



LTE MIMO External Antenna
Model: HB15H
External Antenna
Product Number: H2MA301D100100

Preliminary Engineering Specification

Table of Contents

1	Introduction	3
2	Electrical Specifications	4
3	Antenna Characteristics	7
3.1	Cellular/LTE Antenna 1	7
3.2	Cellular/LTE Antenna 2	10
3.3	Isolation	13
4	Radiation Gain Pattern of LTE Antenna 1	14
4.1	698~960MHz Band	14
4.2	1710~2170MHz Band	15
4.3	2300~2400MHz Band	16
4.4	2490~2690MHz Band	18
4.5	7.5. 3400~3800MHz Band	19
5	Radiation Gain Pattern of LTE Antenna 2	21
5.1	698~960MHz Band	21
5.2	1710~2170MHz Band	22
5.3	2300~2400MHz Band	24
5.4	2490~2690MHz Band	25
5.5	3400~3800MHz Band	27

1 Introduction

The HB15H External antenna is an omni-directional, IP67 waterproof M2M external antenna, combines 2 of high performance cellular LTE full band antenna, covering LTE bands 698 to 960 & 1710 to 2700 & 3400 to 3800MHz

The HB15H is ideal for use on non-metal surface.

Features

- * IP67 Antenna
- * 2 * 4G MIMO LTE Antenna: 698 to 960 & 1710 to 2700 & 3400 to 3800MHz
- * Dimensions: 150 x 64 x 17 mm
- * RoHS compliant.

Applications

- * Automotive telematics
- * Fleet management.
- * Teleportation.

2 Electrical Specifications

CELLULAR/4G LTE ANTENNA 1						
Frequency(MHz)		698~960	1710~2170	2300~2400	2490~2690	3400~3800
Efficiency (%)	1M	60.3	59.5	56.9	50.2	43.0
	2M	50.9	51.1	50.3	40.6	34.2
Average gain (dB)	1M	-2.2	-2.3	-2.4	-3.0	-3.7
	2M	-2.9	-2.9	-3.0	-3.9	-4.7
Peak gain (dBi)	1M	4.0	4.2	2.5	2.7	2.2
	2M	3.1	3.2	2.4	1.5	1.4
Impedance(Ω)	50					
Polarization	Linear					
V.S.W.R.	<5	<3				
Cable	KSR200 low loss cable					
Connector	SMA(M) ST					

CELLULAR/4G LTE ANTENNA 2						
Frequency(MHz)		698~960	1710~2170	2300~2400	2490~2690	3400~3800
Efficiency (%)	1M	57.0	51.6	55.6	49.1	33.3
	2M	50.0	42.5	48.0	38.9	27.0
Average gain (dB)	1M	-2.4	-2.9	-2.5	-3.1	-4.8
	2M	-3.0	-3.7	-3.2	-4.1	-5.7
Peak gain (dBi)	1M	3.8	3.8	1.4	2.4	1.9
	2M	3.1	3.2	1.2	1.4	1.1
Impedance(Ω)		50				
Polarization		Linear				
V.S.W.R.		<5	<3			
Cable		KSR200 low loss cable				
Connector		SMA(M) ST				

MECHANICAL	
Antenna Dimensions	150 * 64 * 17 mm
Waterproof	IP67
Cable type*	KSR200
Cable Length*	2M
Connector*	SMA(M) ST
Mounting Type	Adhesive mount

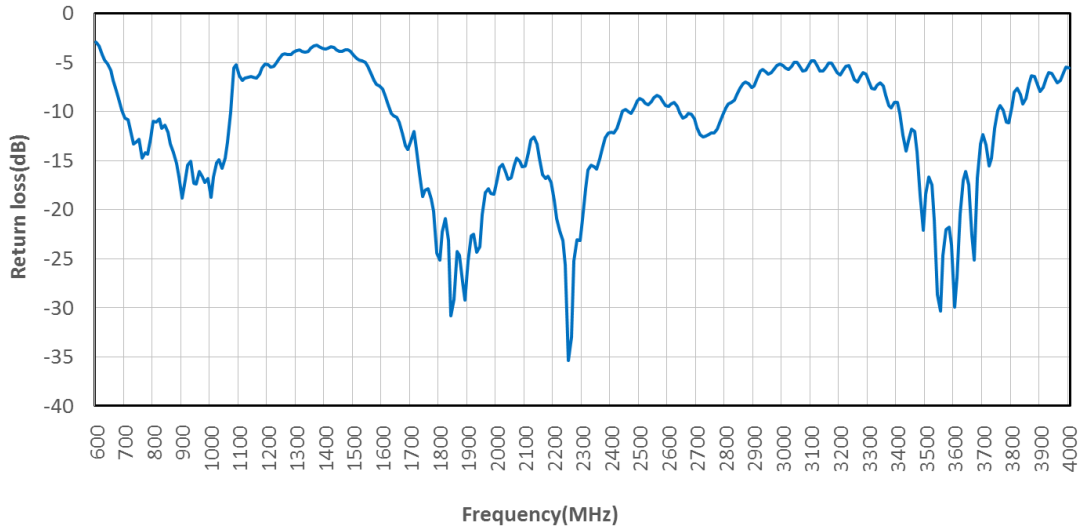
*The connector, cable length, and cable type can be tailor made upon request.

ENVIRONMENTAL	
Operation Temperature	-40~+85 °C
Storage Temperature	-40~+85 °C

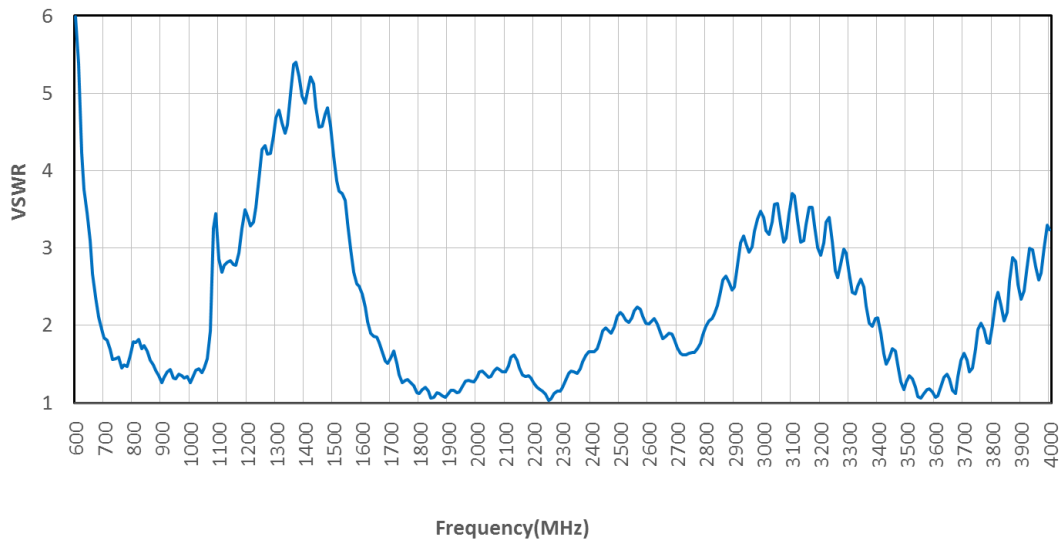
3 Antenna Characteristics

3.1 Cellular/LTE Antenna 1

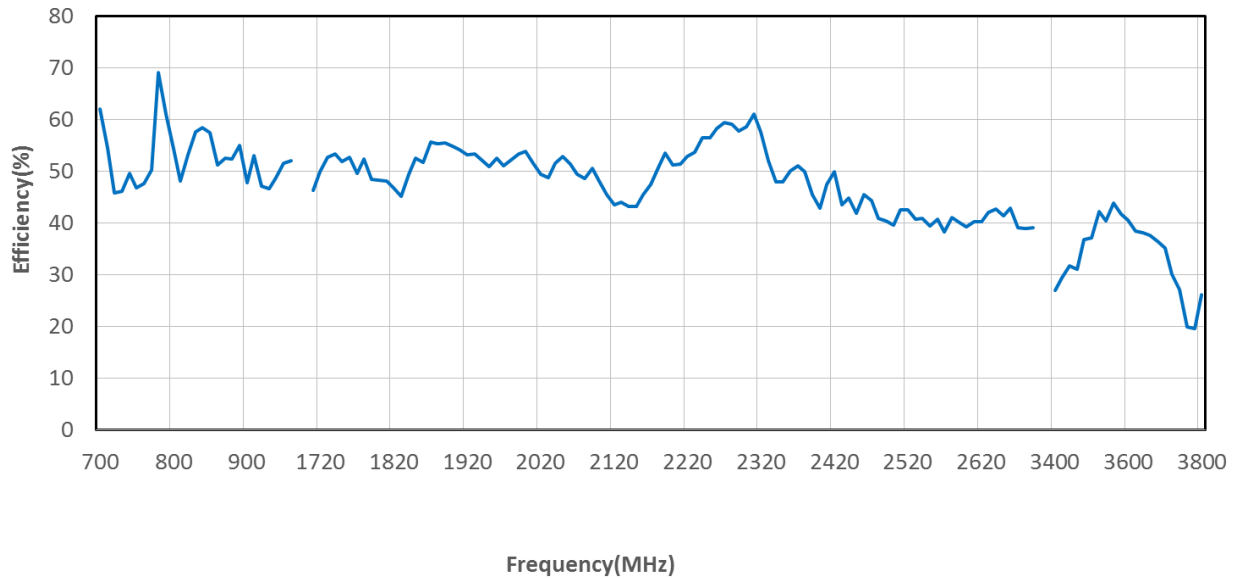
3.1.1 Return Loss



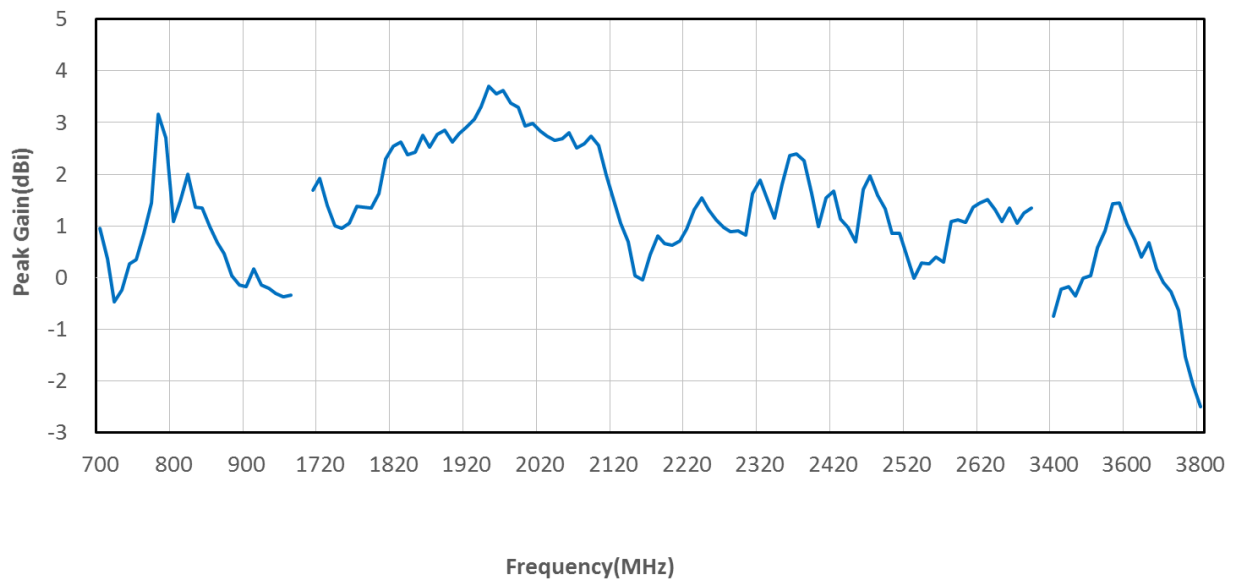
3.1.2 VSWR



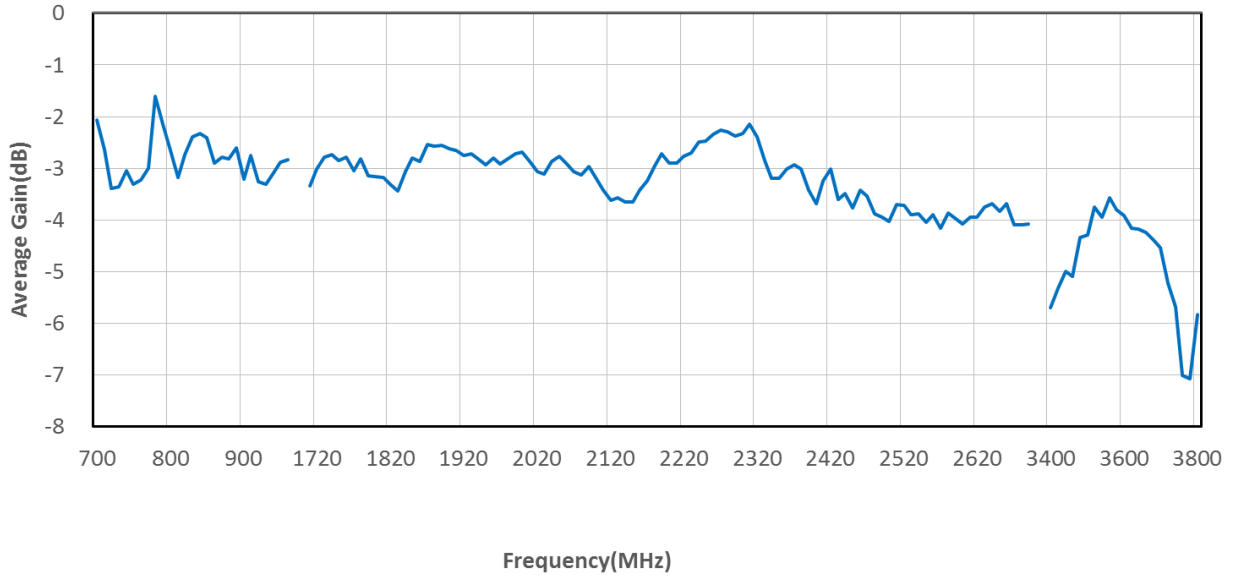
3.1.3 Efficiency



3.1.4 Peak Gain

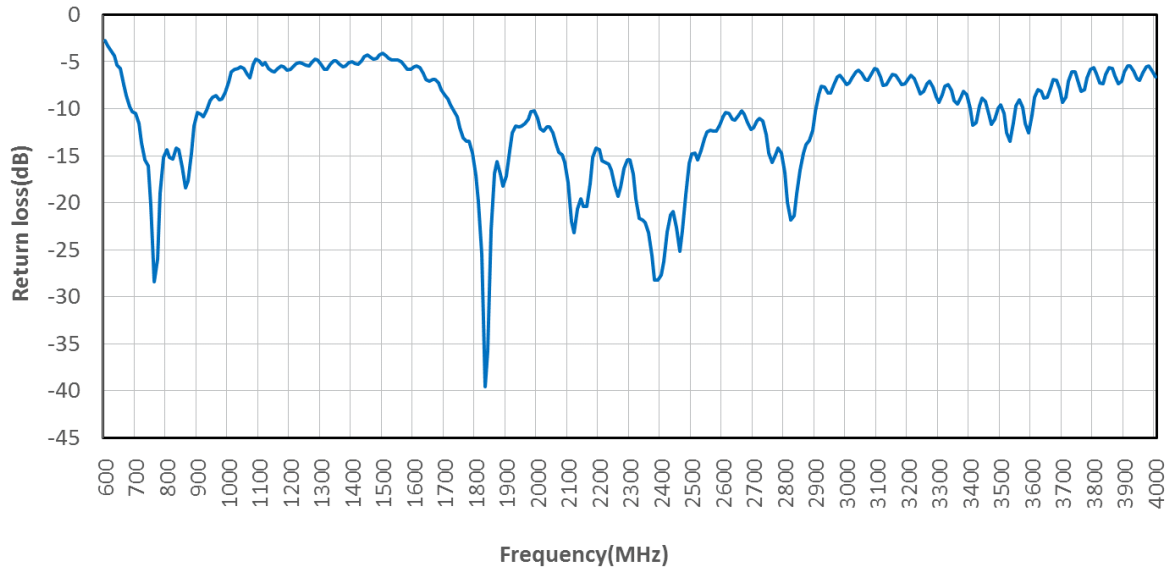


3.1.5 Average Gain

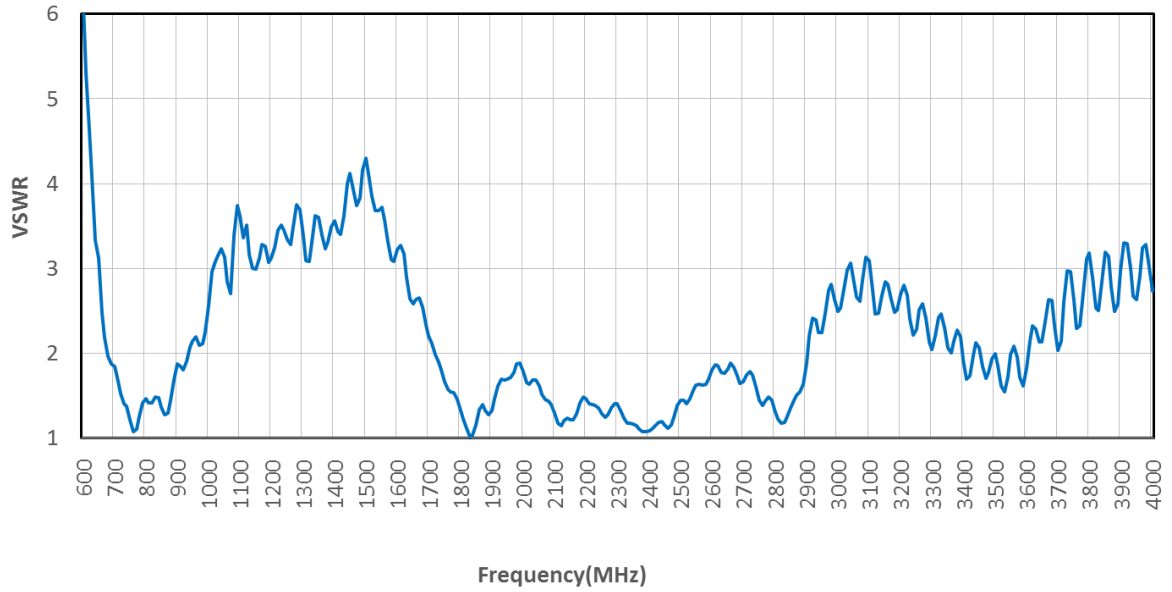


3.2 Cellular/LTE Antenna 2

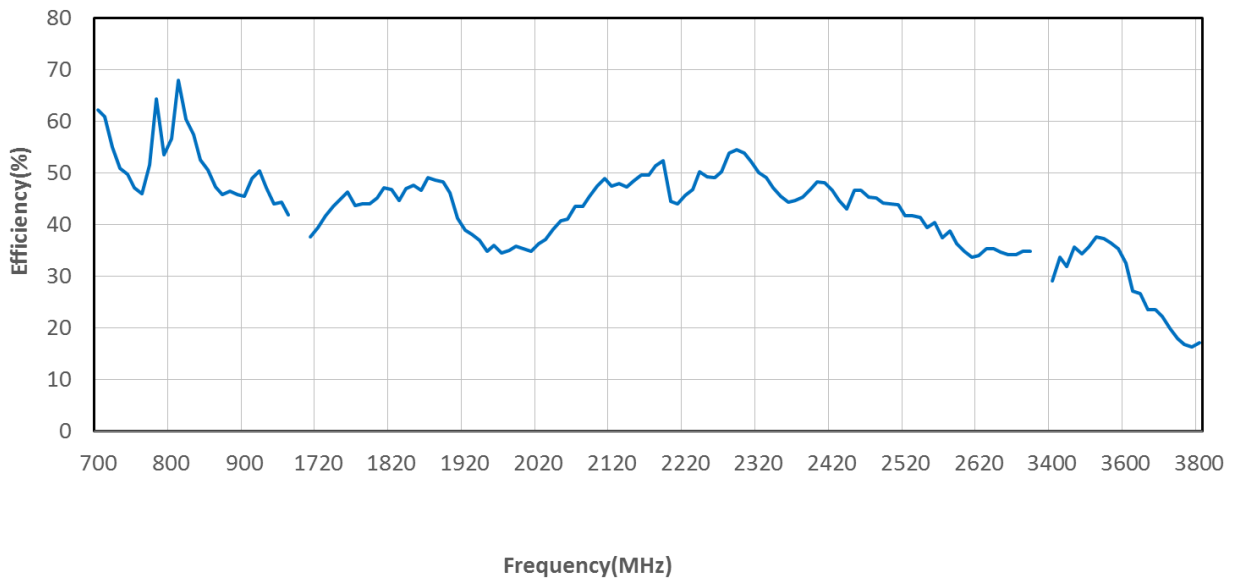
3.2.1 Return Loss



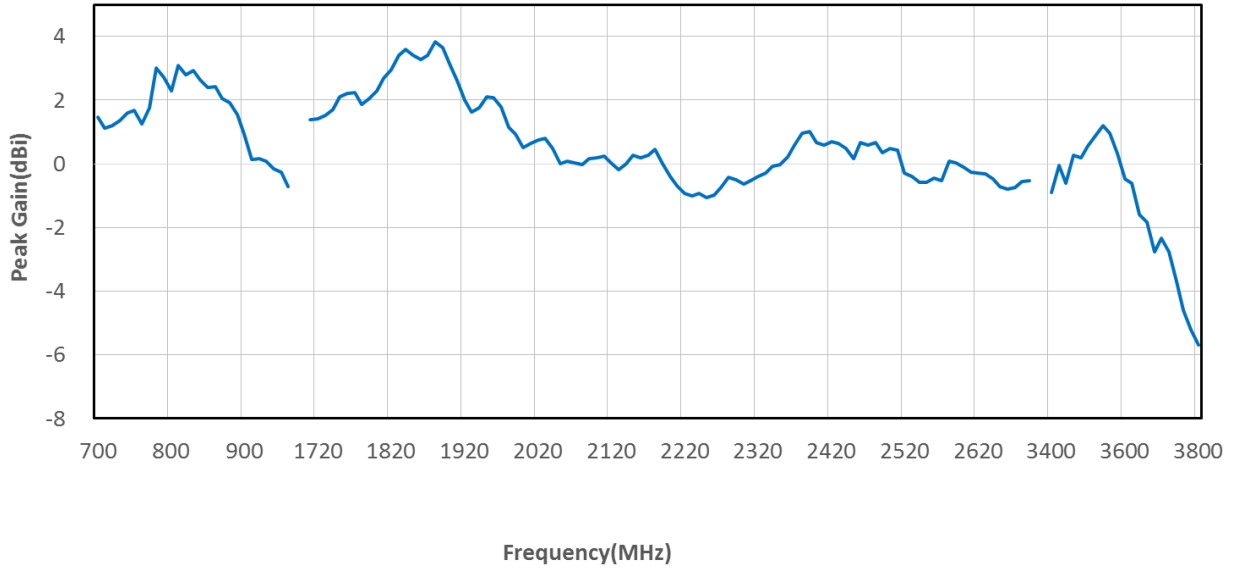
3.2.2 VSWR



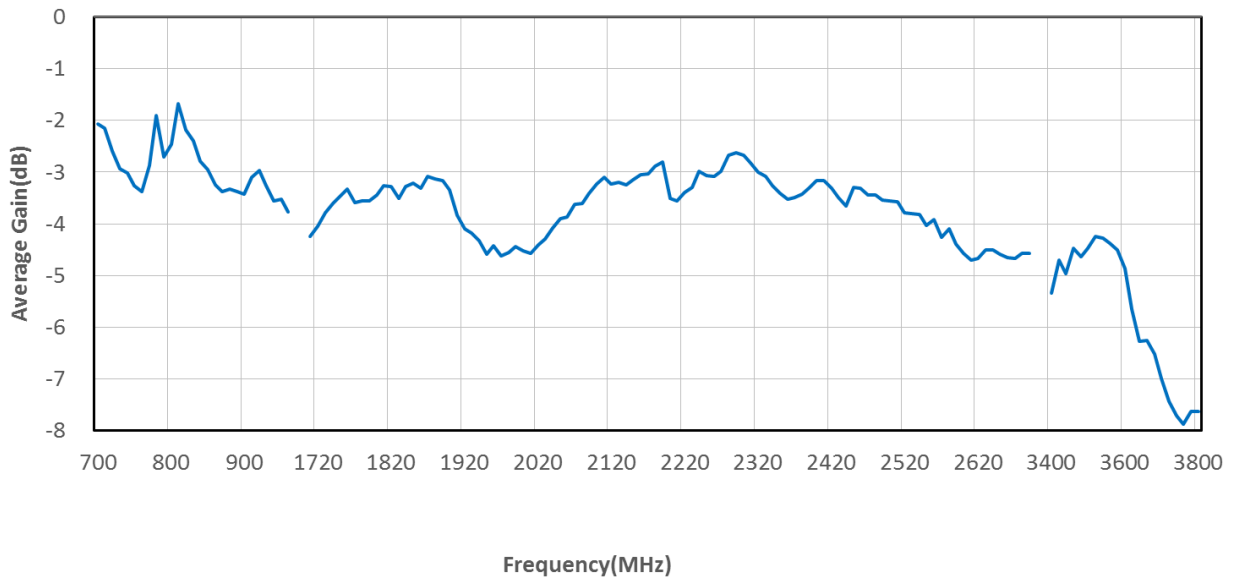
3.2.3 Efficiency



3.2.4 Peak Gain

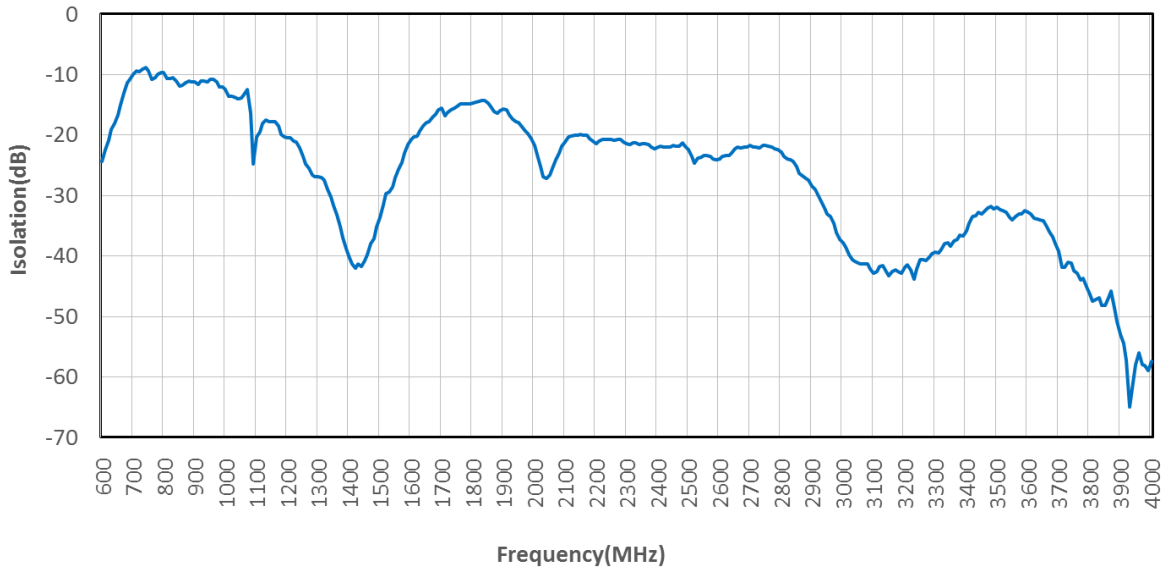


3.2.5 Average Gain



3.3 Isolation

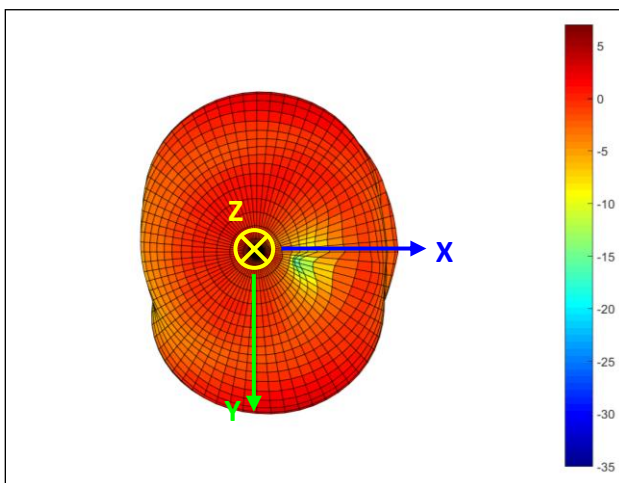
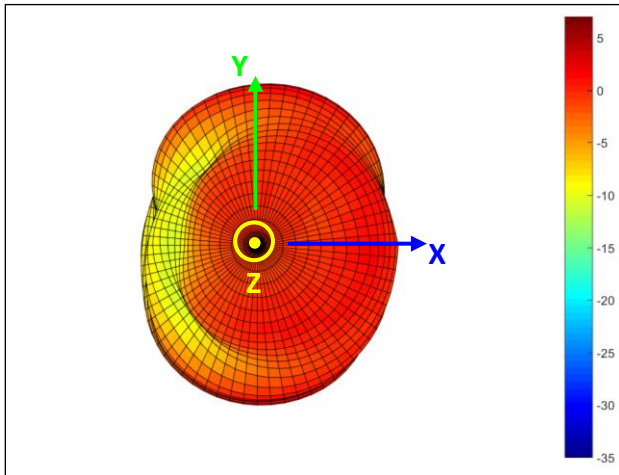
LTE antenna 1 and LTE antenna 2

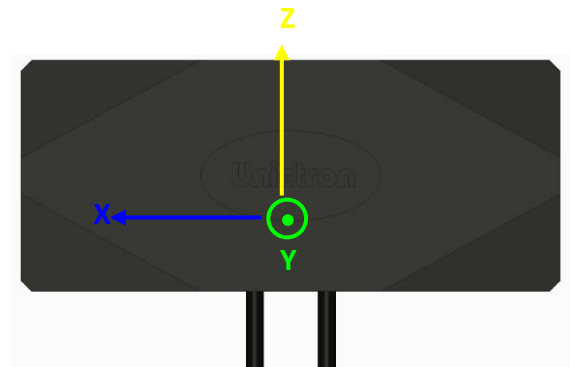
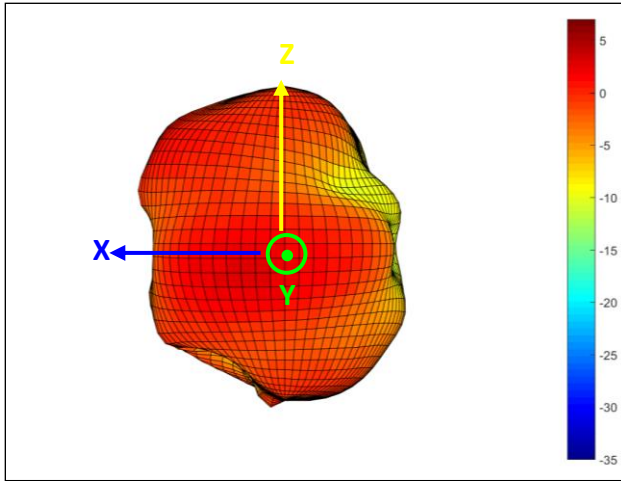


4 Radiation Gain Pattern of LTE Antenna 1

4.1 698~960MHz Band

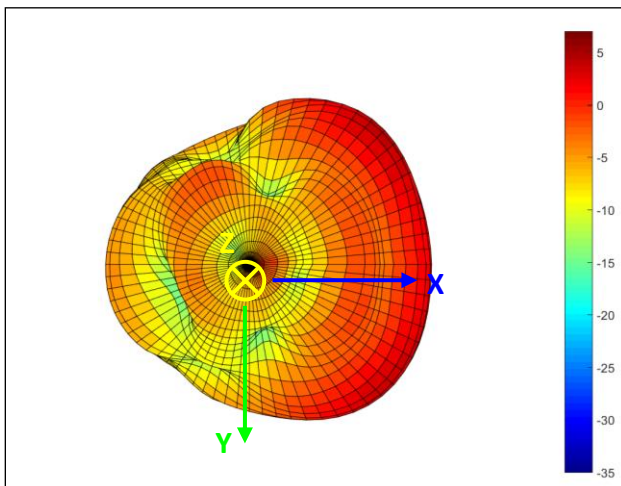
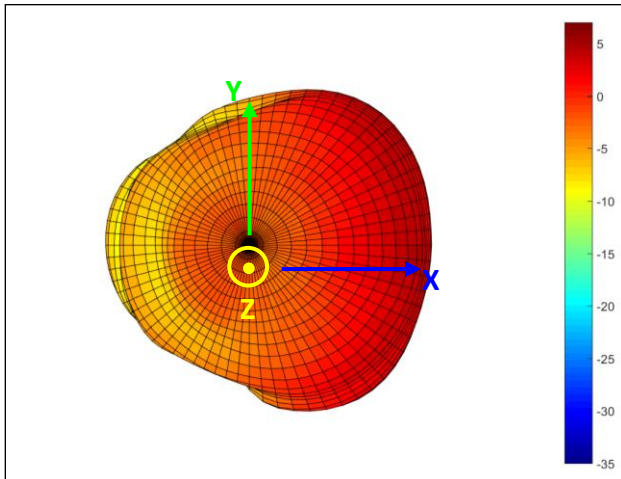
3D Radiation Gain Pattern @ 830 MHz (Unit: dBi)

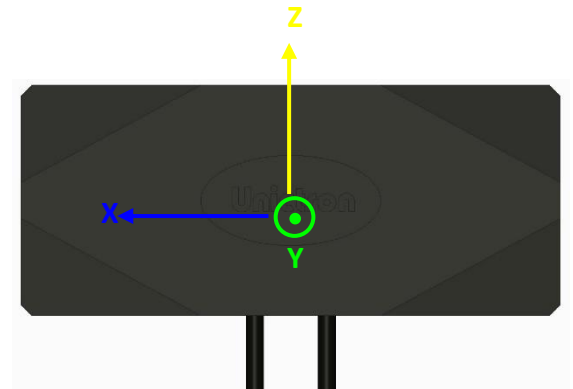
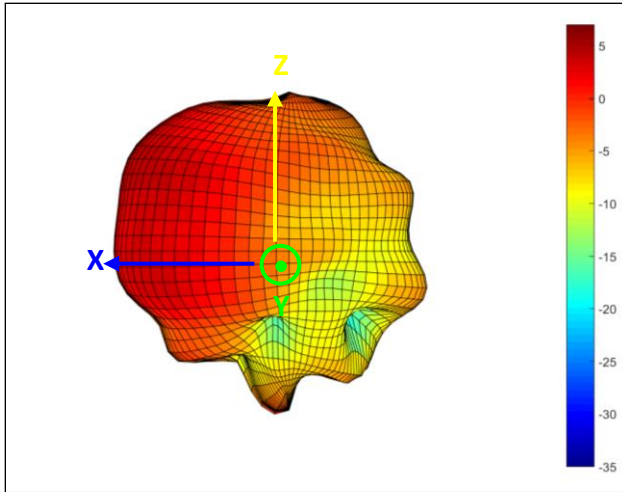




4.2 1710~2170MHz Band

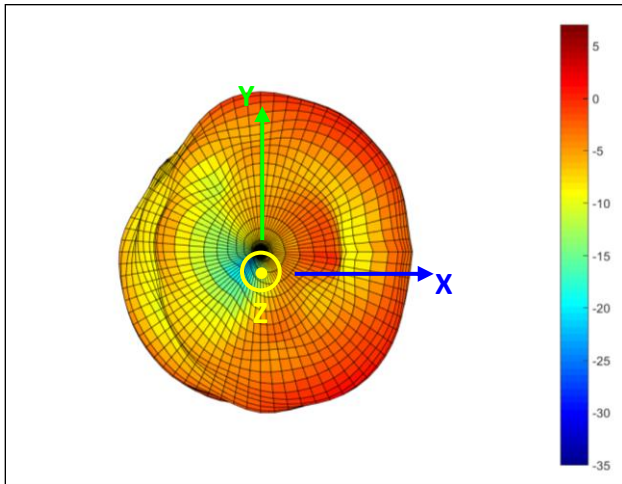
3D Radiation Gain Pattern @ 1940 MHz (Unit: dBi)

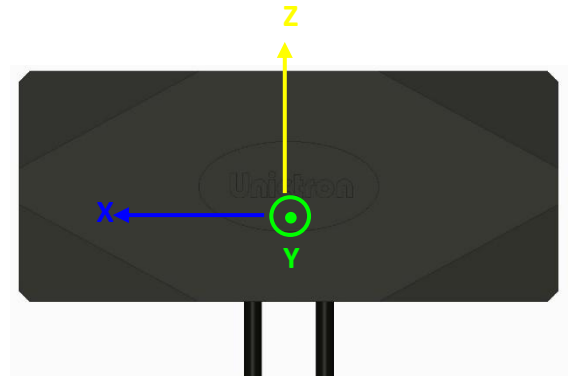
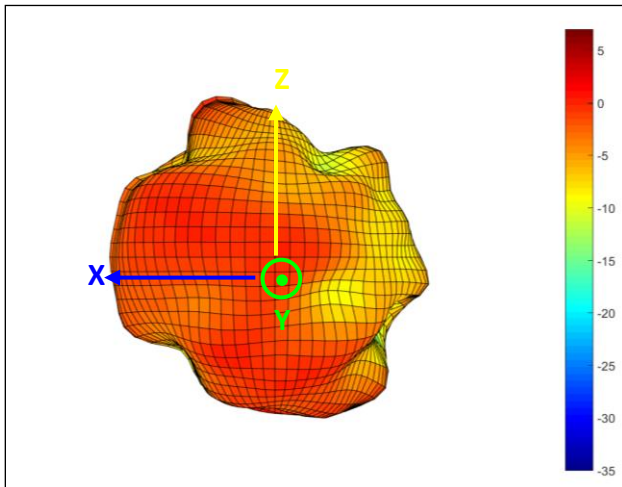
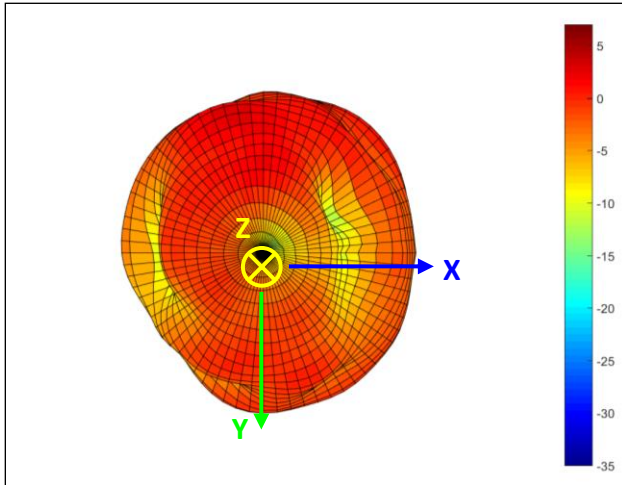




4.3 2300~2400MHz Band

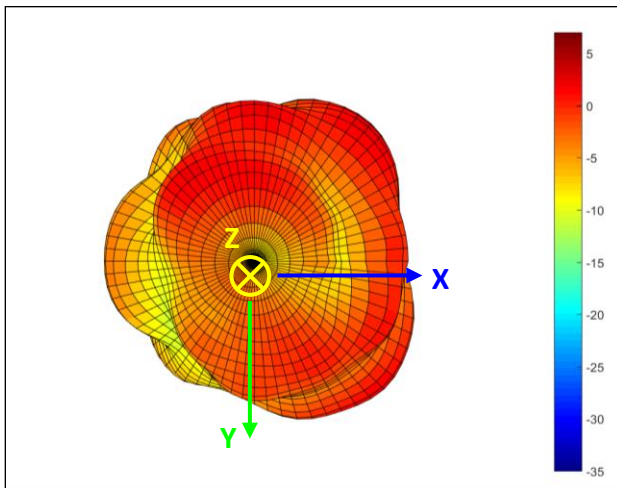
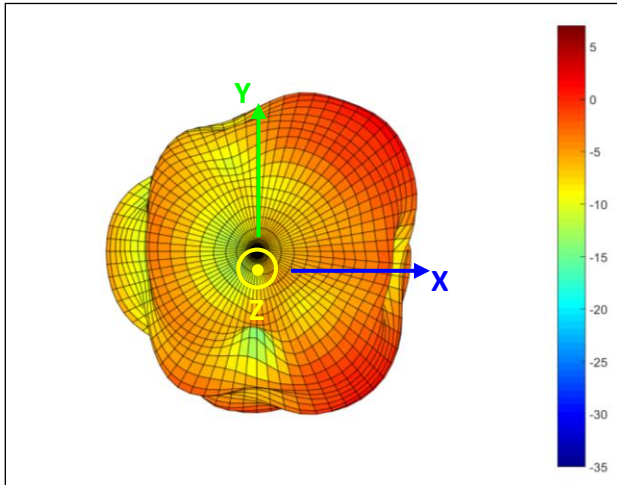
3D Radiation Gain Pattern @ 2350 MHz (Unit: dBi)

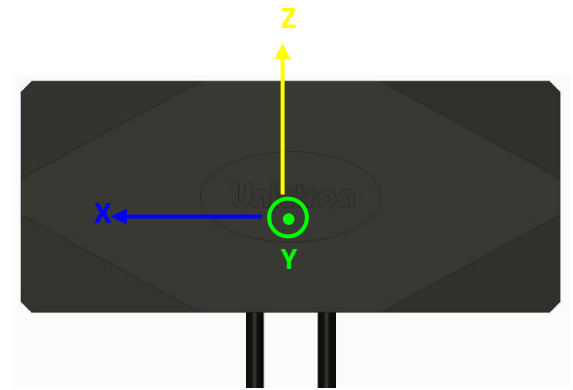
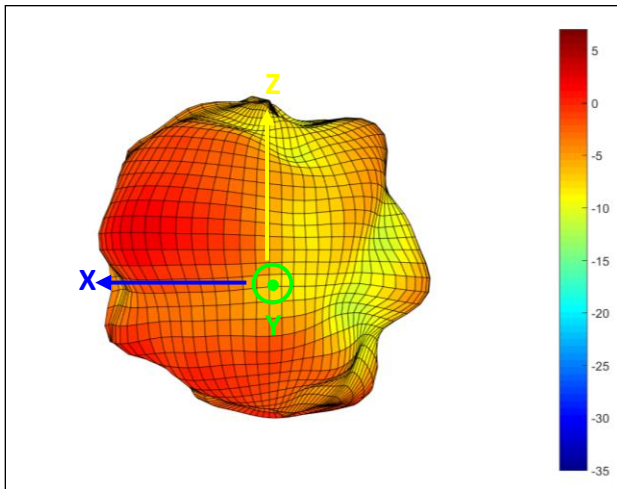




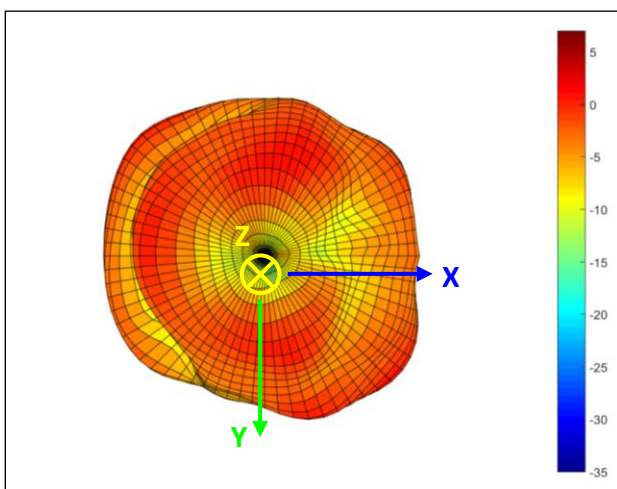
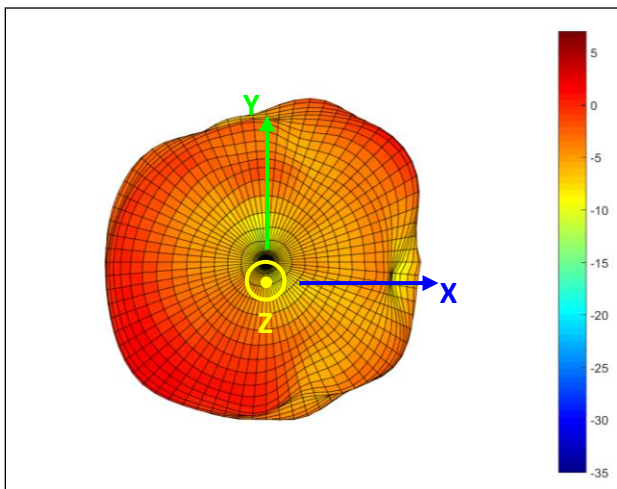
4.4 2490~2690MHz Band

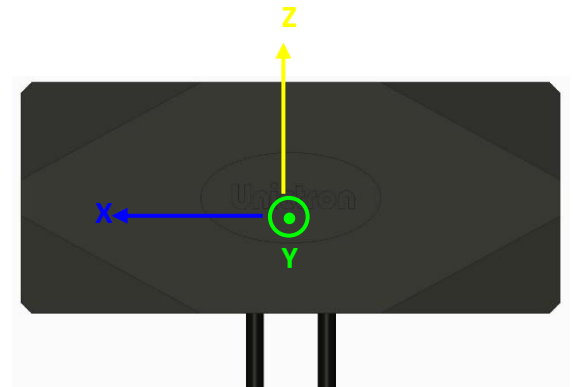
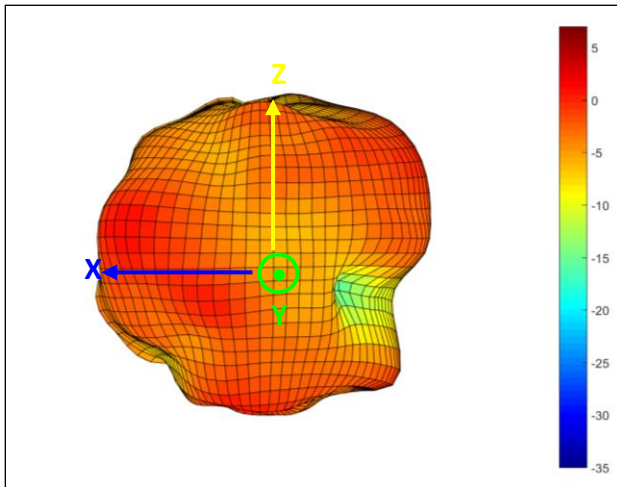
3D Radiation Gain Pattern @ 2590 MHz (Unit: dBi)





4.5 7.5. 3400~3800MHz Band
3D Radiation Gain Pattern @ 3600 MHz (Unit: dBi)

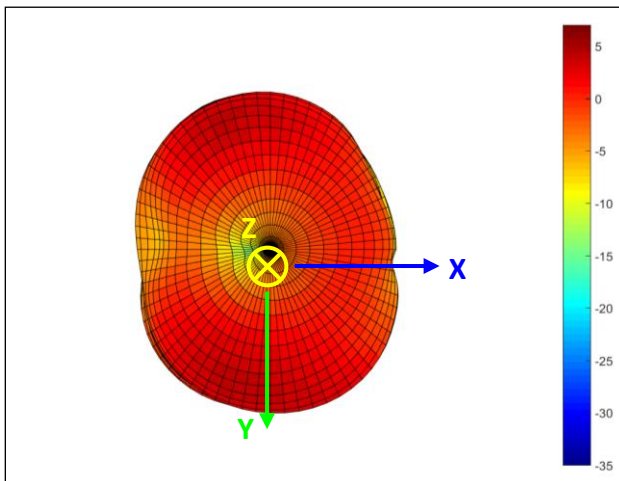
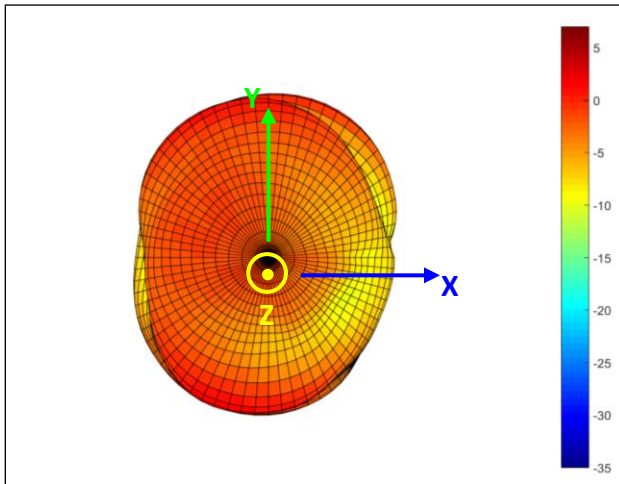


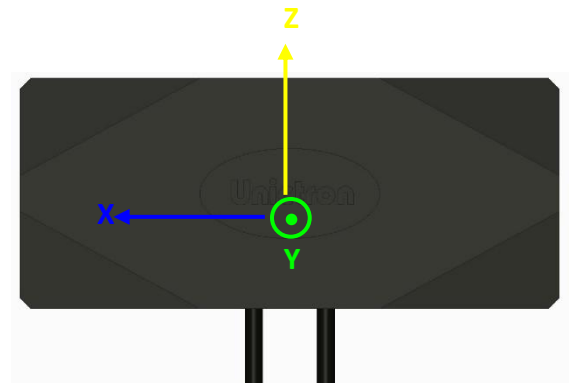
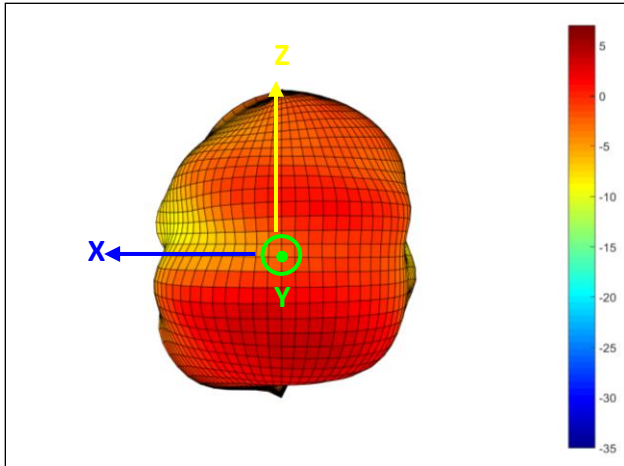


5 Radiation Gain Pattern of LTE Antenna 2

5.1 698~960MHz Band

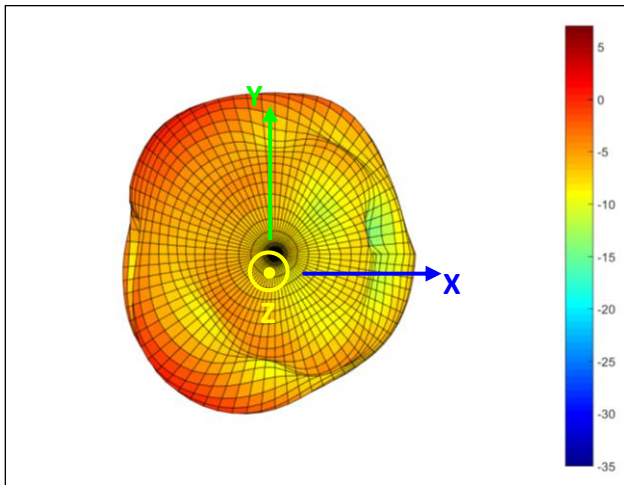
3D Radiation Gain Pattern @ 830 MHz (Unit: dBi)

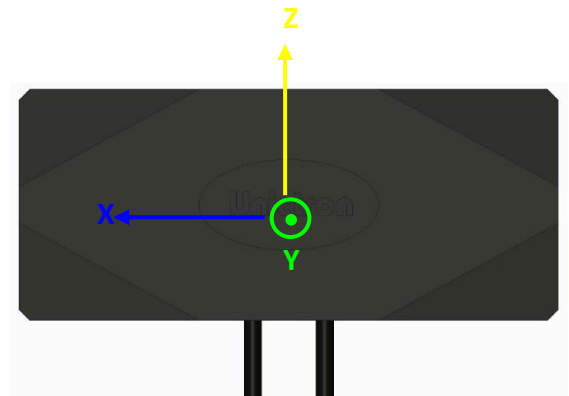
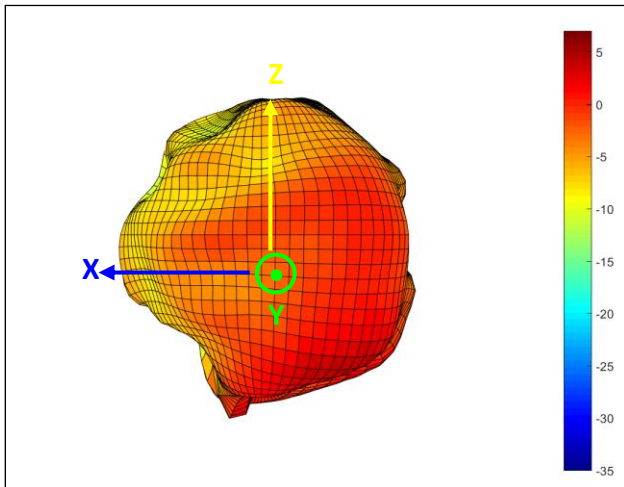
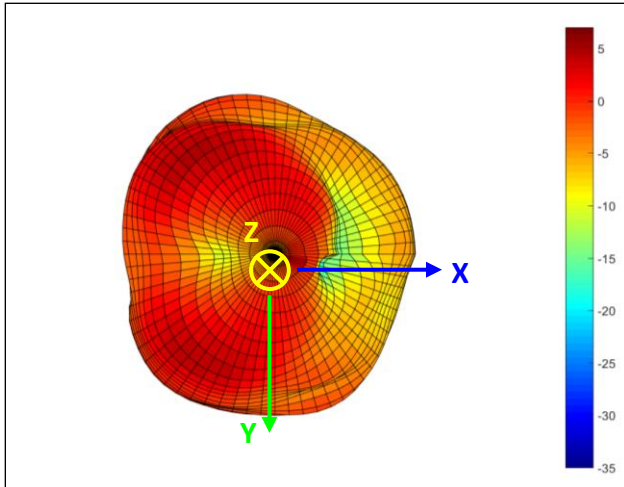




5.2 1710~2170MHz Band

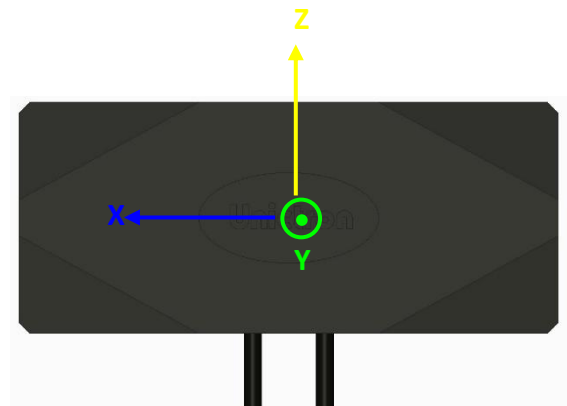
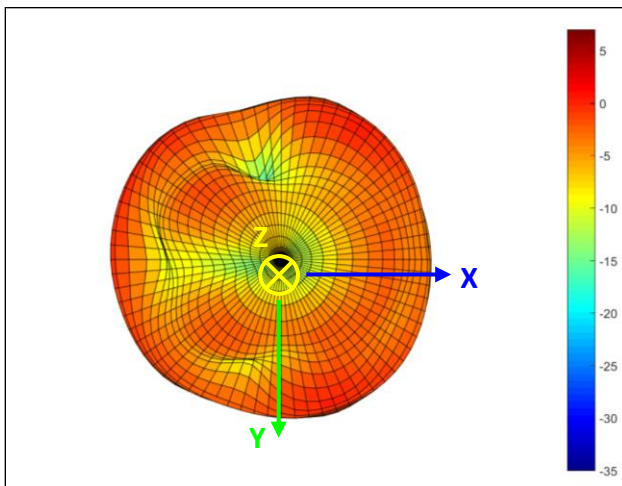
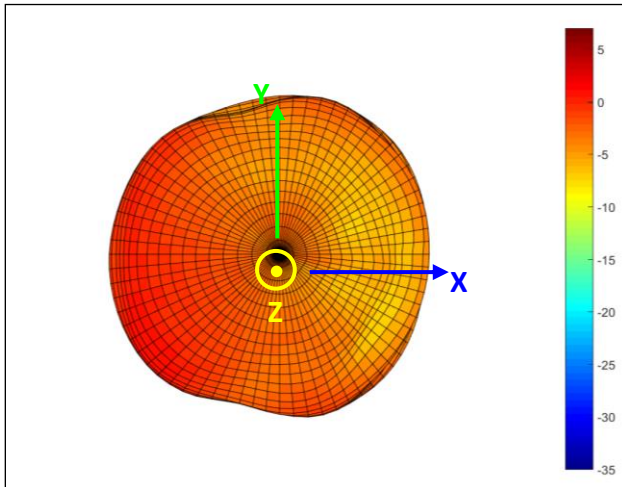
3D Radiation Gain Pattern @ 1940 MHz (Unit: dBi)

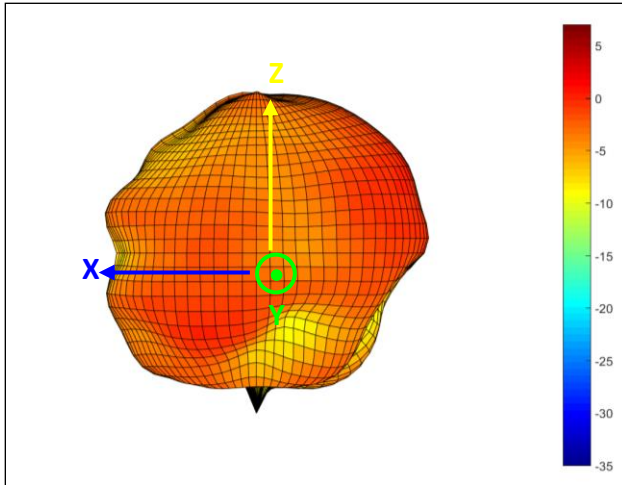




5.3 2300~2400MHz Band

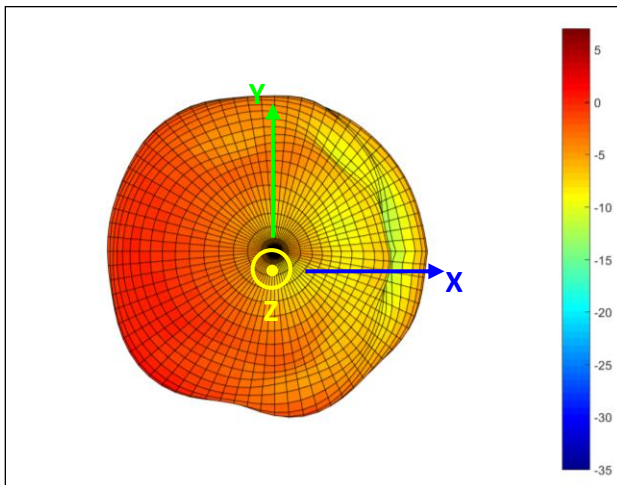
3D Radiation Gain Pattern @ 2350 MHz (Unit: dBi)

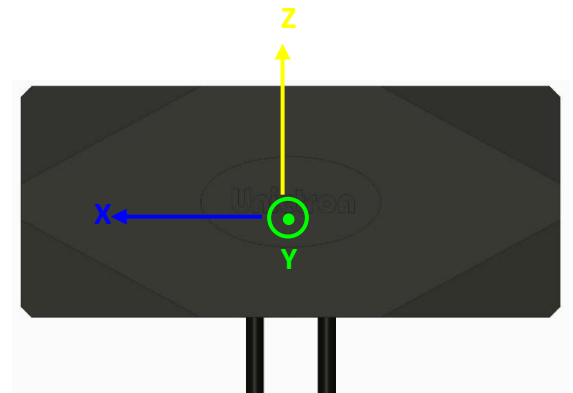
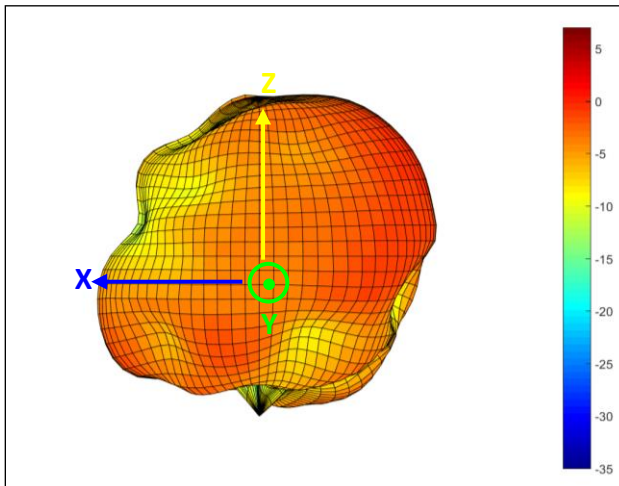
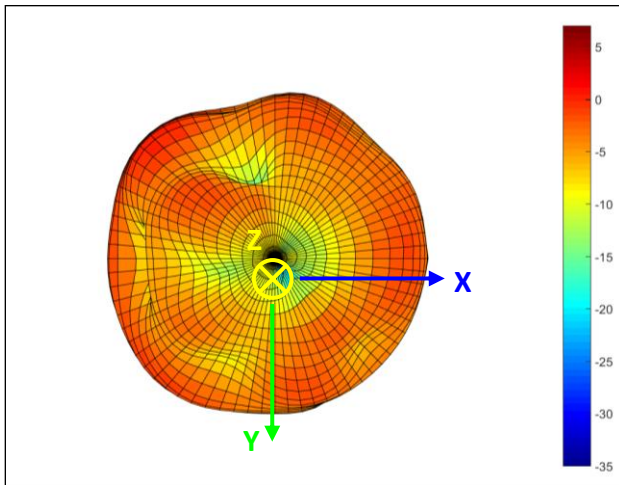




5.4 2490~2690MHz Band

3D Radiation Gain Pattern @ 2590 MHz (Unit: dBi)





5.5 3400~3800MHz Band

3D Radiation Gain Pattern @ 3600 MHz (Unit: dBi)

