

EE6133 Experiment-1: Deliverables

Part 1

- Magnitude spectrum of the two inputs “music16khz.wav” and “speech8khz.wav”
- Magnitude spectrum of the two outputs after downsampling by 2
- Audio files for the two outputs after downsampling by 2

Part 2

- Filter response of the equiripple LPF
- Magnitude spectrum of the two outputs after anti-aliasing filter and downsampling by 2
- Audio files for the two outputs after anti-aliasing filter and downsampling by 2
- Compare the two downsampled signals (with and without anti-aliasing filtering) of Part 1 and 2 for each audio input.

Part 3

- Filter response of the equiripple LPF

Part 4

- Magnitude spectrum of the two outputs after upsampling by 3, to show the images
- Magnitude spectrum of the two outputs after upsampling by 3, anti-aliasing filter and downsampling by 4 (i.e. of the final outputs)
- Audio files for the two final outputs

Part 5

- Magnitude response and impulse response of the interpolation filter
- Magnitude spectrum of the two outputs after anti-aliasing filter, downsampling by 4 and upsampling by 3, to show the images
- Magnitude spectrum of the two final outputs after anti-aliasing filter, downsampling by 4, upsampling by 3 and interpolation, to show the image rejection clearly
- Audio files for the two final outputs
- Compare the outputs of Part 4 and Part 5 for each of the two inputs

In each part, the students are expected to clearly explain the comparison between the original signal and the signal after the set of signal processing steps.