

UNIVERSITI TEKNOLOGI MARA

**DESIGN AND ANALYSIS OF RECTANGULAR
PLANAR SPIRAL ANTENNA INTEGRATED
WITH LIGHT EMITTING DIODE (LED)**

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ABSTRACT

This paper presents the design and analysis of rectangular planar spiral antenna integrated with Light Emitting Diode (LED). The objective of integrate LED into the antenna is to have dual application devices where it can illuminate light and at the same time as wireless communication. The antenna was designed at 2.4 GHz using Archimedean technique and the performances of spiral antenna in term of return loss, frequency resonant and radiation pattern was optimized using Computer Simulation Technology (CST) Microwave Studio. The antenna was fabricated by FR4 with thickness of $h = 1.6mm$ and $\epsilon_r = 4.3$ and LED was connected in series into the antenna patch. Vector Network Analyser (VNA) was used to measure the capability and potential of fabricated antenna. The antenna was reasonably matched corresponding to their frequency of operation between simulation and fabrication.

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TABLE OF CONTENTS

AUTHOR'S DECLARATION	iv
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENT	vi
LIST OF FIGURES	vii
LIST OF TABLE	x
LIST OF ABBREVIATION	xi
CHAPTER ONE: INTRODUCTION	1
1.1 BACKGROUND OF STUDY	1
1.2 PROBLEM STATEMENTS	2
1.3 OBJECTIVE OF RESEARCH	2
1.4 RESEARCH SCOPE AND LIMITATION	2
1.5 OUTLINE OF THESIS	3
CHAPTER TWO: LITERATURE REVIEW	7
2.1 INTRODUCTION	7
2.2 PLASMA ANTENNA	7
2.3 SPIRAL ANTENNA	8
2.3.1 Multiband Frequency	10
2.4 FUNDAMENTAL OF ANTENNA PROPERTIES	11
2.4.1 Radiation Pattern	11
2.4.2 Isotropic, Directional and Omni-directional patterns	14
2.4.3 Antenna Directivity, Gain and Radiation Efficiency	15
2.4.4 Radiation Intensity	15
2.4.5 Impedance of the antenna	15
2.4.6 Beam width	18
2.4.7 Bandwidth	18
2.5 PARASITIC ELEMENT	19
2.6 LIGHT EMITTING DIODE	19

2.7 RELATED STUDY	
2.7.1 Study 1:	20
Development of Rectangular Loop Microstrip Antenna Integrated with LED for Wi-Fi Application	
2.7.2 Study 2:	20
Design and Investigation of H-Shaped Patch Antenna Integrated with LED	
2.7.2 Study 3:	21
Rectangular Spiral Microstrip Patch Antenna Integrated with LED for Wi-Fi Application	
2.8 CONTRIBUTION OF STUDY	21
CHAPTER THREE: RESEARCH METHODOLOGY	48
3.1 INTRODUCTION	48
3.2 SPIRAL ANTENNA TECHNICAL REQUIREMENT	49
3.3 SPIRAL ANTENNA DESIGN	50
3.3.1 Rectangular Spiral Antenna (Design 1)	50
3.3.2 Gain Enhancement (Design 2)	51
3.3.3 LED Integrates with Spiral Antenna (Design 3)	52
3.4 FABRICATION PROCESS	53
3.5 OVERALL FLOWCHART OF THE PROJECT	53
CHAPTER FOUR: RESULT AND DISCUSSION	55
4.1 RESULT AND DISCUSSION	55
4.2 FABRICATION RESULT	55
4.3 SIMULATION COMPARISON OF DESIGN 1,2 AND 3	56
4.3.1 Radiation pattern and Directivity	56
4.4 MEASUREMENT RESULT	61
CHAPTER FIVE: CONCLUSION AND FUTURE DEVELOPMENT	65
5.1 CONCLUSIONS	66
5.2 RESEARCH LIMITATIONS	66
5.3 FUTURE WORKS	66
REFERENCE	67
APPENDICES	