

SPECIFICATION

- Part No. : **TG.45.8113**

- Product Name : Apex III Ultra-Wideband 4G LTE Dipole Terminal Antenna 90° Hinged R/A SMA(M) – with 450MHz band added.

- Feature : Highest efficiency for worldwide LTE and Wi-Fi
 LTE / HSPA / GSM / CDMA /DCS /PCS / WCDMA / UMTS / GPRS / EDGE /GPS /Wi-Fi
 Dims: 218*58mm
 Dipole Swivel Terminal Antenna
 Hinged 90° termination with SMA(M) Connector
 Enhanced hinge structure for vibration environment
 Connector customizable
RoHS Compliant



1. Introduction

The hinged Apex III TG.45 Ultra-Wideband Dipole Antenna has been designed to cover all Cellular, ISM and Wi-Fi working frequencies in the 450-6000MHz spectrum. Evolved from the already highly successful Apex II TG.35, the TG.45 has the highest wideband efficiency in its range of any terminal antenna on the market today.

The Apex III has been primarily designed for use with 4G LTE modules and devices that require the highest possible efficiency and peak gain to deliver best in class throughput on all major cellular (4G/3G/2G) bands worldwide for access points, terminals and routers. High efficiency is vital for applications such as high speed video and real-time streaming, or high capacity MIMO networks on public transportation.

This attractive slim-line antenna is ground plane independent, meaning it does not need to be connected to the ground-plane of a device to radiate efficiently, on the other hand neither is it seriously detuned by connecting to a ground-plane, thus avoiding a problem notorious to smaller antennas.

It comes with a SMA(M) connector and swivel mechanism that allows the antenna part to be rotated to fit in tight environments. The 90° hinge structure has been improved and strengthened so that the antenna in a 90° position would not fall down to 180° in vibration environment.

The Apex III is backward compatible with 3G and 2G cellular applications such as HSPA, GSM, GPRS, UMTS, Wi-Fi and even has GPS included for Assisted GPS and/or E911 applications.

In summary, the Apex III is the ideal solution for any device requiring high, reliable performance. It will meet most type approval or carrier certification requirements from an efficiency standpoint. The antenna also makes an excellent reference antenna for test purposes. It has been designed as an omni-directional antenna and the radiation patterns prove this, being stable across all bands.

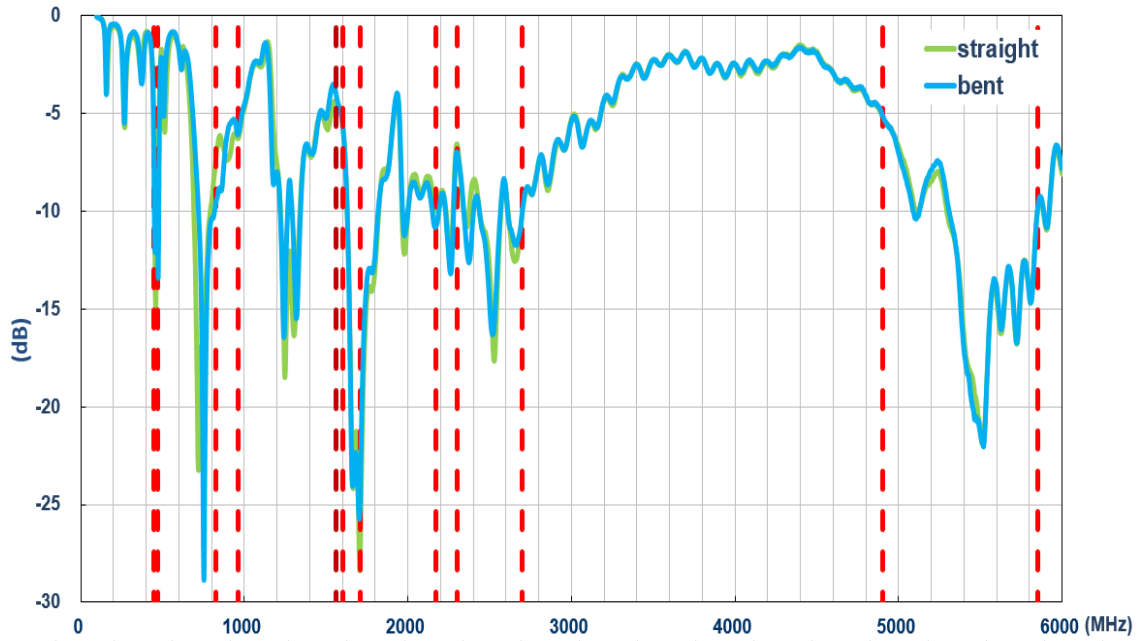
Connector type is customizable. Housing comes in White too. Contact Taoglas regional sales office for more information.

2. Specification

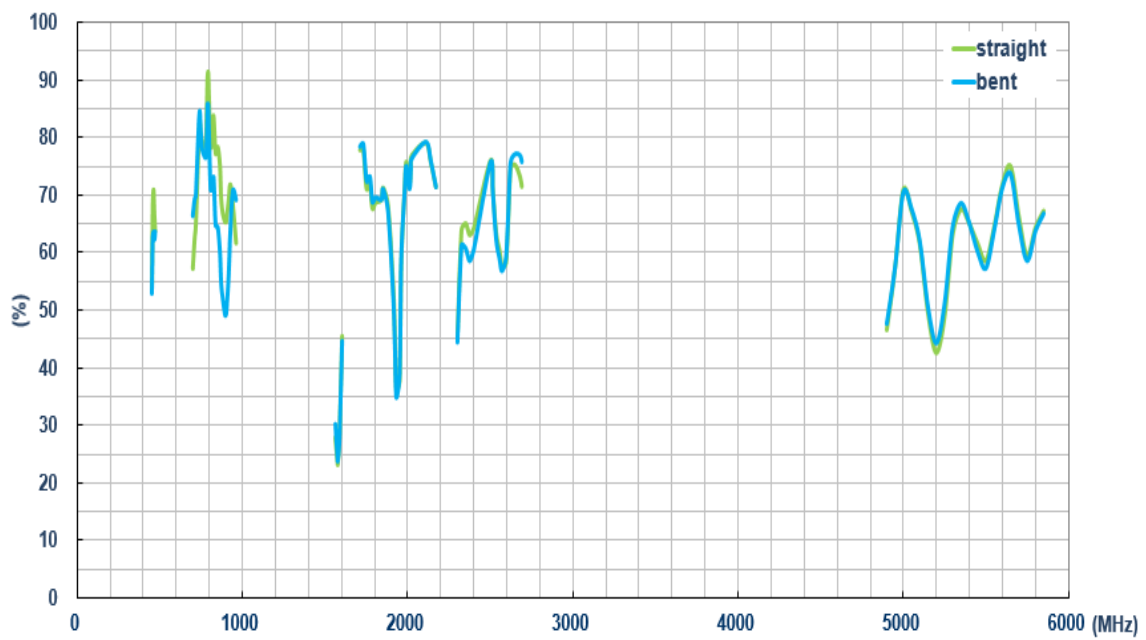
ELECTRICAL										
Standard	LTE 450	LTE 700	GSM 850	GSM 900	GPS/GLONASS/ BEIDOU	DCS	PCS	UMTS1	LTE 2600	WIFI 5G
Frequency (MHz)	450~470	698~806	824~894	880~960	1561~ 1602	1710~ 1880	1850~ 1990	1920~ 2170	2300~ 2690	4900~ 5850
Efficiency (%)										
Straight	64.47	74.08	73.61	66.84	29.65	71.46	57.68	64.54	65.96	61.35
Bent	60.92	75.72	59.62	58.46	30.10	72.00	57.09	64.21	65.54	61.37
Peak Gain (dBi)										
Straight	1.46	2.87	3.26	3.58	0.75	3.95	4.17	4.85	4.16	3.88
Bent	1.17	2.77	2.48	3.12	0.56	2.82	3.63	4.57	3.76	4.24
Average Gain (dBi)										
Straight	-1.93	-1.36	-1.35	-1.75	-5.39	-1.47	-2.53	-2.05	-1.84	-2.17
Bent	-2.16	-1.23	-2.28	-2.38	-5.31	-1.43	-2.58	-2.07	-1.88	-2.16
Impedance	50Ω									
Polarization	Linear									
Radiation Pattern	Omnidirectional									
Input Power	5 W									
MECHANICAL										
Casing	UV Resistant PC/ABS									
Connector	SMA Male Hinged 90°									
Weight	75g									
Recommended Torque for Mounting	0.9 N·m									
Max torque for Mounting	1.176 N·m									
ENVIRONMENTAL										
Temperature Range	-40°C to 85°C									
Humidity	Non-condensing 65°C 95% RH									

3. Antenna Characteristics

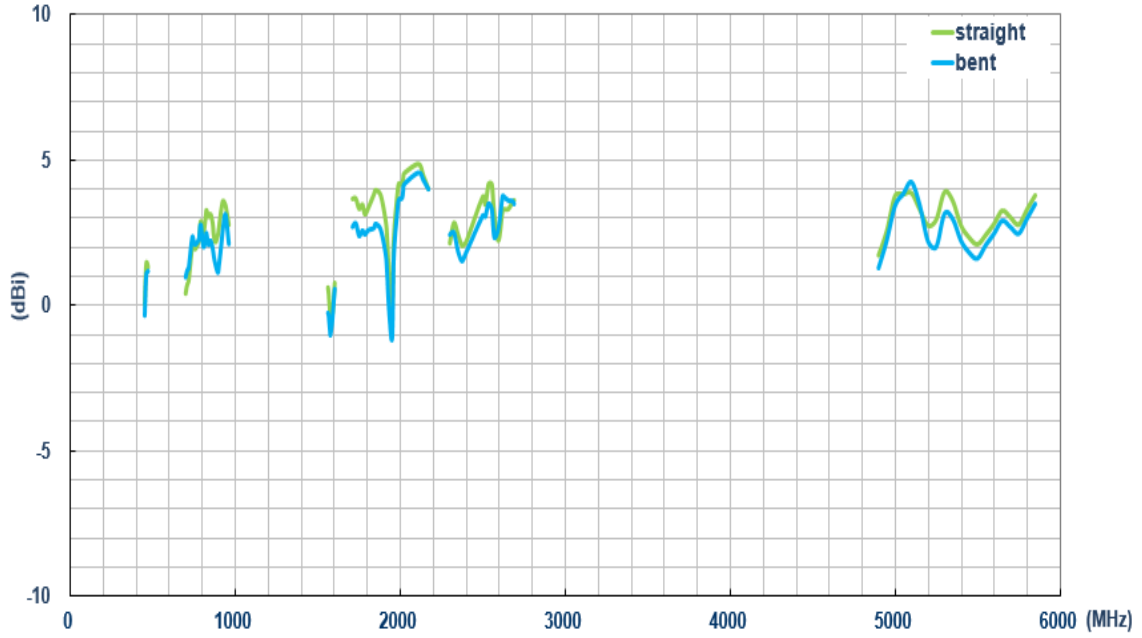
3.1. Return Loss



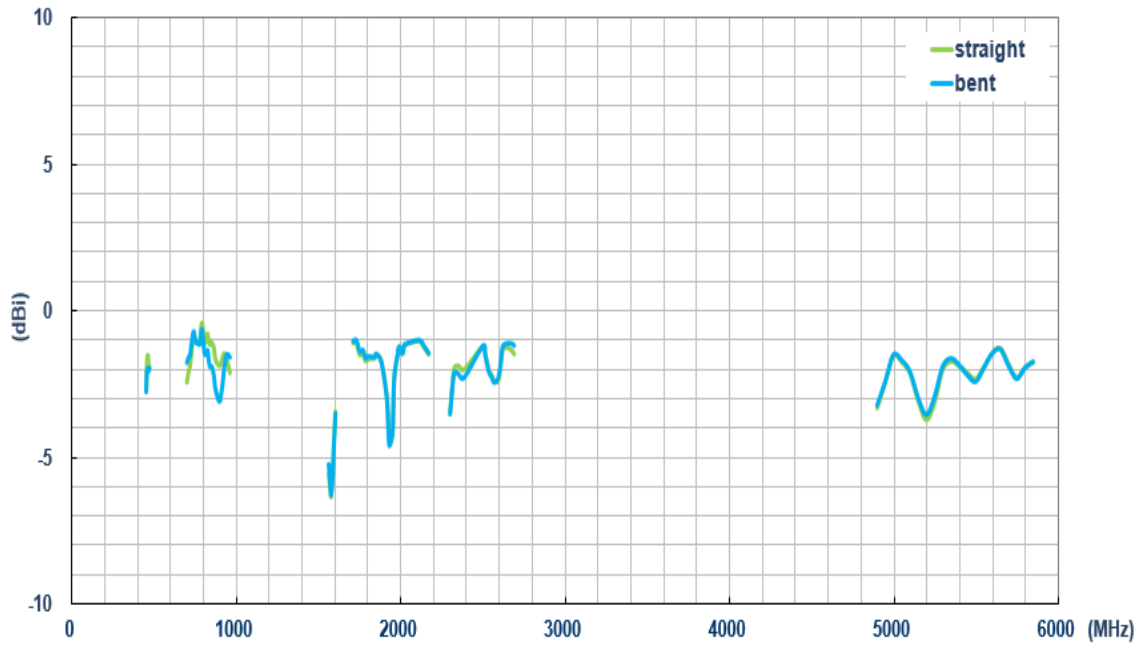
3.2. Efficiency



3.3. Peak Gain

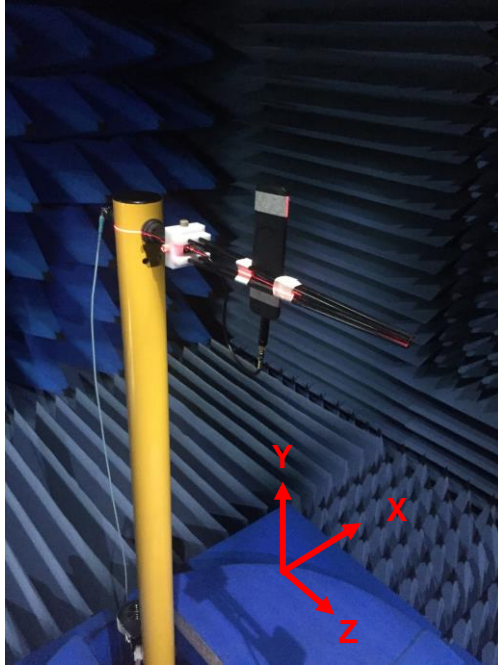


3.4. Average Gain



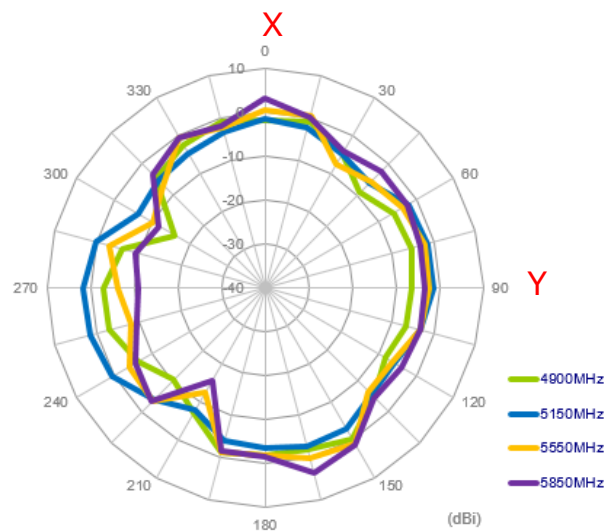
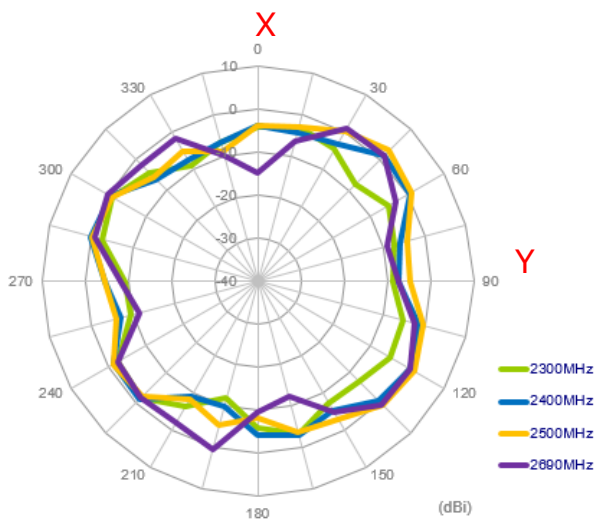
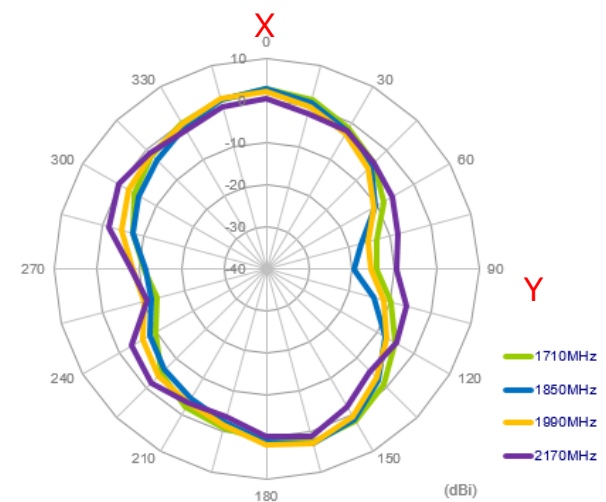
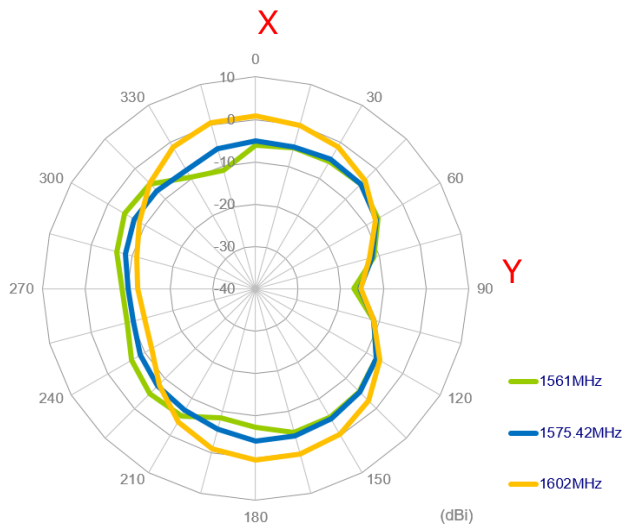
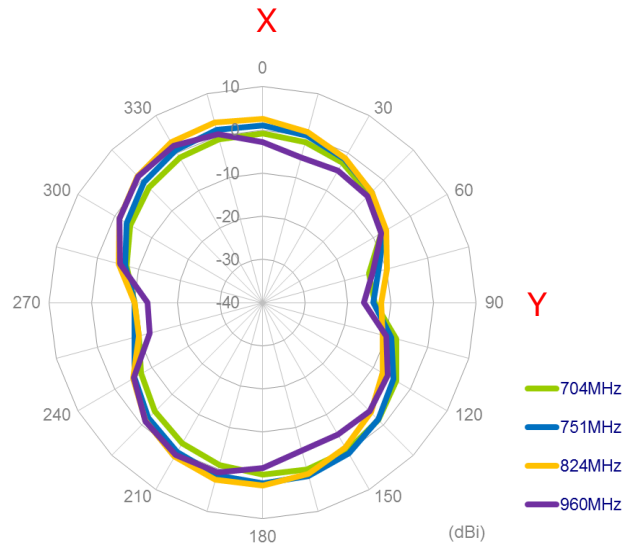
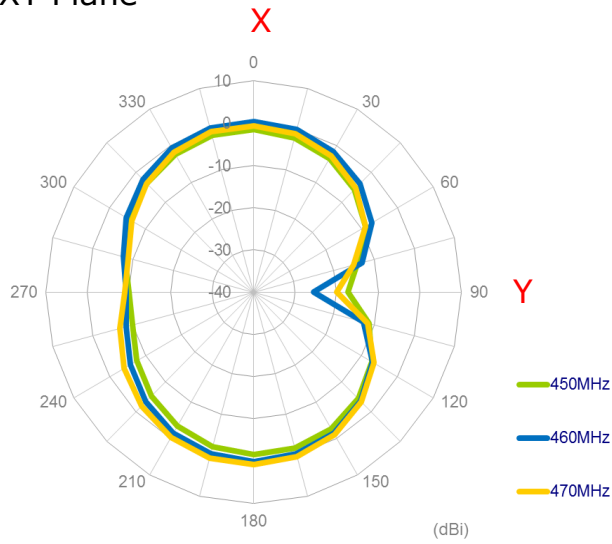
4. Antenna Radiation Patterns

4.1 Antenna Setup (Straight Pose)

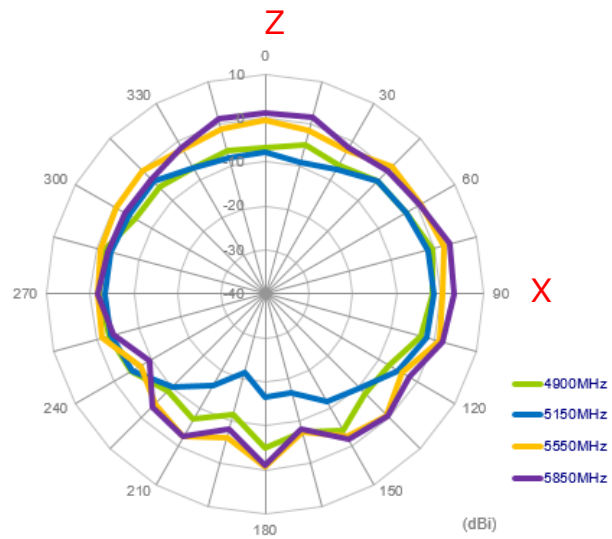
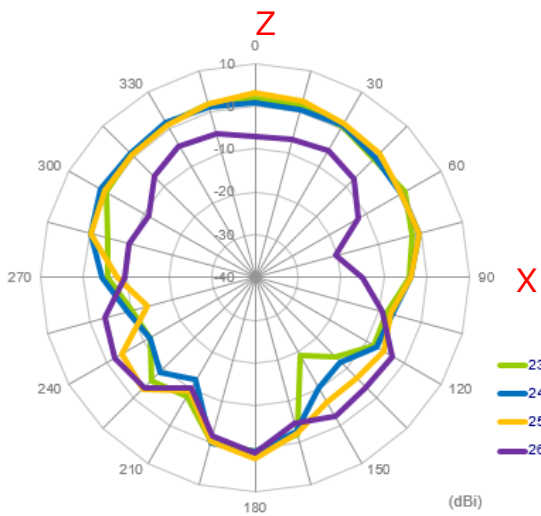
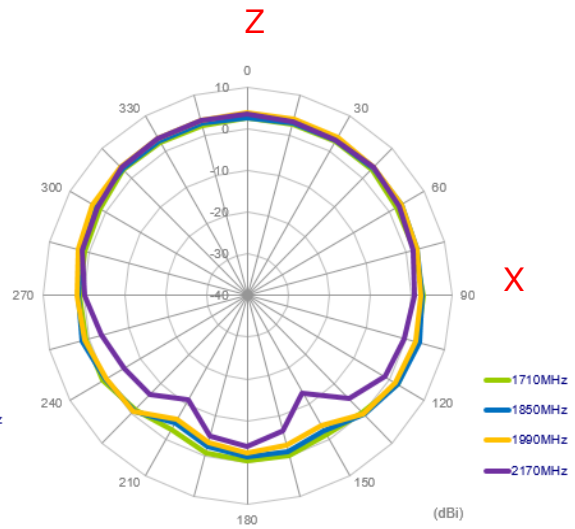
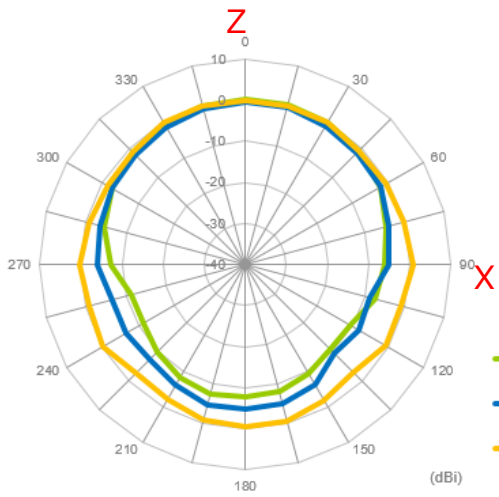
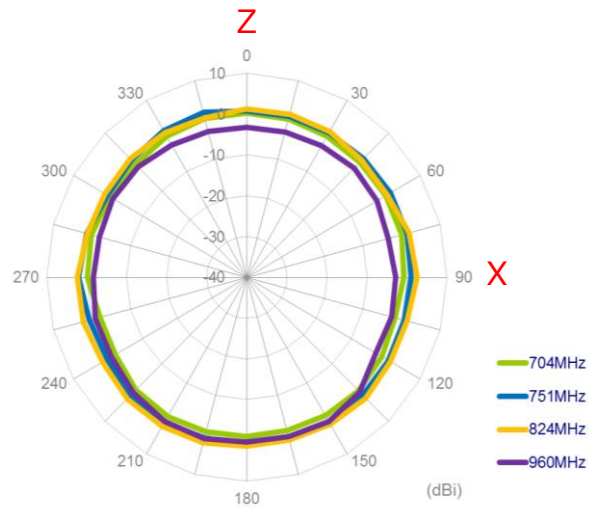
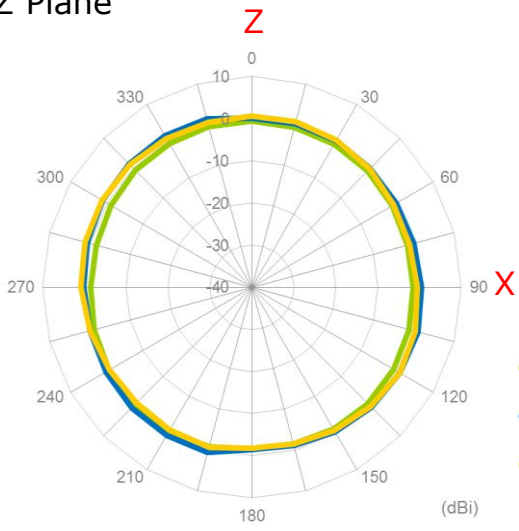


4.2 Radiation Patterns

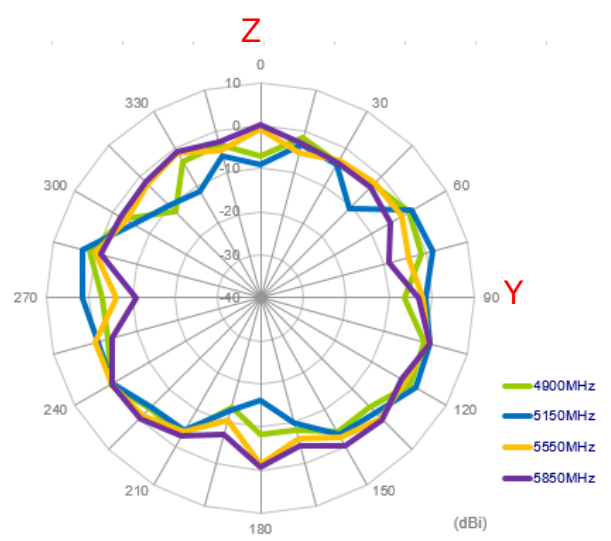
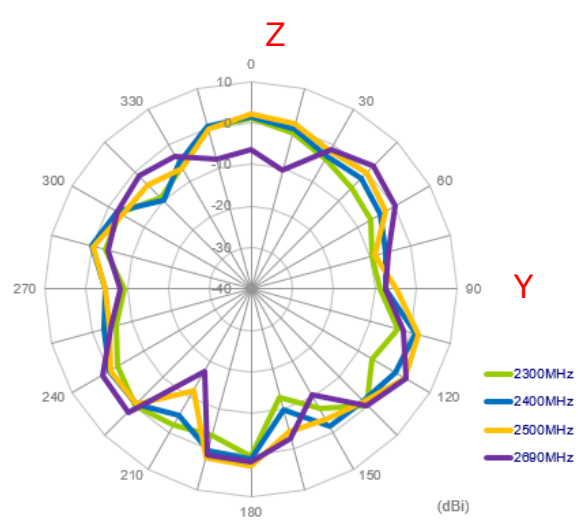
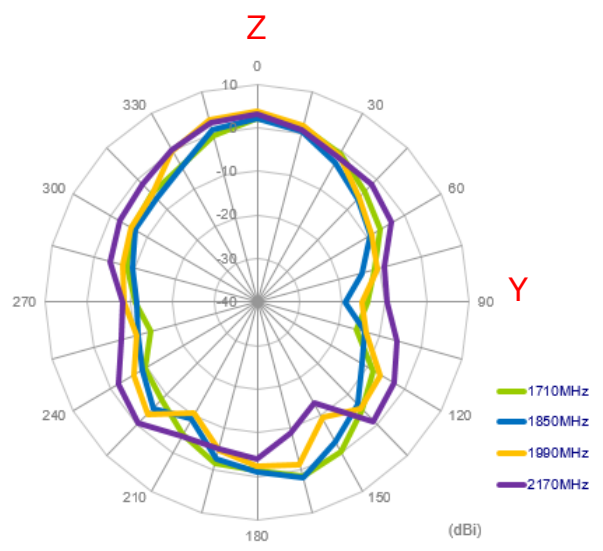
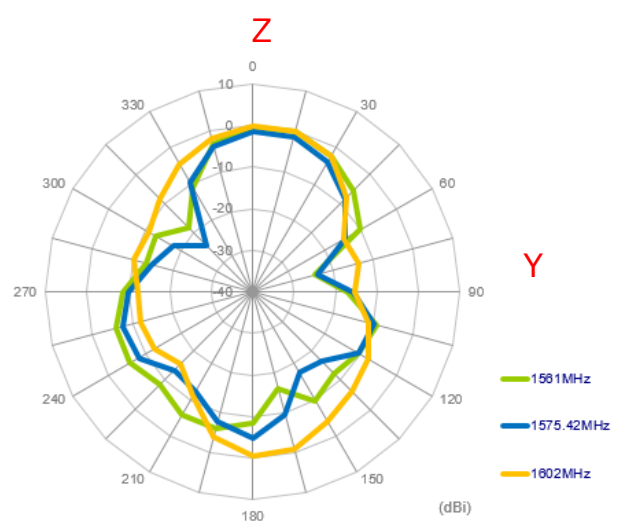
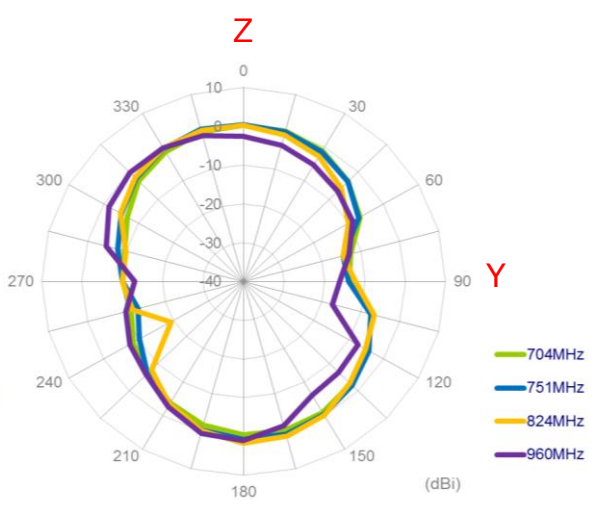
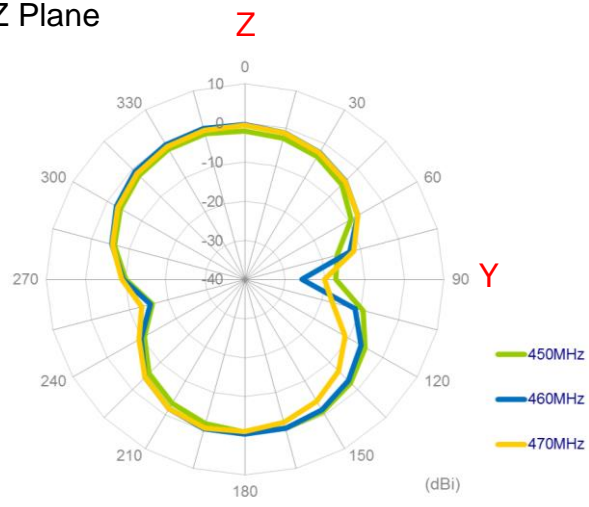
XY Plane



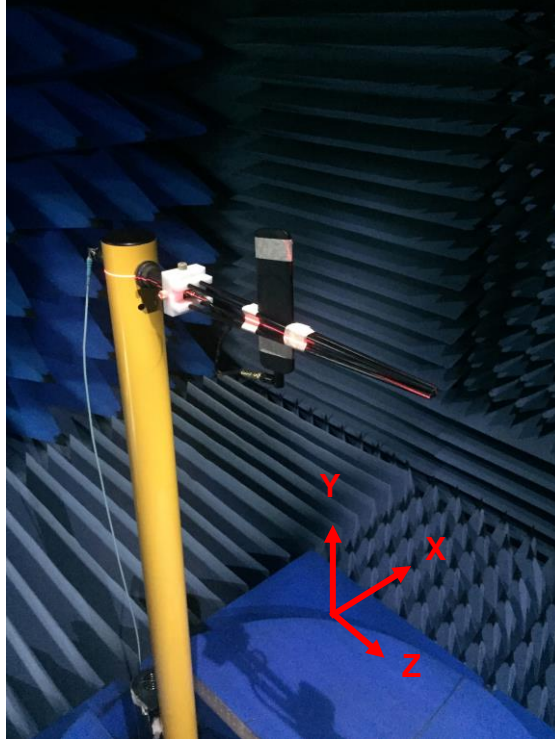
XZ Plane



YZ Plane

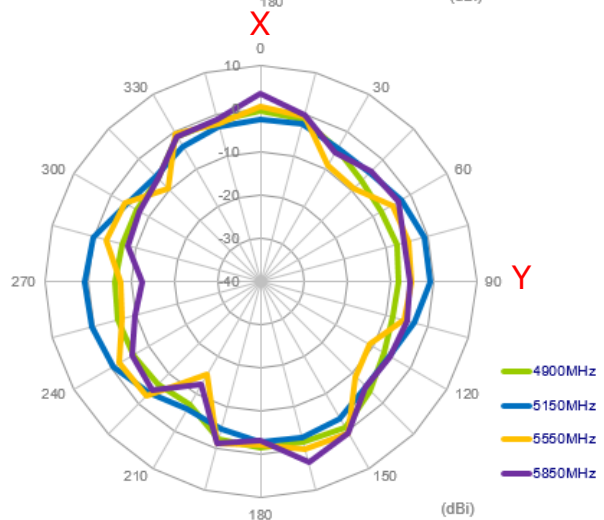
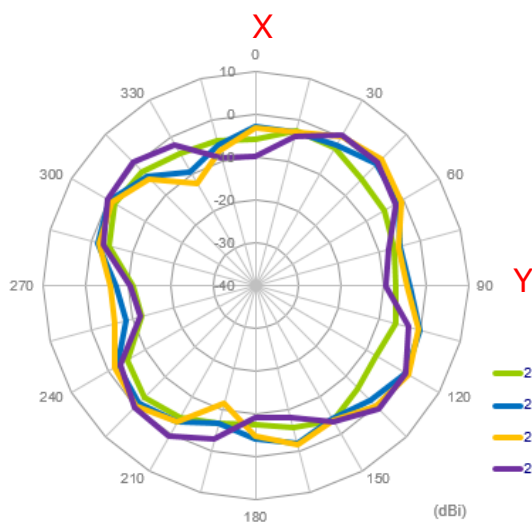
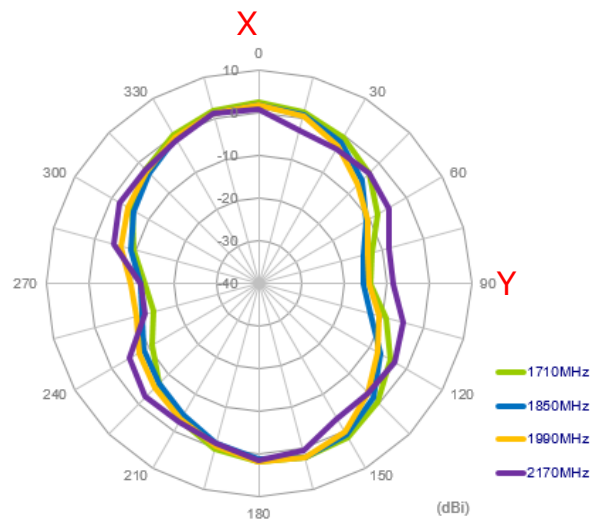
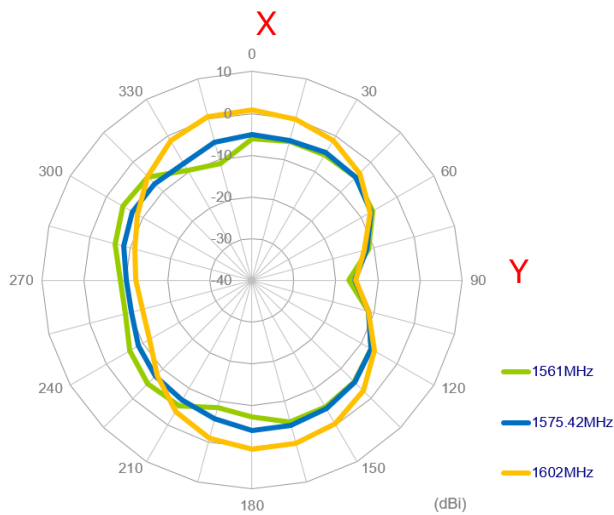
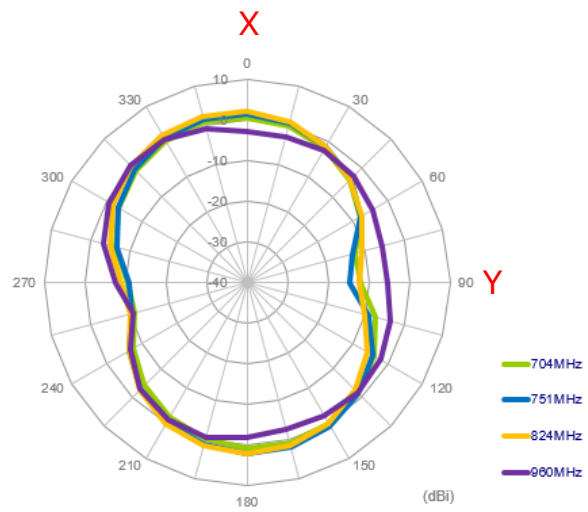
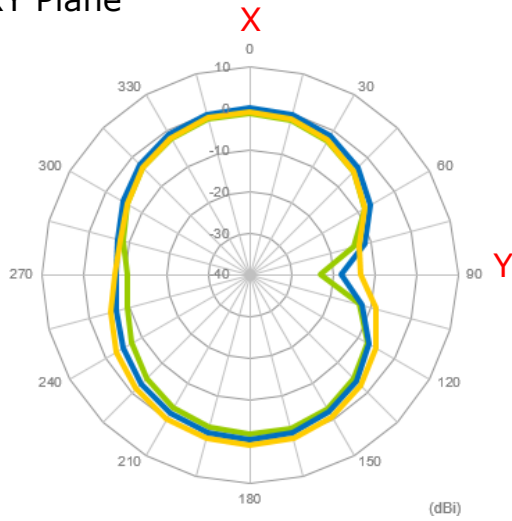


4.3 Antenna Setup (Bent Pose)



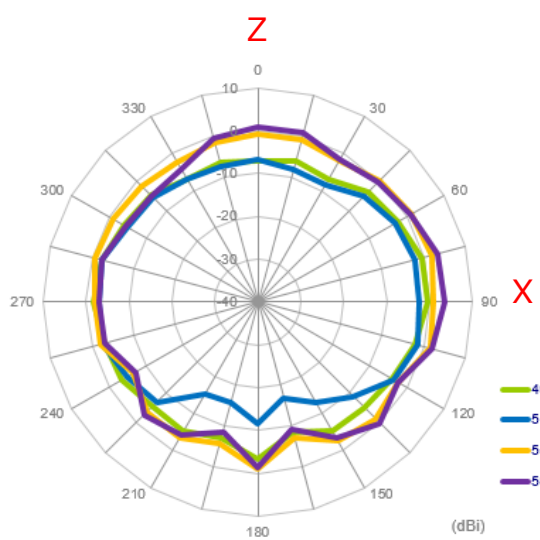
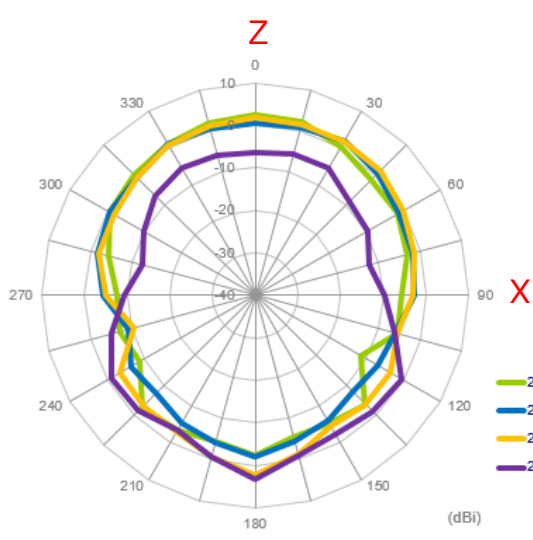
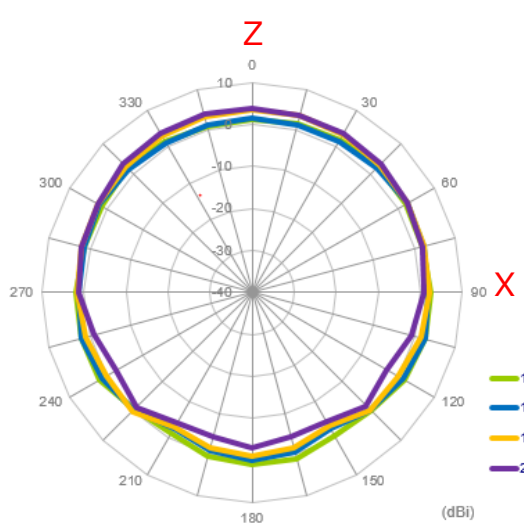
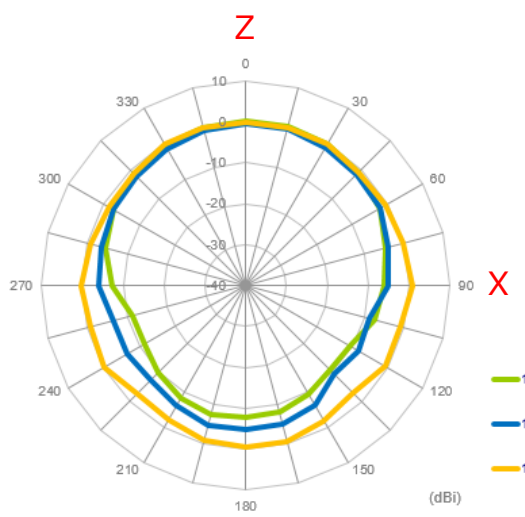
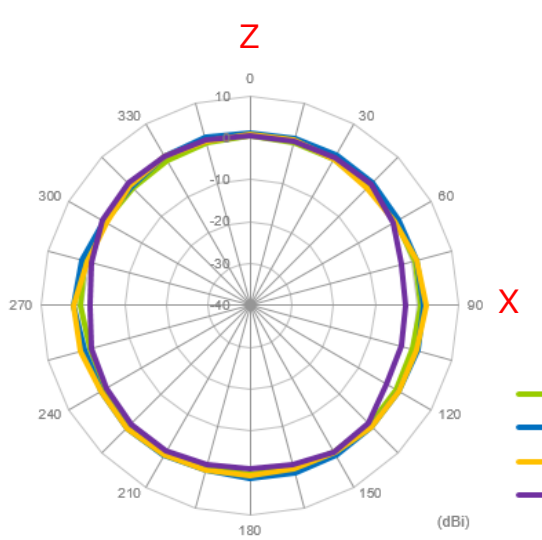
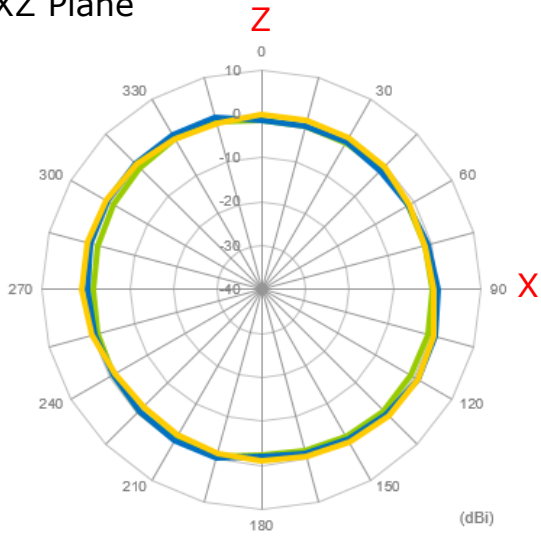
4.4 Radiation Patterns

XY Plane

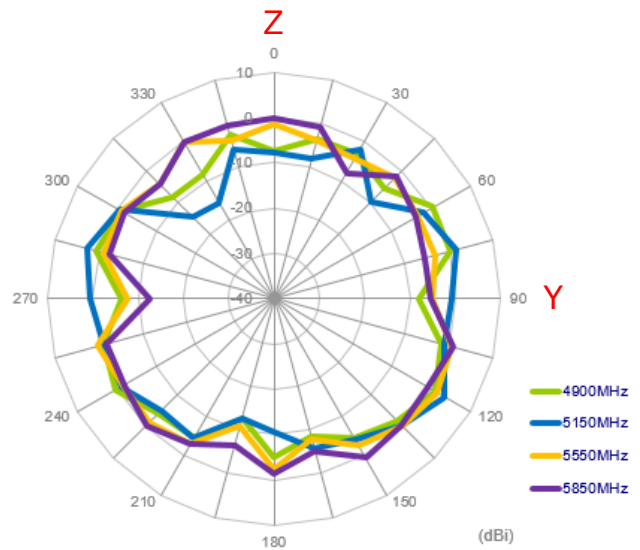
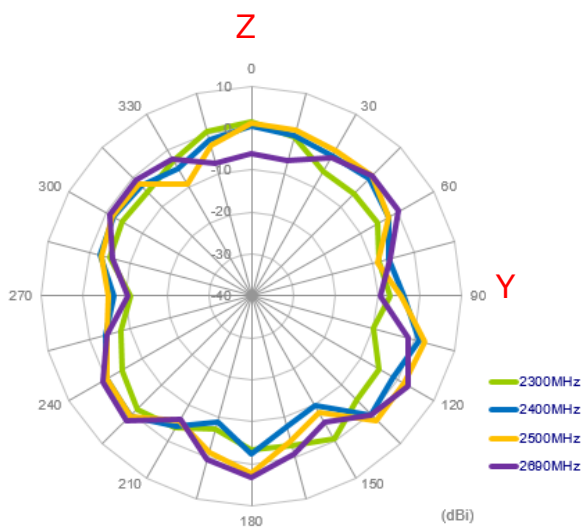
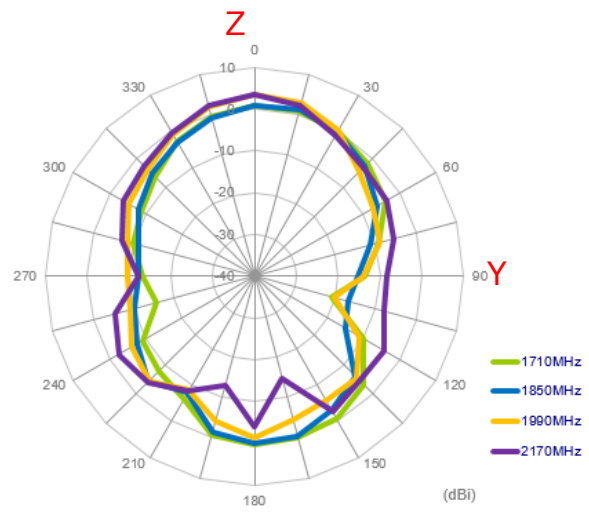
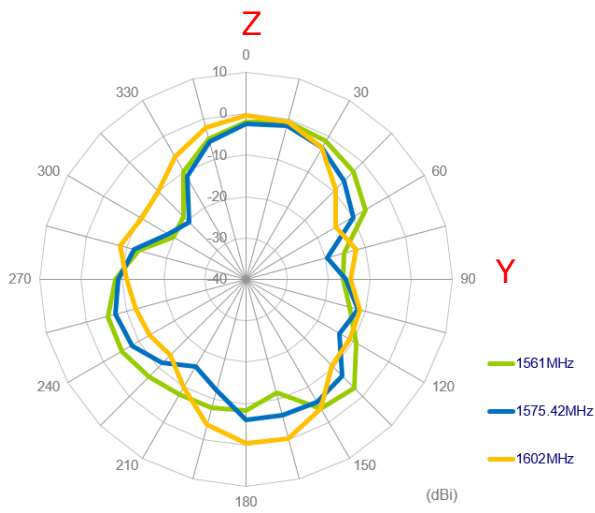
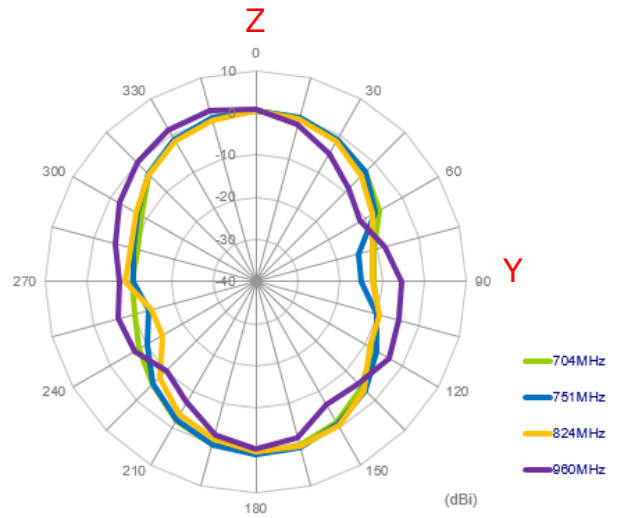
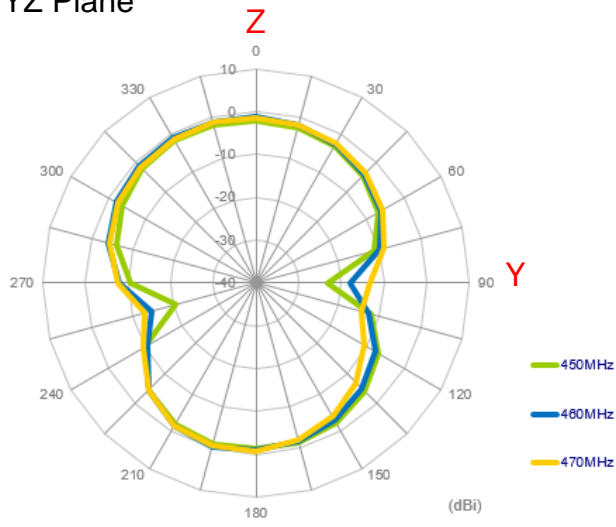




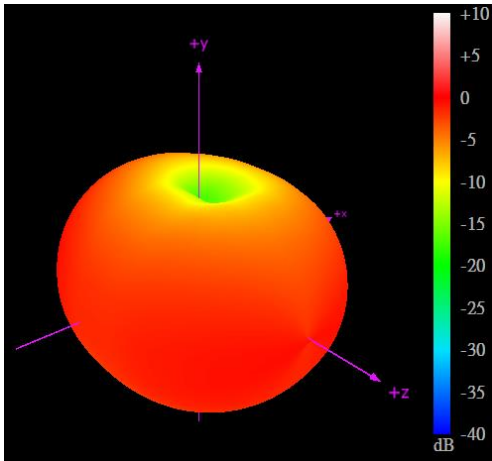
XZ Plane



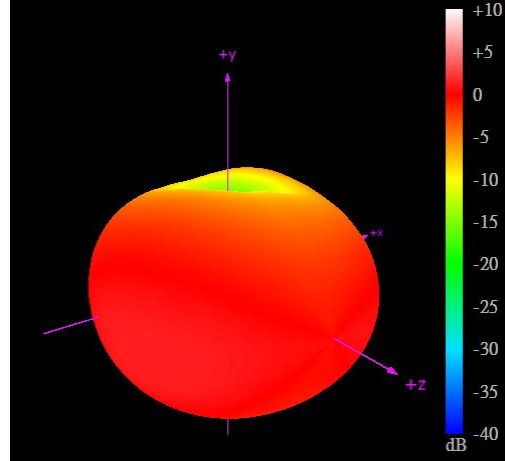
YZ Plane



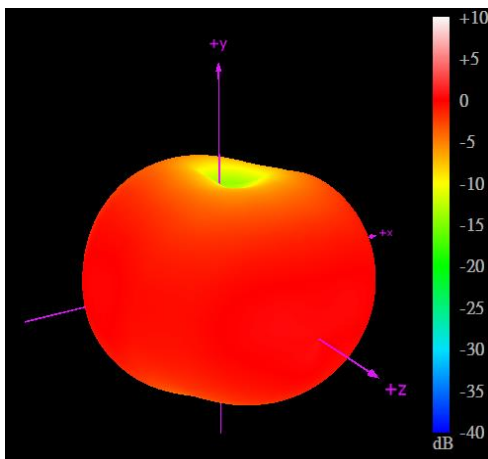
4.5 3D Radiation Patterns (Straight Pose)



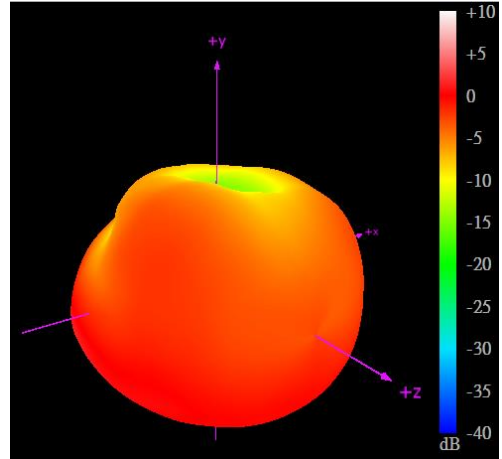
450MHz



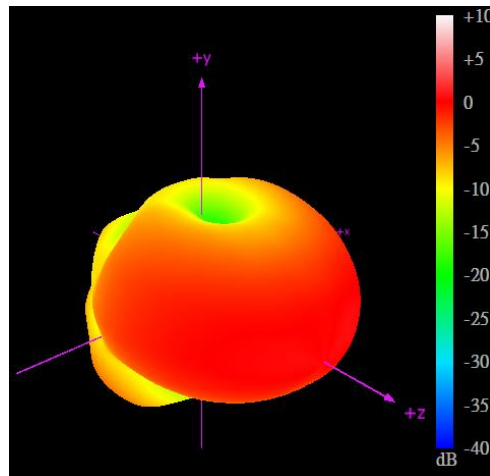
470MHz



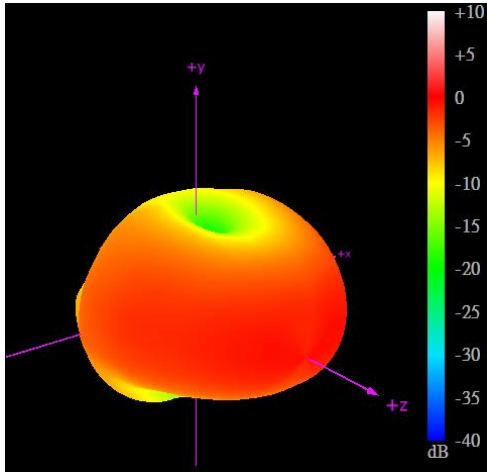
704MHz



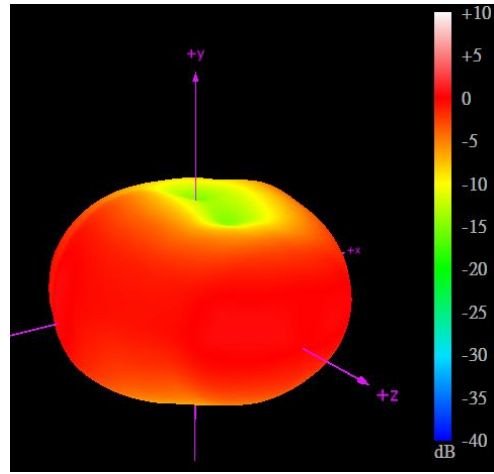
960MHz



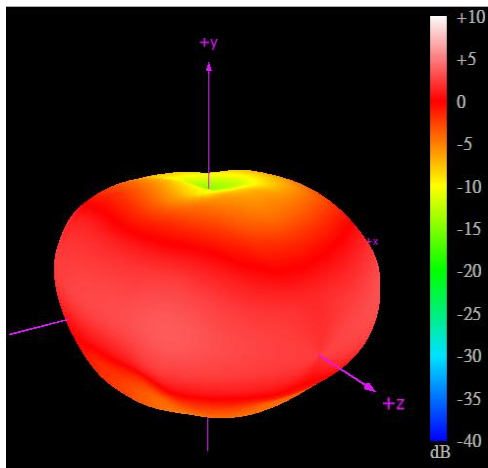
1561MHz



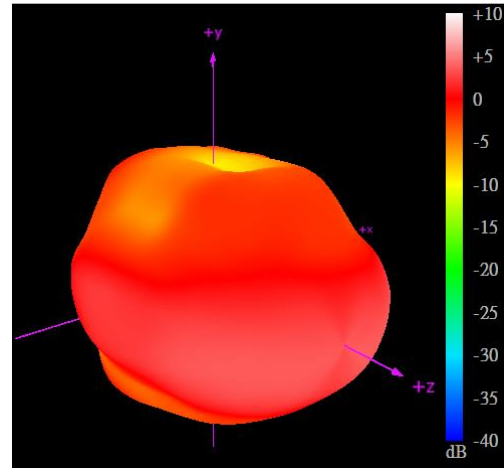
1575.42MHz



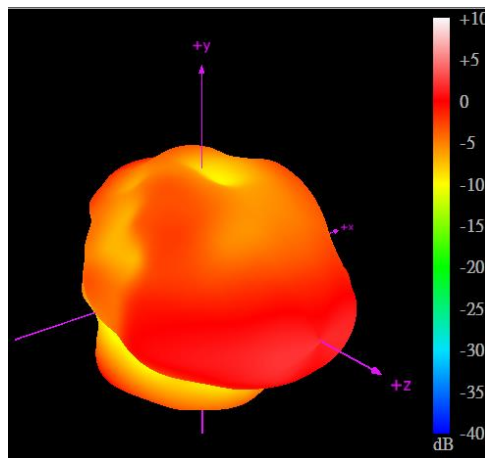
1602MHz



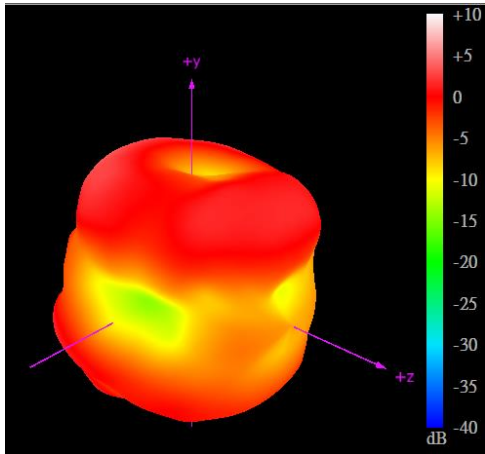
1710MHz



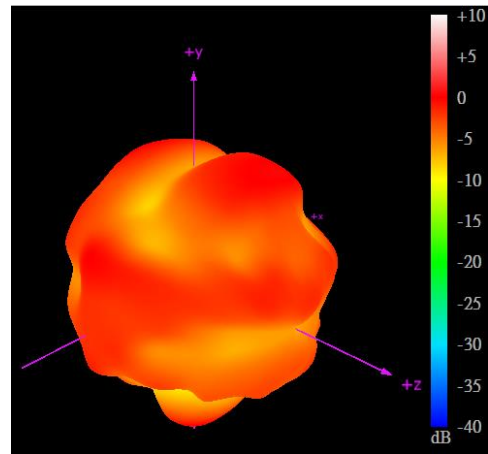
2170MHz



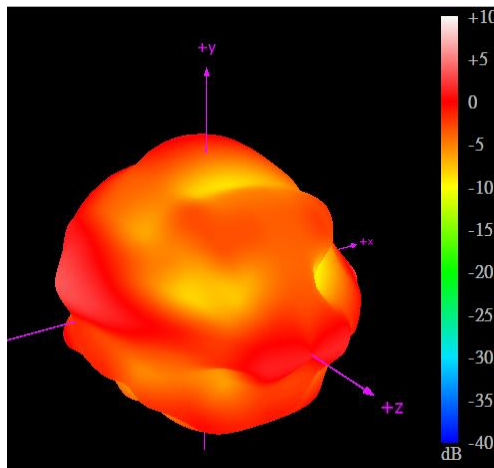
2300MHz



2690MHz

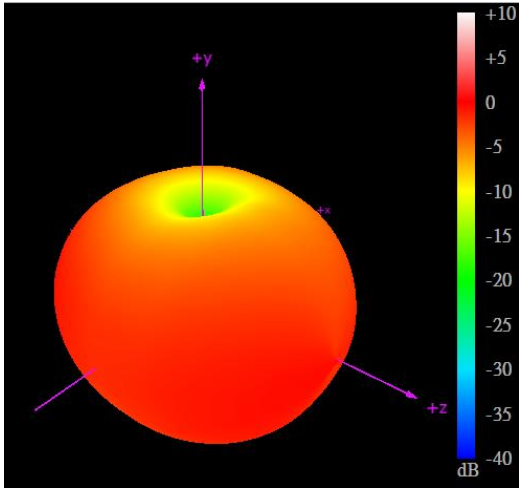


4900MHz

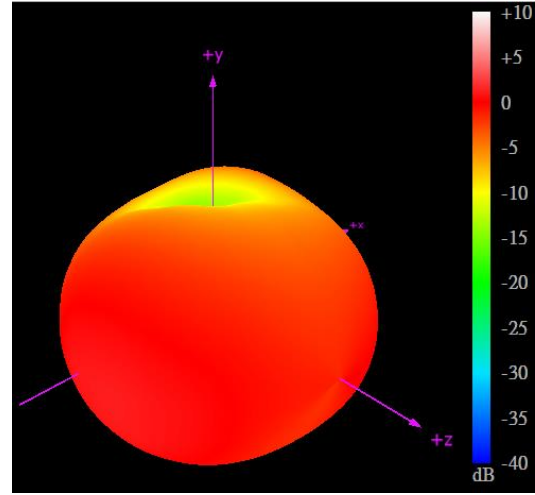


5850MHz

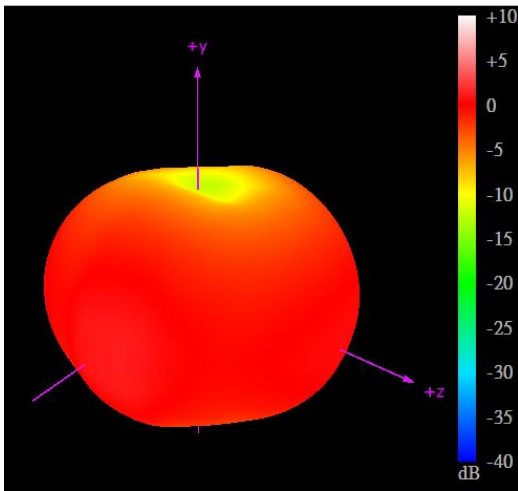
4.6 3D Radiation Patterns (Bent Pose)



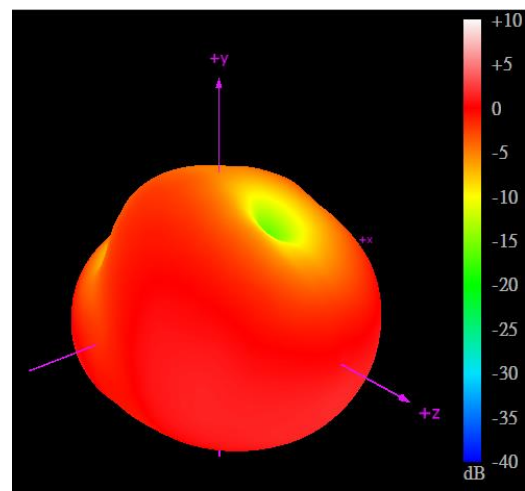
450MHz



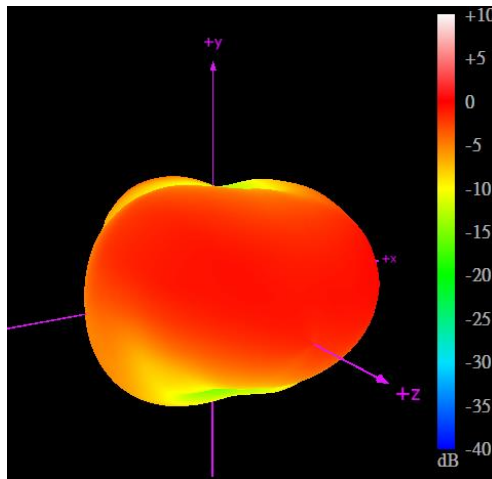
470MHz



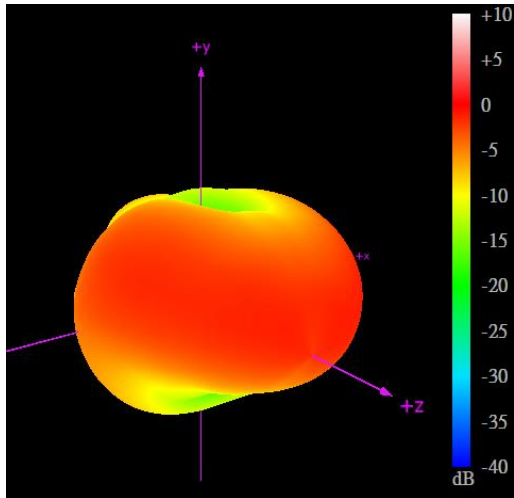
704MHz



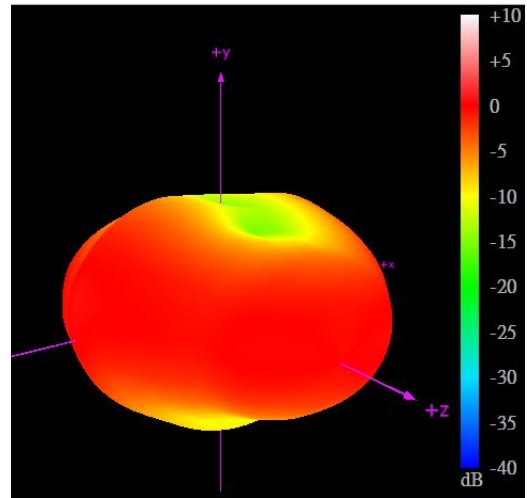
960MHz



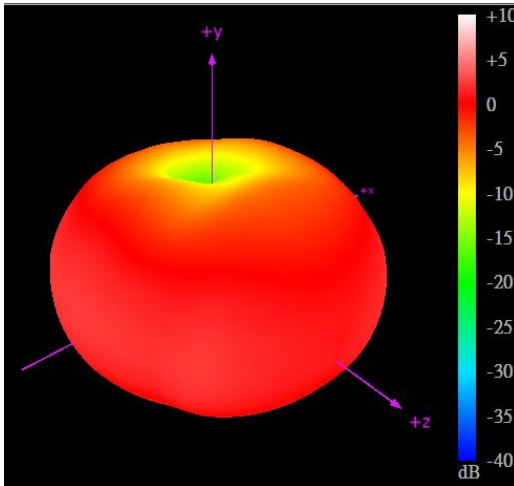
1561MHz



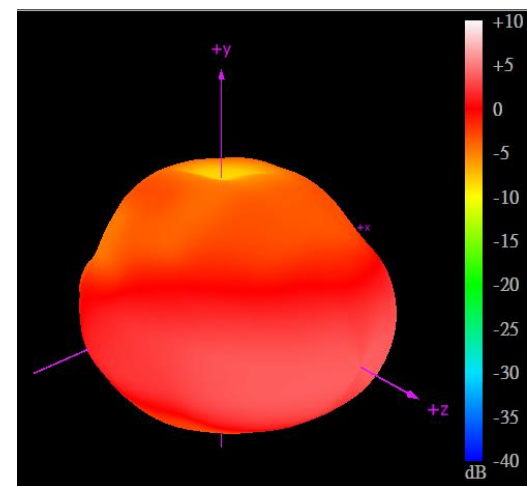
1575.42MHz



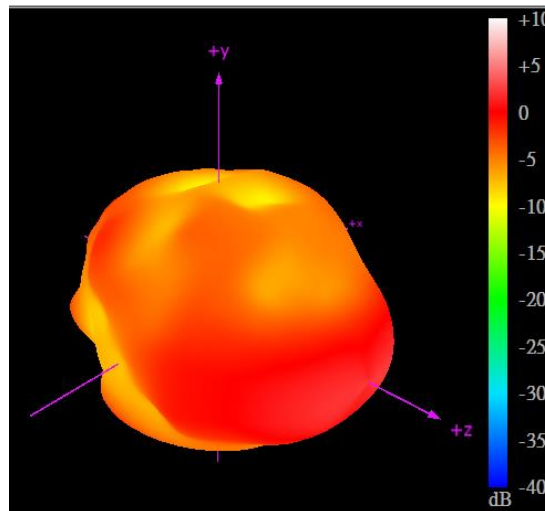
1602MHz



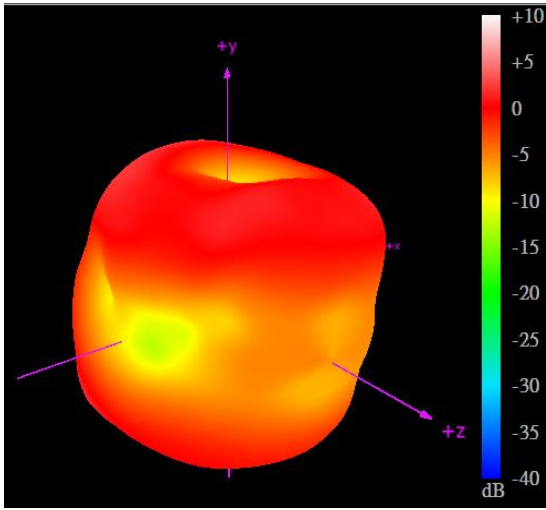
1710MHz



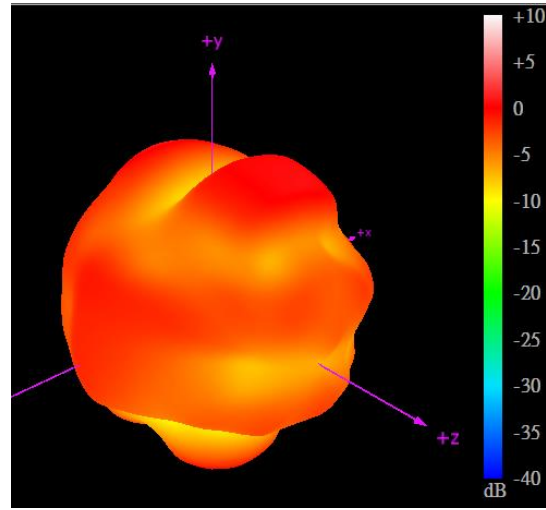
2170MHz



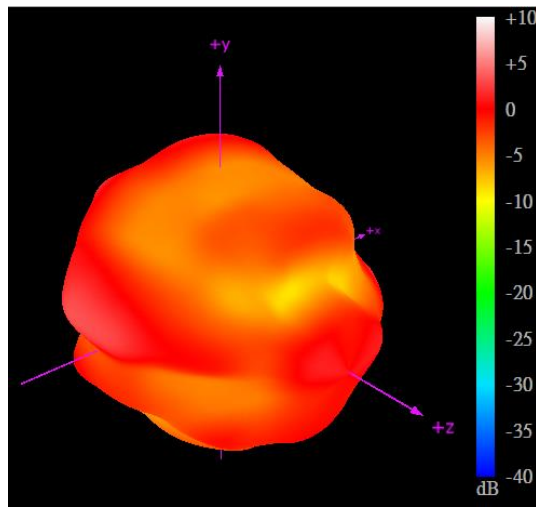
2300MHz



2690MHz

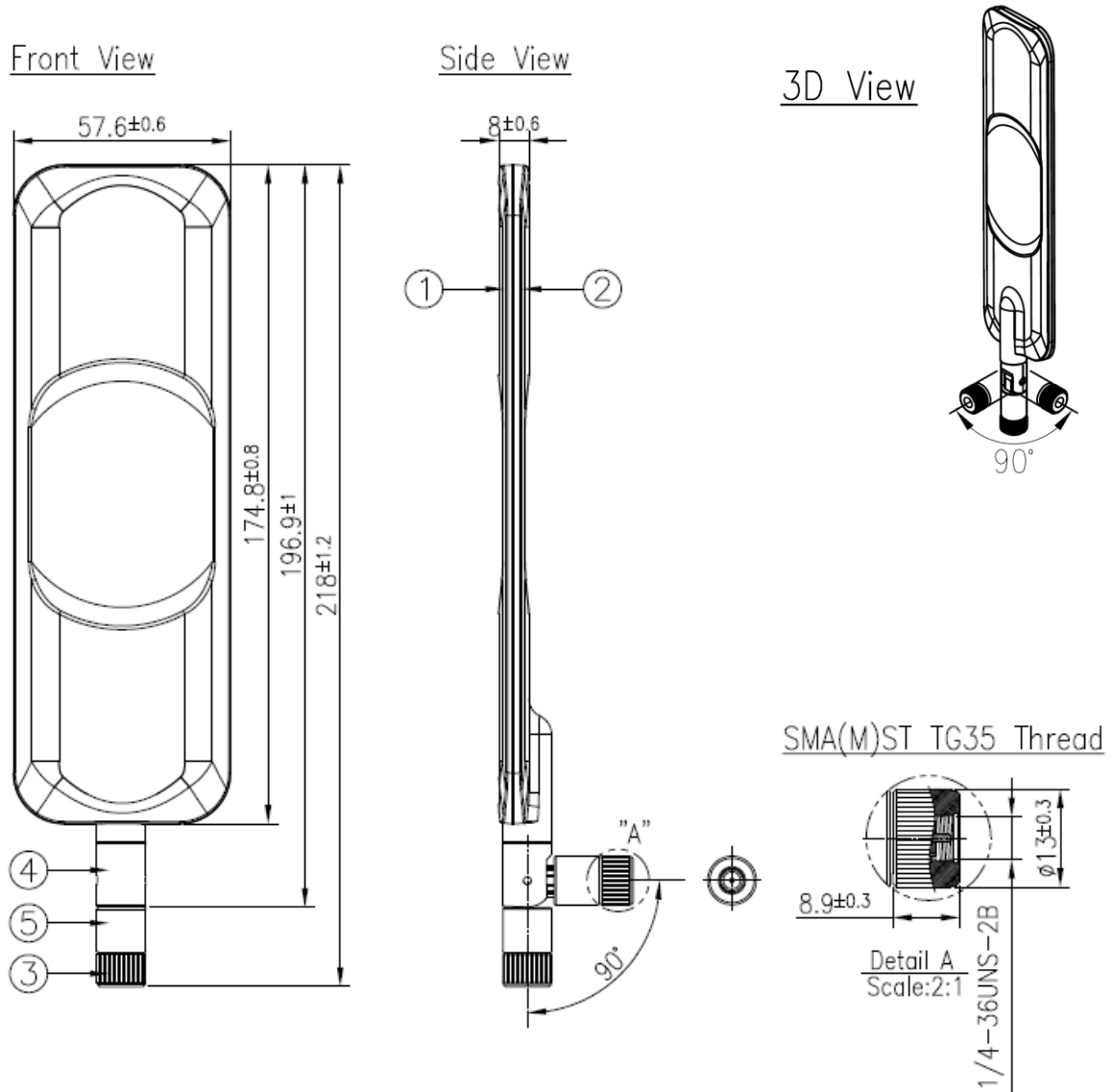


4900MHz



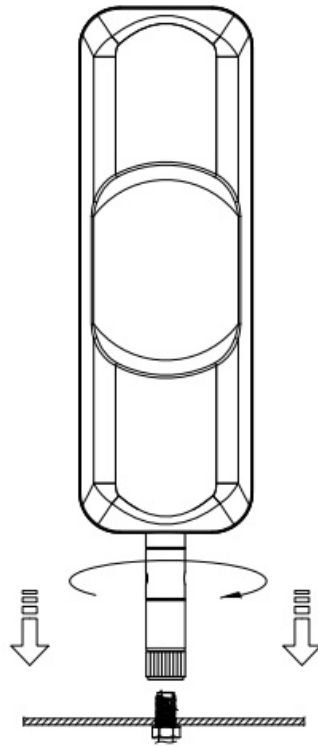
5850MHz

5. Mechanical Drawing (Unit: mm)



	Name	P/N	Material	Finish	QTY
1	Housing Top TG35	000113G010066A	ABS	Black	1
2	Housing Bottom TG35	000113G020066A	ABS	Black	1
3	SMA(M)ST TG35 Thread	210214K000000A	Brass	Black	1
4	Hinge Top TG35 Type2	000114K000000A	POM	Black	1
5	Hinge Bottom TG35 Type2	000314K000000A	Zinc Alloy	Black	1

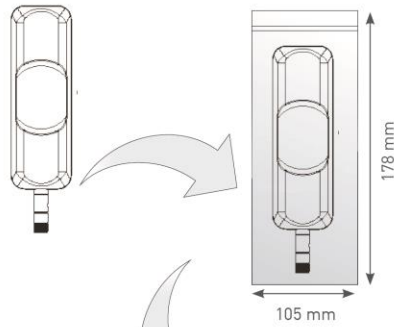
6. Installation



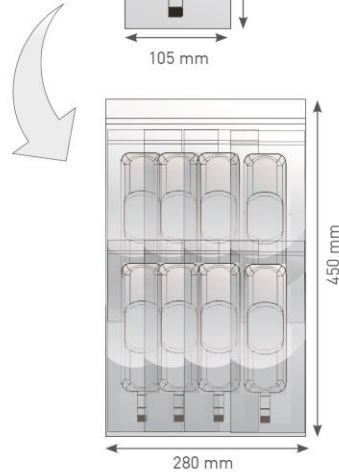
Recommended torque for mounting is 0.9 N·m
Maximum torque for mounting is 1.176 N·m

7. Packaging

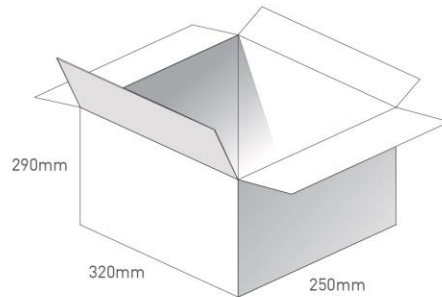
1 pcs TG.45.8113 per PE Bag
 PE Bag Dimensions - 105*178mm
 Weight - 78.82g



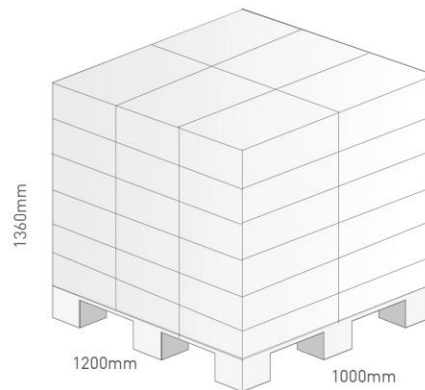
25 PE Bags per Large PE Bag
 25 pcs TG.45.8113 per Large PE Bag
 Large PE Dimensions - 450*280mm
 Weight - 1.98kg



3 Large PE bags per carton
 75 pcs TG.45.8113 per carton
 Carton Dimensions - 320*250*290mm
 Weight - 6.5kg



Pallet Dimensions 1200mm*1000mm*1360mm
 48 Cartons per Pallet
 6 Cartons per layer
 8 Layers





Taoglas makes no warranties based on the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Taoglas reserves all rights to this document and the information contained herein. Reproduction, use or disclosure to third parties without express permission is strictly prohibited.

Copyright © Taoglas Ltd.