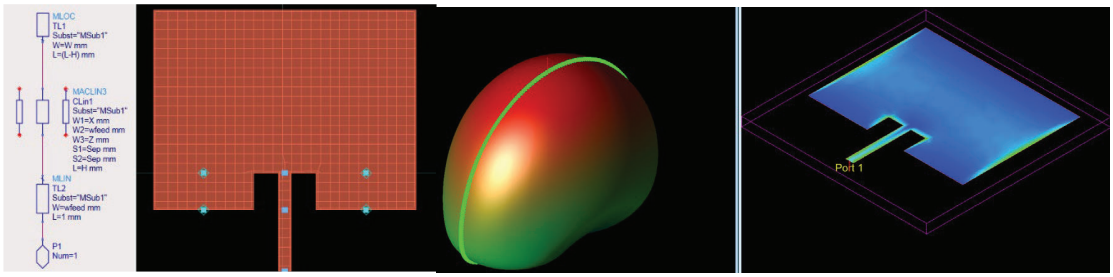
can be used to solve this manufacturable problem, but according to the Fig.6, Inset Feed is preferred here due to the related small PCB footprint.

The Patch antenna with an 80 Ohm inset feeding microstrip transmission line can be modeled and tuned by using Advanced Design System and Anurag Bhargava's Schematic driven Patch Antenna Design Method [4].



Frequency	E_max	Theta_max	Phi_max	Directivity_max	Gain_max	RadiatedPower	InputPower	Efficiency	CutType	CutAngle
2.400E10	0.694	3.000	90.000	6.894	5.187	0.002	0.002	0.675	Phi	90.000

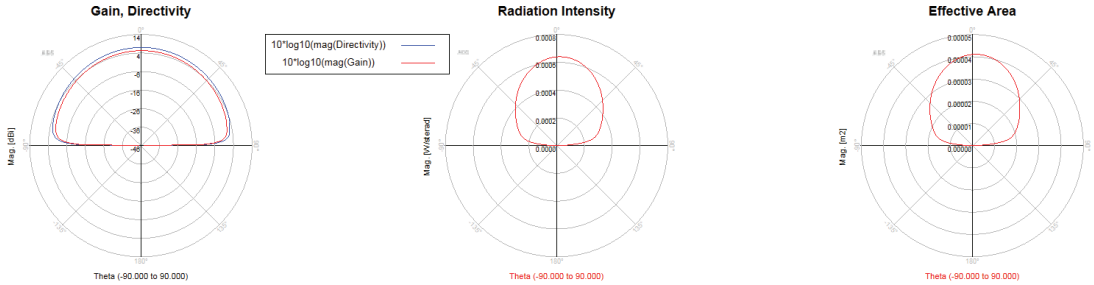


Fig.7: Simulation Model and Far Field Result

During the tuning process, the length and width of the Patch antenna in the Fig.5 can be used as the initial value. Finally, the length was tuned to 3.256mm and the width was tuned to 4.26mm in my case (Fig.8). The final values are close to the initial values and the simulation result are shown in the Fig.7. The Single Microstrip Patch Antenna with 5.187 dBi gain has been designed in this Part, let us move a little bit farther forward the antenna array design in the next Part.

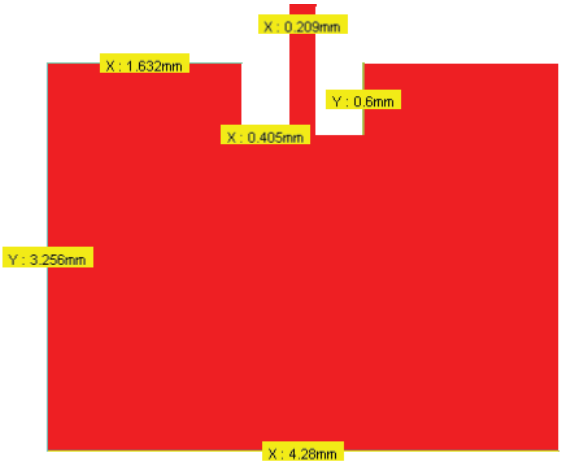


Fig.8: Geometry of the Patch antenna