

UNIVERSITI TEKNOLOGI MARA

**STUDY ON THE INCLUSION OF
TWO MICROSTRIP SQUARE OPEN
LOOP RESONATOR TO PRODUCE A
DIPLEXER**

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Dissertation submitted in partial fulfillment of the
requirement for the degree of
**Master of Science in Telecommunication and
Information Technology**

Faculty of Electrical Engineering

January 2015

ABSTRACT

In this paper, a microstrip square open loop resonator as one of the design for band pass filter is proposed to develop the diplexer. A combination of two microstrip open loop resonator connected to power divider (assume to be ideal power divider) will produce a diplexer. The microstrip square open loop resonator is one of the bandpass filter type of filter operating at two frequencies, GSM1800 MHz and UMTS2150 MHz. Comparisons between simulated and measured result shows a shifting in return loss, S_{11} and insertion loss, S_{21} . From the results, simulated result shows a better return loss and insertion loss. Expected result for diplexer should be the same as the microstrip square open loop resonator since the diplexer is form from the inclusion of two microstrip square open loop resonator. By having this diplexer in the telecommunication, it can overcome many issue as for example on the public complaint regarding radiation from the base station. As for operator itself, they can reduce the OPEX and CAPEX cost.

ACKNOWLEDGEMENT



In the Name of Allāh, the Most Gracious, the Most Merciful

In the name of Allah s.w.t, this thesis has been completed with the help of many people either direct or indirectly.

First of all, I would like to express my deepest gratitude and appreciation to my project supervisor, Prof. Dr. Mohd Tarmizi Ali, for the chance to work under his guidance, ideas and fully support in completing this project.

Special thanks to my beloved parents, Ibrahim Omar and Nor Faiza Abdullah and my husband, Mohd Azizul Rahman for their understanding, encouragement and support financially and morally during completing this project.

Last but not least to all colleagues at Antenna Research Lab (ARG) who help me with their brilliant ideas.

TABLE OF CONTENT

	Page
AUTHOR'S DECLARATION	ii
ABSTRACT	iii
AKNOWLEDGEMENT	iv
TABLE OF CONTENT	v
LIST OF TABLE	vii
LIST OF FIGURE	viii
LIST OF ABBREVIATION	x
CHAPTER ONE: INTRODUCTION	
1.1 Research Background	1
1.2 Problem Statement	3
1.3 Research Objectives	3
1.4 Scope of Project	3
1.5 Project Organization	4
CHAPTER TWO: LITERATURE REVIEW	
2.1 Introduction	5
2.1.1 S-Parameter	6
2.1.2 Insertion Loss	6
2.1.3 Return Loss	6
2.1.4 Voltage Standing Wave Ratio, VSWR	7
2.1.5 Microstrip	7
2.2 Diplexer	9
2.3 Filter	14
2.3.1 Types of Filters	
2.3.1.1 Lowpass Filter	15
2.3.1.2 Highpass Filter	15
2.3.1.3 Bandpass Filter	16

2.3.1.4	Bandstop Filter	16
2.3.2	Microwave Resonator	18
2.3.3	Power Divider	18
CHAPTER THREE: RESEARCH METADODOLOGY		
3.1	Introduction	19
3.2	Simulation	20
3.3	Fabrication	
3.3.1	Mask Preparing	21
3.3.2	Photoresist Process	21
3.3.3	Etching Process	21
3.3.4	Soldering Components	21
3.4	Measurement	22
CHAPTER FOUR: RESULTS AND DISCUSSIONS		
4.1	Introduction	23
4.2	Simulation	24
4.3	Measurement	30
4.4	Simulation and Measurement	31
CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS		33
REFERENCES		34
APPENDICES		36