

A DISSERTATION ON
DESIGN AND CHARACTERIZATION OF EDGE FED
MICROSTRIP PATCH ANTENNAE

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Submitted by

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CERTIFICATE

This is to certify that the dissertation title “**Design and characterization of EDGE fed microstrip patch antennae**” is the authentic work of **Mr. Amit Jaiswal** under my guidance and supervision in the partial fulfilment of requirement towards the degree of Master of Technology in **Microwave and Optical Communication**, jointly run by the Department of Electronics and Communication Engineering and Department of Applied Physics at **Delhi Technological University, New Delhi**. To the best of my knowledge, the matter embodied in the thesis has not been submitted to any other University/ Institute for the award of any other degree.

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DECLARATION

I hereby declare that all the information in these documents has been obtained and presented in accordance with academic rules and ethical conduct. It is being submitted for the degree of Master of Technology in Microwave and Optical Communication Engineering at Delhi Technological University. It has not been submitted before for any degree or examination in any other university.

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ABSTRACT

Microstrip patch antenna has made great progress in recent years. Compared with conventional antennas, microstrip patch antennas have more advantages and better prospects. They are lighter in weight, low volume, low cost, low profile, smaller in dimension and ease of fabrication and conformity. Moreover, the microstrip patch antennas can provide circular polarization, dual frequency operation, frequency agility, broad band width, feeding flexibility, beam scanning unidirectional patterning.

FECO tool was used for design and simulation, and each design was tuned to get the optimum value for gain and reflection coefficient.

In this thesis work, a new approach of design and performance analysis of microstrip patch antenna. Performances of different feeding are compared with respect to gain, reflection coefficient and radiation pattern. In the design process of EDGE fed microstrip patch antenna with substrate material FR₄ having specification such as relative dielectric constant $\epsilon_r = 2.45$, thickness $h = 3.175$ mm, metal conductivity = $5.88e7$, conductor thickness $T = 0.035$ mm. After the simulation we got the simulated result reflection coefficient (S_{11}) is -30dB, and VSWR is 1.022.

TABLE OF CONTENTS

CERTIFICATE	ii
DECLARATION	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	v
CONTENTS	vi
LIST OF FIGURES	ix
LIST OF TABLES	xi
CHAPTER 1: INTRODUCTION	1
1.1 Overview of RF Technology	1
1.2 Motivation	2
1.3 Aim and Objective	2
1.4 Thesis Structure	3
CHAPTER 2: MICROSTRIP PATCH ANTENNA AND LITRATURE REVIEW	4
2.1 General structure of Microstrip Patch Antenna	4
2.1.1 Patch Antenna Materials	5
2.2 Dimensions	5
2.2.1 Length	6
2.2.2 Width	6
2.2.3 Length Extension (ΔL)	6
2.3 Impedance Matching	6
2.4 Fundamental Specifications of Patch Antennas	8
2.4.1 Radiation Pattern	8
2.4.2 Antenna Gain	9
2.4.3 Reflection Coefficient $ \Gamma $ and Character Impedance (Z_0)	10

2.4.4 Voltage Standing Wave Ratio	10
2.4.5 Input Impedance	11
2.4.6 Polarization	11
2.4.7 Bandwidth	12
2.5 Advantages and Disadvantages	12
2.6 Literature survey	13
2.6.1 Application of microstrip patch antenna	13
2.6.2 Pin-fed microstrip patch antenna	15
2.6.3 EDGE-fed microstrip patch antenna	16
CHAPTER 3 Feeding Techniques of Microstrip Patch Antenna	17
3.1 Feed Techniques	17
3.1.1 Conducting feed technique	18
3.1.2 Non- conducting feed technique	20
CHAPTER 4 DESIGN, SIMULATION AND RESULT	23
4.1 Design of the rectangular patch antenna	23
4.1.1 Design calculation	23
4.2 SIMULATION	25
4.2.1 Design procedure	25
4.3 Result	29
4.3.1 Electric field pattern	29
4.3.2 Return loss	30
4.3.3 Voltage standing wave ratio	31
4.3.4 Directivity	32
4.3.5 Gain	33

CHAPTER 5 CONCLUSION AND FUTURE WORK	35
5.1 CONCLUSION	35
5.2 Future work	36
REFERENCES	37

LIST OF FIGURE

Figure No.	Description	Page No.
1.1	Disciplines requiring RF design	1
2.1	structure of microstrip patch antenna	4
2.2	Current distribution on patch surface	7
2.3	Voltage (U), current (I) and Impedance $ Z $ Distribution along the patch resonant length	7
2.4	Radiation Pattern of a generic dimensional antenna	8
2.5	Typical radiation pattern of simple patch antenna	9
2.6	Return loss Bandwidth	12
3.1	Pin feed technique	19
3.2	EDGE feed technique	20
3.3	Proximity Coupled Feed	21
3.4	Aperture Coupled Feed	22
4.1	Rectangle drawn with L & W	26
4.2	Port number has been assigned in order to give an excitation	27
4.3	A meshed Rectangular Patch Antenna	28
4.4	3D Structure of the meshed Rectangular Patch Antenna with Simple Edge feed	28
4.5	Electric field pattern of edge-fed patch antenna	29
4.6	Return loss in dB	30
4.7	VSWR pattern of Edge-fed microstrip patch antenna	31
4.8	Directivity of edge-fed patch antenna	32
4.9	Gain of edge-fed patch antenna	33

LIST OF TABLES

Table No.	Description	Page No.
2.1	Summary of microstrip patch antenna application	14
2.2	Summary of pin-fed microstrip patch antenna	16
2.3	Summary of EDGE-fed microstrip patch antenna	17
4.1	Parameters used in the software for the responses and simulations.	25
4.2	The result after the simulation by FEKO-EM simulation software	34