**A DISSERTATION ON**

# DESIGN AND CHARACTERIZATION OF EDGE FED MICROSTRIP PATCH ANTENNAE

Submitted towards the Partial Fulfilment of the Requirement for the

award of the degree of

**Master of Technology**
**in**
**Microwave & Optical Communication Engineering**


Submitted by

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**2K12/MOC/02**

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**JULY 2014**

# 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 $FR_4$ having specification such as relative dielectric constant $\varepsilon r$ = 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.

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