ABSTRACT

OFDM is used as a transmission technique for communication between the user, central unit and remote access units (RAU). In RAU and CU associated with optical fiber, while RAU's communication with the user use the IEEE 802.11g wireless standard at 2.4 GHz operating frequency that provides the coverage area wide enough. Simulation programming language developed by C++ with software Borland C++ Builder can display signal's shape in each block diagram.

The simulation includes the division of OFDM modulation data stream into parallel data to serial data reshaped, so that it can be sent. Simulations using QPSK digital modulation has data rate of 3 Mbps and 312.5 Hz frequency spaces. In order to optimize the software work is done by scaling 1: 10000, on several parameters, and perform validation by comparing calculation results with the program and theory.

In this Final Project produces simulation that show the process of modulation and demodulate OFDM-QPSK, so the signal can be seen changes that occur in each block diagram dynamically. The resulting signal has a frequency of 2.4 kHz. Signal has enough resistance to noise with noise amplitude value of 10 mV resulting BER values with the value 0.0365 SNR of 51.699 dB. From the analysis it can be concluded that the greater the noise amplitude will affect the value of BER.

Keywords: OFDM, QPSK, simulation, modulation, real-time visualization