ABSTRACT

Ultra High Frequency (UHF) is one of the frequencies used in radio communications, identified by the frequency range of 300 MHz to 3 GHz with proper propagation capabilities for use in radio communications in areas with a lot of obstructions. The UHF communication system is expected to become an alternative communication technology for sending text messages that is implemented into a digital communication system on the terrain in tall buildings or in mountainous areas, as one of the supporting technologies for implementing the entire system it is used Software Defined Radio (SDR). In this study, a UHF digital communication system will be implemented using SDR technology. The design to be applied is to send and receive text messages using platform USRP and LabVIEW. Tests for sending and receiving text data were carried out 5 times for each variation with a different number of characters. Variations in the number of characters used are 1000, 1500, and 2000 characters at a distance of ± 45 meters, between TT buildings and ITTP DCs. System performance results based on Signal to Noise Ratio (SNR) the average test for 1000 characters is 25.01 dB, 1500 characters is 22.70 dB, 2000 characters is 21.11 dB. For results Bit Error Rate (BER) the average test for 1000 characters is 0.19404, 1500 characters is 0.268033334, 2000 characters is 0.44548. Last of the results Character Error Rate (CER) the average test for 1000 characters is 0.0596, 1500 characters is 0.2084, 2000 characters is 0.4808. Based on the results obtained, the performance of the system will decrease as the number of variations of text data sent increases.

Keywords: *UHF Digital Communication System, Software-Defined Radio, Signal to Noise Ratio, error rate.*