

SMART SENSOR

915 MHz (Sub GHz) ANTENNA DATASHEET

Table of Contents

1. 915 MHz (Sub GHz) Antenna Specifications	3
2. 915 MHz (Sub GHz) Antenna Design Model	4
3. Return Loss (RL) of 915 MHz (Sub GHz) Antenna	5
4. 3D Farfield Radiation Pattern	6
5. 2D Farfield Radiation Pattern	7
6. Design Summary	9

915 MHz (Sub GHz) Antenna Specifications :

Parameters	Antenna 1	Antenna 2
Antenna dimensions	18.7 x 16.7 mm	24.4 x 11.3 mm
Antenna Gain	-1.016 dBi	1.008 dBi
Return Loss min in band (S11)	-13.14	-13.4 dB
Bandwidth	38 MHz	70.5 MHz
Efficiency (System total Efficiency)	-2.896 dB	- 1.637 dB (68.6 %)
Impedance	50 ohm	50 ohm
Antenna Diversity	Yes	Yes

Table 1 : Performance Specifications of 915 MHz (Sub GHz) _Smart Sensor Antenna

915 MHz (Sub GHz) Antenna Design Model

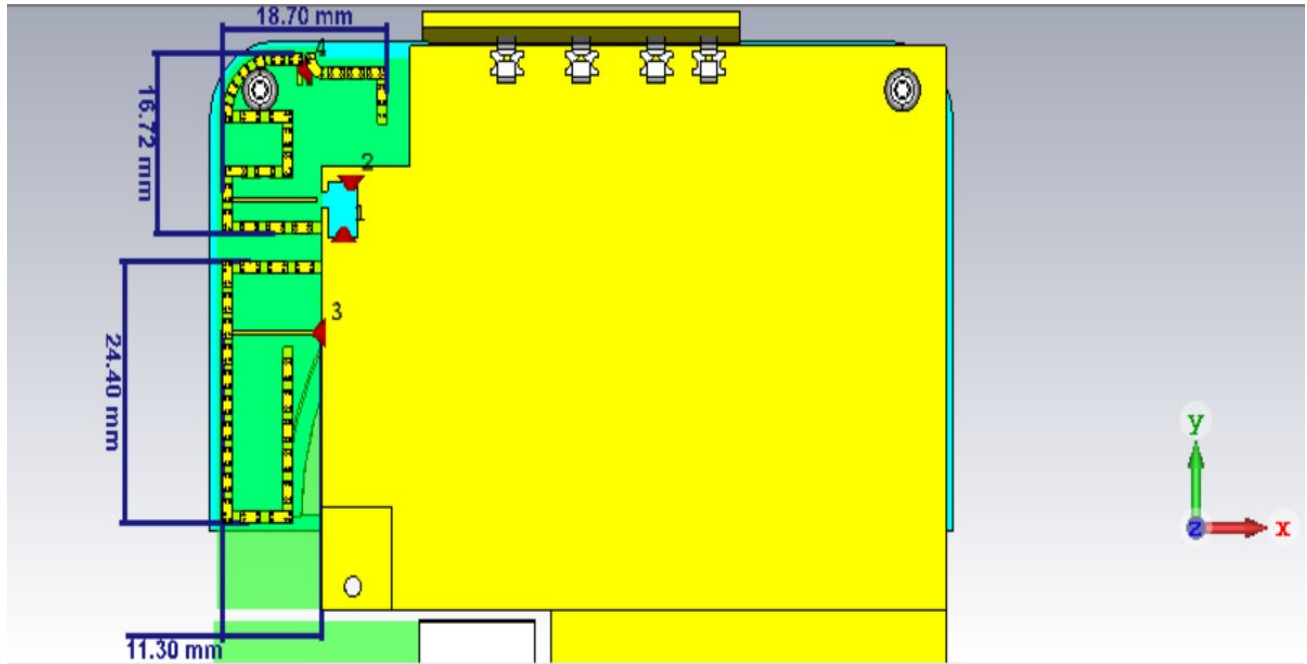


Figure 1 : Smart Sensor_915 MHz (SubG) Antenna Design model

- In the Smart Sensor device , there are 2 different Antennas, out of which Antenna 1 is for both Sub GHz & BLE and Antenna 2 supports Sub GHz only
- Antenna for Sub GHz is marked in the above model with Antenna diversity feature with a partial Omni directional pattern

Return Loss (RL) of 915 MHz (Sub GHz) Antenna

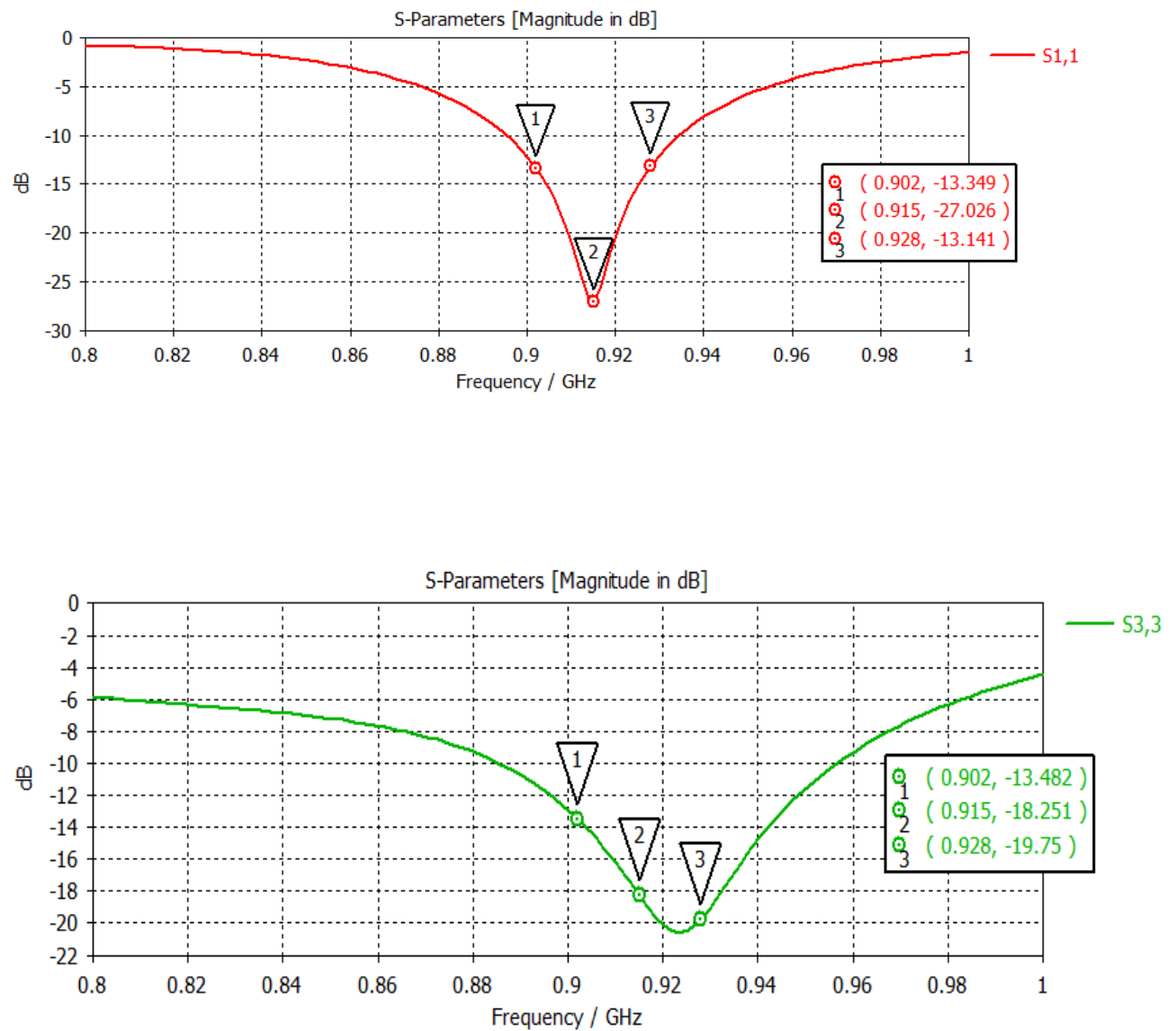


Figure 2 : Return loss plot of Smart Sensor_915 MHz (Sub GHz) Antennas

3D Farfield Radiation Pattern

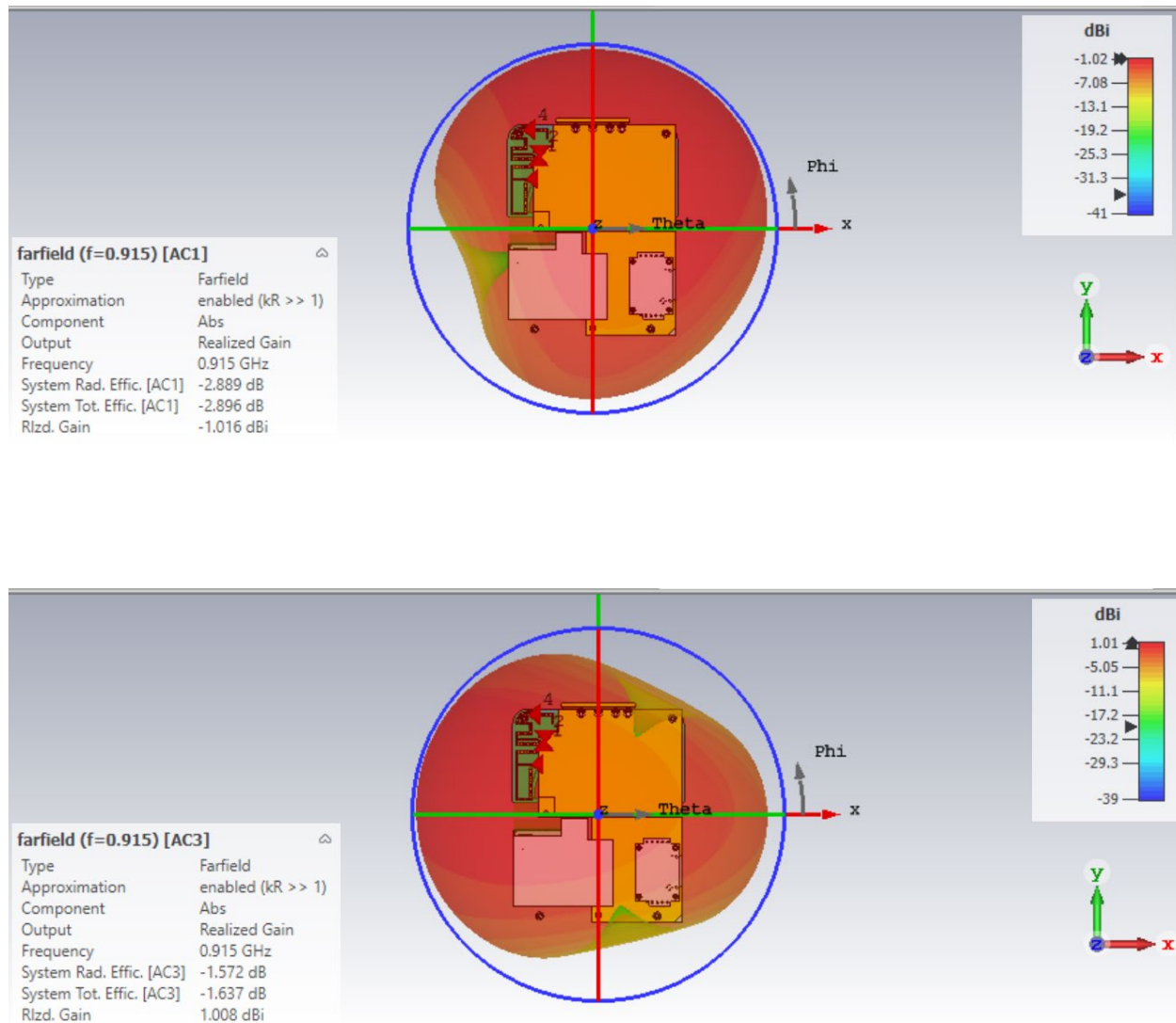


Figure 3 : 3D Radiation Pattern Plot of Smart Sensor_915 MHz (Sub GHz) Antenna

- In the 3D Radiation Pattern shown in Fig. 3 , the Realized Gain is 1.008 dBi with a Quasi Omni directional pattern coverage

2D Farfield Radiation Pattern

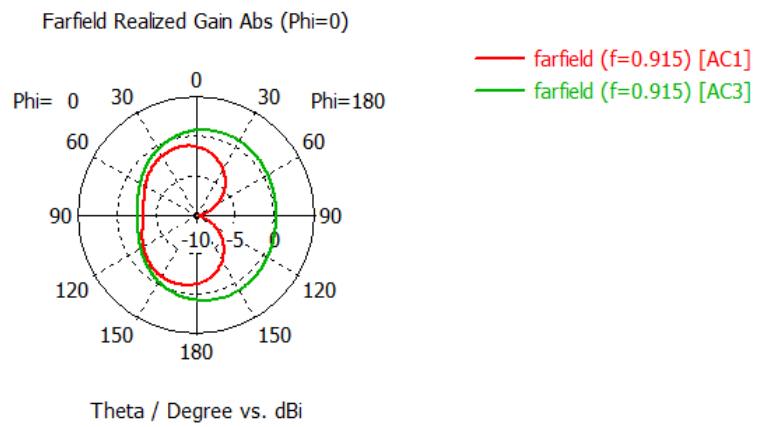


Figure 4 : 2D Radiation Pattern Plot of Smart Sensor_915 MHz (Sub GHz) Antenna (Phi = 0 degree)

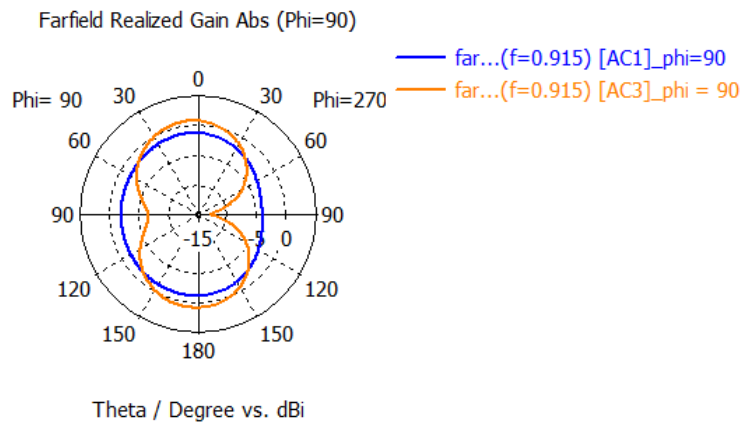


Figure 5 : 2D Radiation Pattern Plot of Smart Sensor_915 MHz (Sub GHz) Antenna (Phi = 90 degree)

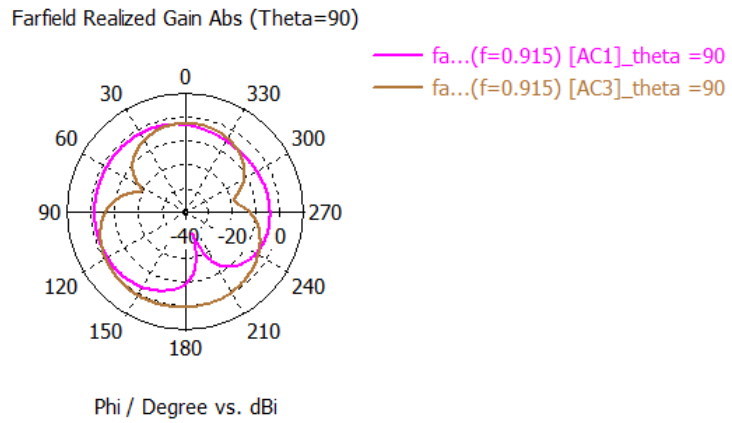


Figure 6 : 2D Radiation Pattern Plot of Smart Sensor_915 MHz (Sub GHz) Antenna (Theta = 90 degree)

- The 2D Radiation Pattern plots are shown in Fig 4 to 6 , in 3 different cut planes : Phi = 0 degree , Phi = 90 degree and Theta = 90 degree
- The frequency of reference used is 915 MHz (SubGHz Center Frequency)

Design Summary

- The Sub GHz Antennas used are PCB Printed , Inverted F type antenna
- It has a Partial Omni directional pattern
- It uses a dual antenna with diversity with the highest bandwidth of 70.5 MHz