CMOS technology. However, fully integrated receiver architectures require the elimination of discrete high-Q image rejection and IF filters. Thus, the received signal is down-converted to baseband without channel filtering, which most frequently results in the presence of strong adjacent channel blockers along with the desired signal. Therefore, it is required from the baseband filter design to exhibit a high-dynamic range, a programmable bandwidth to accommodate different standards, precise tuning to select the desired channel within a standard, low power, and a small chip area. This article discusses the 3G wireless systems with a focus on the design of a reconfigurable baseband chain that precedes the ADC of a multistandard fully integrated wireless receiver. The baseband chain is adapted to accommodate the GSM, IS-95, and wideband CDMA wireless standards