Digital Communication: **Matlab Lab Report**

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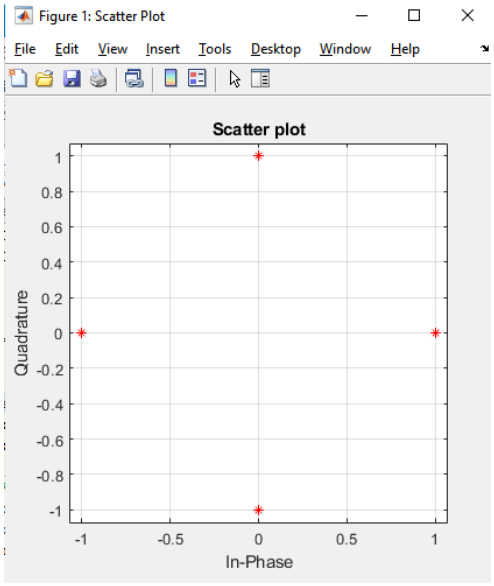
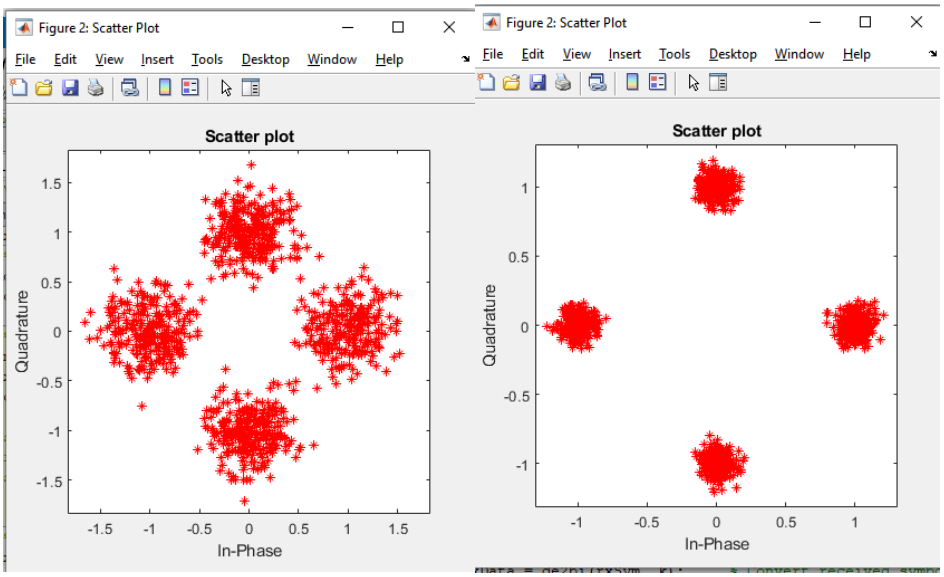
Q1 QPSK Modulation



Q1_2 QPSK in AWGN channel

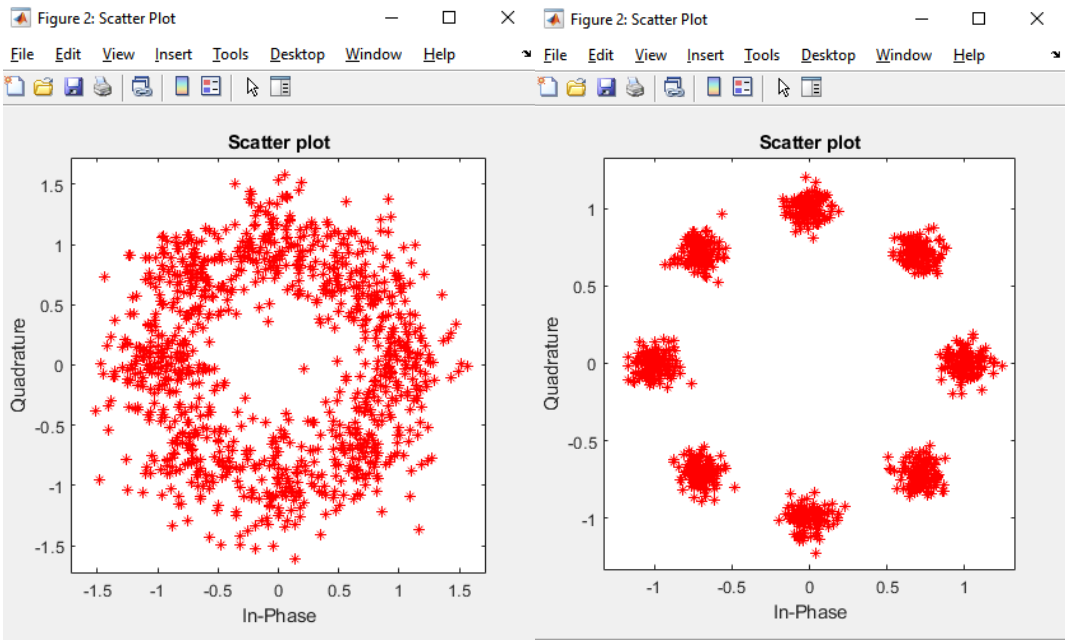


SNR =10 SNR=20.

Observation:

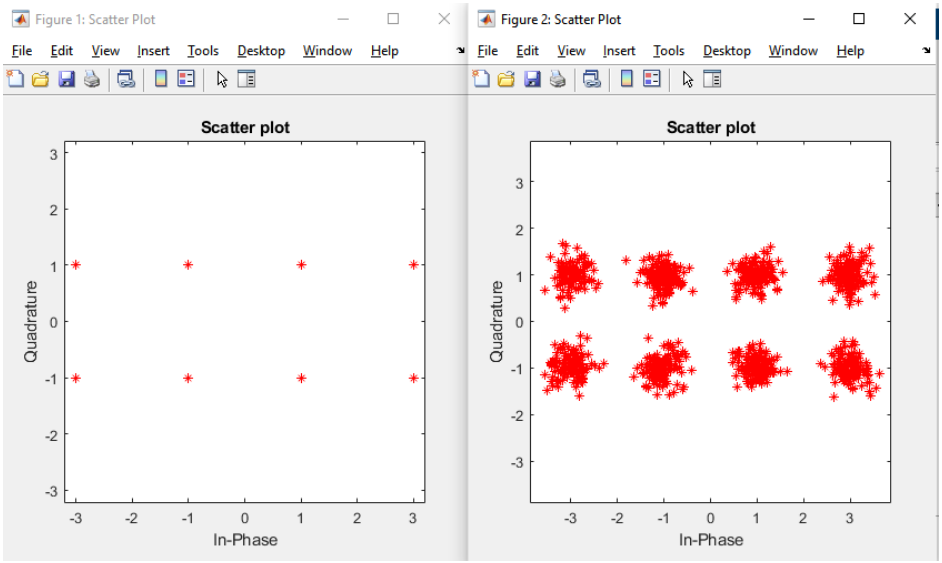
High SNR means high signal strength as compared to noise. The higher the SNR, the lower the interference and thus the received signal is looks more like transmitted signal.

Q1_3 8-PSK in AWGN channel

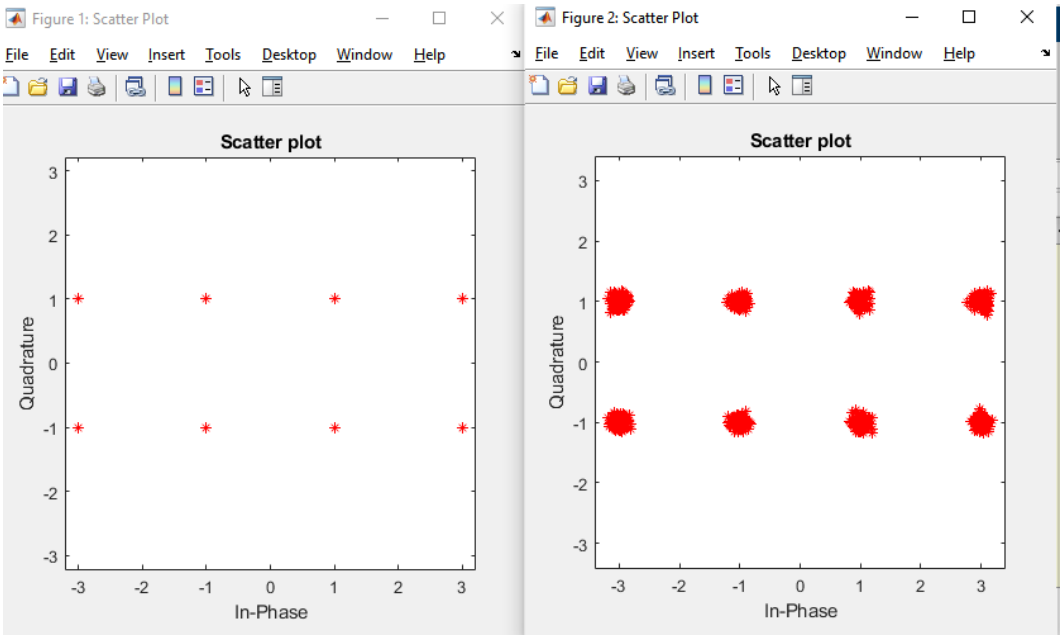


Q1_4

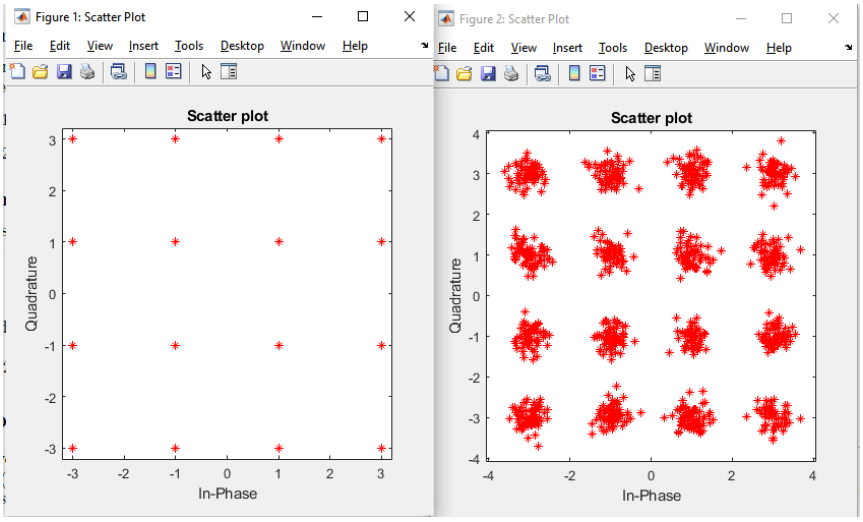
M = 8, SNR = 10



M = 8, SNR = 20



M = 16, SNR = 10



M = 16, SNR = 20

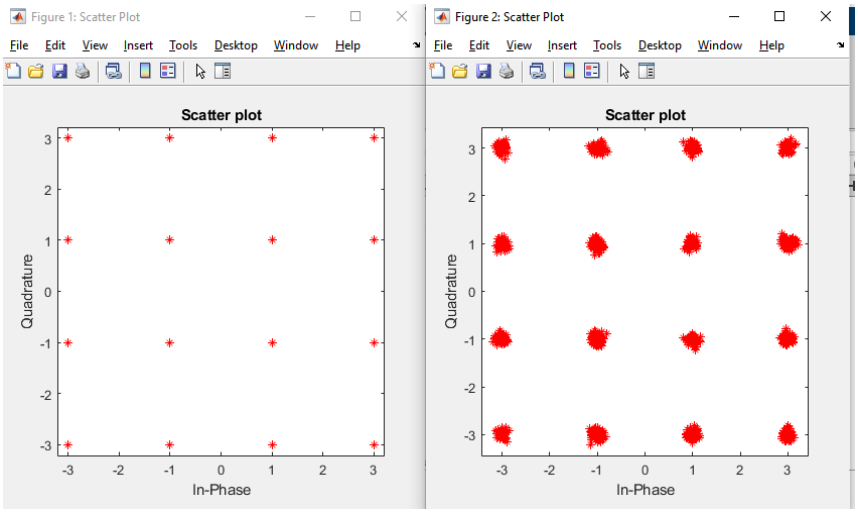
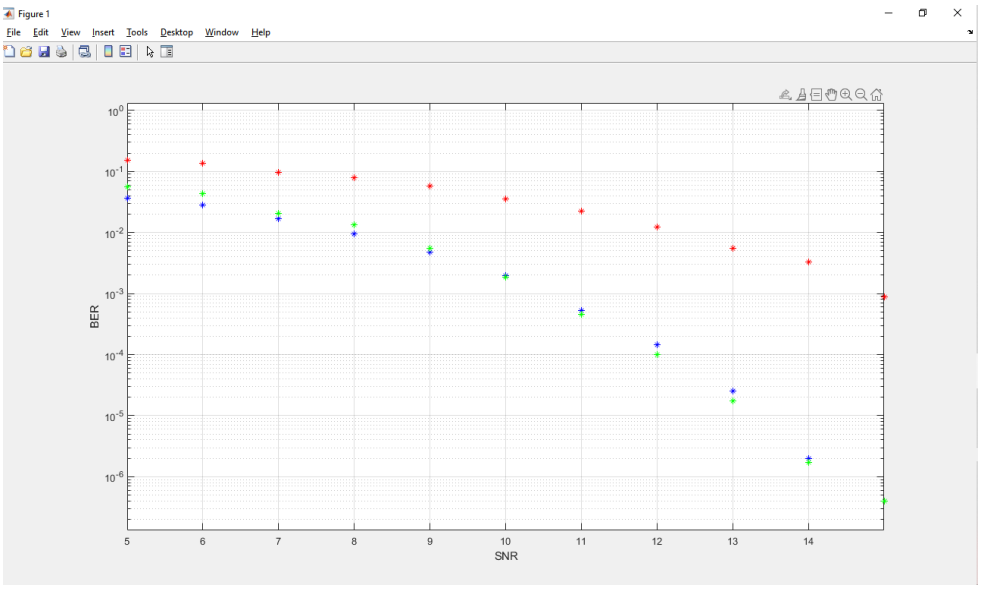


Figure 1: Scatter Plot
File Edit View Insert Tools Desktop Window Help
Scatter plot
Quadrature
In-Phase
Figure 2: Scatter Plot
File Edit View Insert Tools Desktop Window Help
Scatter plot
Quadrature
In-Phase

Q2_4



Q2_5

- 16 PSK has higher BER than 16 QAM
- 8 QAM and 16 PSK have a similar BER
- The higher the SNR the lower the BER.
- For smaller values of SNR, BER are comparable for all modulation schemes.