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Abstract
The development of Ultra-wideband（UWB）is mainly for the transmission distance of about 10 meters with data transmission rate of 110 Mbps to 480 Mbps. Ultra-wideband (UWB) communication technology has the characteristics of low-cost, low power consumption and high-speed data transmission.
In recent years, UWB technology has developed into two major systems. One is Orthogonal Frequency Division Multiplexing (OFDM) system which is led by Intel, and the other is Direct Sequence Code Division Multiple Access (DS-CDMA) system which is supported by Motorola. DCR will become popular since the problem of image is circumvented and no image filter is required. However, this approach suffers from some impacts such as DC offset, which can be mitigated using high-pass filter (HPF) after I/Q demodulation.
This thesis focuses on the 3~5 GHz frequency band of MB-OFDM radio frequency receiving front-end. By using Ansoft Desinger’s design and simulation, we implement three active circuit of DCR which are Low Noise Amplifier (LNA), Baseband Amplifier and Voltage controlled Oscillator (VCO). Also, by using simulation design of Advanced Design System, we complete Low Pass Filter (LPF), High Pass Filter (HPF), Band Pass Filter (BPF), and Branch Coupler. These results are very useful for the RF circuit/system designers in UWB MB-OFDM system.
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