

REVIEW PAPER IN DESIGN AND SIMULATION IN PATCH ANTENNA

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ABSTRACT: In modern times needs for Broadband application has increased. In recent year many work done by design of antenna system. T-shape slot antenna has nearly omnidirectional radiation pattern for all operating bands and gain variation of the range in each of the bands can be less than 3dBi. The maximum impedance bandwidth reaching about 121% has been obtained and the size of the proposed antenna is reduced by 26.5%. In this paper we compare the parameters of T-shape slot antenna, Micro strip patch antenna, Horn antenna, slot antenna for wideband application.

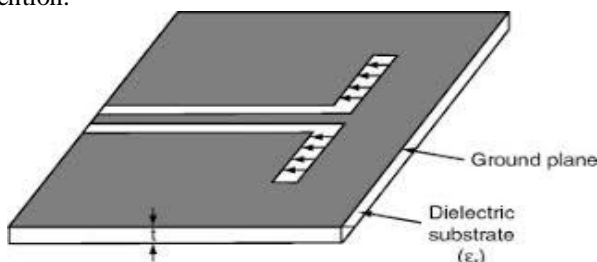
Keyword: Radiation pattern, impedance, communication system, Omni directional, patch antenna

I. INTRODUCTION

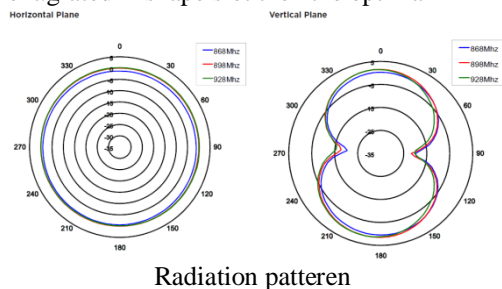
Antenna is the main source for any communication system. All Antennas such as T-shape slot antenna, Micro strip patch antenna, Folded Slot antenna, slot antenna are passive devices. In that antenna radiated power cannot be greater than transmission power. [2]

II. T-SHAPE SLOT ANTENNA

Among various forms of planar antennas, coplanar waveguide-fed printed slot antennas have the simplest structure of a single metallic layer. Because the slot antennas have the advantages of wide bandwidth and easy integration with monolithic microwave integrated circuit, the designs of the T-shape antennas have recently received much attention.

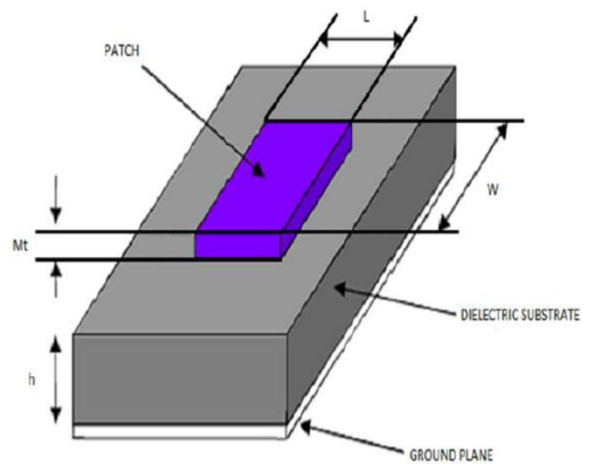


The antenna shape and its dimensions were first searched by using the Ansoft's High Frequency Structure Simulator (HFSS) and dimensions were determined from experimental adjustment. The T-shape slot then the optimal

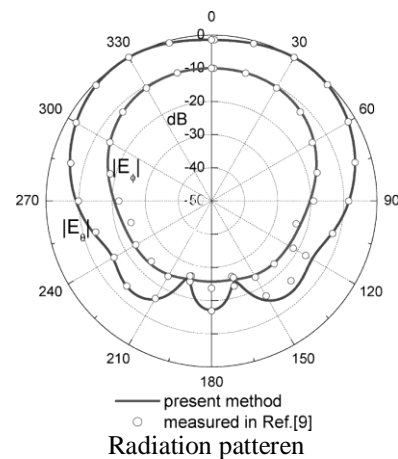


III. MICRO STRIP PATCH ANTENNA

The simplest patch antenna uses a patch which is one-half wavelength long, mounted a precise distance above a larger ground plane, sometimes using an spacer made of a dielectric between them. Electrically large ground planes produce stable patterns and lower environmental sensitivity but of course make the antenna bigger. It isn't uncommon for the ground plane to be only modestly larger than the active patch.



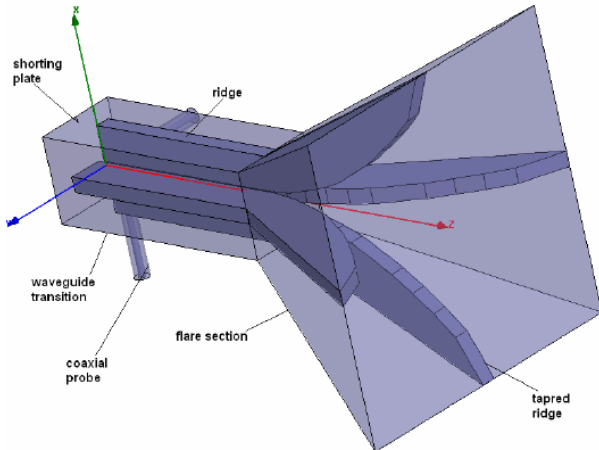
When a ground plane is close to the size of the radiator it can couple and produce currents along the edges of the ground plane which also radiate. The antenna pattern becomes the combination of the two sets of radiators. The figure shows the radiation pattern of Microstrip patch antenna which is Omni direction.



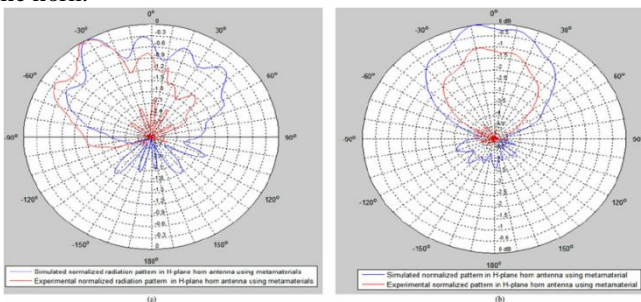
IV. HORN ANTENNA

The pyramidal horns are popular for their well-known attractive features like light weight, low VSWR, low profile and compatibility. As it is being flared in both directions its radiation characteristics are essentially a

combination of the e- and h-plane sectoral horns and its geometry. Coordinate system is shown in Fig.5. The horn can be treated as an aperture antenna. To find its radiation characteristics the equivalent principle techniques can be utilized.



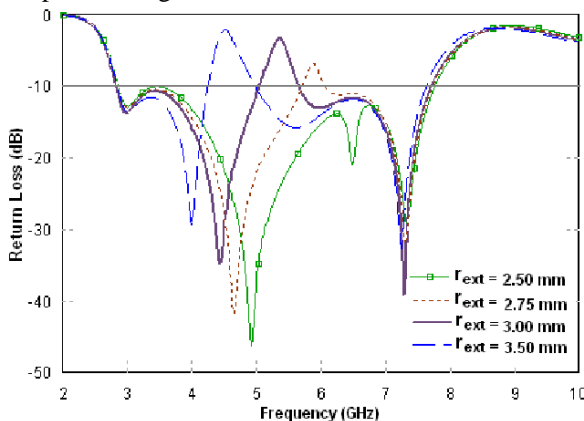
To develop an exact equivalent of it, it is necessary that the tangential electric and magnetic field components over a closed surface are known. The closed surface that is usually selected is an infinite plane that coincides with the aperture of the horn.



Design pattern

V. EXPERIMENT RESULTS

Simulated and measured input return losses are shown and compared in Figure



VI. CONCLUSION

The Broadband T-Shape slot antenna has the advantage over all the antenna is that, it has the less return loss, i.e. 10-dB. Omni directional radiation pattern, It is because the symmetrical configuration of the T-shape slot antenna, and it

has a peak antenna gain of about 4.8 dBi, with gain variations less than 3dBi across the operating bandwidth from 1.8 GHz to 6 GHz. In addition to the advantages of low cost, simple structure, and wide operating band, the T-shape slot antenna has nearly omnidirectional radiation for all operating bands including PCS, 3G, Bluetooth, DMB and WANL and gain variation of the range in each of the bands can be less than 3 dBi.

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