

DESIGN OF AND ANALYSIS OF RECTANGULAR PATCH ANTENNA AND ARRAYS

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ABSTARCT

Antenna is an electronic device which converts electrical power in to electromagnetic energy. Antenna radiates electromagnetic signals in all directions by adopting different types of feeding techniques. Microstrip antennas are widely used in wireless communication systems for microwave frequency range because they can be easily fabricated and weighs less [1]. Micro strip patch antennas include reduced weight, easy fabrication, conformability to mounting hosts and bandwidth enhancement. Conventional micro strip patch antenna suffers from very narrow bandwidth, which is typically about 5% bandwidth with respect to the center frequency, low power, and excitation of surface waves and relatively high level of cross polarization radiation which limits their applications. Researchers have developed a number of numerical methods to ease the design procedures of micro strip antennas to meet broadband criteria [10].

In the present work design and analysis of micro strip patch antenna at 5 GHz has done whose width is 23mm and length 19mm and thickness of 0.0415mm. In this antenna design different width of the arm of patch antenna is analyzed to study on the performance of frequency resonance. From the analysis, the wider the width will lower the resonance frequency of the antenna. Large Micro strip array antennas in both linear and planar array systems are designed in the present work. which are used in WLAN applications, Navigation systems. The results are compared with the isotropic antenna array system which is obtained with good agreement.

KEYWORDS: Microstrip Patch Antenna, Array Antennas, Patern Multiplication, WLAN and Navigation Systems