A Quadrature Output Low phase noise VCO for 802.11

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ABSTRACT

In this paper, we use TSMC 0.25um CMOS technology to implement a low-phase-noise quadrature VCO, which is fitted for 802.11a wireless local area network (WLAN). The four phases of VCO outputs are 90 ° ,180 ° ,270 ° and360 ° ,respectively. As the simulation result shows, the tuning frequency is 4.833GHz~5.623GHz, the phase noise of our design is —122.741dBc/Hz offset 1 MHz, and the tuning range is 0.79GHz which is about 15.2%. The output power is —7.67dBm and the power consumption is 15.8mw. The pushing test that Vdd is 2.3v、2.4v、2.5v、2.6v、2.7v、2.8v. The oscillating deviation to carrier is almost 1.394%. The pulling test that loading is 25ohm、50ohm、75ohm、100ohm. The oscillation deviation is almost zero. The output impedance matching is almost 50ohm.

Keywords : VCO ; low noise ; phase noise ; quadrature

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