

ABSTRACT

In the Frequency Hopping Spread Spectrum modulation technique, the transmitted signal mixed with output signal from synthesizer which it has fluctuation frequency. Application synthesizer in frequency hopping is a carrier signal in modulator or demodulator.

Synthesizer designed and realized using PLL (Phase Locked Loop) system. In this system, the forward loop consists of phase detector, LPF (Low Pass Filter), and VCO (Voltage Controlled Oscillator); and the reverse loop consists of frequency divider. This frequency divider consists divider 10 (pre-scaler), divider N (programmable divider), and divider 2 (used to restore the duty cycle to 50%). The value of programmable divider is set between 31 until 42 to make the output of VCO reach value from 102 MHz - 134 MHz with reference frequency is 160 KHz.

Programmable divider - controlled by microcontroller – is used to replace the function of switch in programmable divider. Programmable divider change automatically without arrange switch on it.