

A CMOS IF Transceiver with 90 dB Linear Control VGA for IMT-2000 Application

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A prototype IF transceiver has been integrated in 0.35 μ m CMOS technology. The chip includes VGAs and mixers for IMT-2000. The VGAs are controlled continuously in linear dB by using a proposed quasi-exponential gain control method. Measurements show that both VGAs have over 90dB dynamic range and 9.5dB NF in receiver. The -3dB frequencies of the receiver and transmitter are 250MHz and 430MHz, respectively. Thus, the transceiver can adapt to PCS as well as IMT-2000 for potential dual-band application. With a single 3.0V power supply, the VGAs and mixers consume 16mA and 6mA, respectively.

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