TAOGLAS


# Datasheet

**Part No:**
**FXUB63.07.0150C**

**Description**

LTE Wide Band Flex Antenna 600MHz -6000 MHz

**Features:**

Ground Plane Independent
Flexible polymer material
Covering: 600-6000 MHz
I-PEX MHF® I (U.FL comp)
150mm Ø1.37 coaxial cable
Dimensions: 96*21*0.2 mm
RoHS & Reach Compliant

# 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.

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. Specification

| LTE Electrical | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Band** | Frequency (MHz) | Efficiency (%) | Average Gain (dB) | Peak Gain (dBi) | Impedance | Polarization | Radiation Pattern | Max. input power |
| **5GNR/4G** Band71 | 617-698 | 26.2 | -5.82 | -0.32 | 50 Ω | Linear | Omni | 5W |
| **4G/3G** Band 12,13,14,17,28,29 | 698-806 | 24.6 | -6.09 | 0.36 | | | | |
| **4G/3G/NB-IoT/Cat M** Band 5,8,18,19,20,26,27 | 824-960 | 57.4 | -2.41 | 3.78 | | | | |
| **5GNR/4G** Band 21,32,74,75,76 | 1427-1518 | 67.0 | -1.74 | 3.53 | | | | |
| **4G/3G** Band 1,2,3,4,9,23,25,35,39,66 | 1710-2200 | 67.5 | -1.71 | 4.83 | | | | |
| **4G/3G** Band 7,30,38,40,41 | 2300-2690 | 74.3 | -1.29 | 6.22 | | | | |
| **5GNR/4G** Band 22,42,48,77,78,79 | 3300-5000 | 37.9 | -4.22 | 3.80 | | | | |
| **LTE5200/Wi-Fi5800** | 5150-5925 | 33.1 | -4.80 | 4.96 | | | | |

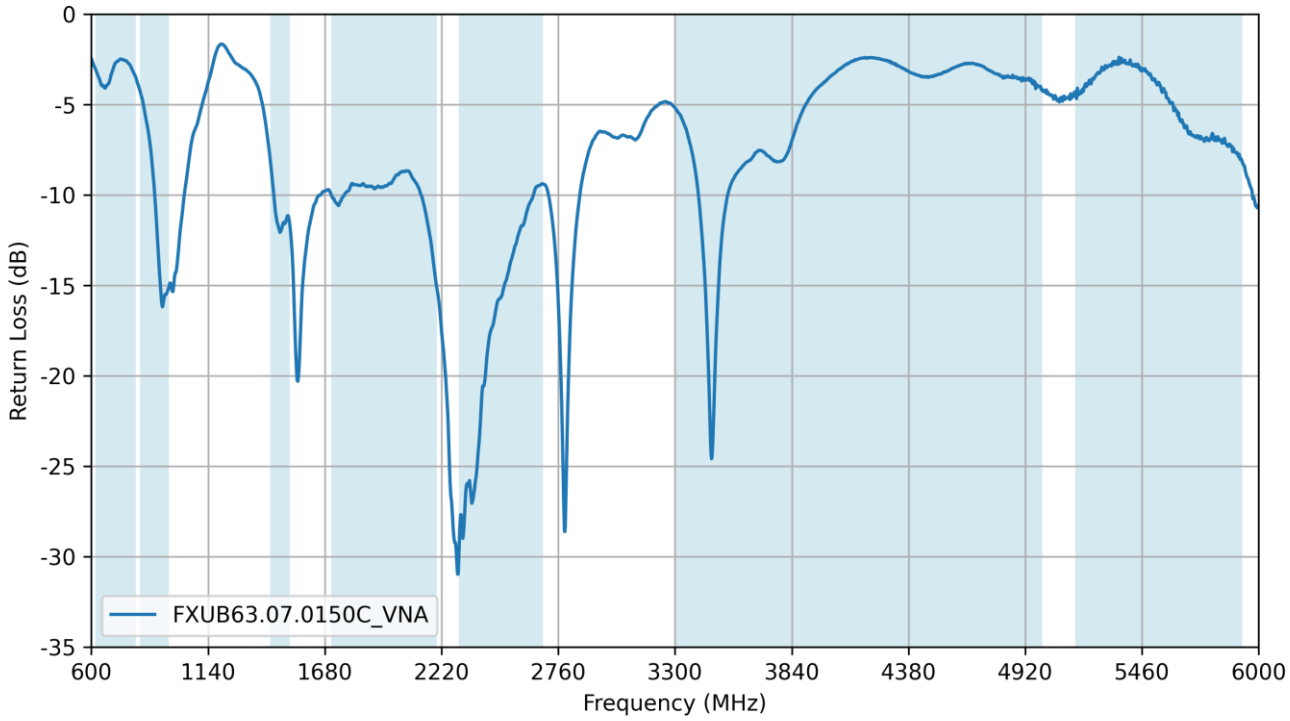
| Mechanical | |
|---|---|
| Dimensions (mm) | 96*21*0.2 mm |
| Material | Flexible Polymer |
| Connector | I-PEX MHFI (U.FL Compatible) |
| Cable Length | 150 mm |
| Cable | 1.37 mm mini coax |

| Environmental | |
|---|---|
| Operation Temperature | -40°C to 85°C |
| Storage Temperature | -40°C to 85°C |
| Relative Humidity | 40% to 95% |

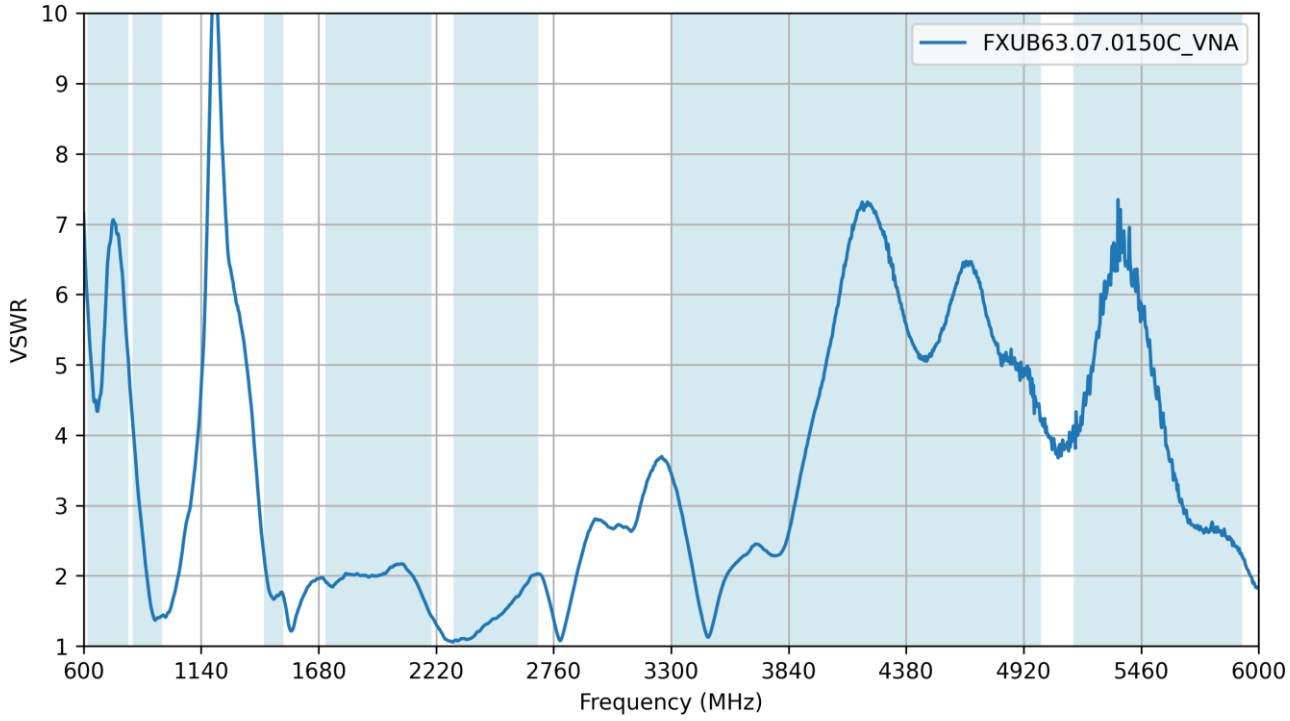
| 5G/4G Bands | | | |
|---|---|---|---|
| **Band Number** | **5GNR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA** | | |
| | **Uplink** | **Downlink** | **Covered** |
| **B1** | 1920 to 1980 | 2110 to 2170 | ✓ |
| **B2** | 1850 to 1910 | 1930 to 1990 | ✓ |
| **B3** | 1710 to 1785 | 1805 to 1880 | ✓ |
| **B4** | 1710 to 1755 | 2110 to 2155 | ✓ |
| **B5** | 824 to 849 | 869 to 894 | ✓ |
| **B7** | 2500 to 2570 | 2620 to 2690 | ✓ |
| **B8** | 880 to 915 | 925 to 960 | ✓ |
| **B9*** | 1749.9 to 1784.9 | 1844.9 to 1879.9 | ✓ |
| **B11** | 1427.9 to 1447.9 | 1475.9 to 1495.9 | ✓ |
| **B12** | 699 to 716 | 729 to 746 | ✓ |
| **B13** | 777 to 787 | 746 to 756 | ✓ |
| **B14** | 788 to 798 | 758 to 768 | ✓ |
| **B17** | 704 to 716 | 734 to 746 | ✓ |
| **B18** | 815 to 830 | 860 to 875 | ✓ |
| **B19** | 830 to 845 | 875 to 890 | ✓ |
| **B20** | 832 to 862 | 791 to 821 | ✓ |
| **B21** | 1447.9 to 1462.9 | 1495.9 to 1510.9 | ✓ |
| **B22*** | 3410 to 3490 | 3510 to 3590 | ✓ |
| **B23*** | 2000 to 2020 | 2180 to 2200 | ✓ |
| **B24** | 1626.5 to 1660.5 | 1525 to 1559 | ✓ |
| **B25** | 1850 to 1915 | 1930 to 1995 | ✓ |
| **B26** | 814 to 849 | 859 to 894 | ✓ |
| **B27*** | 807 to 824 | 852 to 869 | ✓ |
| **B28** | 703 to 748 | 758 to 803 | ✓ |
| **B29** | 717 to 728 | | ✓ |
| **B30** | 2305 to 2315 | 2350 to 2360 | ✓ |
| **B31** | 452.5 to 457.5 | 462.5 to 467.5 | ✗ |
| **B32** | 1452 to 1496 | | ✓ |
| **B34** | 2010 to 2025 | | ✓ |
| **B35** | 1850 to 1910 | | ✓ |
| **B36** | 1930 to 1990 | | ✓ |
| **B37** | 1910 to 1930 | | ✓ |
| **B38** | 2570 to 2620 | | ✓ |
| **B39** | 1880 to 1920 | | ✓ |
| **B40** | 2300 to 2400 | | ✓ |
| **B41** | 2496 to 2690 | | ✓ |
| **B42** | 3400 to 3600 | | ✓ |
| **B43** | 3600 to 3800 | | ✓ |
| **B45** | 1447 to 1467 | | ✓ |
| **B46** | 5150 to 5925 | | ✓ |
| **B47** | 5855 to 5925 | | ✓ |
| **B48** | 3550 to 3700 | | ✓ |
| **B49** | 3550 to 3700 | | ✓ |
| **B50** | 1432 to 1517 | | ✓ |
| **B51** | 1427 to 1432 | | ✓ |
| **B52** | 3300 to 3400 | | ✓ |
| **B53** | 2483.5 to 2495 | | ✓ |
| **B65** | 1920 to 2010 | 2110 to 2200 | ✓ |
| **B66** | 1710 to 1780 | 2110 to 2200 | ✓ |
| **B68** | 698 to 728 | 753 to 783 | ✓ |
| **B69** | 2570 to 2620 | | ✓ |
| **B70** | 1695 to 1710 | 1995 to 2020 | ✓ |
| **B71** | 663 to 698 | 617 to 652 | ✓ |
| **B72** | 451 to 456 | 461 to 466 | ✗ |
| **B73** | 450 to 455 | 460 to 465 | ✗ |
| **B74** | 1427 to 1470 | 1475 to 1518 | ✓ |
| **B75** | 1432 to 1517 | | ✓ |
| **B76** | 1427 to 1432 | | ✓ |
| **B77** | 3300 to 4200 | | ✓ |
| **B78** | 3300 to 3800 | | ✓ |
| **B79** | 4400 to 5000 | | ✓ |
| **B85** | 698 to 716 | 728 to 746 | ✓ |
| **B87** | 410 to 415 | 420 to 425 | ✗ |
| **B88** | 412 to 417 | 422 to 427 | ✗ |

# 3. Antenna Characteristics

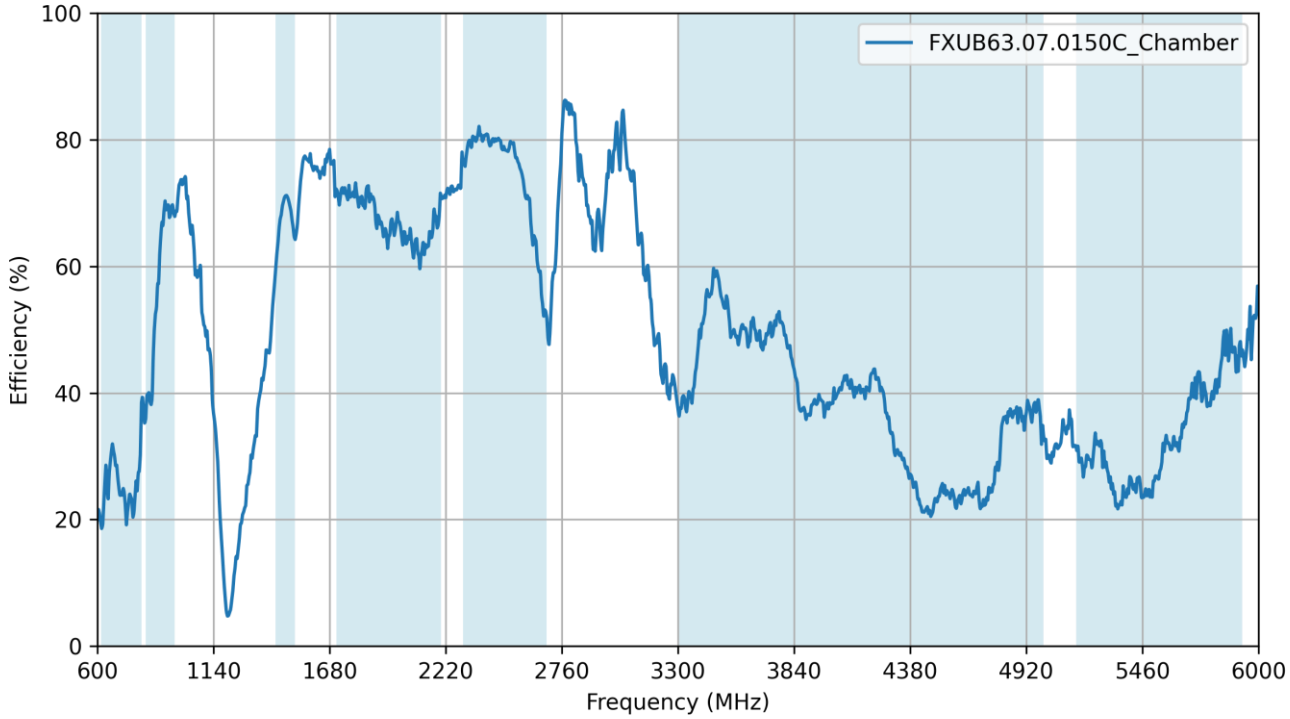
## 3.1 Return Loss



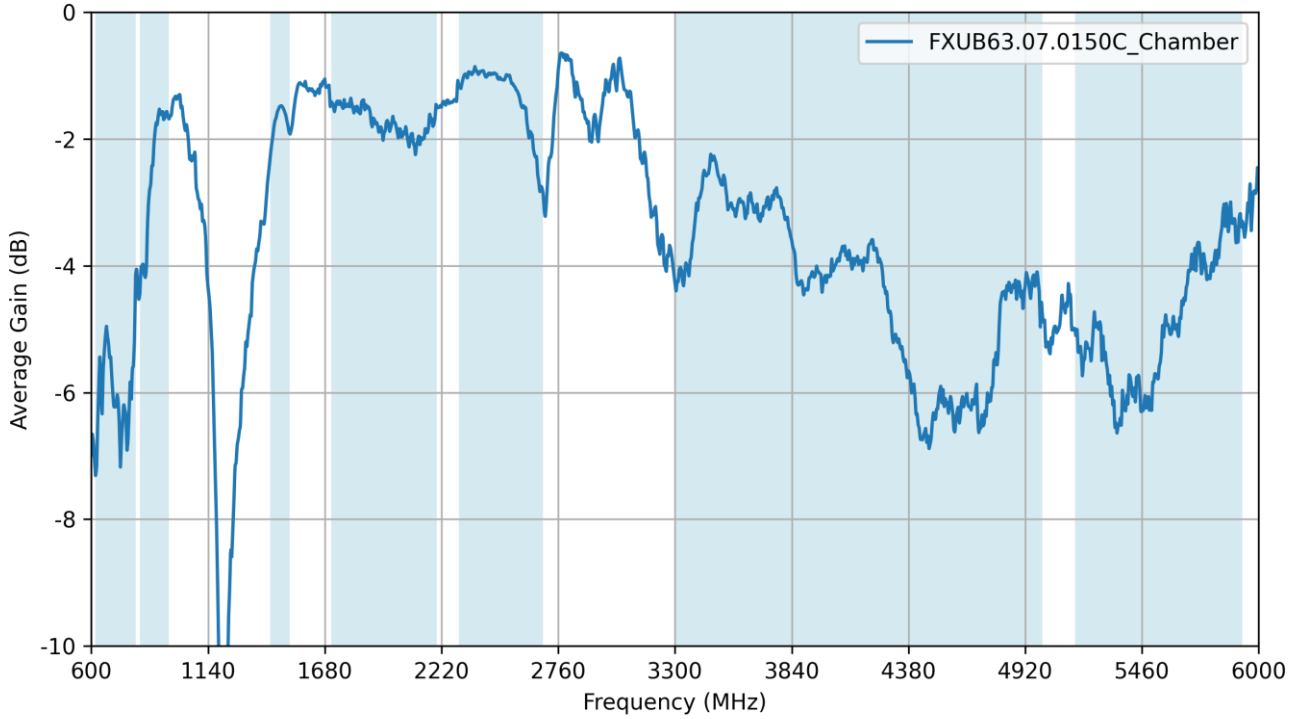

## 3.2 VSWR



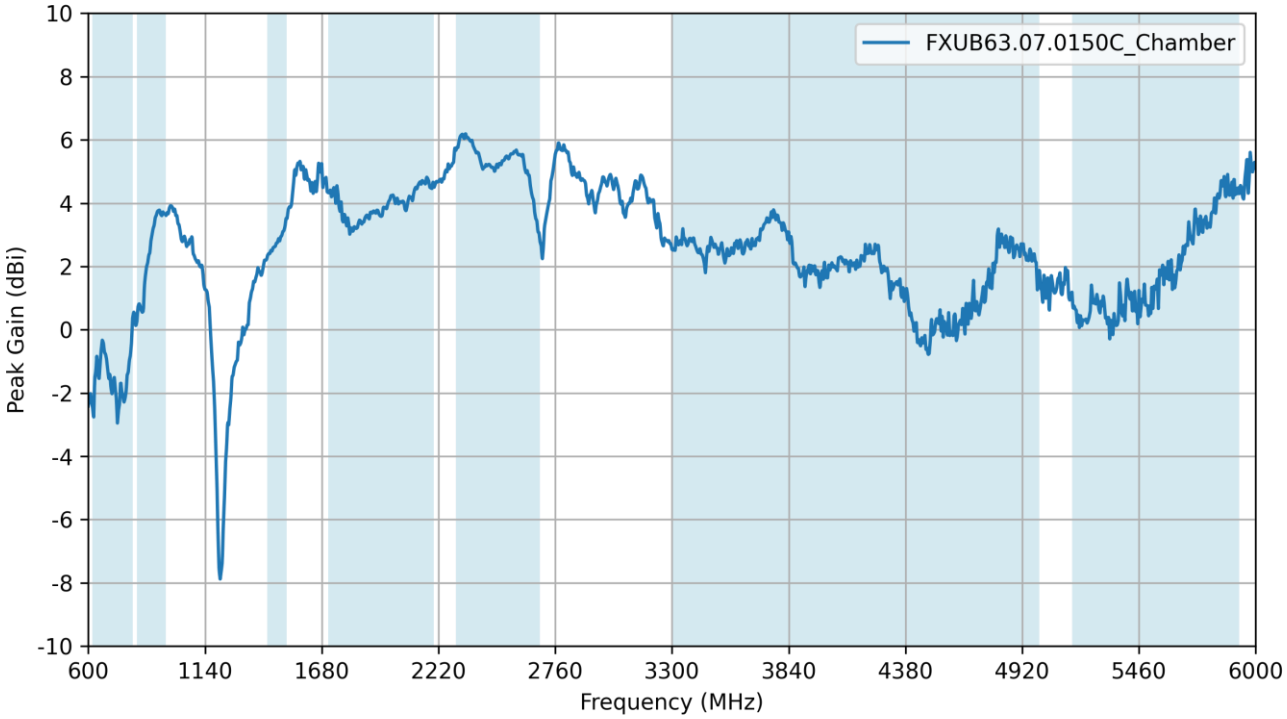
## 3.3 Efficiency




## 3.4 Average Gain

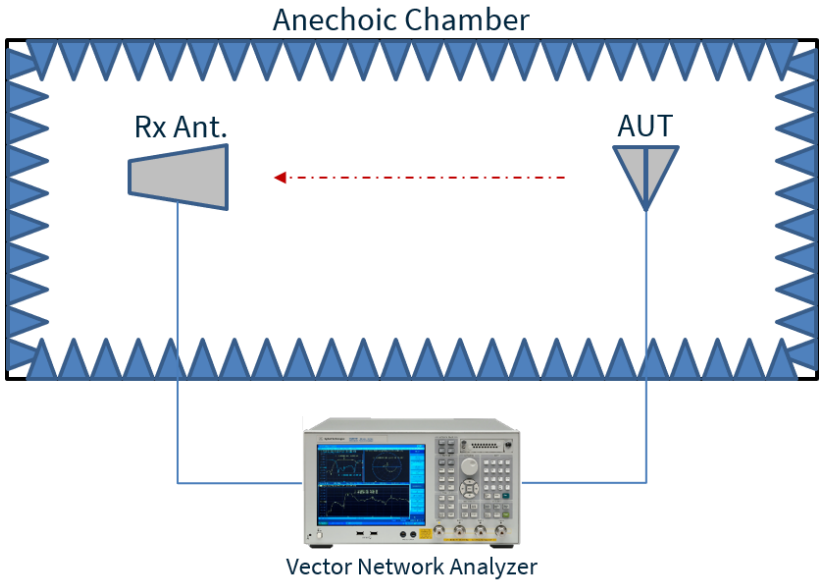


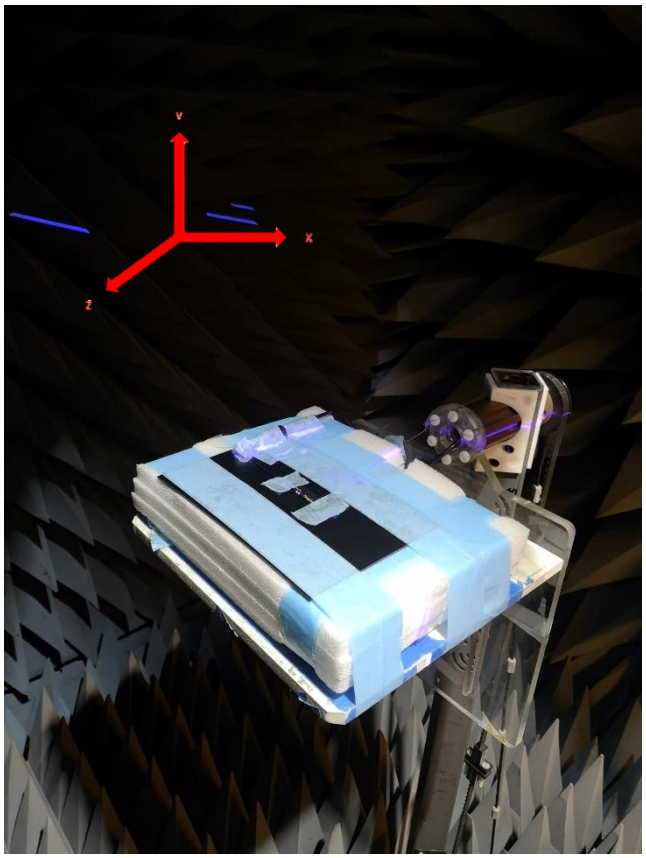
## 3.5 Peak Gain


FXUB63.07.0150C_Chamber
Peak Gain (dBi)
10
8
6
4
2
0
-2
-4
-6
-8
-10
600
1140
1680
2220
2760
3300
3840
4380
4920
5460
6000
Frequency (MHz)

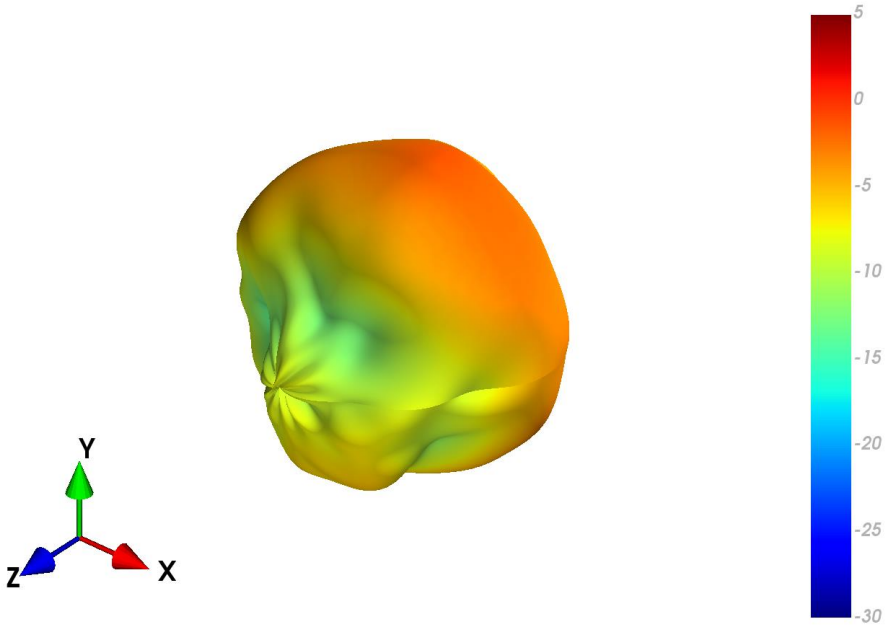
# 4. Radiation Patterns

## 4.1 Test Setup

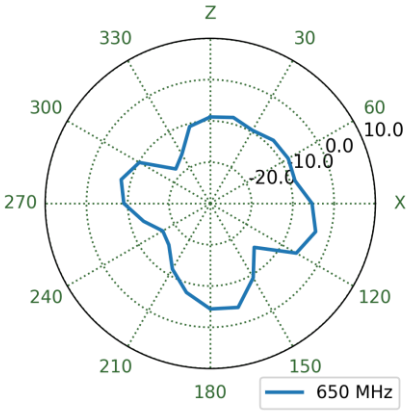


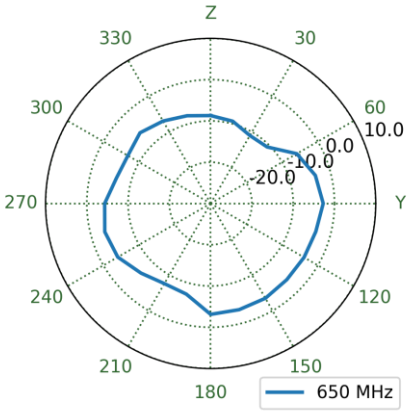



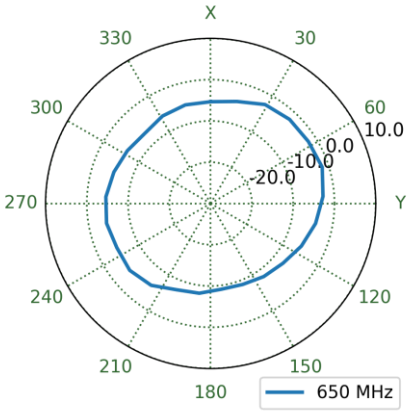
## 4.2 FXUB63.07.0150C_Chamber Patterns at 650 MHz



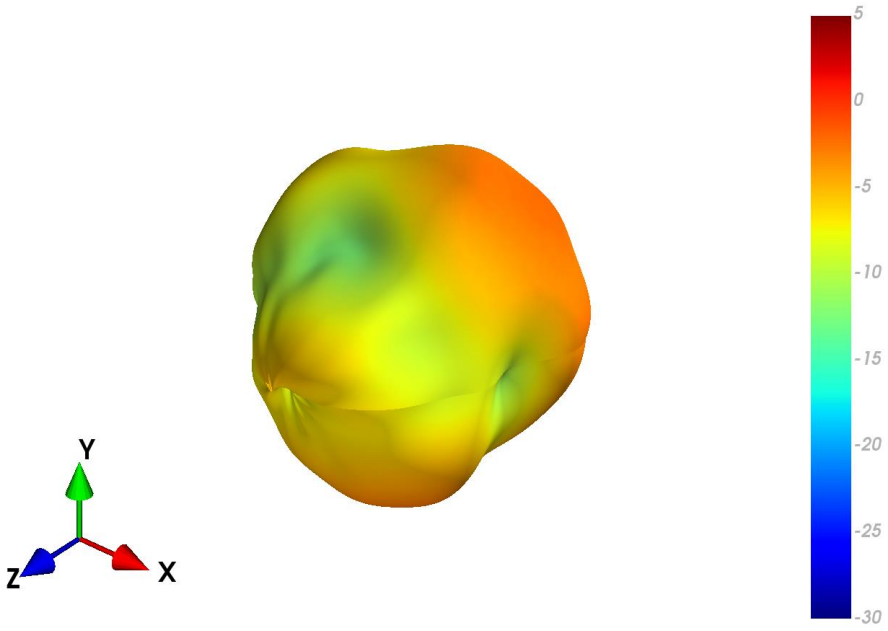

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

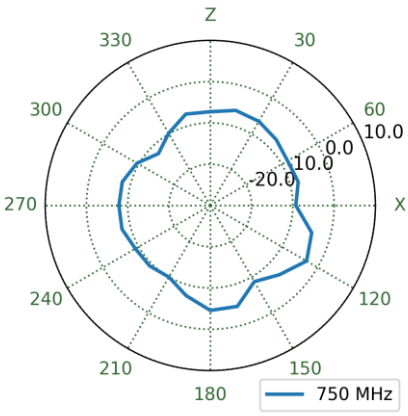
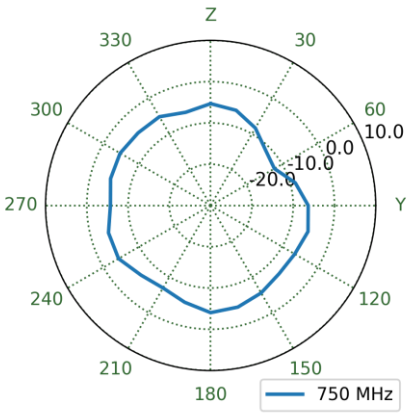
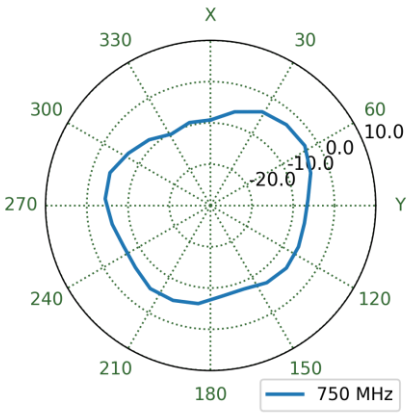


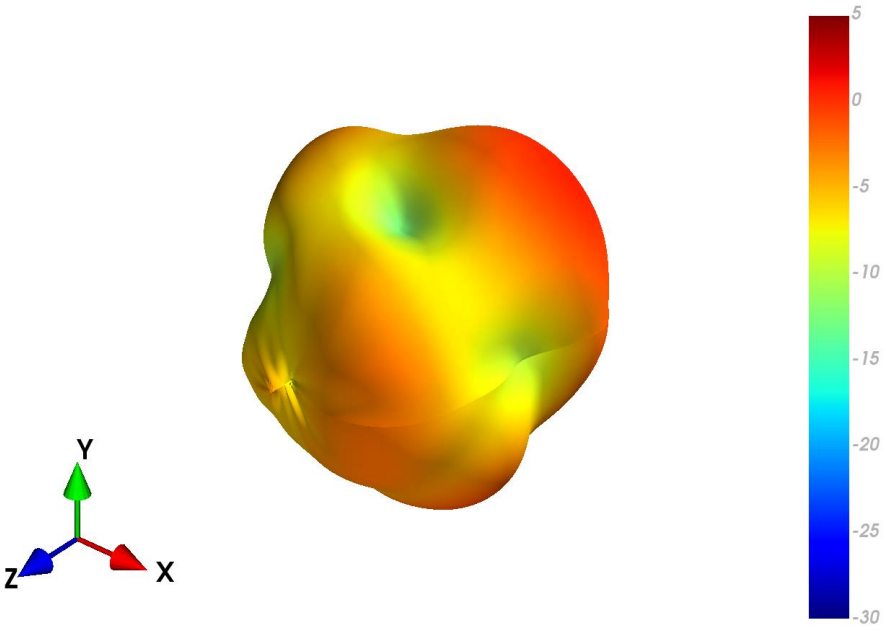



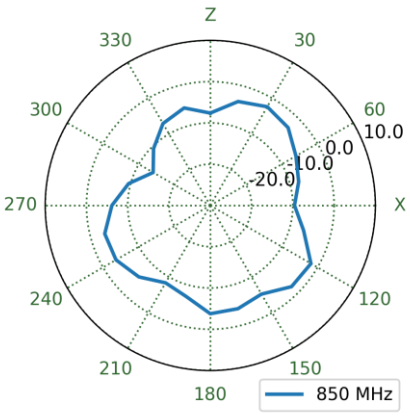
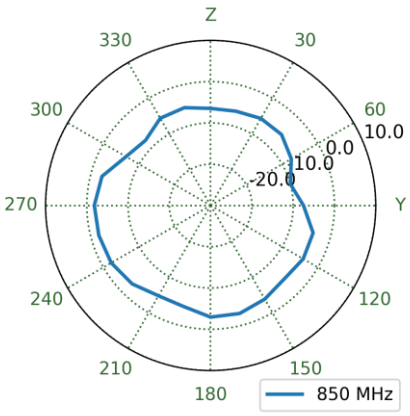
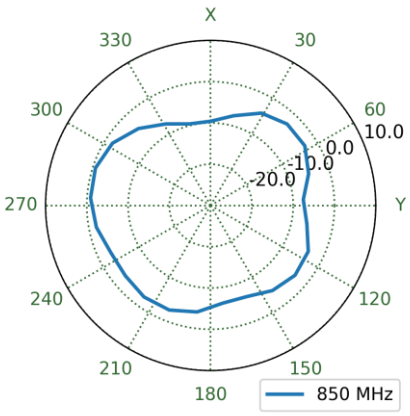
## 4.3 FXUB63.07.0150C_Chamber Patterns at 750 MHz



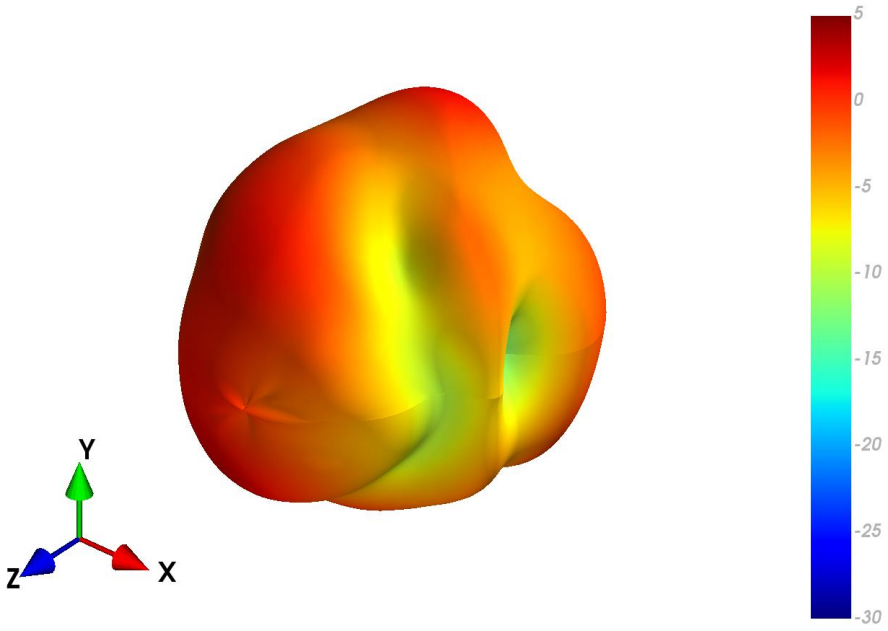

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

## 4.4 FXUB63.07.0150C_Chamber Patterns at 850 MHz

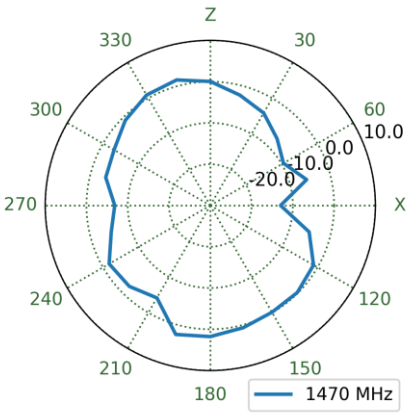


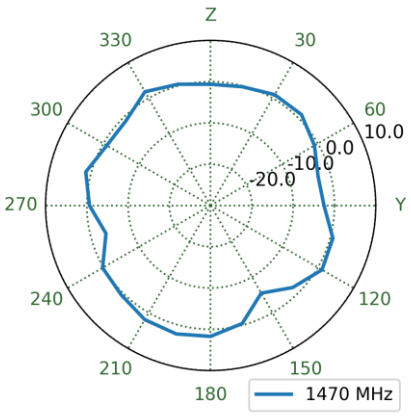

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

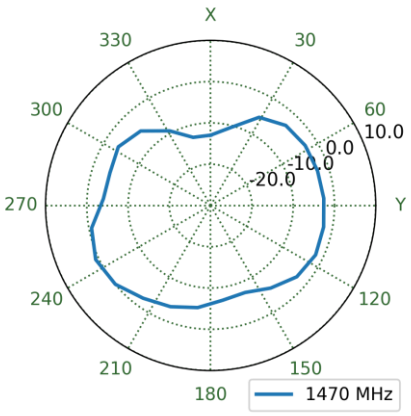
## 4.5 FXUB63.07.0150C_Chamber Patterns at 1470 MHz



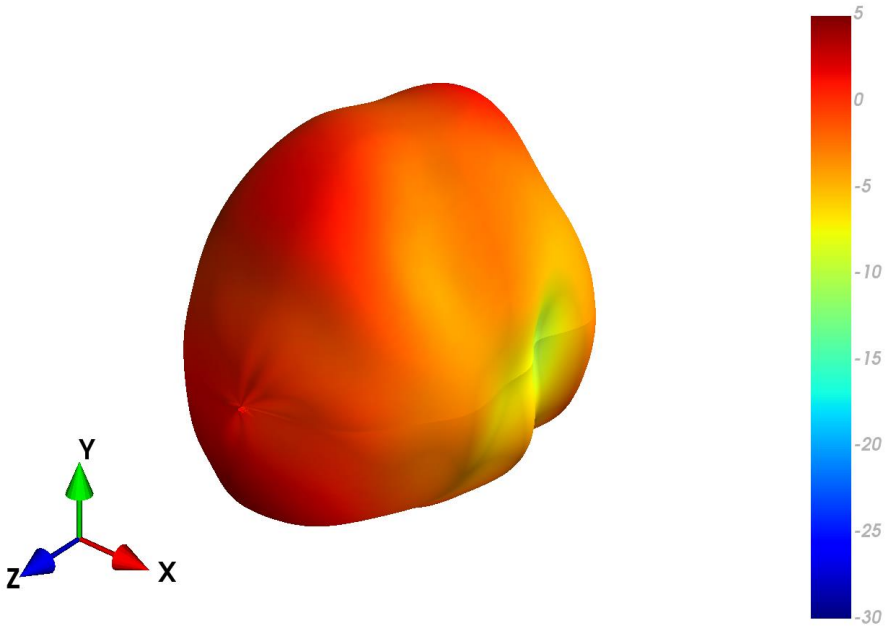

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|



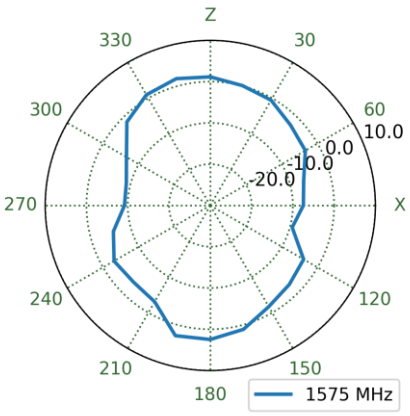



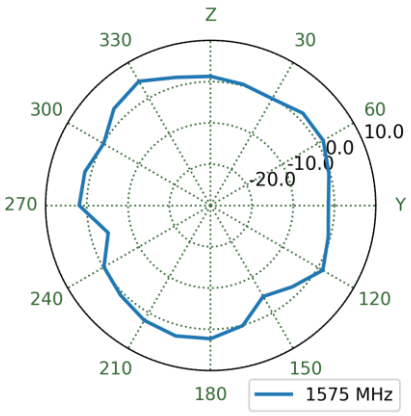



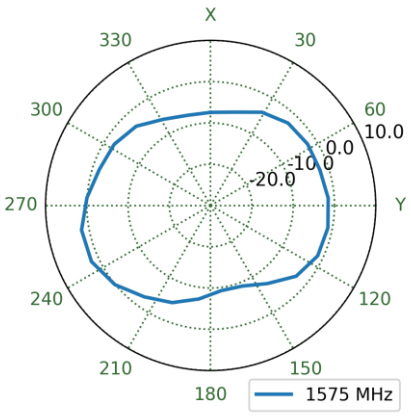
## 4.6 FXUB63.07.0150C_Chamber Patterns at 1575 MHz



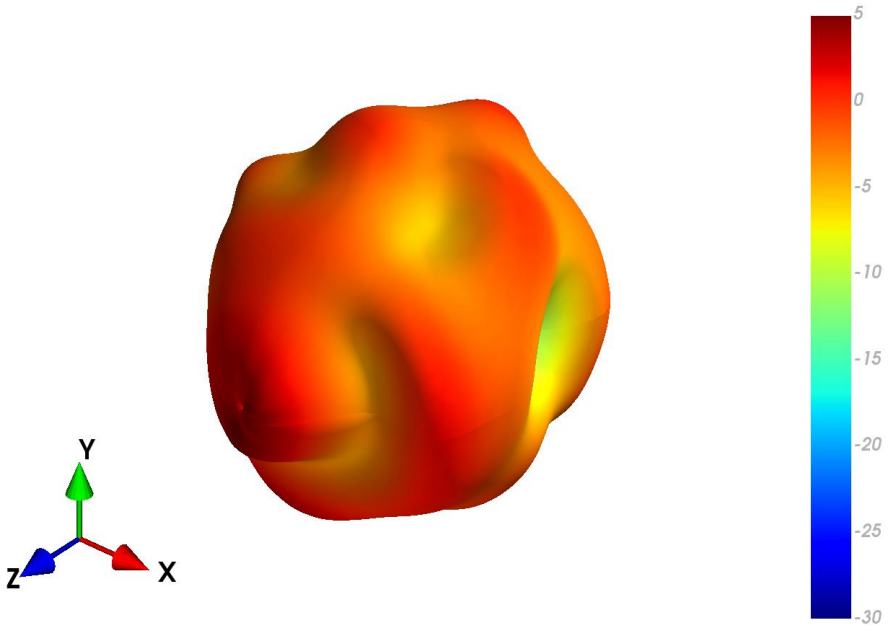

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|



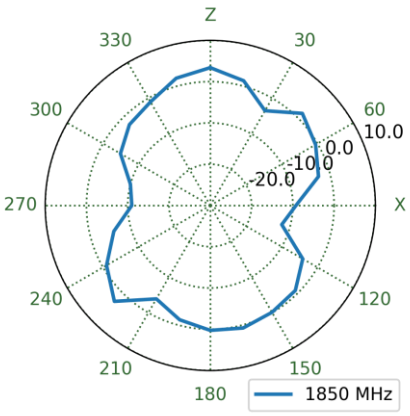



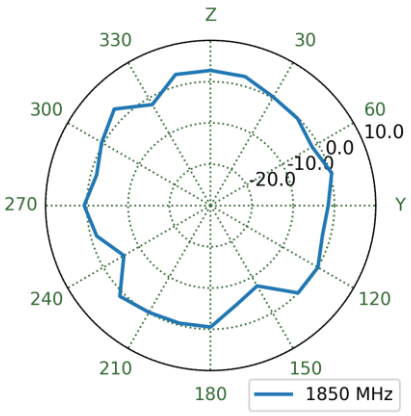



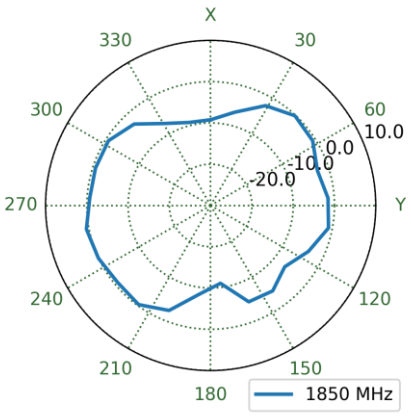
## 4.7 FXUB63.07.0150C_Chamber Patterns at 1850 MHz



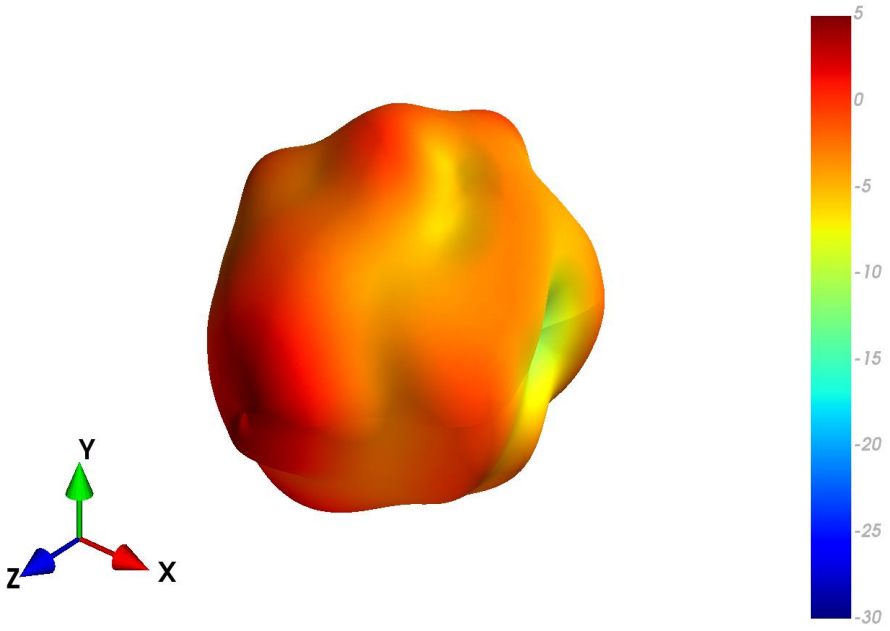

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|



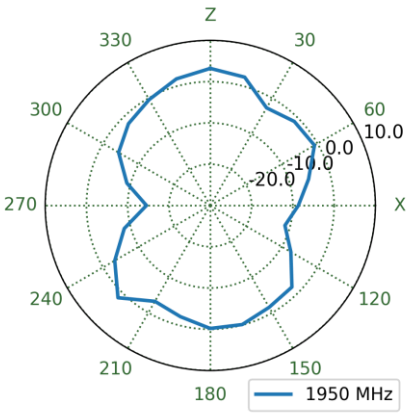



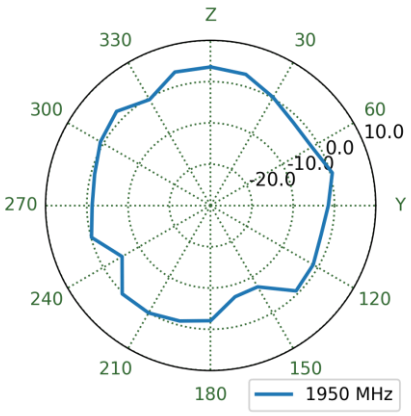



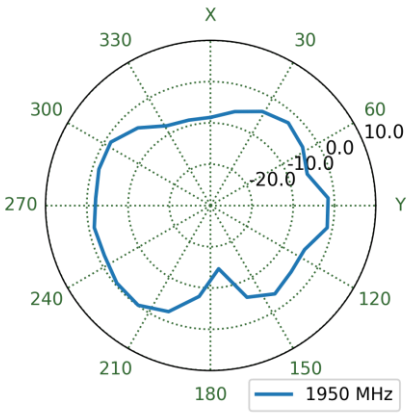
## 4.8 FXUB63.07.0150C_Chamber Patterns at 1950 MHz



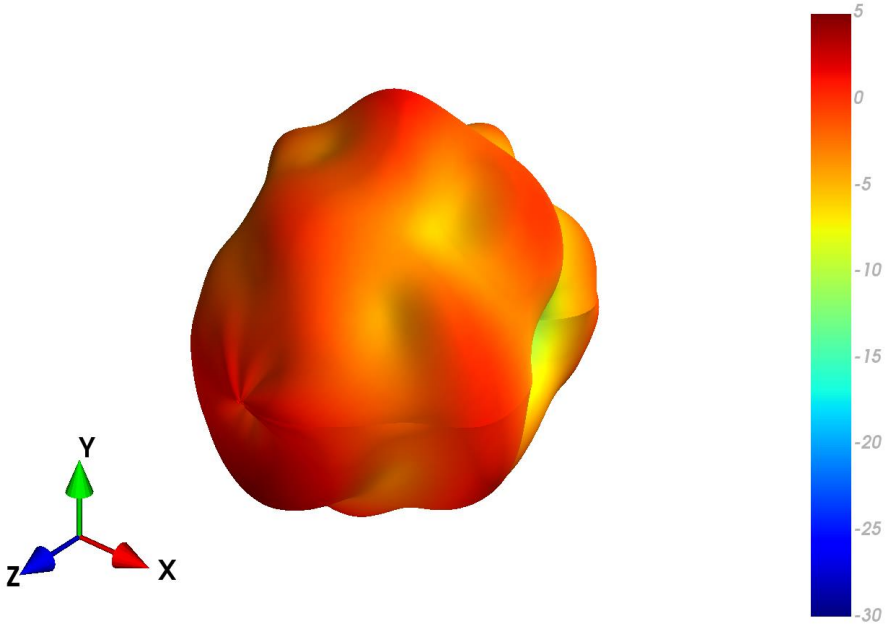

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|



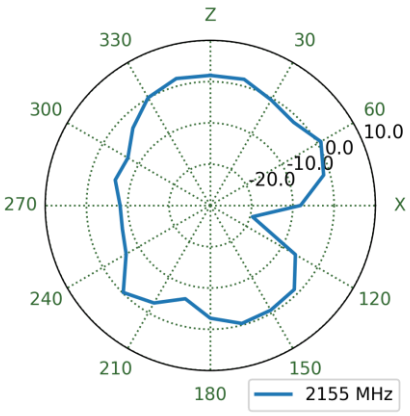



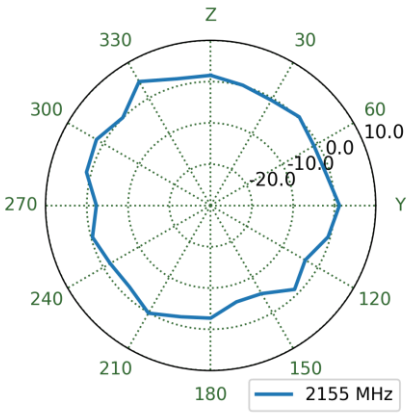



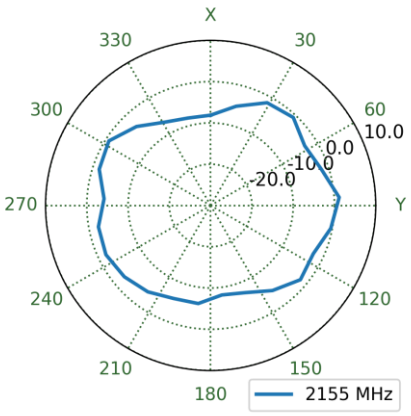
## 4.9 FXUB63.07.0150C_Chamber Patterns at 2155 MHz



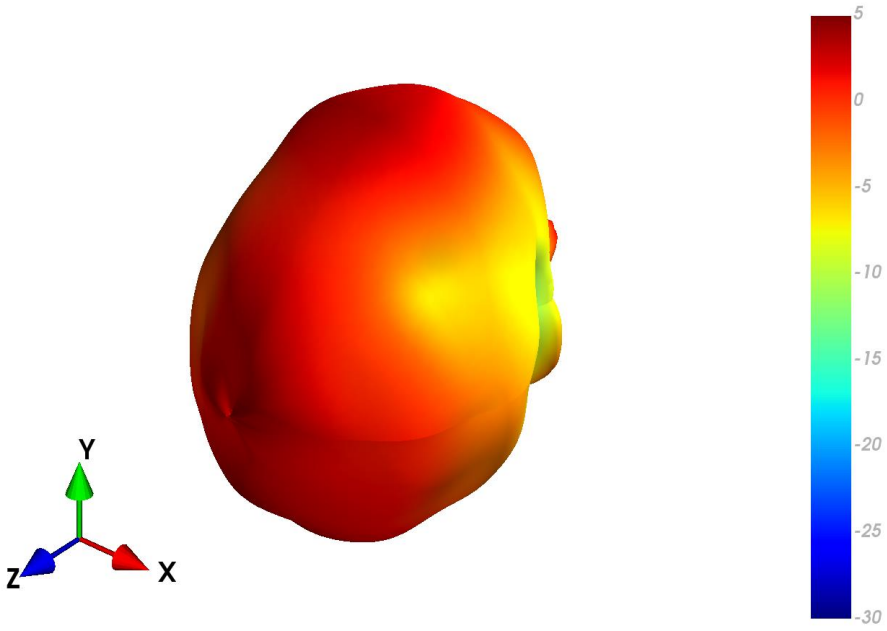

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|



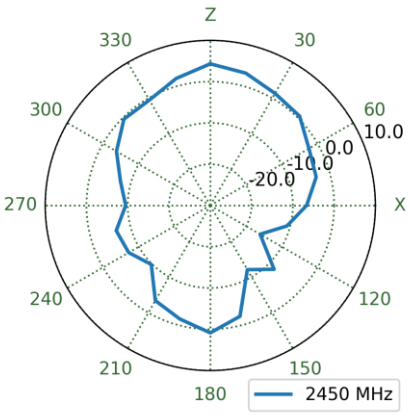



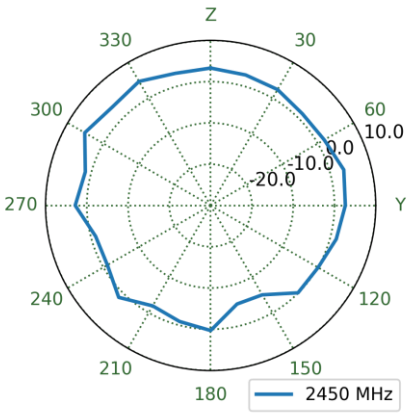



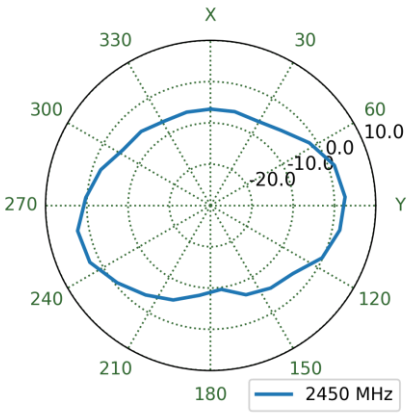
## 4.10 FXUB63.07.0150C_Chamber Patterns at 2450 MHz



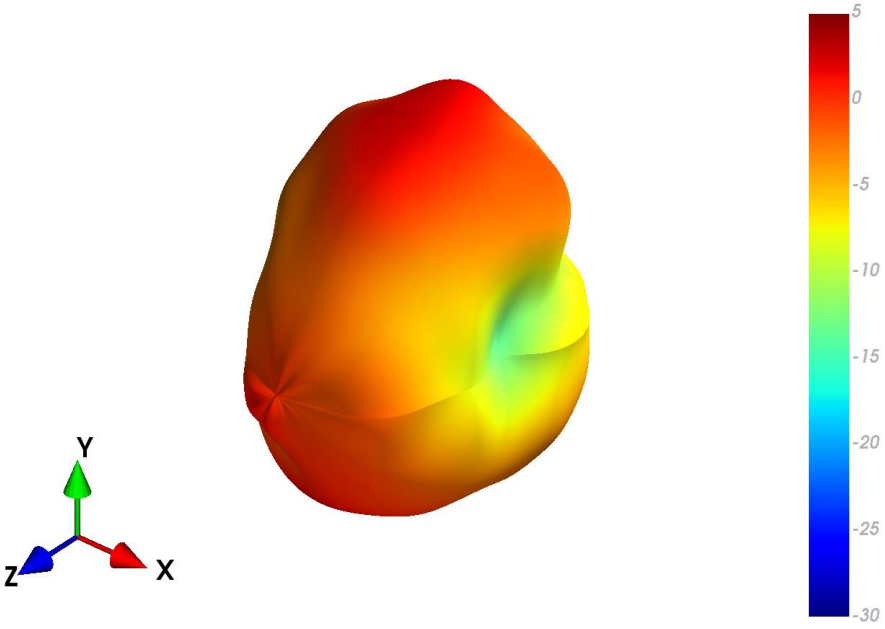

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|



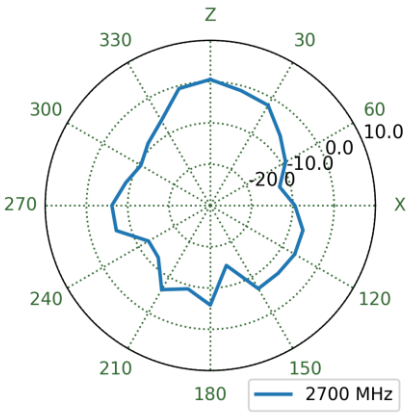



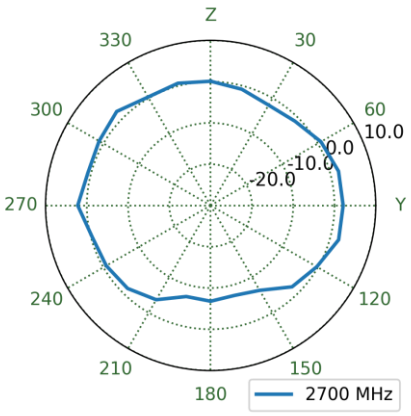



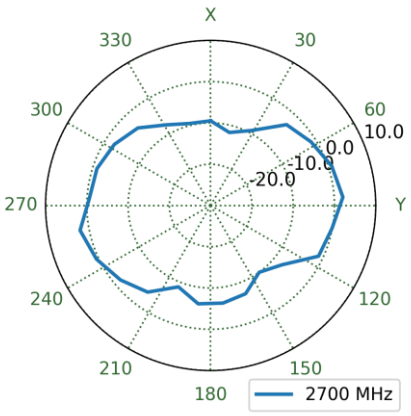
## 4.11 FXUB63.07.0150C_Chamber Patterns at 2700 MHz



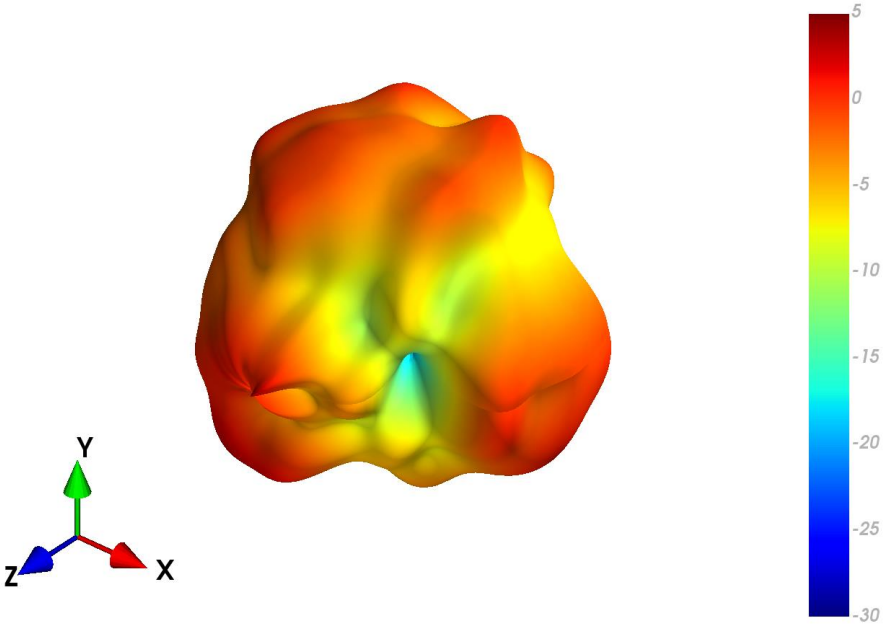

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|



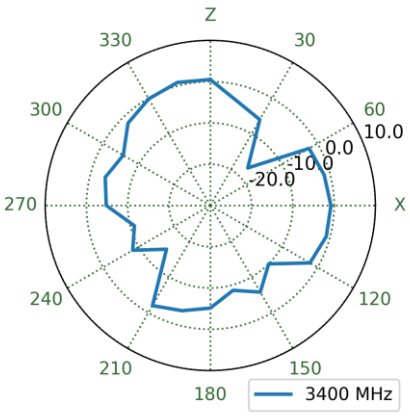



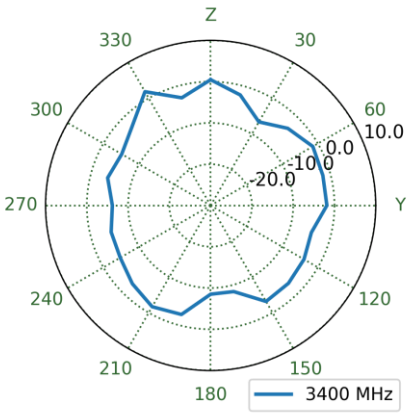



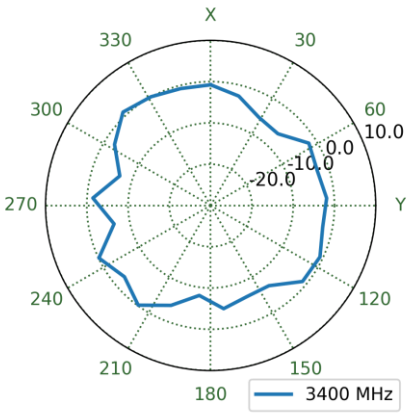
## 4.12 FXUB63.07.0150C_Chamber Patterns at 3400 MHz



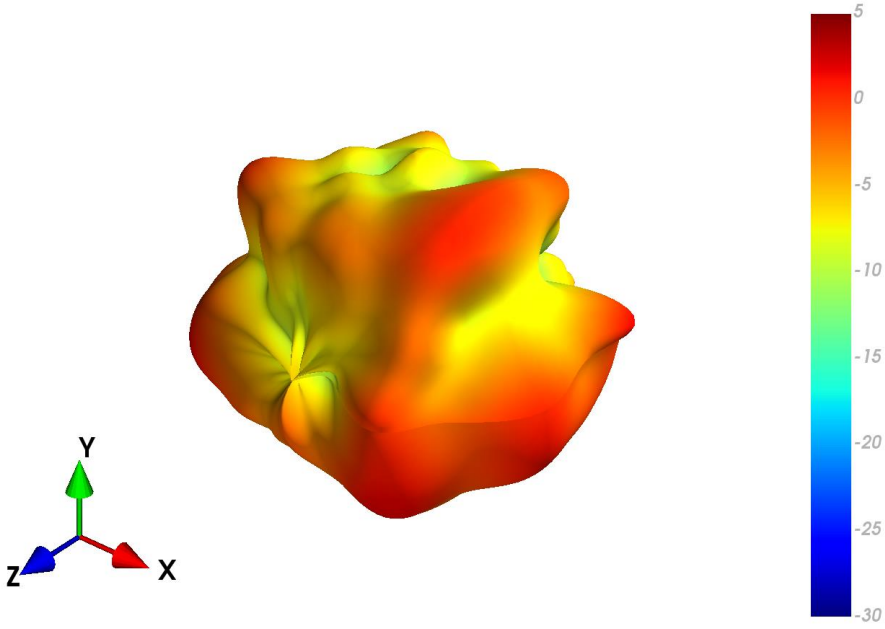

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|



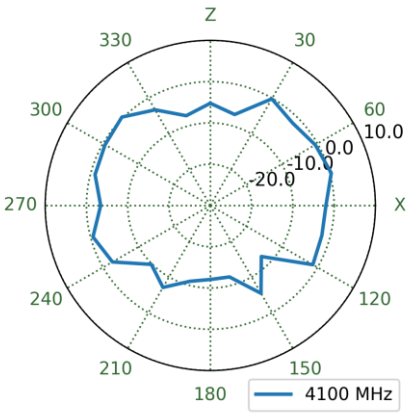



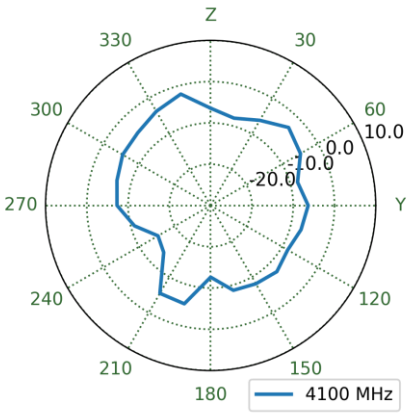



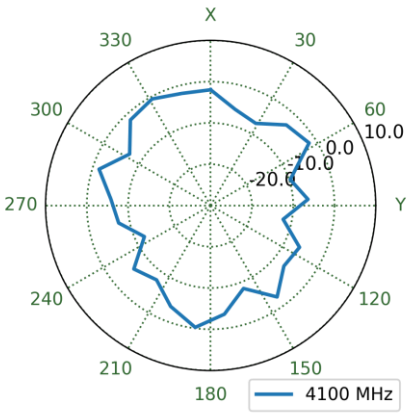
## 4.13 FXUB63.07.0150C_Chamber Patterns at 4100 MHz



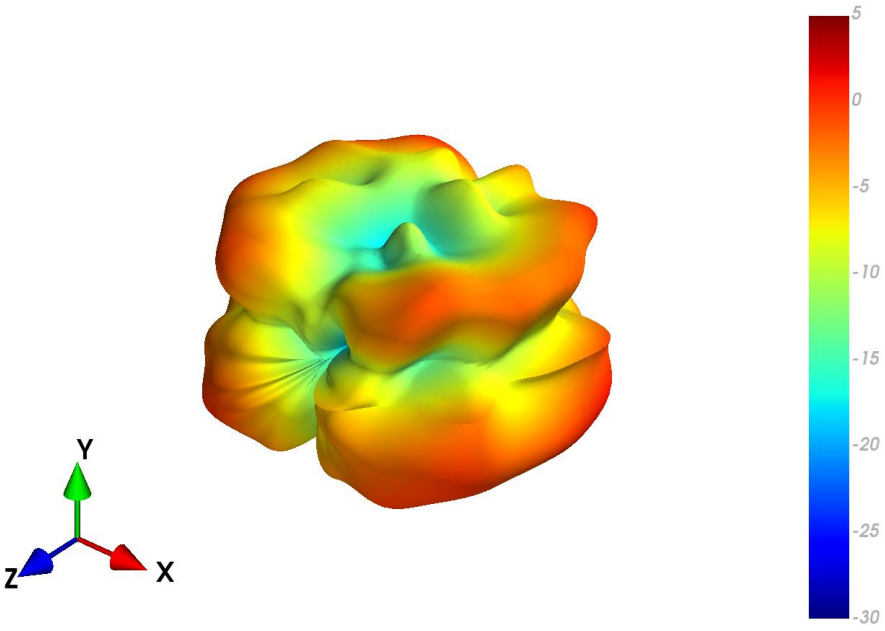

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|



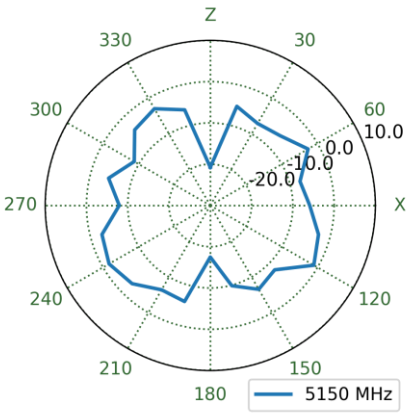



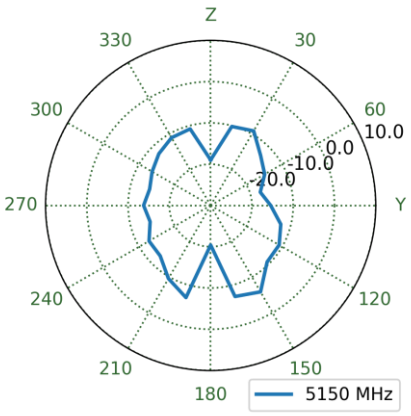



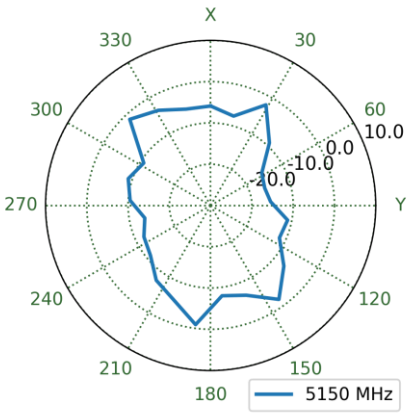
## 4.14 FXUB63.07.0150C_Chamber Patterns at 5150 MHz



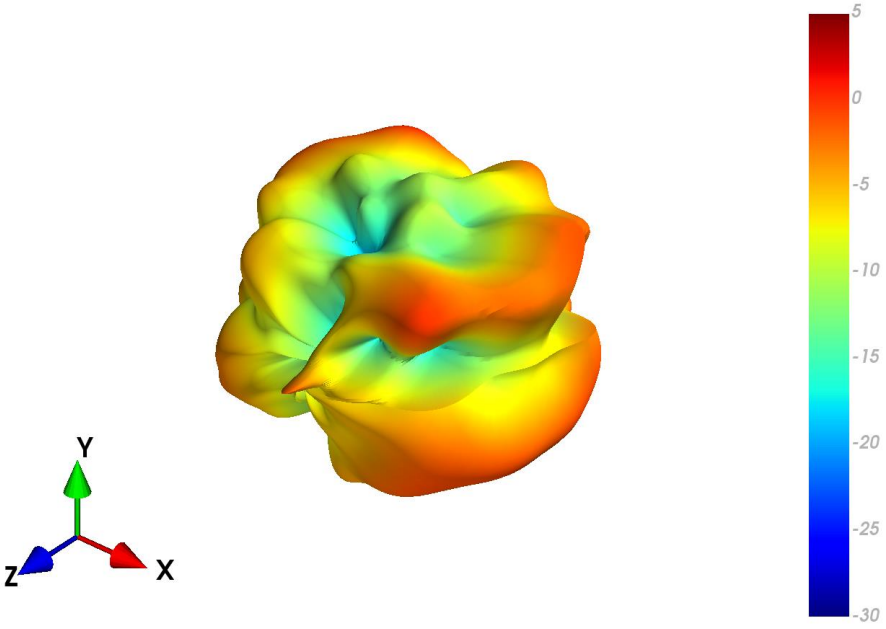

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

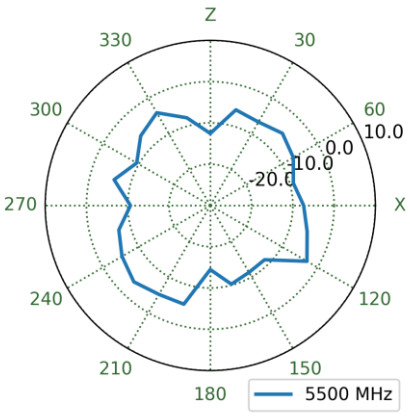
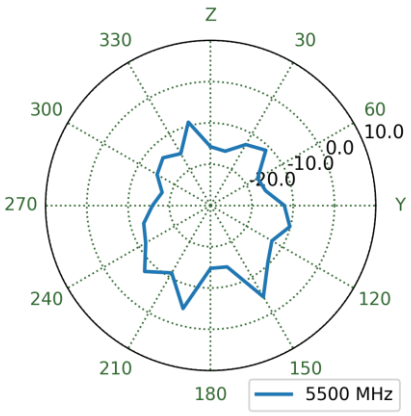
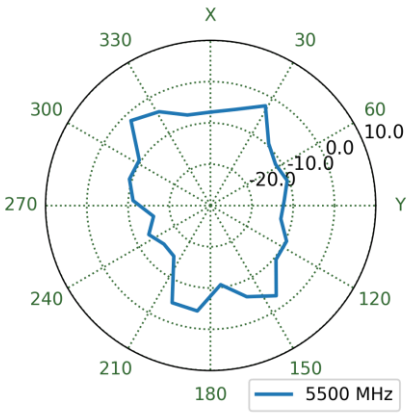


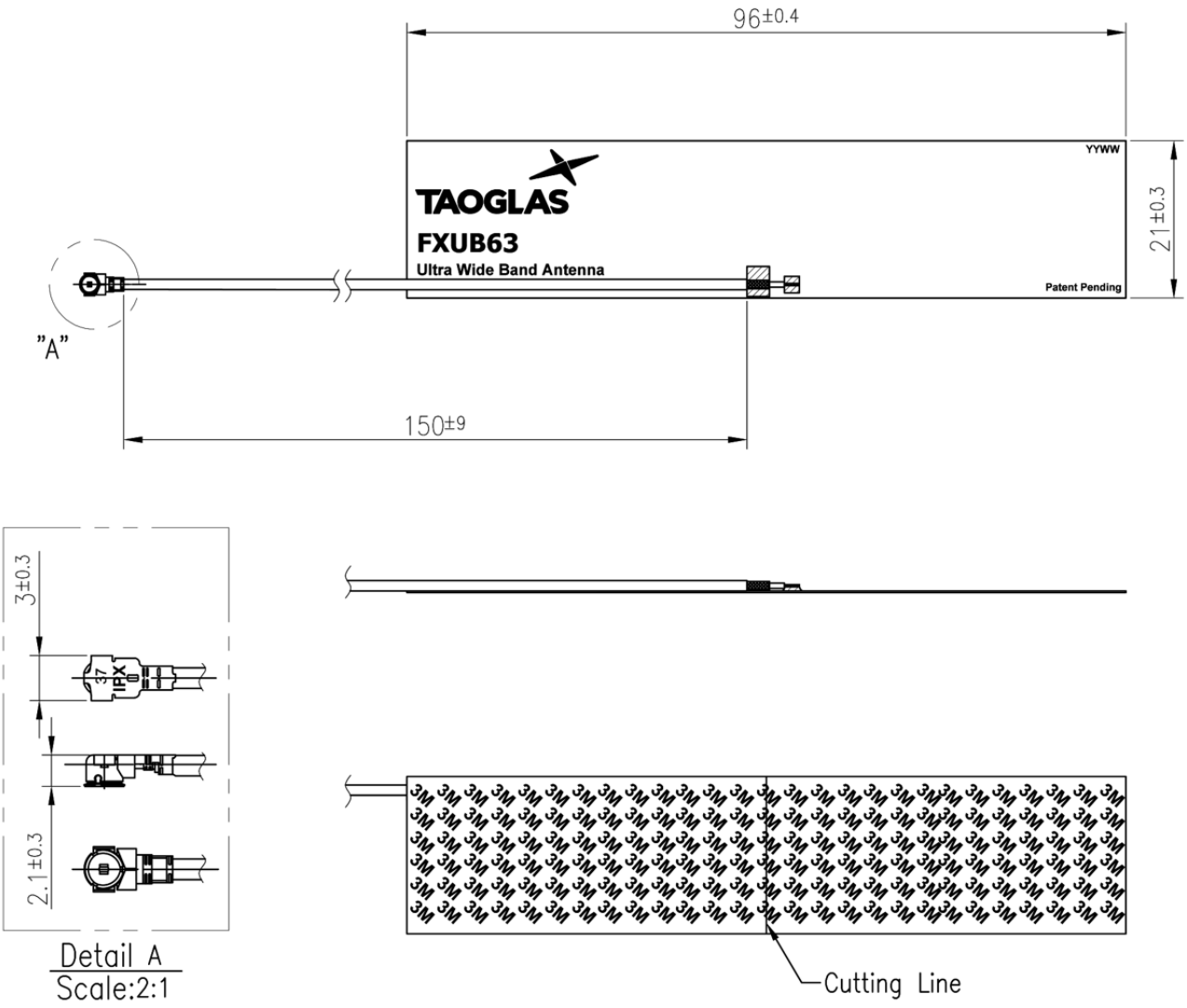



## 4.15 FXUB63.07.0150C_Chamber Patterns at 5500 MHz



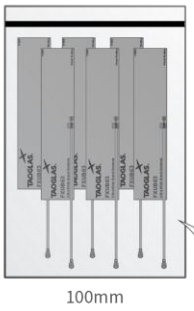

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

# 5. Mechanical Drawing

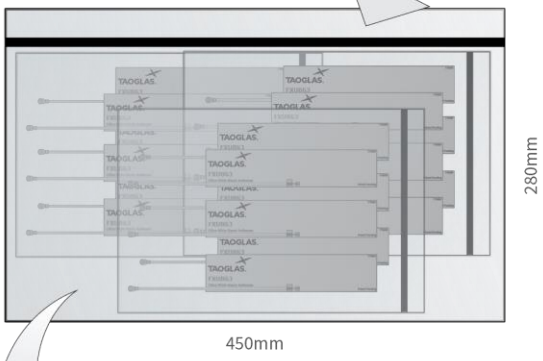


# 6. Packaging

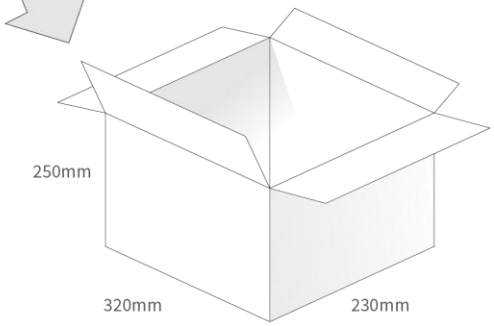
100pcs FXUB63.07.0150C per PE Bag
Dimensions - 300*100
Weight - 150g



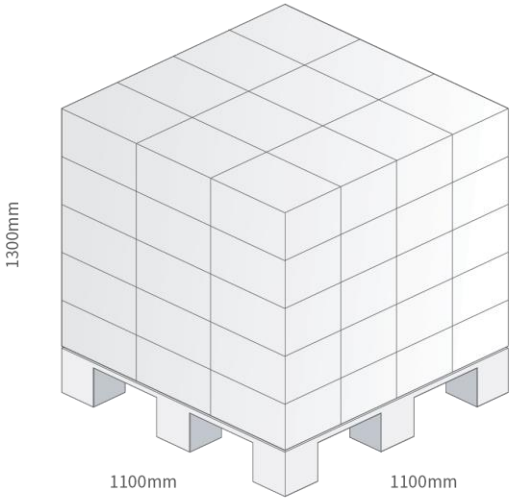

1000pcs FXUB63.07.0150C per Large PE Bag
Dimensions - 450*280mm
Weight - 1.5Kg




5000pcs FXUB63.07.0150C 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-14-8-054 – FXUB63.07.0150C**

| Revision: G (Current Version) | |
|---|---|
| Date: | 2022-12-06 |
| Notes: | Retest 600-6000MHz, Full datasheet update. |
| Author: | Gary West |

### Previous Revisions

| Revision: F | |
|---|---|
| Date: | 2021-07-16 |
| Notes: | Updated Mechanical Drawing |
| Author: | Gary West |

| Revision: E | |
|---|---|
| Date: | 2021-02-12 |
| Notes: | Updated RF Data and Datasheet Template. |
| Author: | Gary West |

| Revision: D | |
|---|---|
| Date: | 2019-12-15 |
| Notes: | Updated Images Reference ECR-18-8-259 |
| Author: | Russell Meyler |

| Revision: C | |
|---|---|
| Date: | 2017-05-07 |
| Notes: | Updated as per PCN |
| Author: | Andy Mahoney |

| Revision: B | |
|---|---|
| Date: | 2017-04-05 |
| Notes: | Updated as per PCN request |
| Author: | Andy Mahoney |

| Revision: A (Original First Release) | |
|---|---|
| Date: | 2014-05-28 |
| Notes: | First Release |
| Author: | Jack Conroy |

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