

ABSTRAC

Transmission systems consist of 3 components, transmitter, transmission media and receiver. For fiber optic communications, a receiver consists of photodetector, amplifier and demodulator. The function of photodetector is to convert the received optical signals into electrical signals, which are then amplified before further processing.

This Final Project uses Visual C++ version 6 with OpenGL to compare the simulation output with calculation theoretically. The simulations based on silicon PIN photodiode with HAMAMATSU series S5971 and transimpedance amplifier ADN2880 series. Besides the standard WLAN used is IEEE 802.11b with data *rate* 11 Mbps, CCK modulation and DSSS technologies with Walsh-Hadamard pseudo random code used for information systems security.

From the simulations result show that S/N ratio 77,2128 dB and its response time 75,36 ns when incident optical signal to photodiode minimum ($P_o = 4$ mW). The output voltage transimpedance amplifier about 2,837 V when gain amplified is 6 dB. The shape of output response was influenced by RC time constant. Signal output from effects 3D C++ with OpenGL can be generated dynamically.

Keyword : WLAN, CCK, *Walsh-Hadamard* code, PIN, Transimpedance amplifier