

HIGHER TECHNICAL INSTITUTE

ELECTRICAL ENGINEERING DEPARTMENT

DIPLOMA PROJECT

“DEVELOPMENT OF AN ELECTRONIC CABLE SIMULATOR”

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“DEVELOPMENT OF AN ELECTRONIC CABLE SIMULATOR”

Project report by:

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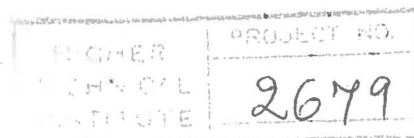
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CONTENTS

	<i>Page</i>
CHAPTER 1: INTRODUCTION	1
1.0 Introduction	1
CHAPTER 2: THE THEORY BEHIND THE TRANSMISSION LINE	2-3
2.0 The theory behind the transmission line	2
2.1 The primary parameters of a transmission line	3
CHAPTER 3: BASIC LINE EQUATIONS	4-16
3.0 Basic Line Equations	4-5
3.1 Secondary line parameters	6
3.1.1 Characteristic Impedance	7
3.2 Phase and Group delay	8
3.3 Infinite line	9
3.4 Reflections on the finite terminated lines	10-11
3.5 Voltage standing wave Ratio (VSWR)	12
3.6 General solution of a line terminated with any impedance	13
3.7 The input impedance of a line terminated with any load impedance	14
3.7.1 Special cases	15
3.8 Classification of lines	16
CHAPTER 4: HIGH FREQUENCY TRANSMISSION LINES	17-21
4.0 High frequency transmission lines	17
4.1 Losses in High frequency transmission lines	17
4.1.1 Copper loss	17
4.1.2 Dielectric loss	17
4.1.3 Radiation loss	17
4.2 Impedance matching in high frequency lines	17
4.2.1 Quarter wavelength	18
4.2.2 The tapered transmission line	18
4.3 Stub Matching	18-19
4.4 Forms of high frequency lines	19
4.4.1 Open wire lines	19
4.4.2 Coaxial cables	20
4.5 Crosstalk and Interference	20
4.5.1 Screening	20
4.6 Loading	21

CHAPTER 5:	TECHNICAL TRANSMISSION CONCEPTS	22-26
5.0	Technical transmission concepts	22
5.1	Primary parameters R, L, C, and G.	22
5.11	Resistance measured in Ω/km	22-23
5.12	Conductance measured in $\mu\text{S}/\text{km}$	23
5.13	Inductance measured in H/km	24-25
5.14	Capacitance measured in nF/km	25-26
5.15	Temperature effects	26
CHAPTER 6:	ARCHITECTURE OF THE DISTRIBUTION NETWORK OF CYTA	27
6.0	Architecture of the distribution network	27
CHAPTER 7:	SPECIFICATION OF TELEPHONE CABLES AND TELEPHONE WIRES OF CYTA	
7.0	Specs of telephone cables and telephone wires of CYTA	28
7.1	Cables for the primary network	28
7.2	Purpose to use	28
7.3	Conductors	28
7.4	Electrical characteristics	28-29
CHAPTER 8:	FROM THEORY TO PRACTICE. HOW DID WE BUILT THE ELECTRONIC CABLE SIMULATOR	30-35
8.1	Introduction	30
8.2	Formulas used or what assumptions made to calculate R, L, C, G, Z_0 and α .	30-31
8.3	The design of the Electronic cable Simulator	31-35
CHAPTER 9:	FEW WORDS ABOUT MATHCAD AND ELECTRONIC WORKBENCH	36
9.1	What is Mathcad?	36
9.2	What is electronic workbench	36

**CHAPTER 10: CONCLUSIONS, OBSERVATIONS AND
DIFFICULTIES DURING THE COMPLETION
OF THE PROJECT**

37

10.0 Conclusions, observations and difficulties during
the completion of the project

37

CHAPTER 1:

1.0 INTRODUCTION:

Nowadays cables become more and more efficient, reliable, faster on transferring information, less attenuated at higher frequencies and ofcourse source for study and development.

But what is really behind a pair of cables? What is doing their behaviour specified in some conditions, enviromental, electrical, electromagnetic etc. etc? We will find out if we try to analyze such a cable i.e tranmission line.

So as the cable is a type of a transmission line we will try from the theory to examine it study it and combine it with practical solutions.

This project , " Development of an electronic cable simulator " is dedicated to cables of Cyprus Telecommunications Authority (CYTA). In other words, to cables with cross-sectional 0.4mm, 0.5mm and 0.63mm, Twisted Pair Sheilded cables (STP) and simulate their behaviour at 800Hz, 1600Hz, 16KHz, 40KHz, 64KHz and 150KHz.

As you can see after this, very good study of theory will result closer approximations on the practical solutions, many telecommunications engineering books, the CYTA's specification for telephone cables and wires , graphs, tables and real electronic simulator will help and guide that to happen.

We will study theory, we will use Mathematical program (MathCad 5.0+) to find our desirable results from the theory's formulas, we will use Electronic Workbench 4.0 program to simulate these results in semi-practical condition and finally do a typical electronic cable simulator on a velo - board. Also a design of the PCB of the simulator was drawn on the Tango design program but due to delay was not finally used.