

**UNIVERSITI TEKNOLOGI MARA
CAWANGAN PULAU PINANG**

**INVERTED TRIANGLE ABSORBING
PROPERTIES ON HOLLOW
PYRAMIDAL MICROWAVE
ABSORBER**

NOOR AZIEMAH BT AZAHARI

Faculty of Electrical Engineering

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ABSTRACT

This study investigates about the new design titled as inverted triangle hollow pyramidal microwave absorber. Four stages have been developed in this study based on Sierpinski triangle theory. The parameters that involve in this research are design structure, dimensions of an absorber and coated factor. The processes that involves in this project are design simulation, development and measurement. The data from simulation has been used to analyze and compare which stage has better absorption performance in CST Studio software. The arch measurement method at frequency 8 GHz till 12 GHz determines the different of absorption performance develops by the four stages. The data from simulation and measurement determine which parameters can affect the absorption performance. The measurement result shows the highest absorption performance is -56.72 dB. This work of study showed that Stage IV design attained the highest absorption rate, while followed by Stage III, Stage II and Stage I sequentially order of highest absorption rate. The result shows the inverted triangle hollow pyramidal shaped of microwave absorber produces excellent performance and applicable for anechoic chamber system.

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TABLE OF CONTENT

CHAPTER	TITLE	PAGE
	AUTHOR'S DECLARATION	i
	ABSTRACT	ii
	ACKNOWLEDGEMENT	iii
	TABLE OF CONTENTS	iv
	LIST OF TABLES	viii
	LIST OF FIGURES	x
	LIST OF SYMBOLS	xiii
	LIST OF ABBREVIATIONS	xiv
1	INTRODUCTION	1
	1.1 Introduction	1
	1.2 Background Of Study	2
	1.3 Problem Statement	3
	1.4 Objectives	4
	1.5 Scope of Study	4
	1.6 Thesis Organization	5
2	LITERATURE REVIEW	7
	2.1 Introduction	7
	2.2 Frequency And Wavelength	8
	2.3 Anechoic Chamber	11
	2.4 Horn Antenna	12
	2.5 Spectrum Analyzer	13
	2.6 Microwave Absorber	14
	2.7 Radiation Absorbing Material	14
	2.7.1 Carbon	15
	2.7.2 Dielectric Properties	15
	2.8 Jaumann	16

CHAPTER 1 INTRODUCTION

1.1 INTRODUCTION

In this section, the background of this study is being informed. After that, the problem statements of this study were discussed. Next, the objectives and scope of work for this study were listed. Furthermore, the thesis organization also explained in this section.

This project focus on developing of a new design titled as inverted triangle hollow pyramidal microwave absorber. The results get from the CST Studio software has been concerned as expected results. The results obtained by using arc method measurement indicated to be same as the predicted result. After that, the data from measurement part were compared in term of different stages and different signal source angles. Thus, which parameters can affect the absorption performance can be determined. The microwave absorber measured at frequency range of 8-12GHz.



Figure 1.1: Pyramidal microwave arrangement set

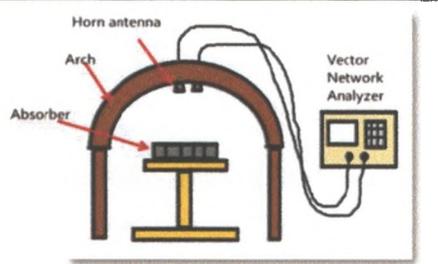


Figure 1.2: Measurement set up of arc method

The inverted triangle hollow pyramidal microwave absorber are arrange in 3 x 3 array set before being measured as shows in Figure 1.1, while Figure 1.2 shows the measurement set up of arc method for this study.