

DESIGN OF QPSK MODULATOR

**This is presented in partial fulfilment for the award of the
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ABSTRACT

The objective of this project is to study, design and construct the Quadrature Phase Shift Keying (QPSK) modulator to operate at a frequency of 10 MHz with an input data rate of 2.4 kbits/s. QPSK is an efficient digital modulation scheme. This modulation technique is extensively used in digital satellite communication and digital microwave communication. It is also used in the digital cellular communication systems.

The purpose of the QPSK modulator at the transmitter is to put the binary information onto the carrier signal, whose phase changes for every pair of bits i.e dibits which makes it an efficient modulation scheme.

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All perfect praises belong to Allah alone, Lord of the world. May His blessings be upon Prophet Muhammad s.a.w and members of his family and companions.

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CHAPTER 1

1.0 INTRODUCTION

The purpose of the communication system is to transport an information signal from a source to a user destination via a communication channel. Basically there are two types of communication systems, analog and digital. In an analog communication system, the information signal is continuously varying in both amplitude and time and it is used directly to modify some characteristics of a sinusoidal carrier. While in the digital communication system, the information signal is processed so that it can be represented by a sequence of discrete messages.

In digital communications, the appropriate choice of a particular modulation techniques will lead to the best performance of the system, a lower cost and more competitive transmission. Modulation is defined as a process by which some characteristics of a carrier is varied in accordance with a modulating wave [1].

Digital modulation is the technique used to transmit baseband digital information over a bandpass communication channel. The modulation process is accomplished by the modulator circuit at the transmitter .