Class Work:

Design Of Antenna:



Fig 01: Substrate Design of patch antenna.

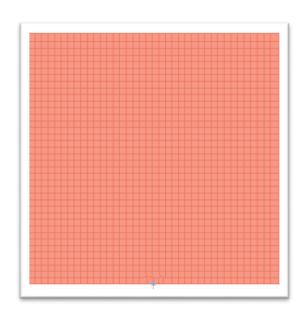


Fig 02: Patch antenna with pin

Simulation Results For Patch ADS Magnitude [dB] S11 fitted S11_discrete -0.5 -1.0 -1.5 -2.0 -2.5 **-**3.0-2.6 2.7 2.2 2.3 2.5 freq, GHz freq (2.100GHz to 2.700GHz)

Fig 03: S parameter graph and Smith Chart for pin position y=0

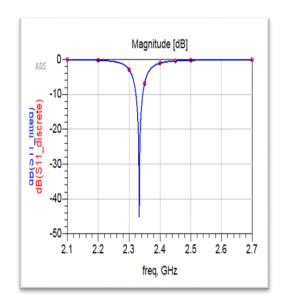
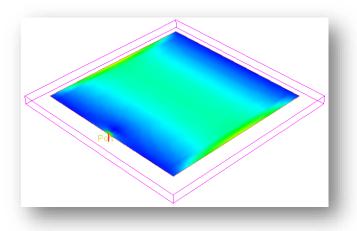


Fig 04: S Parameter Graph and Smith Chart for Best Output(When pin Impedence)



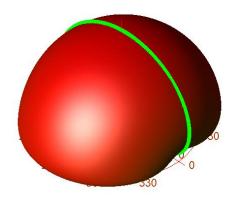


Figure 5: Current Distribution

Figure 6: 3D Radiation pattern

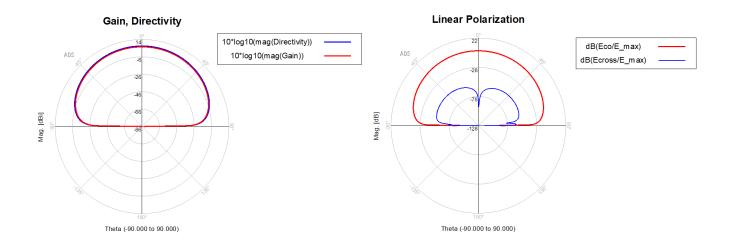


Figure 7: 2D radiation pattern of the antenna.

Figure 8: Gain pattern of the antenna.

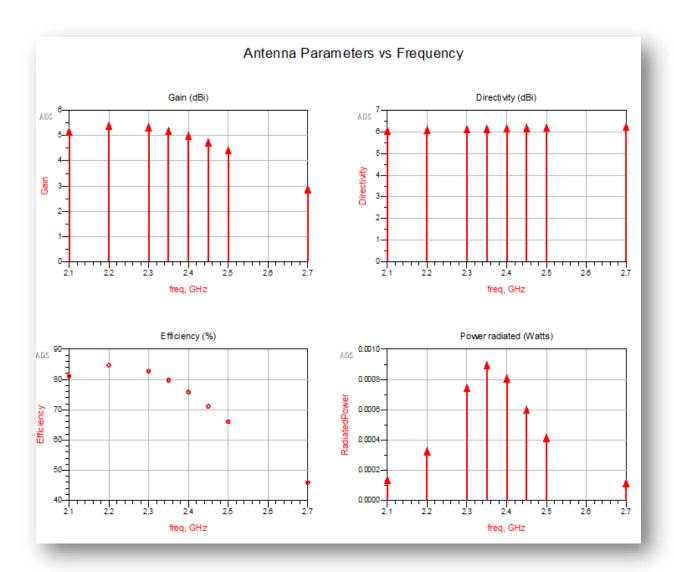


Fig 9: Antenna Parameters vs Frequency graphs

<u>Task:1:</u> Changing the position of the input pin (port impedance: 50 ohms) along the positive y-axis.

Discrete Frequencies vs. Fitted (AFS or Linear)

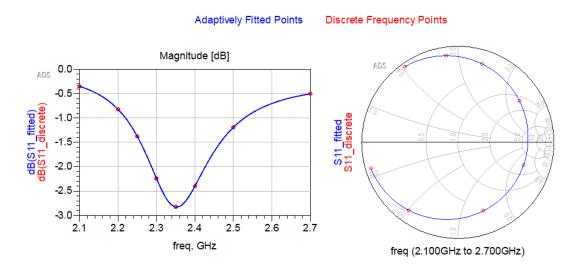


Figure 10: S-parameter and Smith Chart at y=2mm

Discrete Frequencies vs. Fitted (AFS or Linear)

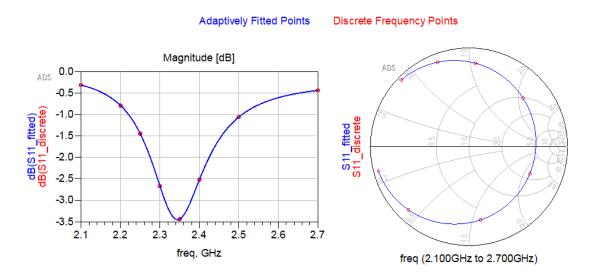


Figure 11: S-parameter and Smith Chart at y=4mm

Discrete Frequencies vs. Fitted (AFS or Linear)

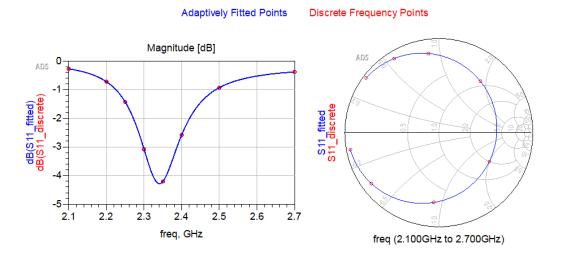


Figure 12: S-parameter and Smith Chart at y=6mm

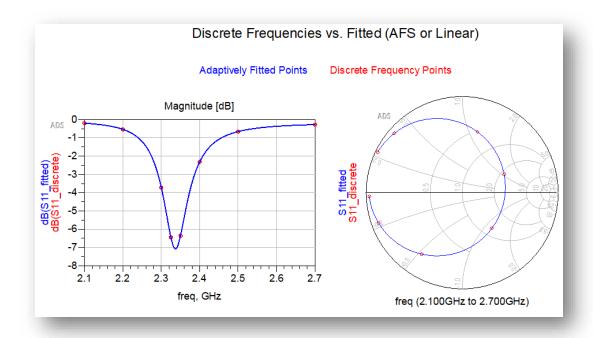


Figure 13: S-parameter and Smith Chart at y=8mm

Discrete Frequencies vs. Fitted (AFS or Linear)

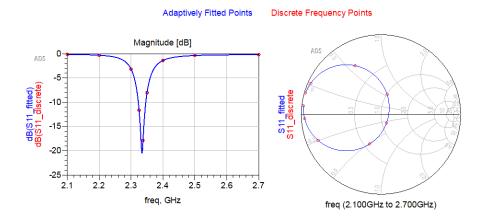


Figure 14: S-parameter and Smith Chart at y=10mm

Discrete Frequencies vs. Fitted (AFS or Linear)

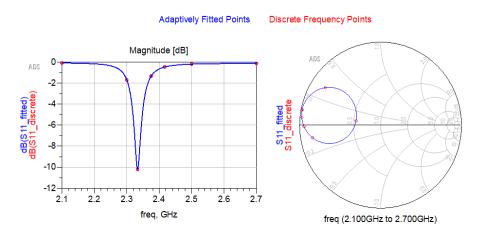


Figure 15: S-parameter and Smith Chart at y=12mm

Discrete Frequencies vs. Fitted (AFS or Linear)

Adaptively Fitted Points Discrete Frequency Points Magnitude [dB] ADS 0.0 -0.1 dB(S11_fitted) dB(S11_discrete) S11 fitted S11_discrete -0.3 -0.4 -0.5 2.2 2.5 2.6

freq, GHz freq (2.100GHz to 2.700GHz)

Figure 16: S-parameter and Smith Chart at y=14mm

Task:2: Designing a 10 GHz horizontally linearly polarized patch antenna

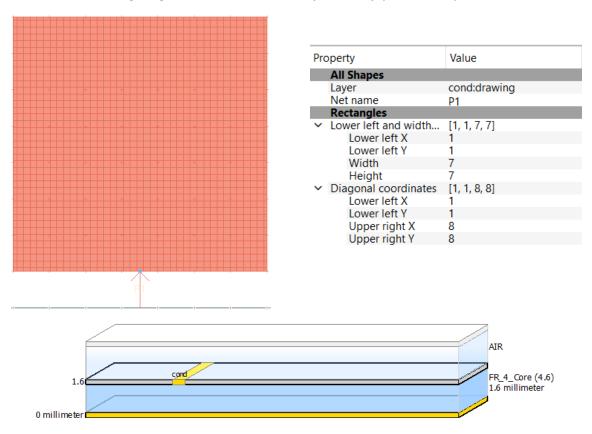


Figure 18: Substrate of patch antenna.

Discrete Frequencies vs. Fitted (AFS or Linear)

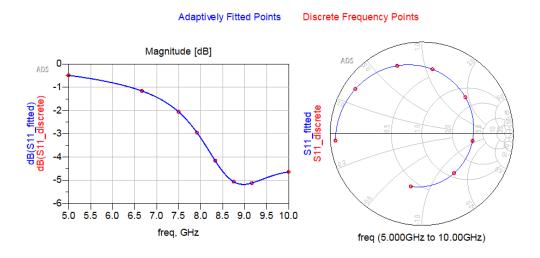


Figure 19: S parameter graph and Smith Chart for pin position y=0