TAOGLAS


Datasheet

# FXUB63.54.0150C

**Patent Pending**

**Description:**

LTE Wide Band Flex Antenna 698MHz - 3000 MHz

**Features:**

Patent Pending
Ground Plane Independent
698-3000 MHz
>45% Efficiency on All covered bands
5dBi Peak Gain
Connector: I-PEX MHF® 4L (HSC Compatible)
Cable: 150mm 1.37 Coax
Dimensions: 96*21*0.2 mm
RoHS & Reach Compliant

| | | |
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# 1. Introduction


The patent pending FXUB63 flexible wideband antenna has been designed to cover all working frequencies in the 698-3000MHz spectrum, covering all Cellular, 2.4GHz Wi-Fi, ISM and AGPS. The antenna is delivered with a flexible body with excellent efficiencies on all bands, ground independent, with cable and connector for easy installation.

The FXUB63 flexible polymer antenna, at 96*21*0.2mm, is ultra thin and wideband with high efficiencies across the bands. It is assembled by a simple “peel and stick” process, attaching securely to non-metal surfaces via 3M adhesive. It enables designers to use only one antenna that covers all common LTE frequencies.

The FXUB63 antenna is a durable flexible polymer antenna that has a peak gain of 5dBi, an efficiency of more than 45% across the bands and is designed to be mounted directly onto a plastic or glass cover. It is an ideal choice for any device maker that needs to keep manufacturing costs down over the lifetime of a product. It is ground plane independent and delivered with a cable and connector for easy connecting to the wireless module or customer PCB.

The FXUB63 uses a future proof I-PEX MHF® 4L connector for 5G applications to match the many module providers new 5G modules who utilize this smaller receptacle.

Cables and Connectors are customizable. Like all such antennas, care should be taken to mount the antenna at least 10mm from metal components or surfaces, and ideally 20mm for best radiation efficiency.

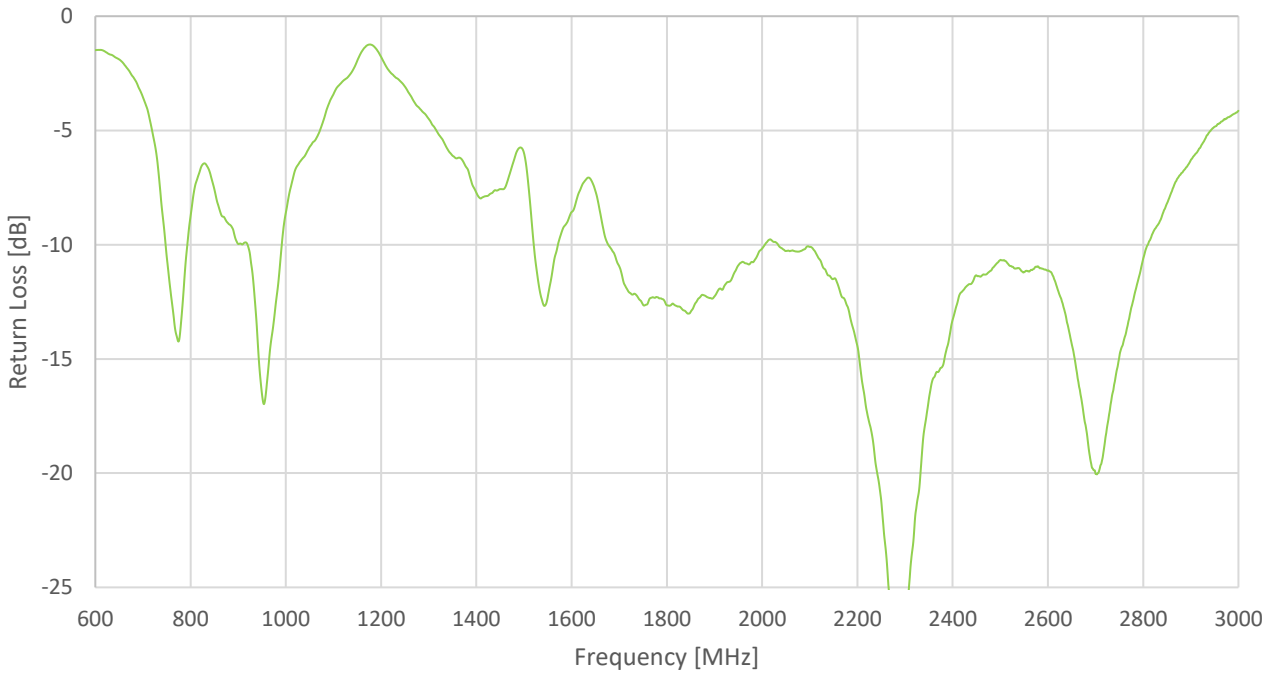
# 2. Specifications

| Electrical | | | | | | |
|---|---|---|---|---|---|---|
| **Frequency (MHz)** | **698-960** | **1575.42** | **1710 -1990** | **1755-2170** | **2400 -2500** | **2500-2690** |
| **Efficiency (%)** | | | | | | |
| With Ground Plane (3mm ABS) | 52 | 67 | 75 | 72 | 71 | 62 |
| **Average Gain (dB)** | | | | | | |
| With Ground Plane (3mm ABS) | -2.9 | -1.7 | -1.2 | -1.4 | -1.5 | -2.1 |
| **Peak Gain (dBi)** | | | | | | |
| With Ground Plane (3mm ABS) | 4.5 | 2.33 | 4.6 | 4.7 | 4.4 | 4.0 |
| **Max VSWR** | | | | | | |
| With Ground Plane (3mm ABS) | 5.2 | 2.0 | 1.9 | 2.0 | 1.8 | 1.8 |
| **Max Return Loss (dB)** | | | | | | |
| With Ground Plane (3mm ABS) | -3.4 | -9.7 | -10.5 | -9.8 | -10.7 | -10.7 |
| Impedance | 50Ω | | | | | |
| Polarization | Linear | | | | | |
| Radiation Pattern | Omni | | | | | |
| Input Power | 5W Max | | | | | |
| **Mechanical** | | | | | | |
| Dimensions (mm) | 96*21*0.2 mm | | | | | |
| Material | Flexible Polymer | | | | | |
| Connector | I-PEX MHF® 4L (HSC Compatible) | | | | | |
| Cable Length | 150 mm | | | | | |
| Cable | 1.37 mm mini coax | | | | | |
| **Environmental** | | | | | | |
| Operation Temperature | -40°C to 85°C | | | | | |
| Storage Temperature | -40°C to 85°C | | | | | |
| Relative Humidity | 40% to 95% | | | | | |

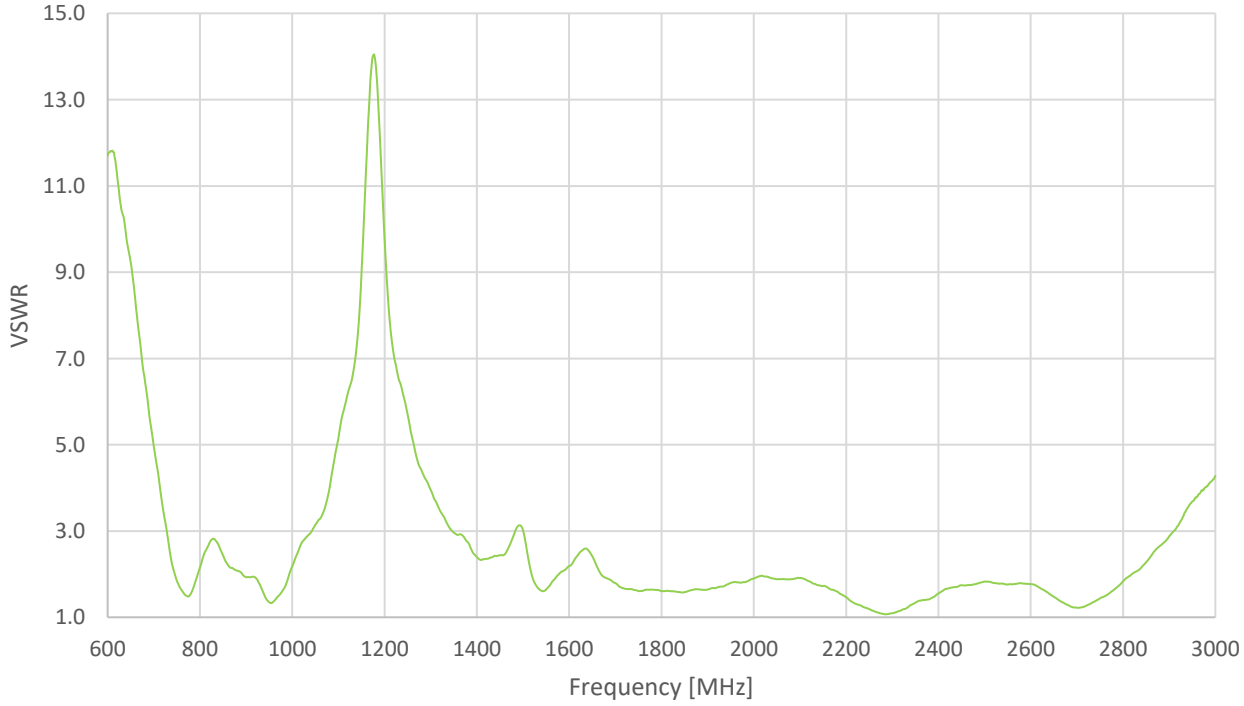
| 5G/4G Bands | | | |
|---|---|---|---|
| Band Number | 5GNR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA | | |
| | **Uplink** | **Downlink** | **Covered** |
| **1** | UL: 1920 to 1980 | DL: 2110 to 2170 | ✓ |
| **2** | UL: 1850 to 1910 | DL: 1930 to 1990 | ✓ |
| **3** | UL: 1710 to 1785 | DL: 1805 to 1880 | ✓ |
| **4** | UL: 1710 to 1755 | DL: 2110 to 2155 | ✓ |
| **5** | UL: 824 to 849 | DL: 869 to 894 | ✓ |
| **7** | UL: 2500 to 2570 | DL:2620 to 2690 | ✓ |
| **8** | UL: 880 to 915 | DL: 925 to 960 | ✓ |
| **9** | UL: 1749.9 to 1784.9 | DL: 1844.9 to 1879.9 | ✓ |
| **11** | UL: 1427.9 to 1447.9 | DL: 1475.9 to 1495.9 | ✓ |
| **12** | UL: 699 to 716 | DL: 729 to 746 | ✓ |
| **13** | UL: 777 to 787 | DL: 746 to 756 | ✓ |
| **14** | UL: 788 to 798 | DL: 758 to 768 | ✓ |
| **17** | UL: 704 to 716 | DL: 734 to 746 | ✓ |
| **18** | UL: 815 to 830 | DL: 860 to 875 | ✓ |
| **19** | UL: 830 to 845 | DL: 875 to 890 | ✓ |
| **20** | UL: 832 to 862 | DL: 791 to 821 | ✓ |
| **21** | UL: 1447.9 to 1462.9 | DL: 1495.9 to 1510.9 | ✓ |
| **22** | UL: 3410 to 3490 | DL: 3510 to 3590 | ✗ |
| **23** | UL:2000 to 2020 | DL: 2180 to 2200 | ✓ |
| **24** | UL:1625.5 to 1660.5 | DL: 1525 to 1559 | ✓ |
| **25** | UL: 1850 to 1915 | DL: 1930 to 1995 | ✓ |
| **26** | UL: 814 to 849 | DL: 859 to 894 | ✓ |
| **27** | UL: 807 to 824 | DL: 852 to 869 | ✓ |
| **28** | UL: 703 to 748 | DL: 758 to 803 | ✓ |
| **29** | UL: - | DL: 717 to 728 | ✓ |
| **30** | UL: 2305 to 2315 | DL: 2350 to 2360 | ✓ |
| **31** | UL: 452.5 to 457.5 | DL: 462.5 to 467.5 | ✗ |
| **32** | UL: - | DL: 1452 - 1496 | ✓ |
| **35** | 1850 to 1910 | | ✓ |
| **38** | 2570 to 2620 | | ✓ |
| **39** | 1880 to 1920 | | ✓ |
| **40** | 2300 to 2400 | | ✓ |
| **41** | 2496 to 2690 | | ✓ |
| **42** | 3400 to 3600 | | ✗ |
| **43** | 3600 to 3800 | | ✗ |
| **48** | 3550 to 3700 | | ✗ |
| **66** | UL: 1710-1780 | DL: 2110-2200 | ✓ |
| **71** | 617 to 698 | | ✓ |
| **74/75/76** | 1427 to 1518 | | ✓ |
| **78** | 3300 to 3800 | | ✗ |
| **79** | 4400 to 5000 | | ✗ |
| **85** | 698-716 | 728-746 | ✓ |

# 3. Antenna Characteristics

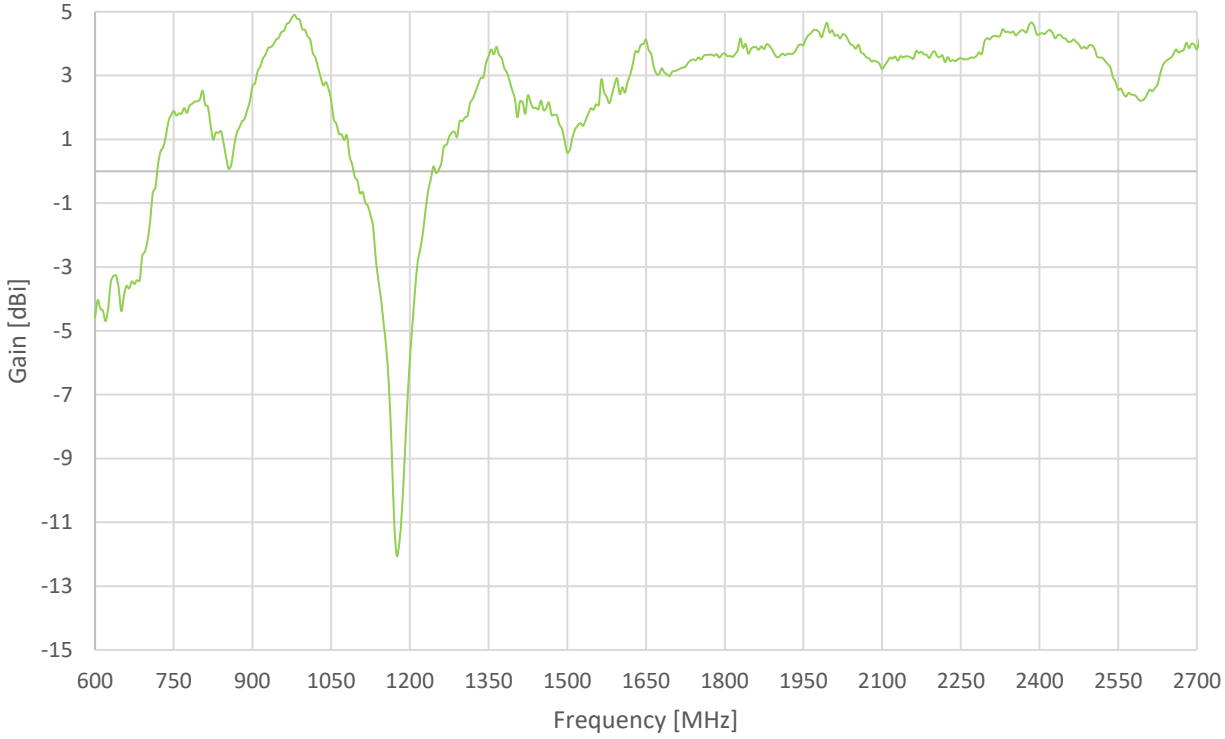
## 3.1 Return Loss




## 3.2 VSWR



## 3.3 Peak Gain

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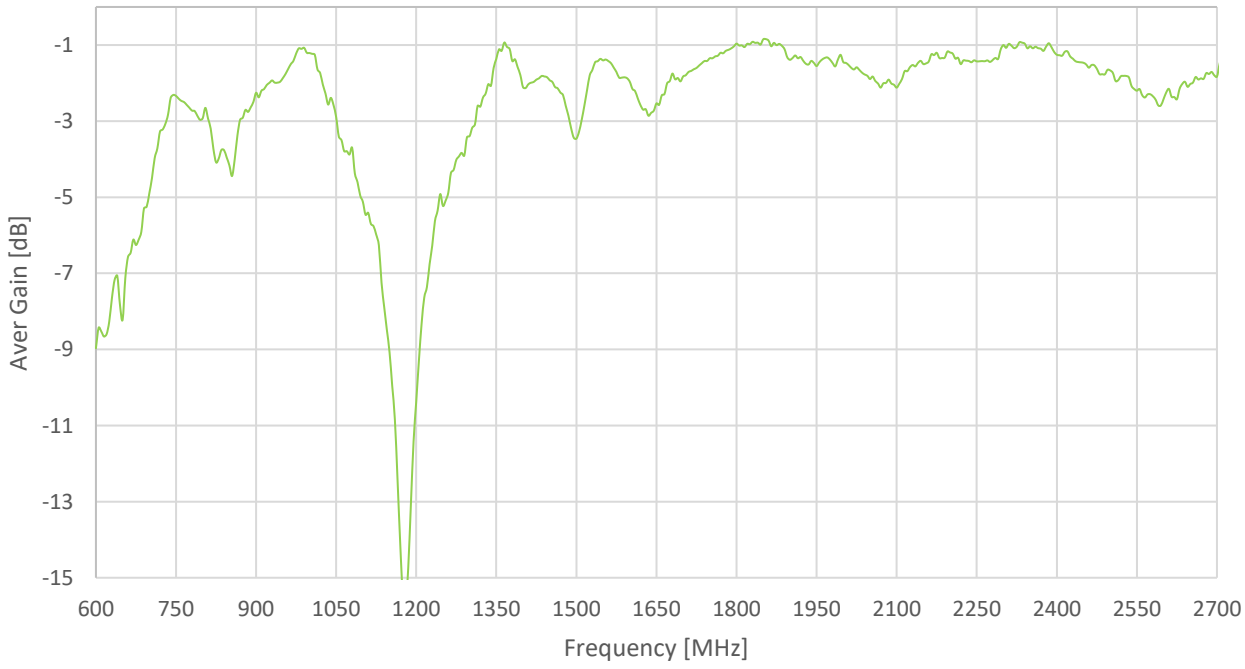
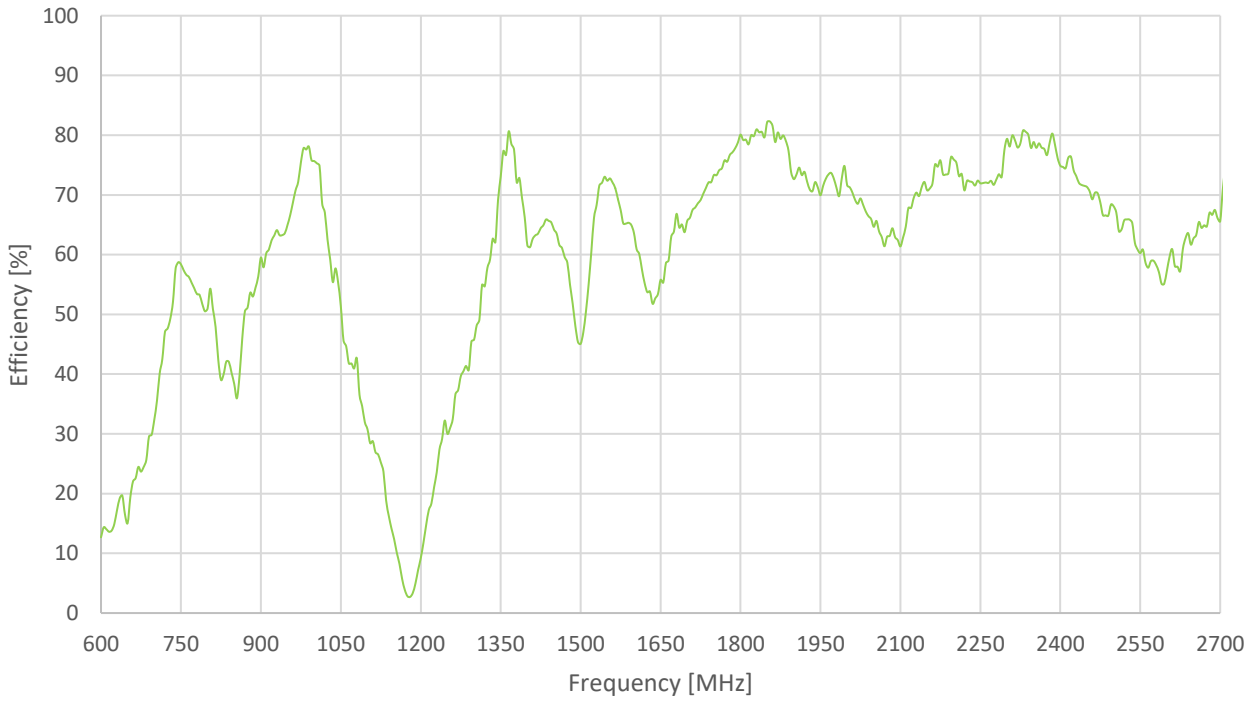
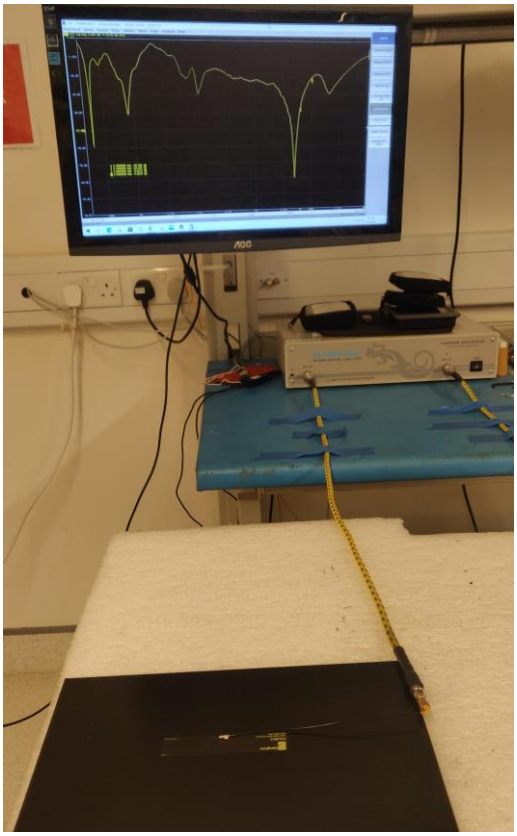


## 3.5 Efficiency



# 4. Radiation Patterns

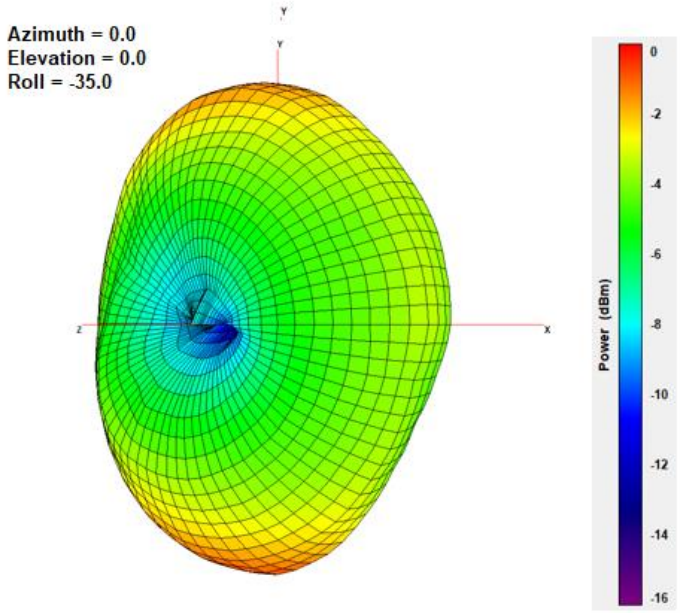
## 4.1 Test Setup



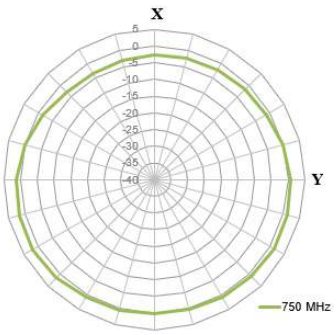
VNA Set-Up

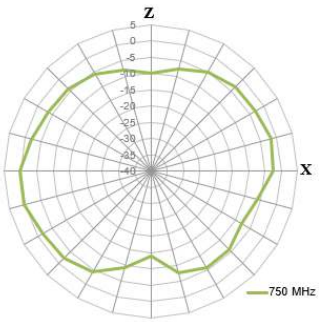
Chamber Set-Up

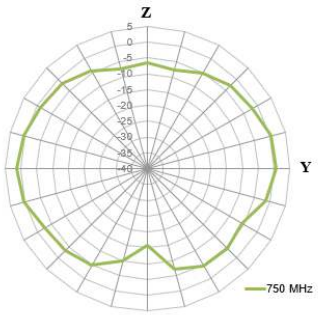
## 750MHz



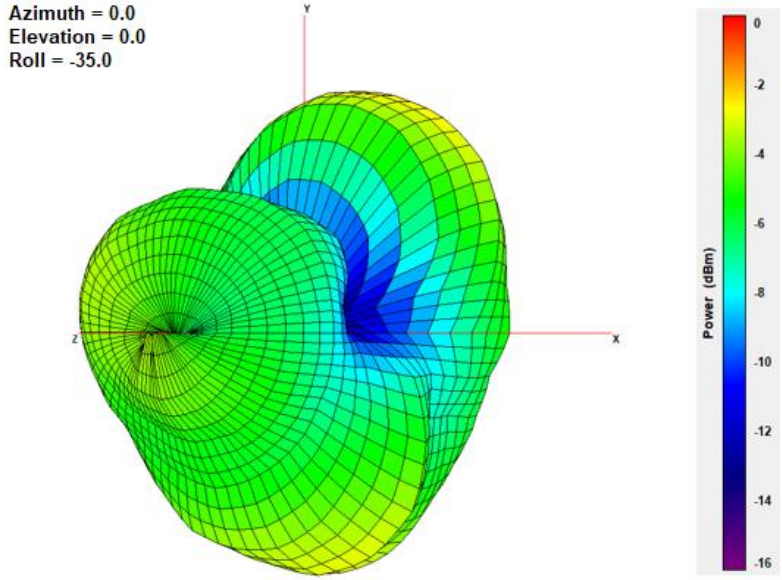

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



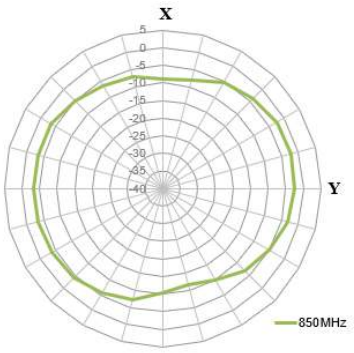



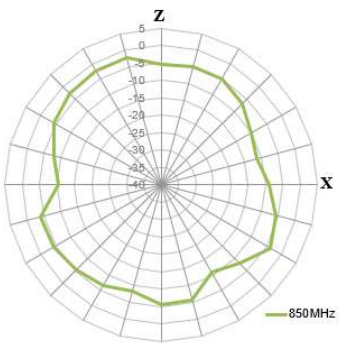



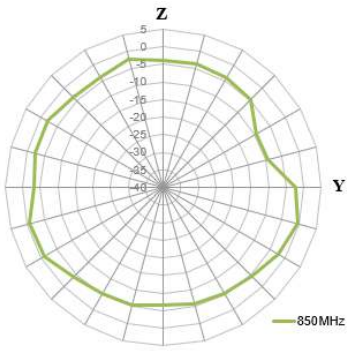
## 850MHz



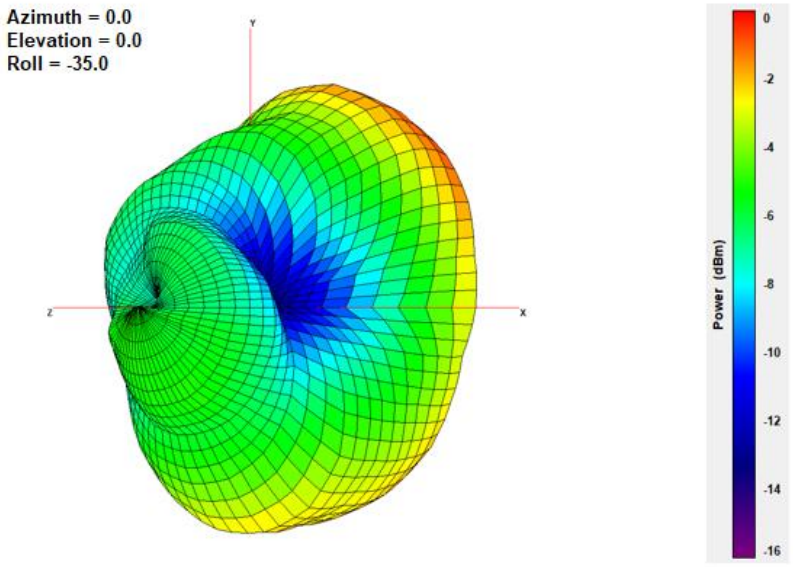

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



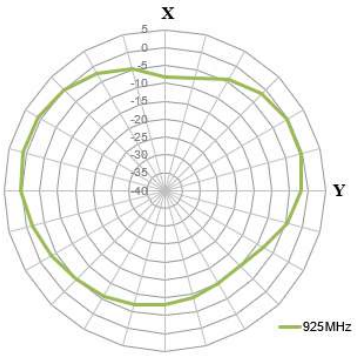



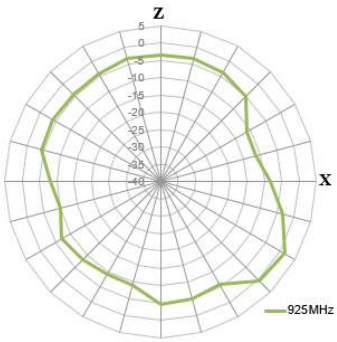



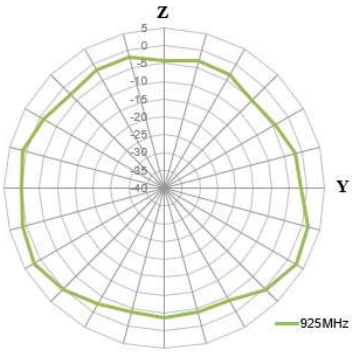
## 925MHz



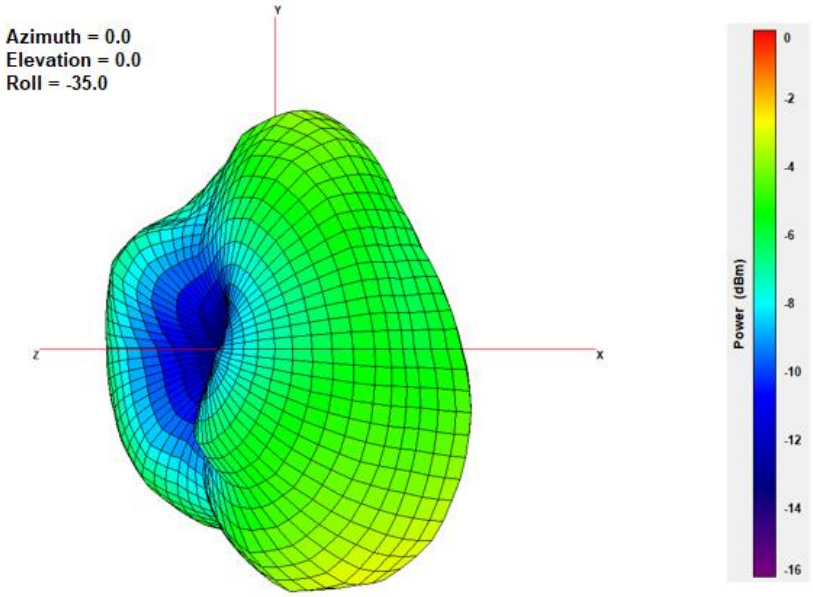

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



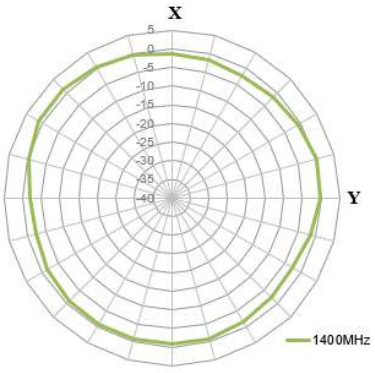



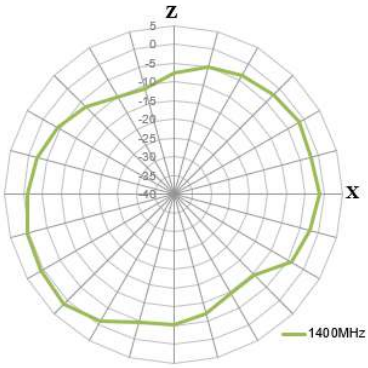



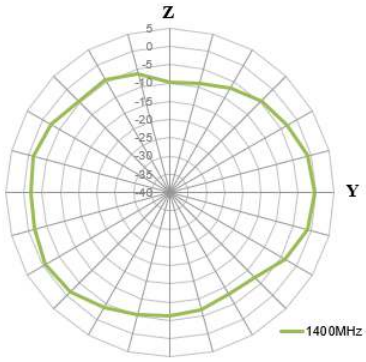
## 1400MHz



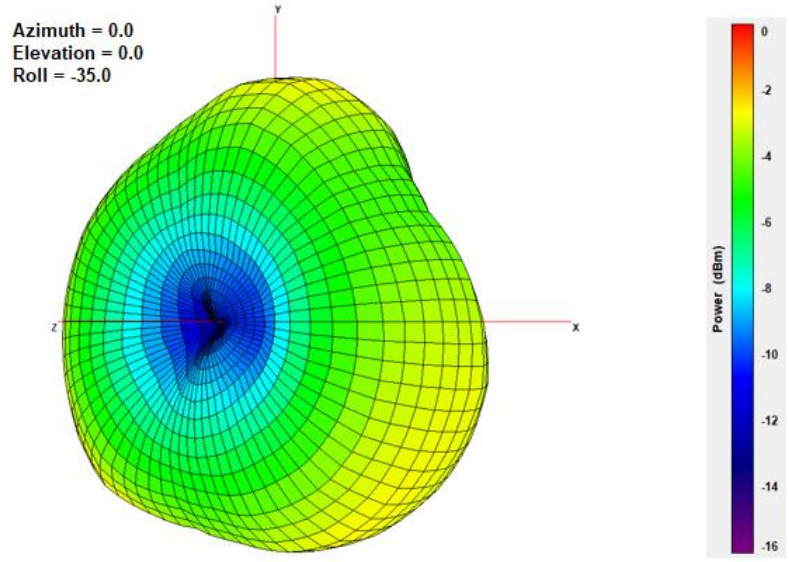

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



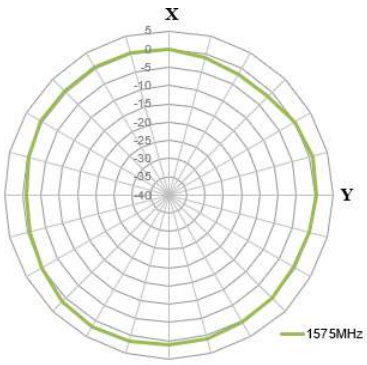



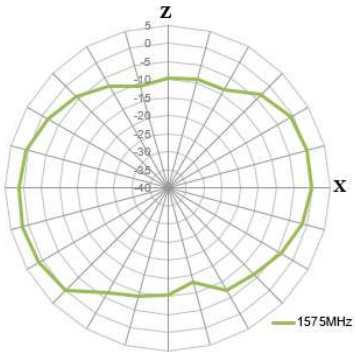



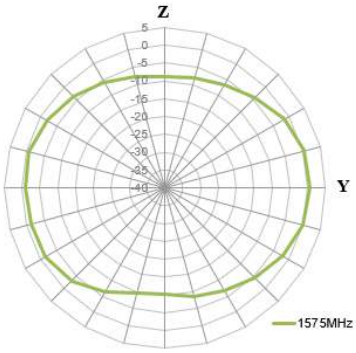
## 1575MHz



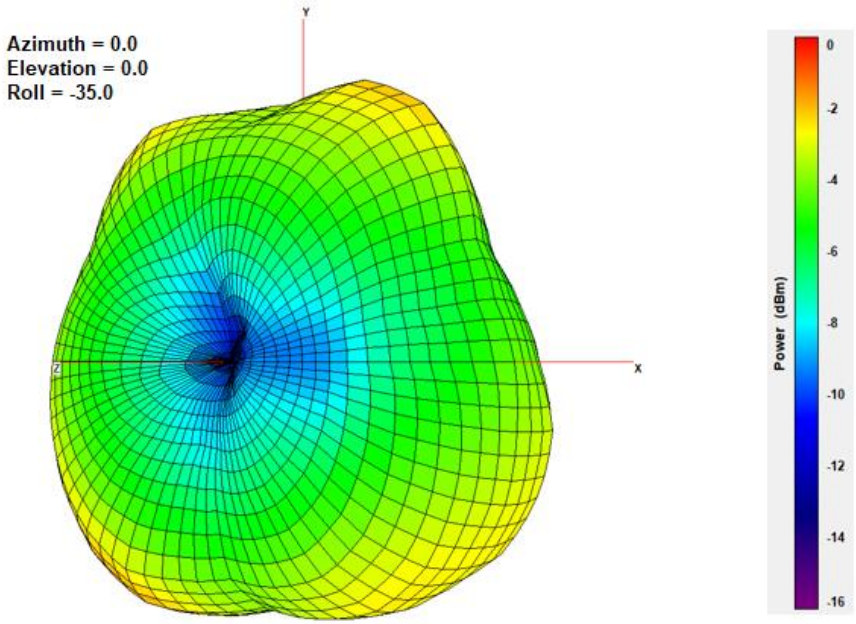

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



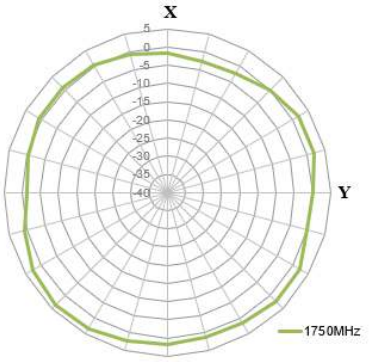



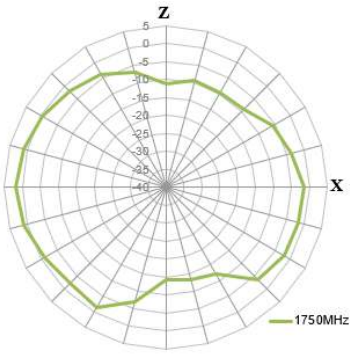



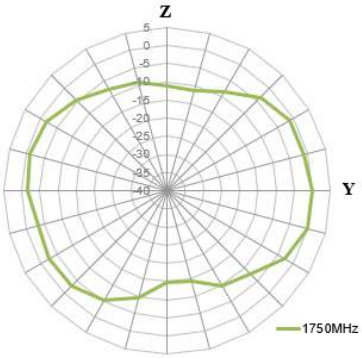
## 1750MHz



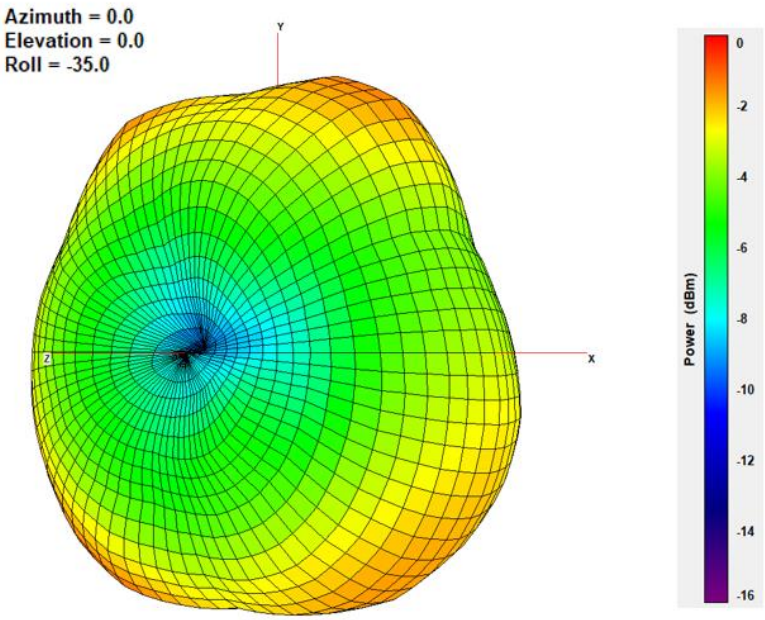

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



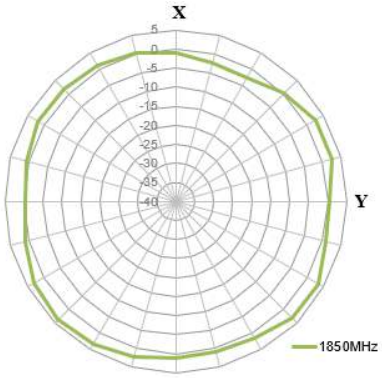



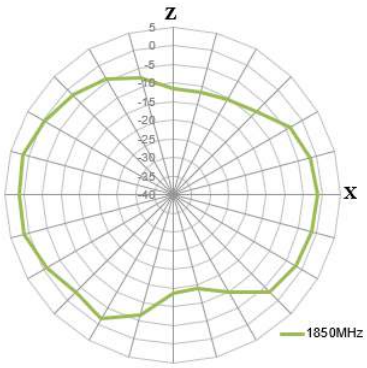



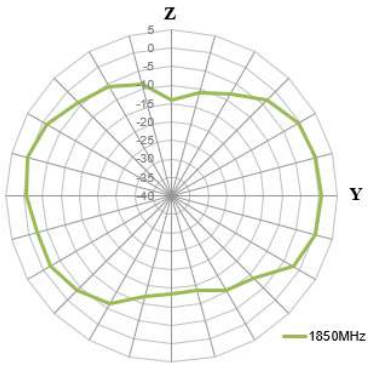
## 1850MHz




| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



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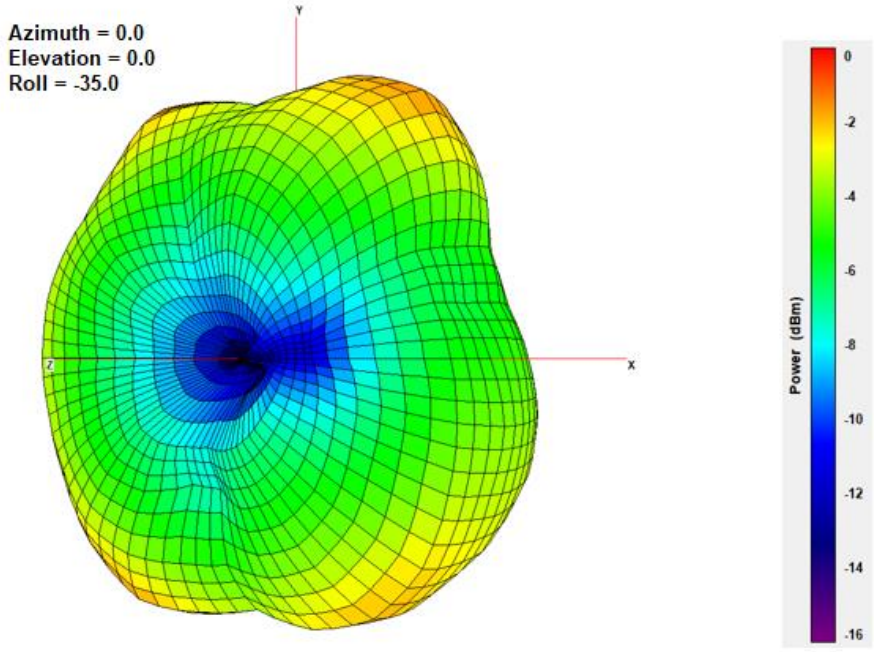
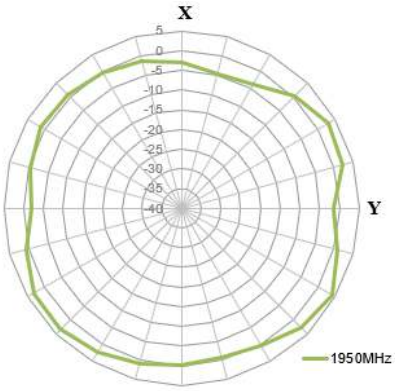
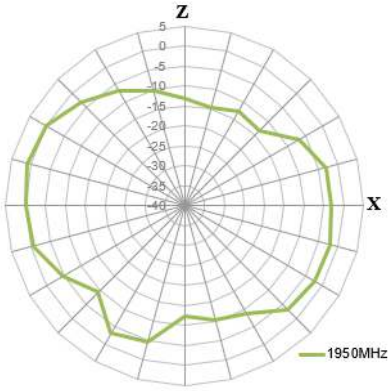
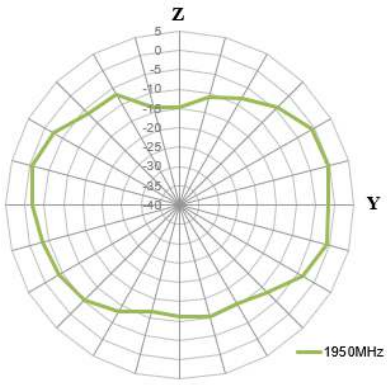


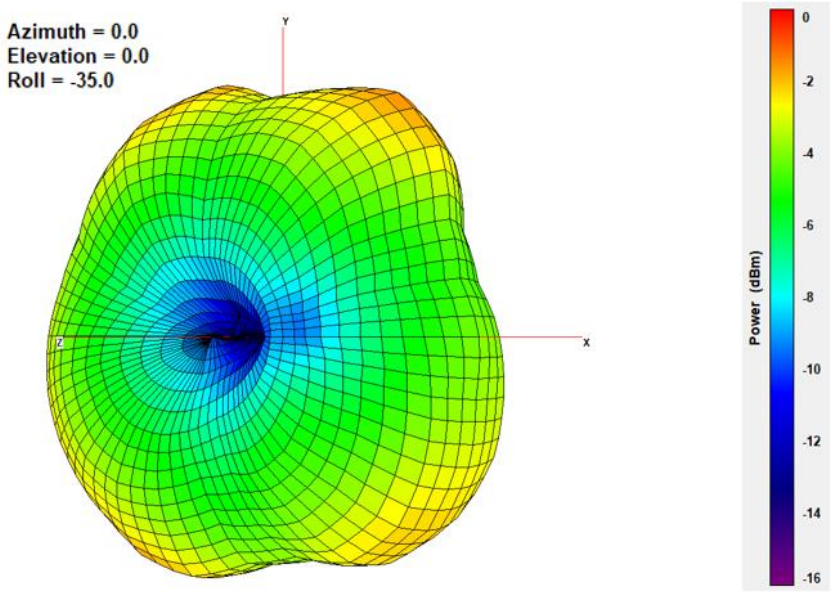

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



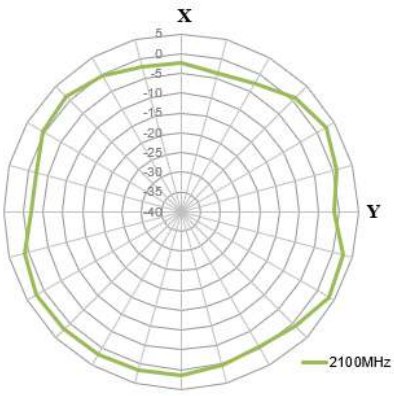



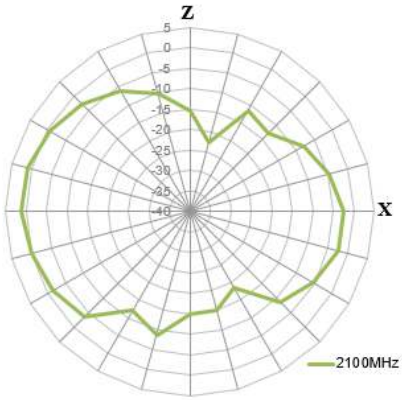



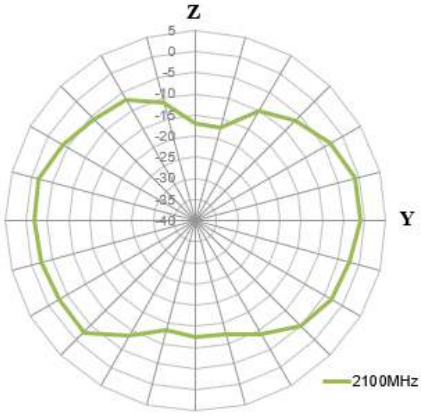
## 2100MHz



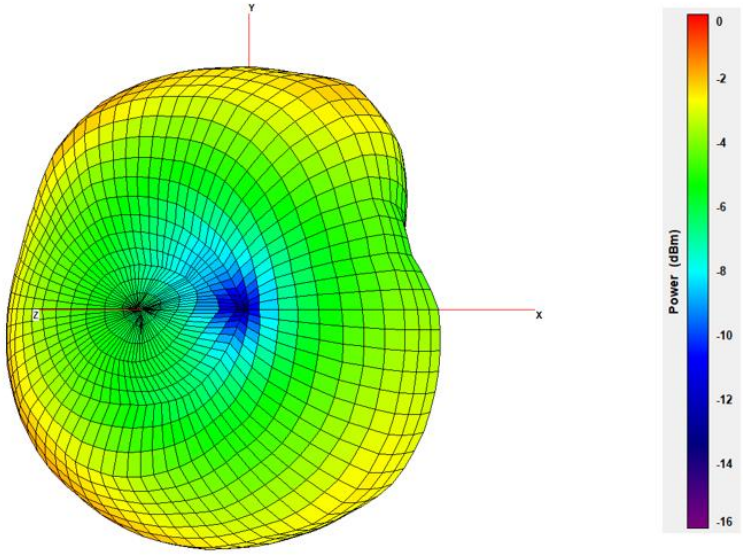

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



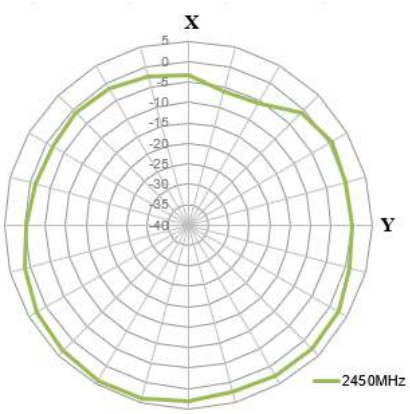



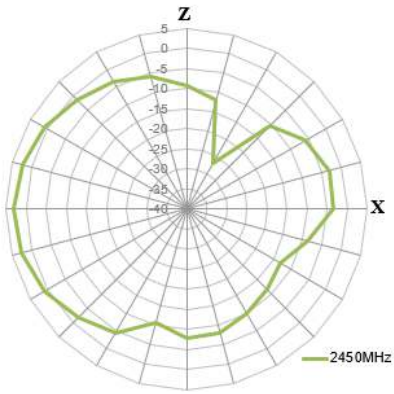



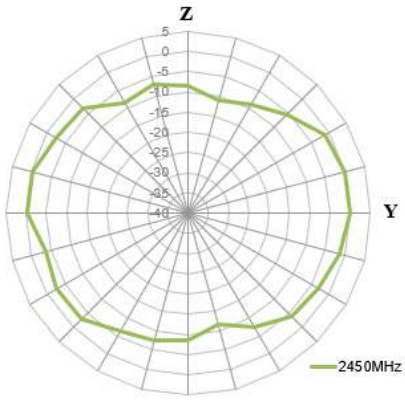
## 2450MHz



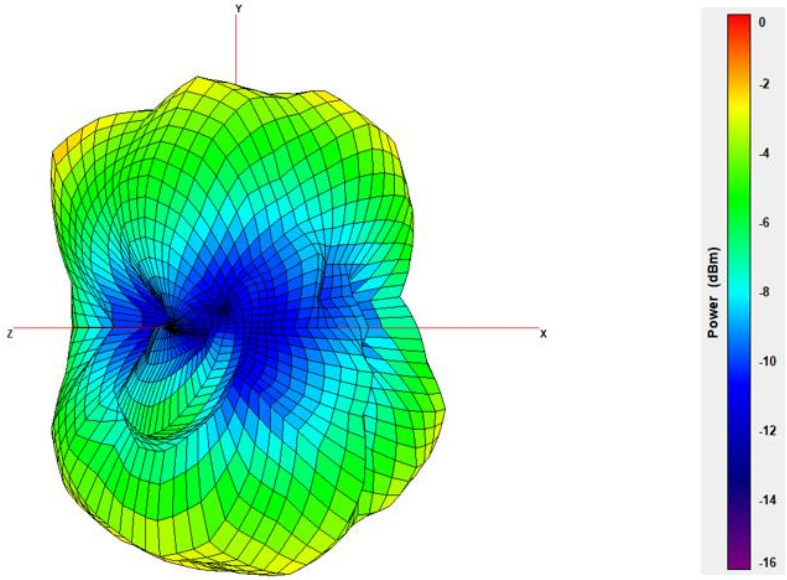

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



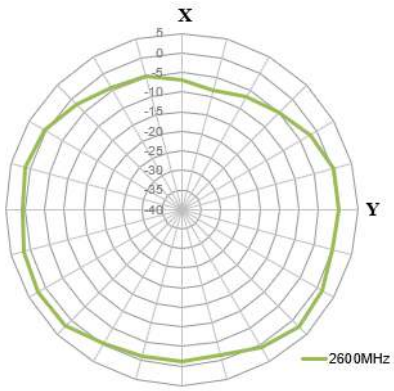



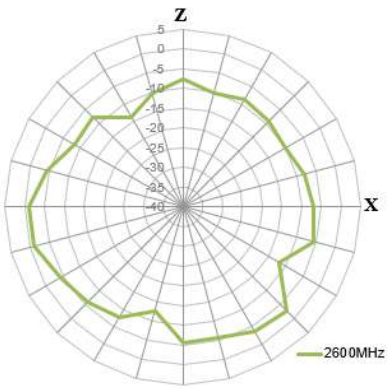



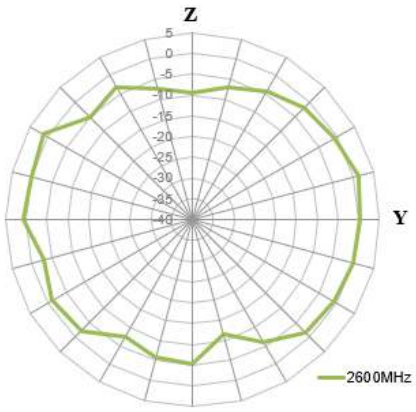
## 2600MHz



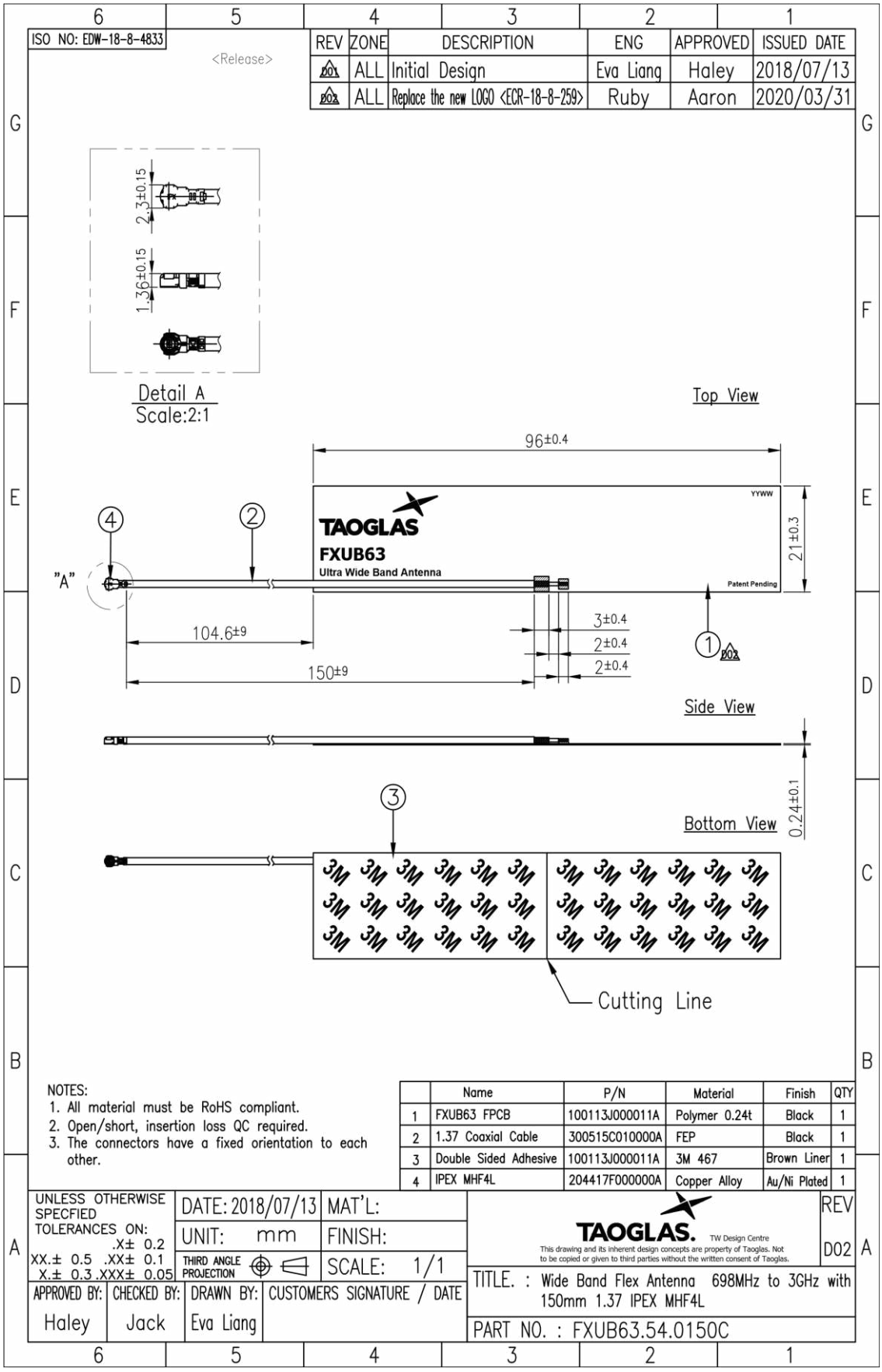

| XY Plane | XZ Plane | YZ Plane |
|---|---|---|



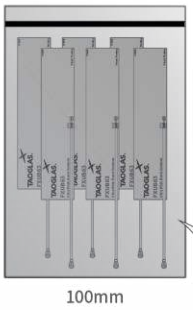



# 5. Drawing

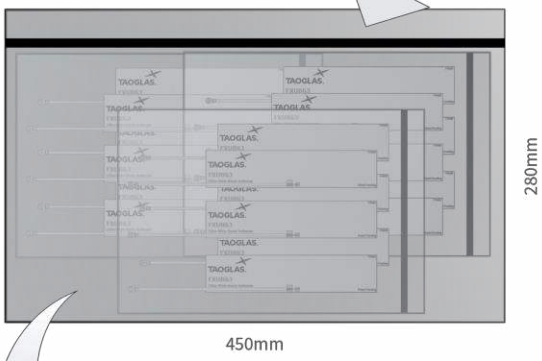

ISO NO: EDW-18-8-4833
<Release>
REV | ZONE | DESCRIPTION | ENG | APPROVED | ISSUED DATE
D01 | ALL | Initial Design | Eva Liang | Haley | 2018/07/13
D02 | ALL | Replace the new LOGO <ECR-18-8-259> | Ruby | Aaron | 2020/03/31
2.3±0.15
1.36±0.15
Detail A
Scale:2:1
Top View
96±0.4
TAOGLAS
FXUB63
Ultra Wide Band Antenna
YYWW
Patent Pending
21±0.3
"A"
104.6±9
150±9
3±0.4
2±0.4
2±0.4
Side View
0.24±0.1
Bottom View
Cutting Line
NOTES:
1. All material must be RoHS compliant.
2. Open/short, insertion loss QC required.
3. The connectors have a fixed orientation to each other.
Name | P/N | Material | Finish | QTY
1 | FXUB63 FPCB | 100113J000011A | Polymer 0.24t | Black | 1
2 | 1.37 Coaxial Cable | 300515C010000A | FEP | Black | 1
3 | Double Sided Adhesive | 100113J000011A | 3M 467 | Brown Liner | 1
4 | IPEX MHF4L | 204417F000000A | Copper Alloy | Au/Ni Plated | 1
UNLESS OTHERWISE SPECFIED TOLERANCES ON:
.X± 0.2
XX.± 0.5 .XX± 0.1
X.± 0.3 .XXX± 0.05
DATE: 2018/07/13
UNIT: mm
THIRD ANGLE PROJECTION
MAT'L:
FINISH:
SCALE: 1/1
APPROVED BY: Haley
CHECKED BY: Jack
DRAWN BY: Eva Liang
CUSTOMERS SIGNATURE / DATE
TAOGLAS. TW Design Centre
This drawing and its inherent design concepts are property of Taoglas. Not to be copied or given to third parties without the written consent of Taoglas.
REV D02
TITLE. : Wide Band Flex Antenna 698MHz to 3GHz with 150mm 1.37 IPEX MHF4L
PART NO. : FXUB63.54.0150C

# 6. Packaging

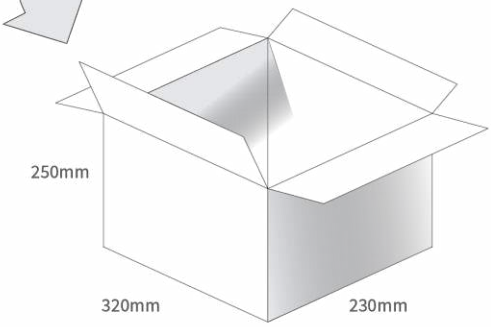
100pcs FXUB63.54.0150C per PE Bag
Dimensions - 300*100
Weight - 150g



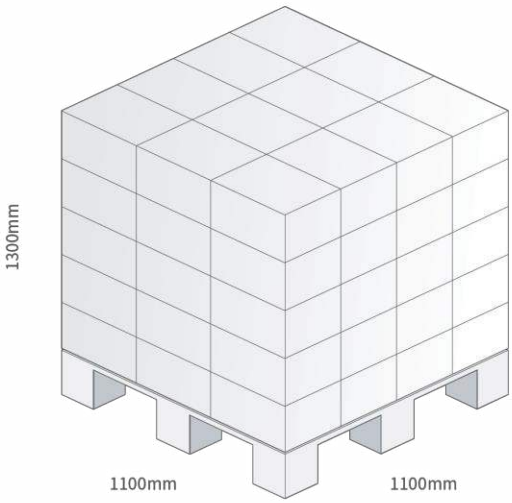

1000pcs FXUB63.54.0150C per Large PE Bag
Dimensions - 450*280mm
Weight - 1.5Kg




5000pcs FXUB63.54.0150C per carton
Dimensions - 320*250*230mm
Weight - 6Kg




Pallet Dimensions:
1100*1100*1300mm
65 Cartons Per Pallet
13 Cartons Per Layer
5 Layers



Changelog for the datasheet

## SPE-21-8-015 – FXUB63.54.0150C

| Revision: A (Original First Release) | |
|---|---|
| Date: | 2021-03-18 |
| Notes: | Release |
| Author: | Jack Conroy |

**Previous Revisions**

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