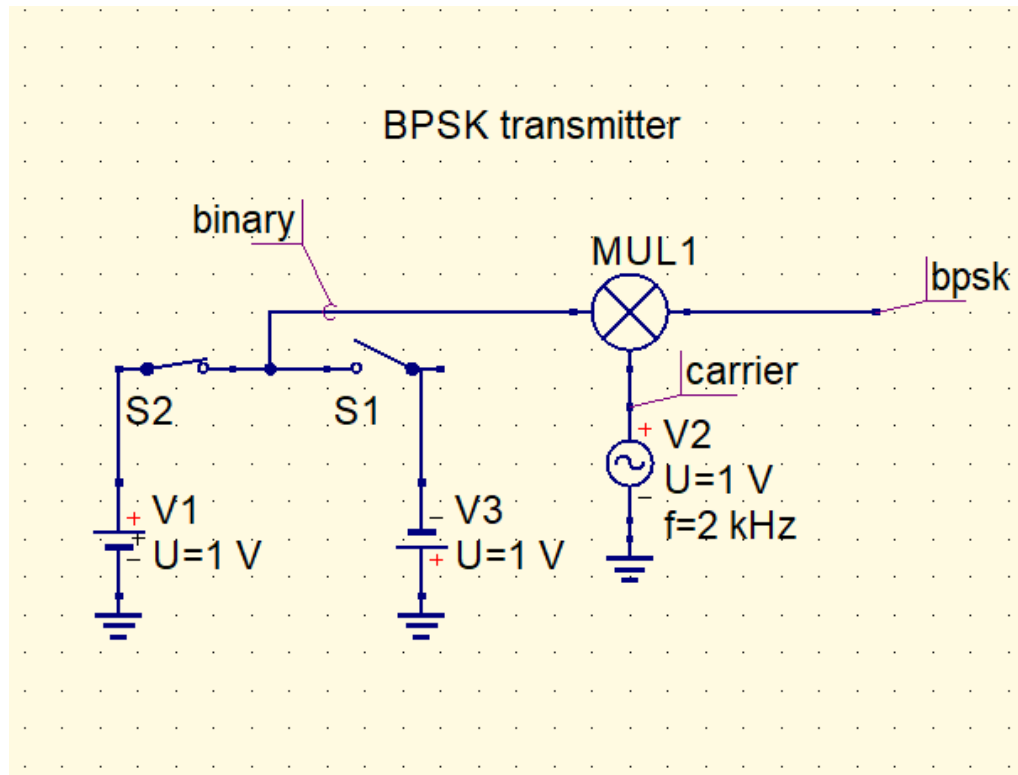
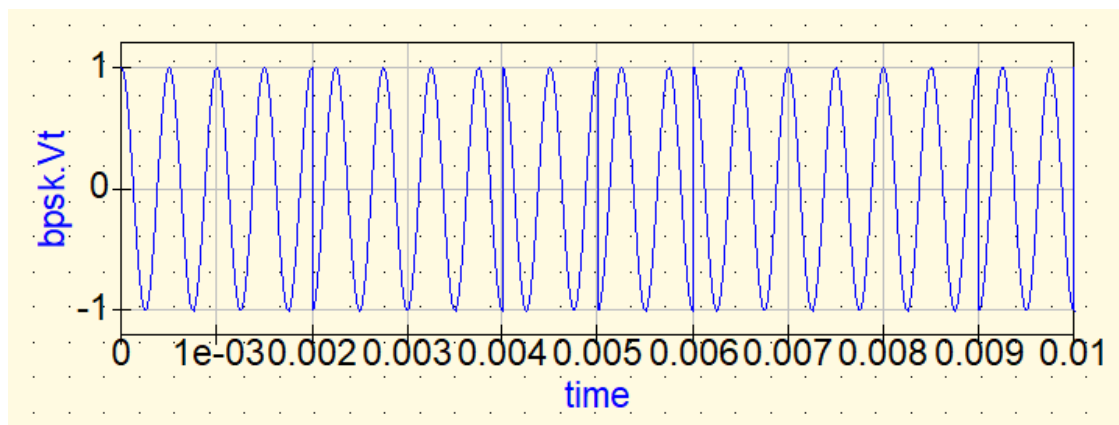


1) BPSK Transmitter:



Simulation Graph:

Inferences :

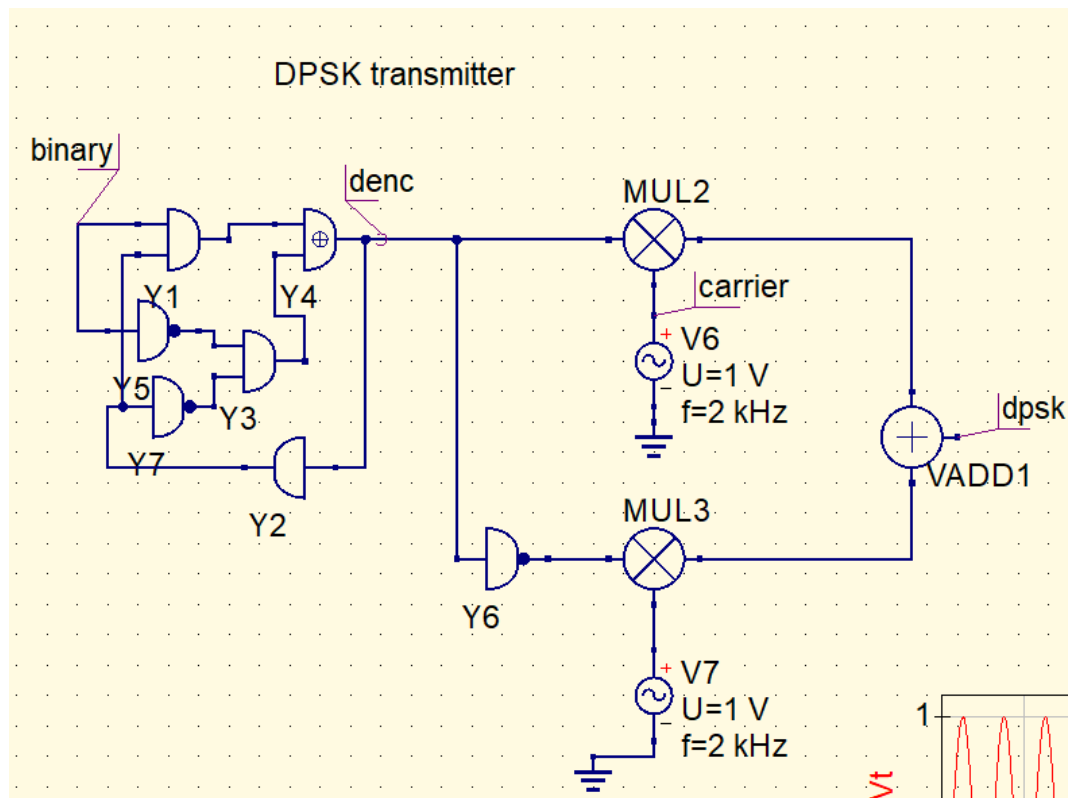
a) Carrier Frequency:

Higher Frequency: Increasing the carrier frequency shortens the wavelength, which can lead to better spectral efficiency and potentially higher data rates. However, it may also increase susceptibility to noise and attenuation.

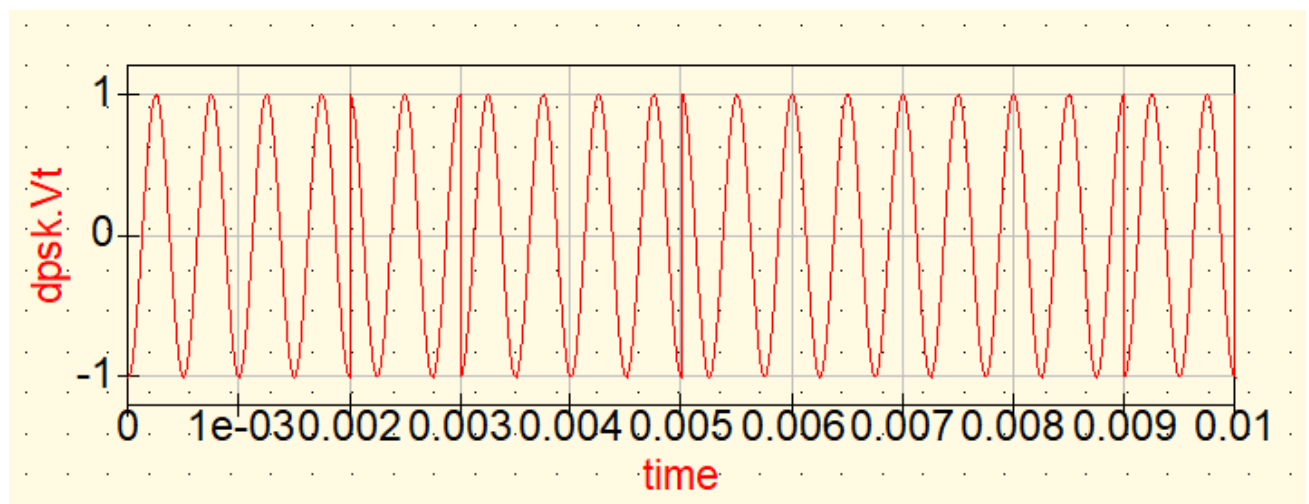
Lower Frequency: Lowering the carrier frequency extends the wavelength, which may improve signal propagation over longer distances but can reduce spectral efficiency and data rates.

b) Carrier Voltage: Increasing the carrier voltage can increase the signal strength and improve its robustness against noise. However, excessively high voltages may introduce nonlinear distortions.

2) DPSK Transmitter:



Simulation Graph:



Inferences:

- Voltage Levels:

DC Source Voltage: Increasing the voltage of the DC sources representing binary 1 and binary 0 can affect the amplitude of the modulated signals. Higher voltages may lead to stronger modulated signals, improving their robustness against noise. However, excessive voltage levels can introduce nonlinear distortions and increase power consumption.

Modulator Input Voltage: Adjusting the input voltage of the product modulators can directly impact the modulation depth and thus the phase shift of the DPSK signal. Higher input voltages may result in larger phase shifts, altering the signal constellation and potentially affecting demodulation accuracy.

- Carrier Frequency:

Higher Frequency: Increasing the carrier frequency shortens the wavelength of the carrier signal. This can lead to better spectral efficiency and potentially higher data rates. However, higher frequencies may also increase susceptibility to noise and interference, especially in high-frequency bands.

Lower Frequency: Lowering the carrier frequency lengthens the wavelength, which may improve signal propagation over longer distances. However, lower frequencies typically result in lower data rates and may require larger bandwidths for transmission.