

HIGHER TECHNICAL INSTITUTE

Electrical Engineering Department

DIPLOMA PROJECT

HIGH-SPEED TRANSMISSION OVER COPPER NETWORK USING  
ADSL SYSTEM

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## Chapter 1:Introduction

Today we live in a world where almost everything depends on computers. So we have to develop them and study the factors that affect their operation. Computers speed of communicate with each other is one of that factors and the most considerable.

Also as the internet grows more popular and computers get faster, the next step is to increase the access speed to the internet. For most people, high speed access is going to be 56K dialup access for the foreseeable future. For those fortunate enough to be in an area that provides DSL service, true high speed access is available.

Now in Cyprus computers communications and internet access is done through transmissions lines that are also used for telephone communications. These transmission lines are based on copper and developed through the years to a very sufficient network by CYTA.

The project “High speed transmission over copper network using ADSL” will study and investigate that latest technology of high speed transmission . Also as you will see in the process tests of this service will be involved.

## **Chapter2:General about transmission lines and communication services**

### **2.1 Introduction**

In this chapter we will see what is transmission lines, the problems that appear during transmission and how we can solve them. Also we will speak about communication services in general

### **2.2 Transmission lines**

Telecommunications involves the transmission of information, including voice ,data ,TV, and radio over long distances. The transmission medium can be free space (ground, space, and sky waves), or the information can delivered between transmitters and receiver using transmission lines of various kinds. These include:

- Parallel wire
- Twisted pair
- Coaxial cable
- Waveguides
- Optical fiber

#### Parallel wire

Parallel wires consisted of a pair of parallel insulated copper wire running side by side and covered by a plastic sheath. It prone to interference and is only used to carry information over small distances such as telephone connections within a building.

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