

ABSTRACT

In the future, digital wireless communication system will be demanded to provide high speed rate data service with reliable QOS, minimal BER, and very minimum SNR. Ultrawideband (UWB) is wireless application technology that operate in frequency 3.1 GHz – 10.6 GHz and it has bandwidth transmission bigger than 500 MHz. The development of this technology has been getting big attention from industry and educational people internationally.

Problems come when we facing with propagation canal. In conventionally system, high data rate causes bandwidth transmission signal become wide, even wider than bandwidth canal coherent. The result of it, the signal will be affected with selective fading that destruct information signal. The UWB multiband technology has been able to handle this problem. But the distance range that relatively short still be problem in this technology. In this final project analyze UWB OFDM capacity canal system at Saleh Valanzuela canal with 64, 128, 256 subcarrier. Beside, this is also discussing about interference effect at canal capacity.

From the simulation result, we can see that UWB OFDM system has different canal capacity each of ever canal model. The biggest canal capacity is when canal condition at CM1 for every subcarrier. This is caused by LOS canal condition and the range about 0-4 meter. The 64 subcarrier has bigger canal capacity comparing it with 128 and 256 subcarrier. Aside, interference can decrease canal capacity, we can see this at canal capacity which has SNR 4 dB and non interference subcarrier canal 64 CM1 is 0.537 bps/Hz while CM1 interference is 0.4776 bps/Hz.

Keyword: OFDM (Orthogonal Frequency Division Multiplexing), UWB (Ultra Wide Band), subcarrier, BER (Bit Error Rate), SNR (Signal to Noise Ratio), Saleh-Valenzuel, CM (Channel Model).