ABSTRACT

The recent advances in information and communication technology tend forward to multi-media services which need increasing band-width as width as possible. This trend triggering developing and using adaptive digital modulation scheme which adaptive to changing communication channel. At receiver, receiver have to have ability to deciding what is the type of digital signal that transmitter sended, before information ekstraction.

At this research,, digital signal recognition system using wavelet transformation and artificial neural network, was developed. The type of digital modulation which used are ASK2, ASK4, PSK2, PSK4, FSK2 and FSK4. At communication channel, AWGN channel is used as channel moddelling. Degradation level of signal to noised environment are modelled at EbNoR 10dB, 20dB and 100dB. Wavelet Transformation is used inorder to denoising noised signal and reconstruction to take-back original signal. There are six important feature will be used and extracted: mean and variance of amplitudes, phases and frequencies of digital signal. The types of artificial neural network that used are single hidden layer and double hidden layer. The single hidden layer using 5,10or 15 nodes at hidden layer, the double hidden layer using 5,10 0r 15 nodes at first hidden layer and 5,10 or 15 at second hidden layer.

From the testing result, for single hidden layer ANN is obtained recognition accuracy level is 99,77 for signal without noise, and 97% for signal under condition EbNoR 10 dB and

20dB. For double layer, commonly are obtained, recognition accuracy level are 99% for signal without noise and 97.67% for signal under condition EbNoR 10 dB and 20dB.

Keyword: Artificial Neural network (ANN), Wavelet Transformation, Single hidden layer ANN, double hidden layer ANN, Pattern Recognition.