ABSTRACT

Software Defined Radio (SDR) provides radio communication technology which is very important to adequate need of next generation of wireless technology.

Modulation scheme recognition is one of SDR early important function, because receiver used for this kind of system should be able to select a correct demodulation scheme for various signals with unknown modulation scheme. Modulation scheme recognition algorithm that used in this research is a combination between statistic method on features extraction part and the LVQ Neural Network on classifier and decision part.

The research results show that the combination of statistic feature σ_{aa}, σ^2_{da}, σ^2_{dp}, and γ_{2da} have best performance on recognition accuracy (not for 16QAM modulation). Based on SNR receiver WiMAX IEEE 802.16e, QPSK and 64QAM modulation give the increasing result in increasing SNR value. And based on accuracy rate $\geq 90\ \%$, QPSK modulation has recognition result 93% when 16 dB (32 hidden neuron) and 90 % when 13 dB (64 hidden neuron), 16QAM modulation has recognition result 92 % when 25 dB (32 hidden neuron) and 96 % when 27 dB (64 hidden neuron), and 64QAM modulation has recognition result 99 % when 5 dB (32 hidden neuron) and 90 % when 4 dB (64 hidden neuron). 16QAM modulation is assumed not qualified in recognition result because it can be recognize true $\geq 90\ \%$ in big SNR value.

Key word: Modulation Scheme Recognition, Software Defined Radio, SNR receiver WiMAX IEEE 802.16e, Statistical Method, LVQ Neural Network.