EE352 – Communication Systems I Laboratory

Lab 9 Report

FM IN NOISE

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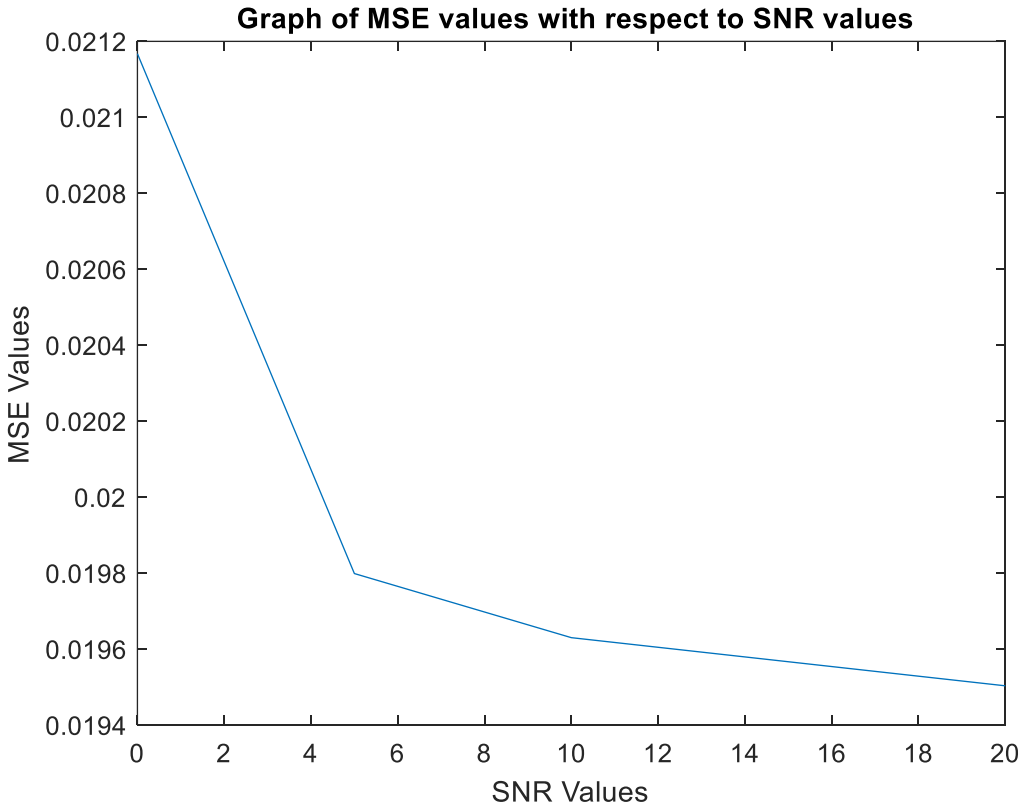
In this laboratory we understand how SNR value affect the sound. We used “gong” sound and we used load() and sound() matlab functions to get original signal and to listen to the demodulated signals.



According to this graph, we can say when SNR values are increasing, mean square error value is decreasing. $SNR = \frac{Psignal}{Pnoise}$ and we know that noise is unwanted compenent. SNR value increasing meaning is that the ratio of the desired component to the unwanted noise component increases and according the that as we can see in the graph mean square error value is decreasing. Also, we can say that we get different MSE values for running programs every time because noise goes through a random process. Also we should say when SNR value increasing sound quality get well which we are listening. This is meaning that we

get closer result to original sound. When filtering, to select cutoff frequency, we took the fourier Transform of our message signal and selected 1650Hz according to the frequency value containing the component. Also I select filter order is 5 because when filter order is increasing the mean square error values increase because of Rolloff value increase so that order 5 is the lowest number that gives us a good sound.