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| **Abstract:** |  |
| Abstract— Today's mobile communications systems demand higher communication quality, higher data rates, higher frequency of operation, more channels per unit bandwidth, low power consumption, and smaller size. One important part of the communication systems design is the synthesized oscillator. Typically, synthesized oscillators combine a Voltage Controlled Oscillator (VCO) with a Phase-Locked Loop (PLL) IC, frequency reference (e.g., Crystal/TCXO), and a loop filter. This paper describes the evaluation of the PLL and VCO and relates those evaluations to information that will allow the circuit designer to optimize the whole oscillator design including the loop filter. Few experimental results are also presented. It is found that the designed circuit works very well. After the synthesizer has been designed and built, the synthesizer is locked very sharp and correctly in time. The spectrum contains many spurious frequencies. The loop bandwidth is higher as expected. The phase noise is lower than expected. So, the noise of the synthesizer keeps them as small as possible. In the PLL system to change the receiving frequency from 38.445 MHz to 38.429 MHz and now we have perfect reception. | |