PERFORMANCE ANALYSIS OF BPSK AND QPSK USING ERROR CORRECTING CODE THROUGH AWGN

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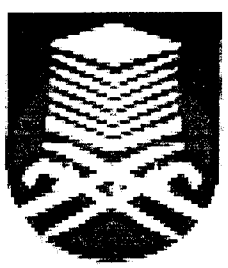

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ABSTRACT

This paper presents the performance analysis of BPSK and QPSK using error correcting code. To calculate the bit error rate, different types of error correcting code were used through an Additive White Gaussian Noise (AWGN) channel. Three error controls types; Bose- Chaudhuri-Hocquenghem (BCH), Cyclic code and hamming code were used as the encoder/decoder technique. Basically, the performance was determined in term of bit rate error (BER) and signal energy to noise power density ratio (Eb/No). Both BPSK and QPSK were also being compared in the symbol error capability known as t in which expected that the performance is graded in response to the increasing of value of t. The maximum codeword length (n) used in the hamming code is 63 and the message length (k) is 57. For BCH code, the maximum N is 63, K is 36 and error-correction capability, t is 5. For cyclic code, the maximum N is 31, K is 21 and error-correction capability, t is 5. All simulations were done using MATLAB R2007b software. The results show that the best performance occurs when the communication system uses a BCH code with N=31, K=11 and t=5 with BPSK modulator/demodulator. The higher the values of N, K and t, the better the performance of the system using BPSK and QPSK. In general BCH codes are better than Hamming code and Cyclic code for both BPSK and QPSK.

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