



TAOGLAS®



Datasheet

FXP40 Flexible PCB Antenna

Part No:
FXP40.07.0085A

Description:
4G LTE CAT-M NB-IoT Flexible PCB Antenna

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	3
2. Specifications	4
3. Antenna Characteristics	5
4. Radiation Patterns	7
5. Mechanical Drawing	24
6. Packaging	25
7. Application Note	26
<hr/>	
Changelog	28

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.



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.

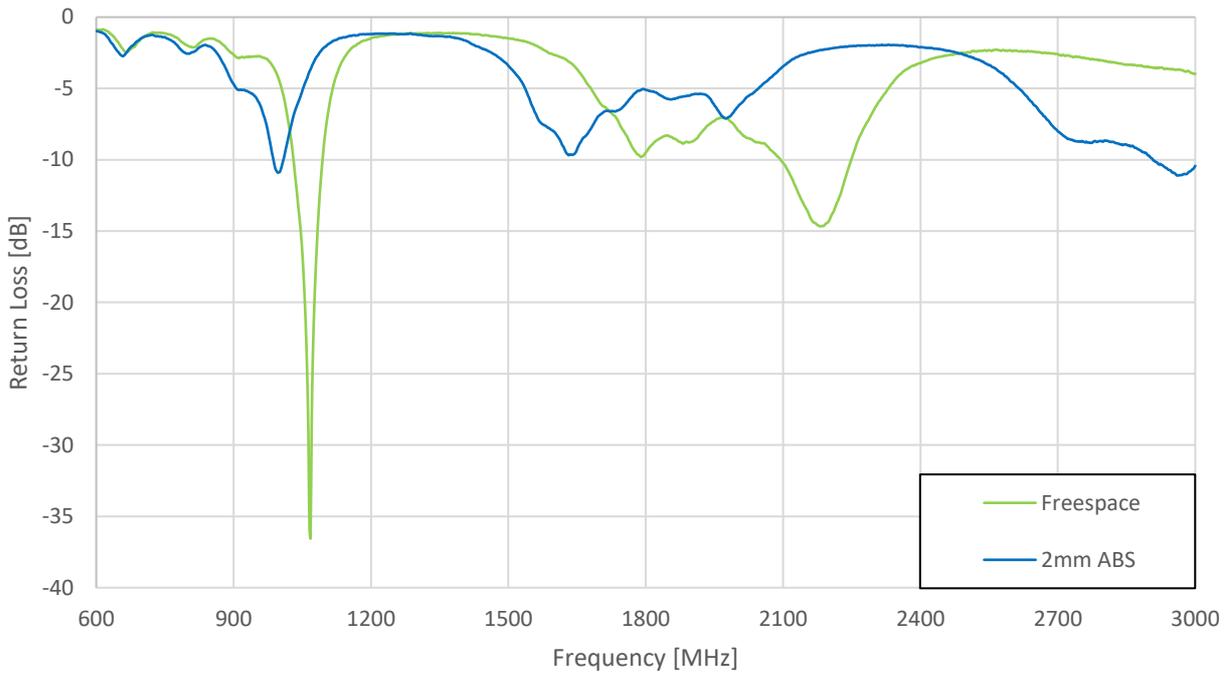
2. Specifications

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							

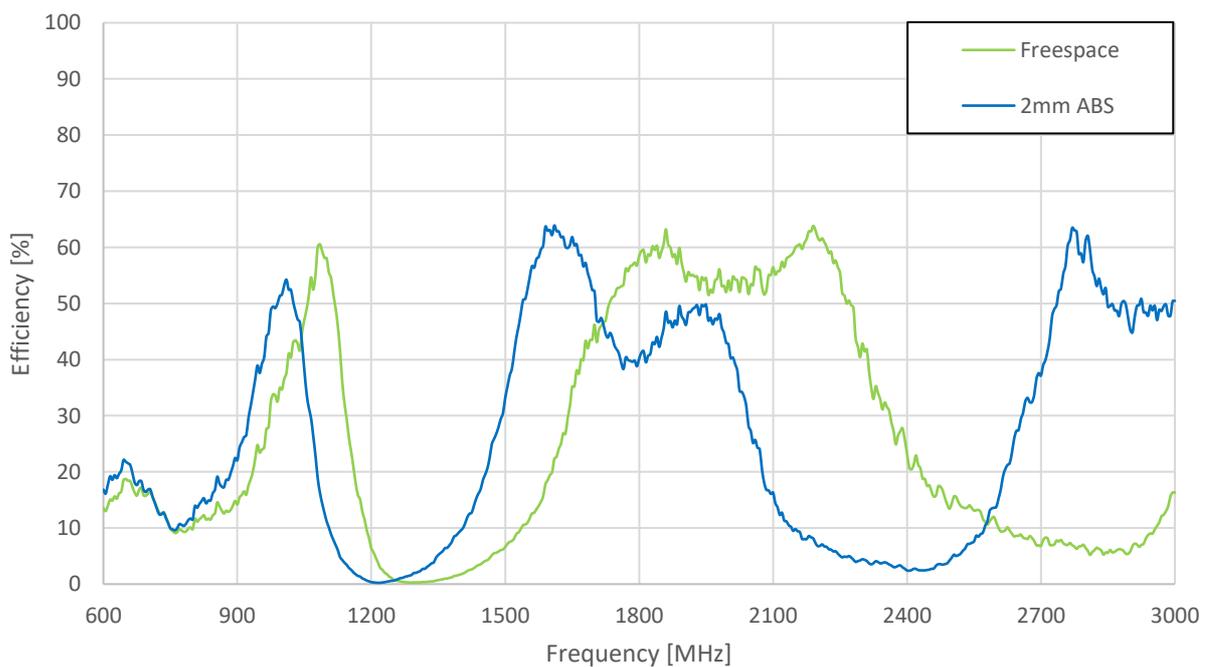
*All results were measured with 85mm length 1.13mm coaxial cable and on 2mm thickness ABS base.

3. Antenna Characteristics

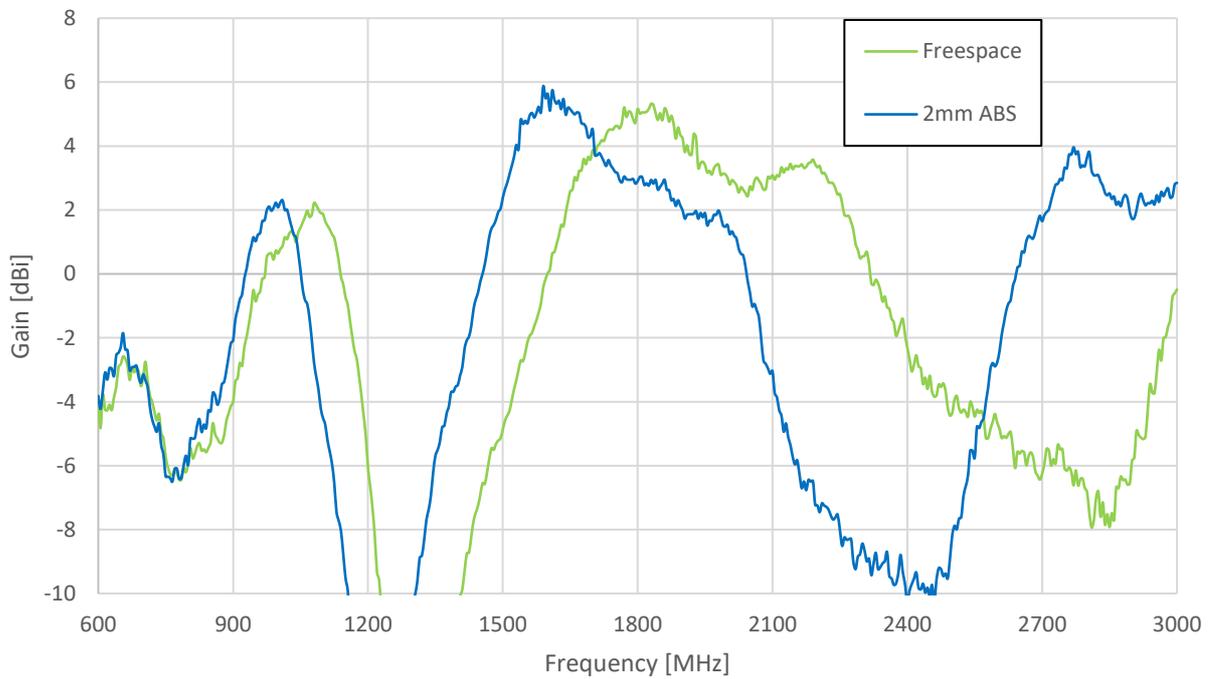
3.1 Return Loss



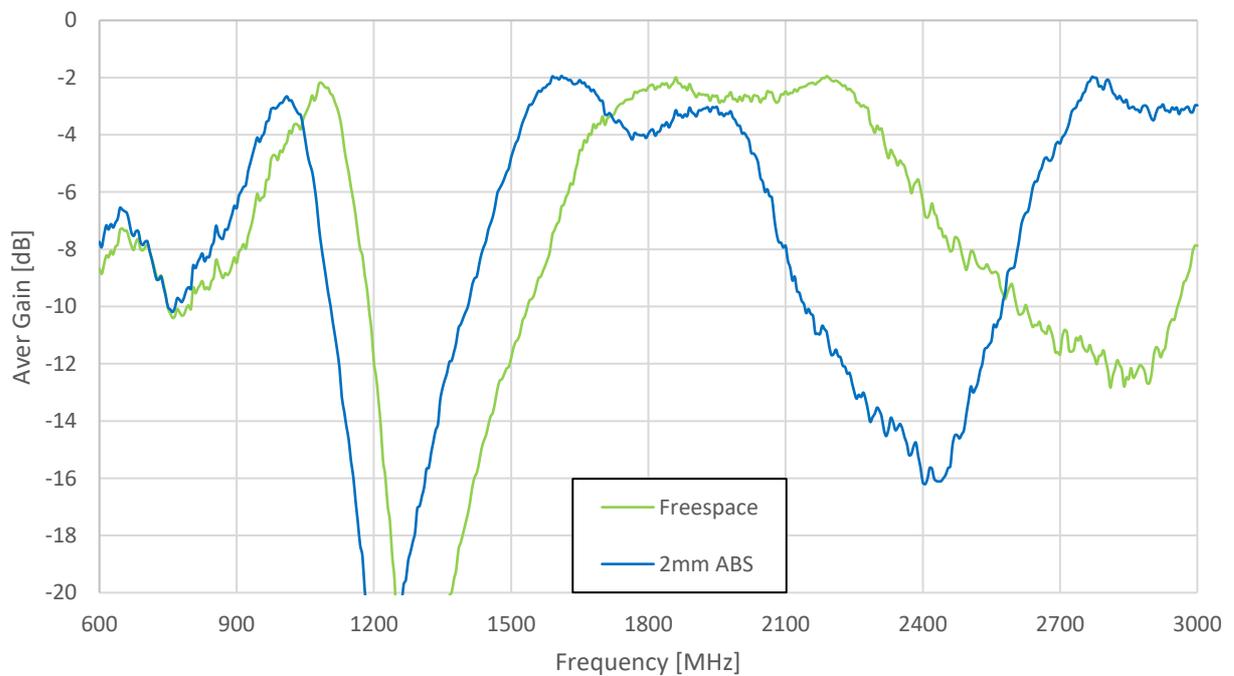
3.2 Efficiency



3.3 Peak Gain

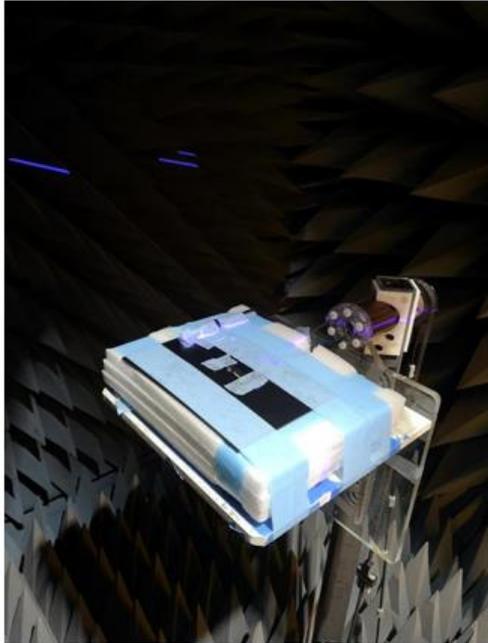


3.4 Average Gain

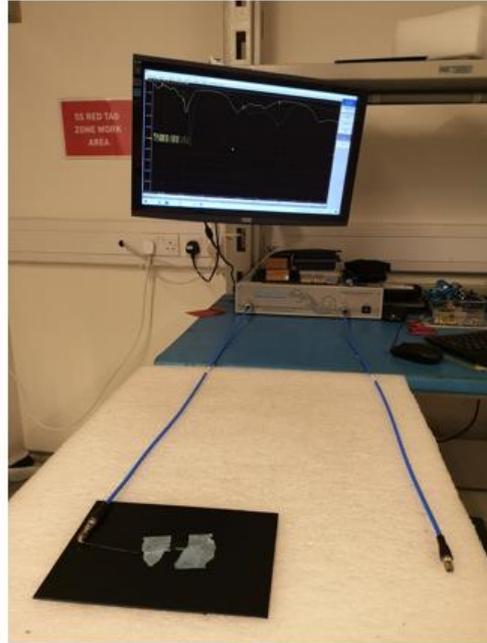


4. Radiation Patterns

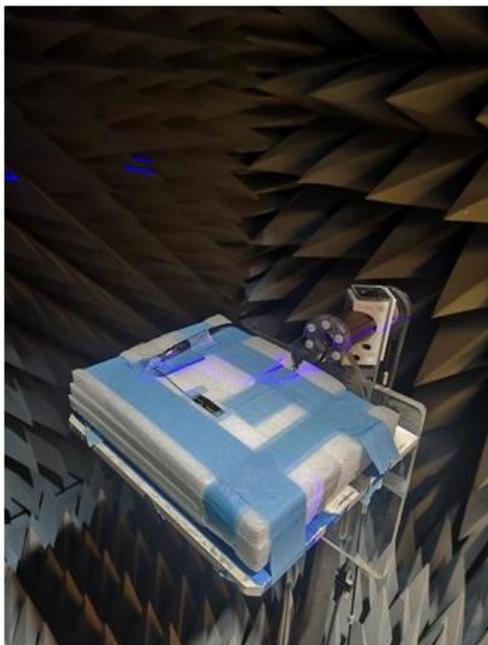
4.1 Test Setup



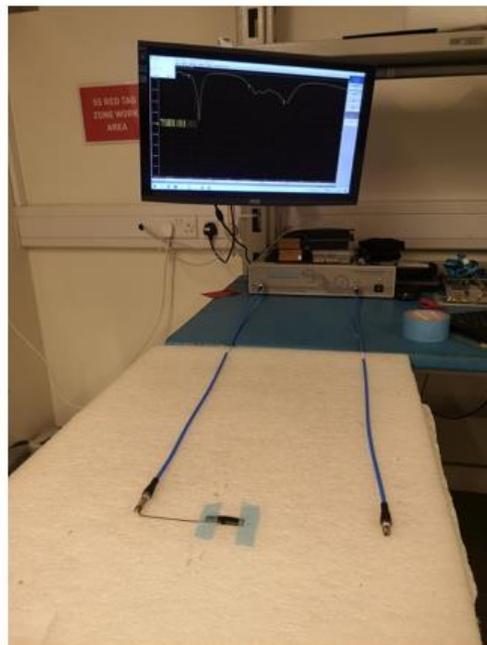
Chamber Setup on 2mm ABS



VNA Setup on 2mm ABS

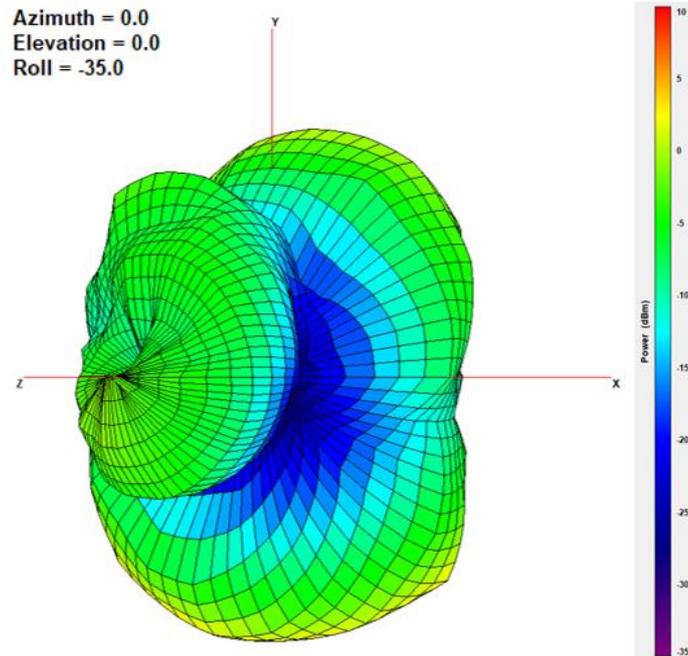


Chamber Setup In Freespace



VNA Setup In Freespace

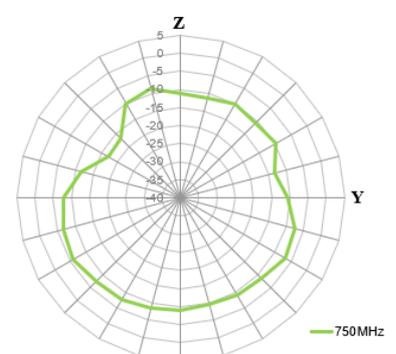
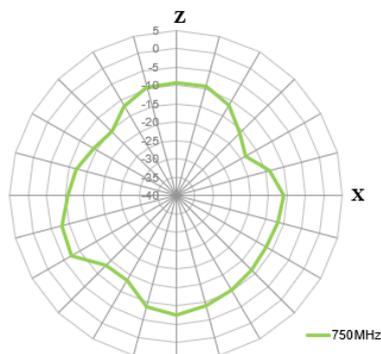
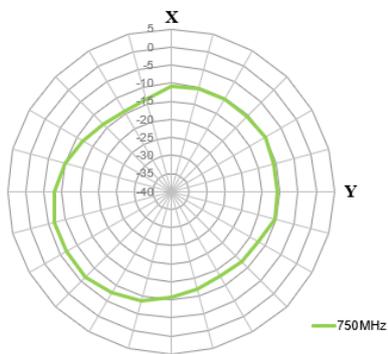
4.2 750MHz Freespace - 3D and 2D Radiation Patterns



XY Plane

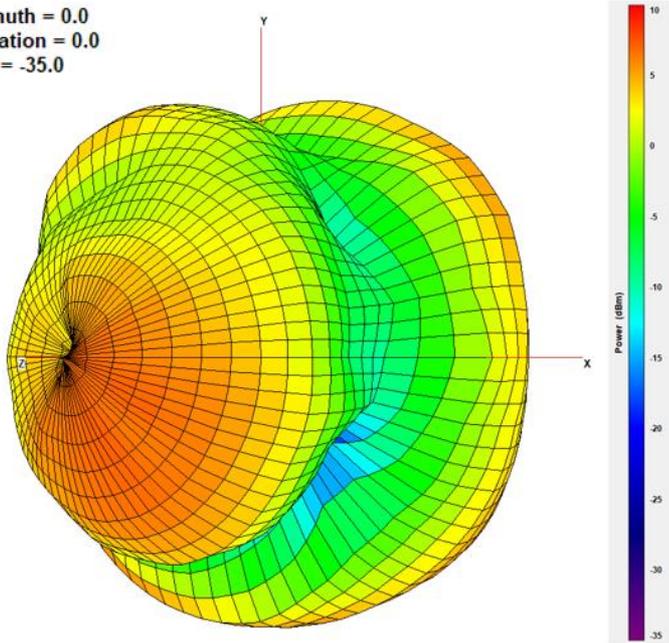
XZ Plane

YZ Plane



825MHz

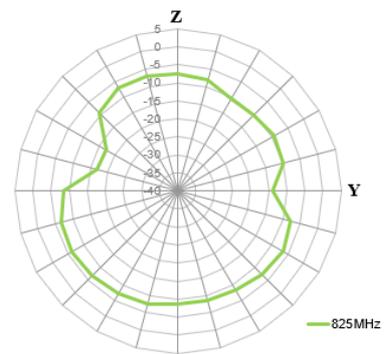
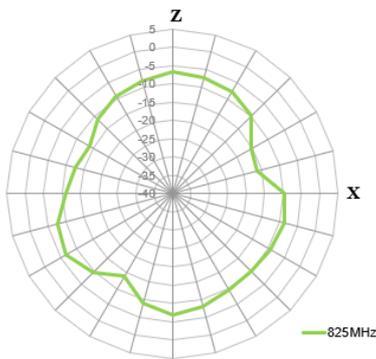
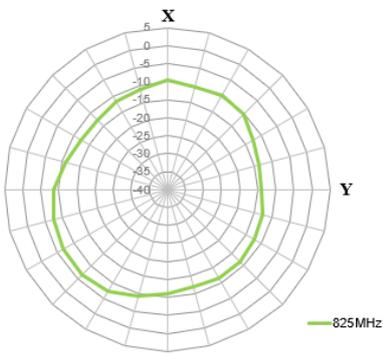
Azimuth = 0.0
 Elevation = 0.0
 Roll = -35.0



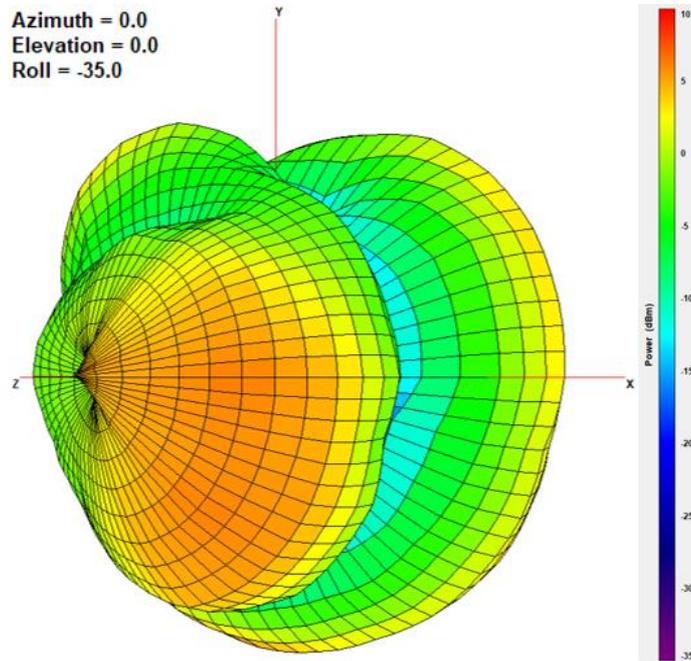
XY Plane

XZ Plane

YZ Plane



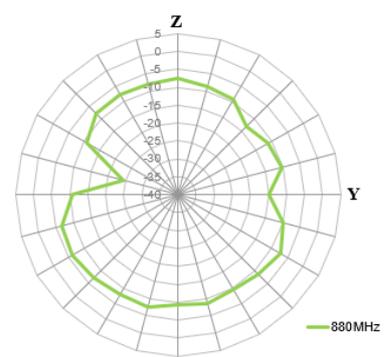
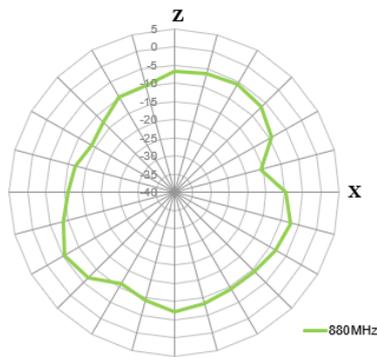
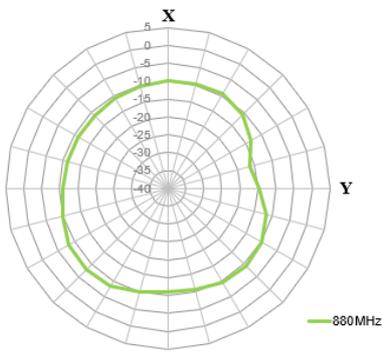
880MHz



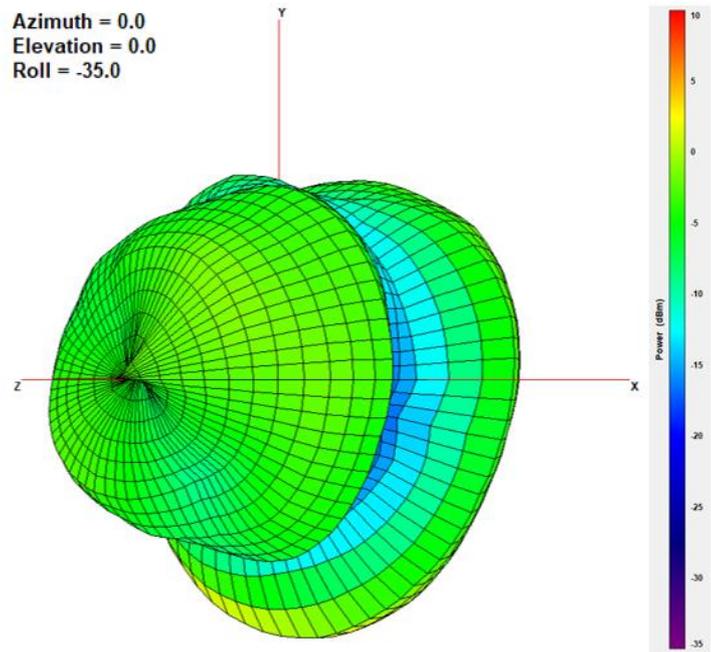
XY Plane

XZ Plane

YZ Plane



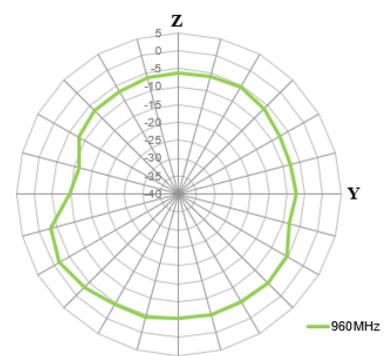
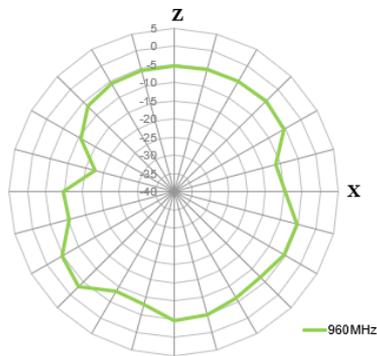
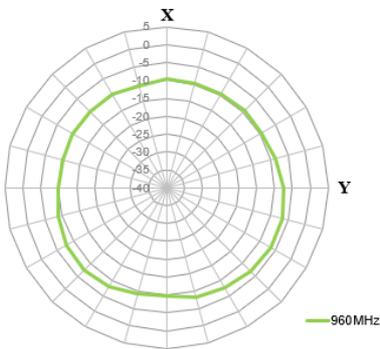
960MHz



XY Plane

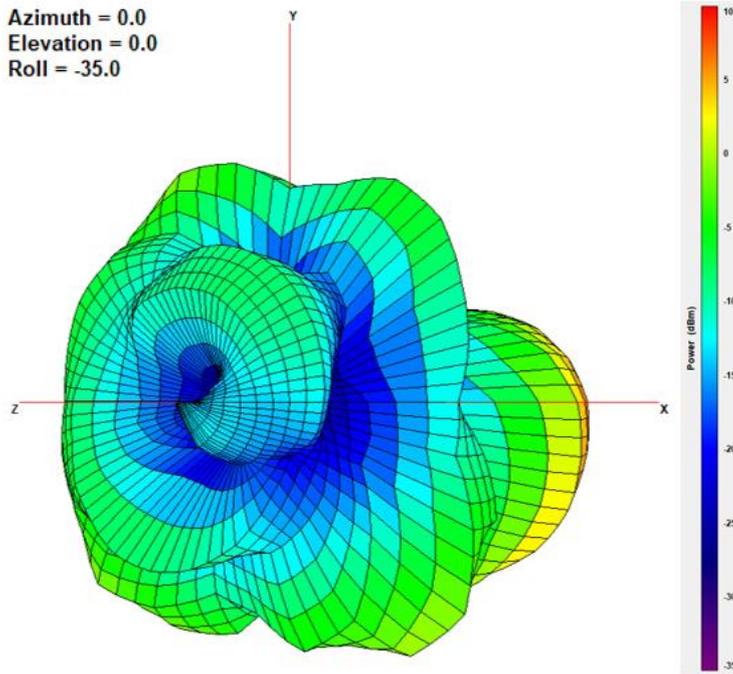
XZ Plane

YZ Plane



1710MHz

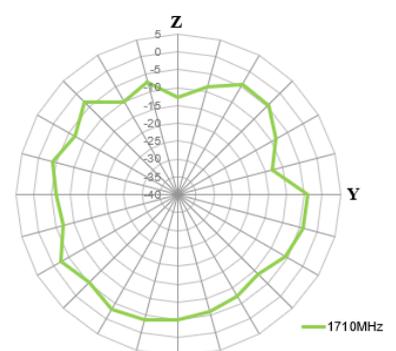
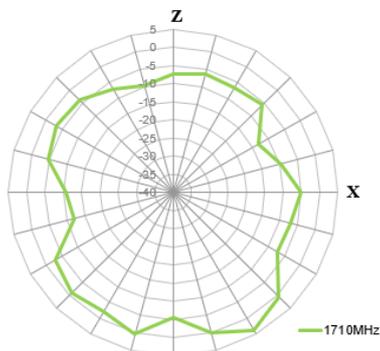
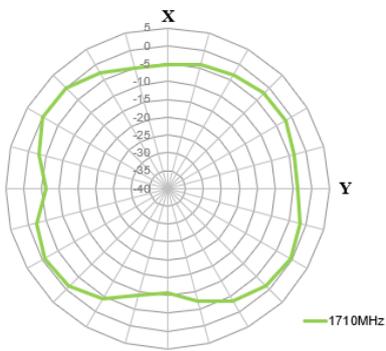
Azimuth = 0.0
 Elevation = 0.0
 Roll = -35.0



XY Plane

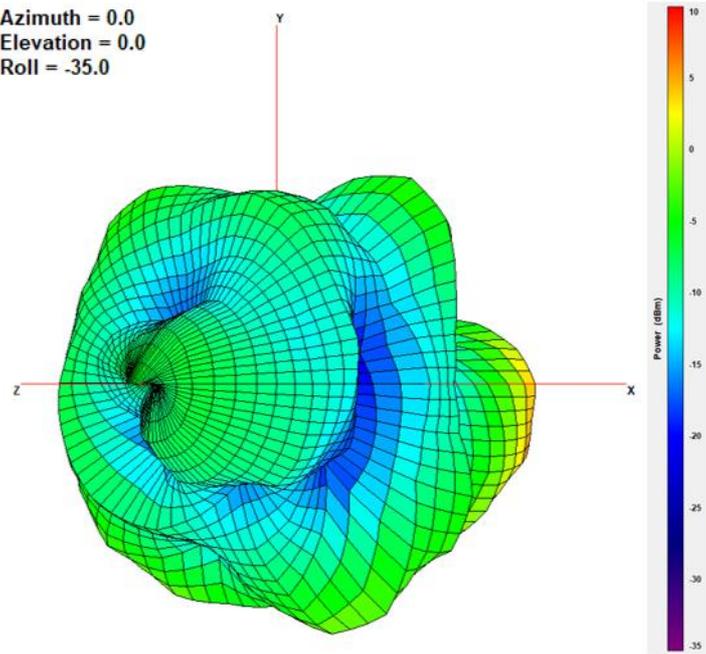
XZ Plane

YZ Plane



1880MHz

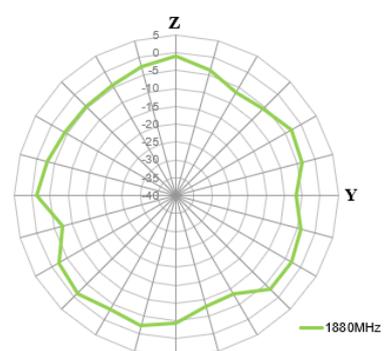
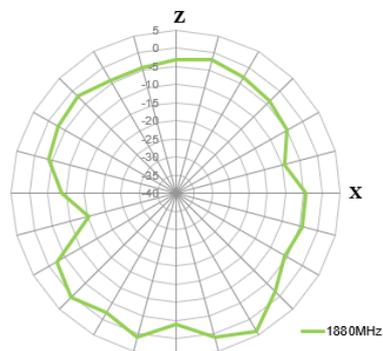
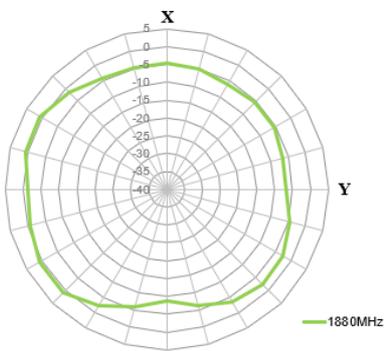
Azimuth = 0.0
Elevation = 0.0
Roll = -35.0



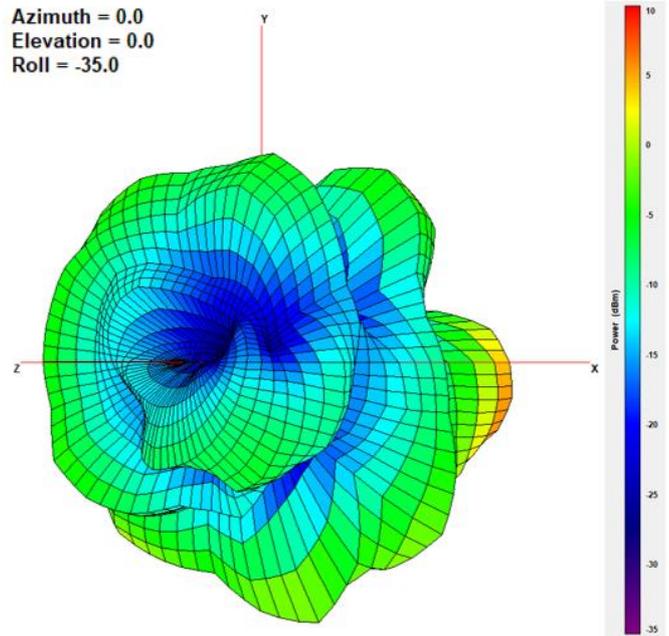
XY Plane

XZ Plane

YZ Plane



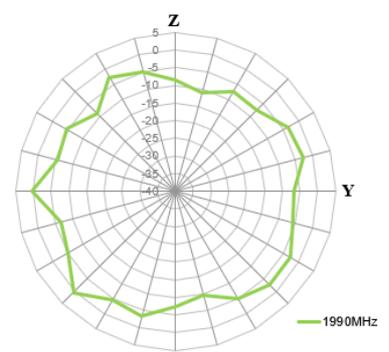
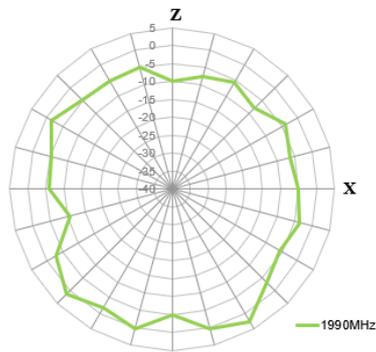
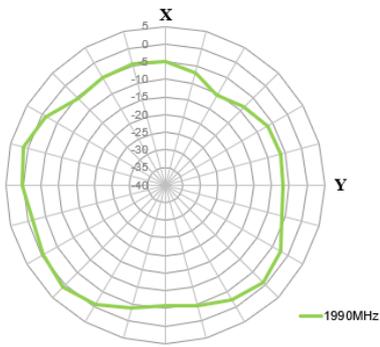
1990MHz



XY Plane

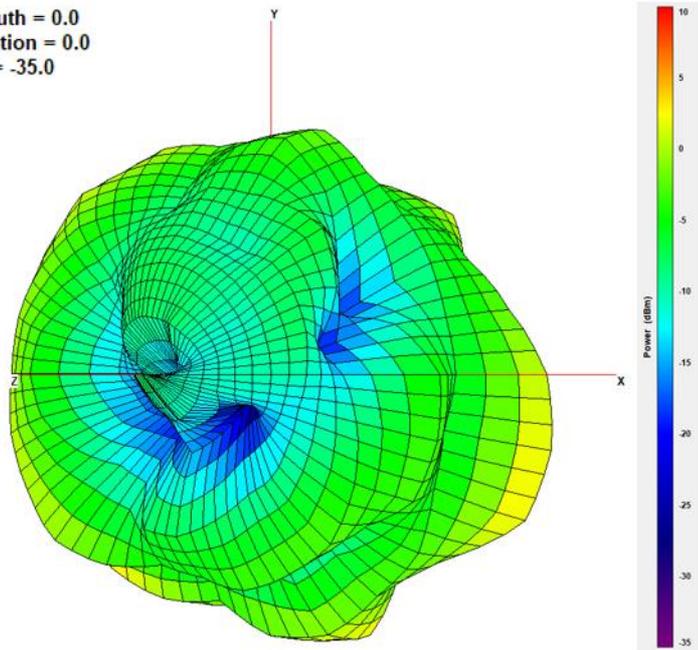
XZ Plane

YZ Plane



2170MHz

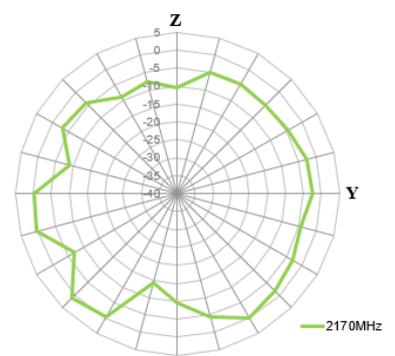
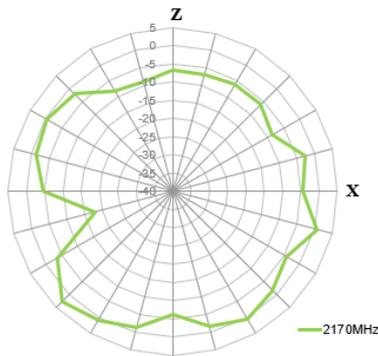
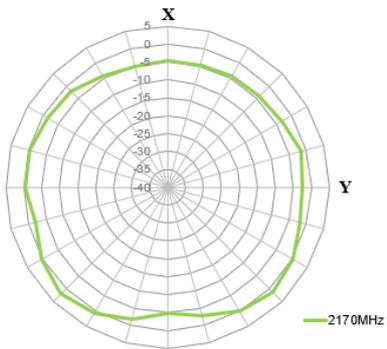
Azimuth = 0.0
Elevation = 0.0
Roll = -35.0



XY Plane

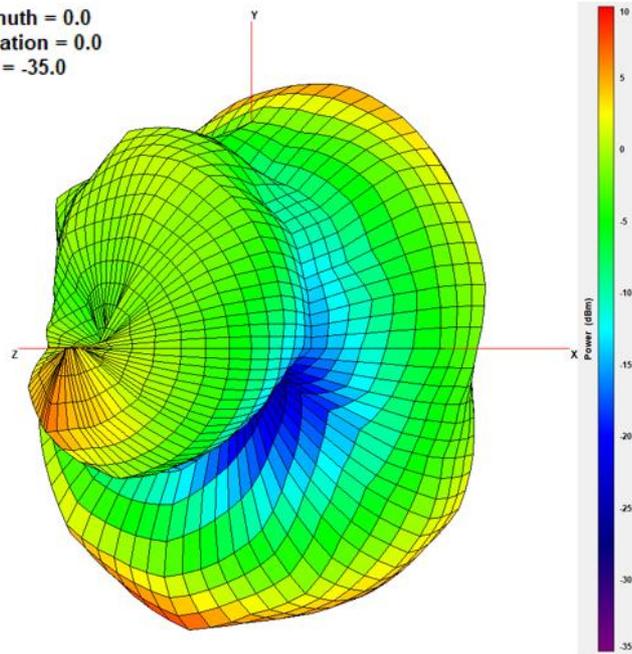
XZ Plane

YZ Plane



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

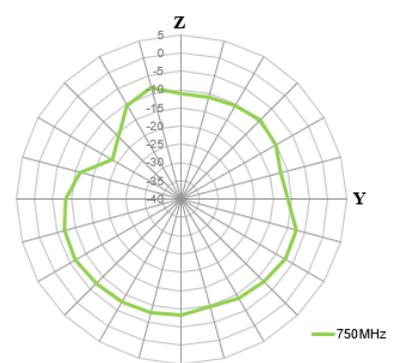
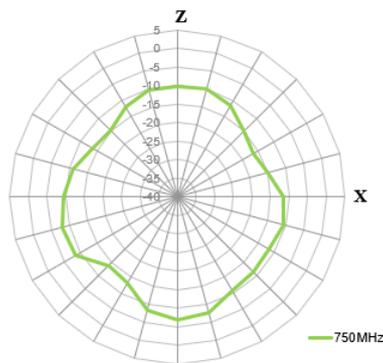
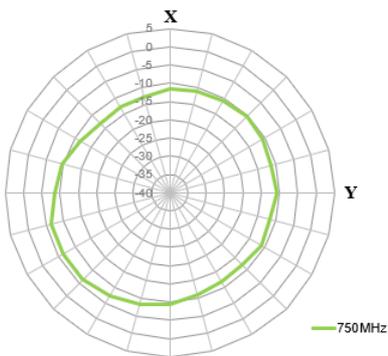
Azimuth = 0.0
Elevation = 0.0
Roll = -35.0



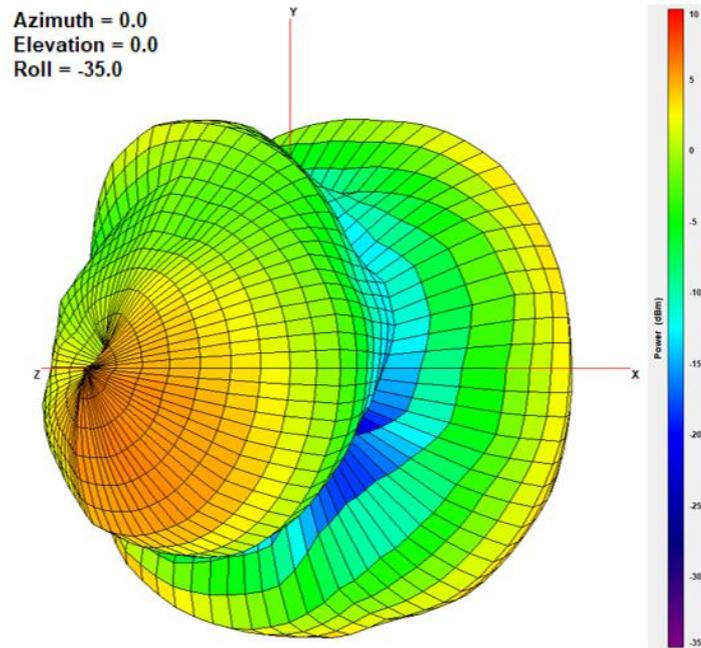
XY Plane

XZ Plane

YZ Plane



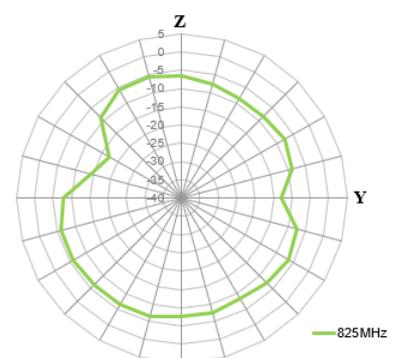
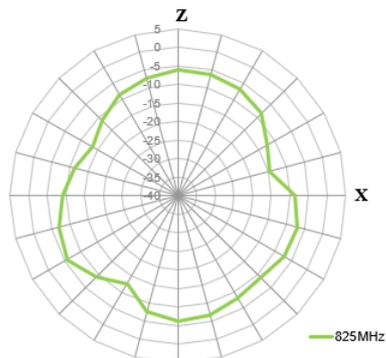
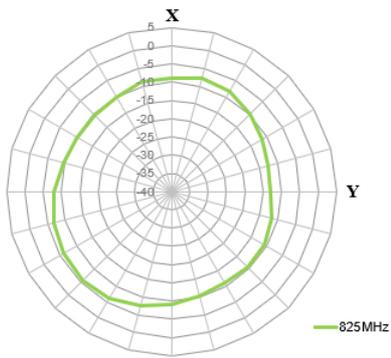
825MHz



XY Plane

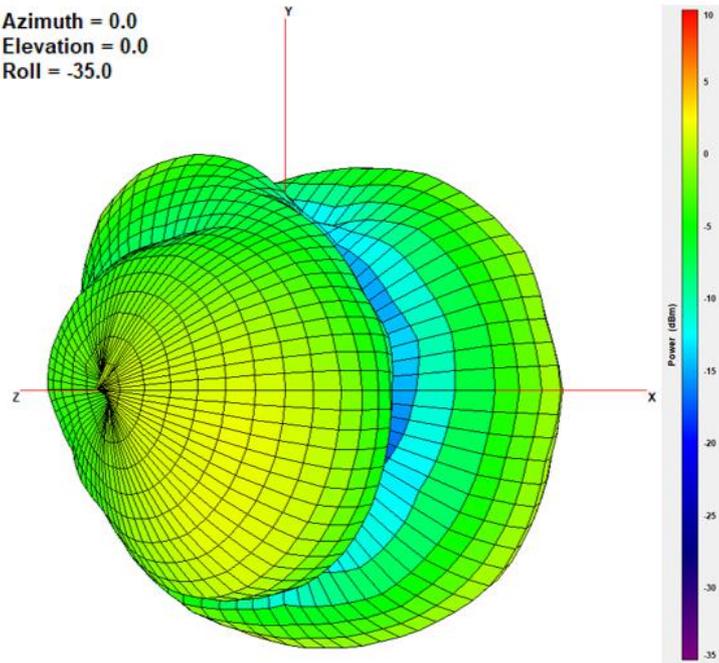
XZ Plane

YZ Plane



880MHz

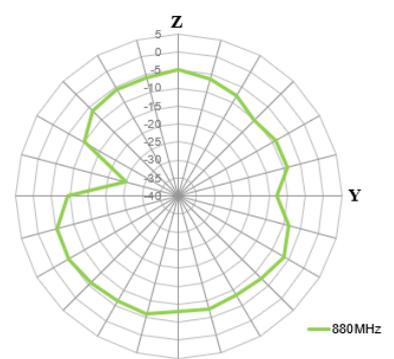
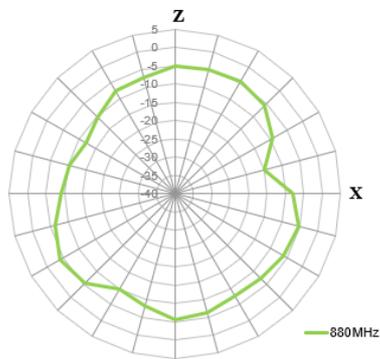
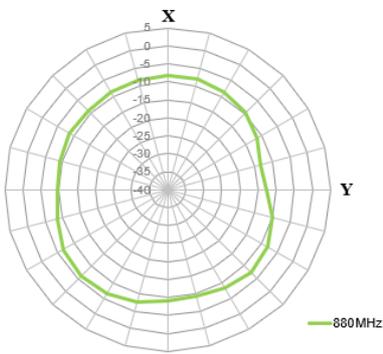
Azimuth = 0.0
Elevation = 0.0
Roll = -35.0



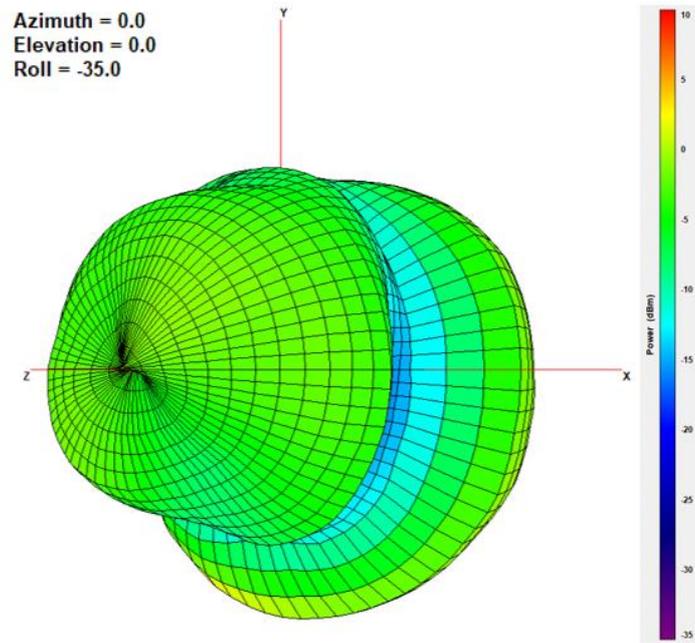
XY Plane

XZ Plane

YZ Plane



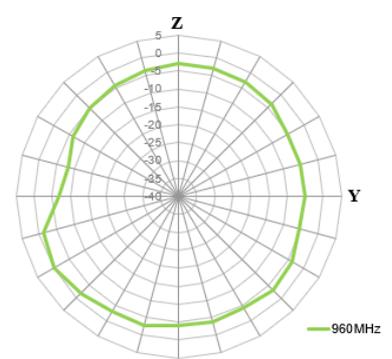
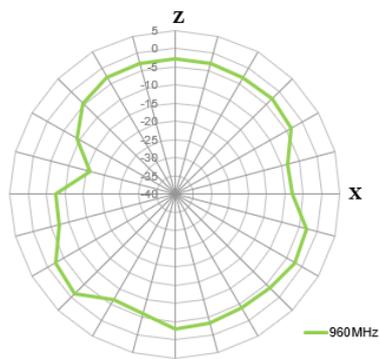
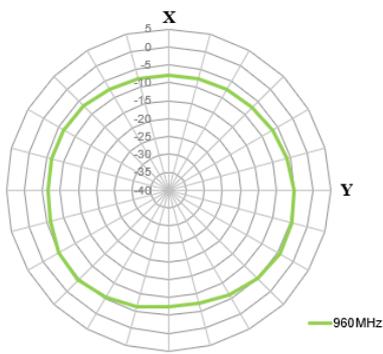
960MHz



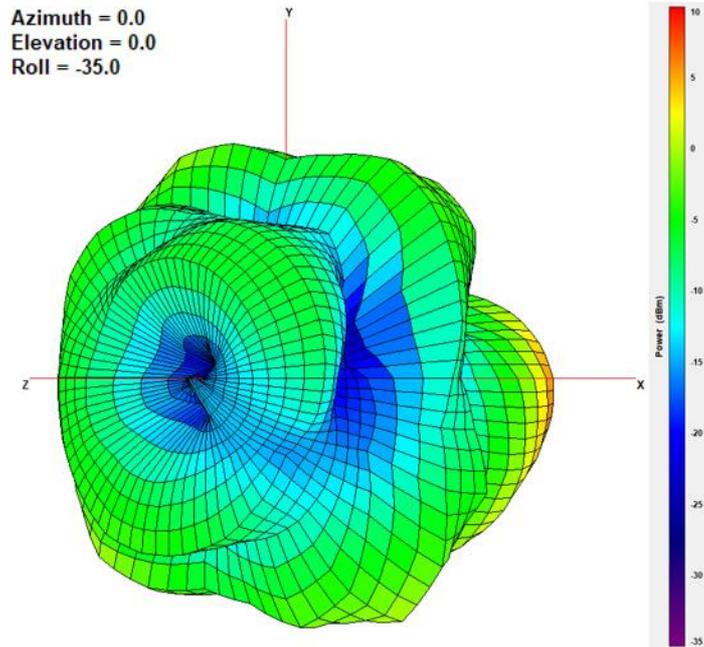
XY Plane

XZ Plane

YZ Plane



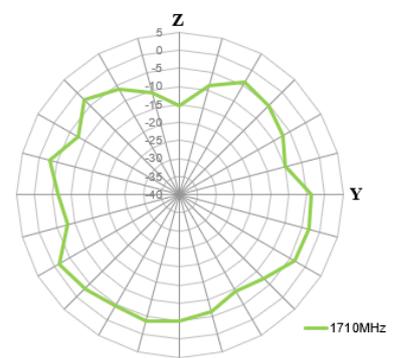
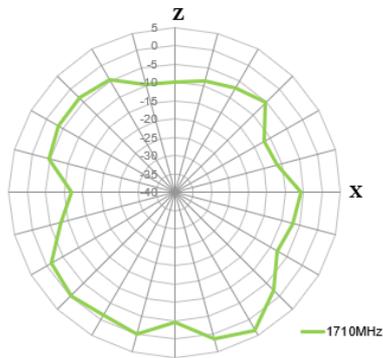
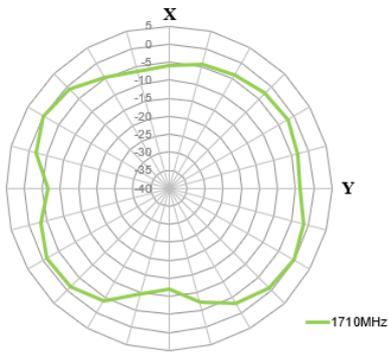
1710MHz



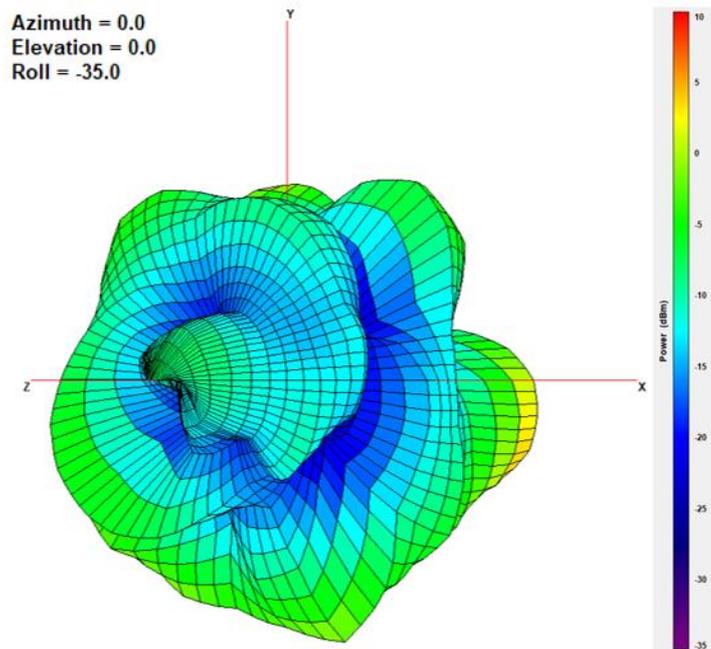
XY Plane

XZ Plane

YZ Plane



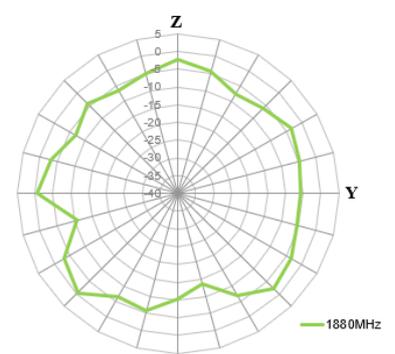
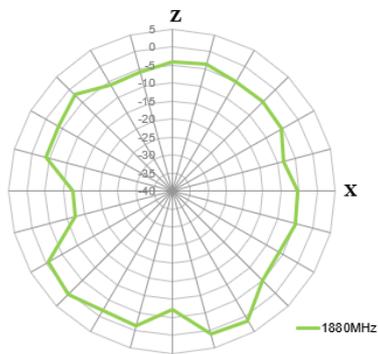
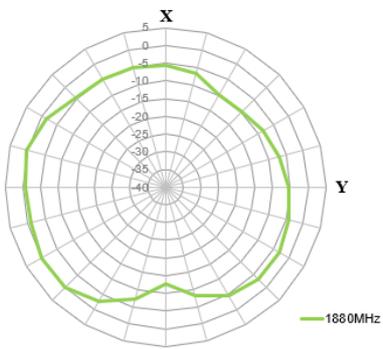
1880MHz



XY Plane

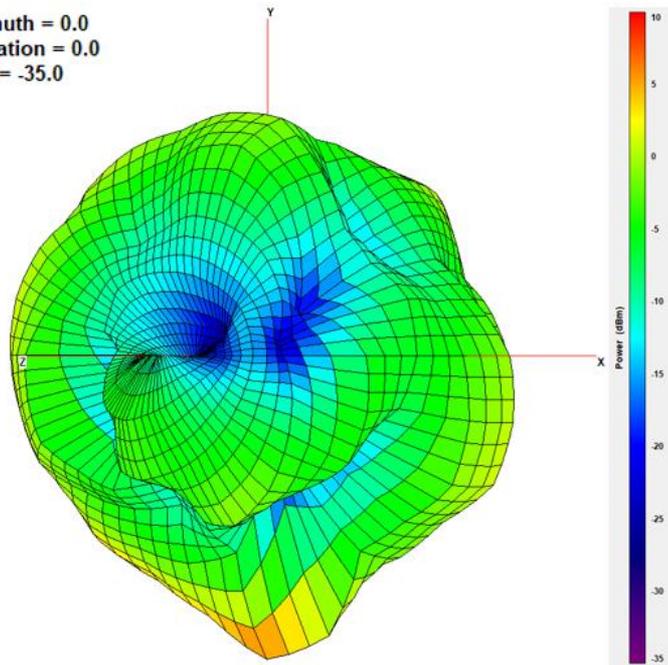
XZ Plane

YZ Plane



1990MHz

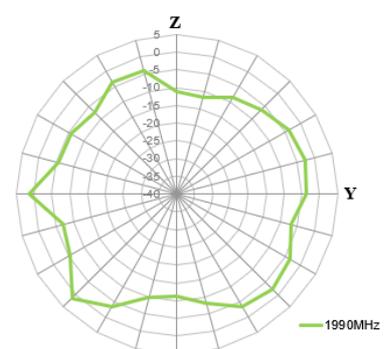
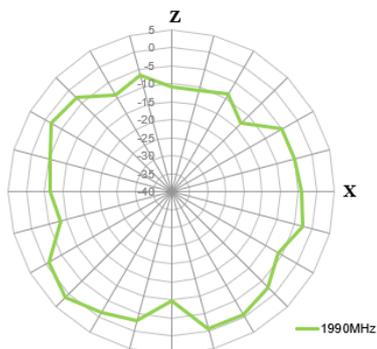
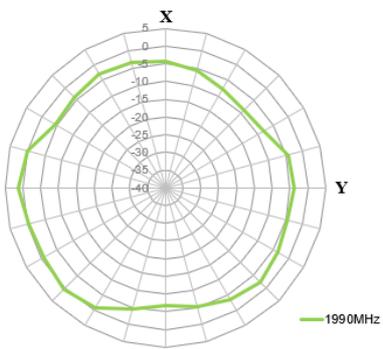
Azimuth = 0.0
 Elevation = 0.0
 Roll = -35.0



XY Plane

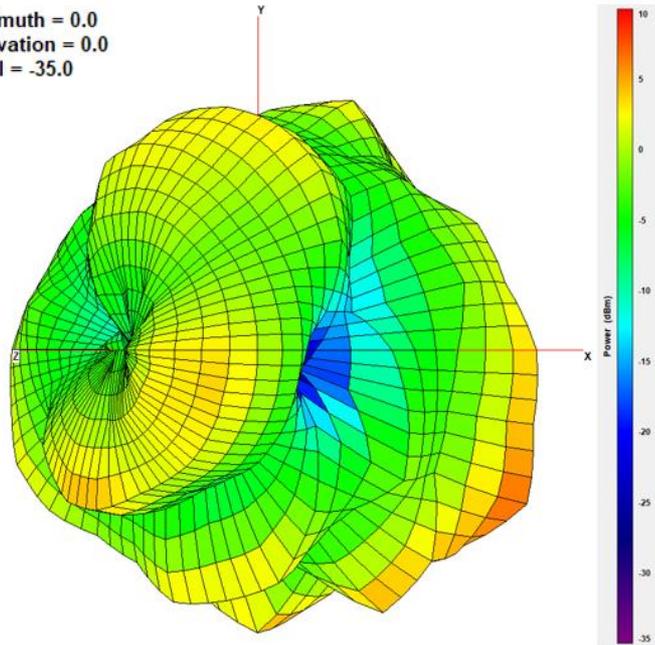
XZ Plane

YZ Plane



2170MHz

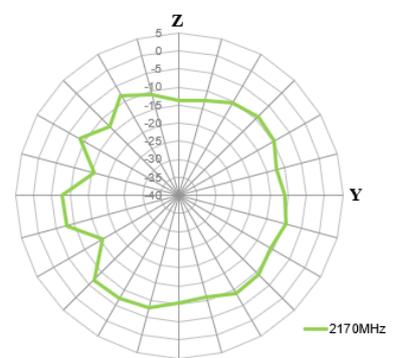
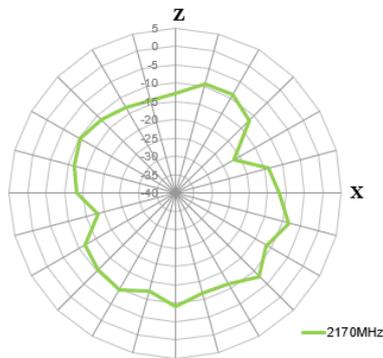
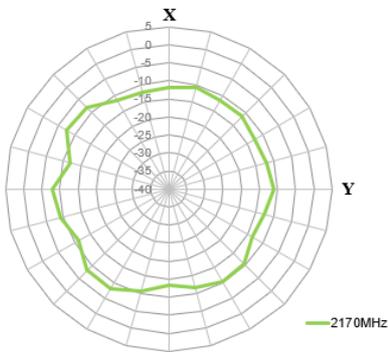
Azimuth = 0.0
Elevation = 0.0
Roll = -35.0



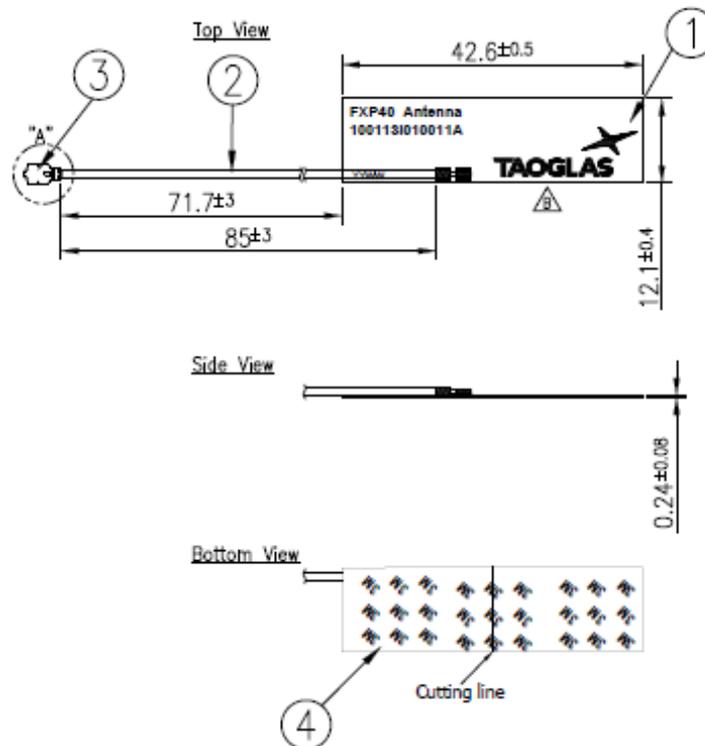
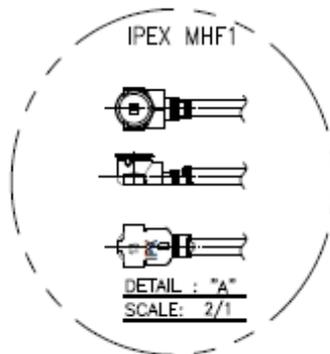
XY Plane

XZ Plane

YZ Plane



5. Mechanical Drawing (Units: mm)



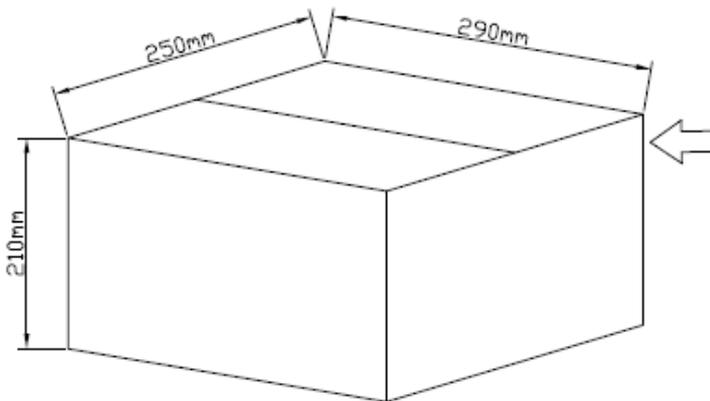
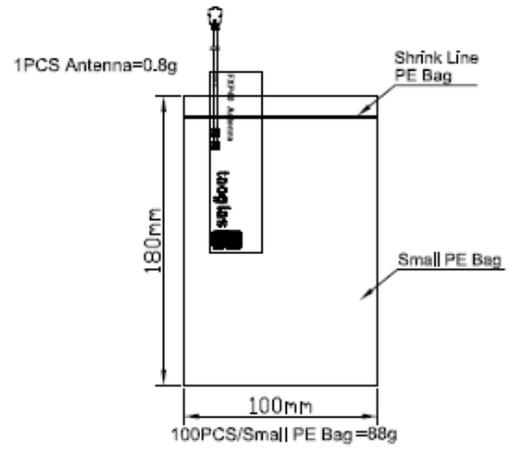
NOTES:

- 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

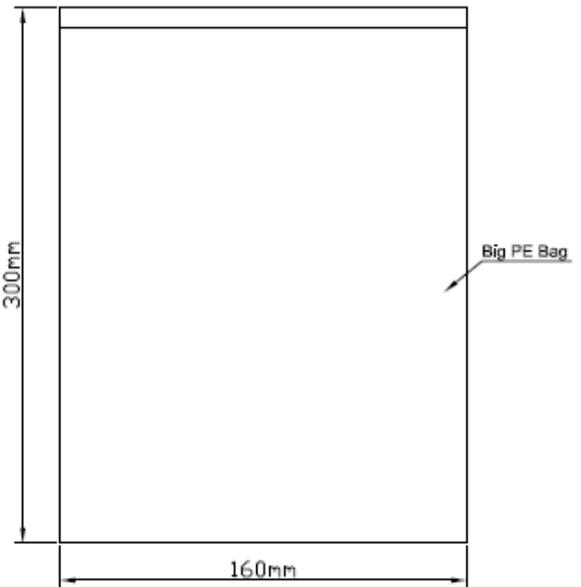
	Name	P/N	Material	Finish	QTY
1	FXP40 PCB	100113010011A	FPCB 0.1t	Black	1
2	1.13 Coaxial Cable	300213A000013A	FEP	Black	1
3	IPEX MHF1	204111D000013A	Brass	Gold	1
4	Double-Sided Adhesive	100113010011A	3M 467	Brown Liner	1

6. Packaging

Package:



10 Big PE Bag / Box = 30000 PCS Antenna =26.7Kg

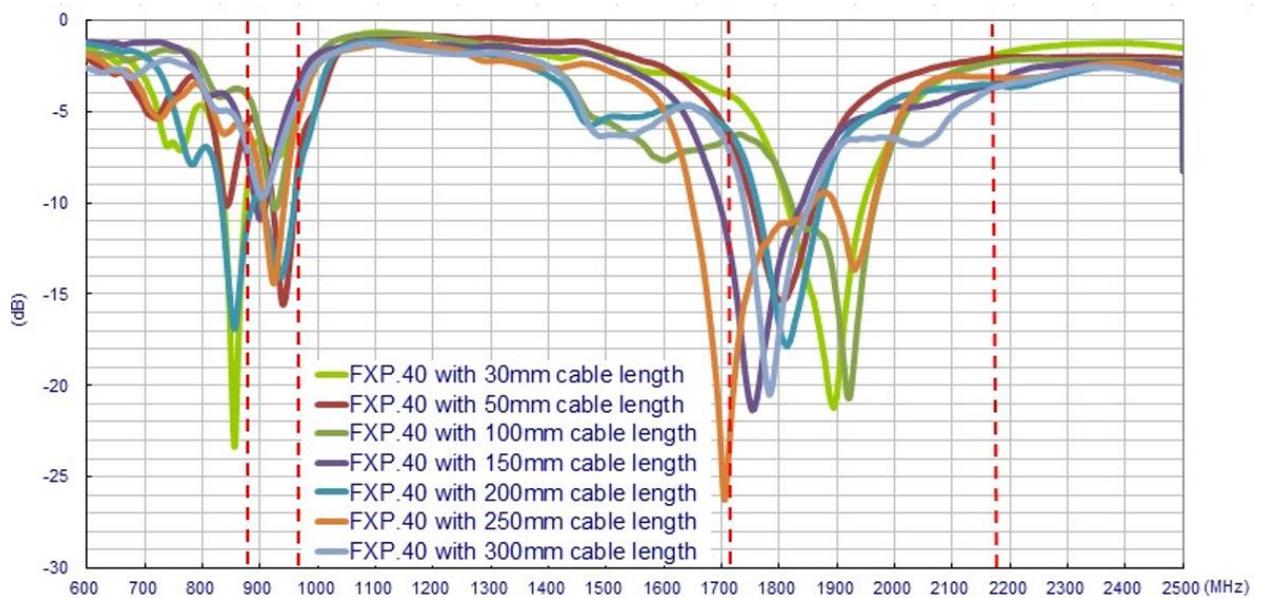


30 Small PE Bag / Big PE Bag = 3000 PCS Antenna =2665g

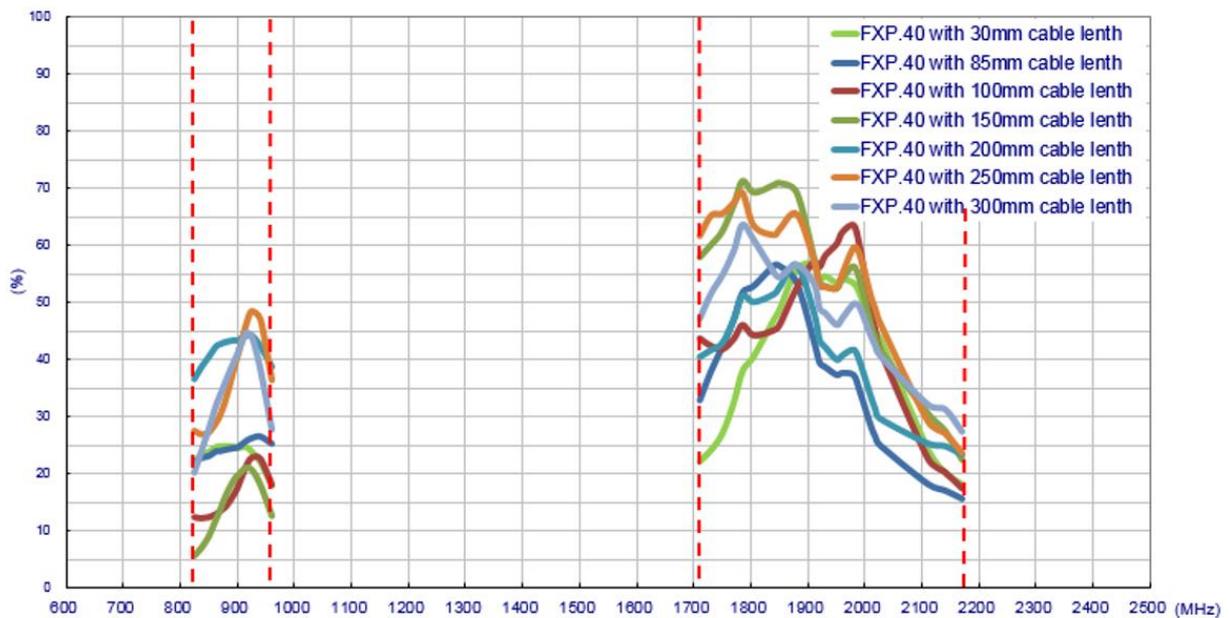
7. Application Note

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

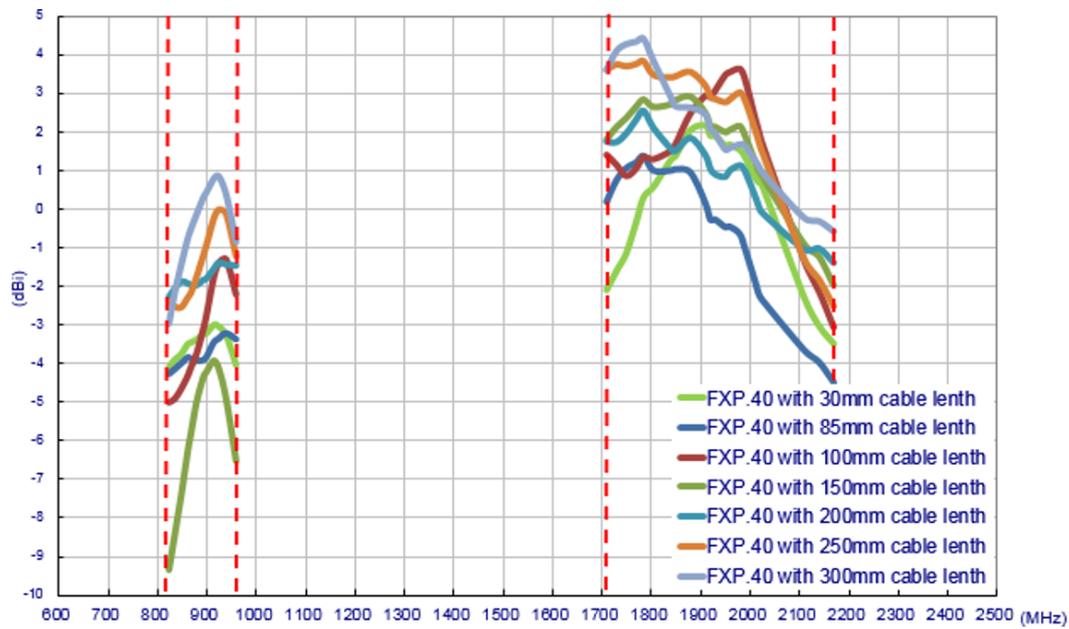
3.1 Return Loss



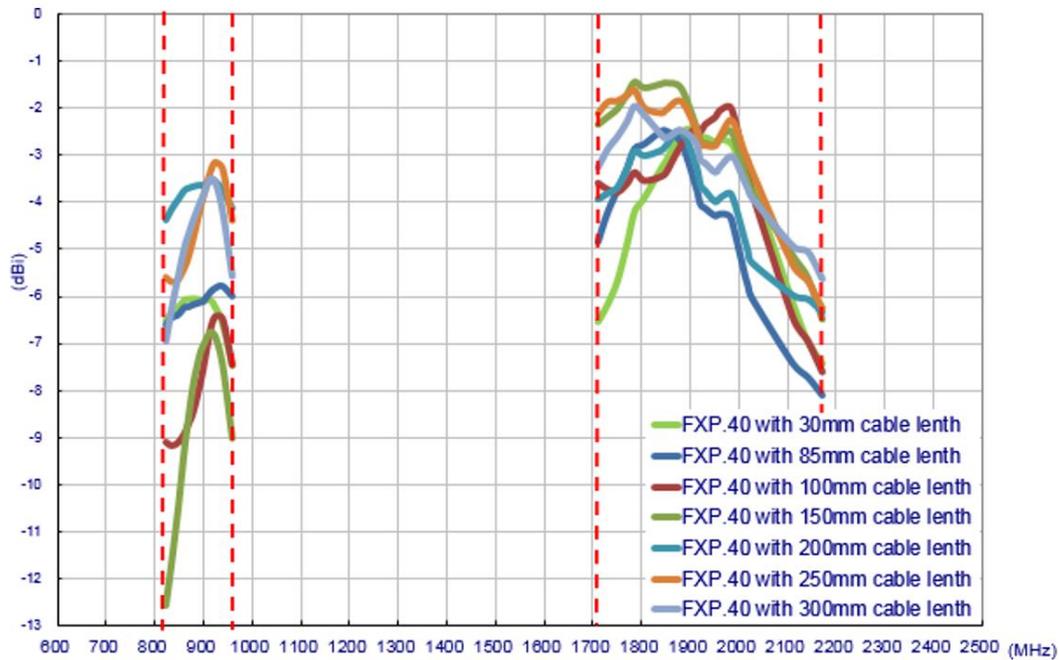
3.2 Efficiency



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



TAOGLAS®

www.taoglas.com

