

Indian Institute of Information Technology Allahabad

Department of Electronics and Communication Engineering

Course Name: Digital Communication

EXPERIMENT NO: 9

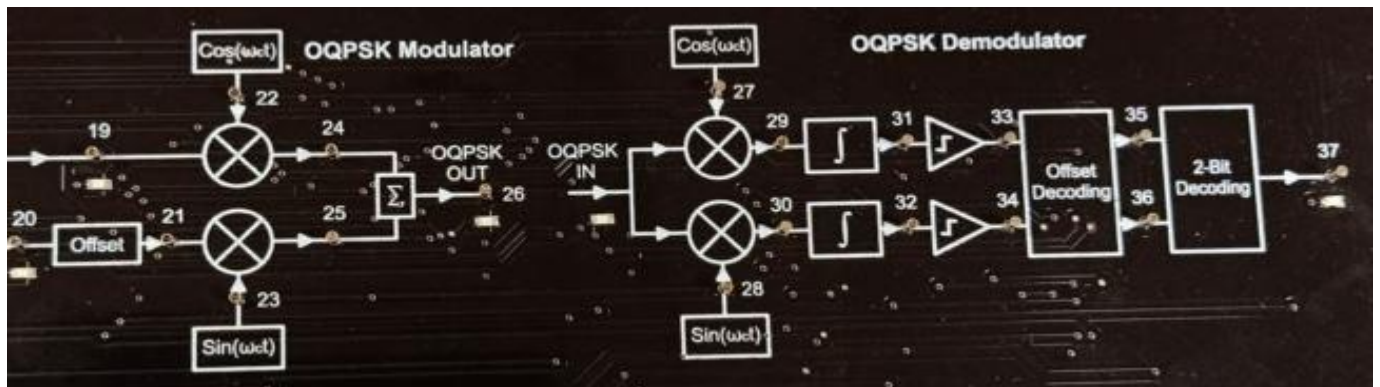
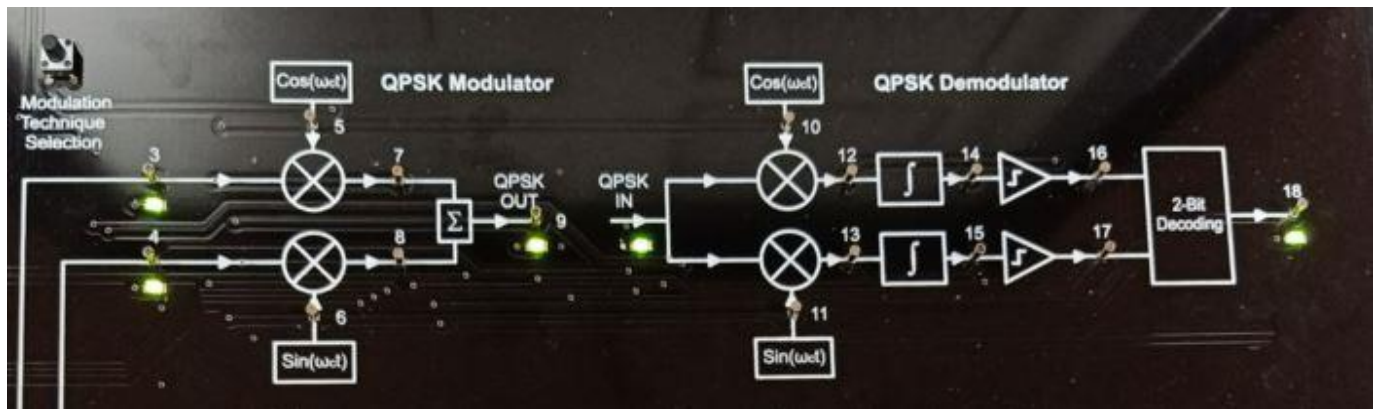
Objective/Aim – Study and analysis of the QPSK and OQPSK modulation schemes.

Setup requirement -





- TechBook Board 2808
- Power Supply
- DSO
- Test Probe

Theory – Quadrature phase shift keying (QPSK) is another form of angle modulated, constant amplitude digital modulation technique. QPSK is an M-ary encoding scheme where $N=2$ (bit per sample) and $M=4$ (i.e., quaternary). With QPSK, four output phase are possible for a single carrier frequency. Because the digital input to a QPSK modulator is a binary signal, to produce four different input combinations, the modulator requires more than a single input bit to determine the output condition. Whereas, in OQPSK, the bit waveform on I or Q channel is offset or shifted in phase from each other by one half of a bit time.

Block Diagram/ Circuit Diagram -



Observation table -

Modulation Schème	Modulated Output	De-modulated output
QPSK		
OQPPSK		

Results - By using the **2808 kit**, we observe input data at TP2, 2-bit encoded input data at TP4, sinusoidal carrier signal at TP6 & TP7, modulated output at TP9, and de-modulated output at TP18. In the same way, we can observe output for OQPPSK at different terminal points. Accordingly, modulated and demodulated output graphs are plotted in observation table.

Precautions-

1. Switch off the experimental kit during making connections.
2. Use proper main cord.
3. Ground the instrument.
4. Use in proper atmosphere.