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E Shape Patch Antenna Array

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***Abstract*— In this paper E shape patch antenna array without DGS is proposed for WIMAX application. reflection coefficient is less than -10db for the frequency range 5.66GHz, 7.12GHz. To improve characteristics like gain, bandwidth, and directivity of antenna. This antenna is operated at wide band frequency.**

2 by 2 array of E shape is designed and analyzed.

Keywords— E shape antenna, return loss, gain, directivity.

I. INTRODUCTION

An Antenna is a specialized transducer that convert radio frequency (RF) fields into alternating current (AC) or vice – versa. Microstrip patch antenna are widely used because of their small size easy to fabricate. it has light weight low fabrication cost. Design 2by2 E shape array ground.

II. PROPOSED DESIGN:

The front view of antenna is shown in figure 1. It consist of 2by2 array .The operating frequency is 5.66GHz,7.2GHz.

The aim is to design wide band frequency for that the specifications are FR4 lossy dielectric constant 4.4mm, h= 1.6 loss tangent =4.4. The circular DGS defected ground structure is used to avoid the interference of the antenna. The figure 2shown the back view of the E shape patch antenna.

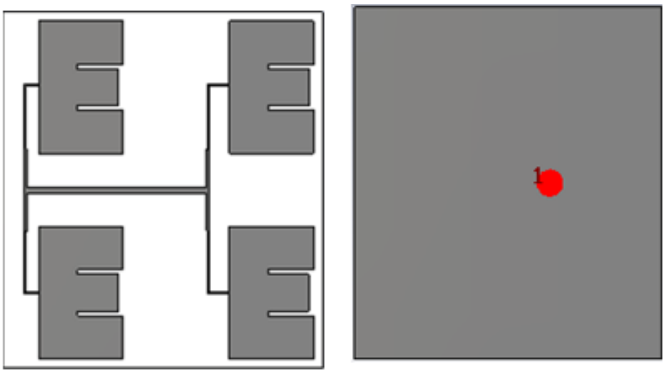


Figure 1. Front View and back view

Dimension of the Antenna Table 1.

Variable	Value
Length of the patch	18.35mm
Width of the patch	29mm
Length of the ground	65.7mm
width of the ground	74mm
Dielectric constant	4.4
loss tangent	0.02
Feed point	23.35

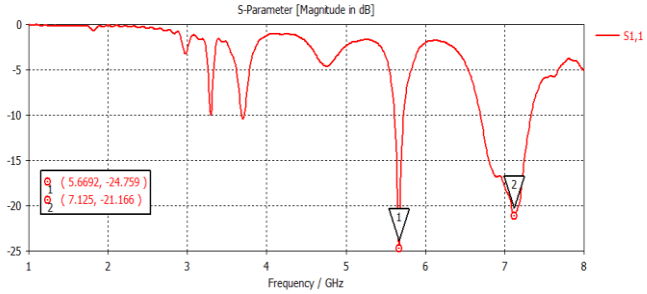
III. Simulation Results:

S11 Parameter

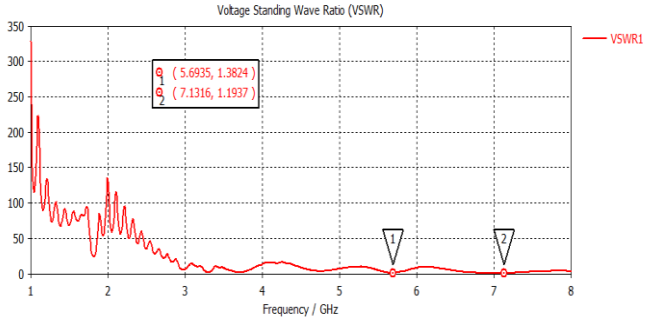
S parameter is scattering parameter refers to a way in which the travelling current and voltages in transmission line.

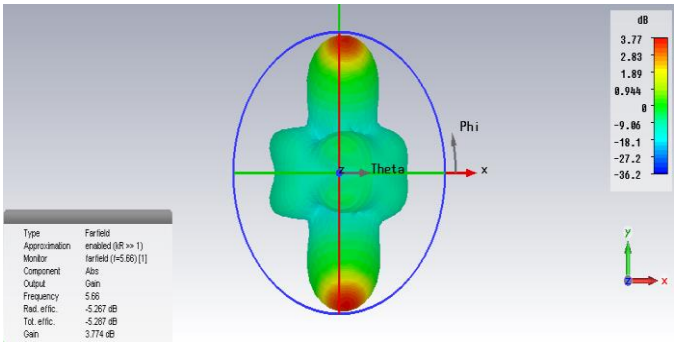
S11 parameter represents how much power is reflected from the antenna, and hence is known as reflection coefficient.

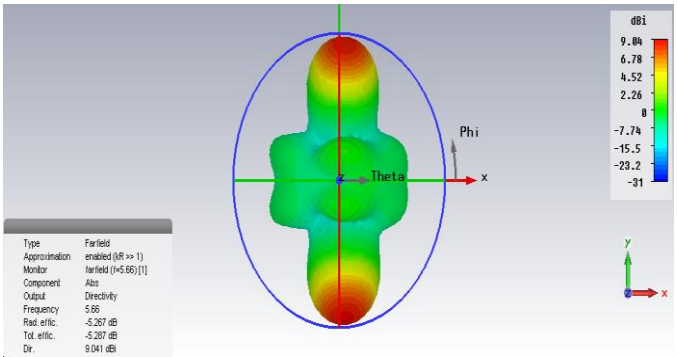
If S11 is equal to 0dB then all the power is reflected from the antenna and nothing radiated. If S11 is equal to -10db this implies that 3dB of power is delivered to antenna and -7dB is reflected power.

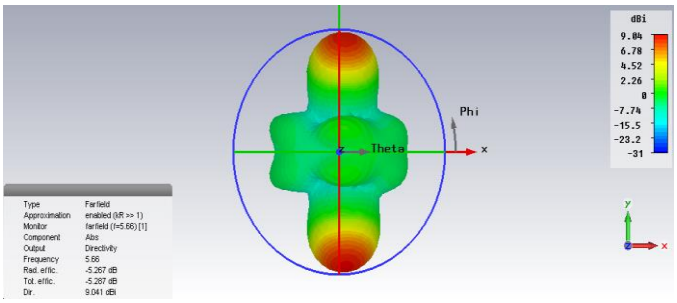


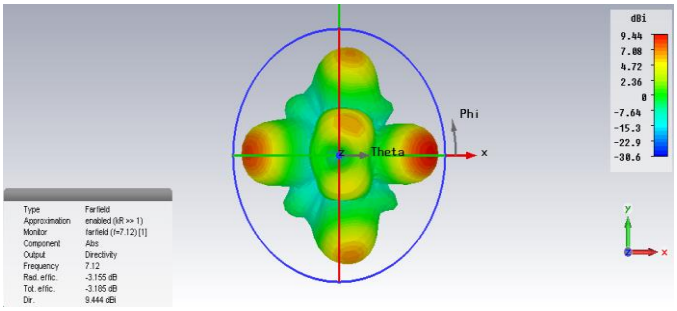
VSWR:











Total Field Property	
5.66GHz	
Gain	**3.7**
Directivity	**9.04**
7.12GHz	
Gain	**6.2**
Directivity	**9.4**

IV. Conclusion

Eshape microstrip patch antenna gives better performance at 5.6GHz ,and 7.12GHz frequency. The antenna can used for wireless communication .

V. Acknowledgment

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