Lab 6

QPSK

Date: 26th and 29th September 2016

1 Quadri-Phase Shift Keying

Prelab assignments

1. Study quadri phase shift keying (QPSK) from the textbook. Draw the block diagram for a QPSK modulator and demodulator. Think about how you will use the blocks on your Emona board to implement QPSK. Read about the sequence generator block and the serial to parallel converter block on the board from the user manual.

2. Read about Offset-QPSK from the textbook.

In lab tasks

1. Implement the QPSK modulator using the Emona board. Use carrier frequencies of 100 kHz. The input bit stream has to be obtained from the sequence generator. (You may refer to the manual for using this particular block.)

2. Draw the constellation diagram for the QPSK modulator that you have implemented.

3. Record the phase transitions which occur at the bit transition epochs. By what values does the phase change? How is it related to the input bits that is given? Is the system that you have implemented QPSK or Offset-QPSK?

4. Implement a BPSK demodulator for one of the carriers (either *cos* or *sine*) and record the recovered baseband signal.