TAOGLAS

Datasheet

FXP40 Flexible PCB Antenna

Part No:
FXP40.07.0085A

Description:

4G LTE CAT-M NB-IoT Flexible PCB Antnna

Features:

700-960/1710-2200MHz Bands

1.9 dBi Peak Gain

Easy peel and stick adhesive

Dimension: 42.6*12.1*0.15mm

Connector: IPEX MHFI (U.FL Compatible)

Cable: 85mm 1.13mm cable

REACH & RoHS Compliant

1. Introduction

The Taoglas FXP40 is a super small monopole ultra low profile antenna for cellular and NB-IoT bands between 700 and 2200 MHz. The FXP40 has a peak gain of 1.3dBi and efficiencies of 56% are achievable if integrated correctly.

It is manufactured from a poly-flexible material, has a tiny form factor of just 42.6 x 12.1 x 0.15mm and is supplied with a double-sided 3M tape for easy “peel and stick” mounting. It is designed to be mounted directly onto a plastic and is an ideal choice for any device maker that needs to keep manufacturing costs at a minimum over the lifetime of a product.

Typical Applications include:

- Wearables
- Remote Monitoring
- Handheld devices

The cables length can be customizable for customers. Contact your regional customer support team for further information.

2. Specifications

Electrical									
Band	**Frequency (MHz)**		**Efficiency (%)**	**Average Gain**	**Peak Gain (dBi)**	**Impedance**	**Max Input**	**Polarization**	**Radiation Properties**
4G/3G Band 12,13,14,17,28,29	698~806	Freespace	12	-9.4	-2.7	50 Ω	5W	Linear	Omni-Directional
		2mm ABS	17	-9.2	-3.1				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824~960	Freespace	16	-8.1	-0.5				
		2mm ABS	25	-6.4	1.3				
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710~2200	Freespace	56	-2.5	5.3				
		2mm ABS	34	-5.3	3.8				
4G/3G Band 7,30,38,40,41	2300~2690	Freespace	18	-7.9	0.7				
		2mm ABS	11	-10.8	1.6				

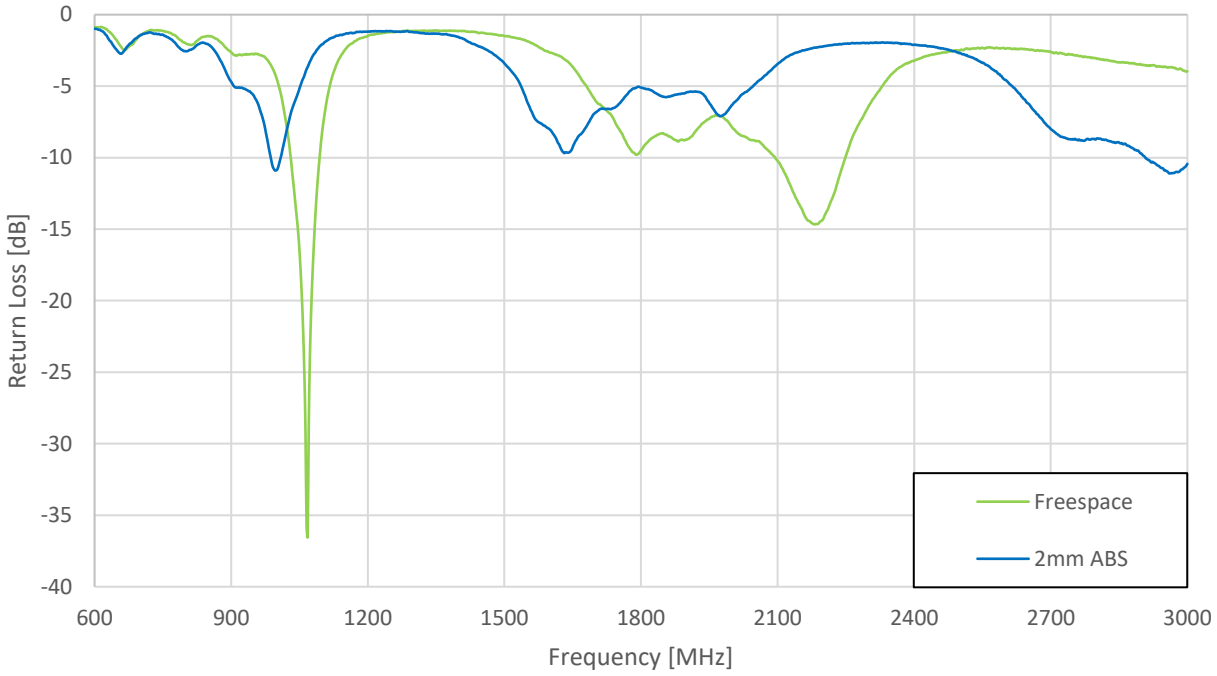
Mechanical	
Dimensions (mm)	46.2*12.1*0.15 mm
Material	Flexible Polymer
Connector and Cable	IPEX MHFI (U.FL Compatible) and 1.13 mm mini coax
Weight	1g

Environmental	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 85°C
Relative Humidity	40% to 95%
RoHs Compliant	Yes

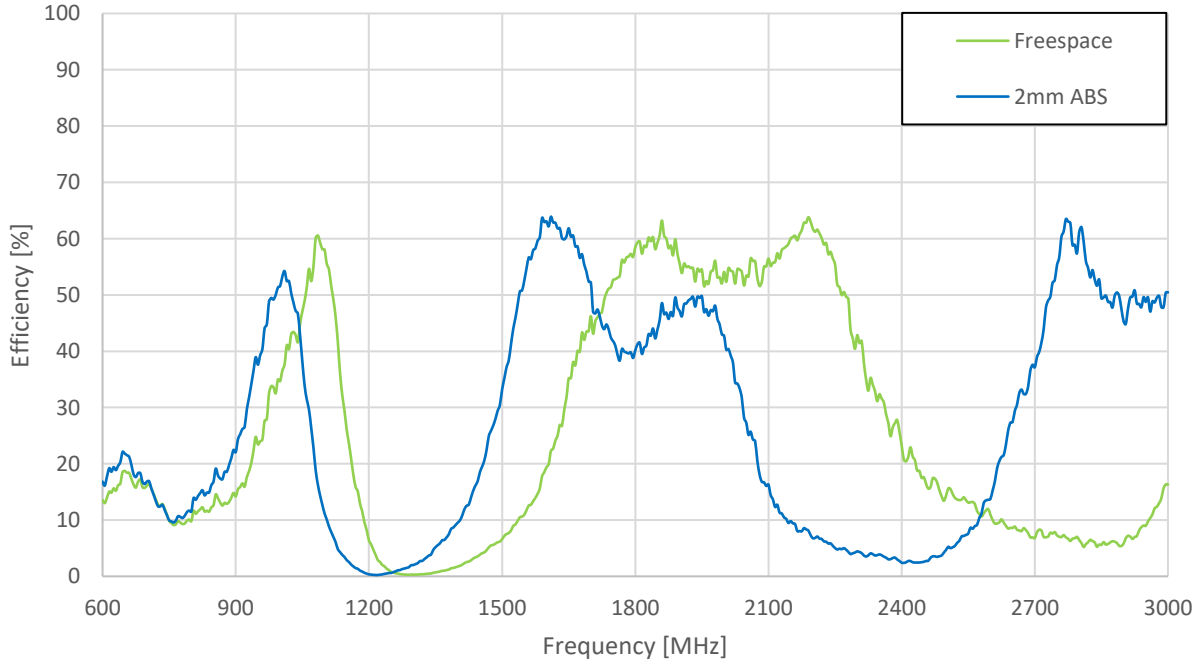
*All results were measured with 85mm length 1.13mm coaxial cable and on 2mm thickness ABS base.

3. Antenna Characteristics

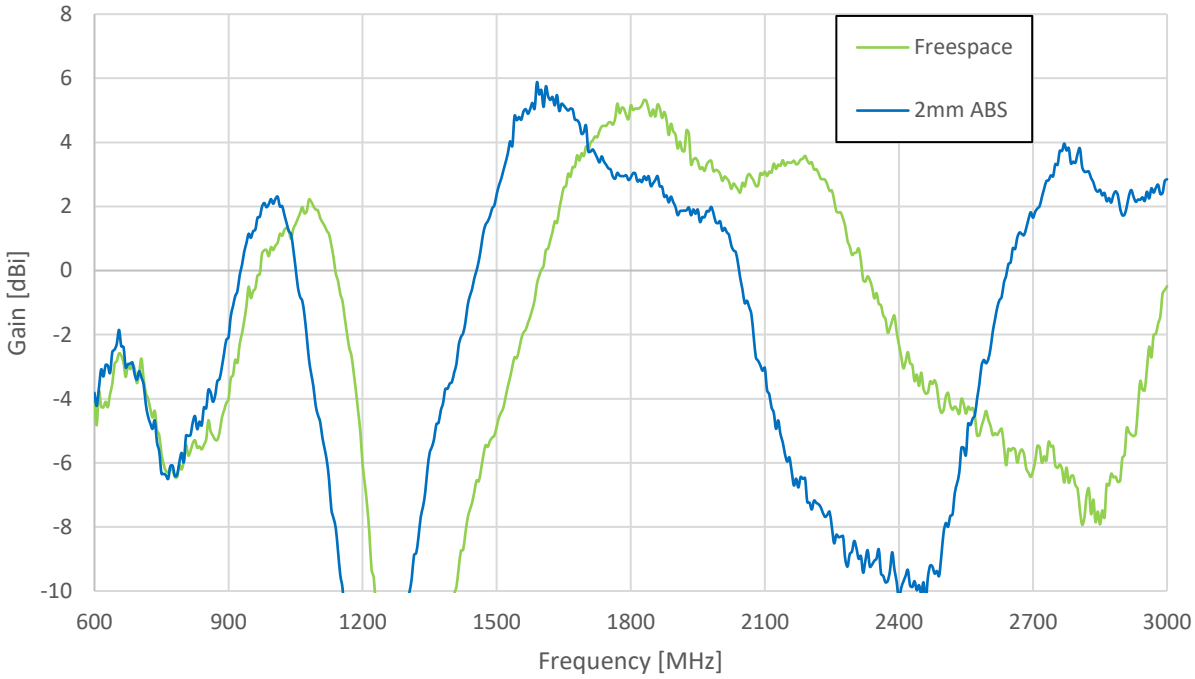
3.1 Return Loss



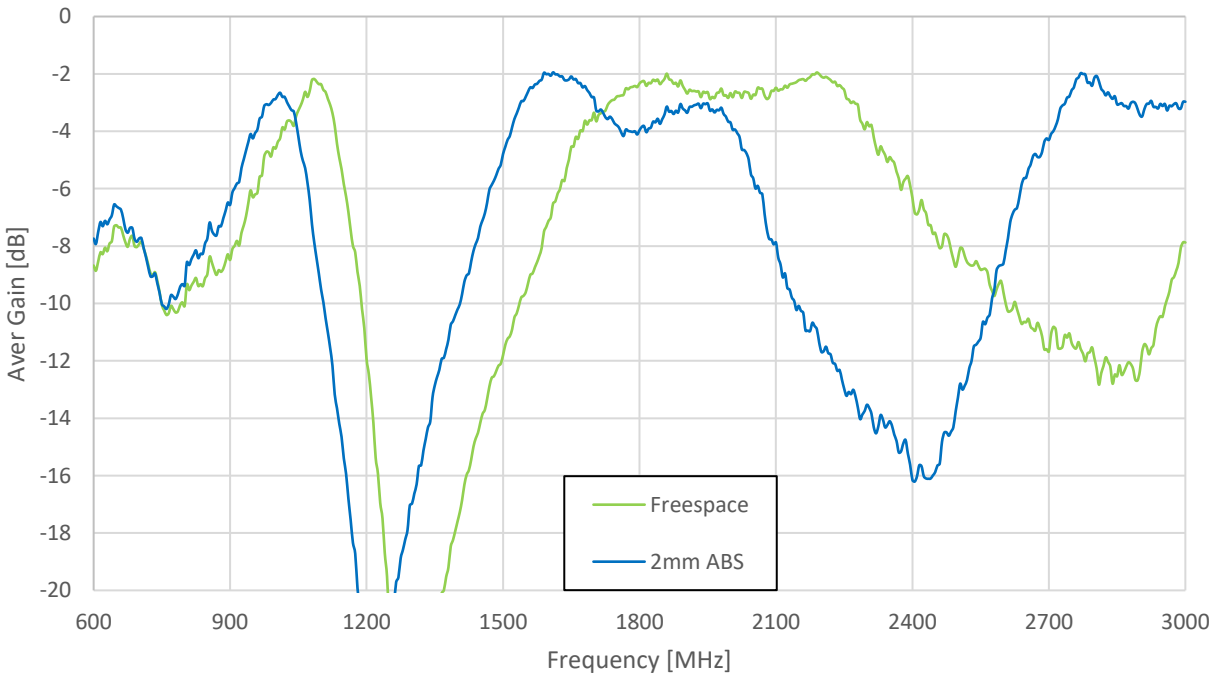
3.2 Efficiency



3.3 Peak Gain

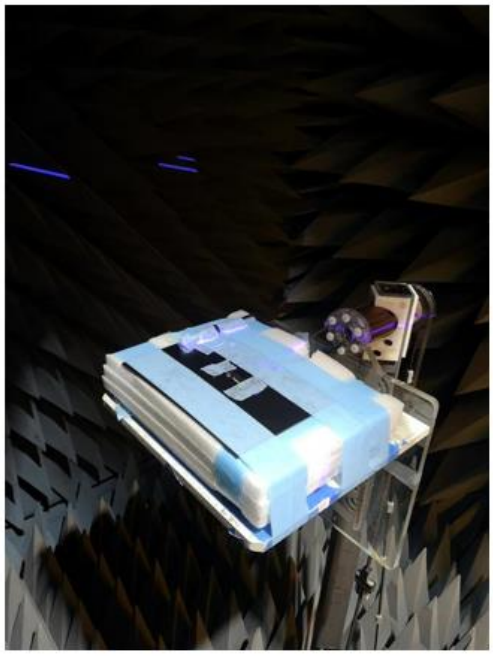


3.4 Average Gain

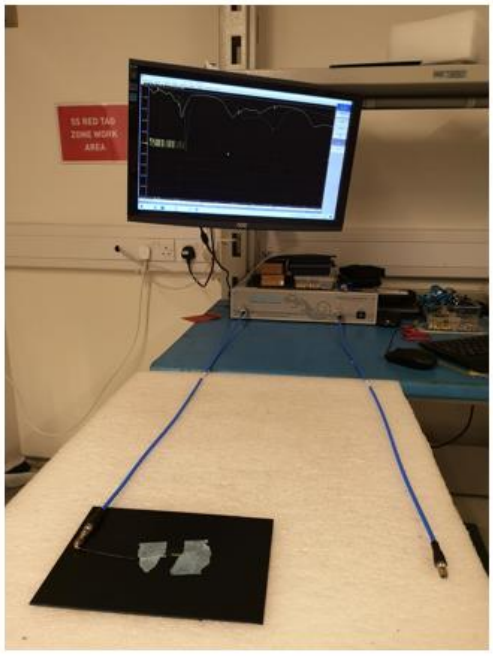


4. Radiation Patterns

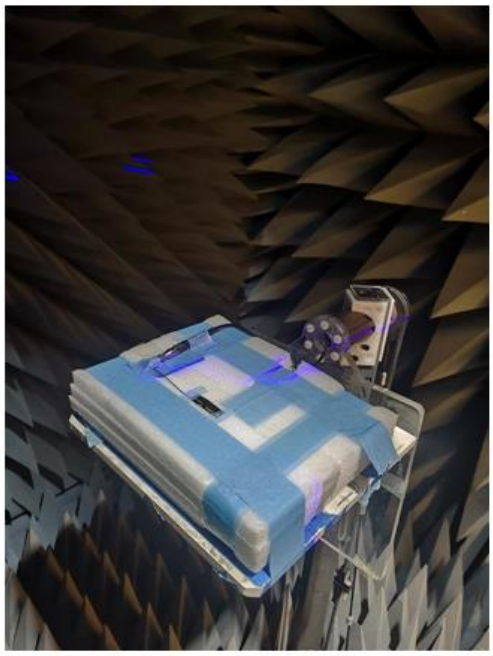
4.1 Test Setup



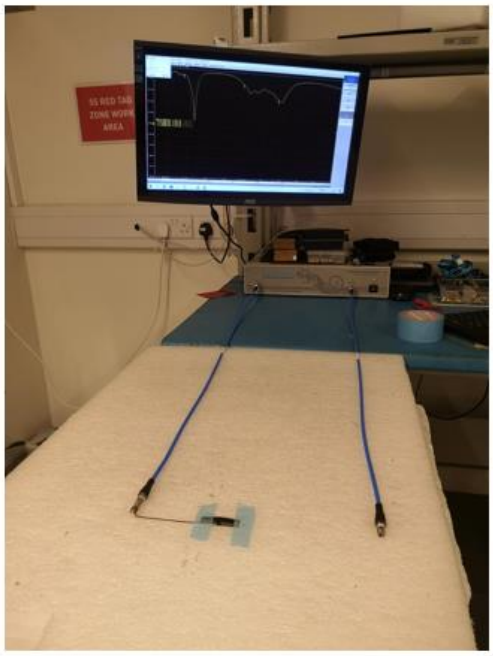
Chamber Setup on 2mm ABS



VNA Setup on 2mm ABS

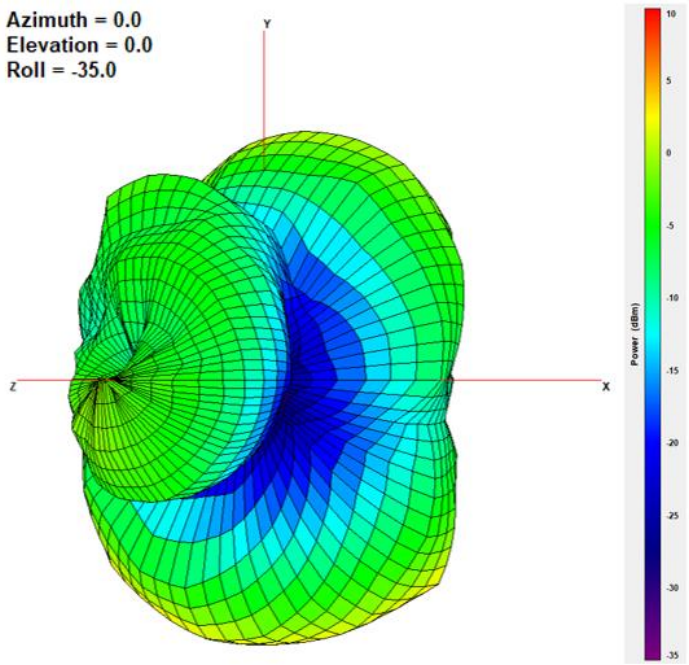


Chamber Setup In Freespace

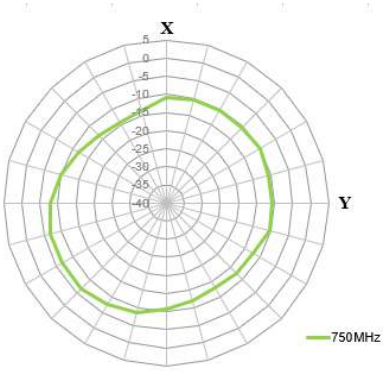


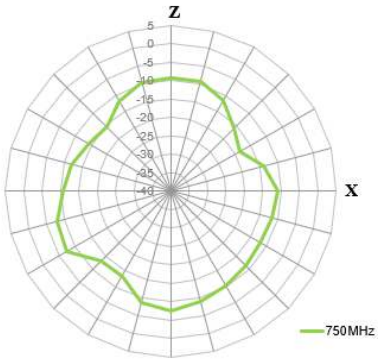
VNA Setup In Freespace

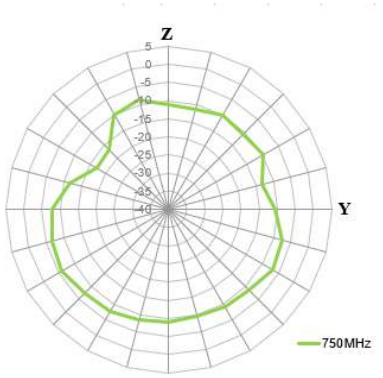
4.2 750MHz Freespace - 3D and 2D Radiation Patterns



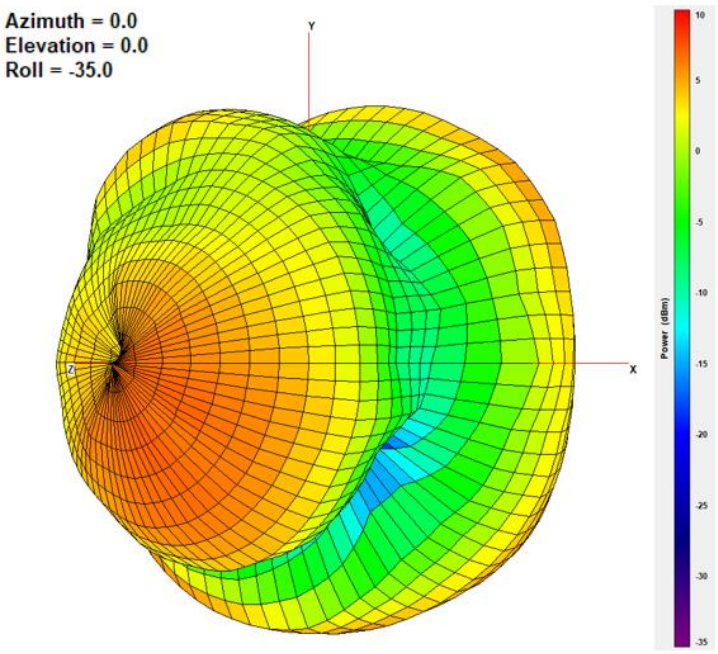
XY Plane	XZ Plane	YZ Plane



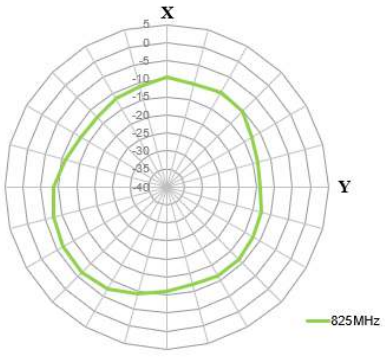


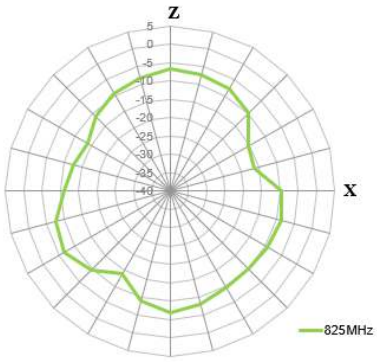


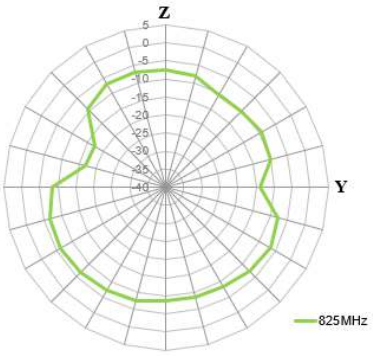
825MHz



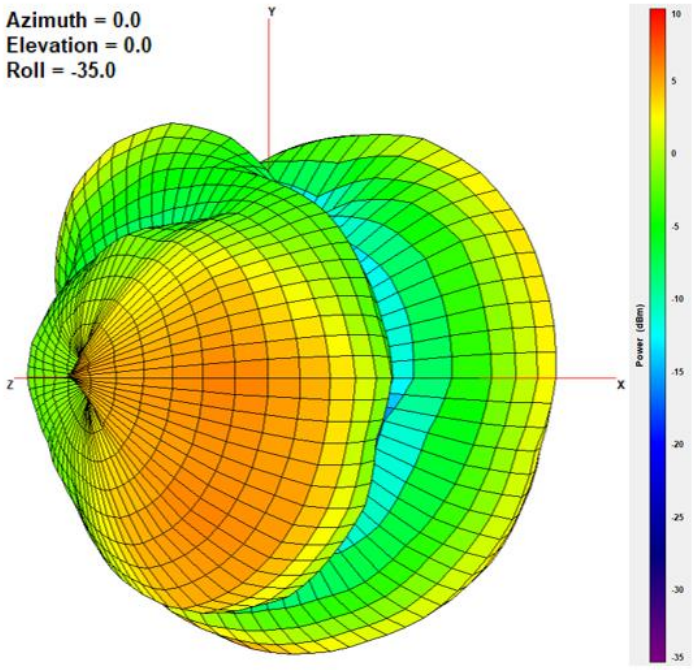
XY Plane	XZ Plane	YZ Plane



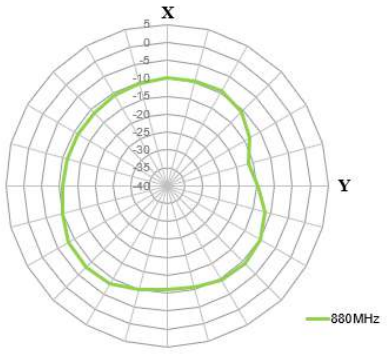


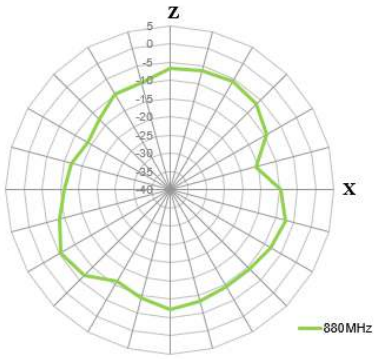


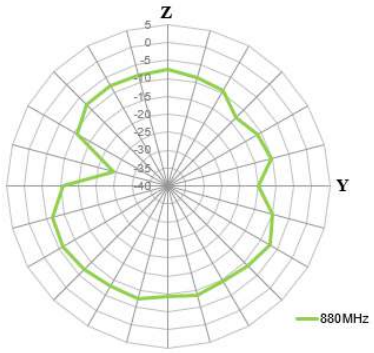
880MHz



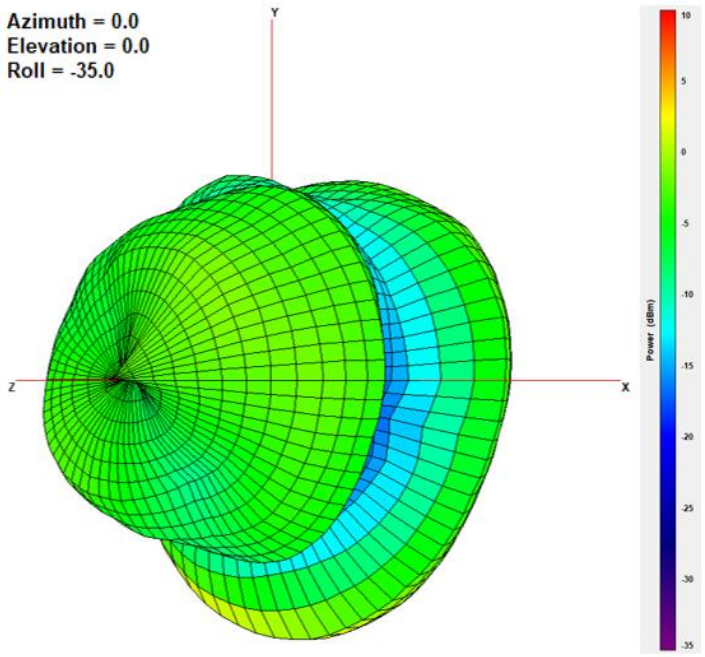
XY Plane	XZ Plane	YZ Plane



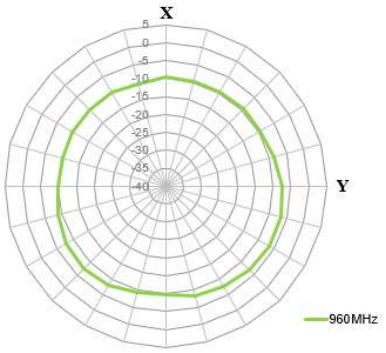


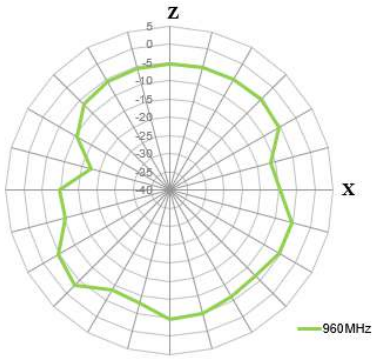


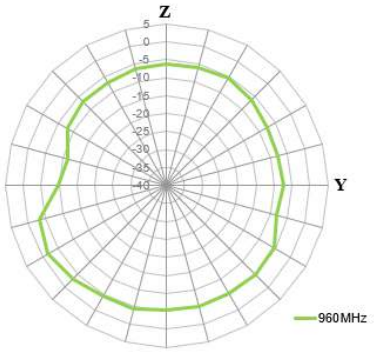
960MHz



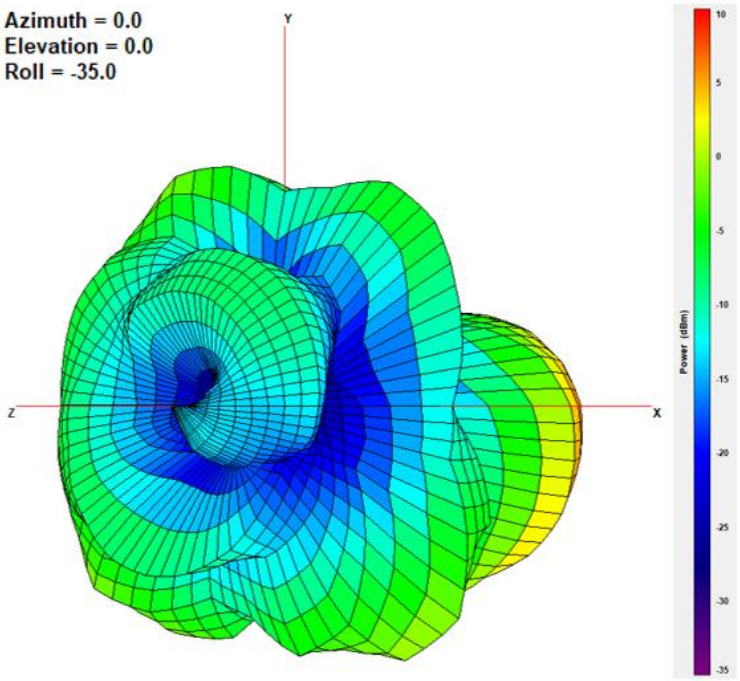
XY Plane	XZ Plane	YZ Plane



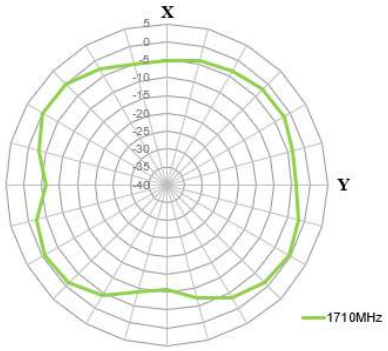


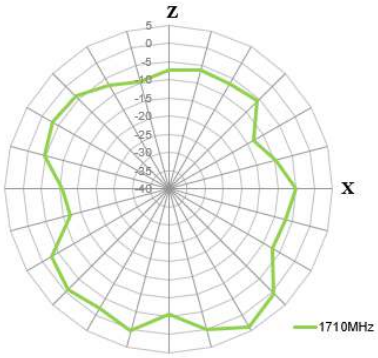


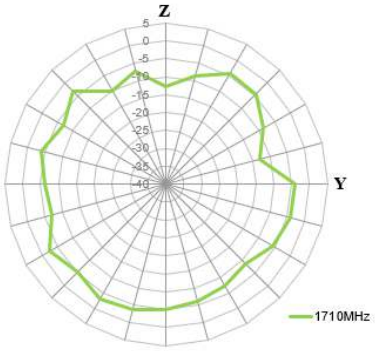
1710MHz



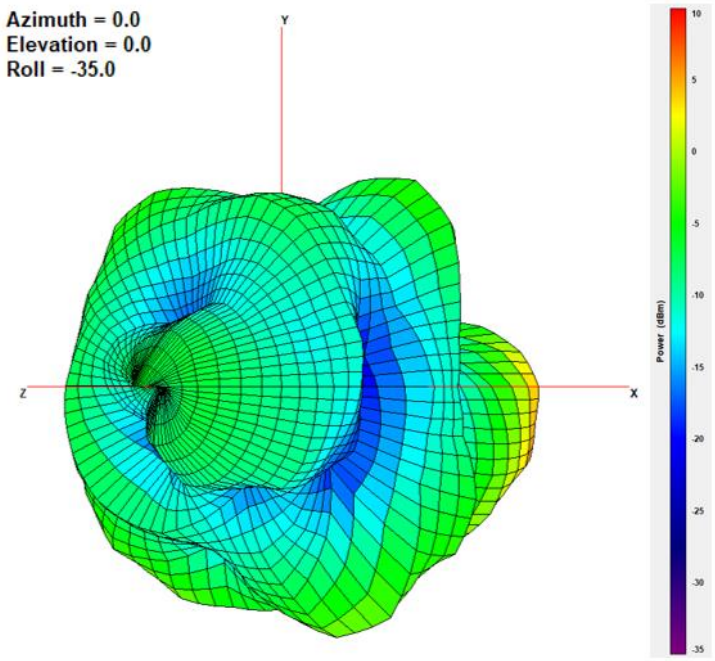
XY Plane	XZ Plane	YZ Plane



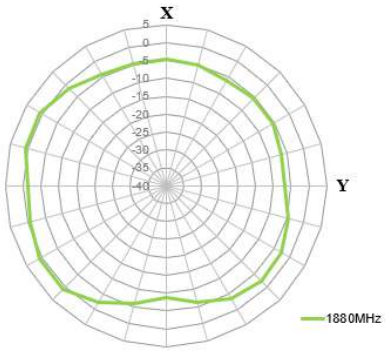


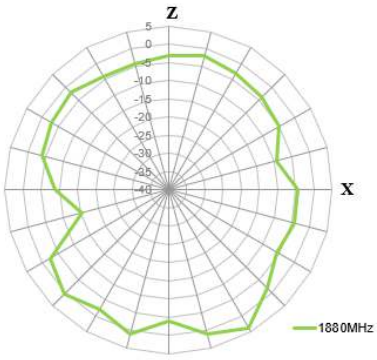


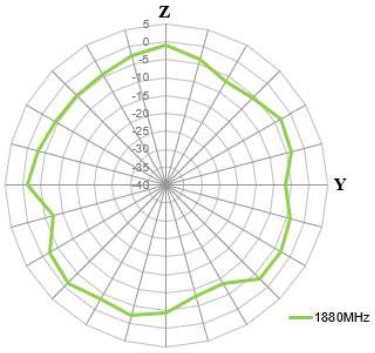
1880MHz



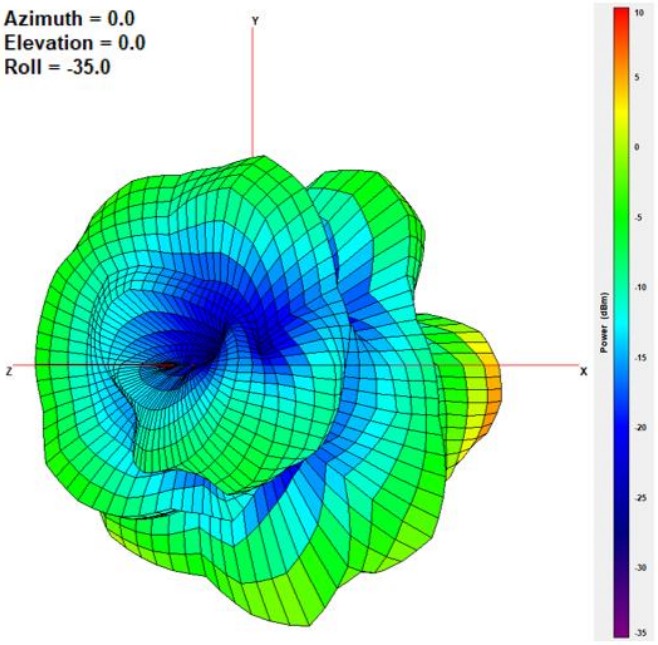
XY Plane	XZ Plane	YZ Plane



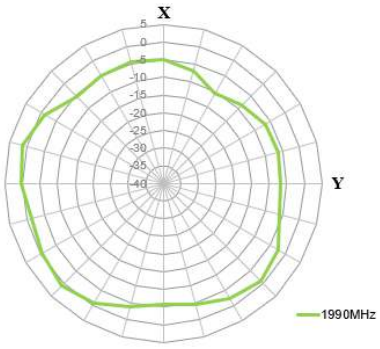


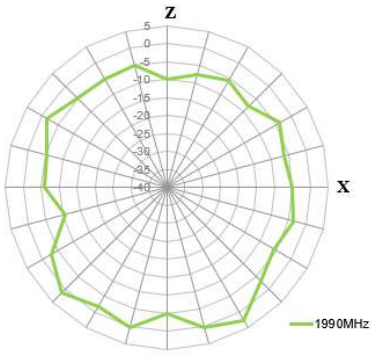


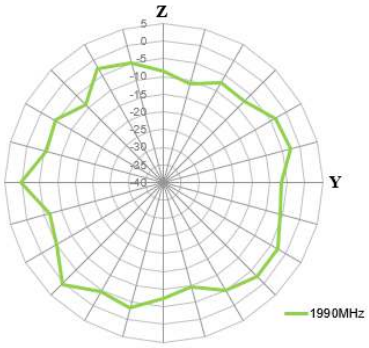
1990MHz



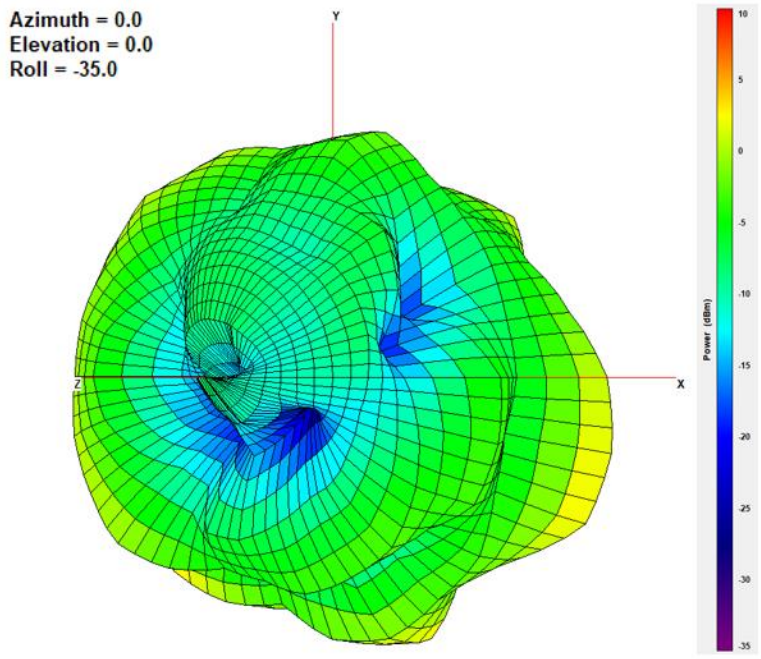
XY Plane	XZ Plane	YZ Plane



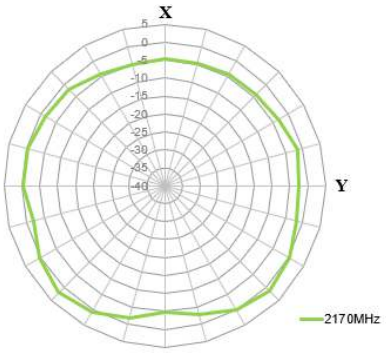


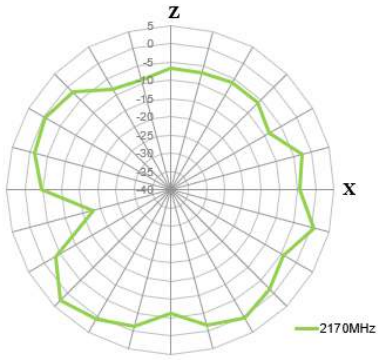


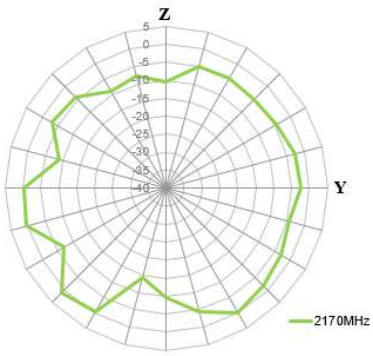
2170MHz



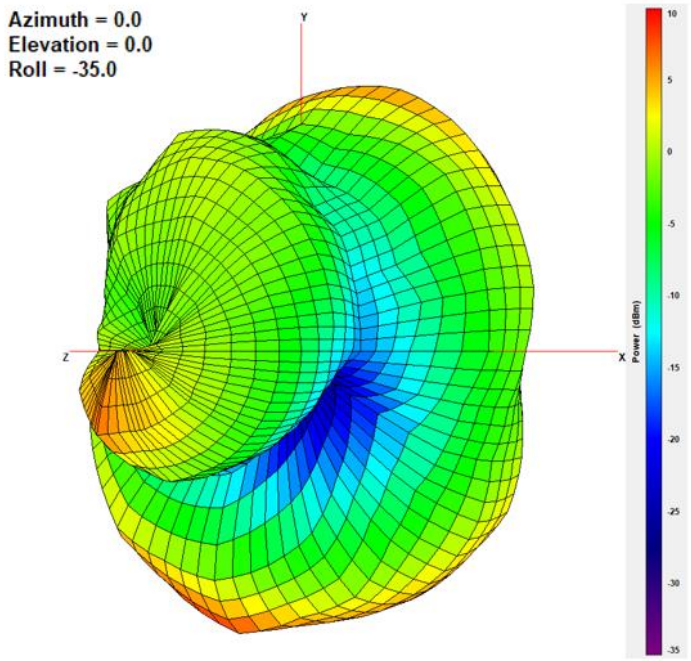
XY Plane	XZ Plane	YZ Plane



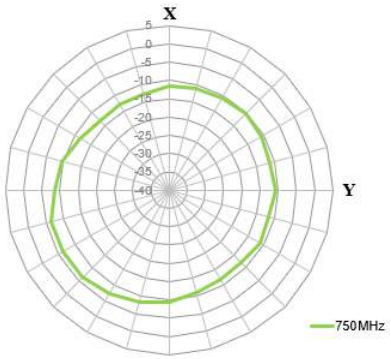


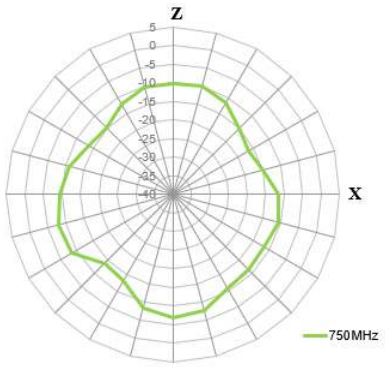


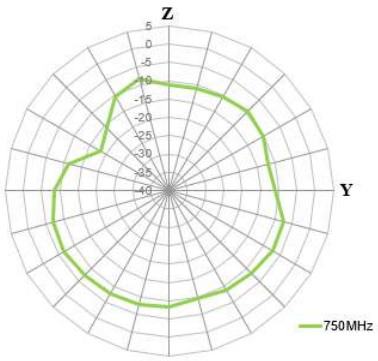
4.3 750MHz On 2mm ABS - 3D and 2D Radiation Patterns



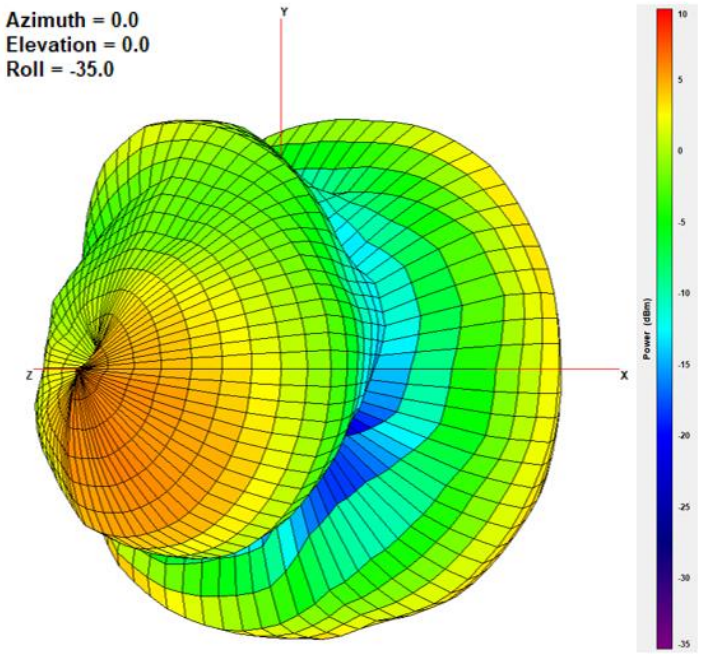
XY Plane	XZ Plane	YZ Plane



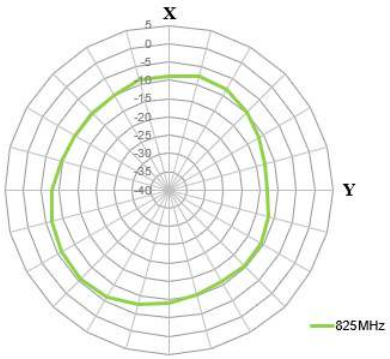


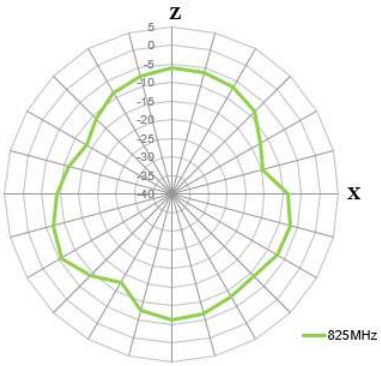


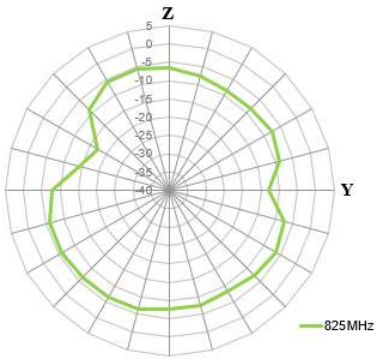
825MHz



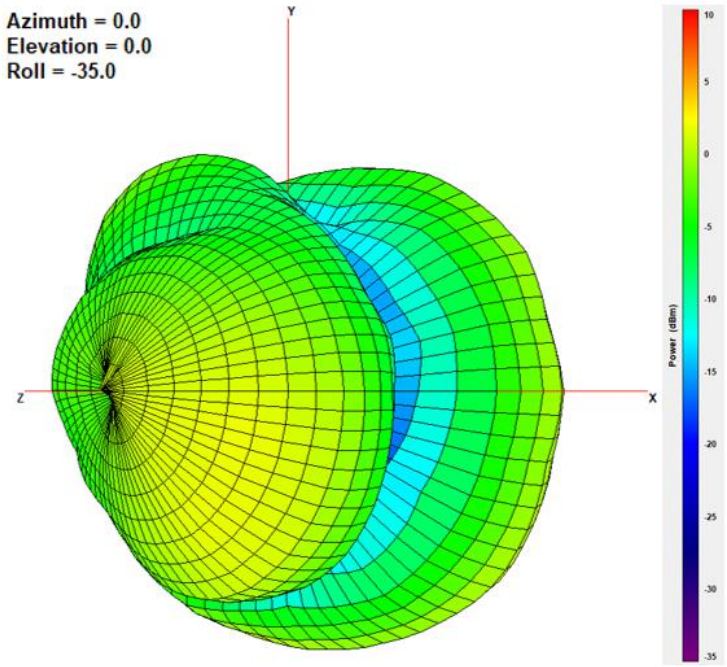
XY Plane	XZ Plane	YZ Plane



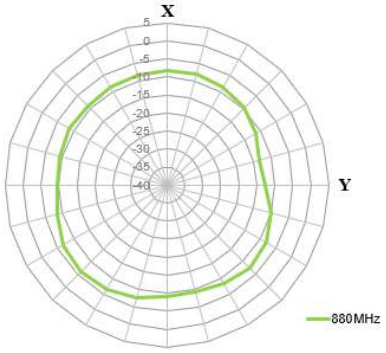


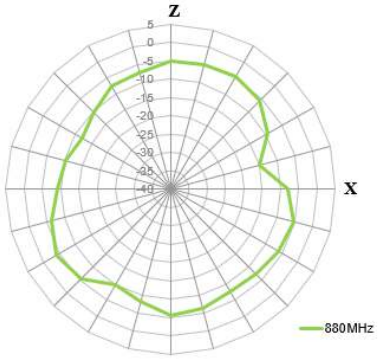


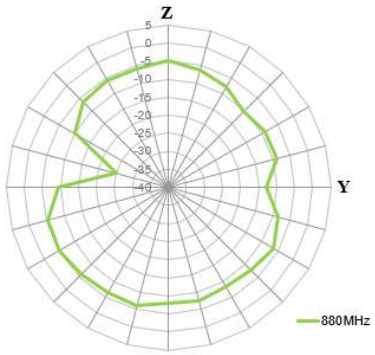
880MHz



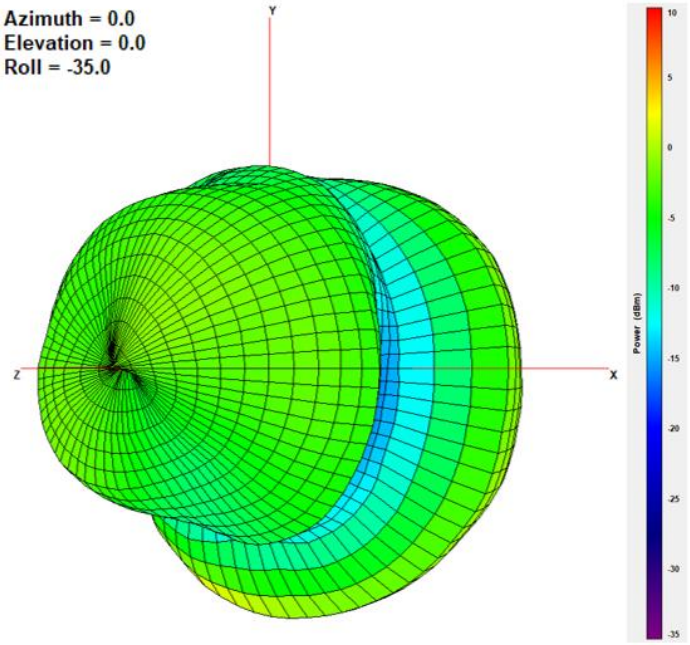
XY Plane	XZ Plane	YZ Plane



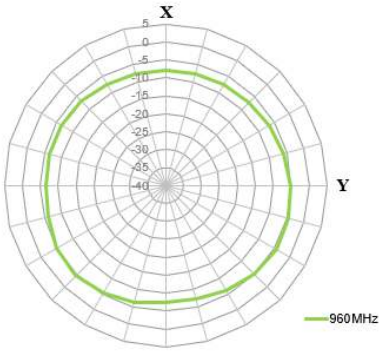


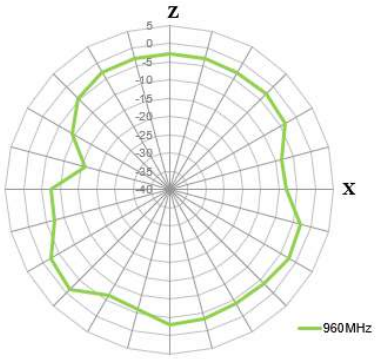


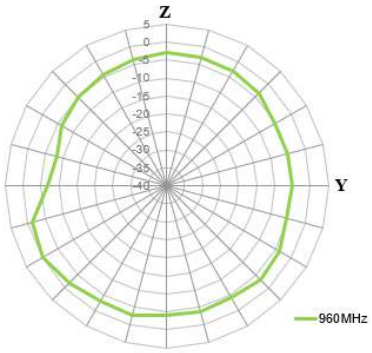
960MHz



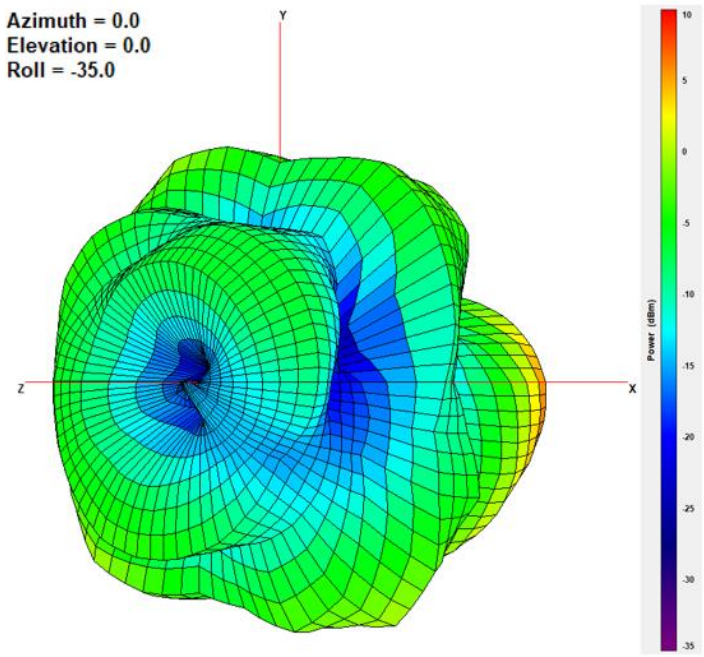
XY Plane	XZ Plane	YZ Plane



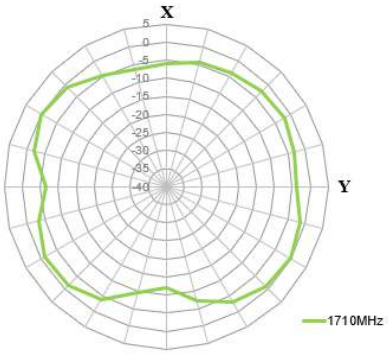


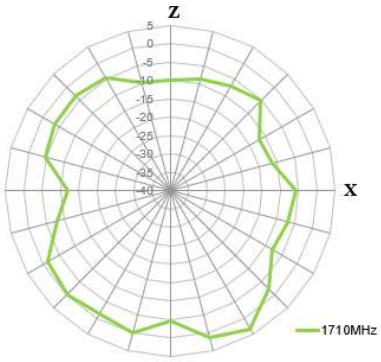


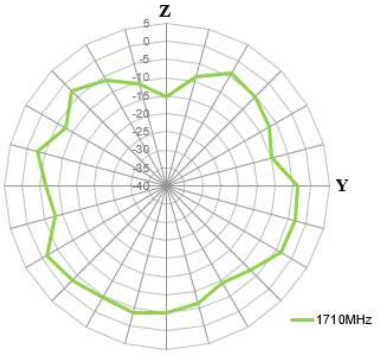
1710MHz



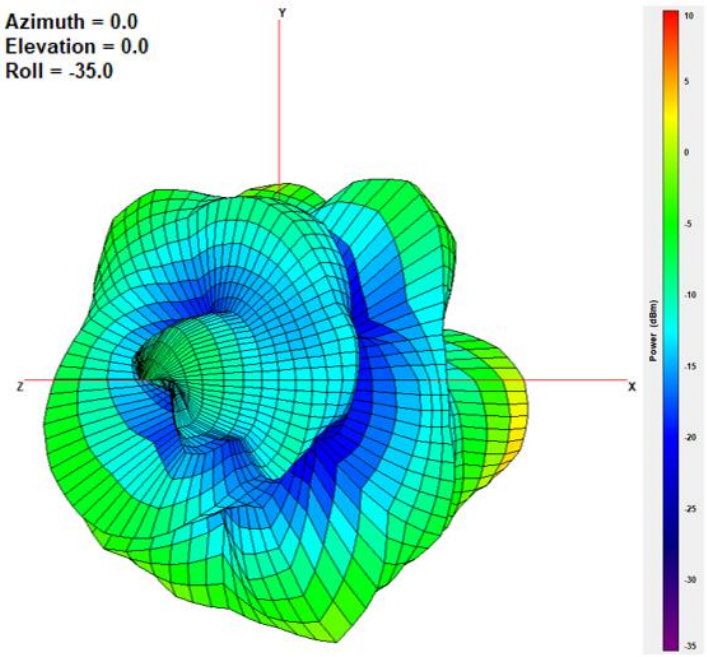
XY Plane	XZ Plane	YZ Plane



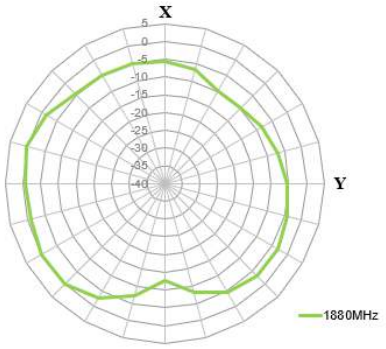


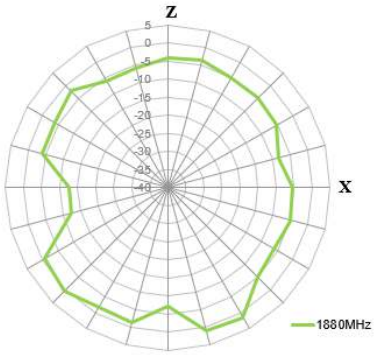


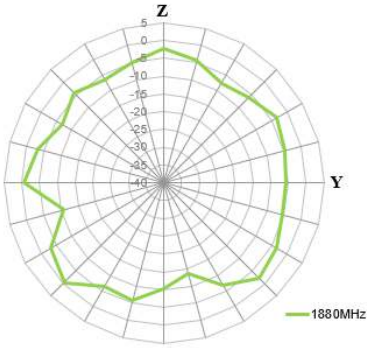
1880MHz



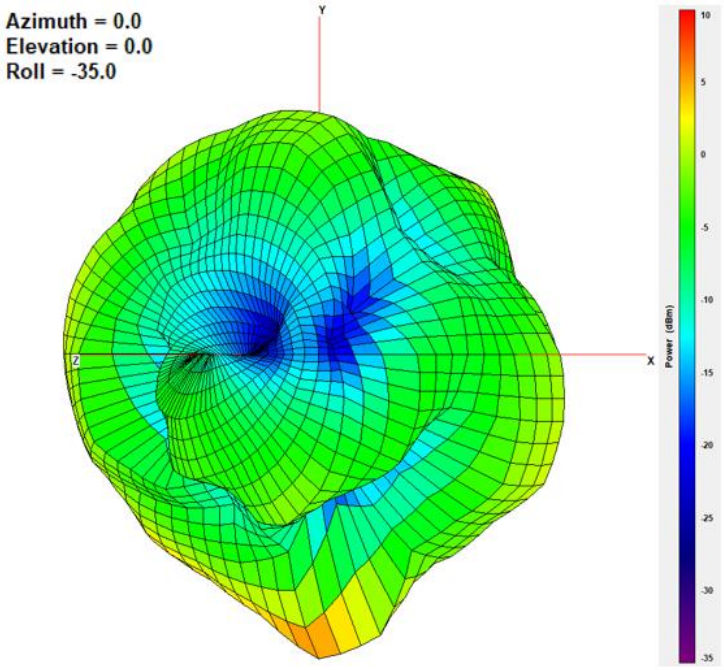
XY Plane	XZ Plane	YZ Plane



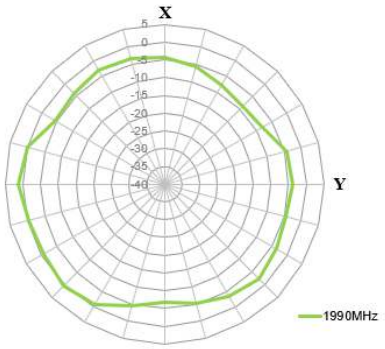


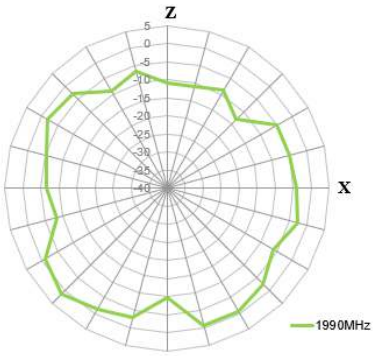


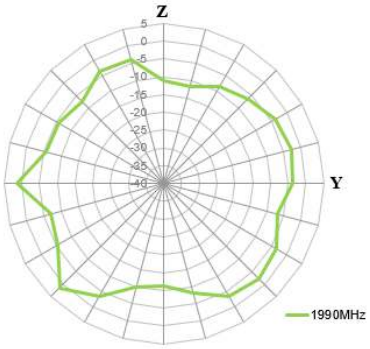
1990MHz



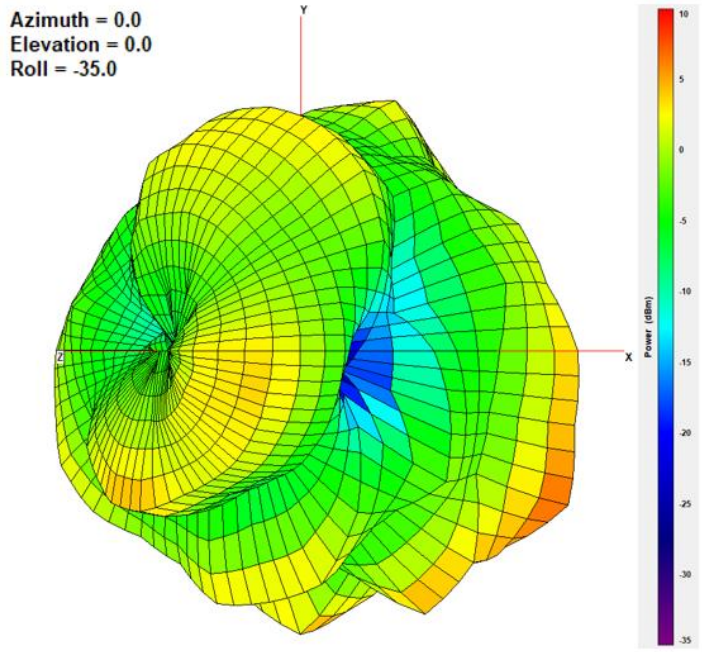
XY Plane	XZ Plane	YZ Plane



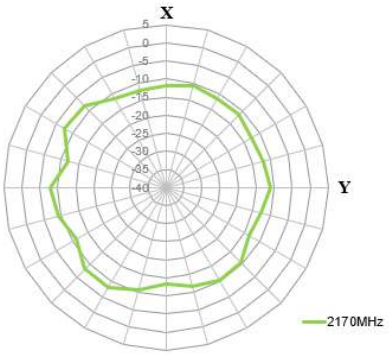


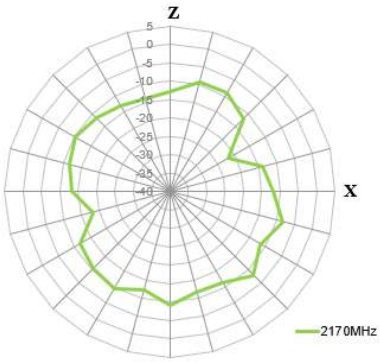


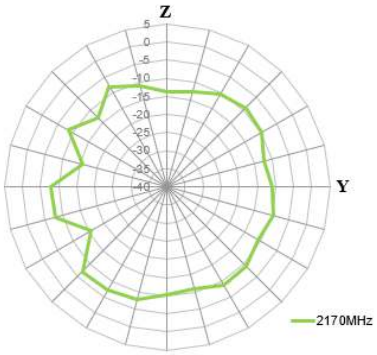
2170MHz



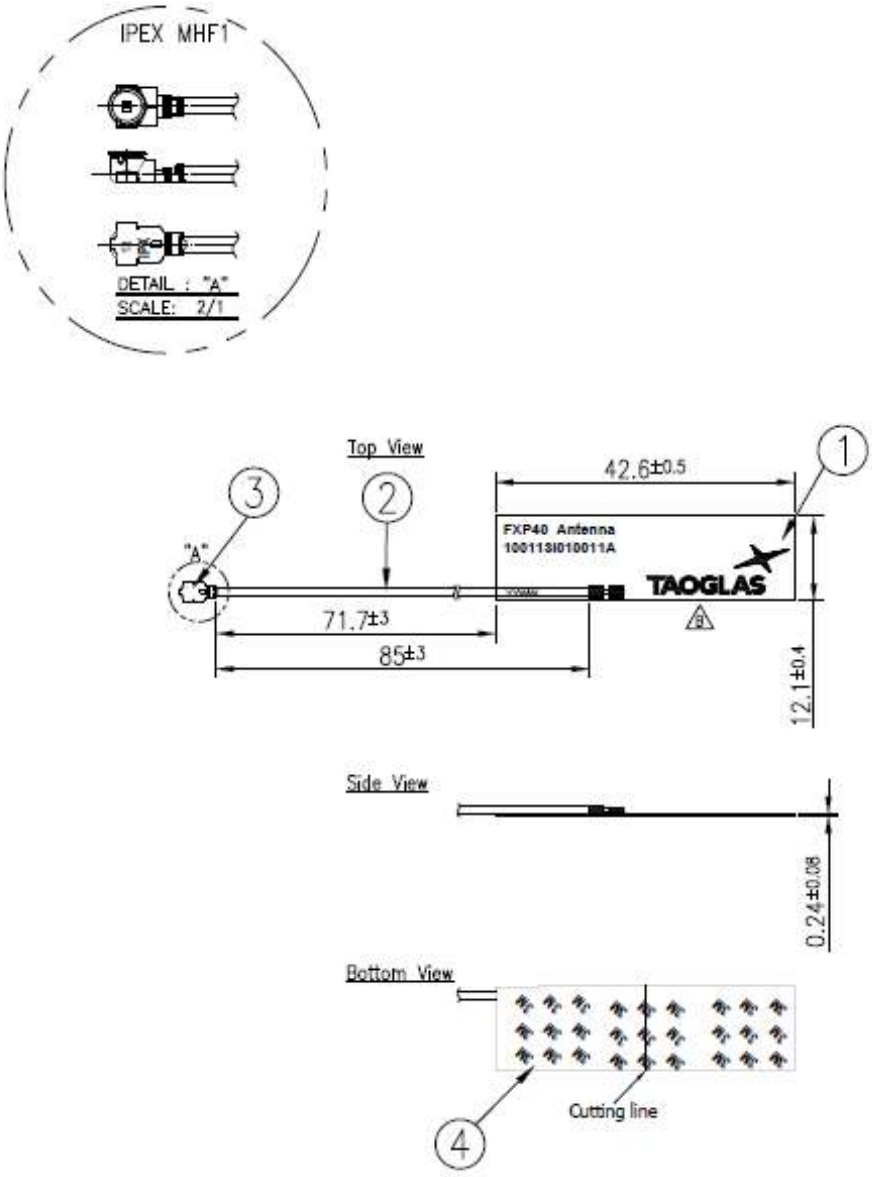
XY Plane	XZ Plane	YZ Plane







5. Mechanical Drawing (Units: mm)

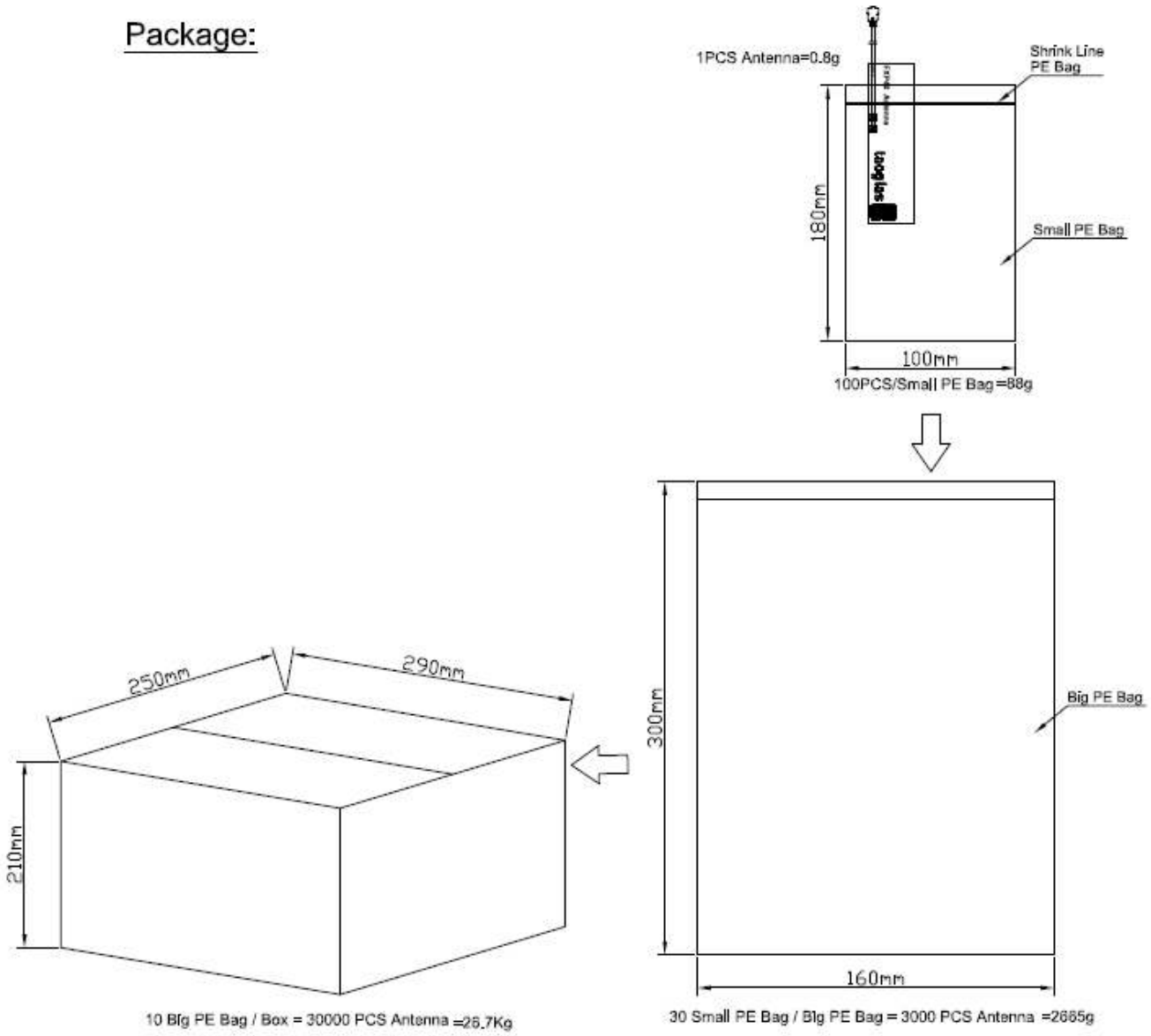


NOTES:
1.No dregs or insufficient soldering. Solder thickness 0.3 ~1.7mm
2.The solder must be smooth and full to the edges of the pad. The solder must not extend outside of the pad area.
3.The connector position has special orientation to the PCB as per drawing.
4.All material must be RoHS compliant.
5.Open/short QC, VSWR required.
6.Soldered area

	Name	P/N	Material	Finish	QTY
1	FXP40 PCB	1001131010011A	FPCB 0.1t	Black	1
2	1.13 Coaxial Cable	300213A000013A	FEP	Black	1
3	IPEX MHF1	20411100000013A	Brass	Gold	1
4	Double-Sided Adhesive	1001131010011A	3M 467	Brown Liner	1

6. Packaging

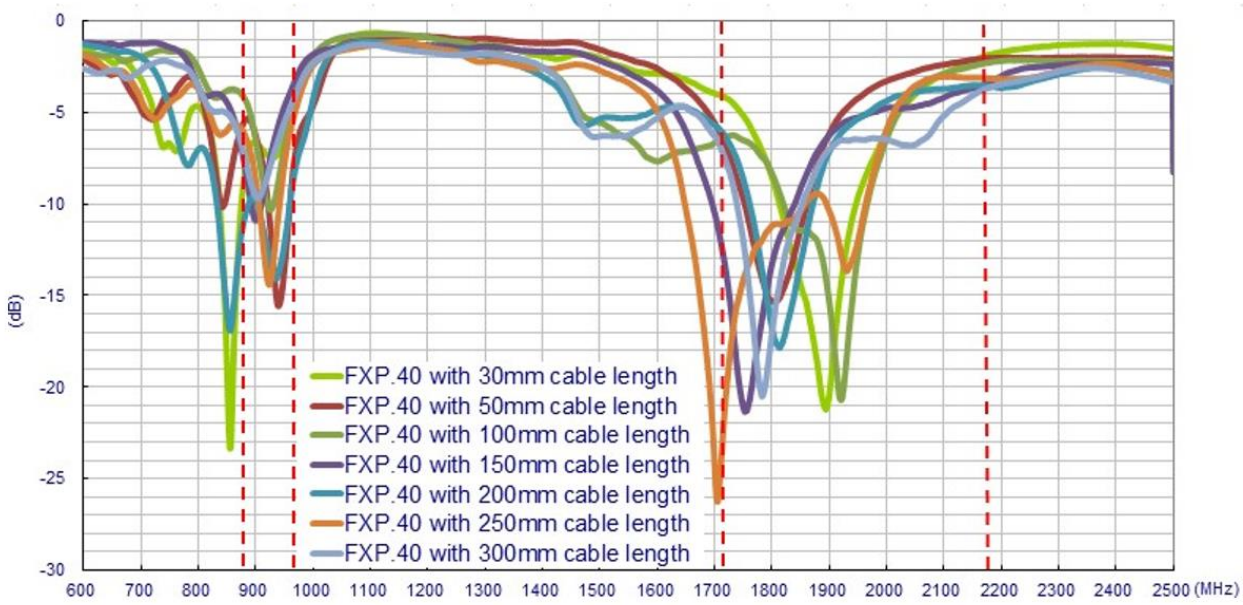
Package:



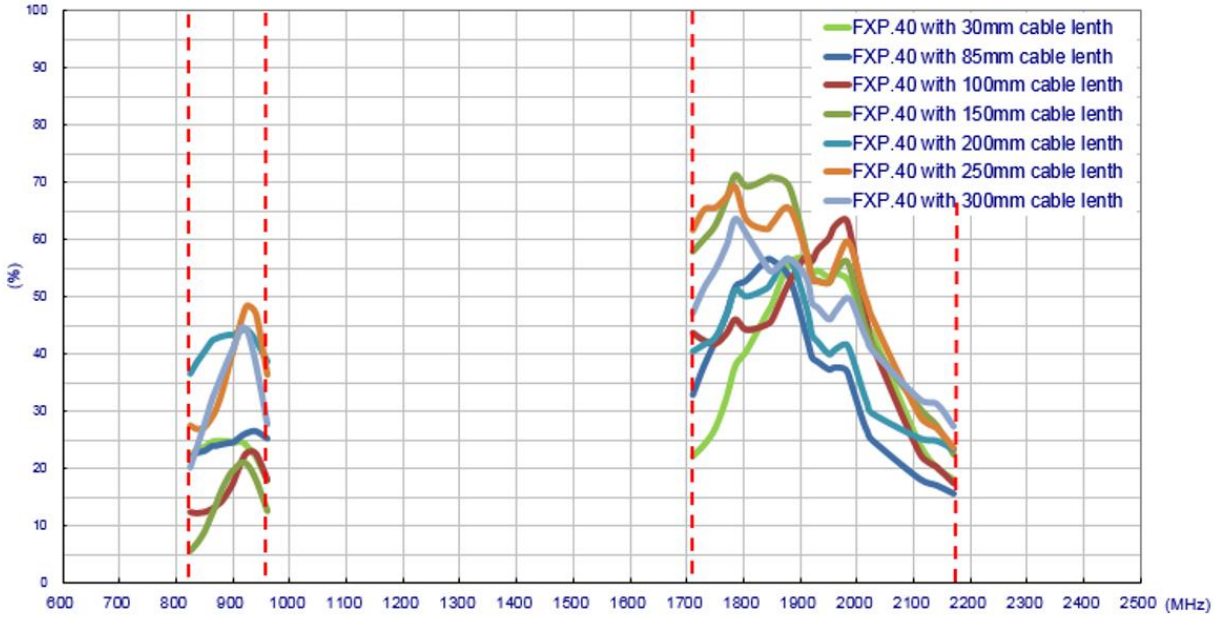
7. Application Note

The FXP40 antenna measurement with difference cable length on plastic plate of 2 mm thickness, the performance is shown as below.

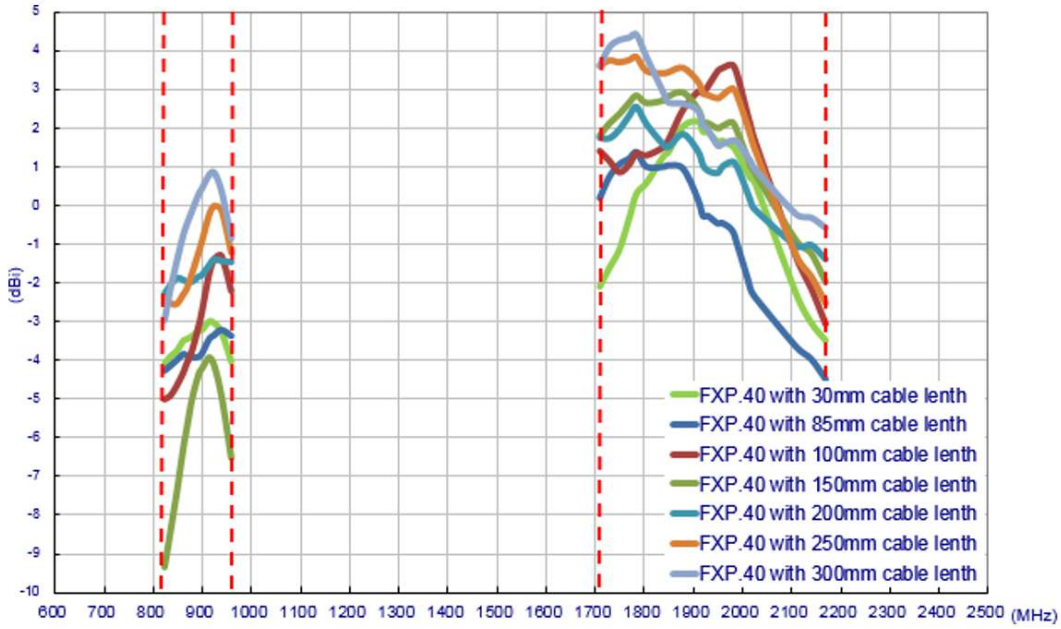
3.1 Return Loss



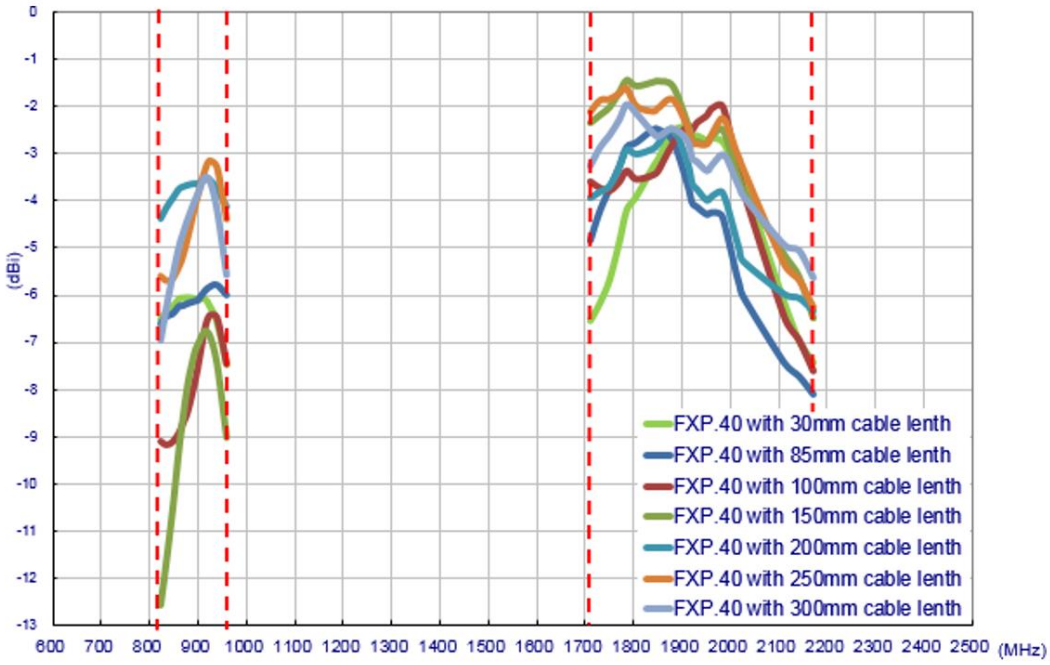
3.2 Efficiency



3.3 Peak Gain



3.4 Average Gain



Changelog for the datasheet

SPE-14-8-053 - FXP40.07.0085A

Revision: D (Current Version)	
Date:	2022-04-21
Changes:	Full datasheet update
Changes Made by:	Gary West

Previous Revisions

Revision: C	
Date:	2020-07-01
Changes:	Updated Weight
Changes Made by:	Jack Conroy

Revision: B	
Date:	2019-04-11
Changes:	Page 1 Features, page 3 Specification, page 4~5 Antenna Characteristicspage7~9 Antenna radiation patterns, page11~12 Application Note.
Changes Made by:	David Connolly

Revision: A (Original First Release)	
Date:	2014-05-26
Notes:	
Author:	Technical Writer

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