**EC4910: Computer Project 3**

**Introduction**

In this project we address the problem of demodulating a signal, using a combination of equiripple and Comb Integrator Cascade (CIC) filters.

**Problem.**

The file *data3.wav* contains a sinusoid with frequency , sampled at  samples per second. It is SSB modulated at a carrier frequency , with  the baseband sampling frequency. Since we want each sample to be a signed integer with 16bits/sample, the scaling constant is .

Demodulate the signal by downsampling it in three stages: 32 (with a four stage CIC), 4 and 2.

The blocks you need specially for this project are the following:

*Signal Processing Blockset>Sources> WAV File;*

*Simulink>Signal Attributes>Convert* to convert a signal between single/double and integer;

*Simulink>Logic and Bit Operations>Extract Bits*  to remove excessive bits after the CIC Filter;

*Signal Processing Blockset>Filtering>Multirate Filters>CIC Decimator*  for CIC