Harmonic Rejection in 2.4 GHz Gilbert Cell Mixer for Terrestrial Microwave Communication systems

Abstract

Mixer is one of the significant components of the radio frequency transceiver that translate baseband signal into RF and vice versa. In this paper, 2.4 GHz double balanced Gilbert Cell Mixer topology was simulated to study its important properties such as Conversion Gain, Linearity, Noise Figure and Port Isolation. Further, a band pass filter is added in to the design at IF port so as to reject harmonics. The mixer topology is designed and simulated using NMOS 180 nm CMOS technology in Advanced Design Systems. As a result, conversion gain of 8.303 dB, high linearity, high port isolation and Harmonic Rejection Ratio > 80 dB is achieved.

References


**Index Terms**

Computer Science  Communications

**Keywords**

Gilbert Cell Mixer, Conversion gain, linearity, Harmonic rejections