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Abstrak

A quadrature voltage-controlled oscillator (QVCO) with a wide tuning range is proposed and implemented in the TSMC 0.18-um CMOS process. The said QVCO uses a cross-coupled structure and a current-reuse technology to produce the quadrature signal and to save power consumption and area, respectively. Based on our measurement, the phase noise with 1-MHz offset from the carrier frequency of 3.6 GHz is -114 dBc/Hz and the proposed QVCO has a wide-band tuning range of 3.6-4.9 GHz. Also, the maximal phase error and power imbalance are less than 5° and 1.5 dB, respectively, and the power consumption is 8 mW at 2-V power supply voltage.