

Abstract: A technique for designing digitally programmable CMOS integrated filters for multi-standard wireless receivers is presented. The technique exhibits the wide frequency range of the transconductance amplifier filters while offering improved linearity. It utilises digitally controlled current followers to provide precise frequency characteristics that can be tuned over a wide range. A digitally tuned lowpass filter is designed for implementing the channel-select filter in the baseband chain of a multi-standard CMOS wireless receiver. Simulation and experimental results obtained from a 1.2 μm chip show a programmable frequency response covering the IS-54, GSM, IS-95 and WCDMA wireless standards.