

“A dual-band direct-conversion RF front-end with IIP2 calibration”, pp. 281 - 287

Mikko Hotti, Jouni Kaukovoori, Jussi Ryyänen, Jarkko Jussila, Kalle Kivekäs, Kari A.I. Halonen

Abstract – This paper describes a single-chip direct-conversion front-end targeted for 2-GHz WCDMA and 5.5-GHz WLAN systems. Several components and circuit blocks are reused and shared between these two systems to decrease the required chip area. In addition, the front-end includes IIP2 calibration, which keeps the mixer RC-load pole frequency unchanged. The front-end fabricated in a 0.35- μm 45-GHz f_T SiGe BiCMOS achieves 3.2-dB NF and -13-dBm IIP3 in 2-GHz mode and 7.4-dB NF and -17-dBm IIP3 in 5-GHz mode. The front-end achieves better than $+29\text{-dBm}$ calibrated IIP2 in 2-GHz mode. The current consumption from a 3.3-V supply is 29.6 mA and 28.4 mA in 2-GHz and 5-GHz modes, respectively.