



# TAOGLAS®



## Datasheet

### Magnetic Mount 5G/4G Cellular Antenna

**Part No:**  
GA.107.201111

#### Description

5G/4G Cellular Magnetic Whip Antenna

#### Features:

Delivers high performance for all 5G/4G networks worldwide

600MHz to 6000MHz

Magnetic mount

Dimensions: Ø29.5mm x 116mm

Superior Super Magnet – Neodymium N35

Custom cables and connectors available

RoHS Compliant

|           |   |           |
|-----------|---|-----------|
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| <hr/>     |   |           |
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# 1. Introduction



The GA.107 magnetic cellular band antenna delivers marked improvements in efficiency and gain across all common frequencies in use for cellular bands today. Now one antenna can be used in place of multiple part numbers.

Small enough to be used indoors and outdoors, the antenna performance has been designed to take advantage of any metal plate (ground-plane) it attaches to deliver best of class performance.

The GA.107 features a superior super magnet made form Neodymium N35, giving the antenna a maximum pull-force of 1.92 kilogram-force (kgf).

A reliable return loss of <math><10\text{dB}</math> when mounted on a metal plate ensures it complies with the industry standards set by module makers and networks worldwide.

Cables and Connectors are customizable, contact your regional Taoglas sales office for support or installation instructions.

## 2. Specification

| LTE Electrical                             |                 |                      |                |                   |                 |           |              |                   |                  |
|--|-----------------|----------------------|----------------|-------------------|-----------------|-----------|--------------|-------------------|------------------|
| Band                                       | Frequency (MHz) | Measurement          | Efficiency (%) | Average Gain (dB) | Peak Gain (dBi) | Impedance | Polarization | Radiation Pattern | Max. input power |
| 5G NR/4G Band 71                           | 617-698         | 30x30cm Ground Plane | 22.9           | -6.40             | -1.50           | 50 Ω      | Linear       | Omni              | 50W              |
|  |                 | Free Space           | 31.1           | -5.07             | 0.87            |           |              |                   |                  |
| 4G/3G Band 12,13,14,17,28,29               | 698-806         | 30x30cm Ground Plane | 51.8           | -2.86             | 2.96            |           |              |                   |                  |
|  |                 | Free Space           | 22.8           | -6.42             | -0.61           |           |              |                   |                  |
| 4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27 | 824-960         | 30x30cm Ground Plane | 75.9           | -1.20             | 3.01            |           |              |                   |                  |
|  |                 | Free Space           | 42.6           | -3.70             | 1.84            |           |              |                   |                  |
| 5G NR/4G Band 21,32,74,75,76               | 1427-1518       | 30x30cm Ground Plane | 30.8           | -5.11             | 0.12            |           |              |                   |                  |
|  |                 | Free Space           | 35.6           | -4.49             | 1.02            |           |              |                   |                  |
| 4G/3G Band 1,2,3,4,9,23,25,35,39,66        | 1710-2200       | 30x30cm Ground Plane | 41.3           | -3.84             | 2.87            |           |              |                   |                  |
|  |                 | Free Space           | 40.9           | -3.88             | 1.45            |           |              |                   |                  |
| 4G/3G Band 7,30,38,40,41                   | 2300-2690       | 30x30cm Ground Plane | 43.9           | -3.58             | 2.77            |           |              |                   |                  |
|  |                 | Free Space           | 44.0           | -3.57             | 1.75            |           |              |                   |                  |
| 5G NR/4G Band 22,42,48,77,78,79            | 3300-5000       | 30x30cm Ground Plane | 60.6           | -2.17             | 7.51            |           |              |                   |                  |
|  |                 | Free Space           | 59.4           | -2.27             | 5.04            |           |              |                   |                  |
| LTE5200/Wi-Fi5800                          | 5150-5925       | 30x30cm Ground Plane | 52.4           | -2.80             | 5.30            |           |              |                   |                  |
|  |                 | Free Space           | 50.0           | -3.01             | 4.91            |           |              |                   |                  |

\*Measured with 300mm of RG174 cable

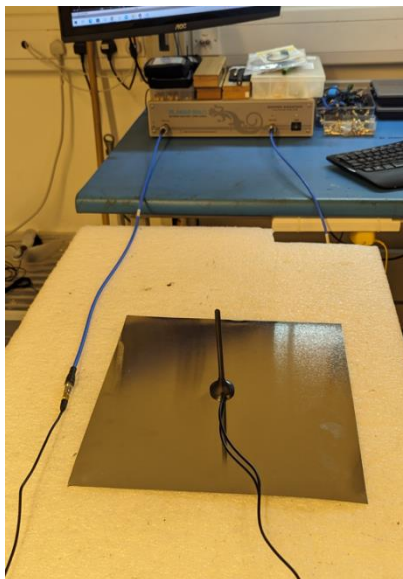
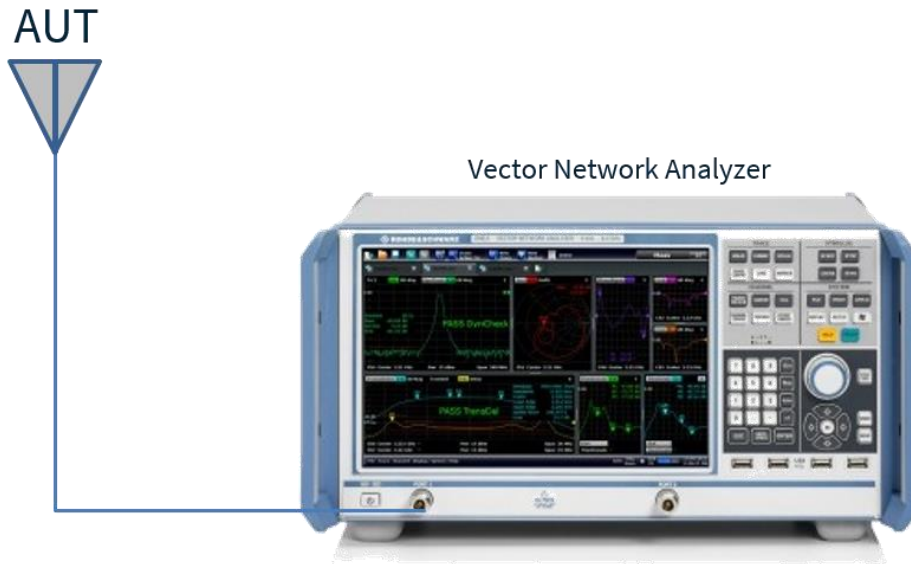
| Mechanical |                            |
|------------|----------------------------|
| Dimensions | Length 116mm, Φ29.5mm Base |
| Weight     | 21g                        |
| Material   | TPU + ABS                  |
| Connector  | SMA Male                   |
| Cable      | 2000mm RG-174              |

| Environmental         |                            |
|-----------------------|----------------------------|
| Operation Temperature | -40°C to 85°C              |
| Relative Humidity     | Non-condensing 65°C 95% RH |

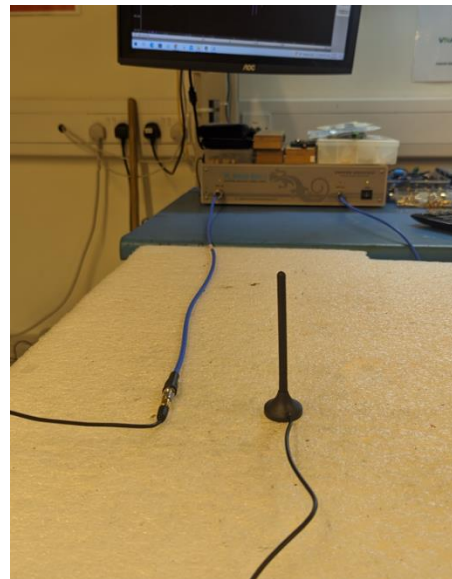
| 5G/4G Bands |  |                  |                      |            |
|-------------|--|------------------|----------------------|------------|
| Band Number | 5G NR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA |                  |                      |            |
|             | Uplink   | Downlink         | 30x30cm GROUND PLANE | Free Space |
| 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 Test Setup

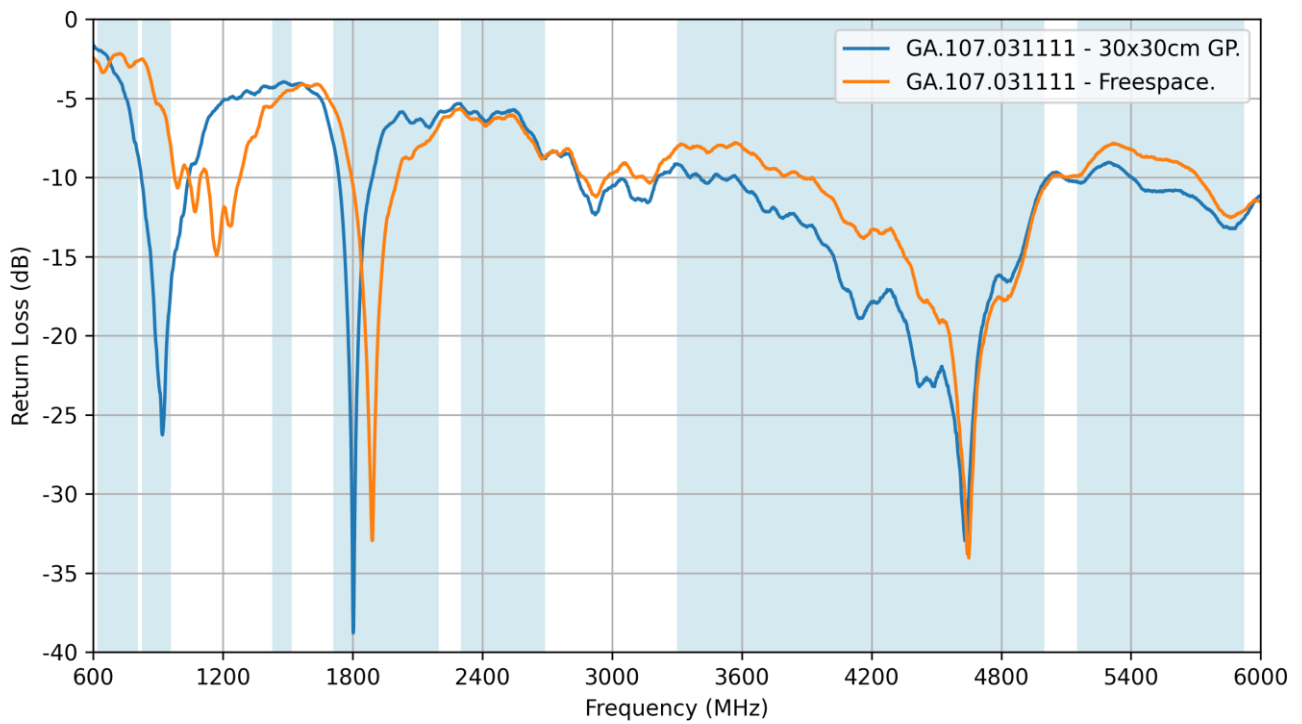


30X30cm Ground Plane

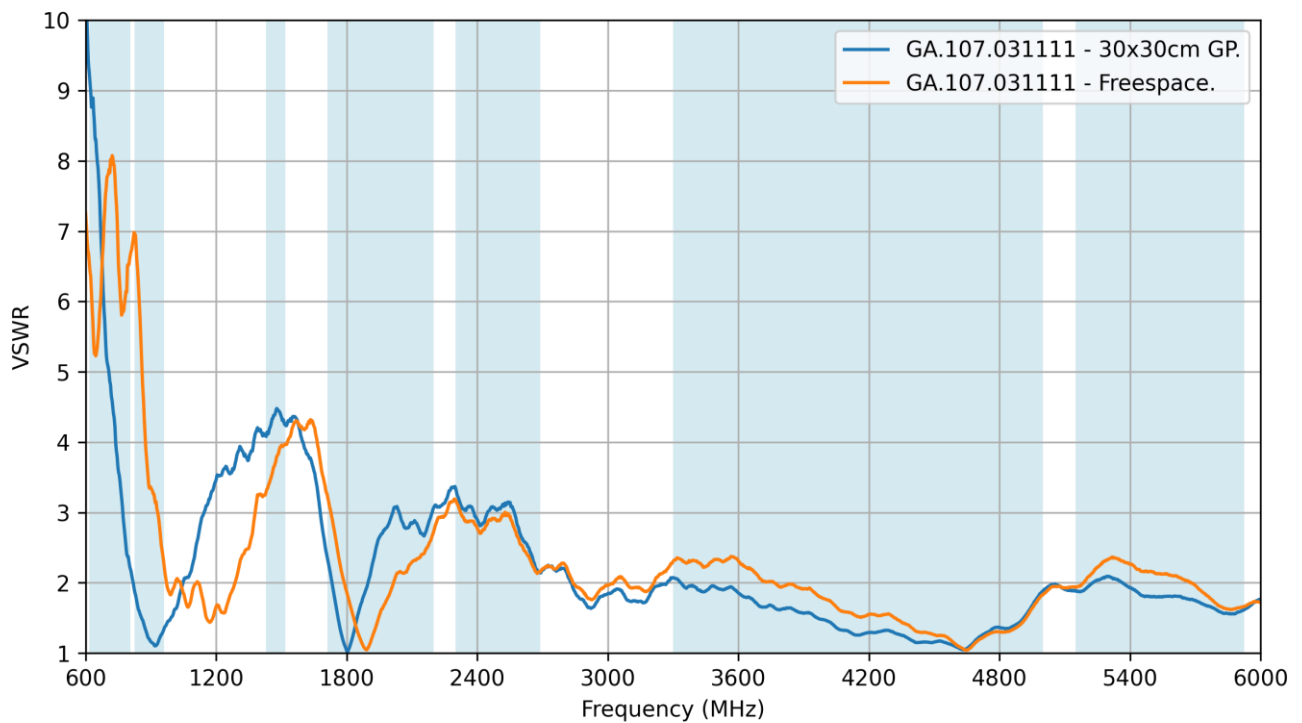


Free Space

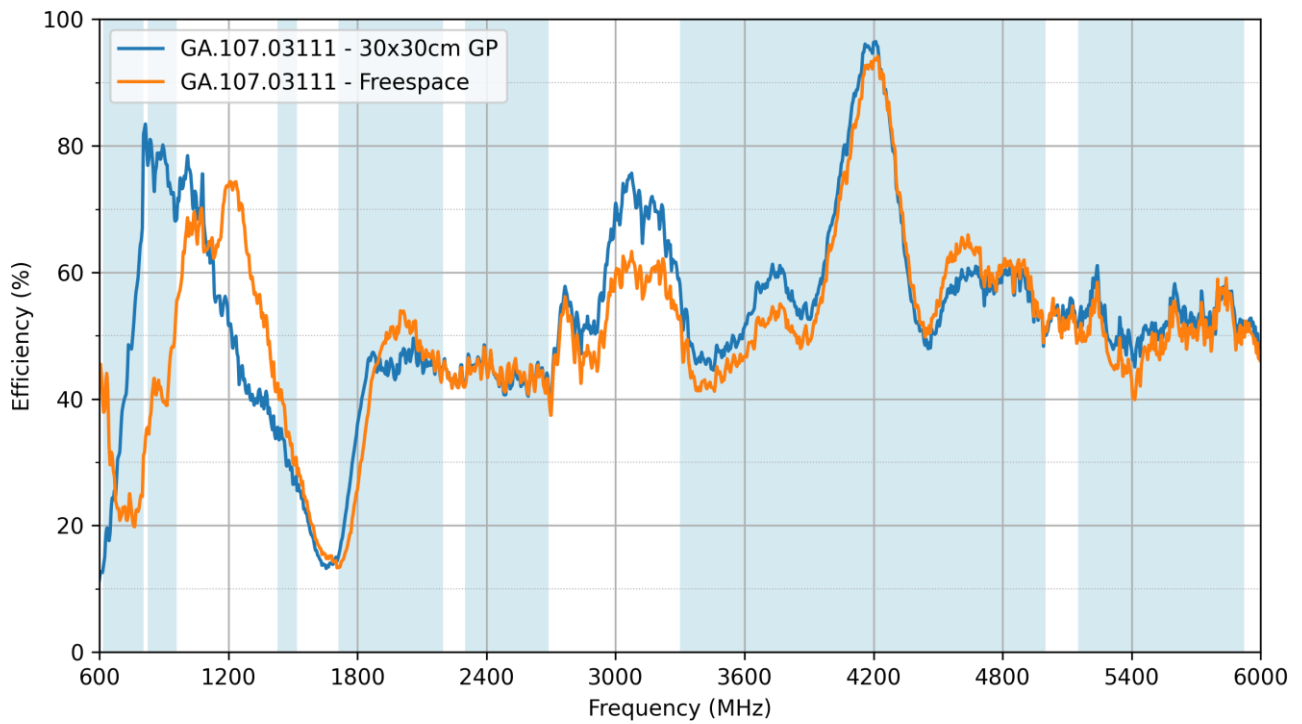
### 3.2 Return Loss



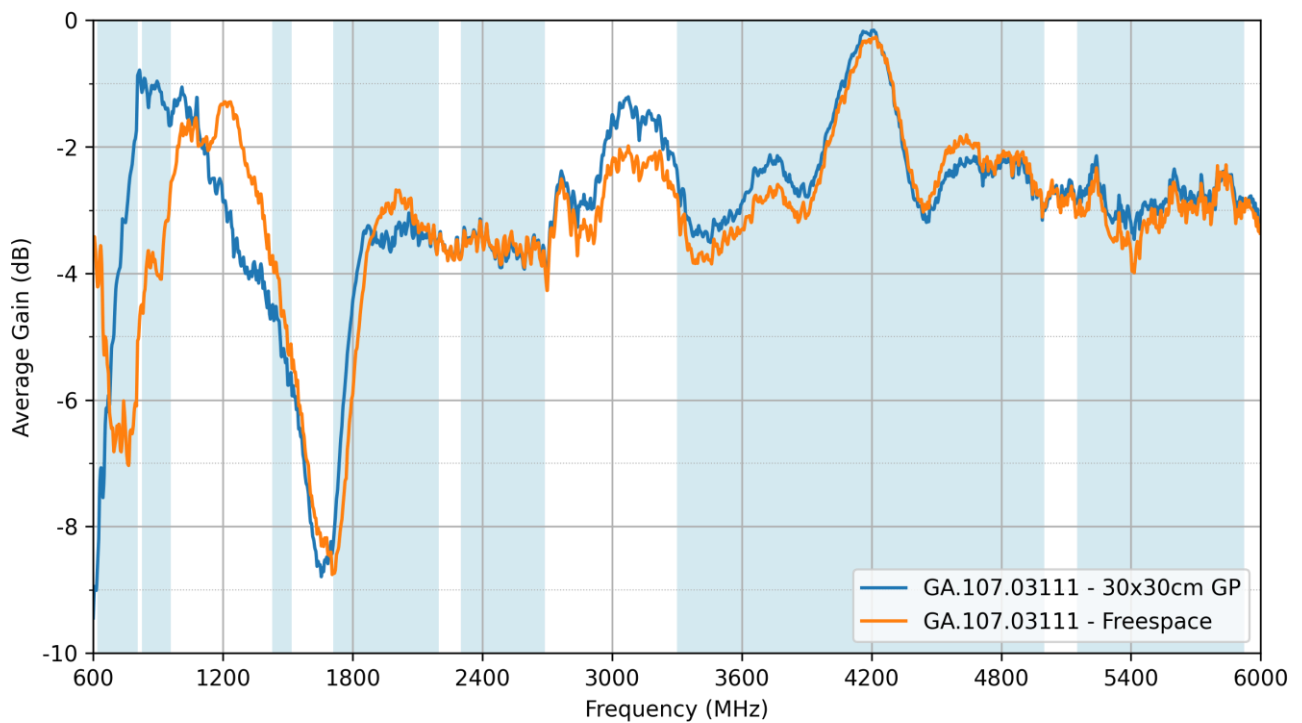
### 3.3 VSWR



### 3.4 Efficiency

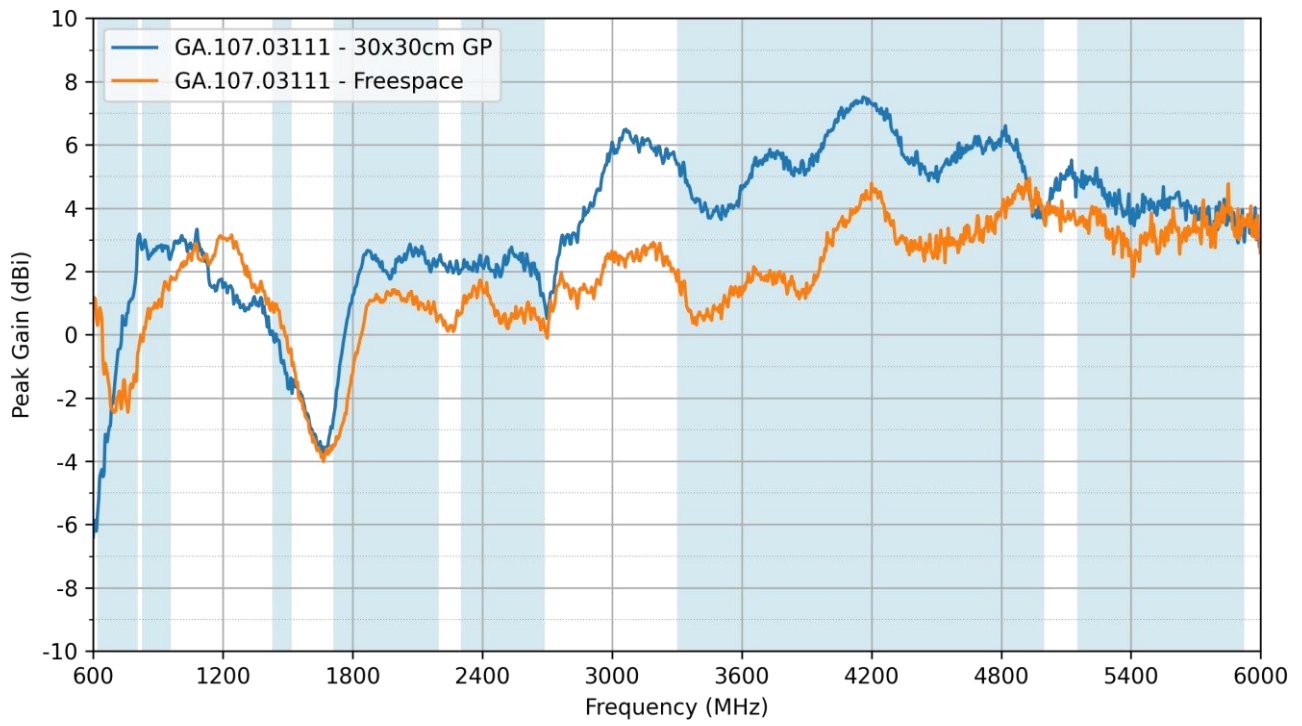


### 3.5 Average Gain



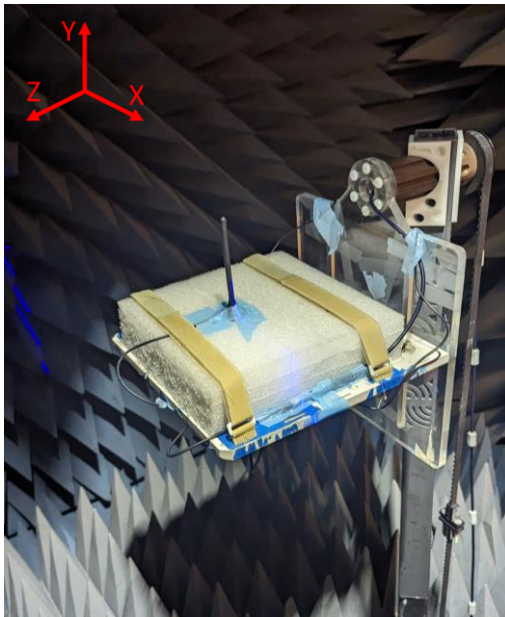
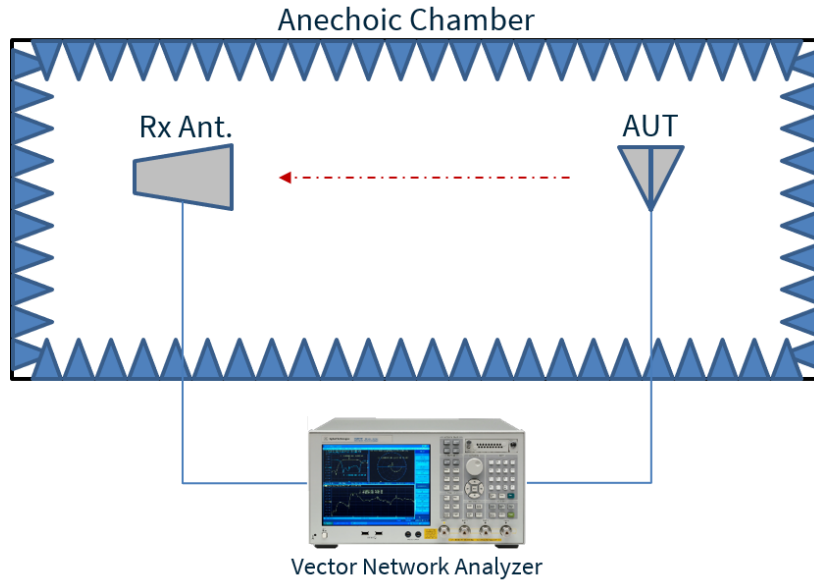


### 3.6 Peak Gain

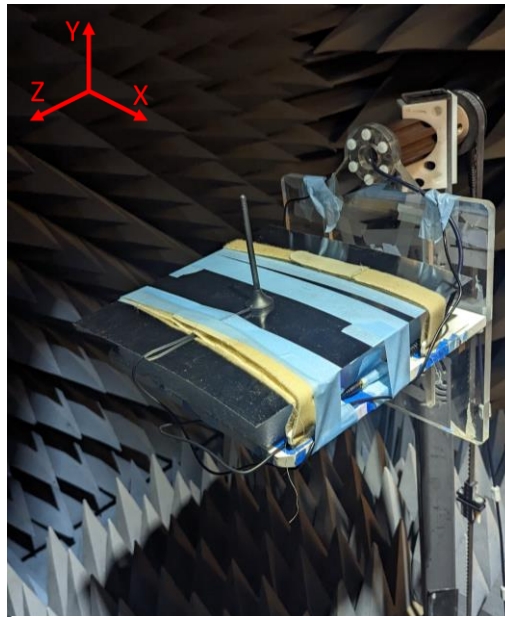


## 4. Radiation Patterns

### 4.1 Test Setup

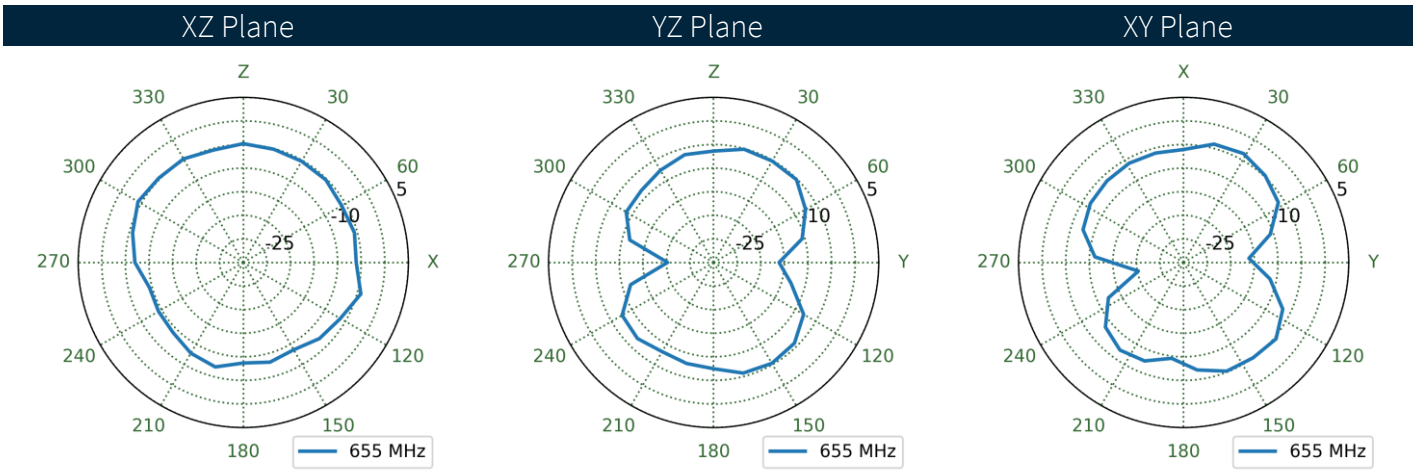
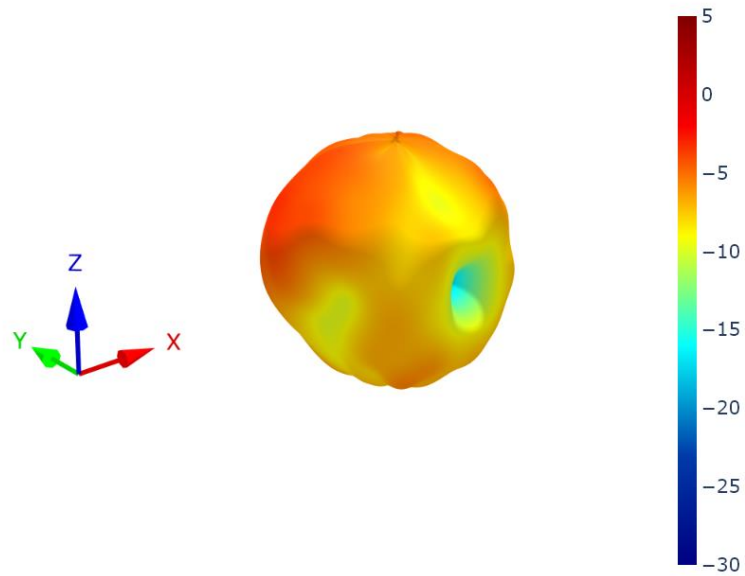


Free Space

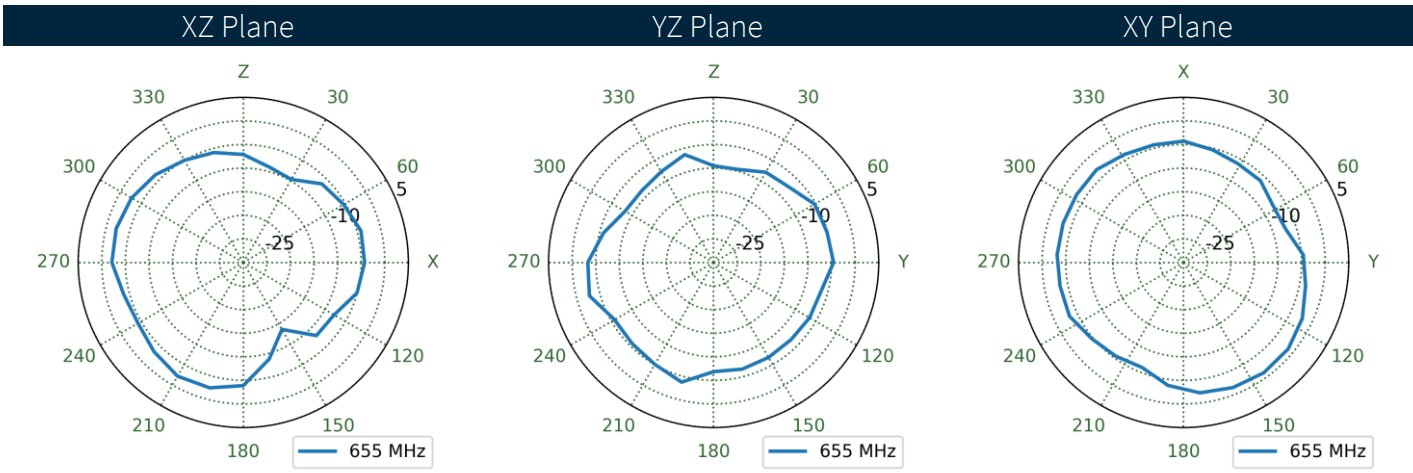
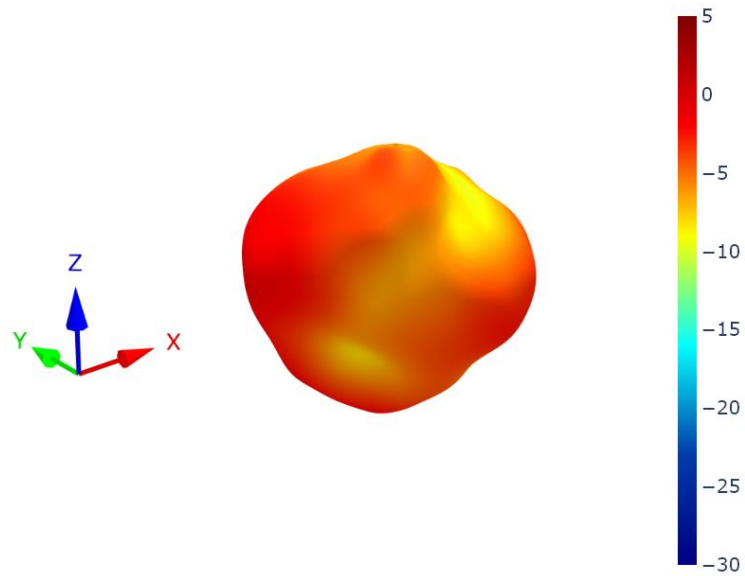


30X30cm Ground Plane

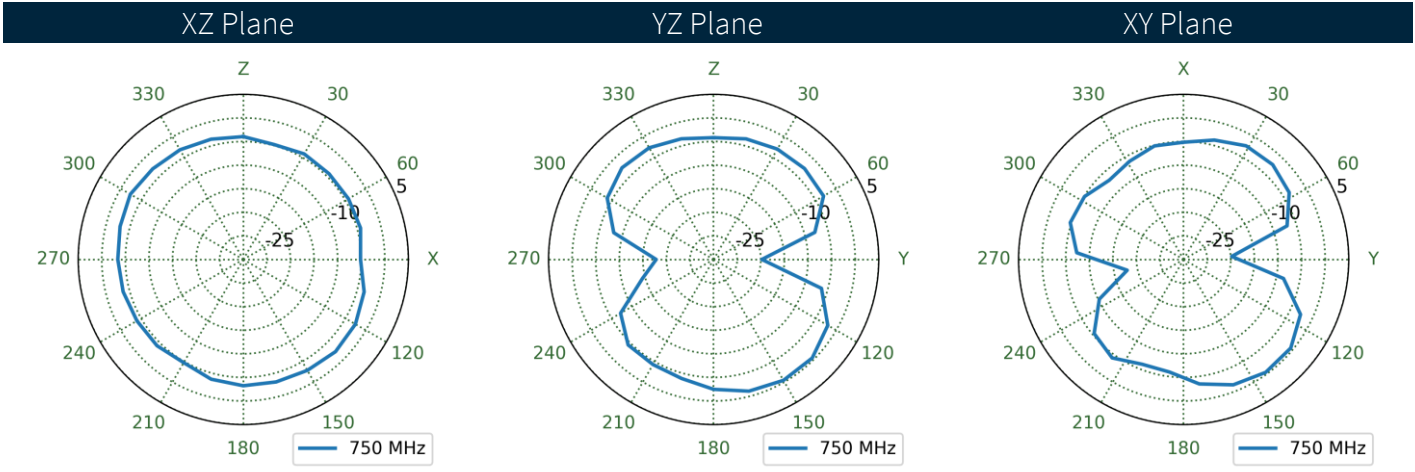
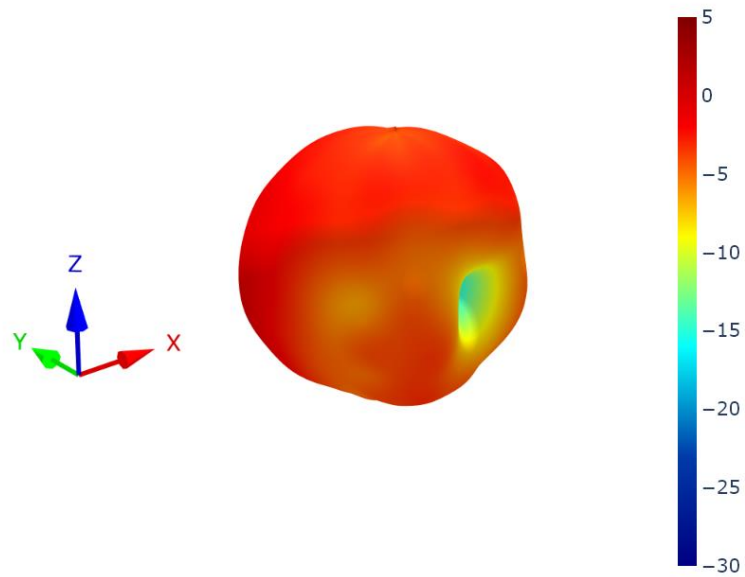
4.2 30x30cm Ground Plane Patterns at 658 MHz



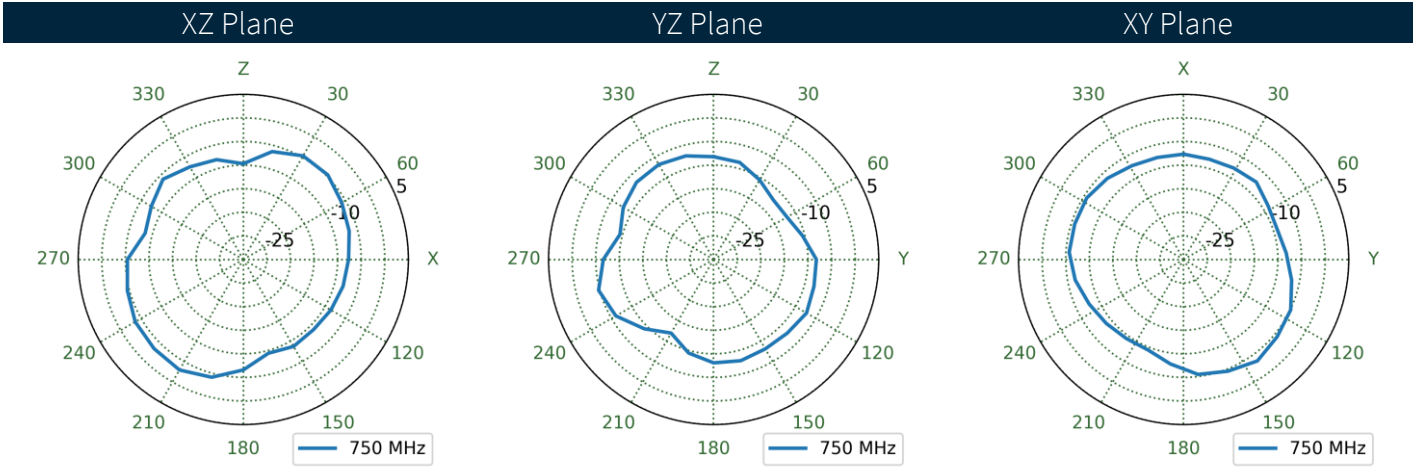
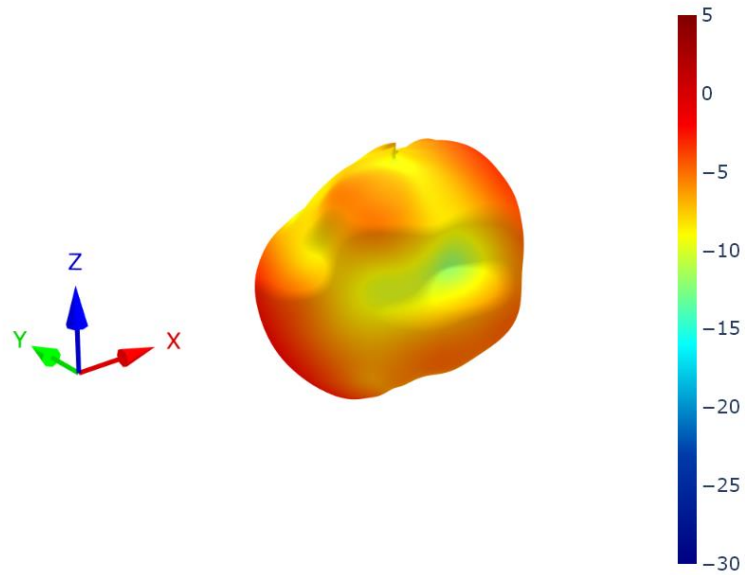
4.3 Free Space Patterns at 658 MHz



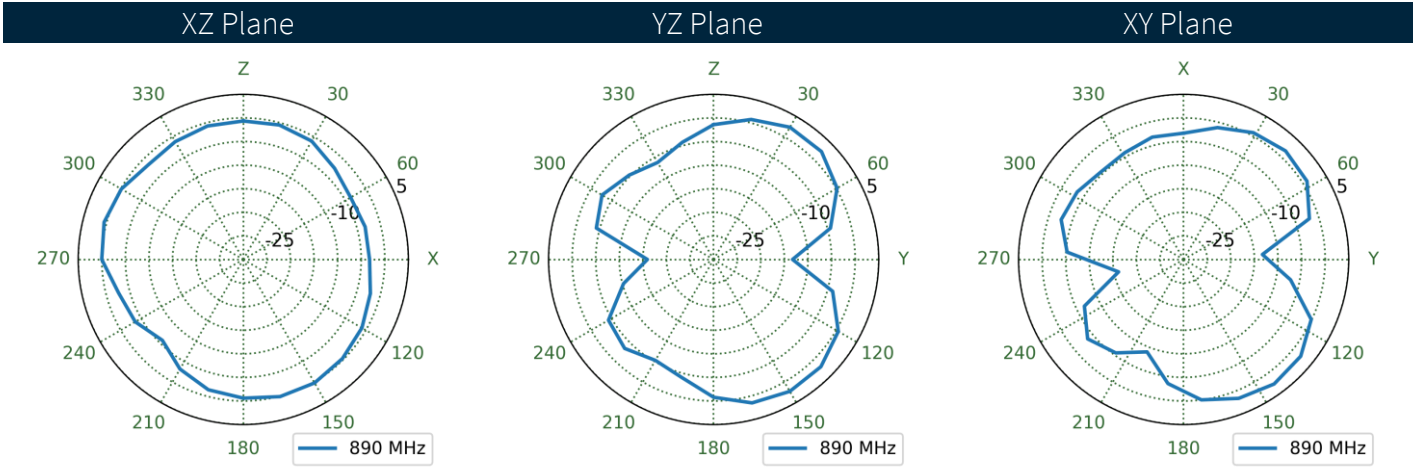
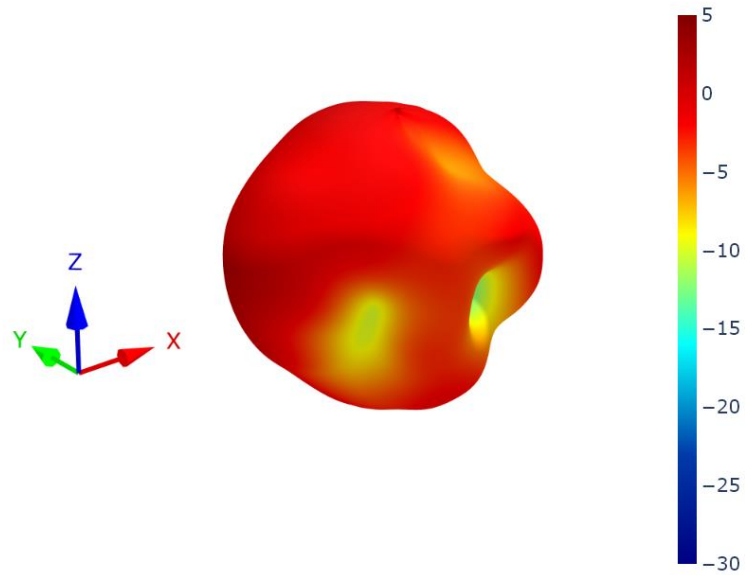
4.4 30x30cm Ground Plane Patterns at 752 MHz



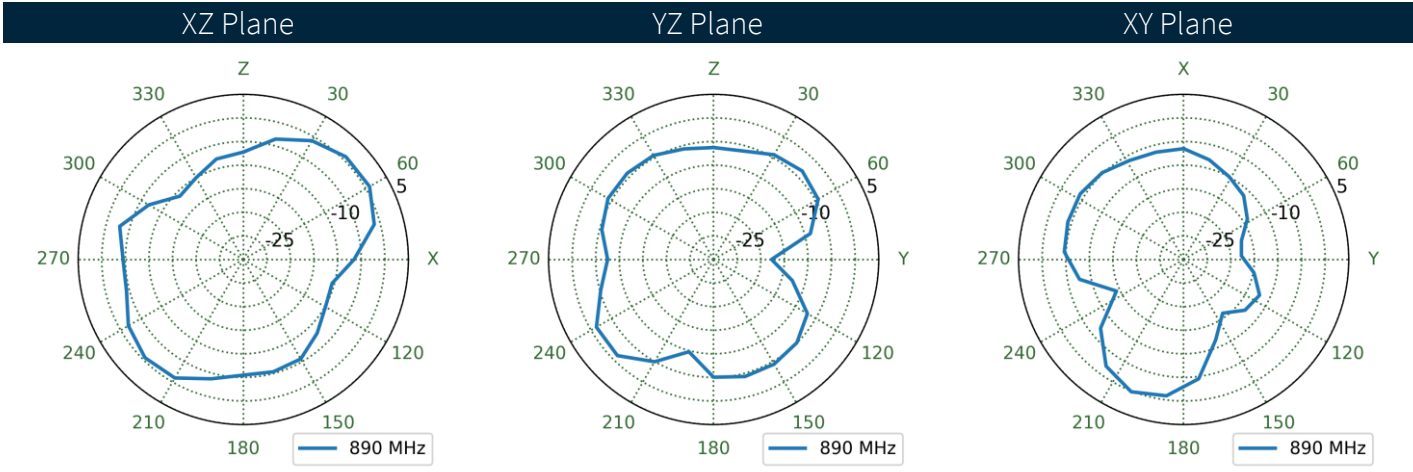
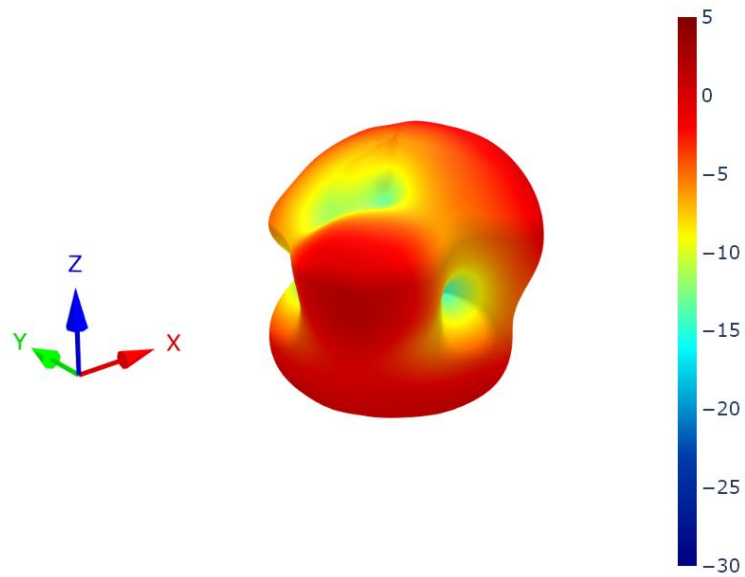
4.5 Free Space Patterns at 752 MHz



4.6 30x30cm Ground Plane Patterns at 892 MHz

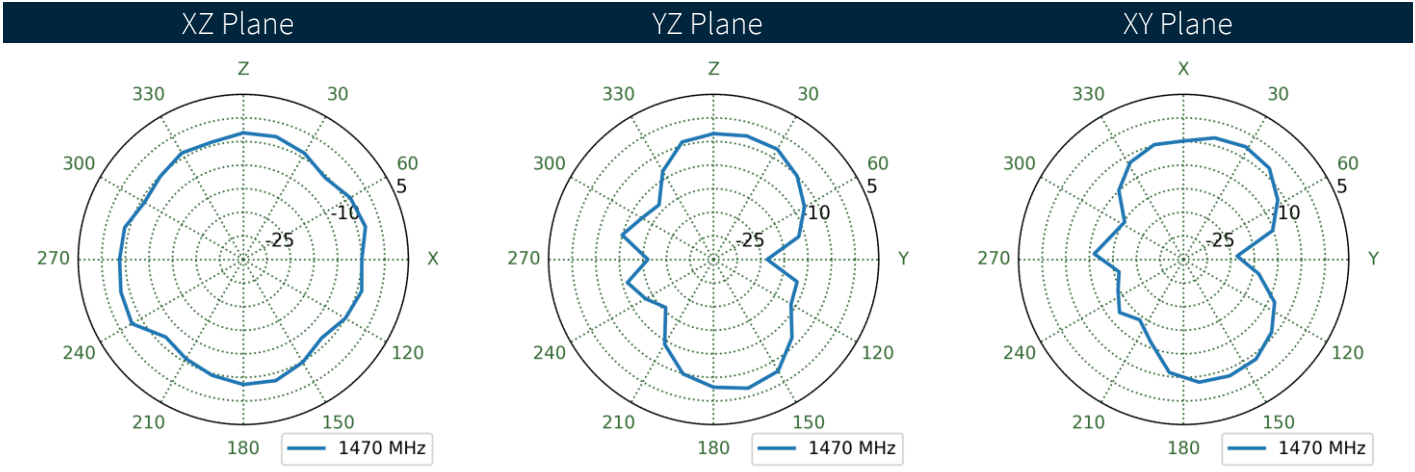
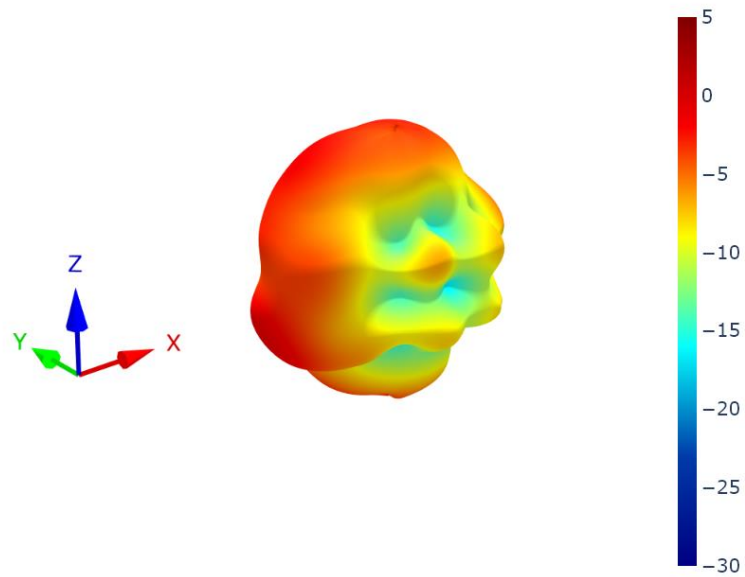


4.7 Free Space Patterns at 892 MHz

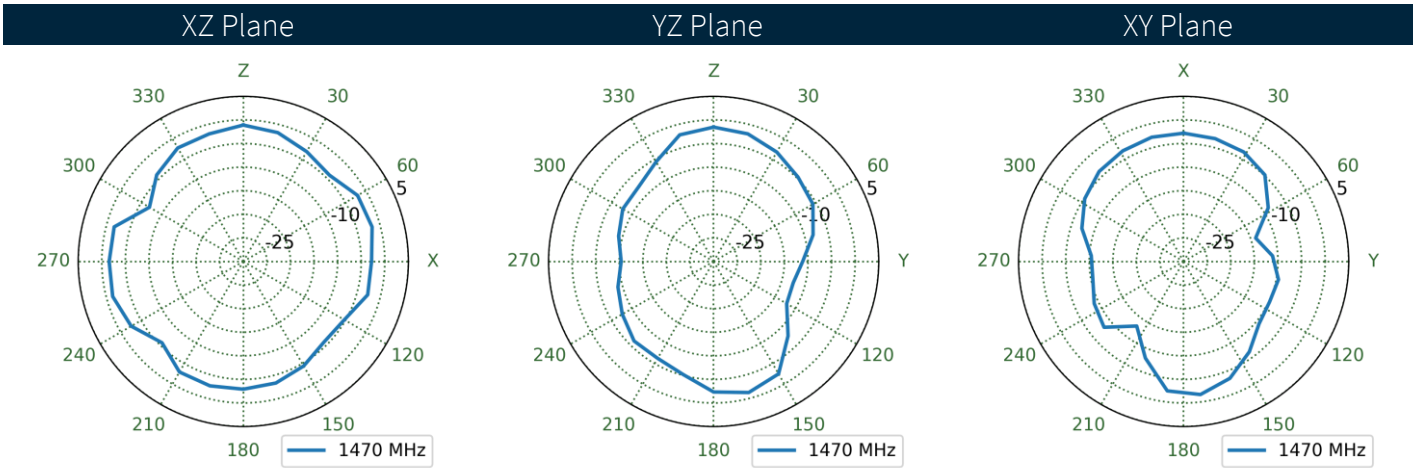
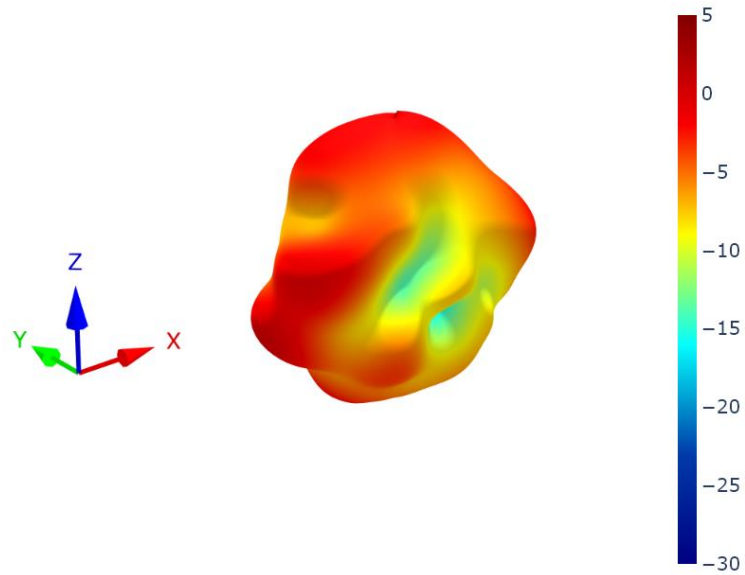




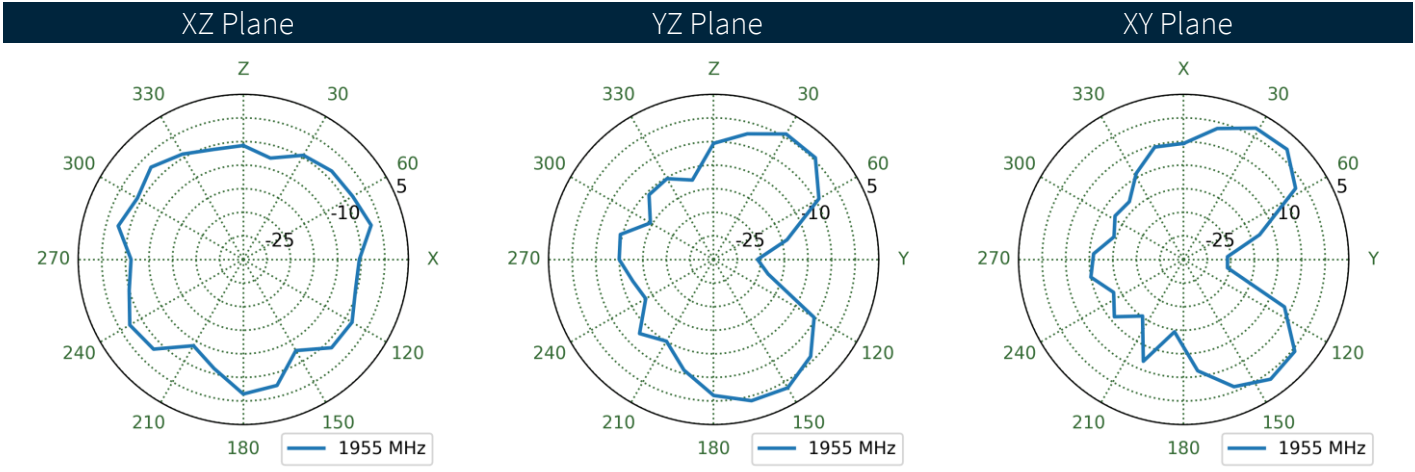
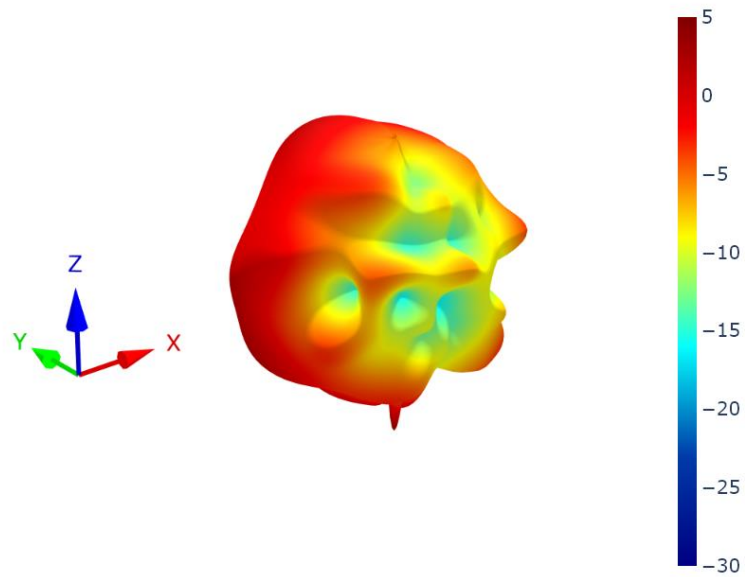
4.8 30x30cm Ground Plane Patterns at 1473 MHz



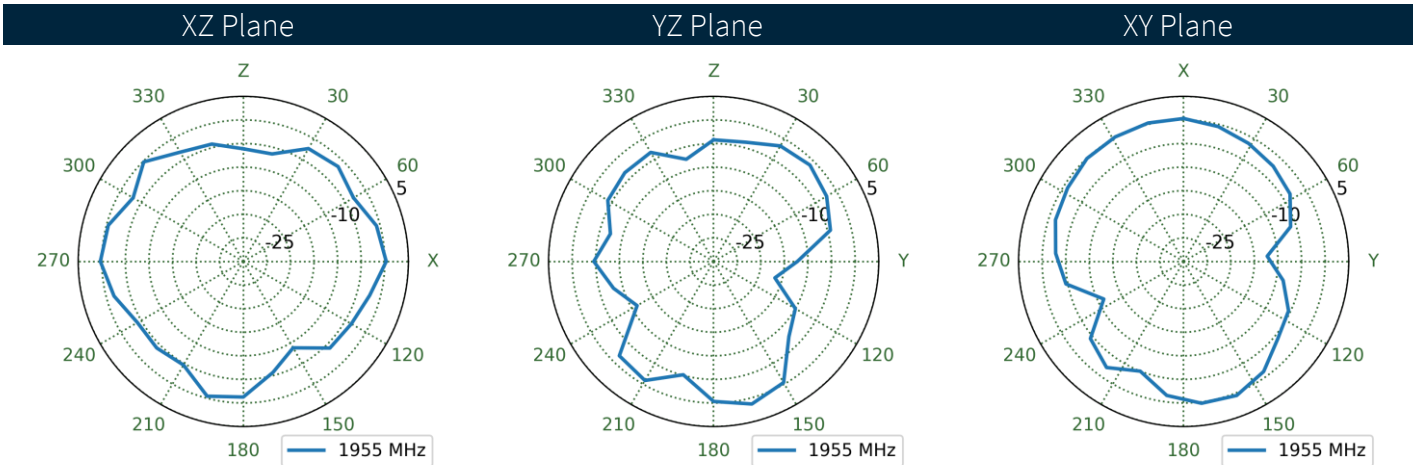
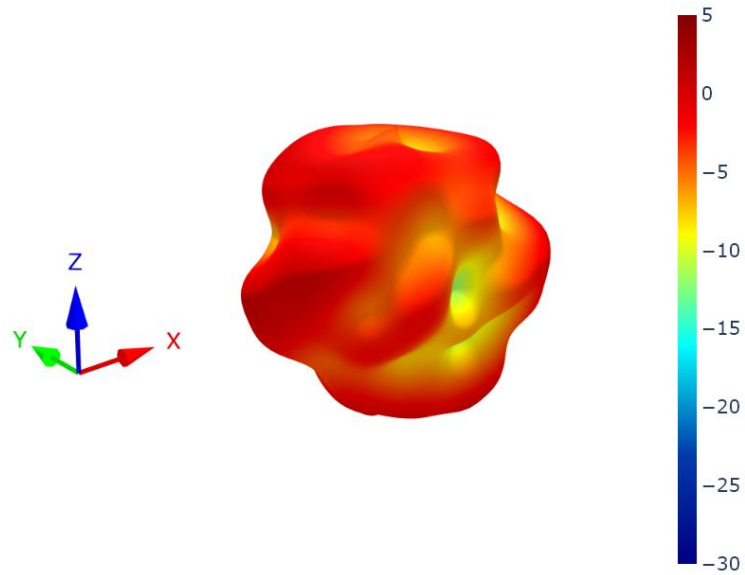
4.9 Free Space Patterns at 1473 MHz



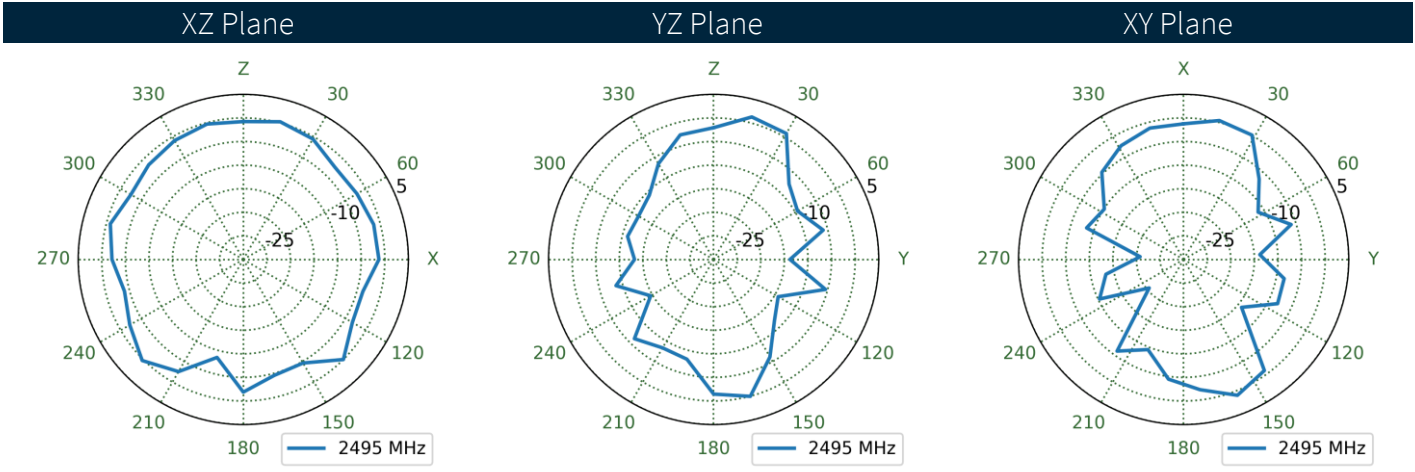
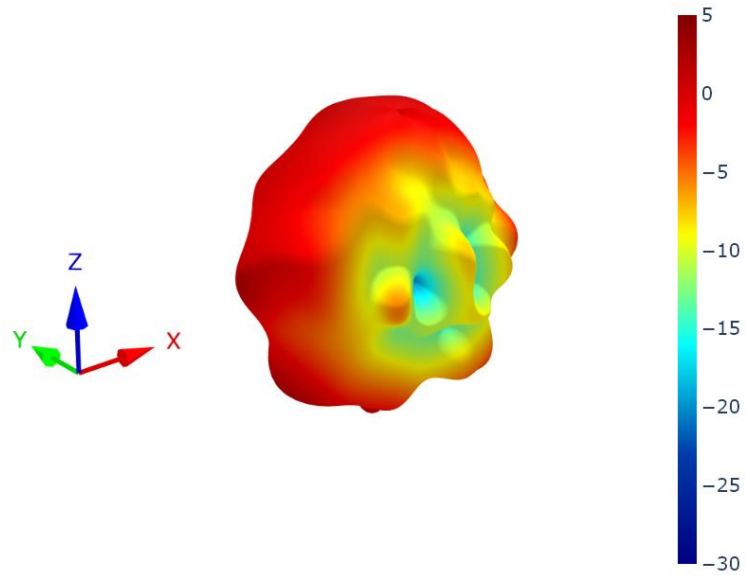
4.10 30x30cm Ground Plane Patterns at 1955 MHz



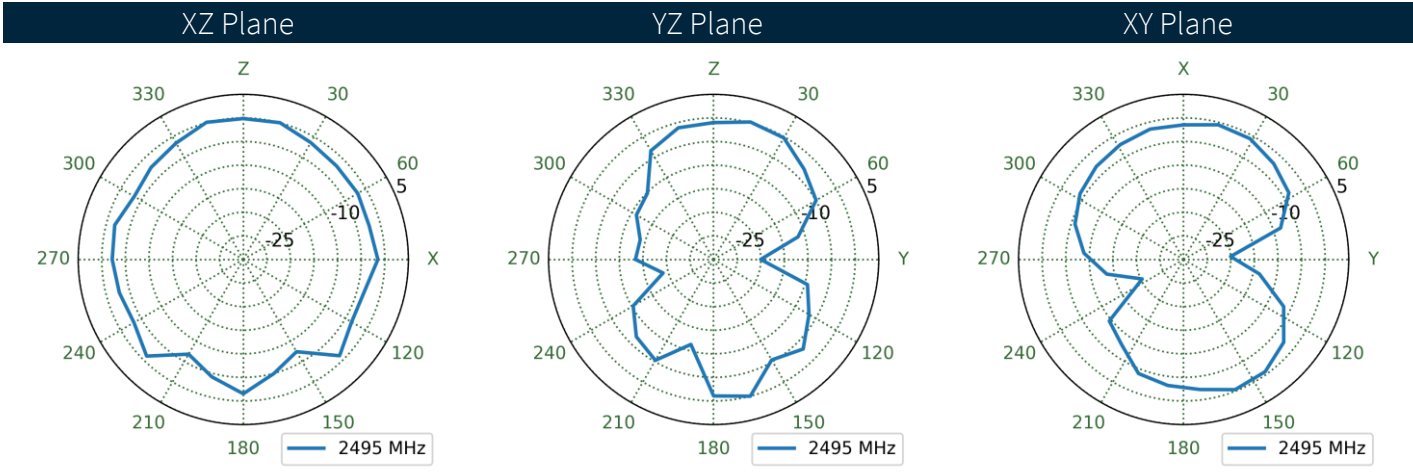
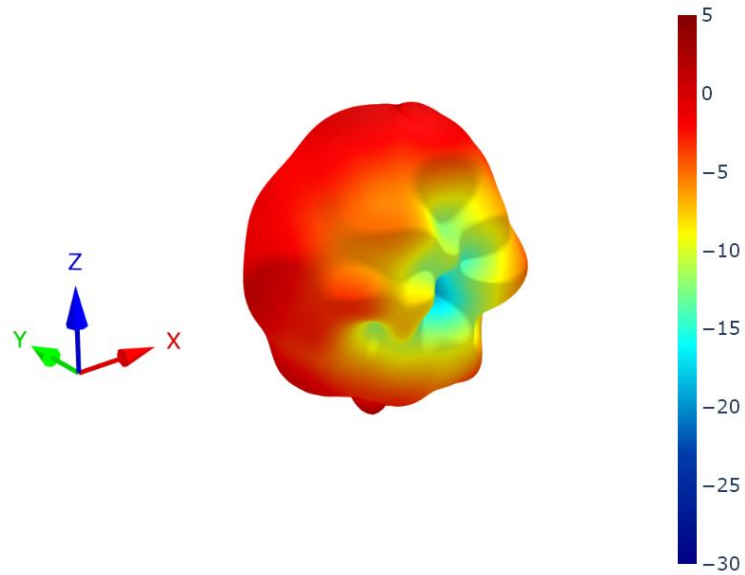
4.11 Free Space Patterns at 1955 MHz



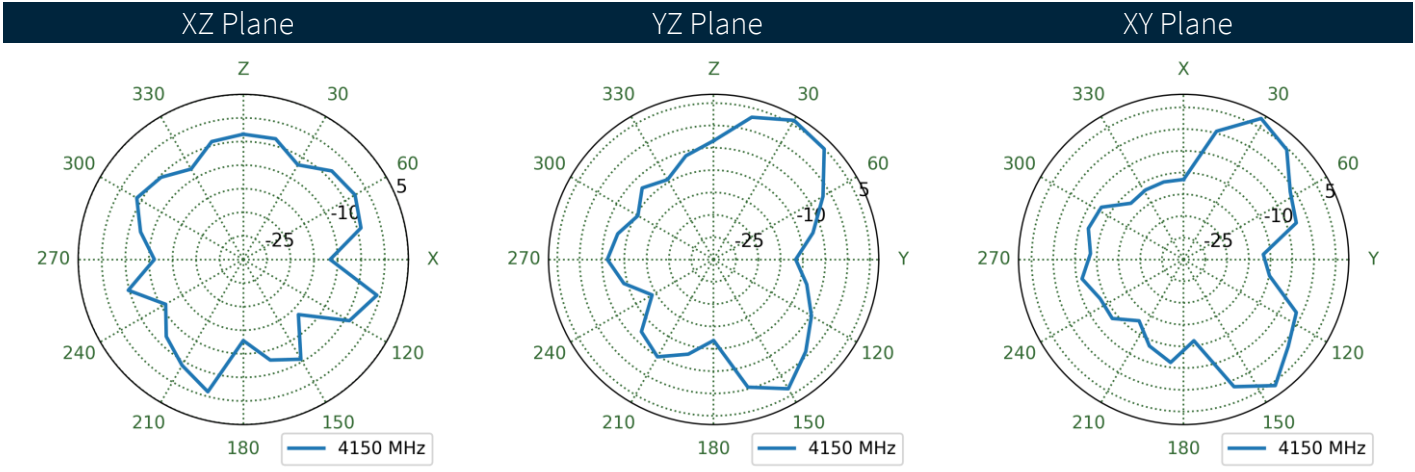
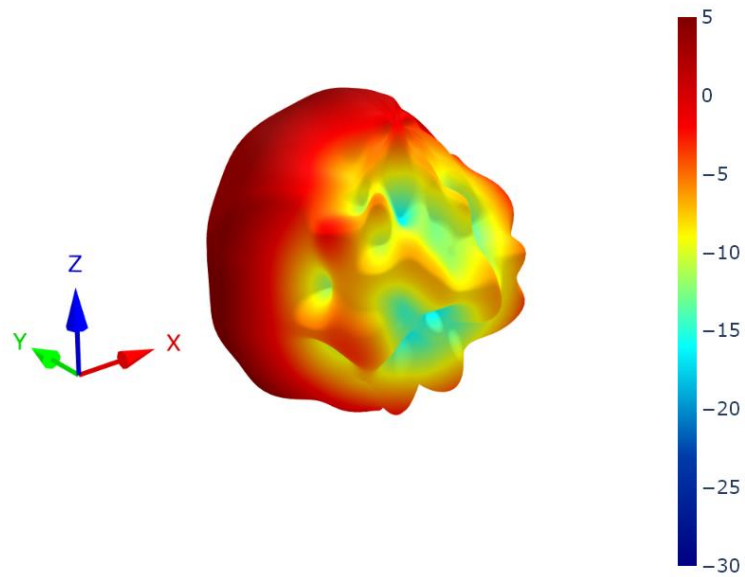
4.12 30x30cm Ground Plane Patterns at 2495 MHz



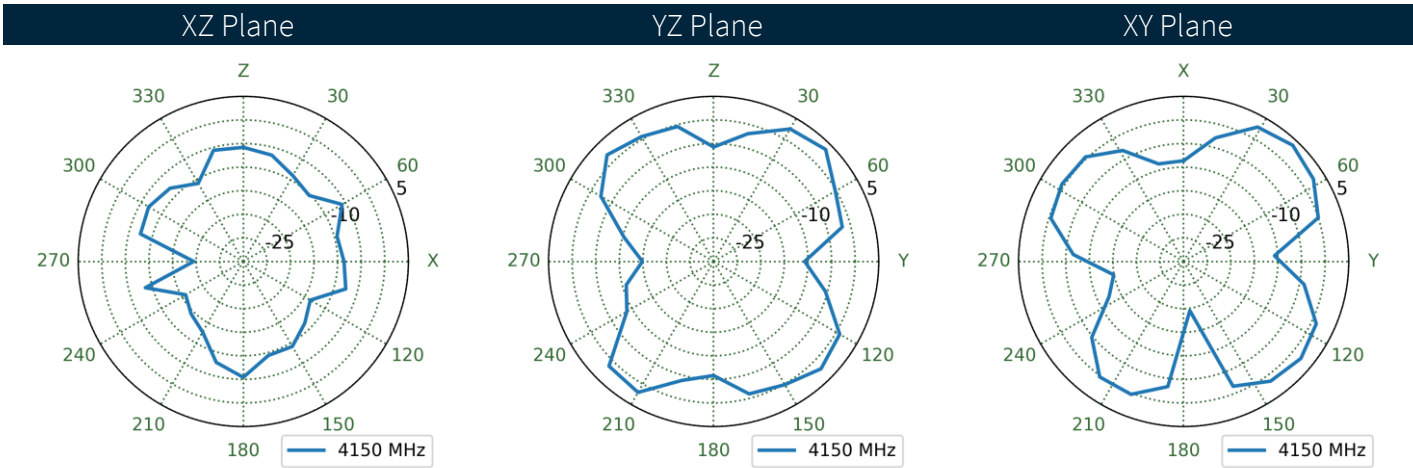
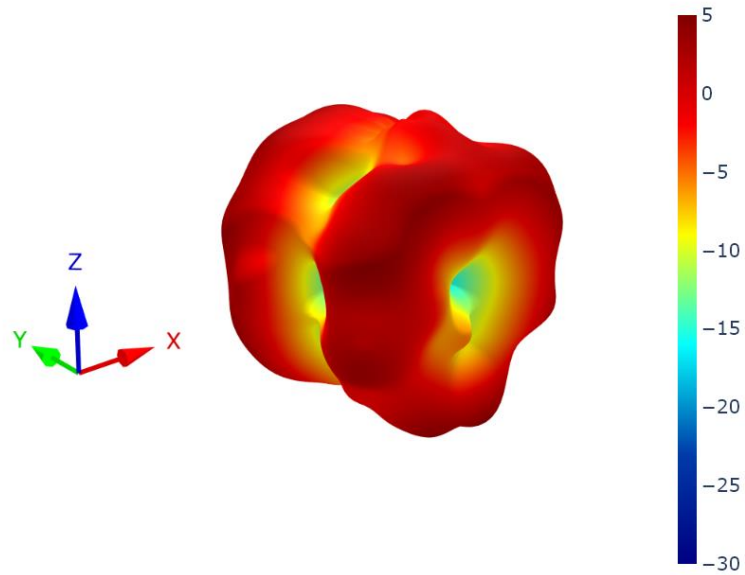
4.13 Free Space Patterns at 2495 MHz



4.14 30x30cm Ground Plane Patterns at 4150 MHz

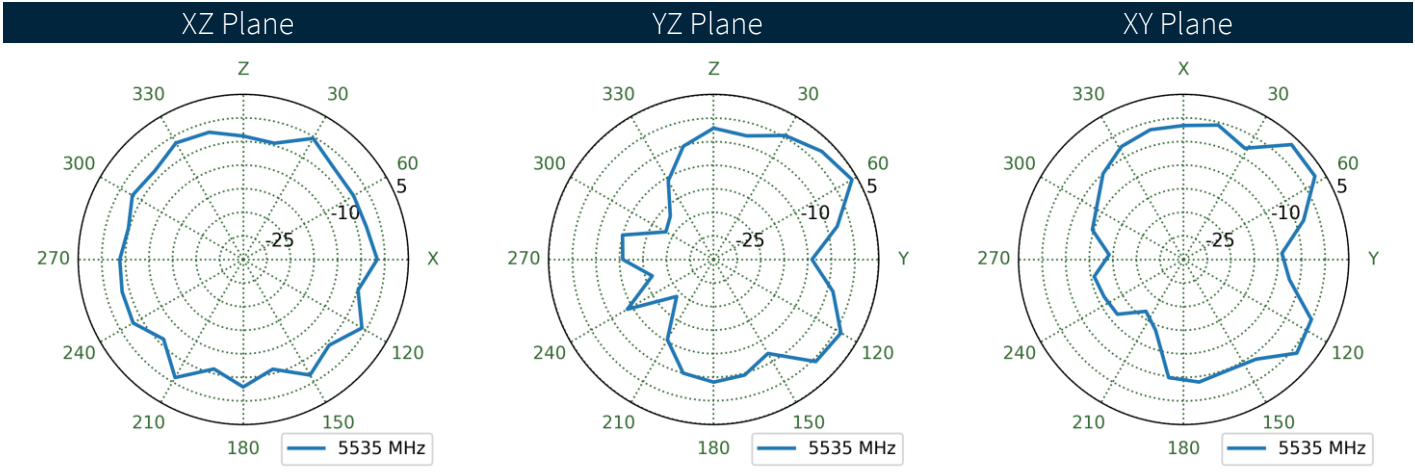
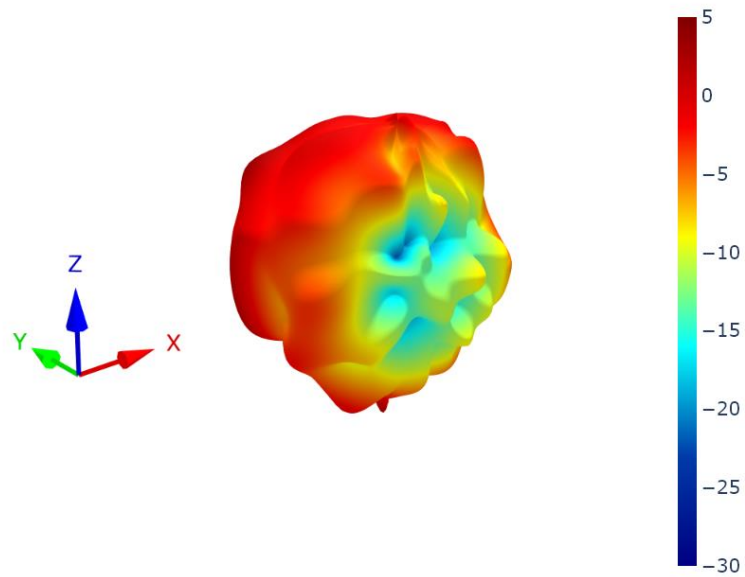


4.15 Free Space Patterns at 4150 MHz

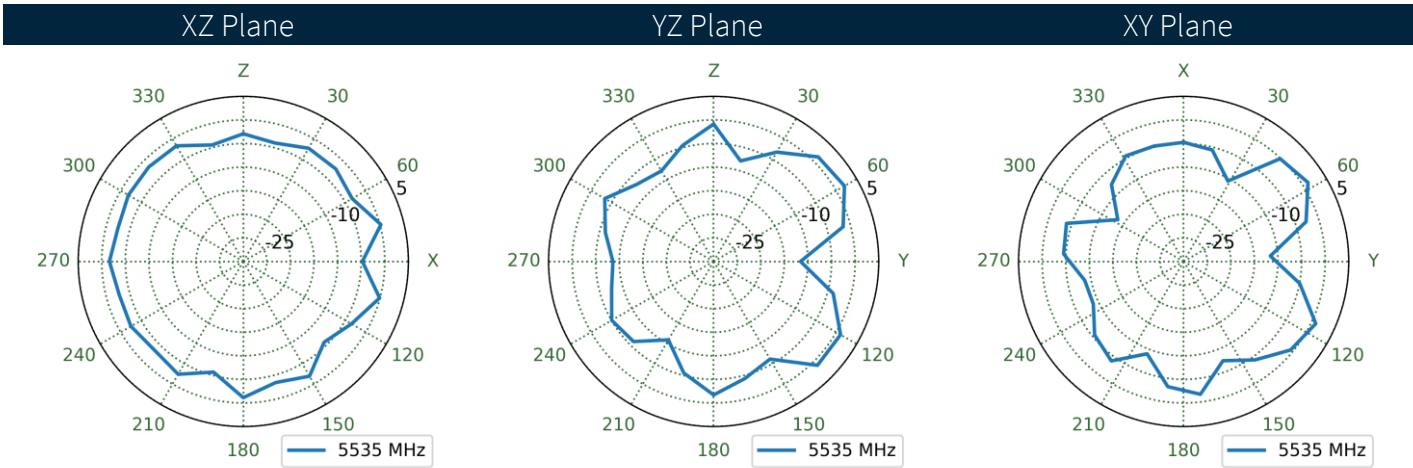
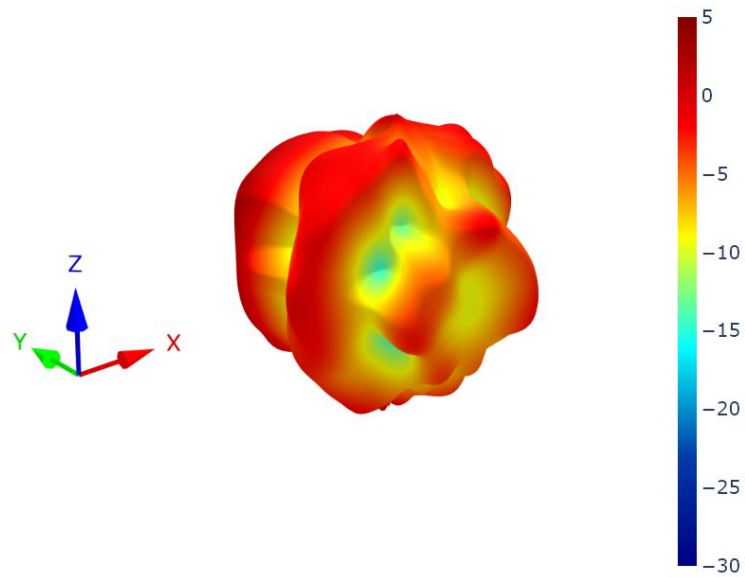




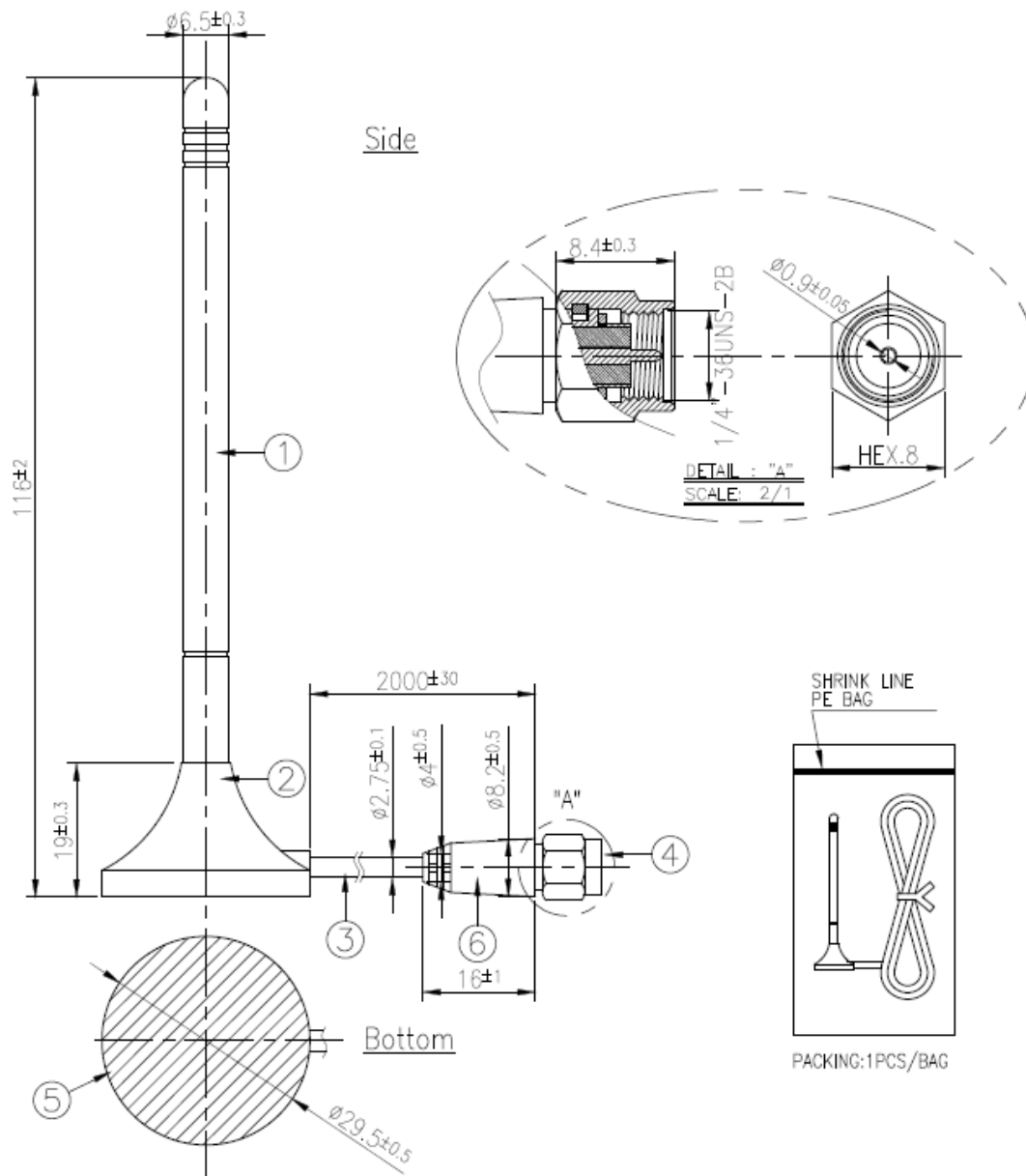
4.16 30x30cm Ground Plane Patterns at 5538 MHz



4.17 Free Space Patterns at 5538 MHz



# 5. Mechanical Drawing

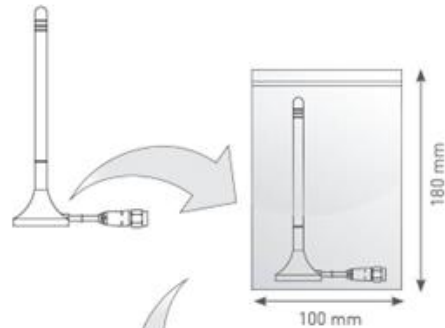


NOTE:  
1. Sticker Area.

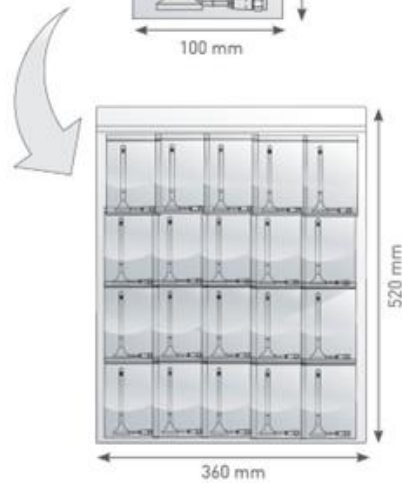
|   | Name                   | P/N            | Material | Finish    | QTY |
|---|------------------------|----------------|----------|-----------|-----|
| 1 | GA.107 Antenna Housing | 000111J040002A | TPU      | Black     | 1   |
| 2 | Holder                 | 000111J050002A | ABS      | Black     | 1   |
| 3 | RG174 Coaxial Cable    | 301315C000000A | PVC      | Black     | 1   |
| 4 | SMA(M)                 | 200211J000002A | Brass    | Au Plated | 1   |
| 5 | Sticker                | 001011J130002A | Polyster | Silver    | 1   |
|   | Strain Rel             |                |          | Black     | 1   |

## 6. Packaging

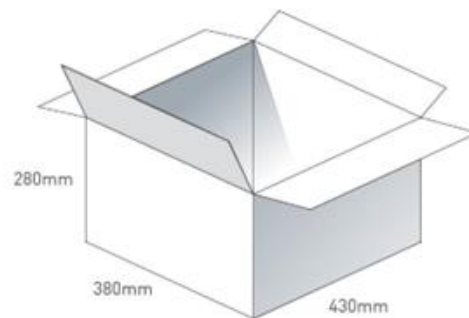
1 pcs GA.107.201111 per PE Bag  
 PE Bag Dimensions - 100\*180mm  
 Weight - 39g



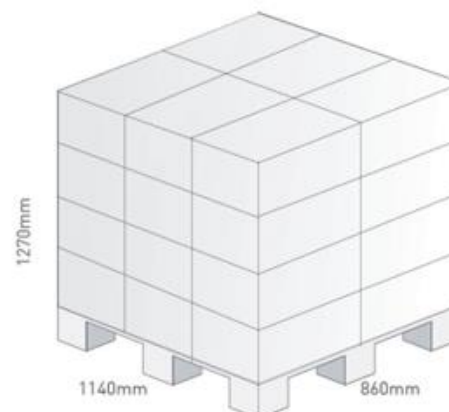
50 PE Bags per Large PE Bag  
 50 pcs GA.107.201111 per Large PE Bag  
 Large PE Dimensions - 360\*520mm  
 Weight - 1.95kg



6 Large PE bags per carton  
 300 pcs GA.107.201111 per carton  
 Carton Dimensions - 430\*380\*280mm  
 Weight - 12.6kg

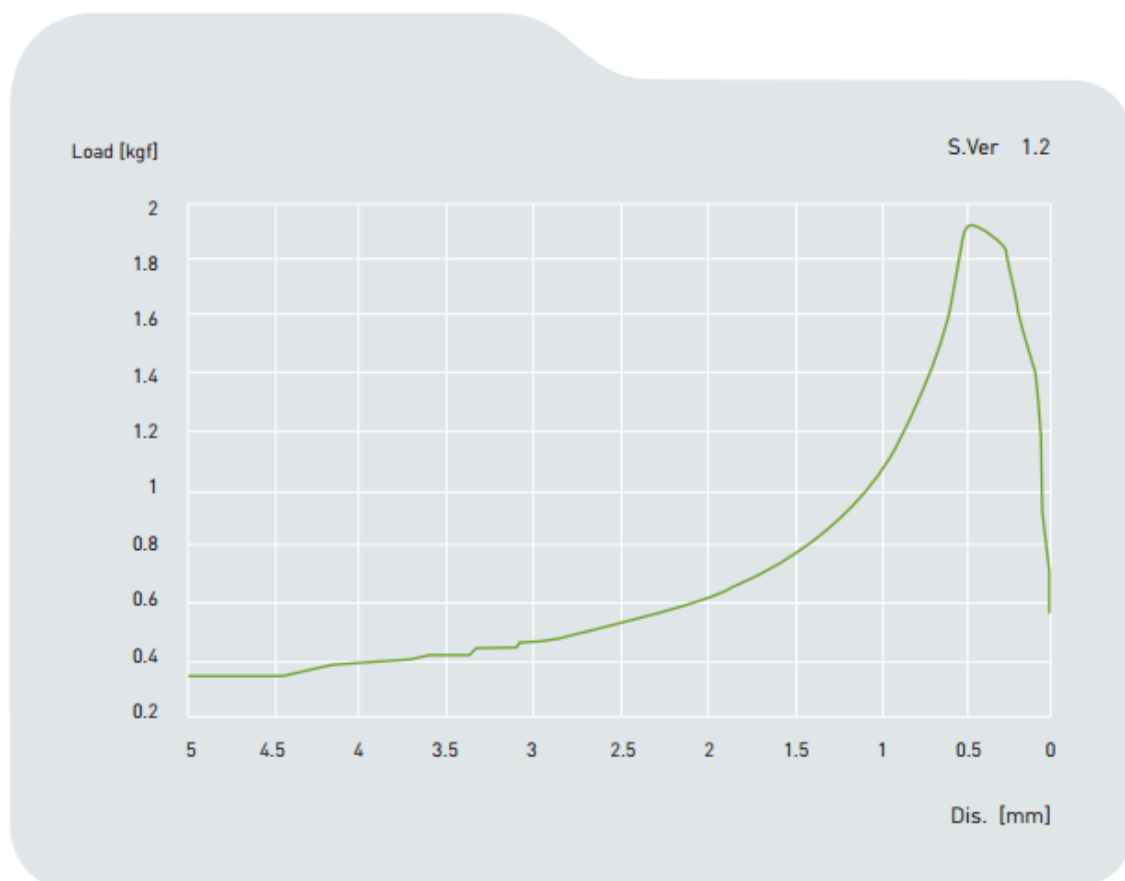


Pallet Dimensions 1140mm\*860m\*1270mm  
 24 Cartons per Pallet  
 6 Cartons per layer  
 4 Layers



## 7. Magnetic Pull Force (Kilogram-Force (kgf))

|                         |      |      |      |      |      |      |      |      |      |      |      |
|-------------------------|------|------|------|------|------|------|------|------|------|------|------|
| <b>Distance (mm)</b>    | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  | 1    |
| <b>Pull force (kgf)</b> | 0    | 1.37 | 1.61 | 1.85 | 1.9  | 1.92 | 1.64 | 1.42 | 1.28 | 1.15 | 1.06 |
| <b>Distance (mm)</b>    | 1.1  | 1.2  | 1.3  | 1.4  | 1.5  | 1.6  | 1.7  | 1.8  | 1.9  | 2    | 2.1  |
| <b>Pull force (kgf)</b> | 0.98 | 0.92 | 0.86 | 0.82 | 0.76 | 0.74 | 0.7  | 0.68 | 0.64 | 0.62 | 0.6  |
| <b>Distance (mm)</b>    | 2.2  | 2.3  | 2.4  | 2.5  | 2.6  | 2.7  | 2.8  | 2.9  | 3    | 3.1  | 3.2  |
| <b>Pull force (kgf)</b> | 0.58 | 0.56 | 0.54 | 0.52 | 0.52 | 0.5  | 0.49 | 0.47 | 0.46 | 0.45 | 0.44 |
| <b>Distance (mm)</b>    | 3.3  | 3.4  | 3.5  | 3.6  | 3.7  | 3.8  | 3.9  | 4    | 4.1  | 4.2  | 4.3  |
| <b>Pull force (kgf)</b> | 0.44 | 0.42 | 0.42 | 0.42 | 0.4  | 0.4  | 0.4  | 0.4  | 0.38 | 0.36 | 0.36 |
| <b>Distance (mm)</b>    | 4.4  | 4.5  | 4.6  | 4.7  | 4.8  | 4.9  | 5    |      |      |      |      |
| <b>Pull force (kgf)</b> | 0.36 | 0.36 | 0.36 | 0.34 | 0.35 | 0.34 | 0.34 |      |      |      |      |



Changelog for the datasheet

**SPE-12-8-046 – GA.107.201111**

**Revision: K (Current Version)**

|                  |   |
|------------------|---|
| Date:            | 2023-06-16  |
| Changes:         | Updated Specification<br>Updated Radiation Patterns |
| Changes Made by: | Aswin Biju  |

**Previous Revisions**

**Revision: J**

|                  |                               |
|------------------|-------------------------------|
| Date:            | 2017-07-05                    |
| Changes:         | Updated as per PCN-16-8-046-B |
| Changes Made by: | Andy Mahoney                  |

**Revision: E**

|                  |                |
|------------------|----------------|
| Date:            | 2013-04-17     |
| Changes:         |                |
| Changes Made by: | Unknown Author |

**Revision: I**

|                  |                 |
|------------------|-----------------|
| Date:            | 2016-08-23      |
| Changes:         | Updated drawing |
| Changes Made by: | Andy Mahoney    |

**Revision: D**

|                  |                |
|------------------|----------------|
| Date:            | 2013-11-28     |
| Changes:         |                |
| Changes Made by: | Unknown Author |

**Revision: H**

|                  |                        |
|------------------|------------------------|
| Date:            | 2016-06-22             |
| Changes:         | Updated Qty per Carton |
| Changes Made by: | Aine Doyle             |

**Revision: C**

|                  |                |
|------------------|----------------|
| Date:            | 2012-09-13     |
| Changes:         |                |
| Changes Made by: | Unknown Author |

**Revision: G**

|                  |                   |
|------------------|-------------------|
| Date:            | 2016-02-18        |
| Changes:         | Amended Packaging |
| Changes Made by: | Aine Doyle        |

**Revision: B**

|                  |                |
|------------------|----------------|
| Date:            | 2012-08-21     |
| Changes:         |                |
| Changes Made by: | Unknown Author |

**Revision: F**

|                  |                                       |
|------------------|---------------------------------------|
| Date:            | 2016-02-03                            |
| Changes:         | Added in weight, torque and packaging |
| Changes Made by: | Aine Doyle                            |

**Revision: A (First Release)**

|         |                |
|---------|----------------|
| Date:   | 2012-04-30     |
| Notes:  |                |
| Author: | Unknown Author |