

## ABSTRACT

The increasing needs of the wireless services has insist the emerge of the new standards that give solutions or cover the lack of the previous technology. Based on thus point of view, IEEE 802.16e standards known as Wimax (Worldwide Interoperability of Microwave Access) emerge. This new technology could provide broadband wireless access services up to 15 Mbps in 20 MHz bandwidth. It also has 5 km coverage area, supports users mobilities and NLOS (Non Line of Sight). Frequency spectrum 2-6 GHz is used in this standard and become the standard of MAN (Metropolitan Area Network).

The peripheral used in the designing part is DSP card, TMS320VC33 version. This peripheral is chosen because of its data processing speed that is measured based on its cycle time on each instruction (duty cycle). TMS320VC33 needs about 13 ns only to process a line of instruction; so that in one second, 76 millions of instructions can be proceed. The system of IEEE 802.16e receiver which consists of OFDM receiver, QPSK demapper, reed-solomon decoder, and derandomizer are implemented. Assumption, the synchronization is in ideal condition and ADC/DAC phase is not added.

The testing result can be concluded that the realization system in unity with spend the time process 2,074 ms that was measured based on duty cycle. The realization of RS(255,223) decoder is already fit on, with correction ability up to 16 symbol error. The memory consumption was efficient because only 6.861 memory addresses already used from total 34 K memory address.