ABSTRACT

IEEE 802.16e standard is a broadband wireless access technology which can support user mobility. This standard uses multi carrier OFDMA (Orthogonal Frequency Division Multiple Access) transmission technique for its standard physical layer. OFDMA technique allocates some different group of sub-carrier for different user. This standard also supports AMC (Adaptive Modulation and Coding) feature to increase system performance and defines four type of sub-channel which can be used in AMC technique.

This final task will analyze the effect of using sub-channel type that has been defined in standard IEEE 802.16e in AMC technique, and compare it with other type of sub-channel which has more sub-carrier/sub-channel. Adaptive mechanism is done by selection of modulation combination and code rate (burst profile) that can be change according to channel condition. Burst profile selection can be different for each sub-channel. Burst profile selection which is suitable for condition of channel is decided by prediction SNR value in every sub-channel as a result of MMSE (Minimum Mean Square Error) predictor.

From the simulation result which has been done, there are some conclusions. First, usage of sub-channel which is distributed in 6 bin x 1 OFDM symbol gives the best AMC performance than other type of sub-channel which is defined by IEEE 802.16e standard. Second, usage of sub-channel which is defined by IEEE 802.16e gives better AMC performance then sub-channel which has more sub-carrier/sub-channel.

Keyword: 802.16e, AMC, MMSE predictor, sub-channel