

ABSTRACT

An adaptive modulation is one of methods that can increase the performance system proposed by Hanzo and Torrance, which the method works by adapting scheme of modulation toward channel condition change [2]. The important parameter that influence performance of adaptive modulation in Signal to Noise Ratio (SNR). To make scheme of modulation choice became efficient, it is very important to understand the SNR estimation.

Besides using adaptive modulation, within this Thesis will also be proposed beamforming adaptive technique by using array antenna on receiver then fading effect can be reduced that in the end the performance system will increase eventually. Research over beamforming adaptive has done by Kim and Lee that has applied beamforming technique on AWGN channel for the OFDM system [14]. Beamforming adaptive algorithm work depends on weight antenna technique that will be applied.

Result of Thesis that will be conducted on user velocity observation if 30 km/h by means of fusion of beamforming adaptive system (element numbers of antenna 8) and adaptive modulation happen work's betterment with number of ± 10 dB towards 1 antenna element (without beamforming) at BER 10^{-3} .

Keywords : Adaptive modulation, adaptive beamforming algorithm