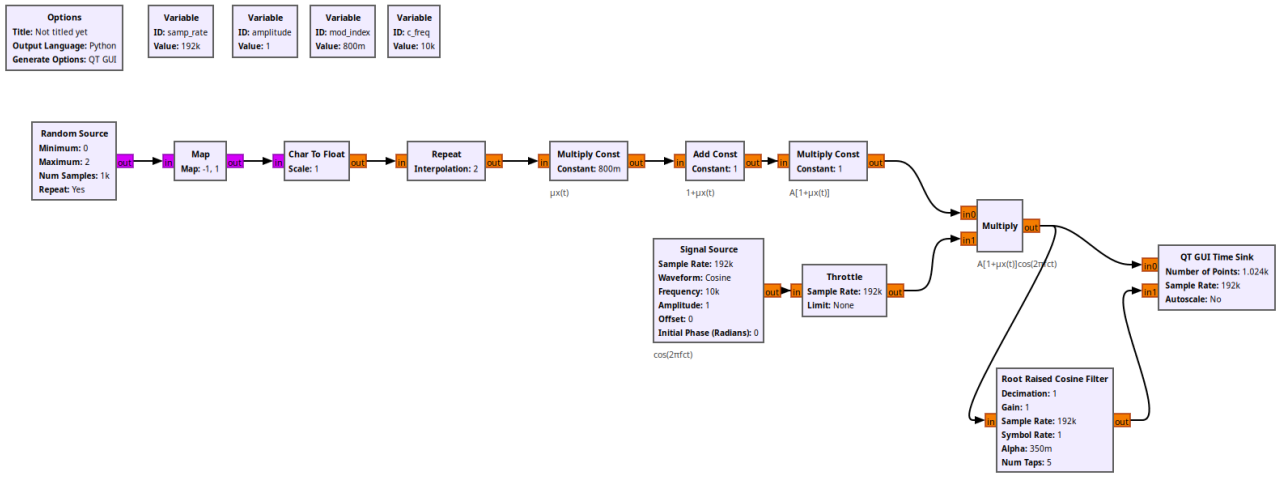
HY330 – Telecommunication Systems

Chris Papastamos | csd4569

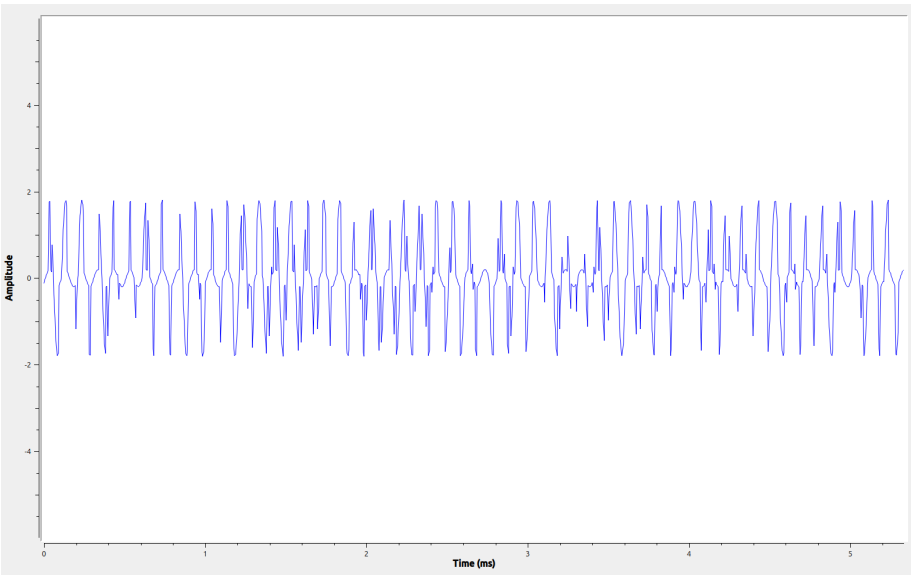
Assignment 5

Exercise 1

For the purpose of this exercise I created the following flowgraph:

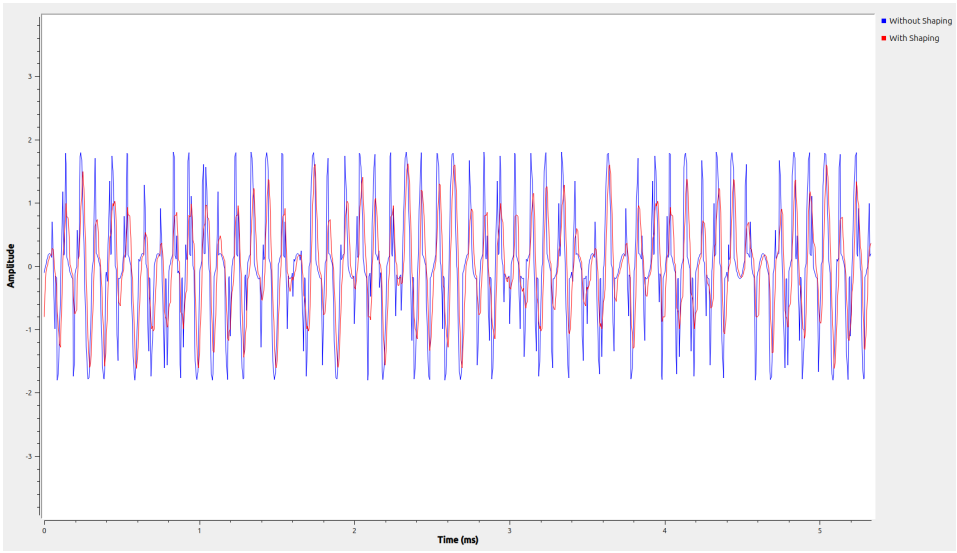


This flowgraph modulates the output of the random source (1,-1) with Amplitude Modulation. It uses the variable modulation index to distance the two amplitude modulation points. The output of the flowgraph looks like this:



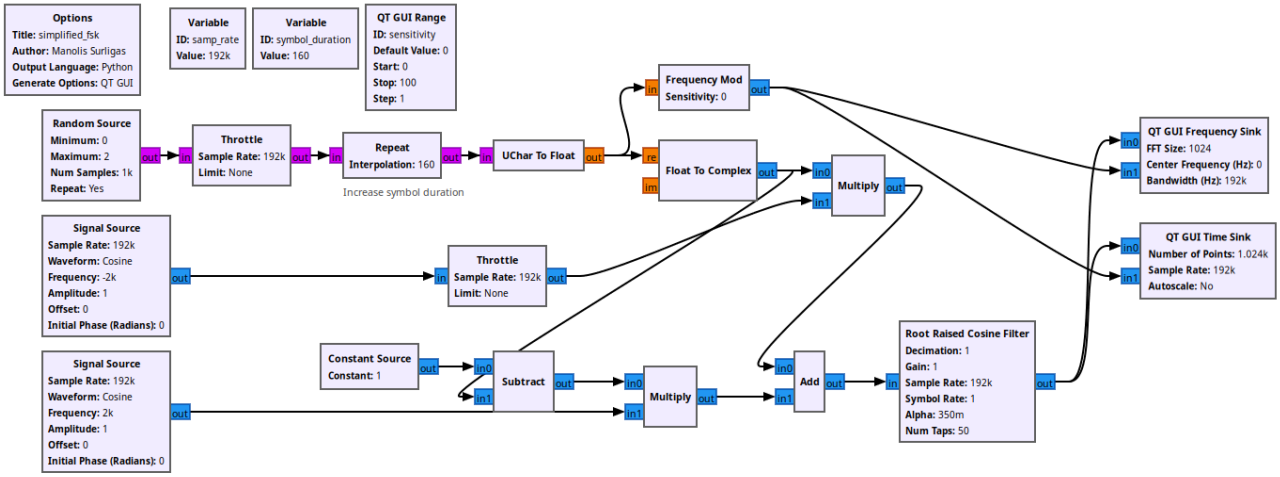
We can see that the signal has the two amplitude modulation points at 0.2 and at 1.8 (1 ± 0.8).

For the shaping of the signal, we can add a Root Raised Cosine Filter to shape our signal. The unshaped and shaped output can be seen below:

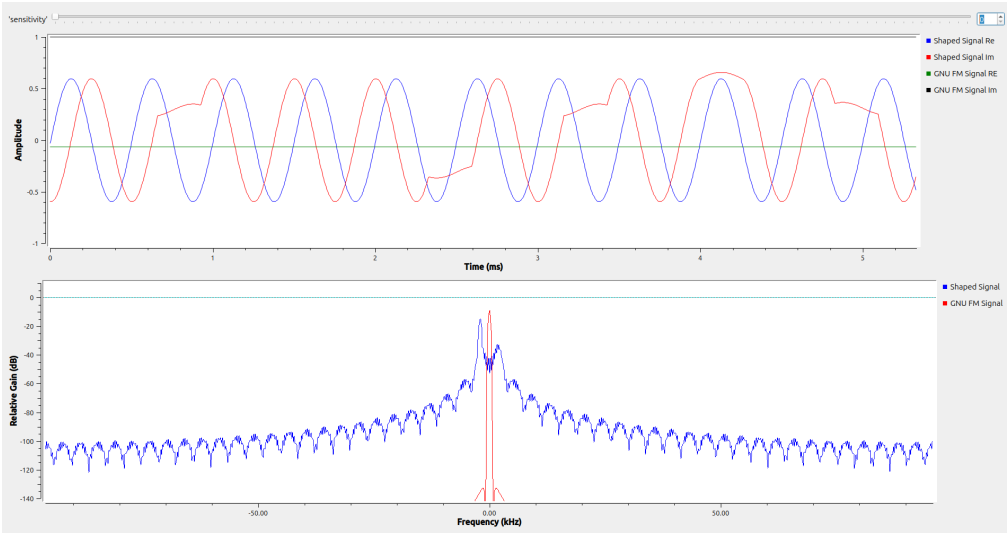


Exercise 2

For the 2nd exercise I edited the simplified_fsk.grc by applying the following modifications: I altered the samp rate to 192kSPS and changed the symbol duration to 160 points in order to achieve a bitrate of 1200SPS. The final flowgraph is the following:



In order to shape the output of the signal I used the Root Raised Cosine Filter block. I also used the Frequency Mod block to apply FM to the signal. The output of the flowgraph is the following:



By raising the Frequency Mod sensitivity, we observe the following output: