

LXE VM2 System

VM2 WIFI INTERNAL Antenna (40120512) Measurement Report (DVT)

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Signature Sheet

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Revision History

Item	Description Changes	Latest update date	Prepared By
1	Ver01, First Draft Version	17 Sep 2012	Tan Huan Fong
2	Ver02, Added Table 1	19 Nov 2012	Tan Huan Fong
3	Ver03, Changed Table 1	23 Jan 2013	Tan Huan Fong

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1. INTRODUCTION

The following report describes the results of the Internal Dual Band WIFI Antenna for the DVT VM2 Terminal. The test is based on the Section 1 of the RF Hardware Validation Test Plan Version 1.0. The Antenna 2D Radiation Plots measurement is being performed in the Full Anechoic Chamber.

2. WIFI INTERNAL DUAL BAND ANTENNA

Figure 1 shows the WIFI Internal Dual Band Antenna designed for VM2 Terminal.. Figure 2 describes the location of Left Antenna and Middle Antenna. Figure 3 describes the test setup for the Antenna Return Loss measurement. Figure 4 to 7 shows the Return Loss of both Antenna in the 2.4GHz band and 5GHz band.



Figure 1 WIFI Internal Dual Band Antenna

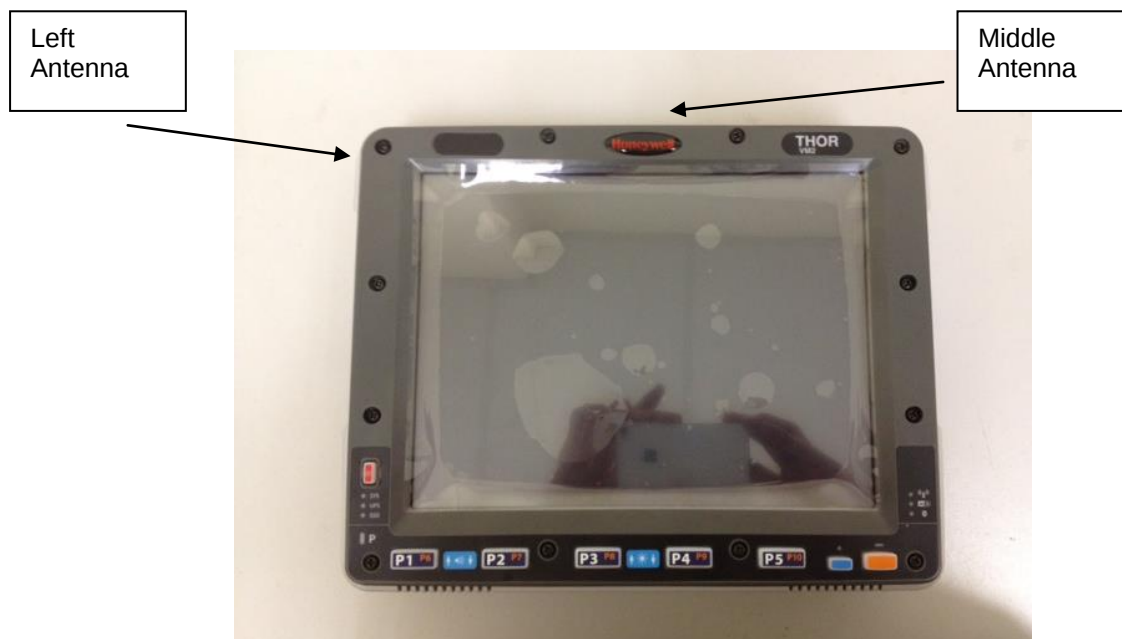


Figure 2 Antenna Definition

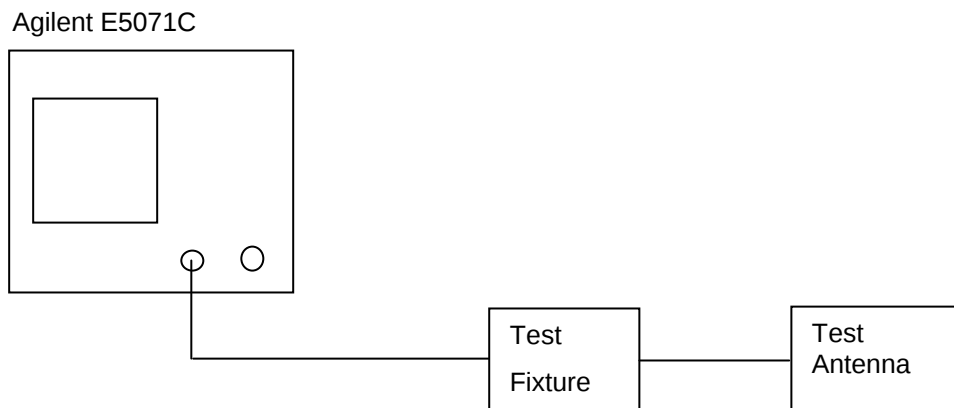


Figure 3 Return Loss Test Setup

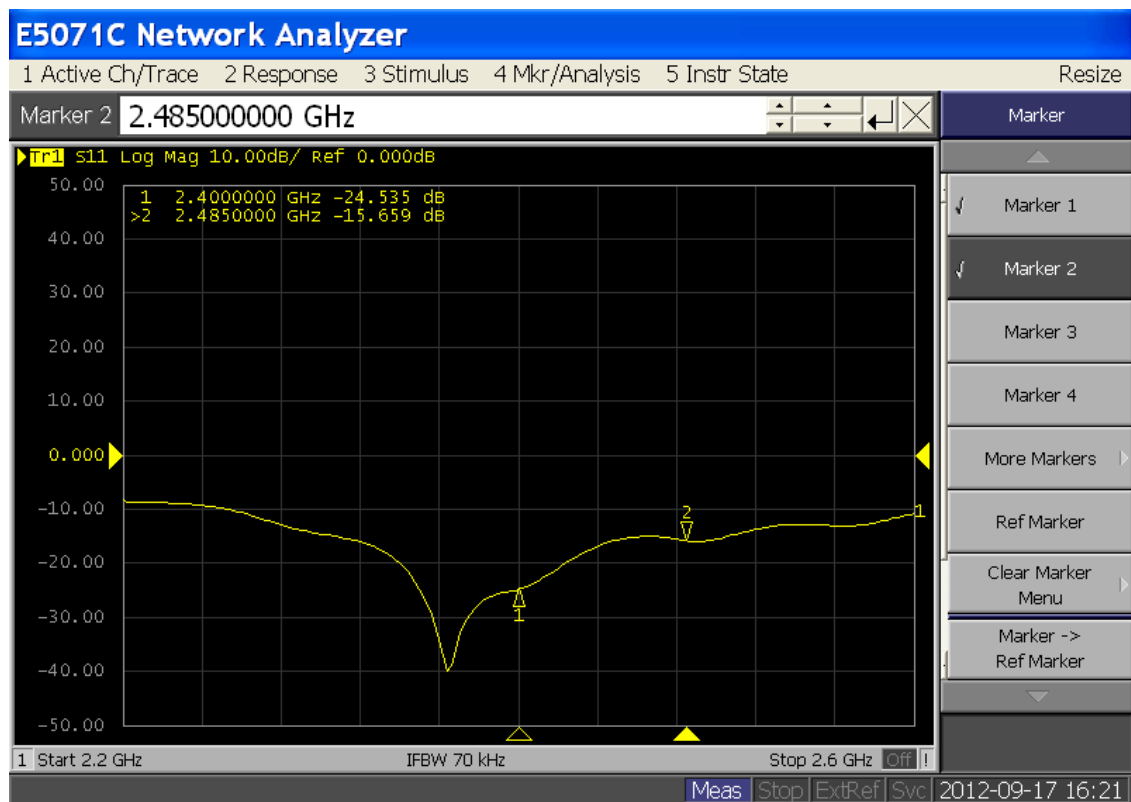


Figure 4 Left Antenna 2.4GHz Return Loss

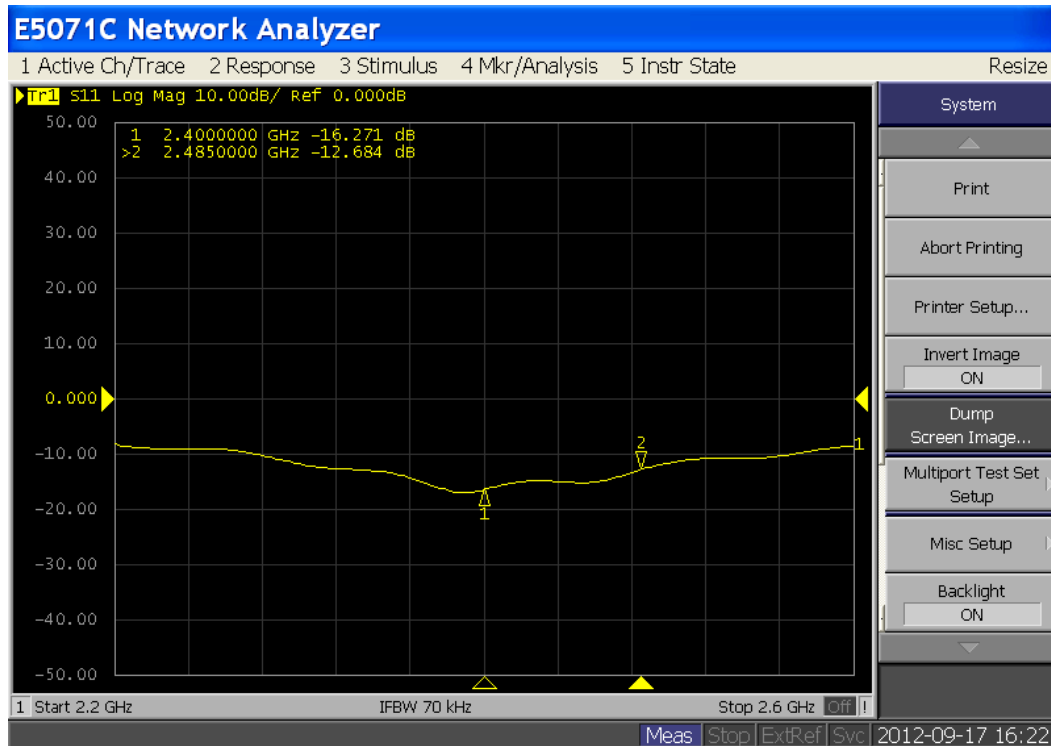


Figure 5 Middle Antenna 2.4GHz Return Loss

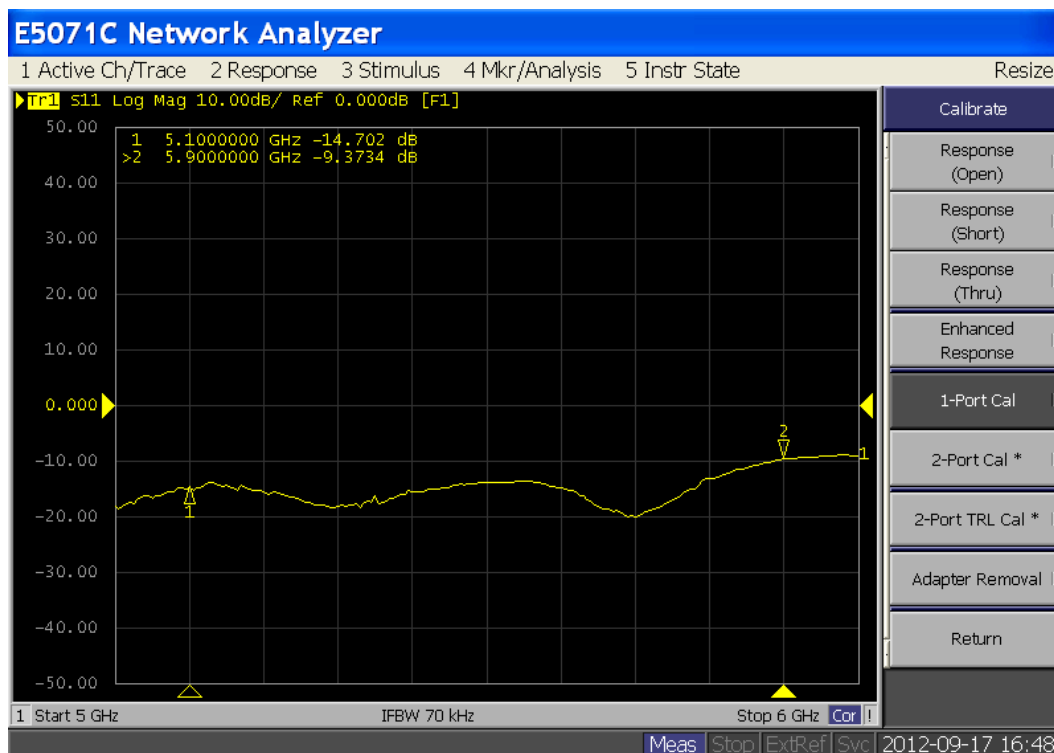


Figure 6 Left Antenna 5GHz Return Loss

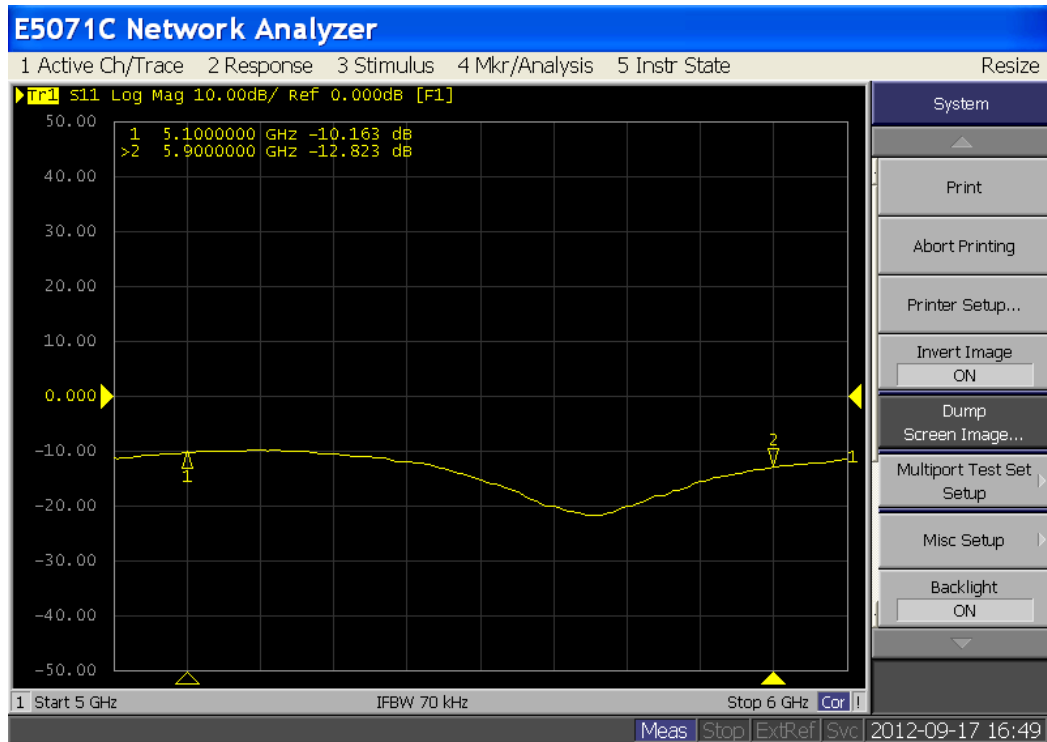


Figure 7 Middle Antenna 5GHz Return Loss

Figure 8 to 10 describes the definition of the various plane cut for the Antenna measurement.



Figure 8 Definition of H- Plane Cut

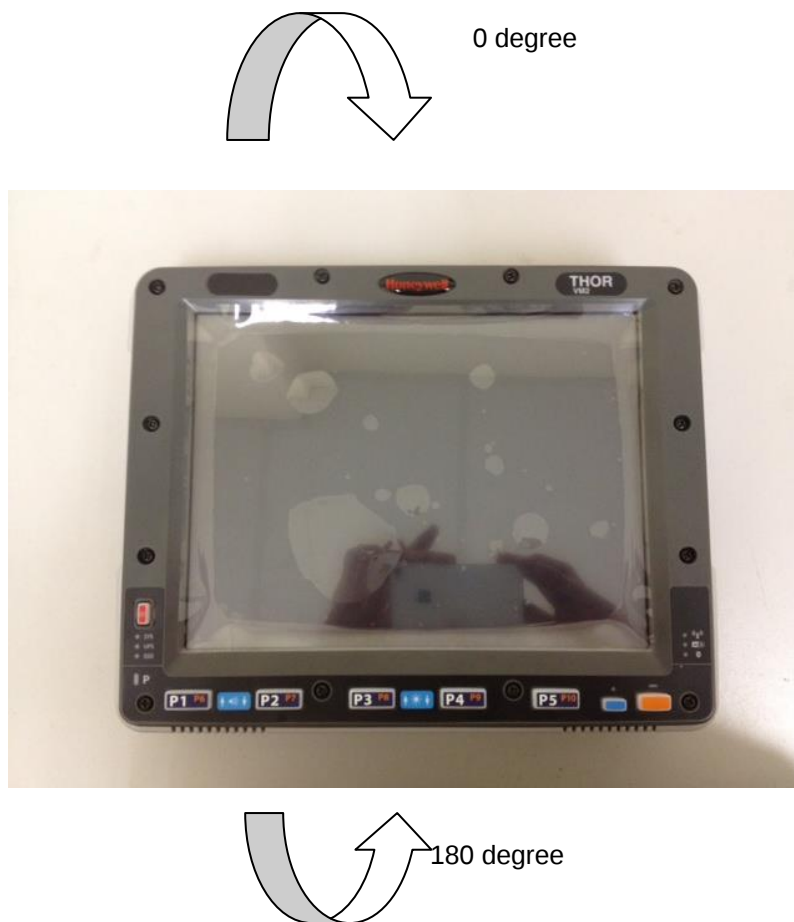


Figure 9 Definition of E1 Plane Cut



Figure 10 Definition of E2 Plane Cut

Figure 11 shows the setup of the Full Anechoic Chamber used for the Antenna Measurement.

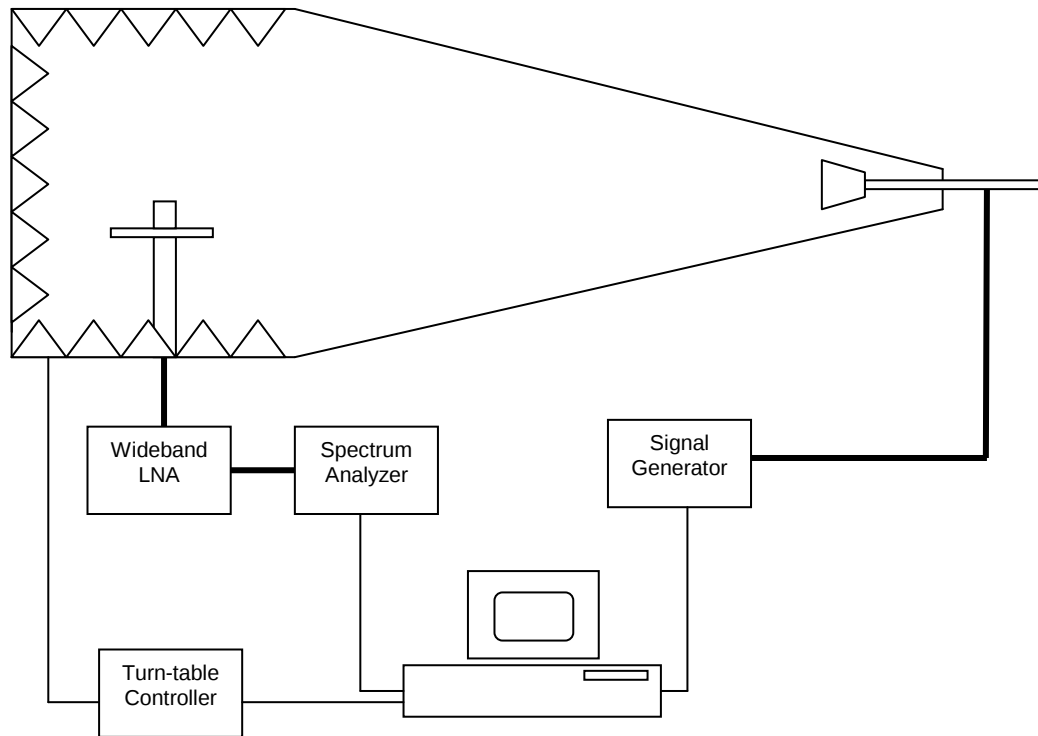


Figure 11 Anechoic Chamber Setup

Figure 12 shows the interior view of the Full Anechoic Chamber.



Figure 12 Interior View of the Full Anechoic Chamber

3. 2.4GHz WIFI ANTENNA RADIATION PLOTS

The following plots describe the 2D Radiation pattern for both the Right and Left WIFI Internal Antenna in the 2.4GHz Band.

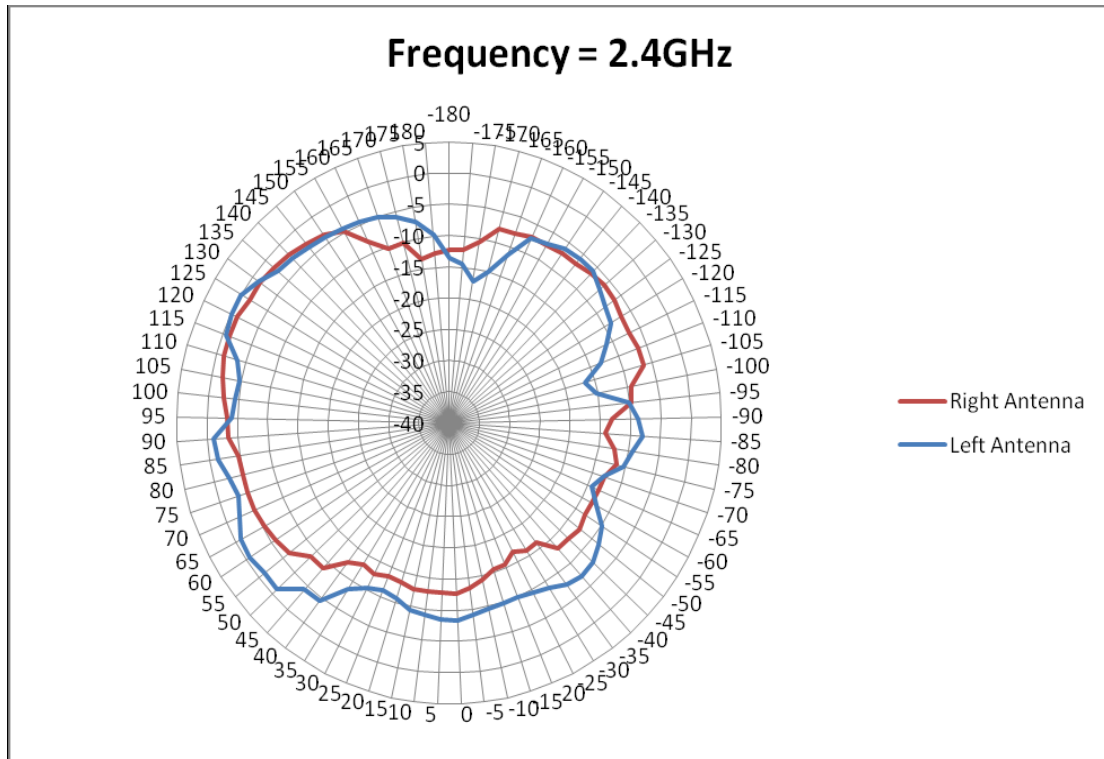


Figure 13 Radiation Plots for 2.400GHz (H-Plane) Left Antenna

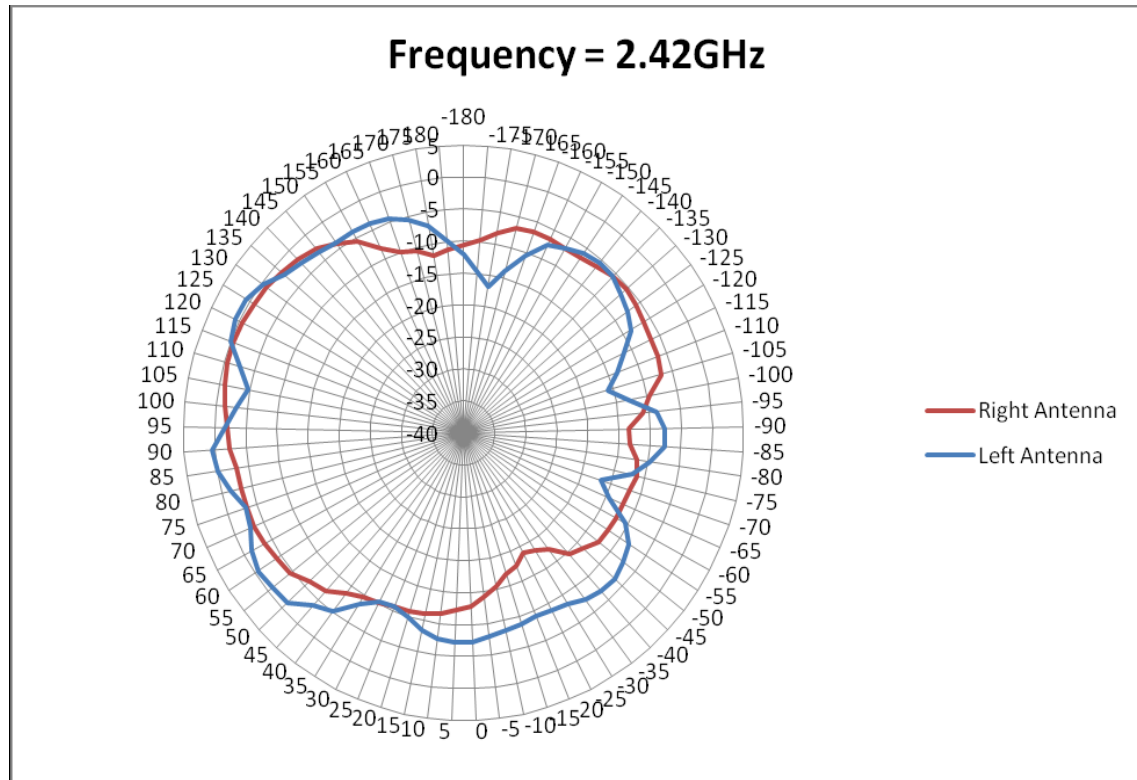


Figure 14 Radiation Plots for 2.420GHz (H-Plane) Left Antenna

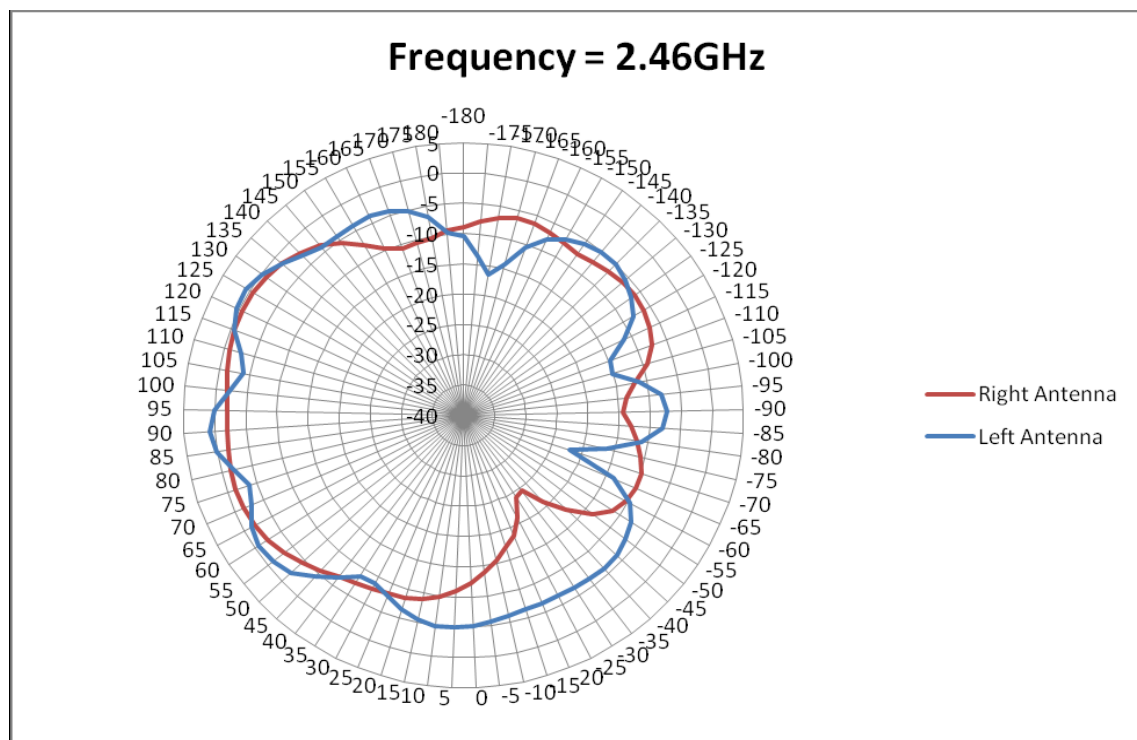


Figure 15 Radiation Plots for 2.460GHz (H-Plane) Left Antenna

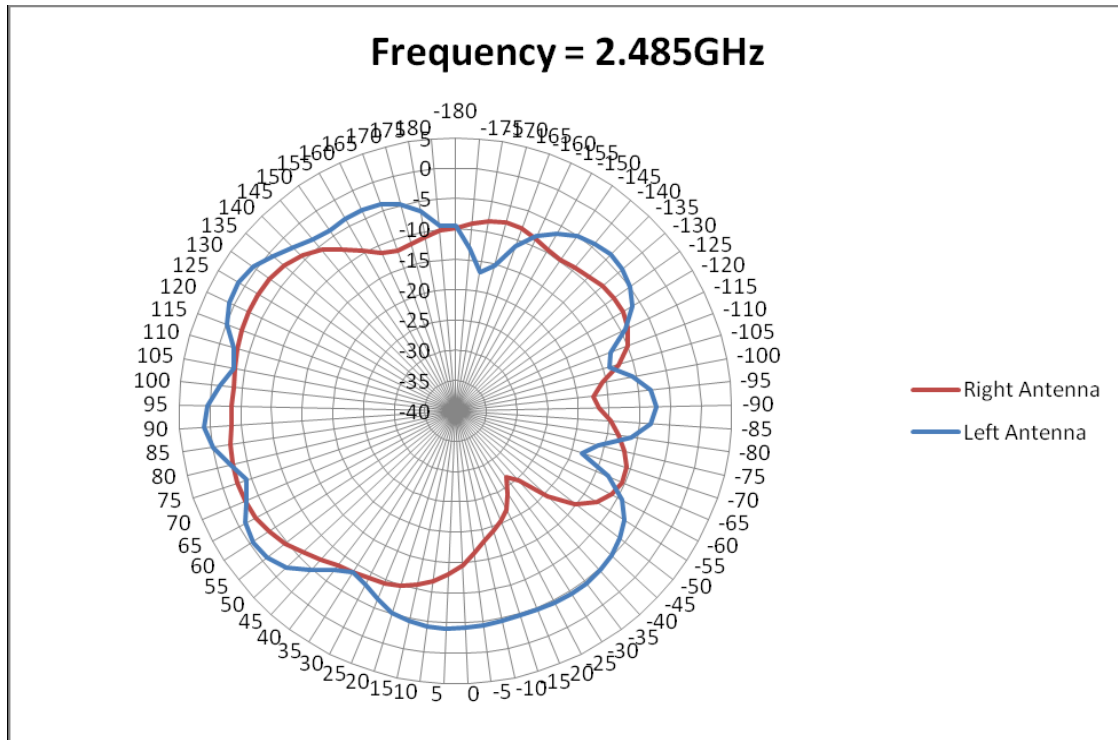


Figure 16 Radiation Plots for 2.485GHz (H-Plane) Left Antenna

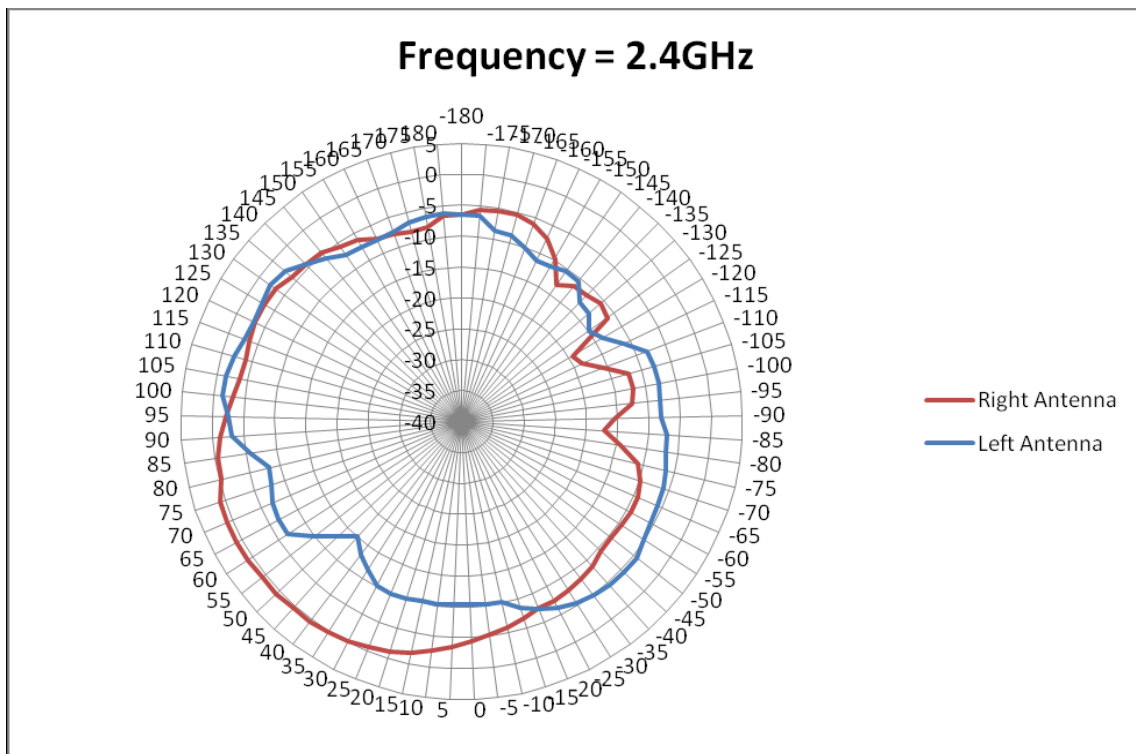


Figure 17 Radiation Plots for 2.400GHz (E1-Plane) Left Antenna

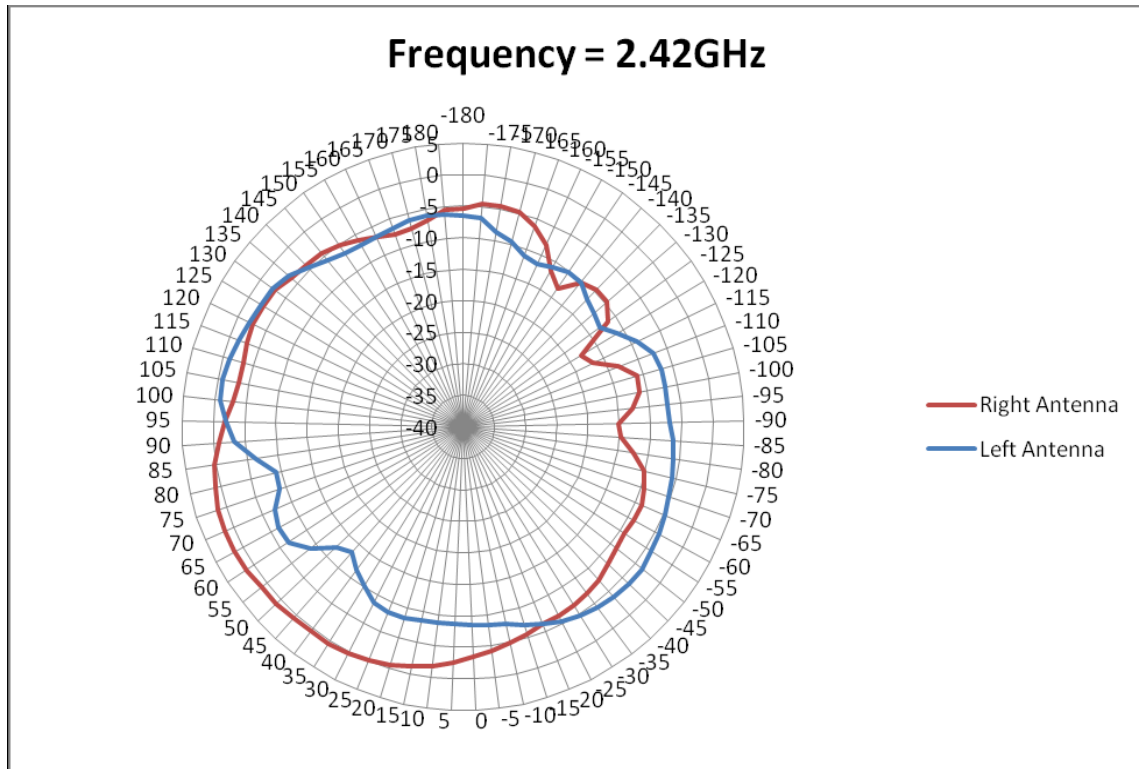


Figure 18 Radiation Plots for 2.420GHz (E1-Plane) Left Antenna

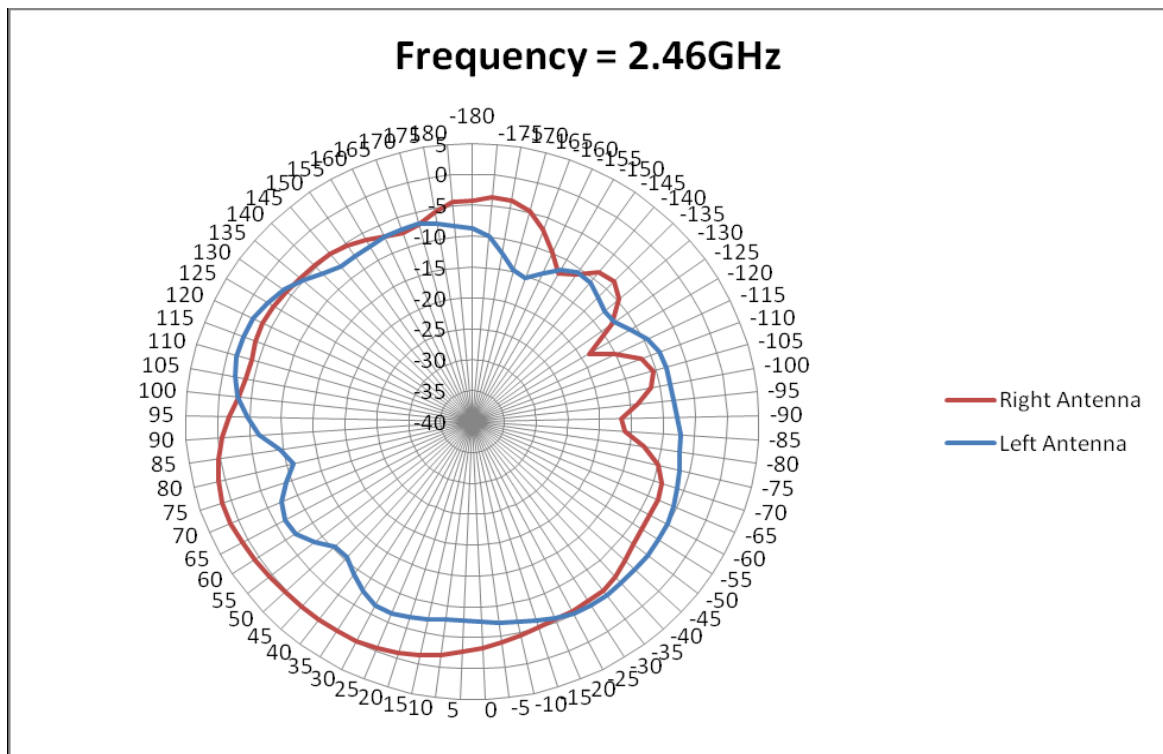


Figure 19 Radiation Plots for 2.460GHz (E1-Plane) Left Antenna

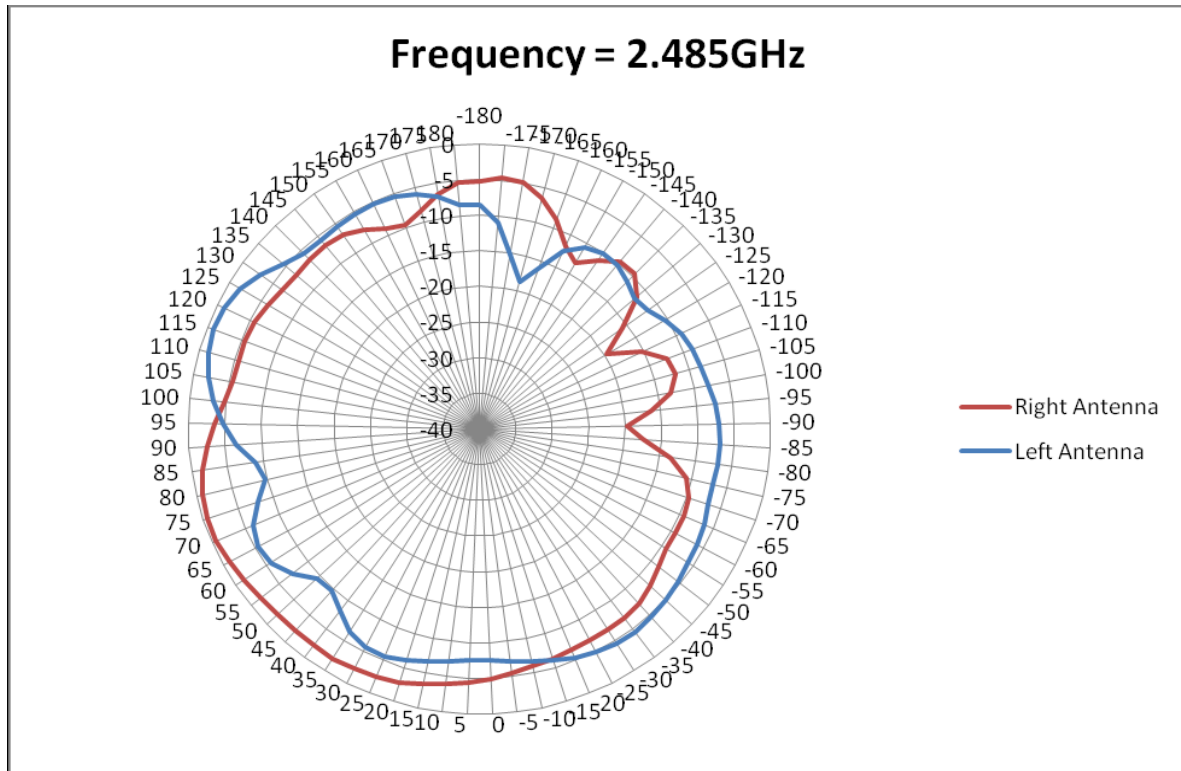


Figure 20 Radiation Plots for 2.485GHz (E1-Plane) Left Antenna

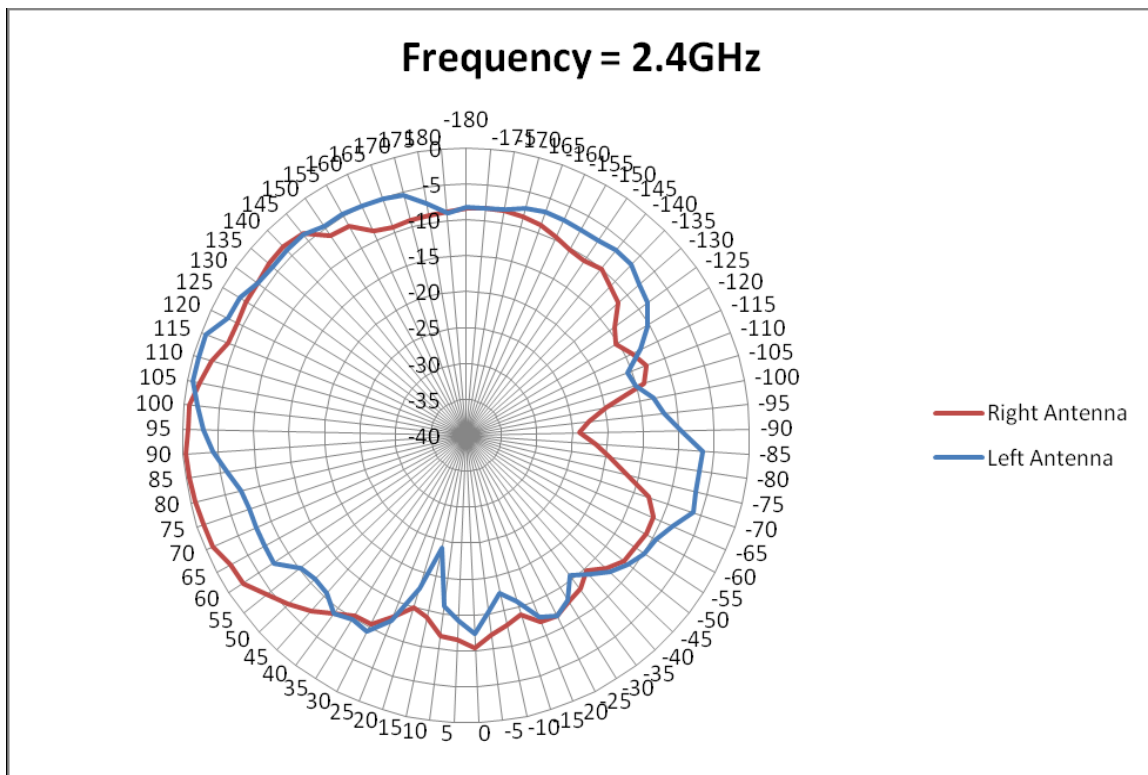


Figure 21 Radiation Plots for 2.400GHz (E2-Plane) Left Antenna

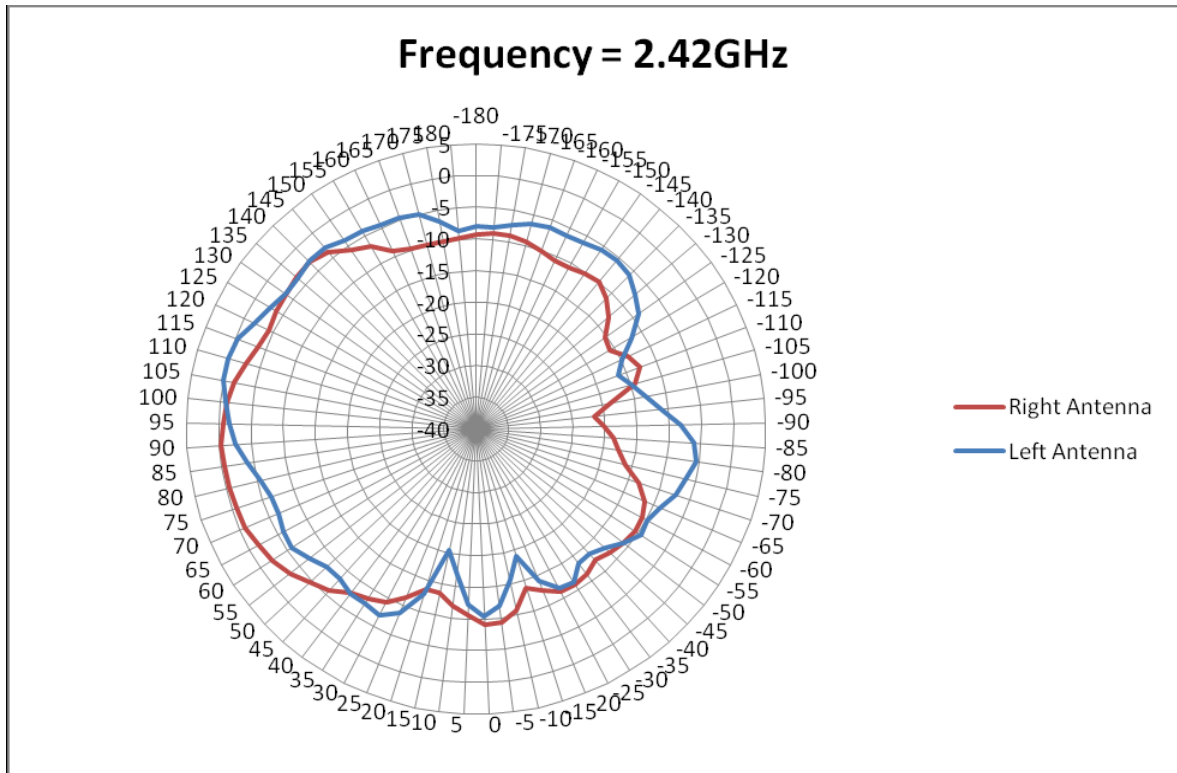


Figure 22 Radiation Plots for 2.420GHz (E2-Plane) Left Antenna

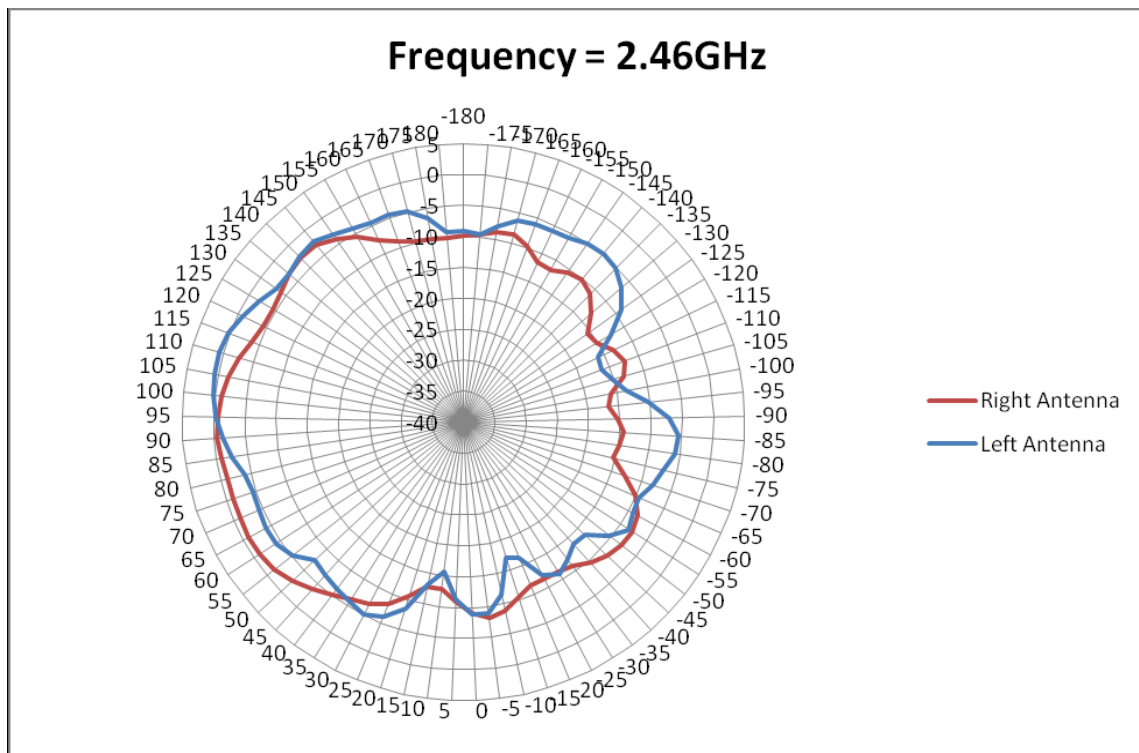


Figure 23 Radiation Plots for 2.460GHz (E2-Plane) Left Antenna

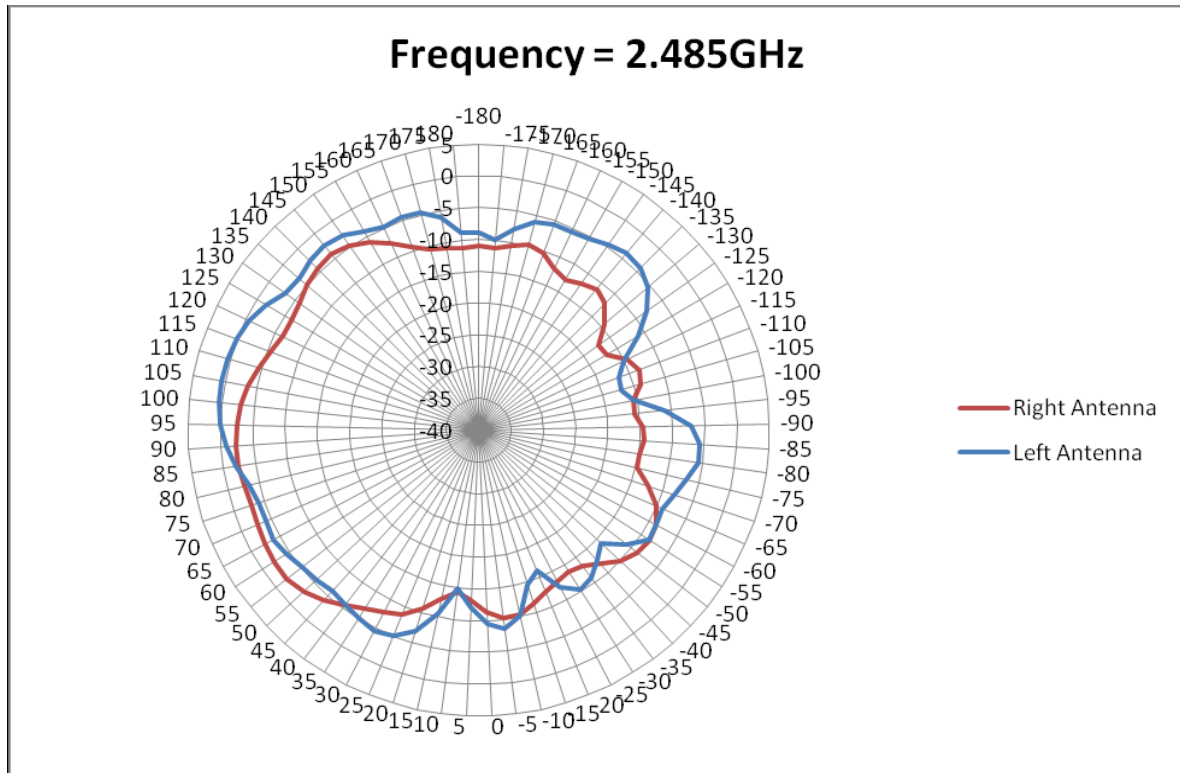


Figure 24 Radiation Plots for 2.485GHz (E2-Plane) Left Antenna

The following Plots shall describe the peak gain of the antenna for various planes with respect to frequency.

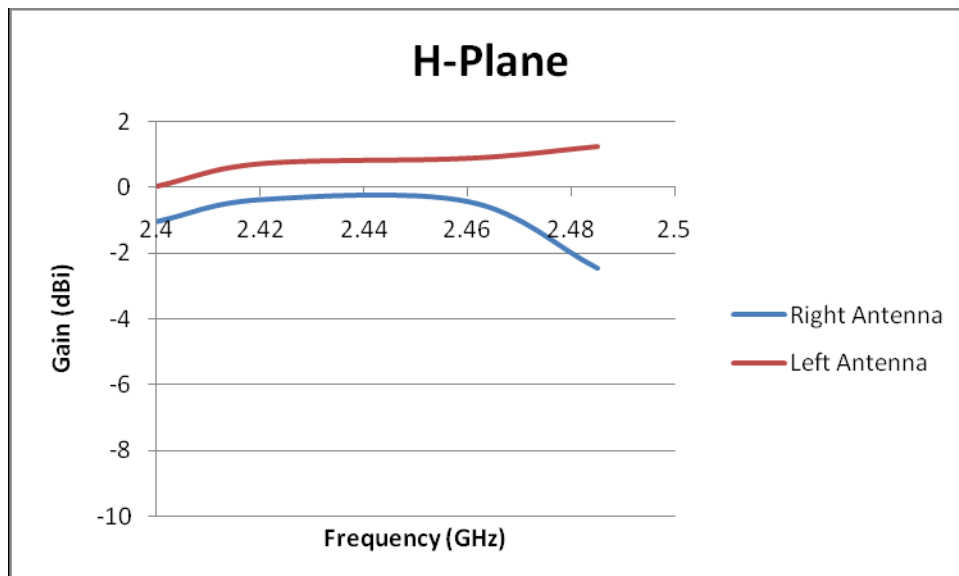


Figure 25 Peak Gain for Bluetooth Printed Antenna (H-Plane) Left Antenna

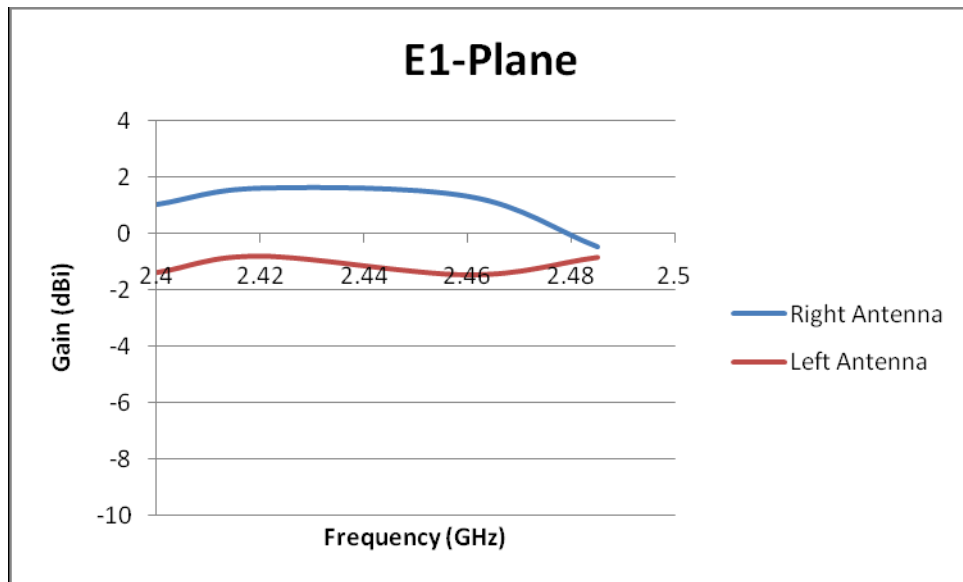


Figure 26 Peak Gain for Bluetooth Printed Antenna (E1-Plane) Left Antenna

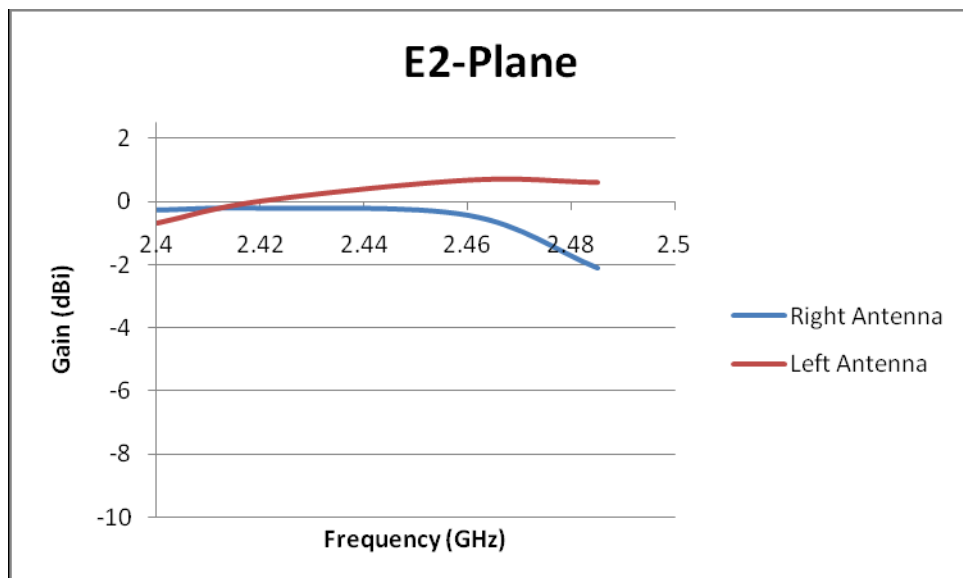


Figure 27 Peak Gain for Bluetooth Printed Antenna (E2-Plane) Left Antenna

4. 5GHz WIFI ANTENNA RADIATION PLOTS

The following plots describe the 2D Radiation pattern for both the Right and Left WIFI Internal Antenna in the 5GHz Band.

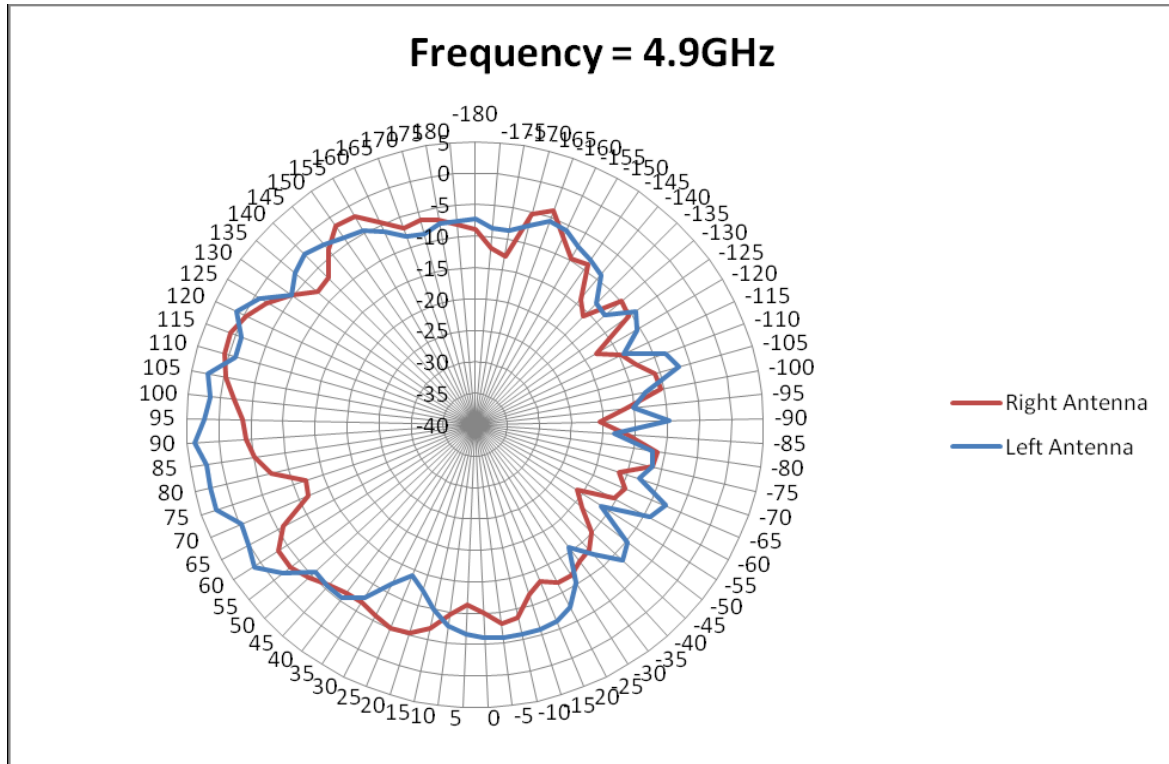


Figure 28 Radiation Plots for 4.900GHz (H-Plane) Left Antenna

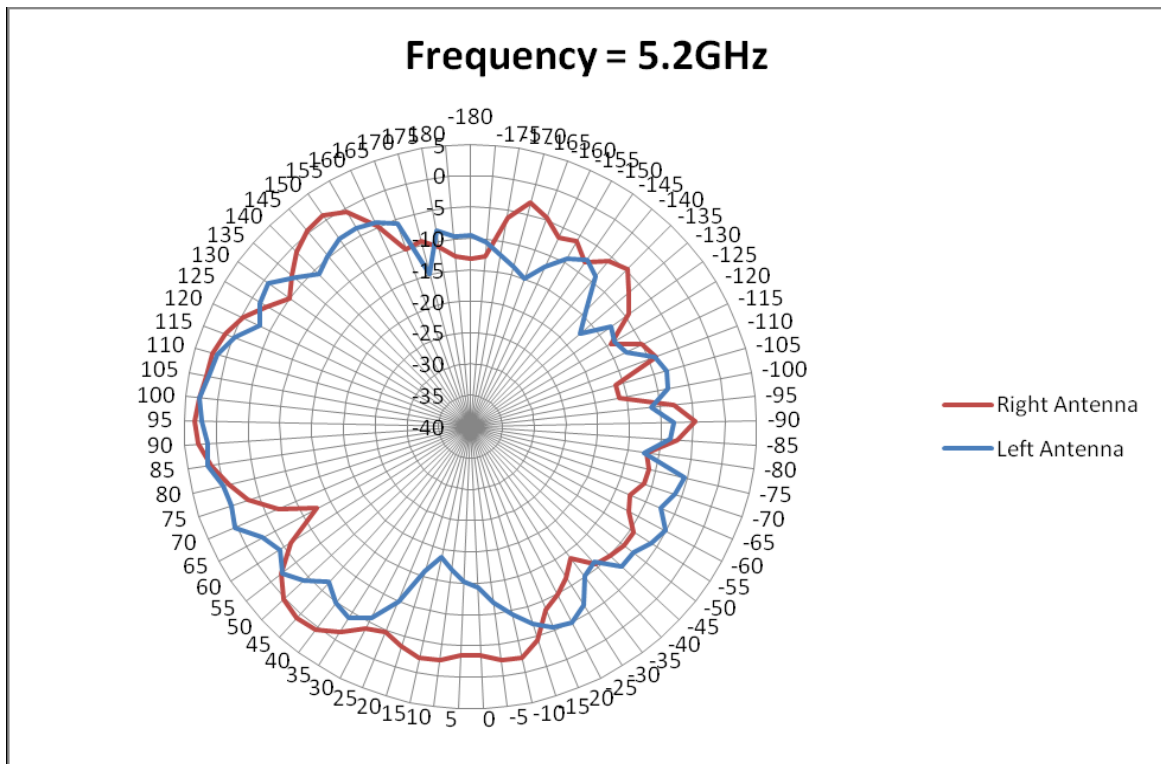


Figure 29 Radiation Plots for 5.200GHz (H-Plane) Left Antenna

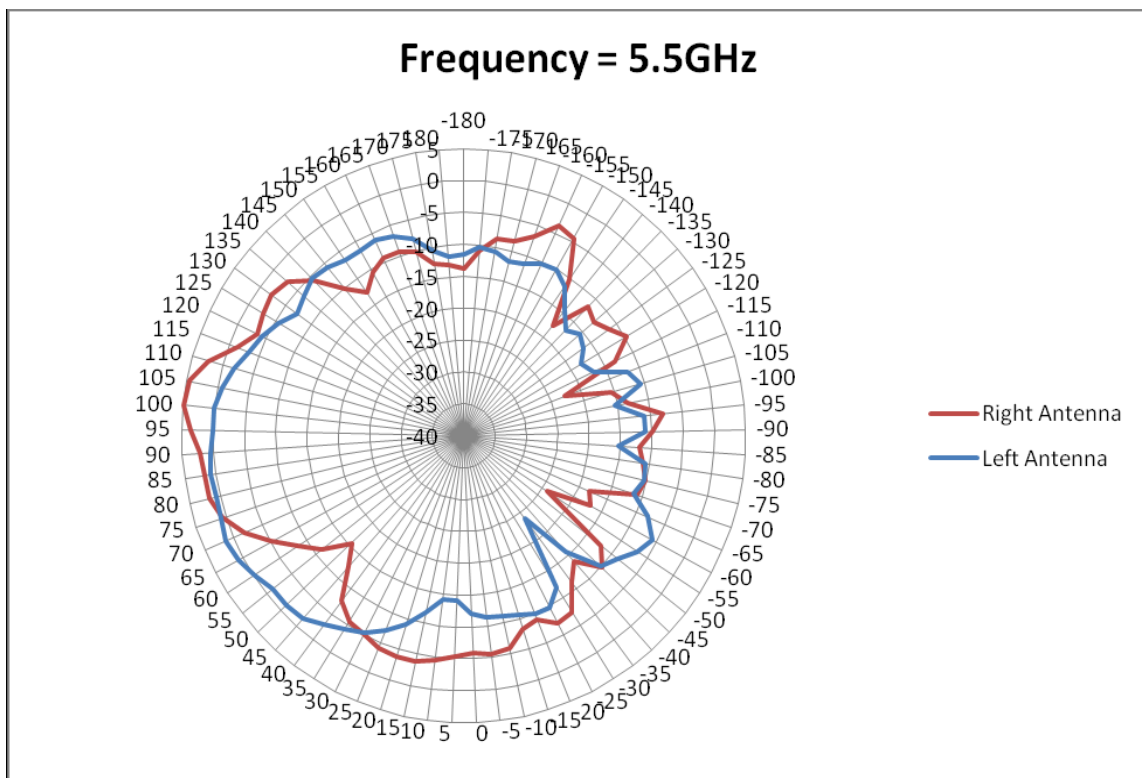


Figure 30 Radiation Plots for 5.500GHz (H-Plane) Left Antenna

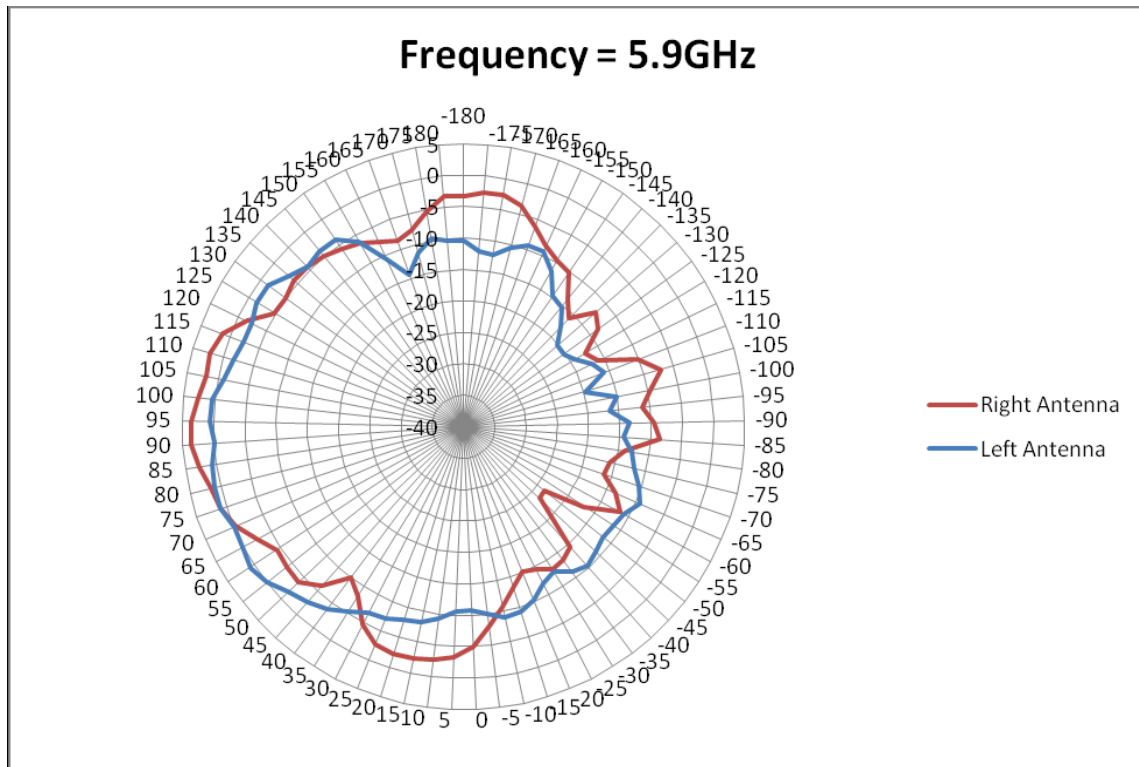


Figure 31 Radiation Plots for 5.900GHz (H-Plane) Left Antenna

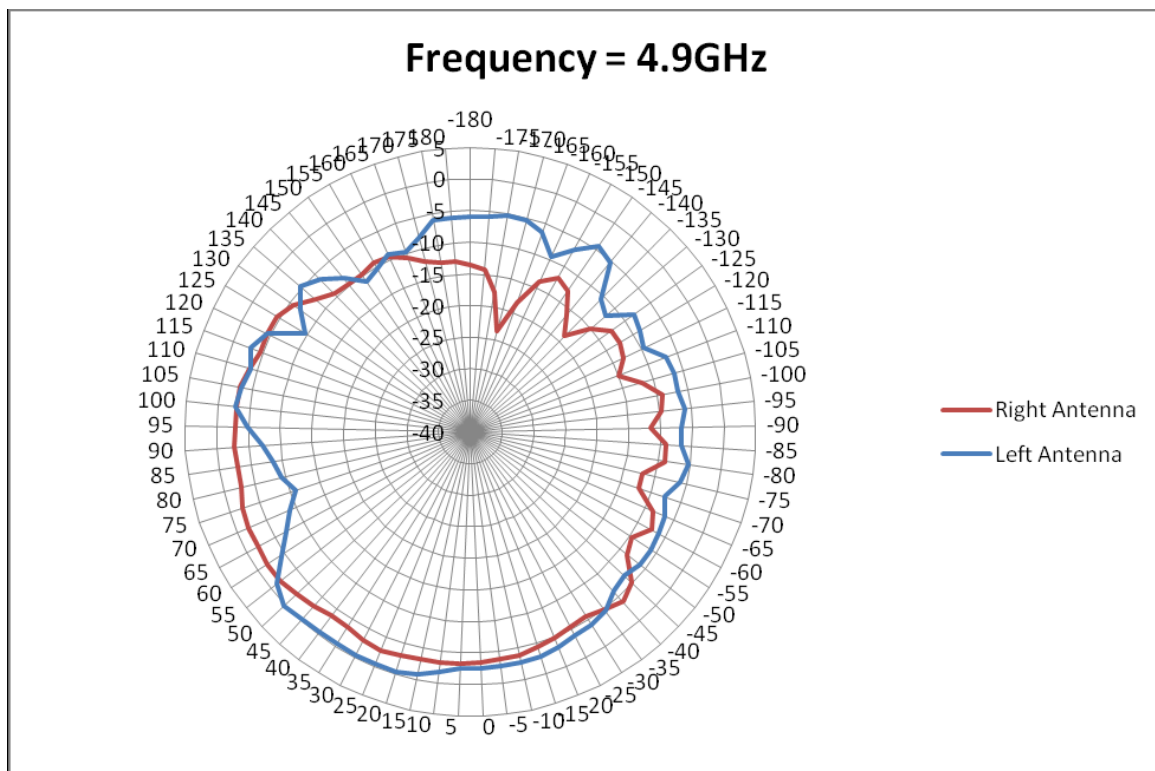


Figure 32 Radiation Plots for 4.900GHz (E1-Plane) Left Antenna

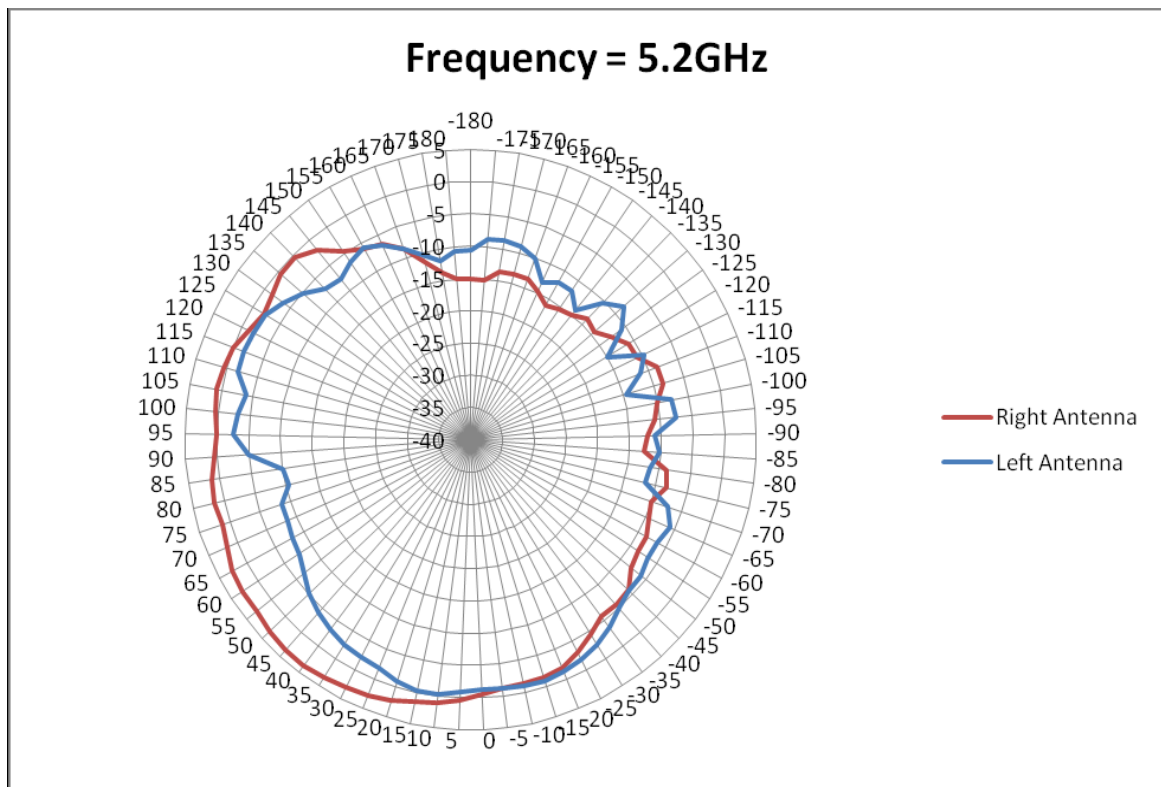


Figure 33 Radiation Plots for 5.200GHz (E1-Plane) Left Antenna

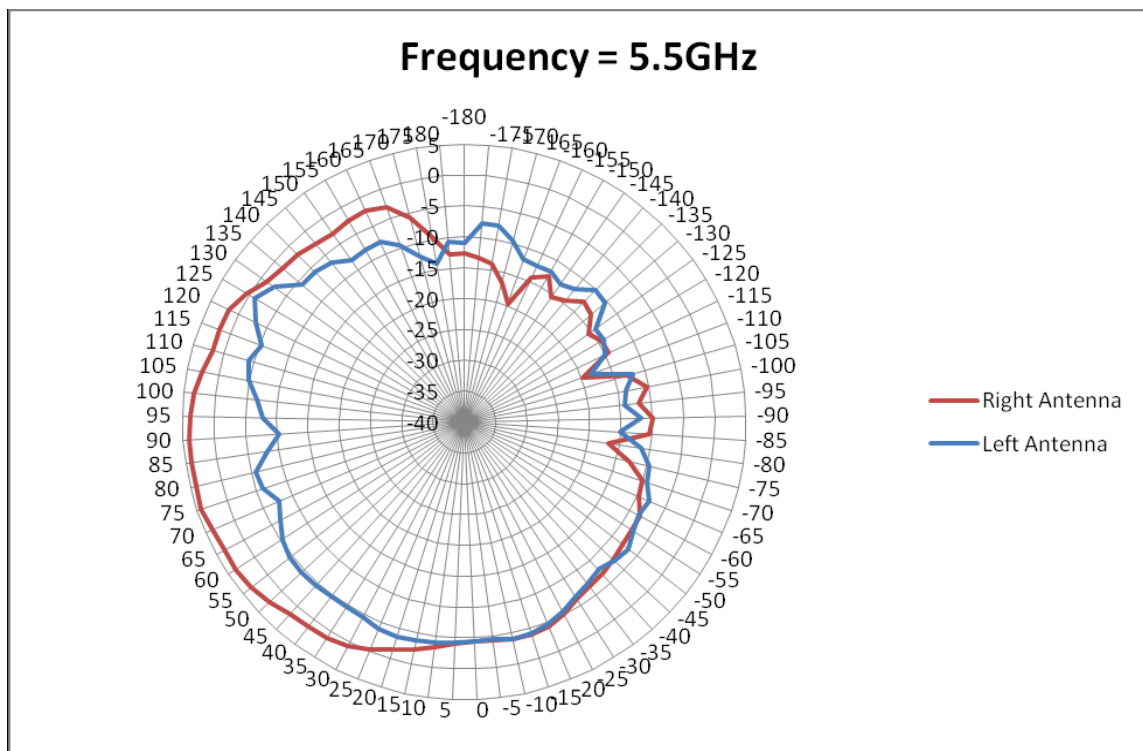


Figure 34 Radiation Plots for 5.500GHz (E1-Plane) Left Antenna

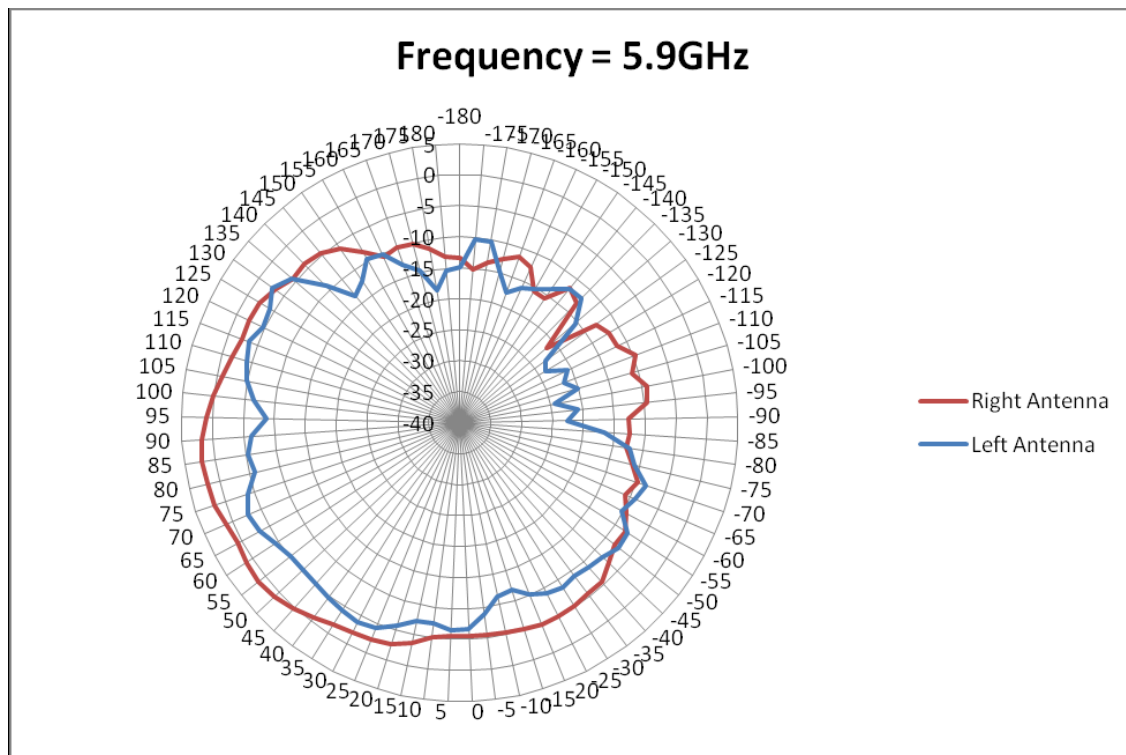


Figure 35 Radiation Plots for 5.900GHz (E1-Plane) Left Antenna

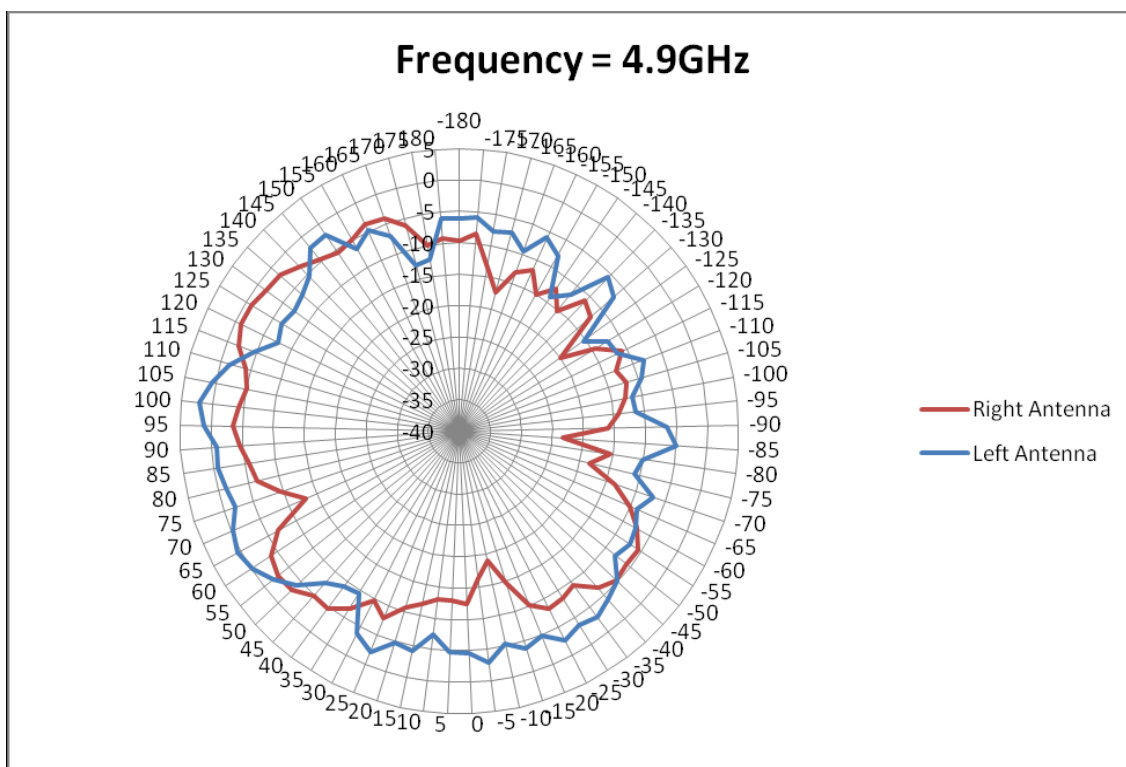


Figure 36 Radiation Plots for 4.900GHz (E2-Plane) Left Antenna

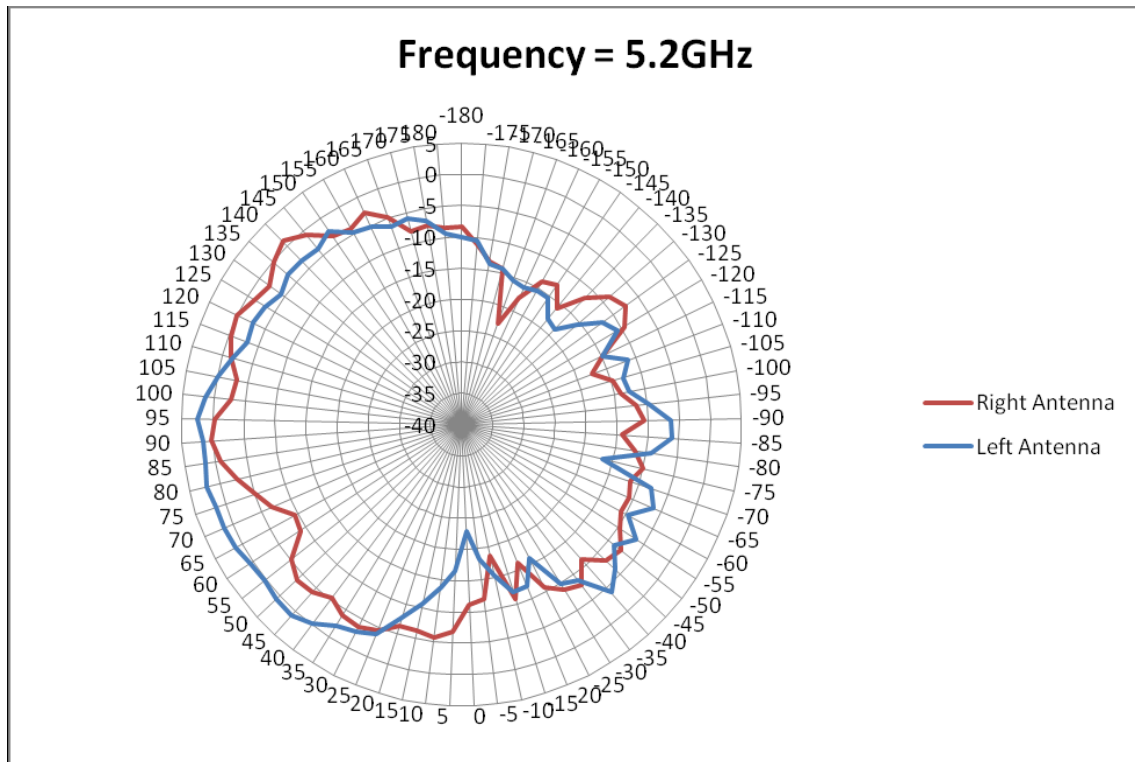


Figure 37 Radiation Plots for 5.200GHz (E2-Plane) Left Antenna

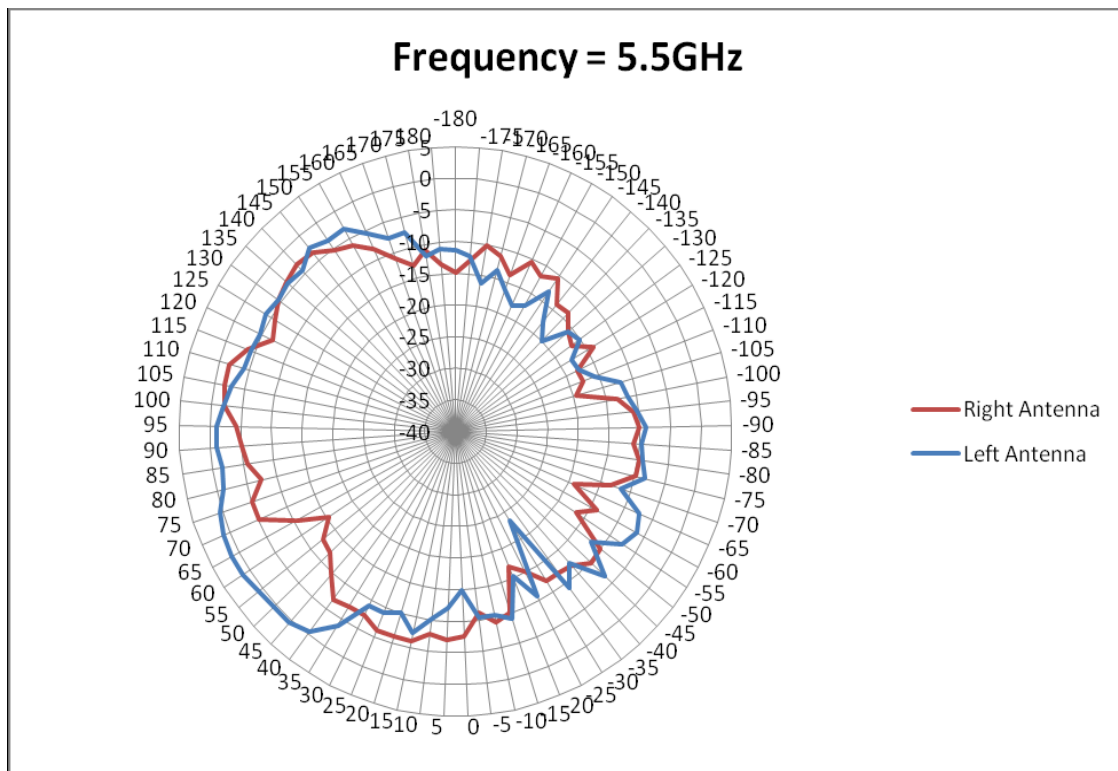


Figure 38 Radiation Plots for 5.500GHz (E2-Plane) Left Antenna

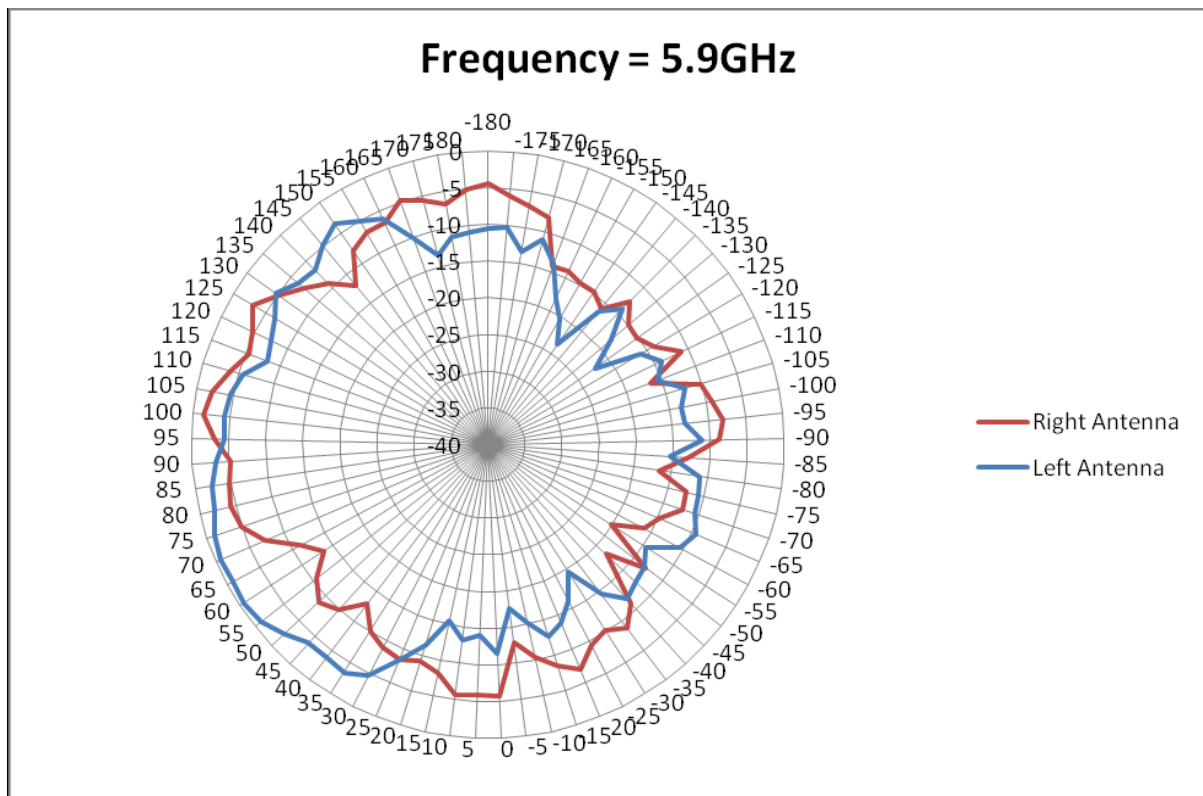


Figure 39 Radiation Plots for 5.900GHz (E2-Plane) Left Antenna

The following Plots shall describe the peak gain of the antenna for various planes with respect to frequency.

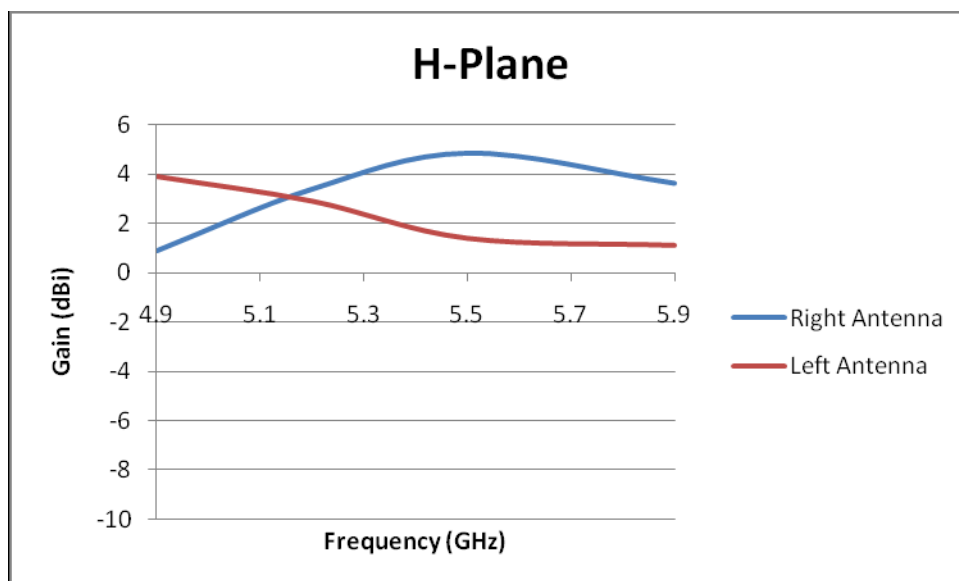
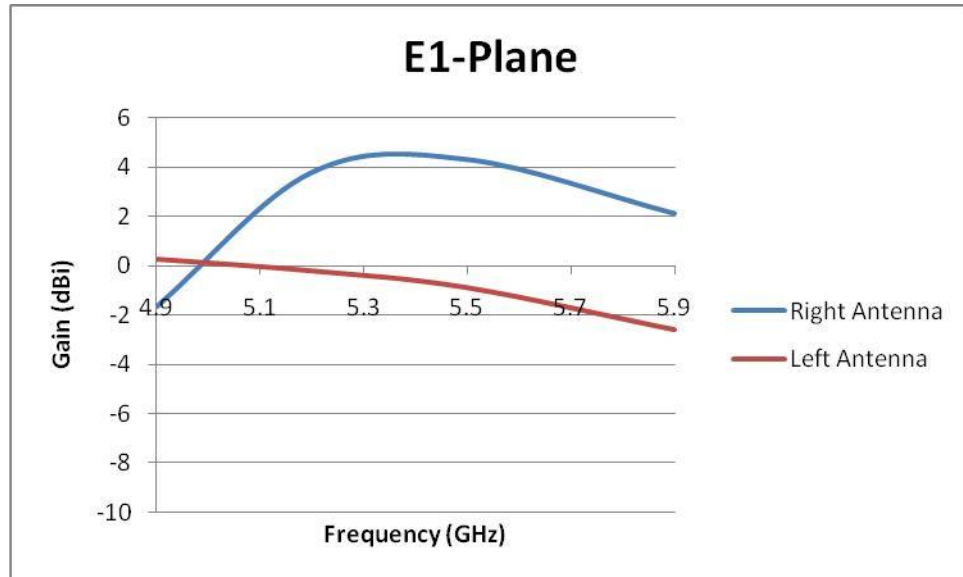
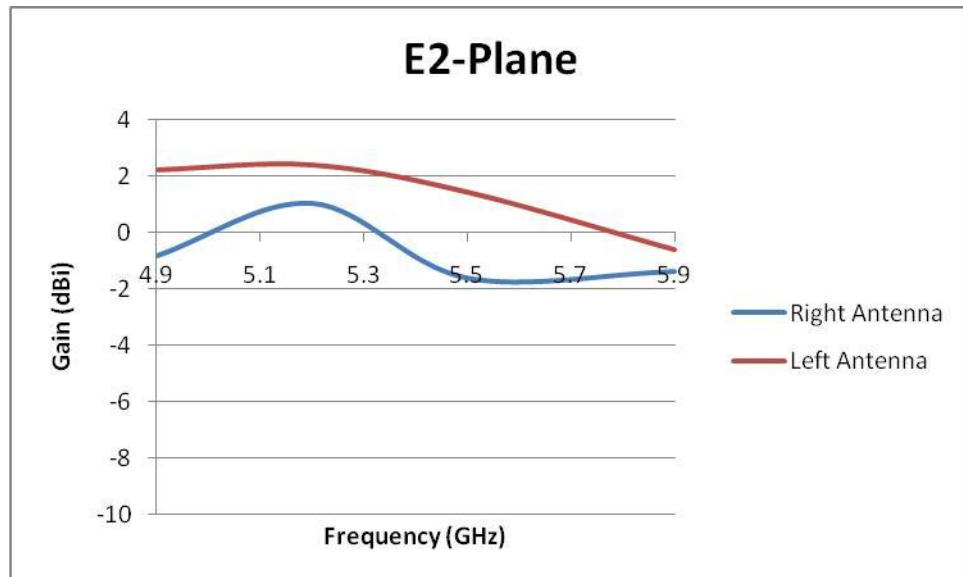


Figure 40 Peak Gain for Bluetooth Printed Antenna (H-Plane) Left Antenna

**Figure 41 Peak Gain for Bluetooth Printed Antenna (E1-Plane) Left Antenna****Figure 42 Peak Gain for Bluetooth Printed Antenna (E2-Plane) Left Antenna**

		2.4 GHz	2.42 GHz	2.46 GHz	2.485 GHz	4.9 GHz	5.2 GHz	5.5 GHz	5.9 GHz
Left Antenna	H Plane	0.02dBi	0.87dBi	0.98dBi	1.25dBi	3.99dBi	0.97dBi	-0.85dBi	-0.97dBi
	E1 Plane	-1.35dBi	-0.86dBi	-1.47dBi	-0.88dBi	0.18dBi	-0.13dBi	-0.99dBi	-2.83dBi
	E2 Plane	-0.72dBi	0.06dBi	0.83dBi	0.75dBi	2.12dBi	2.28dBi	1.42dBi	-0.72dBi
Right Antenna	H Plane	-0.97dBi	-0.52dBi	-0.13dBi	-2.85dBi	0.91dBi	3.42dBi	4.97dBi	3.81dBi
	E1 Plane	1.01dBi	1.78dBi	1.8dBi	0.05dBi	-1.82dBi	3.92dBi	4.35dBi	2.02dBi
	E2 Plane	-0.16dBi	-0.06dBi	-0.42dBi	-2.12dBi	-0.98dBi	1.02dBi	-1.65dBi	-1.32dBi

5. CONCLUSION

The various results above showed that both the WIFI Internal Antenna is operating within the required Specifications.