

## ABSTRACT

WiMAX IEEE 802.16 is one of the candidates of future technology to accommodate BWA services. The IEEE 802.16e, mobile WiMAX, is one of the standard set, that can be used in NLOS condition with higher user mobility up to 120 kmph. In NLOS conditions, the quality and capacity of a wireless system is very influenced. The IEEE 812.16e standard system has to have the best performance to overcome the impact of various channel transmission.

To exceed the problems that caused by the NLOS condition, some methods can be used by WiMAX, error correction technique is one the solution. At this research, the WiMAX system that used channel coding technique as the error correction technique will be explained more. *Low Density Parity Check Code* (LDPC) is one of the parts of channel coding that implemented as a parity check which able to assist the channel coding worked maximum.

Based on the simulation results, the LDPC technique coding at the IEEE 802.16e standard offers the better performance than the *Convolutional-Reed Solomon Code* coding technique. This is base on the resulted coding gain, which about  $\pm 5.25$  dB at AWGN channel BER  $10^{-4}$  and  $\pm 7$  dB at the reyleigh with the user speed 3 km/hour BER  $10^{-3}$ . LDPC performance is really influenced by the selection of code rate, amount of decoding iteration, and codeword length.