

ABSTRACT

Wireless communication networks have existed everywhere. These networks include Wireless Local Area Network (WLAN) and those used for commercial equipment. The WLAN is applied for audio, video and multimedia and various applications used in offices, businesses, schools, government agencies and others. The example of WLAN is wireless fidelity (wi-fi) with IEEE 802.11 standart. The commercial equipment is usually used for cordless phones and microwave oven. These wireless networks are working on the same frequency so that the interference between these devices is highly possible. To reduce this effect, a spread spectrum method with pseudonoise code was applied.

This thesis conducted the simulation of the spread spectrum method using tools Matlab 2012. Performance parameters are BER and Eb/No. Simulations were carried out using different length of Barker code both on the AWGN channel and multipath channel with Rician distribution.

The results of the simulations showed that the Barker code length did not affect the value of BER and Eb/No system. The length of Barker code only affected the value of processing gain. Barker code length of 11 with bit rate of 1 Mbps had the best BER value and processing gain namely 3.397×10^{-6} and is 10.41 dB respectively; this was in line with the IEEE 802.11 standards

Key word : WLAN, Spread Spectrum, Pseudonoise, Barker code, BER, Eb/No, Processing Gain, AWGN, Multipath, Rician Distribution