

HIGHER TECHNICAL INSTITUTE
ELECTRICAL ENGINEERING COURSE

DIPLOMA PROJECT

DESIGN OF A LASER TRANSMITTER - RECEIVER SYSTEM

by
NEOPHYTOS ANTONIADIS
ID 150

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SUMMARY

The purpose of this project is to examine and design a wireless laser transmission system.

Firstly the theory behind the optoelectronic devices is studied in order to understand their operation. Secondly different modulation techniques are studied in order to select the best for the construction of the transmission system. Thirdly the circuits selected are described and explained in detail. Finally several tests are done using various instruments.

INTRODUCTION

In recent years a rapid evolution at the telecommunication industry has taken place due to the increasing demand for advanced communication, and the technological innovations at the disposal of the said industry.

Although the two tend to progress in parallel, that is to say the increase in demand is covered by the advance in technology and new inventions are inspired by this increased demand, sometimes new innovations cannot keep up with demand.

A major problem for the telecommunications industry, has been the limited bandwidth of copper cable, which was limiting the amount of information that could be sent. In recent years this problem was minimized by the use of fiber optic cables. One advance of this system might quite possibly be direct wireless laser transmission and its versatility. This system has the advantage to other communication systems that it will be cheaper and environment-friendly since there will be no under-ground and overhead wiring.