ANALYSIS OF A MULTISTANDARD MODEM OPERATION USING CONSTELLATION DIAGRAM, DATA TRANSMISSION AND ERROR RATE MEASUREMENT
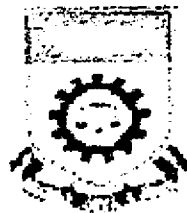
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ABSTRACT

This project presents the analysis of modem VM 24/EV that use different speeds by using constellation diagram. The objective in this paper is to study the modem operation, the manual and automatic connection on switched line, data flow control, effect of noise in connection and error rate measurement using VM24 and Data Tester.

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CHAPTER 1

INTRODUCTION

1.1   Digital Data Transmission

By using either a parallel mode or serial mode, the transmission of binary data across a link can be accomplished. Multiple bits are sent with each clock pulse in parallel mode. In serial mode, one bit is sent with each clock pulse. There are two subclasses of serial transmission; that is synchronous and asynchronous, while there is only one way to send parallel data. Refer to Figure 1.1 [1].
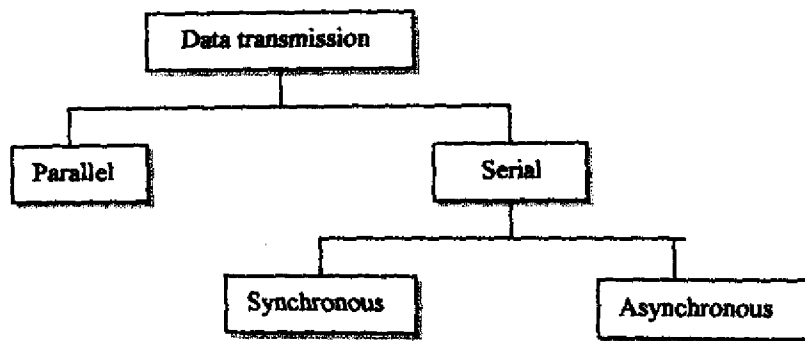

Figure 1.1: Modes of data transmission [1]

1.1.1   Parallel Transmission

Binary data, consisting of 1s and 0s, may be organized into groups of n bits each. Computers produce and consume data in groups of bits and use spoken language in the form of words rather than letters. Data n bits can be sent at a time instead of one by grouping it.

The mechanism for parallel transmission is a conceptually simple one: use n wires to send n bits at one time. That way each bit has its own wire and all n bits of one group can be transmitted with each clock pulse from one device to another. Figure 1.2 shows how parallel transmission works for n=8. The eight wires are bundled in a cable with a connector at each end [1].