ABSTRACT

Flexibility, reliability and rapidity of wireless communication system are strongly needed by the rapidly development of information technology and multimedia system. Thus, wireless communication technology must be developed to be matched with the needed. The increasing data rate and reliability of system can be reached by decreasing BER value and maximalize the efficiency of frequency spectrum. The recommended technology which can appoint to this needed is mobile WiMAX MIMO-OFDM system.

In this final assignment, simulation and analysis is done to mobile WiMAX MIMO-OFDM system. In the application, this system is supported by AMC (Adaptive Modulation and Coding) technique to maximize channel capacity, maintain the effectiveness of the modulation system and improve performance by suppressing the value of BER. QPSK, 16-QAM and 64-QAM modulation technique and convolutional encoding with coderate 1/2, 2/3 dan 3/4 are the choices in this system. The value of BER are the parameters to evaluate the performance of the system in all channel condition.

Simulation results show that the AMC technique has a better BER performance than single modulation technique at all of the parameters. In this final assignment is also made observations of the ECC effect in system performance. The higher the value of ECC is used, then the value of BER can also be increasingly suppressed.

Key words: mobile WiMAX, MIMO, OFDM, AMC (Adaptive Modulation and Coding), ECC (Error Control Coding)
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