EXPERIMENT : DPSK MODULATION and DEMODULATION

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Aim:

To design the modulation and demodulation of DPSK.

Theory:

DPSK is a technique of BPSK, in which there is no reference phase signal. Here, the transmitted signal itself can be used as a reference signal. Following is the diagram of DPSK Modulator. DPSK encodes two distinct signals, i.e., the carrier and the modulating signal with 180° phase shift each

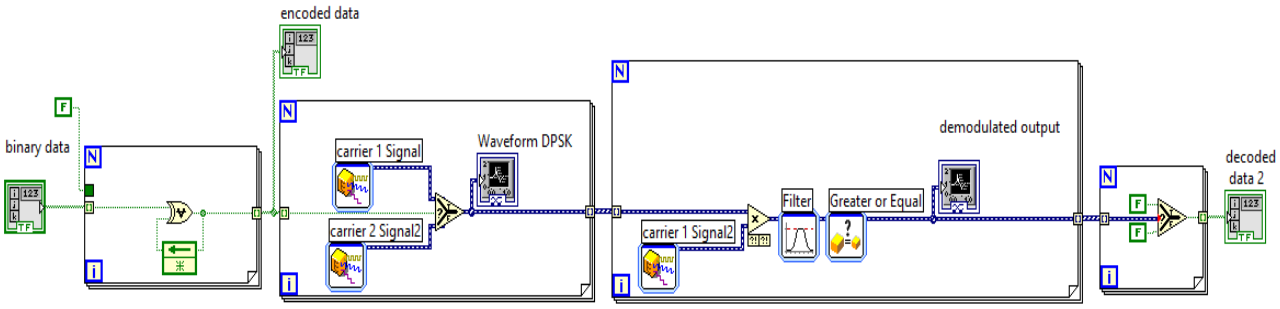
Modulation:

DPSK encodes two distinct signals, i.e., the carrier and the modulating signal with 180° phase shift each. The serial data input is given to the XNOR gate and the output is again fed back to the other input through 1-bit delay. The output of the XNOR gate along with the carrier signal is given to the balance modulator, to produce the DPSK modulated signal.

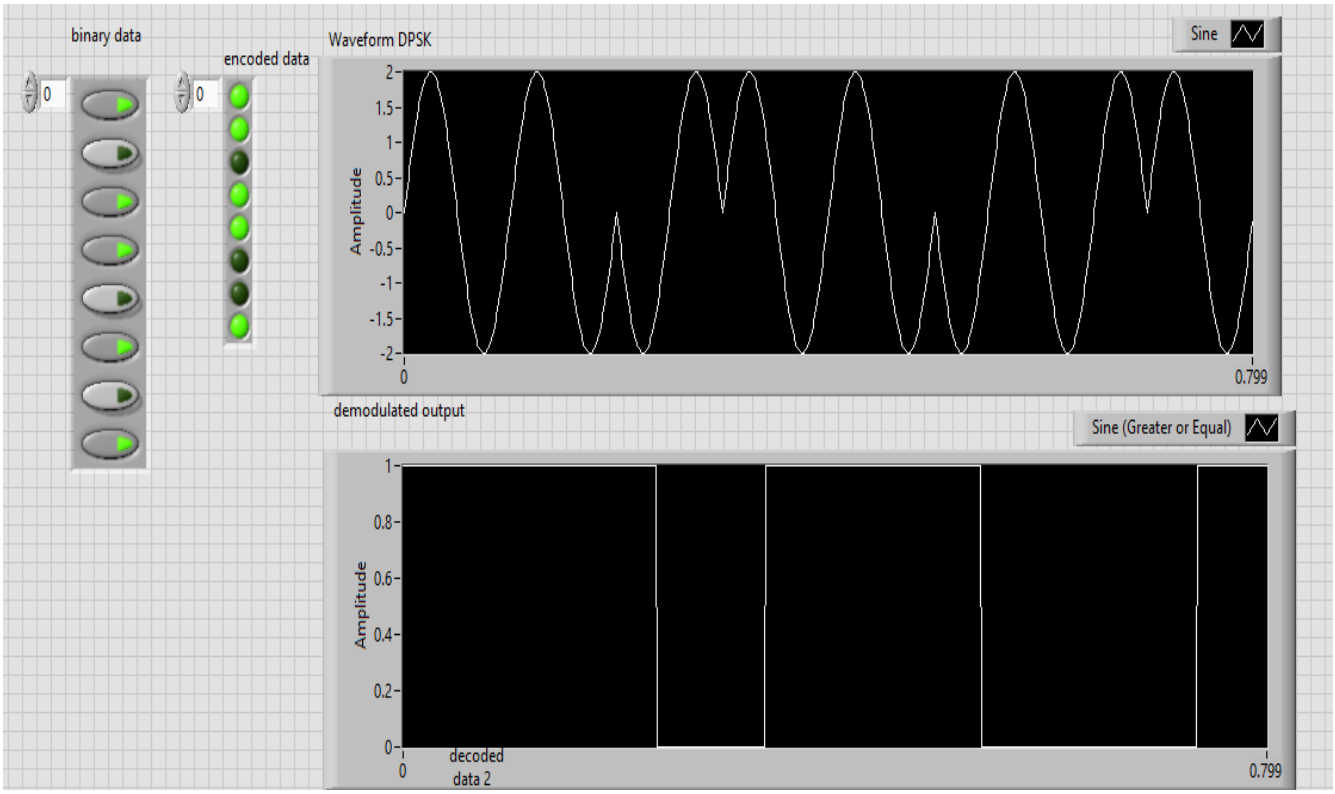
Demodulator:

In DPSK demodulator, the phase of the reversed bit is compared with the phase of the previous bit. Following is the block diagram of DPSK demodulator.

Circuit:



Waveform:



STIMULATION:

1. Open LabVIEW Software.
2. Click=> New =>Design
3. Click save as in and rename the .vi to your circuit name.
4. Specify the value of amplitude and frequency for the same value below mentioned.
5. Design the dpsk modulator circuit.
6. Implement the demodulator circuit below.
7. Click simulate button or press F5 key =>RUN
8. Record the waveforms.

RESULT: The DPSK modulator and demodulator circuits was set up and the waveforms were plotted.