Electrical Communications Systems

Course No. ECE.09.433

Laboratory Project 3

Frequency Modulation and Detection

Objectives

In this project, you will model an FM communications systems using the Matlab Simulink Communications Systems Toolbox and test the system with single-tone FM (w and w/o added Gaussian noise).

Software

Matlab: ***https://www.mathworks.com/help/pdf_doc/matlab/getstart.pdf***

Matlab Communications Toolbox**:**
https://www.mathworks.com/help/pdf_doc/comm/comm_gs.pdf

Project Requirements

The objective is to observe (in time and spectral domains) & listen as audio tones progresses along a modulation-demodulation system, both in the presence and absence of added Gaussian noise.

Develop a Matlab Simulink simulation of an FM system that includes a source, modulator, channel, demodulator and sink. Test the system with single-tone audio frequency message inputs. Note down observations in the time and spectral domains, and listen to the audio signals and the input and output.

Bonus: Demonstrate the Carrier-Null effect for the correct frequency-modulation indices.
