

Datasheet

# SynergyX 5-in-1

**Part No:**
**MA1555.A.001**

## Description

Synergy X - 5in1 Multiband GNSS 300mm RG-174 SMA(M): 2*5G/4G 300mm SMA(M): 2*Wi-Fi® 300mm SMA(M)

## Features:

Low-profile Permanent Mount Enclosure
2* 5G/4G MIMO 600-6000MHz
2* Wi-Fi® MIMO 2.4/5.8/7.125 GHz (Including Wi-Fi® 6)
1* Multiband GNSS
Worldwide 5G/4G Bands
IP67 Waterproof Enclosure
Dimensions: Ø161.3mm * 67mm
Cables: 300mm of RG-174
Connectors: SMA(M) / RP-SMA(M) connectors
RoHS & Reach Compliant

| | | |
|---|---|---|
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# 1. Introduction



The Taoglas SynergyX **MA1555** is a 5-in-1 next-generation permanent mount antenna designed for exceptional performance when used in conjunction with the next generation of routers.

It has been designed for high precision applications and provides excellent performance on the full GNSS spectrum including (GPS/QZSS L1/L2/L5/L6, GLONASS G1/G2/G3, Galileo E1/E5a/E5b/E6, BeiDou B1/B2a/B2b/B3, NAVIC L5, as well as SBAS (WAAS/EGNOS/GAGAN/SDCM/SNAS) for high-performance cm-level positional accuracy which allows the user to achieve higher location accuracy, as well as stability of position tracking in urban environments with their device and with the next generation of routers.

The 5 antennas inside support 5G/4G, Multi-Band GNSS, and Wi-Fi® (2.4GHz/5-7.125GHz). The 5G/4G antennas are wideband 600MHz to 6GHz to cover the full spectrum of 5G frequencies. The Wi-Fi® antenna includes Wi-Fi® 6 and 7 capabilities to ensure your design is future-proof for the next generation of Router connectivity.

Combining Multi-band GNSS, 5G/4G, Wi-Fi® 6, and an incredibly compact PC enclosure with a fully IP67 rated waterproof, The Synergy X MA1555.A.001 is the right powerful, compact combination antenna for your application. It is supplied with 300mm RG-174 pigtail cables and comes with SMA(M) connectors as standard.

### Typical Applications:

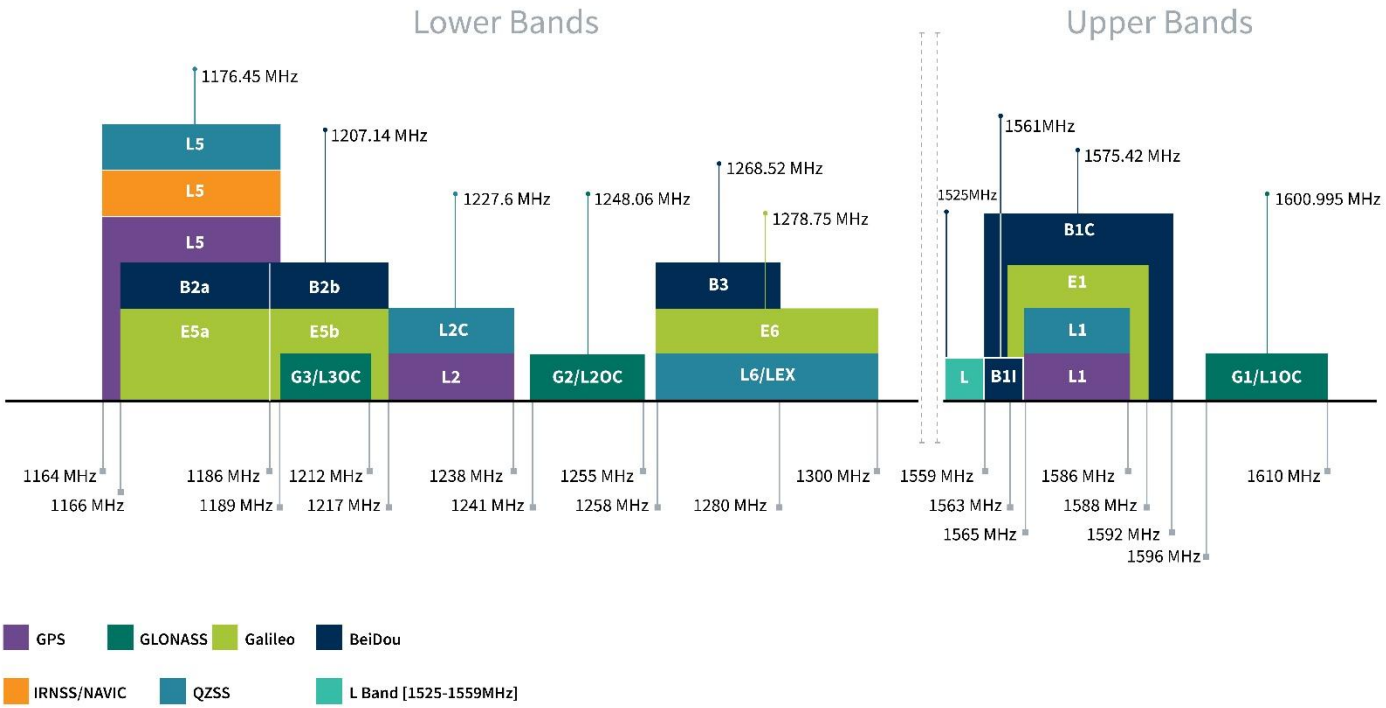
- Autonomous Driving
- Precision Positioning for Robotics
- Precision Agriculture
- Inventory Management & Container tracking
- Telematics & Asset Tracking
- Timing Accuracy Synchronization

The SynergyX MA1555.A.001 is the latest external addition to an ongoing product roadmap of high precision antennas by Taoglas. For RTK applications when used on the base and/or the rover, the MA1555.A.001 can achieve genuine cm-level accuracy.

Cable and connectors are customizable. Please contact your regional Taoglas customer support team for further information.

# 2. Specification

| GNSS Frequency Bands | | | | | |
|---|---|---|---|---|---|
| GPS | L1<br>1575.42 MHz | L2<br>1227.6 MHz | L5<br>1176.45 MHz | | |
| | ■ | ■ | ■ | | |
| GLONASS | G1<br>1602 MHz | G2<br>1248 MHz | G3<br>1207 MHz | | |
| | ■ | ■ | ■ | | |
| Galileo | E1<br>1575.24 MHz | E5a<br>1176.45 MHz | E5b<br>1201.5 MHz | E6<br>1278.75 MHz | |
| | ■ | ■ | ■ | ■ | |
| BeiDou | B1C<br>1575.42 MHz | B1I<br>1561 MHz | B2a<br>1176.45 MHz | B2b<br>1207.14 MHz | B3<br>1268.52 MHz |
| | ■ | ■ | ■ | ■ | ■ |
| QZSS (Regional) | L1<br>1575.42 MHz | L2C<br>1227.6 MHz | L5<br>1176.45 MHz | L6<br>1278.75e6 | |
| | ■ | ■ | ■ | ■ | |
| IRNSS (Regional) | L5<br>1176.45 MHz | | | | |
| | ■ | | | | |
| SBAS | L1/E1/B1<br>1575.42 MHz | L5/B2a/E5a<br>1176.45 MHz | G1<br>1602 MHz | G2<br>1248 MHz | G3<br>1207 MHz |
| | ■ | ■ | ■ | ■ | ■ |



| GNSS Electrical | | | | | | |
|---|---|---|---|---|---|---|
| **Frequency (MHz)** | **1176.45** | **1227.6** | **1278.75** | **1561** | **1575.42** | **1602** |
| **VSWR (max.)** | 2:1 | 2:1 | 2:1 | 2:1 | 2:1 | 2:1 |
| **Efficiency(%)** | 48 | 53 | 46 | 44 | 48 | 50 |
| **Peak Gain(dBi)** | 2.65 | 0.20 | 3.16 | 3.45 | 4.03 | 3.96 |
| **Average Gain (dB)** | -3.16 | -2.70 | -3.36 | -3.58 | -3.16 | -3.03 |
| **Axial Ratio (dB)** | 1.12 | 0.89 | 1.18 | 2.34 | 2.27 | 2.48 |
| **Group Delay Mean (ns)** | 12.15 | 5.99 | 11.11 | 34.35 | 26.89 | 30.67 |
| **Polarization** | RHCP | | | | | |
| **Impedance** | 50 Ω | | | | | |
| **Cable** | RG174 | | | | | |
| **Connector** | SMA(M) | | | | | |
| **Passive GNSS results shown are in Free space** | | | | | | |

| LNA and Filter Electrical Properties | | | | | | |
|---|---|---|---|---|---|---|
| **Frequency (MHz)** | **L5 1176.45** | **GAL E5b 1207** | **GPS L2 1227** | **L6/E6 1278.75** | **B1 1561** | **L1 1575.42** |
| **Gain (typical)** | 25 dB | 26 dB | 25 dB | 22 dB | 27 dB | 28 dB |
| **Noise Figure (typical)** | 4.0 dB | 3.7 dB | 3.8 dB | 4.5 dB | 3.1 dB | 2.6 dB |
| **Current Draw (typical)** | < 20 mA | | | | | |
| **Input Voltage** | +1.8 to +5 VDC | | | | | |
| **Out-Of-Band Attenuation (dB)** | 100 - 900 MHz | | | > 50 | | |
| | 900 - 1000 MHz | | | > 30 | | |
| | 1350 - 1520 MHz | | | > 25 | | |
| | 1700 - 2000 MHz | | | > 35 | | |
| | 2000 - 6000 MHz | | | > 45 | | |

| 5G/4G Electrical | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Band** | **Frequency (MHz)** | **MIMO** | **Measurement** | **Efficiency (%)** | **Average Gain (dB)** | **Peak Gain (dBi)** | **Impedance** | **Polarization** | **Radiation Pattern** | **Max. input power** |
| **5GNR/4G** Band71 | 617-698 | MIMO 1 | Free Space | 48.7 | -3.13 | 1.49 | 50 Ω | Linear | Omni directional | 2W |
| | | | Ground Plane | 21.2 | -6.73 | -0.15 | | | | |
| | | MIMO 2 | Free Space | 45.1 | -3.46 | 0.53 | | | | |
| | | | Ground Plane | 18.6 | -7.31 | -0.47 | | | | |
| **4G/3G** Band 12,13,14,17,28,29 | 698-806 | MIMO 1 | Free Space | 47.0 | -3.28 | 1.45 | | | | |
| | | | Ground Plane | 30.0 | -5.23 | -0.22 | | | | |
| | | MIMO 2 | Free Space | 45.9 | -3.39 | 0.74 | | | | |
| | | | Ground Plane | 28.5 | -5.45 | -1.24 | | | | |
| **4G/3G/NB-IoT/Cat M** Band 5,8,18,19,20,26,27 | 824-960 | MIMO 1 | Free Space | 52.4 | -2.80 | 1.51 | | | | |
| | | | Ground Plane | 42.5 | -3.72 | 2.85 | | | | |
| | | MIMO 2 | Free Space | 51.6 | -2.88 | 1.29 | | | | |
| | | | Ground Plane | 42.1 | -3.76 | 3.34 | | | | |
| **5GNR/4G** Band 21,32,74,75,76 | 1427-1518 | MIMO 1 | Free Space | 58.6 | -2.32 | 2.79 | | | | |
| | | | Ground Plane | 53.6 | -2.71 | 3.00 | | | | |
| | | MIMO 2 | Free Space | 56.3 | -2.50 | 1.74 | | | | |
| | | | Ground Plane | 54.0 | -2.68 | 3.18 | | | | |
| **4G/3G** Band 1,2,3,4,9,23,25,35, 39,66 | 1710-2200 | MIMO 1 | Free Space | 50.8 | -2.94 | 2.72 | | | | |
| | | | Ground Plane | 50.5 | -2.96 | 4.54 | | | | |
| | | MIMO 2 | Free Space | 47.6 | -3.23 | 1.19 | | | | |
| | | | Ground Plane | 48.2 | -3.17 | 3.54 | | | | |
| **4G/3G** Band 7,30,38,40,41 | 2300-2690 | MIMO 1 | Free Space | 64.7 | -1.89 | 4.20 | | | | |
| | | | Ground Plane | 68.0 | -1.67 | 5.65 | | | | |
| | | MIMO 2 | Free Space | 64.2 | -1.93 | 4.13 | | | | |
| | | | Ground Plane | 67.0 | -1.74 | 4.94 | | | | |
| **5GNR/4G** Band 22,42,48,77,78,79 | 3300-5000 | MIMO 1 | Free Space | 53.4 | -2.73 | 6.00 | | | | |
| | | | Ground Plane | 52.1 | -2.83 | 6.98 | | | | |
| | | MIMO 2 | Free Space | 61.1 | -2.14 | 5.44 | | | | |
| | | | Ground Plane | 62.6 | -2.03 | 8.11 | | | | |
| **LTE5200/Wi-Fi5800** | 5150-5925 | MIMO 1 | Free Space | 64.8 | -1.89 | 7.32 | | | | |
| | | | Ground Plane | 62.3 | -2.05 | 9.29 | | | | |
| | | MIMO 2 | Free Space | 41.5 | -3.82 | 4.82 | | | | |
| | | | Ground Plane | 50.5 | -2.97 | 8.16 | | | | |

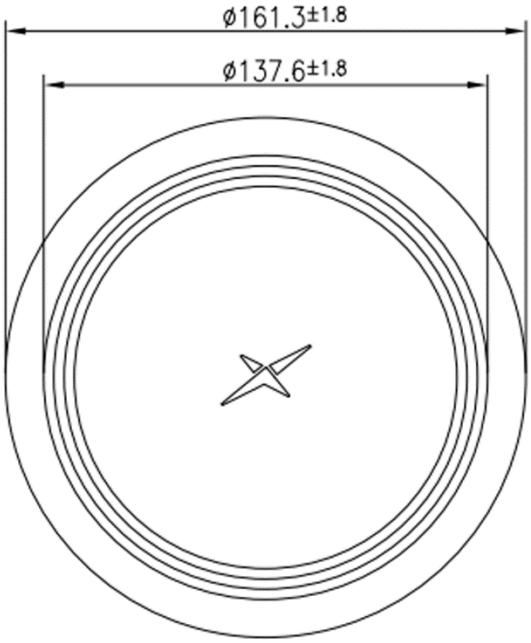
| 5G/4G Bands | | | | | | |
|---|---|---|---|---|---|---|
| Band Number | 5GNR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA | | | | | |
| | Uplink | Downlink | MIMO1__Free Space | MIMO1__Ground Plane | MIMO2__Free Space | MIMO2__Ground Plane |
| B1 | 1920 to 1980 | 2110 to 2170 | ✓ | ✓ | ✓ | ✓ |
| 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 | ✖ | ✖ | ✖ | ✖ |

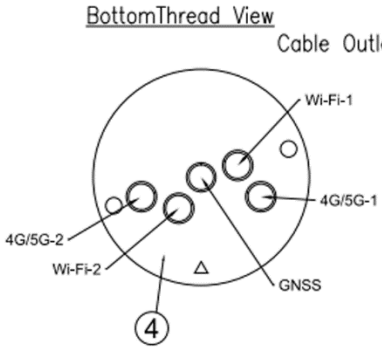
| Wi-Fi Electrical | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Band** | **Frequency (MHz)** | **MIMO** | **Measurement** | **Efficiency (%)** | **Average Gain (dB)** | **Peak Gain (dBi)** | **Impedance** | **Polarization** | **Radiation Pattern** | **Max. input power** |
| **Wi-Fi2** 2.4 GHz | 2400-2500 | MIMO 1 | Free Space | 55.4 | -2.57 | 2.48 | 50 Ω | Linear | Omni directional | 2W |
| | | | Ground Plane | 59.4 | -2.26 | 4.53 | | | | |
| | | MIMO 2 | Free Space | 51.2 | -2.91 | 2.82 | | | | |
| | | | Ground Plane | 55.6 | -2.55 | 3.97 | | | | |
| **Wi-Fi5** 5 GHz | 5150-5850 | MIMO 1 | Free Space | 61.2 | -2.13 | 5.88 | | | | |
| | | | Ground Plane | 55.2 | -2.58 | 7.51 | | | | |
| | | MIMO 2 | Free Space | 54.4 | -2.64 | 5.43 | | | | |
| | | | Ground Plane | 43.8 | -3.59 | 6.67 | | | | |
| **Wi-Fi - 6GHz** | 5925-7125 | MIMO 1 | Free Space | 59.0 | -2.29 | 6.15 | | | | |
| | | | Ground Plane | 56.9 | -2.45 | 9.06 | | | | |
| | | MIMO 2 | Free Space | 65.5 | -1.84 | 6.01 | | | | |
| | | | Ground Plane | 64.0 | -1.94 | 8.75 | | | | |

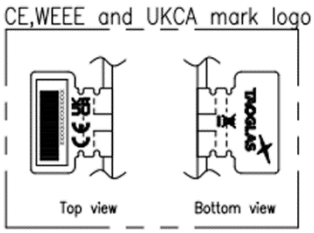
| Mechanical | |
|---|---|
| **Dimensions** | Ø161.3mm x 67mm |
| **Weight** | 535g |
| **Material** | PC |
| **Connector** | SMA (M) |
| **Cable** | 300mm of RG-174 |

| Environmental | |
|---|---|
| **Protection** | IP67 |
| **Temperature Range** | -40°C to 85°C |
| **Humidity** | Non-condensing 65°C 95% RH |
| **RoHS Compliant** | Yes |
| **REACH Compliant** | Yes |

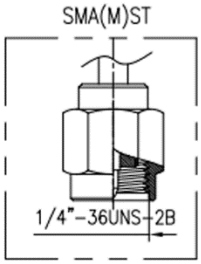
# 3. Mechanical Drawing



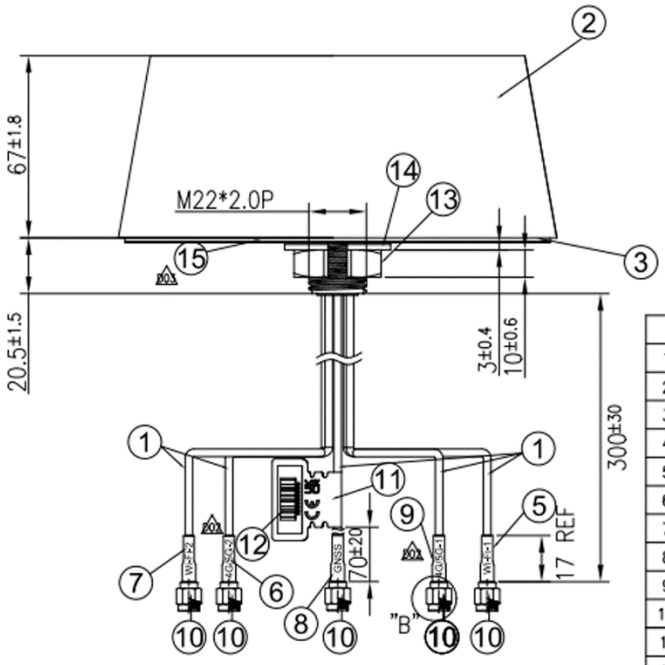




Detail A
Scale:1.25:1




Detail B
Scale:4:1




| | Name | Material | Finish | QTY |
|---|---|---|---|---|
| 1 | RG174 Coaxial Cable | PVC | Black | 5 |
| 2 | Top Plastic Shell | PC/SABIC EXL1414 | Black | 1 |
| 3 | Bottom Plastic | PC/SABIC EXL1414 | Black | 1 |
| 4 | Cable Rubber | Silicone Rubber | Black | 1 |
| 5 | Heat Shrink Tube (Wi-Fi-1) | PE | Yellow Tube/Black Text | 1 |
| 6 | Heat Shrink Tube (4G/5G-2) | PE | Red Tube/White Text | 1 |
| 7 | Heat Shrink Tube (Wi-Fi-2) | PE | Yellow Tube/Black Text | 1 |
| 8 | Heat Shrink Tube (GNSS) | PE | Blue Tube/White Text | 1 |
| 9 | Heat Shrink Tube (4G/5G-1) | PE | Red Tube/White Text | 1 |
| 10 | SMA(M)ST for RG174/RG316 | Brass | Au Plated | 5 |
| 11 | CE,WEEE and UKCA mark logo Label | PEPA | White | 1 |
| 12 | Barcode Label | PET | White | 1 |
| 13 | Nut Steel M22xP2.0xH10 Cut | Steel/S45C | Zn-Ni Plated | 1 |
| 14 | Washer_Cut | Steel/S45C | Zn-Ni Plated | 1 |
| 15 | Double sided adhesive | E4382 +3M 9448 2.5T | Black Foam/White Liner | 1 |

# 4. Installation Instructions

## A Introduction

The Taoglas SynergyX is an external permanent mount combination antenna that can be provided with combinations of 5G/4G, active GNSS with front end saw and dual-band Wi-Fi. The SynergyX is available with two versions of the enclosure, one designed specifically for the Ford Interceptor, both supplied with 3M adhesive, along with an M22 threaded boss for surface attachment. The SynergyX is ideal for vehicle panels of up to 6mm(0.23") thick with a threaded boss length of 20.5mm(0.81"). The SynergyX is IP67 rated and includes an O-Ring to seal from any water ingress.



**Electrical Safety**
The SynergyX contains an active GPS/GNSS antenna.
Rated voltage: 3-5VDC Rated current: 20mA maximum
**The supply to this device must be provided with overcurrent protection of 1A maximum.**

**Power consumption@1.8V (mA) 8.7 mA**
**Power consumption@3.0V (mA) 9.0 mA**
**Power consumption@5.5V (mA) 11 mA**

## B Mounting & Location

For prime performance, the SynergyX is recommended to be fitted on a conductive metal panel. When fitting on a non-metallic panel, a conductive metal ground plane of suitable size should be fitted underneath the mounting panel to achieve a better level of performance. Optimum ground plane size is 300mm x 300mm(11.8" x 11.8"). When mounting on a vehicle roof panel ensure to mount on a flat surface, and measure for central position. Care should be taken to mount the SynergyX antenna as far as possible from other roof-mounted features such as the aircon unit, light bar etc.

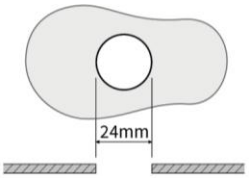


**Sealing**
In order to ensure that the installation is properly sealed against the mounting surface care must be taken regarding curvature of the mounting panel. It is highly recommended to install the antenna on a clean, flat and level surface. After installation the compression of the rubber boot against the mounting panel should be checked and a small bead of neutral cure silicone sealant can be applied around the periphery of the mounting boot if required.

## C Surface Preparation

When preparing to drill the hole, mask the area around the hole position to protect the surface. Drill a pilot hole and increase the hole size to ø24mm (⅞"). Ensure the drill bit does not contact the headliner. Deburr and clean the area around the hole carefully removing all waste.

Remove paint and primer from under panel surface to ensure adequate contact with washer and nut. Apply petroleum jelly or paint around cut edge of the hole to prevent corrosion




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## D Adhesive Patch

On the underside of the antenna there is a 3M adhesive patch. Peel away the 3M adhesive protection and feed the cables through the hole. Position the antenna over the hole and press down onto the panel with pressure. This adhesion will make ensure will be securely mounted and will also allow for extremely minimal curvature on the roof of a vehicle.



## E Securing the Mount

A split nut is used to easily fit onto the thread through the cables. The nut is attached from the underside of the panel, it should easily twist onto the thread and then secured in place with a final tighten with a spanner. After tightening, double check the antenna to make sure that it is properly secured but take care not to over tighten, damaging the threads on the screw.



## F Cable Routing and Connection

The Cables supplied are RG-174 for the GNSS feed and TGC-200 for the other feeds. The heatshrink will denote which cable is which for ease of installation. Connect each individual connector to the correct port of the router, if any cable is unused please fit a 50Ω terminator to the individual connection.



## G Notices

**Caution**
To comply with FCC RF Exposure requirements in section 1.1310 of the FCC Rules, antennas used with this device must be installed to provide a separation distance of at least 20 cm from all persons to satisfy RF exposure compliance.

**Warning**
**Do not** operate the equipment in an explosive atmosphere.

**European Waste Electronic Equipment Directive 2012/19/EU**
Please ensure that your old Waste Electricals and Electronics are recycled do not throw them away into standard waste.

**Hazardous Substances Directive (RoHS) 2011/65/EU / 2015/863/EU**
**Radio Equipment Directive (RED) 2014/53/EU**

**Harmonised Standards and References:**
**EN 301 489-1 (V2.2.3):** ElectroMagnetic Compatibility (EMC) standard for radio equipment and services;
Part 1: Common technical requirements; Harmonised Standard for ElectroMagnetic Compatibility

**Waiver:** This document represents information compiled by Taoglas to the best of our current knowledge. This is not intended to be used as a representation or warranty of fitness of the products described for any particular purpose. This document details guidelines for general information purposes only. When planning installations, always seek specialist advice and ensure that the products are always installed by a properly qualified installer in accordance with applicable regional laws and regulations.

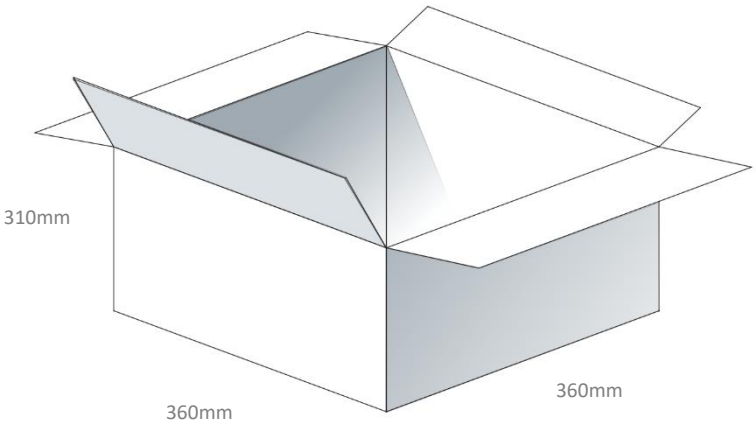
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# 5. Packaging

1pc MA1555.A.001 per PE Bag
Weight: 535g

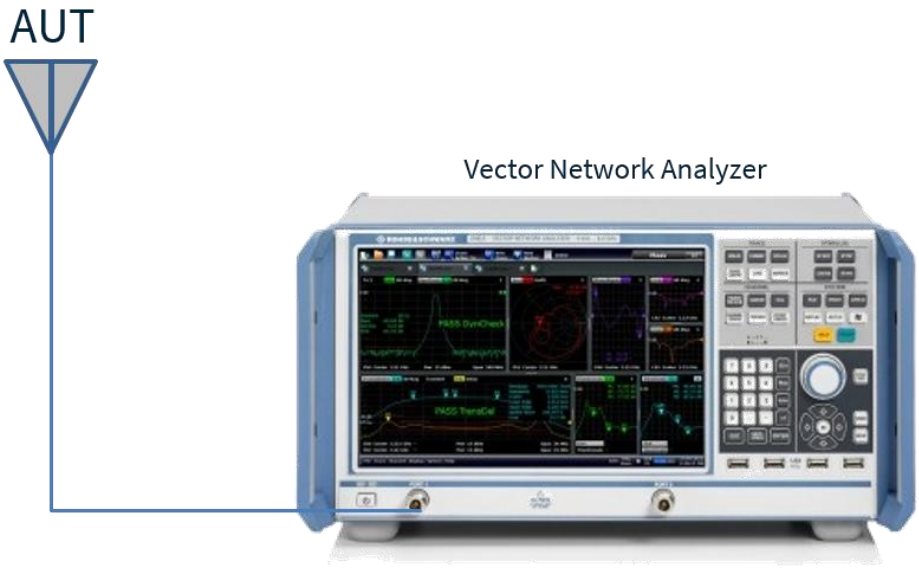


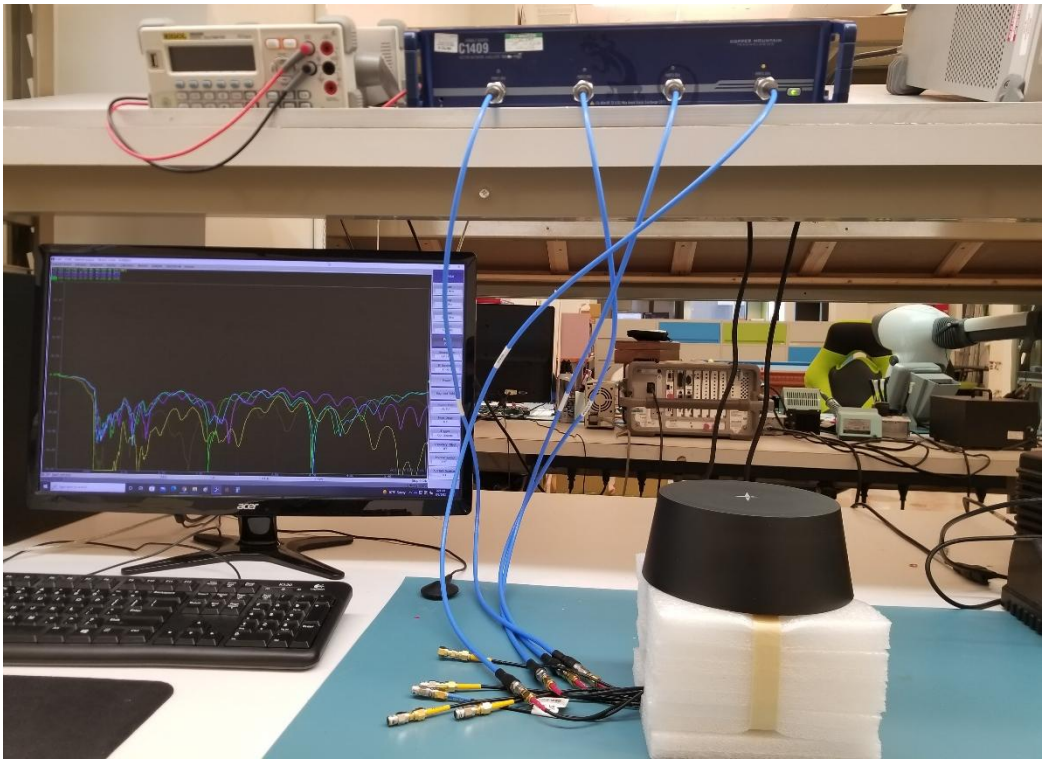
8pcs MA1555.A.001 per Carton
Carton Dimensions: 360*360*310mm
Weight: 4.5Kg



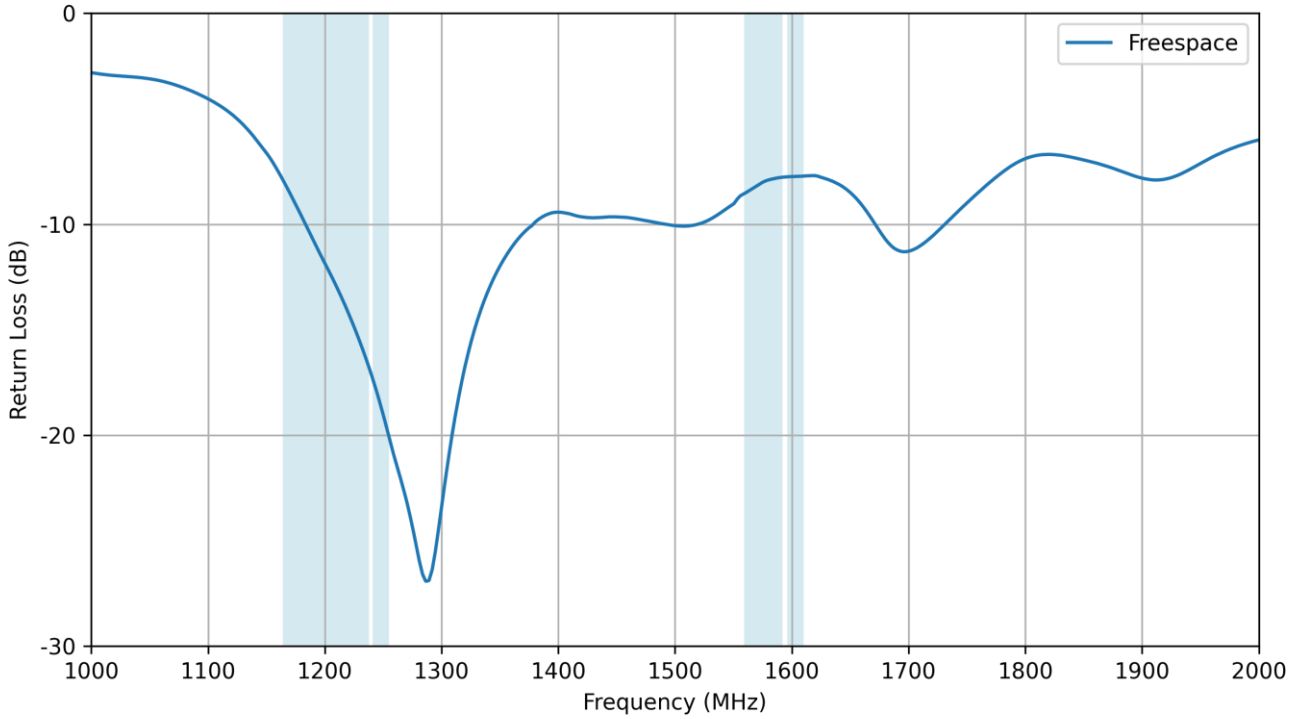
# 6. Antenna Characteristics

## 6.1 Test Setup

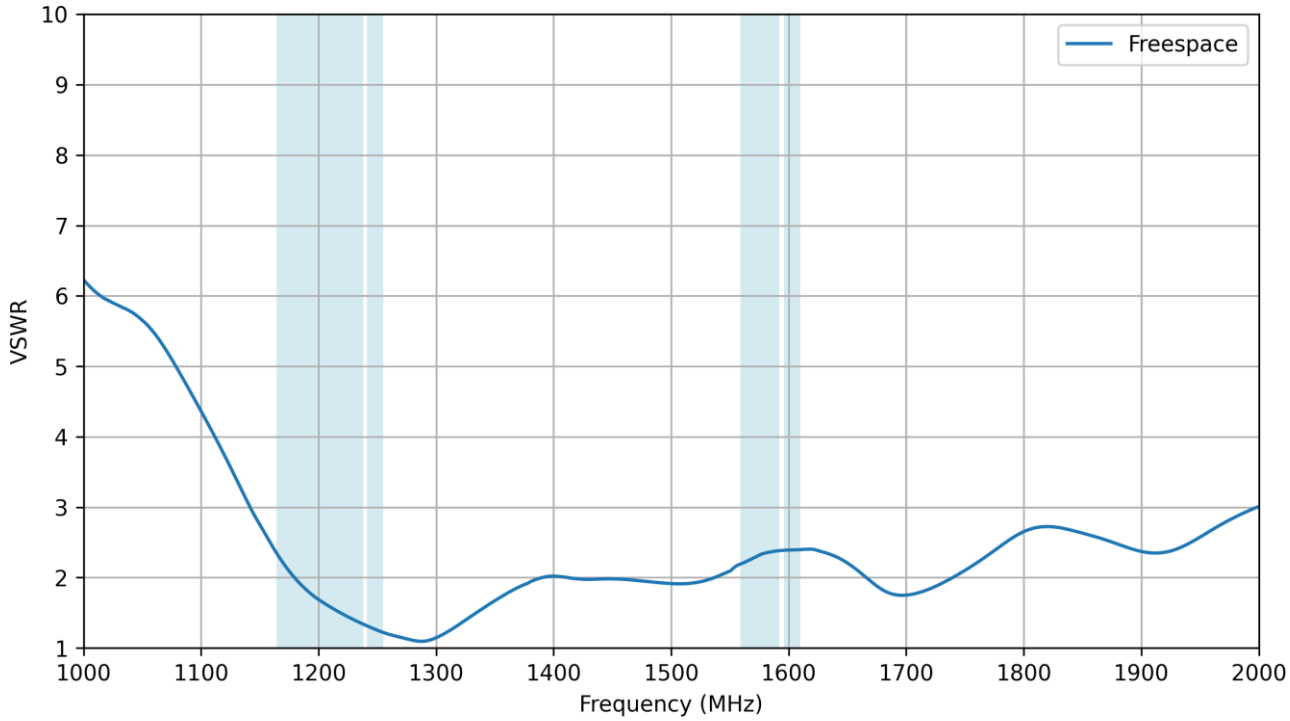


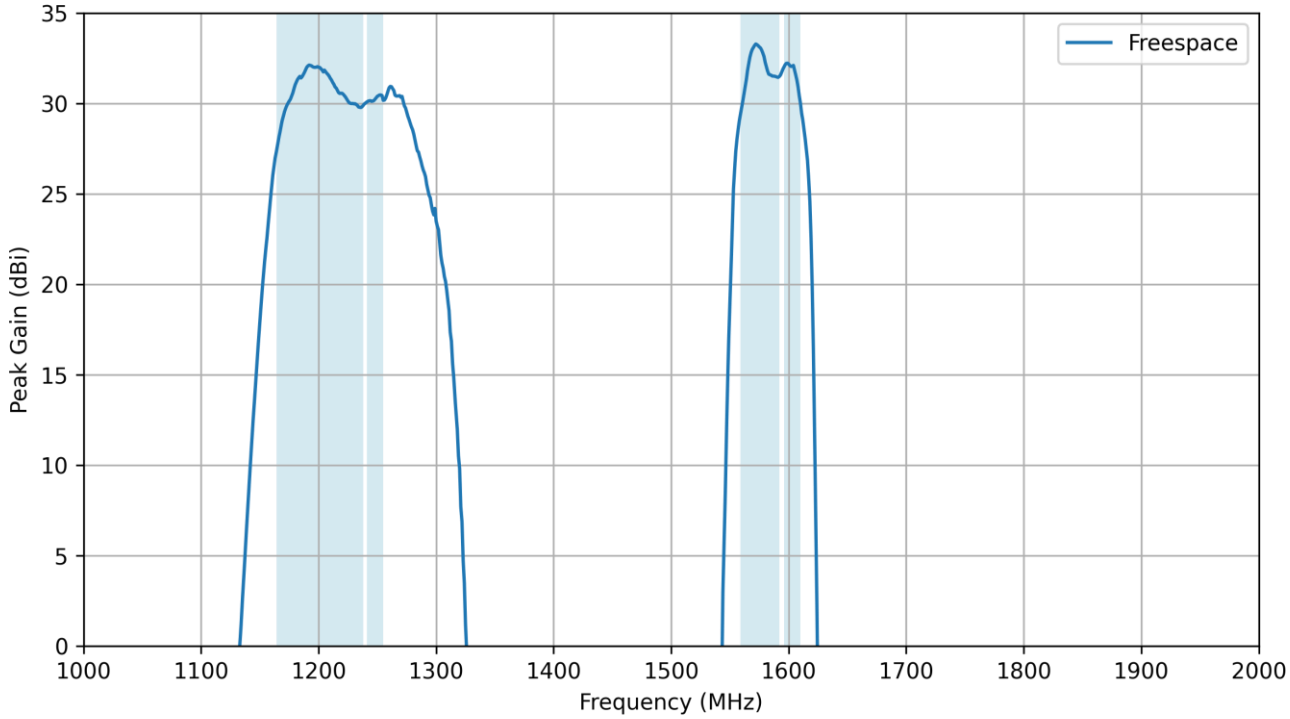
## 6.1 GNSS - Return Loss



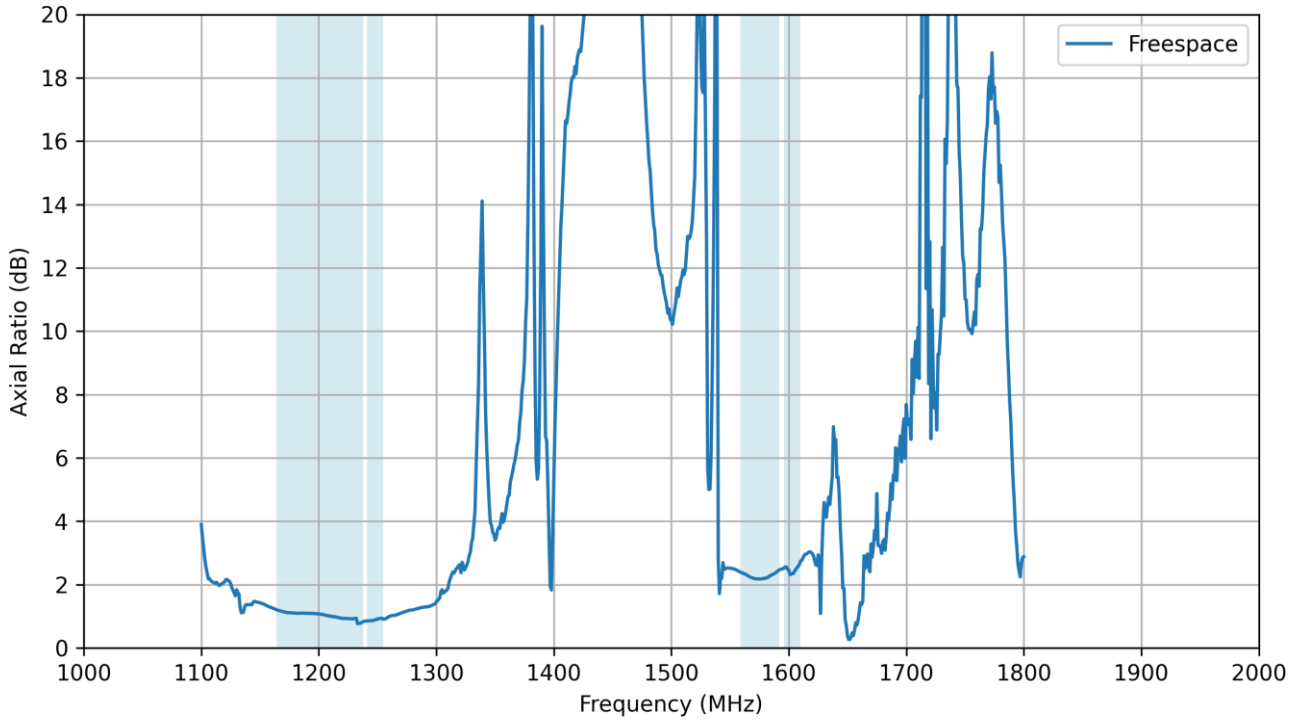

## 6.2 GNSS - VSWR



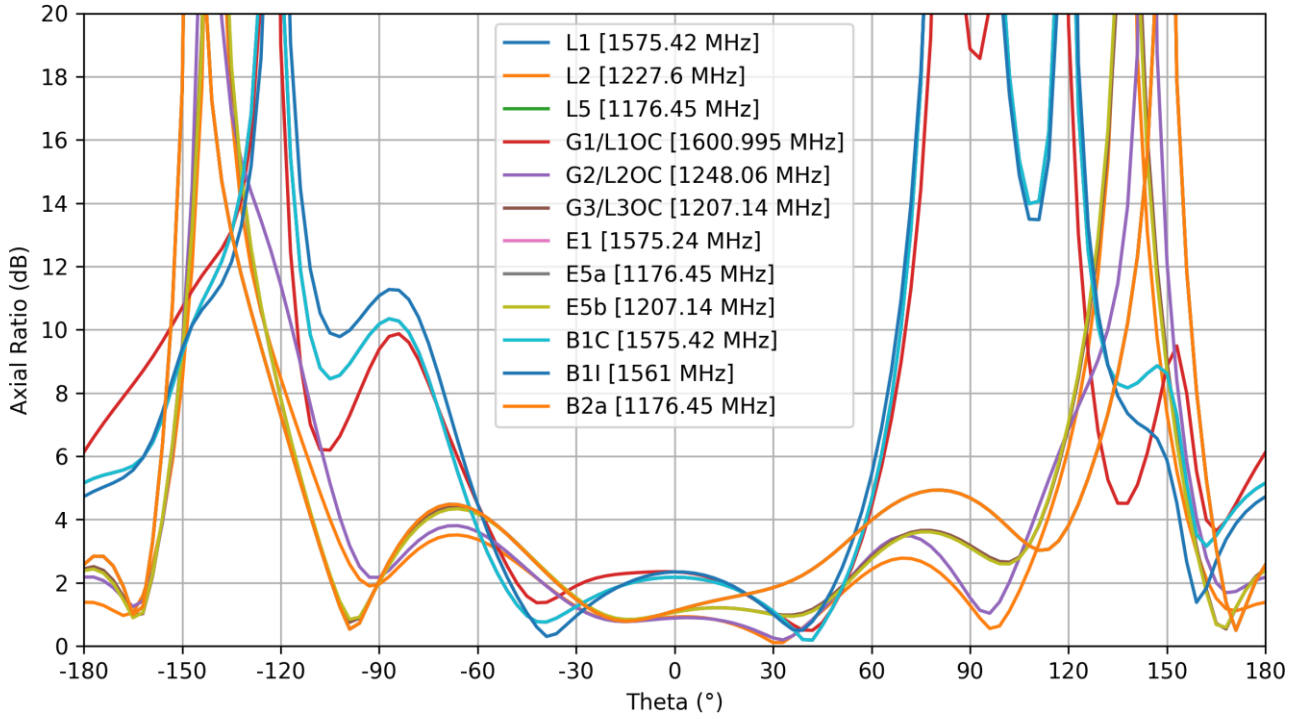
## 6.3 GNSS - Peak Gain



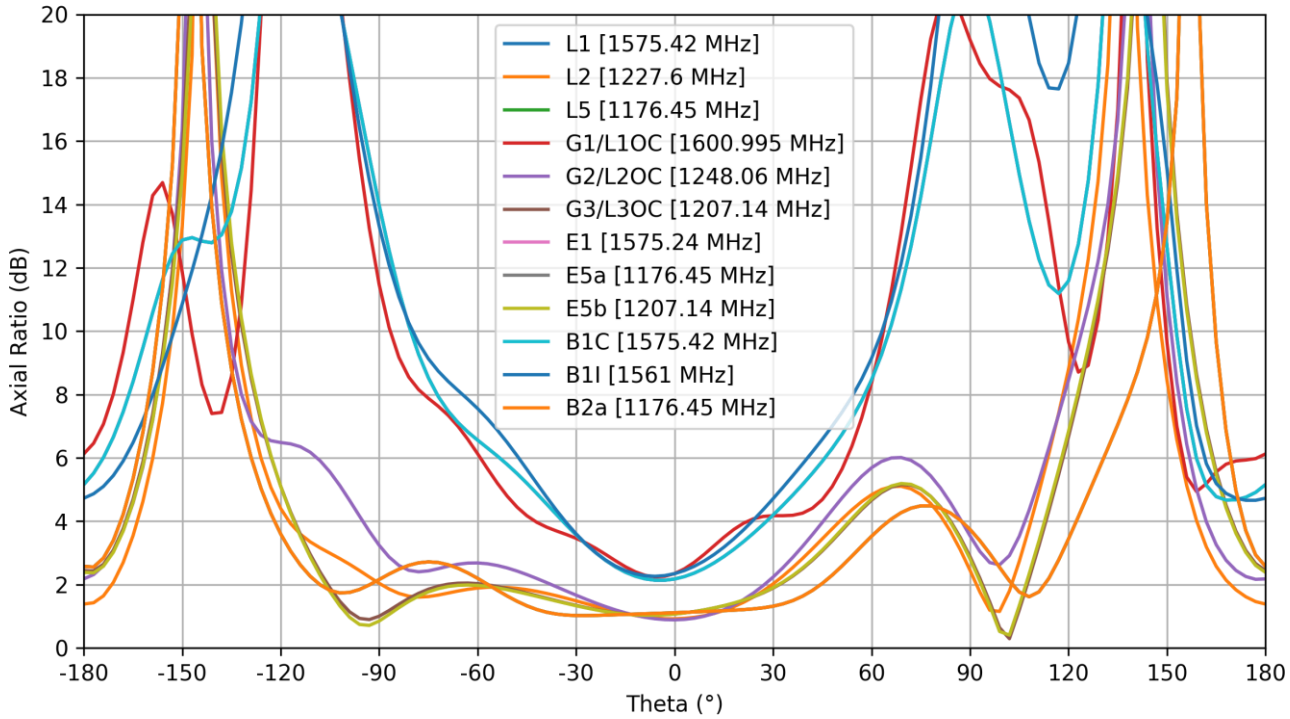

## 6.4 GNSS - Axial Ratio



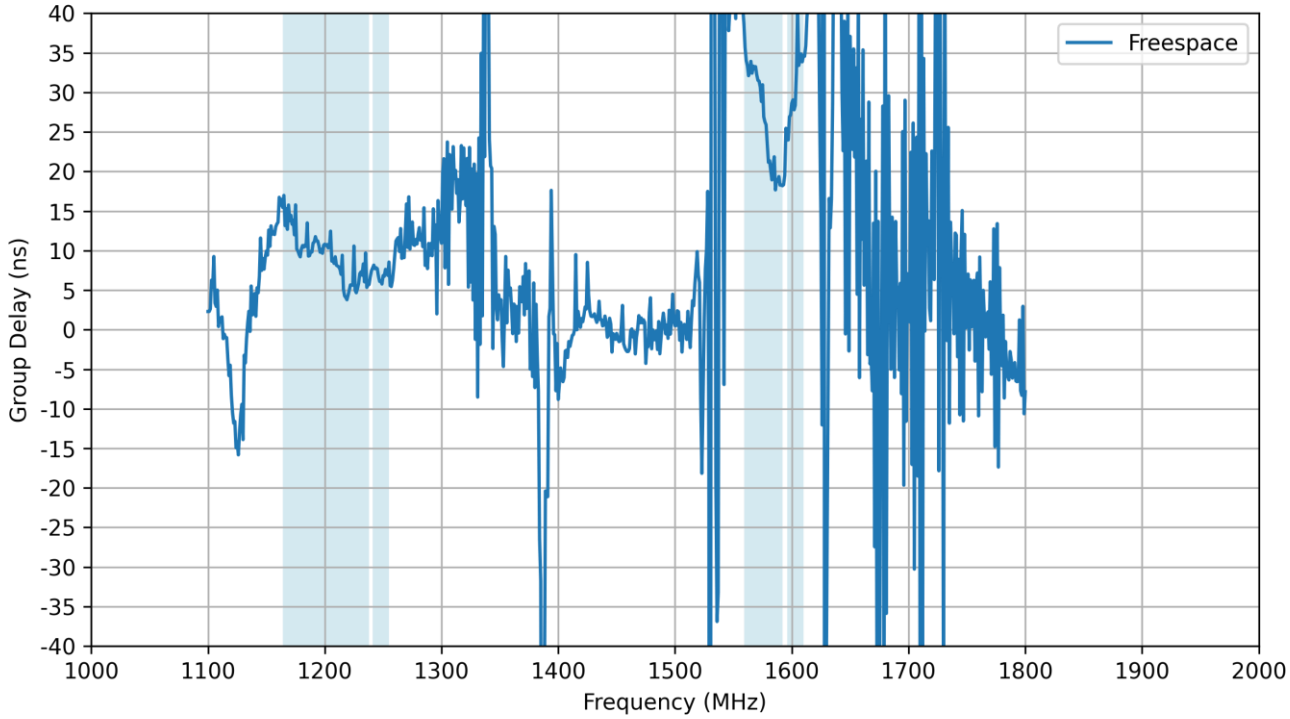
## 6.5 GNSS - Axial Ratio vs Angle for Phi=0



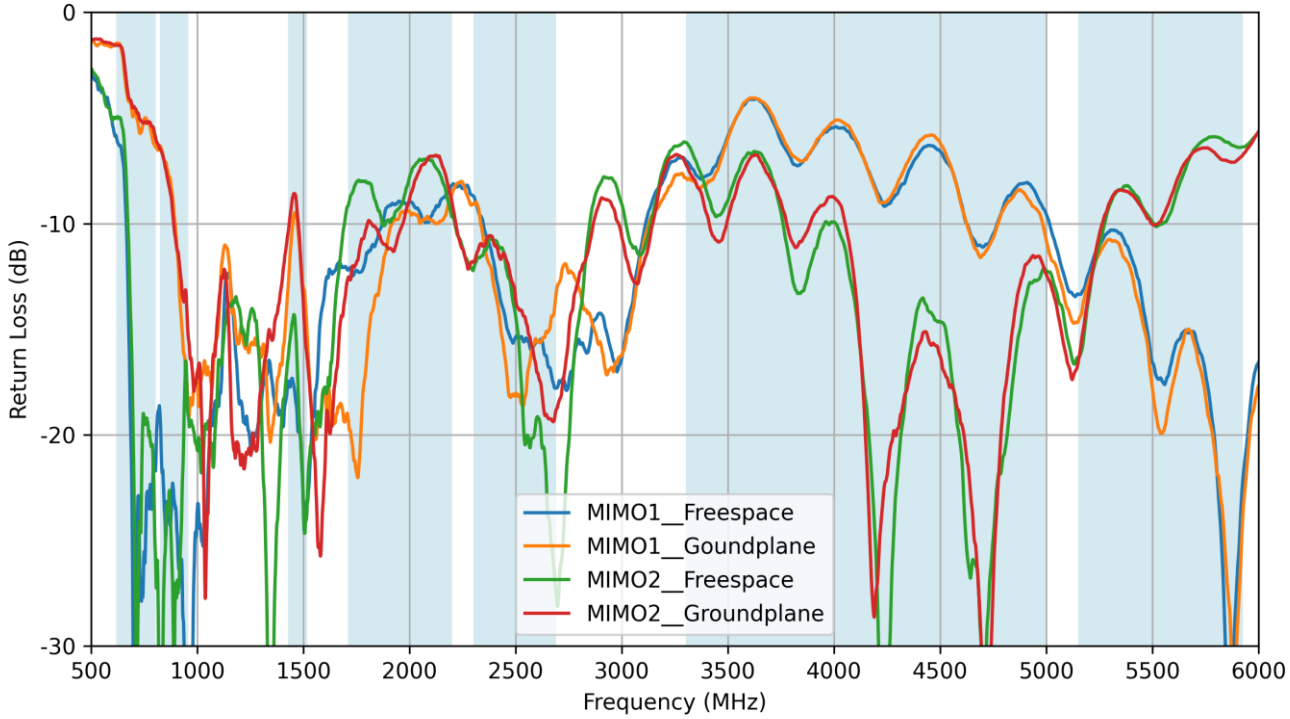

## 6.6 GNSS - Axial Ratio vs Angle for Phi=90



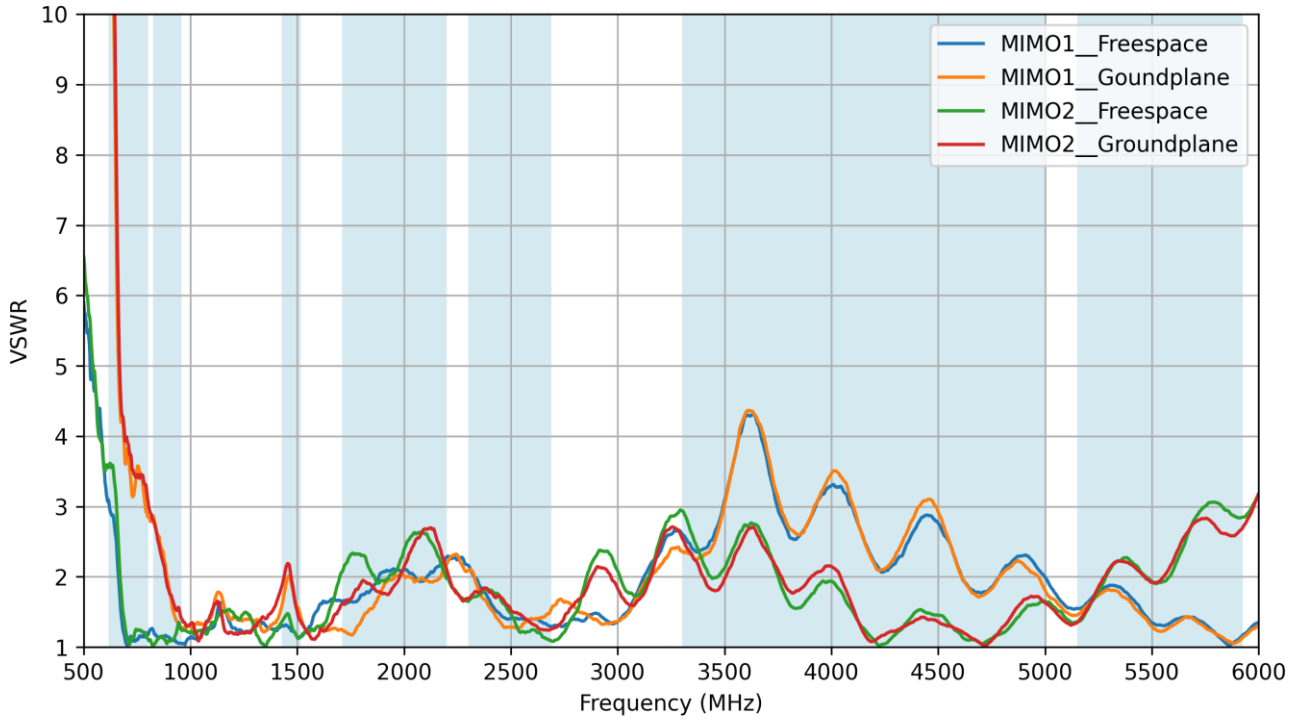
## 6.7 GNSS - Group Delay



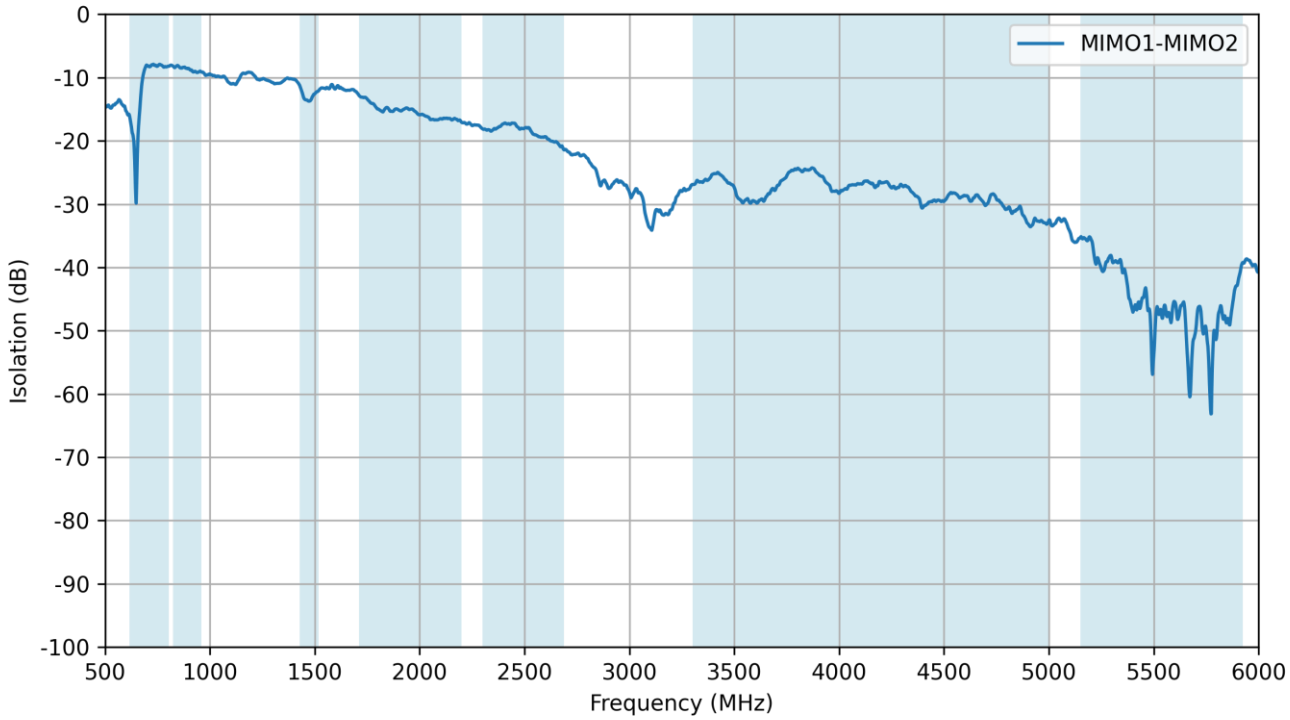

## 6.8 5G/4G - Return Loss



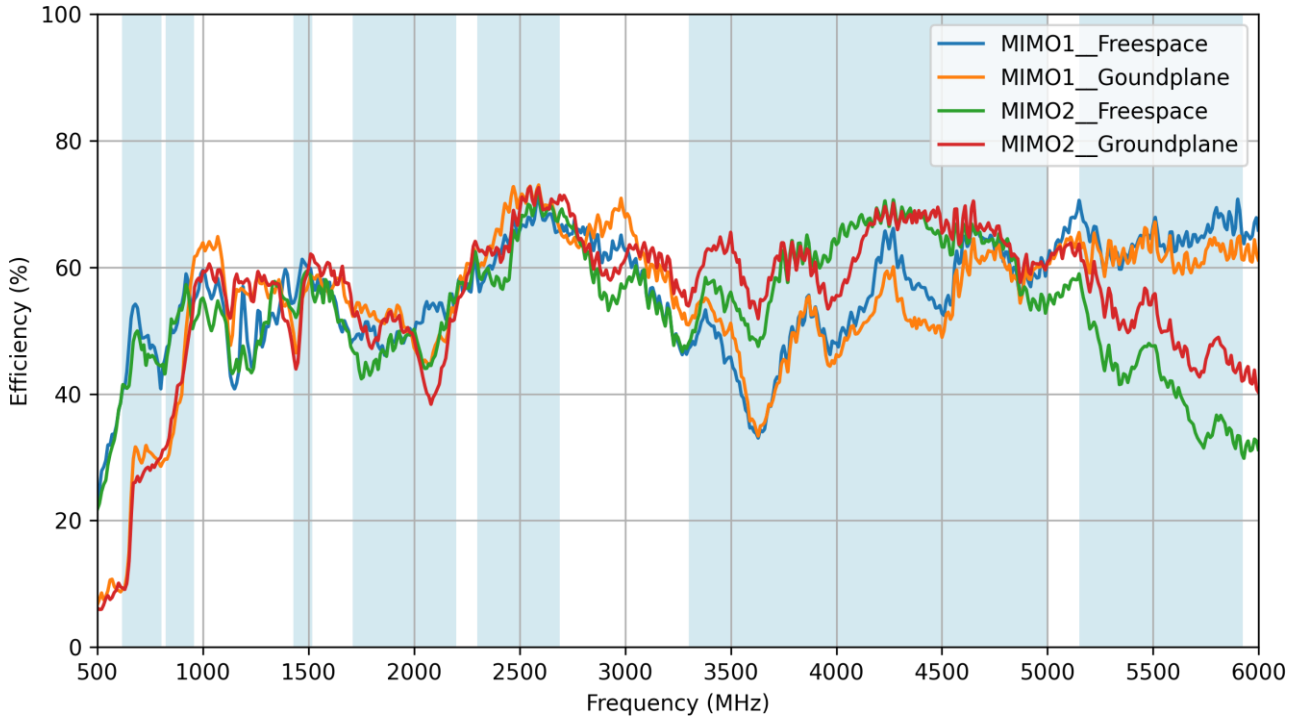
## 6.9 5G/4G - VSWR



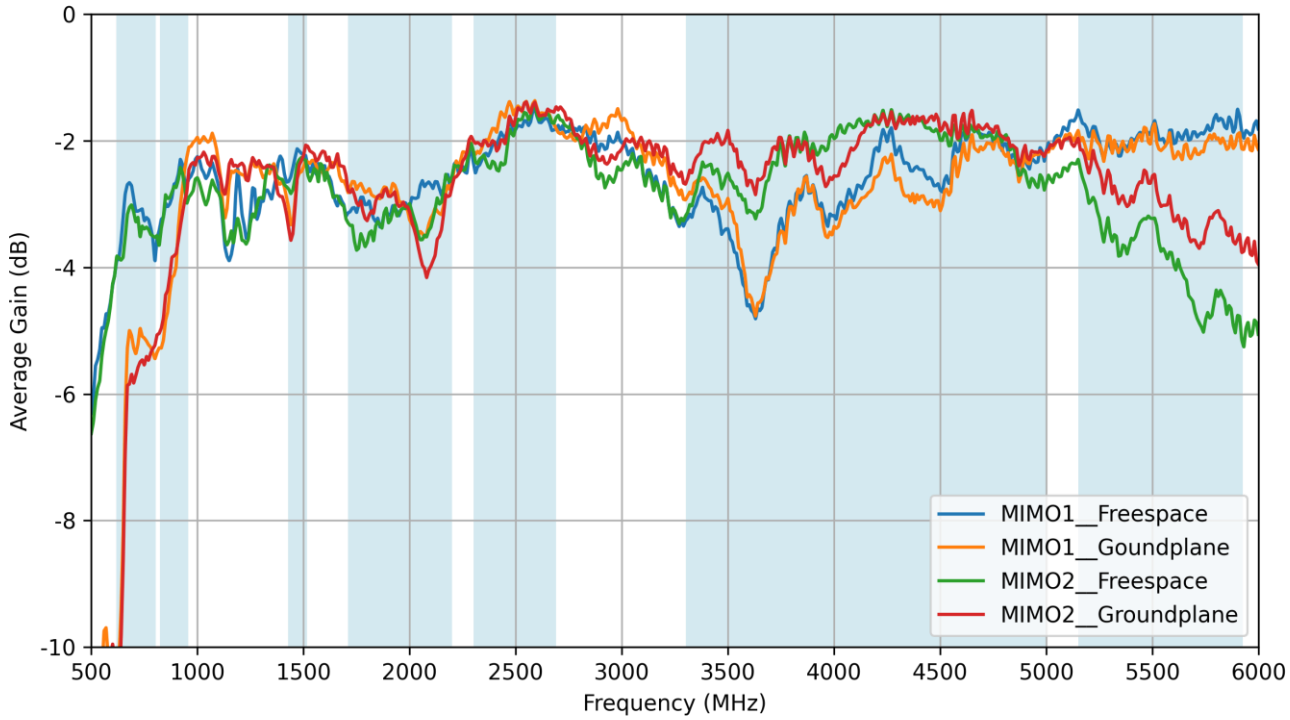

## 6.10 5G/4G - Isolation



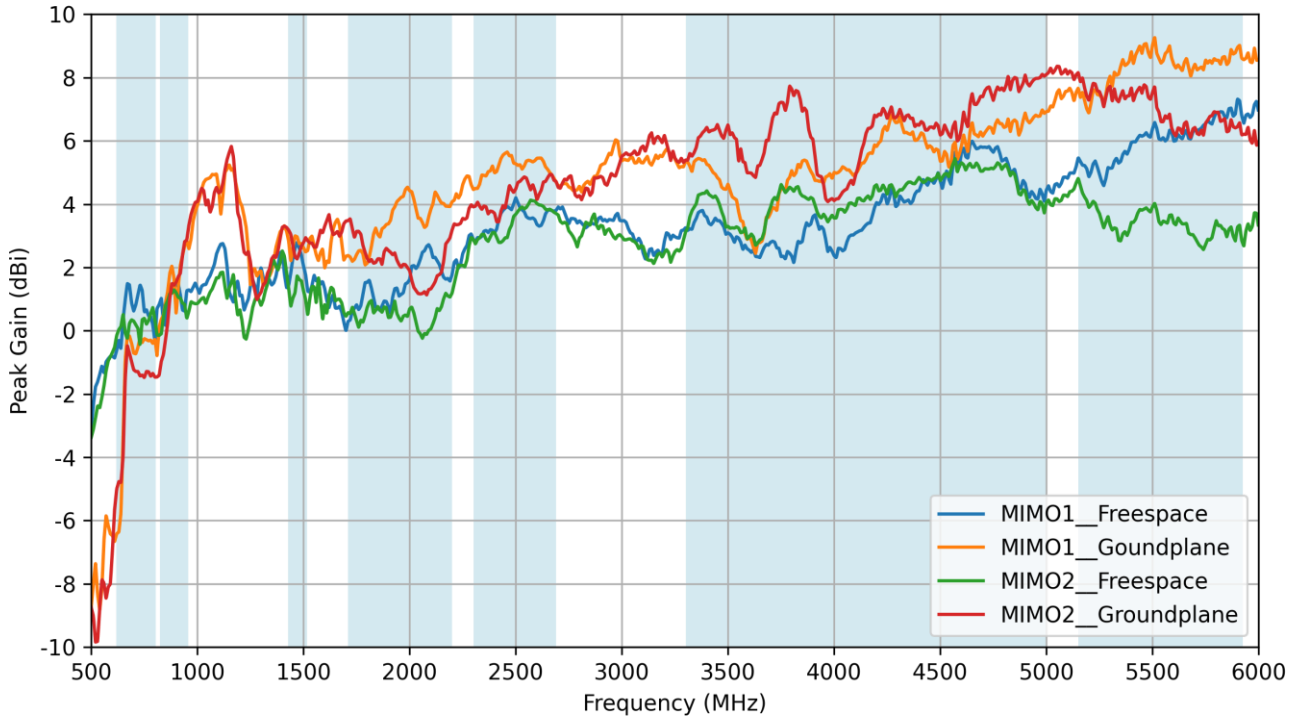
## 6.11 5G/4G - Efficiency



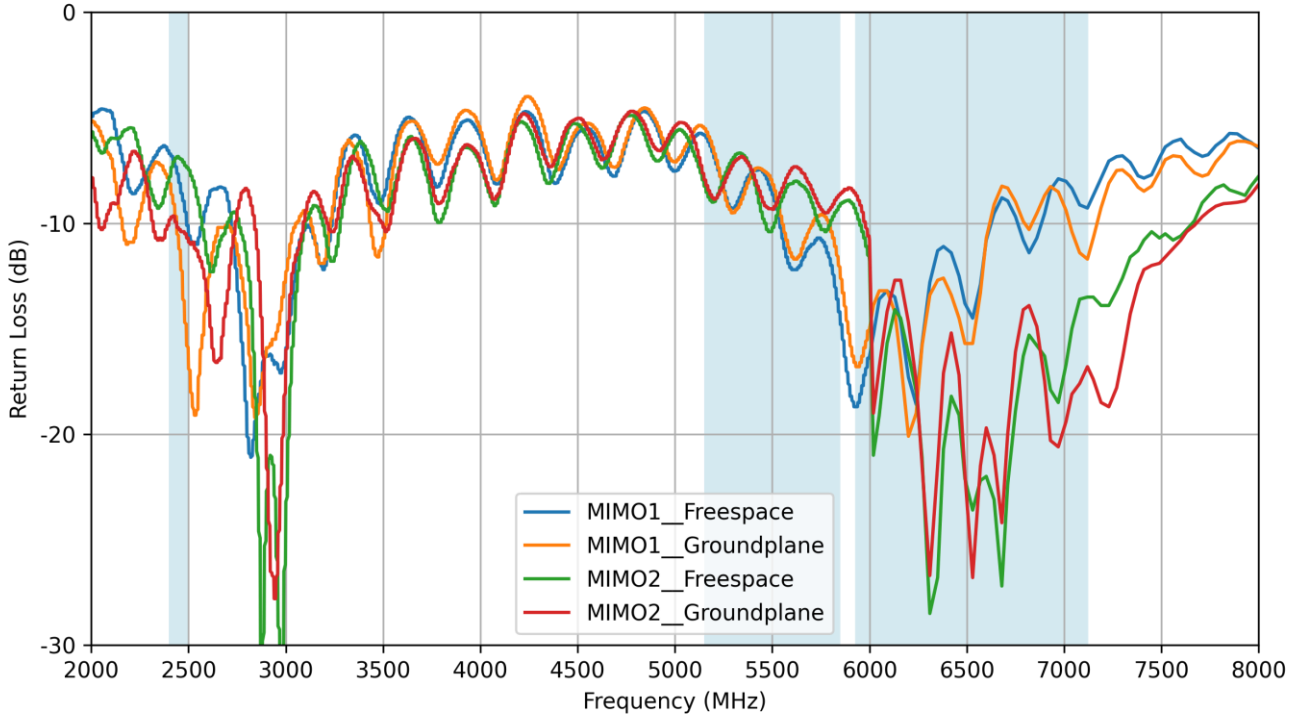

## 6.12 5G/4G - Average Gain



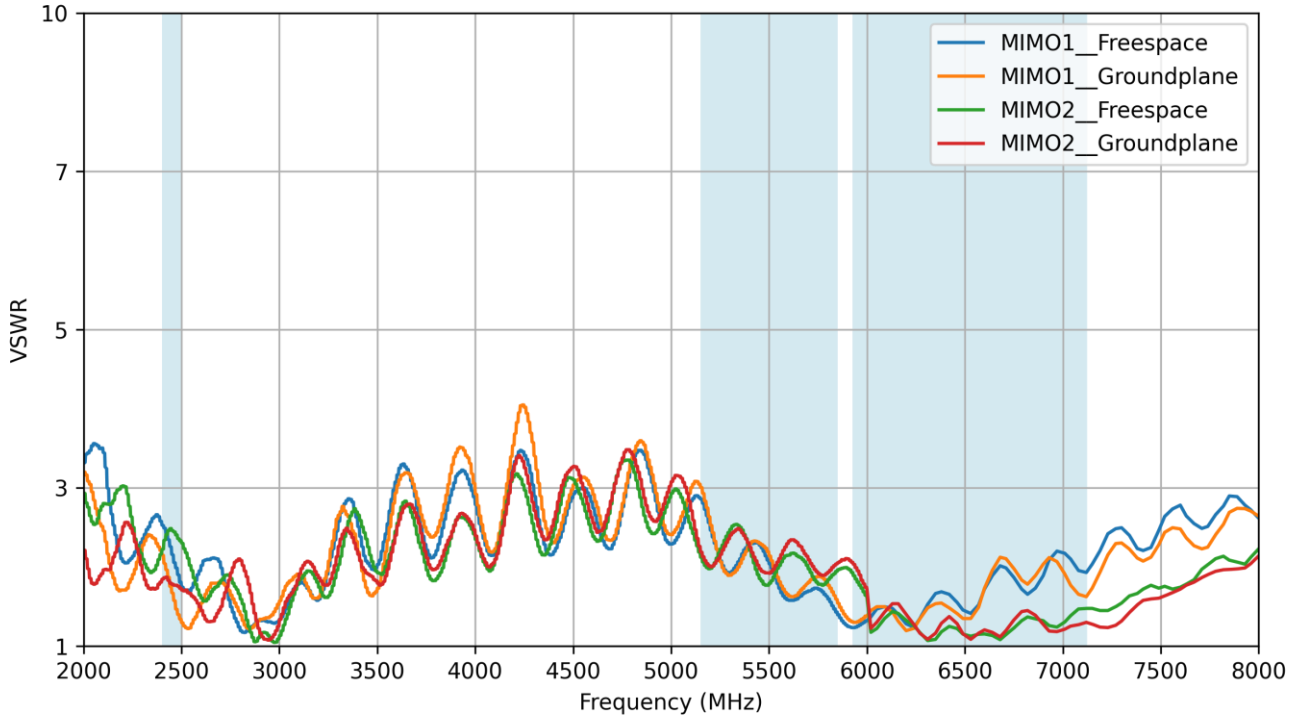
## 6.13 5G/4G - Peak Gain



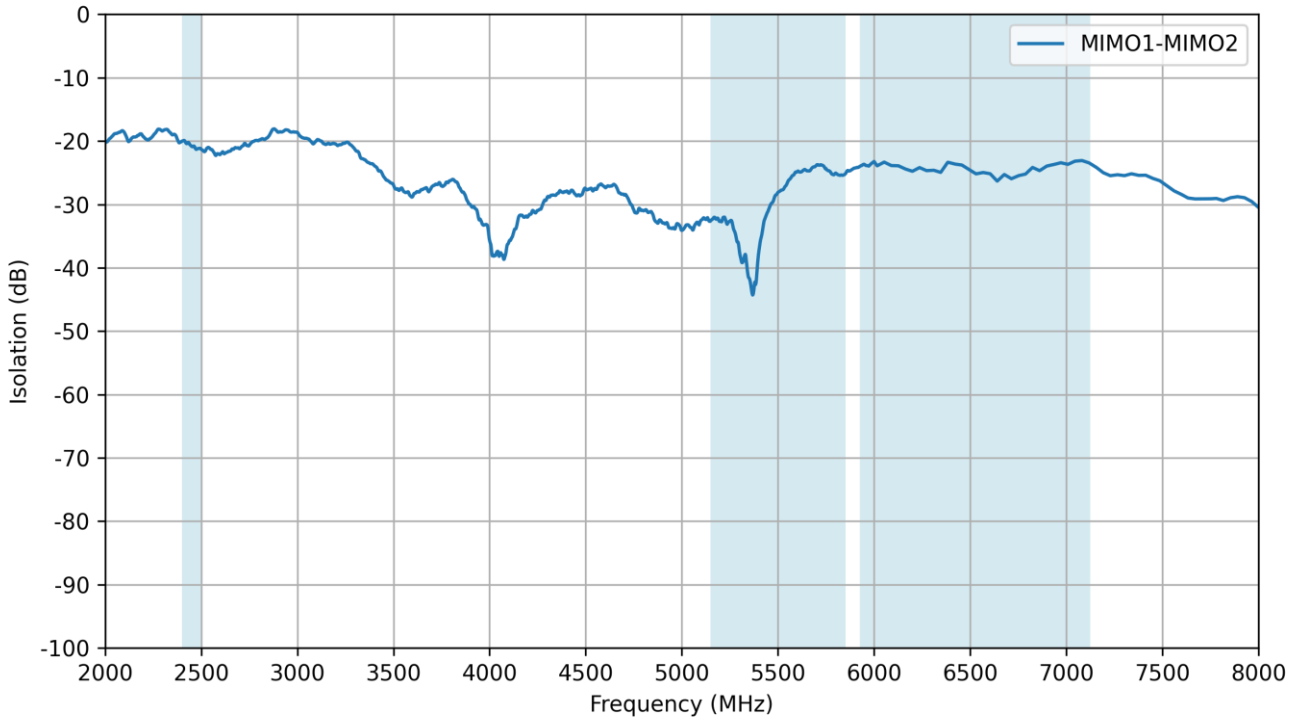

## 6.14 Wi-Fi - Return Loss



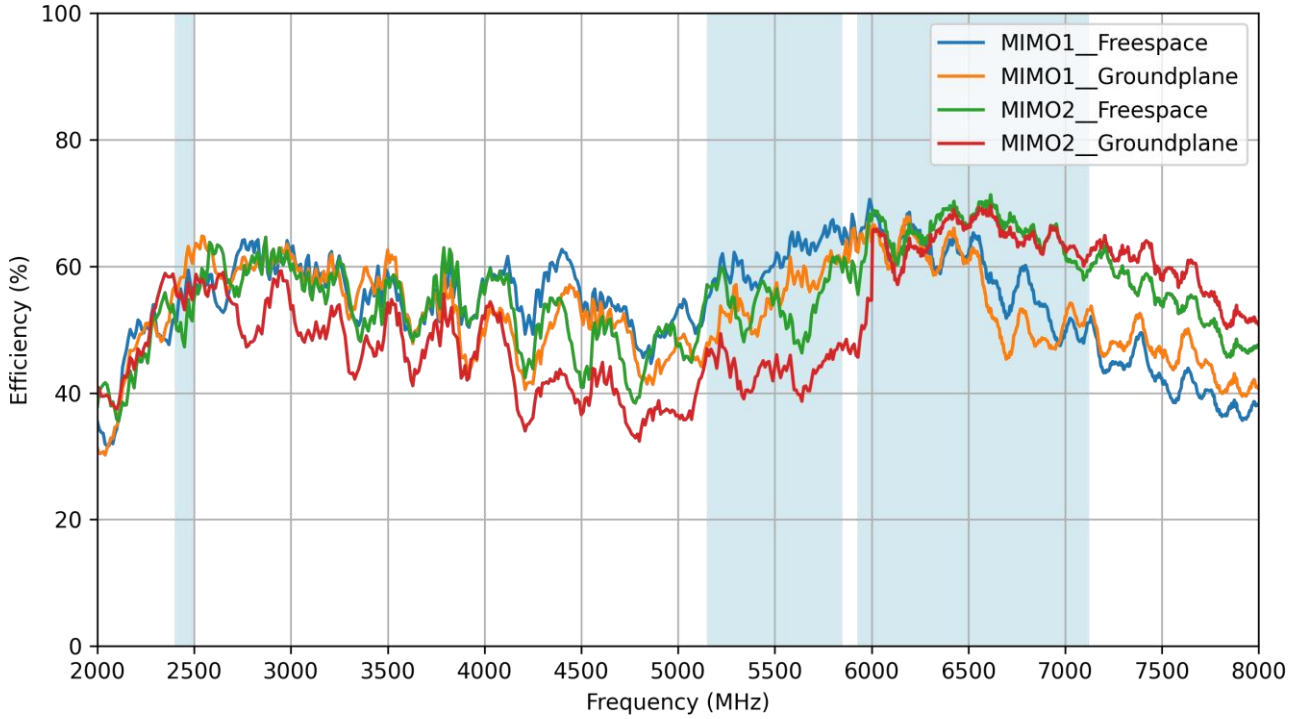
## 6.15 Wi-Fi - VSWR



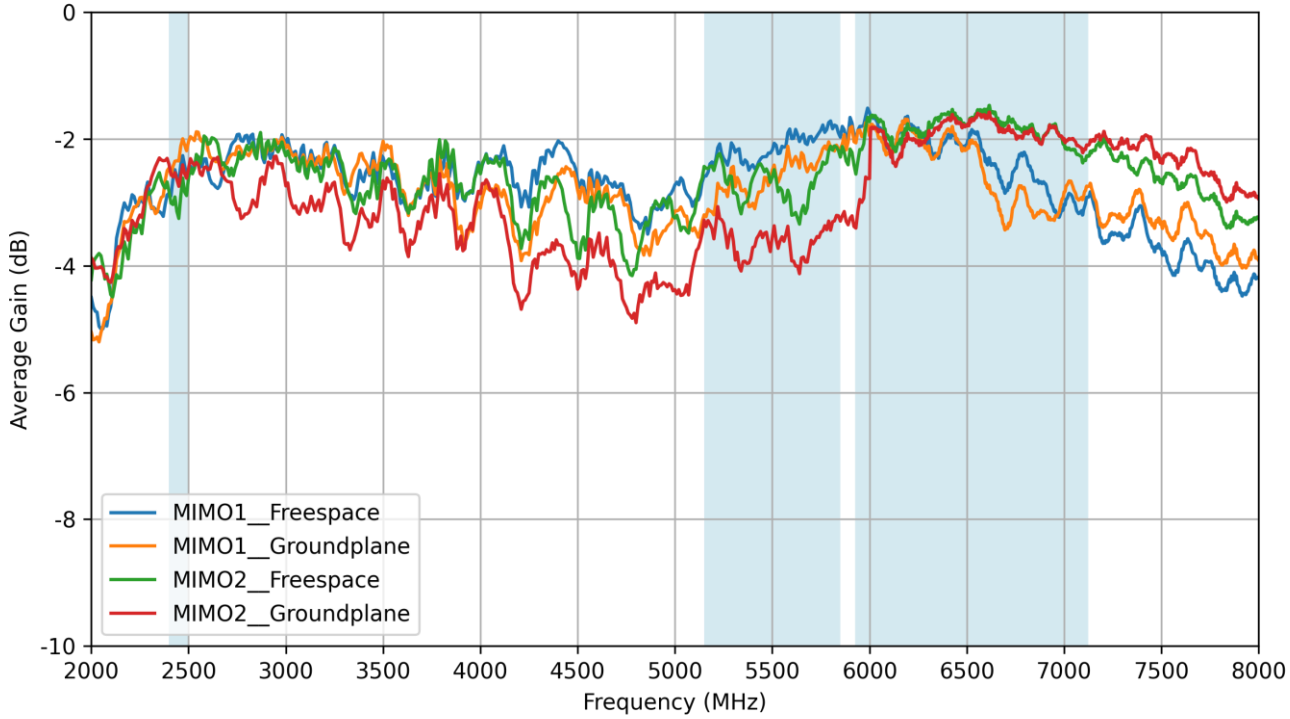

## 6.16 Wi-Fi - Isolation



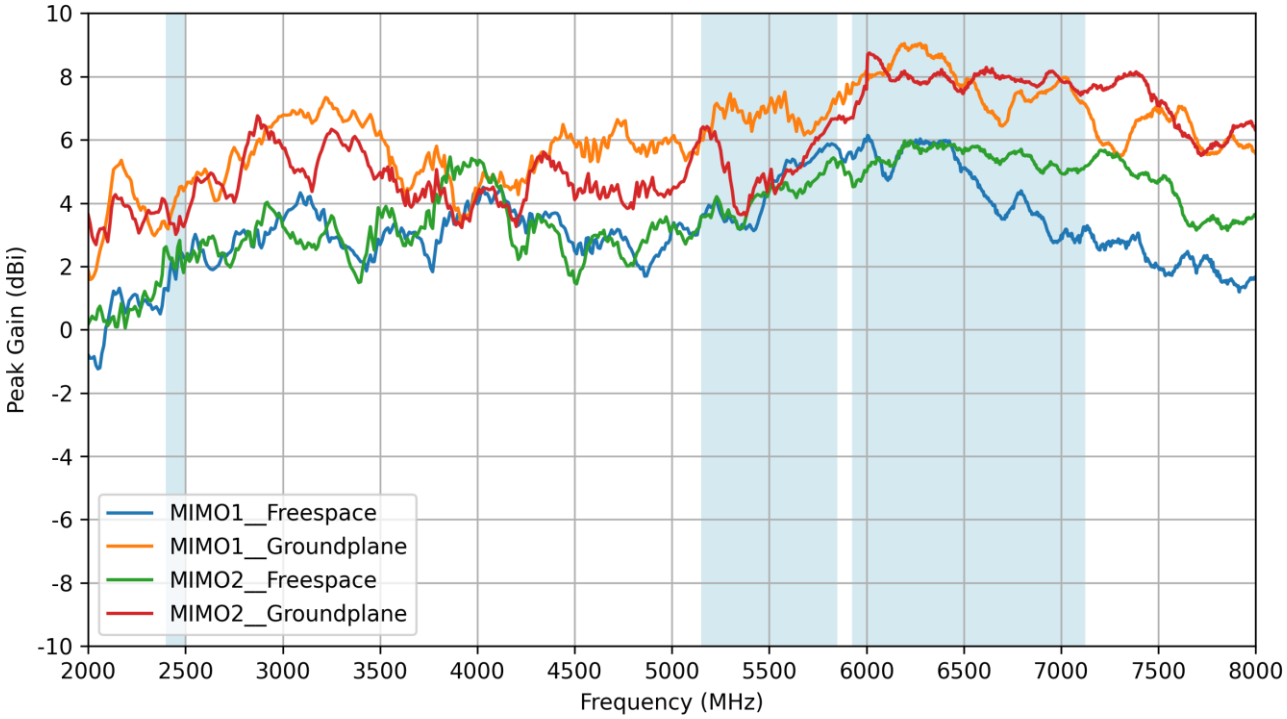
## 6.17 Wi-Fi - Efficiency




## 6.18 Wi-Fi - Average Gain

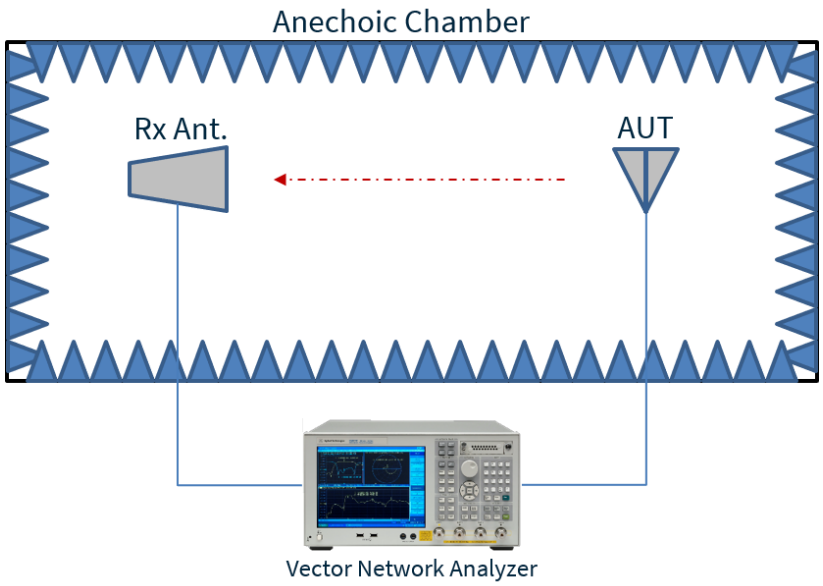


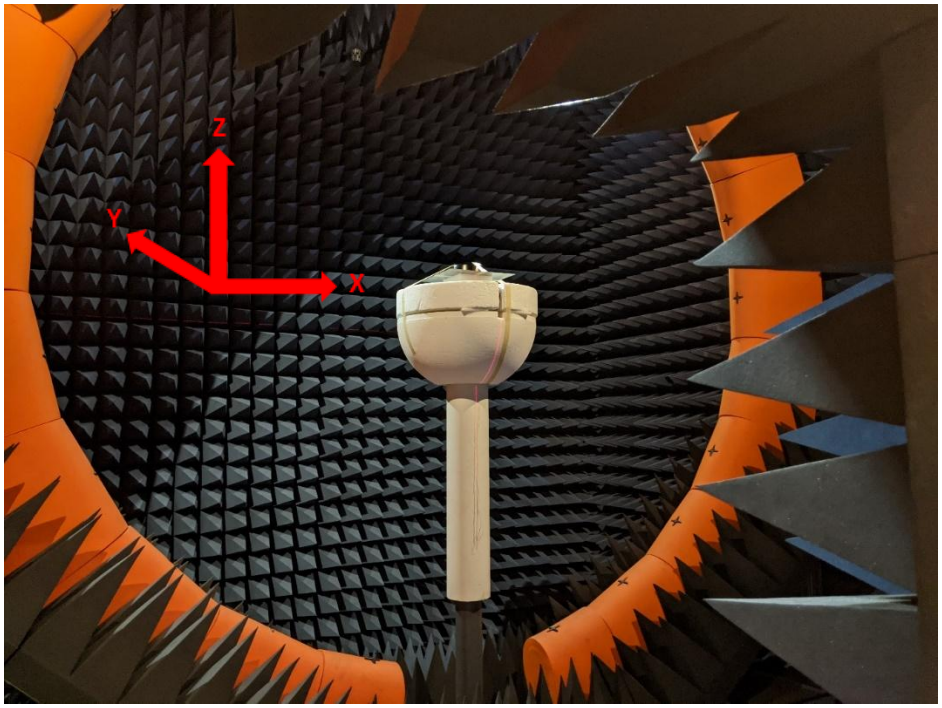
## 6.19 Wi-Fi - Peak Gain



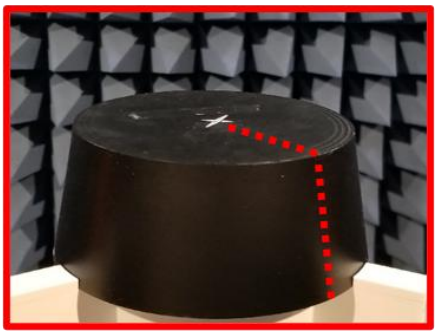
# 7. Radiation Patterns

## 7.1 Test Setup




Antenna tested with underside-notch/logo centered along Y-Axis.

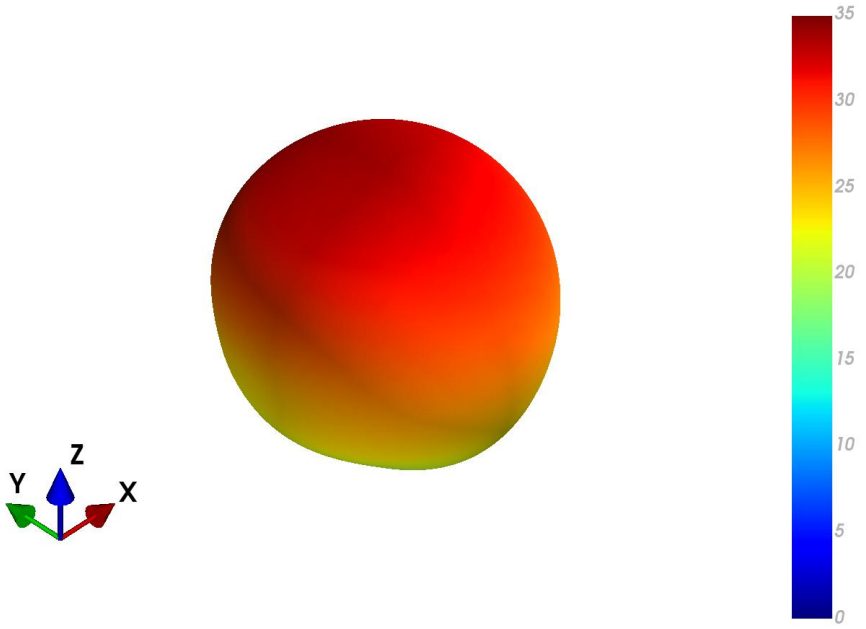


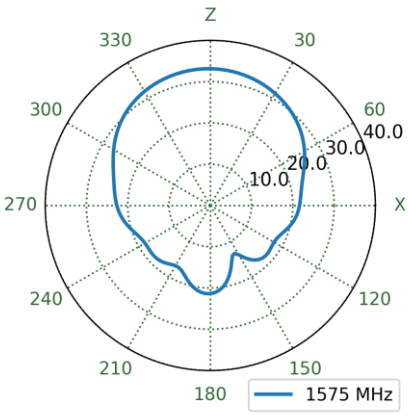
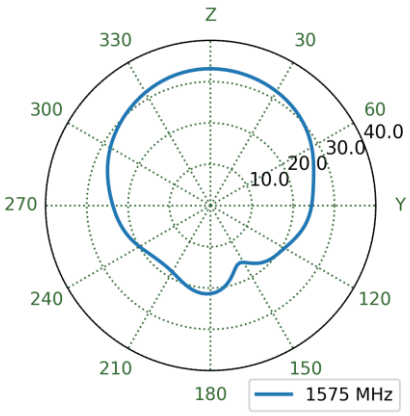
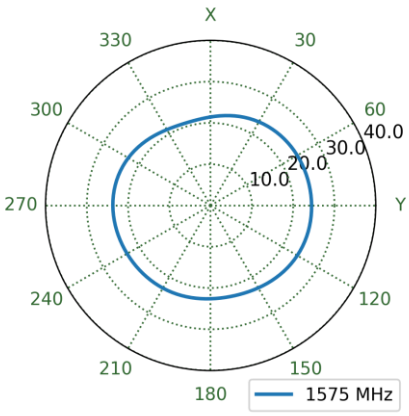
Y-Axis Location.



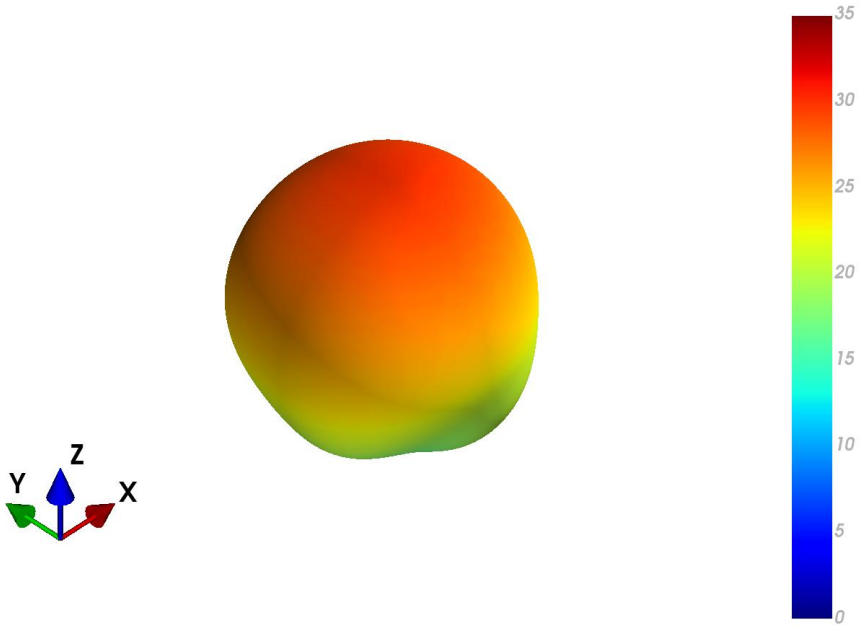
Underside-notch.

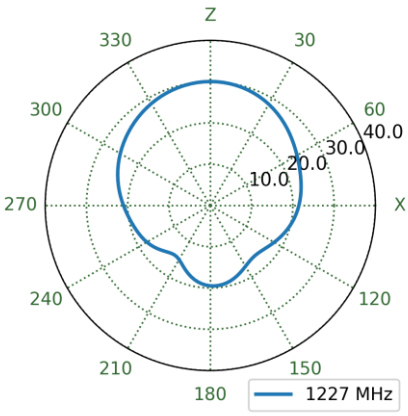
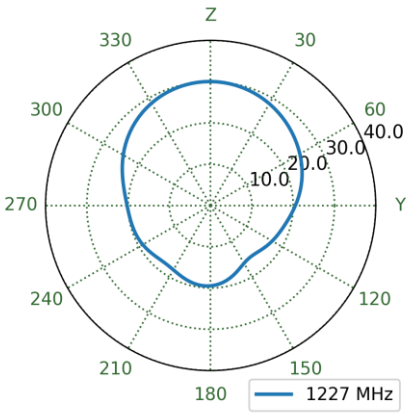
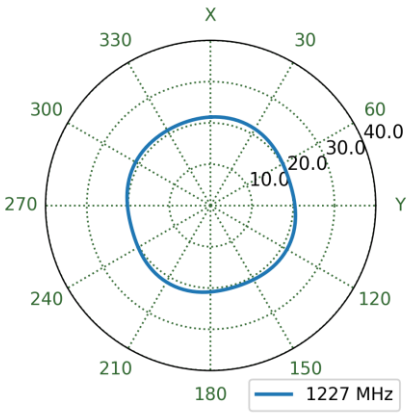
## 7.1 GNSS Free Space Patterns at 1575 MHz



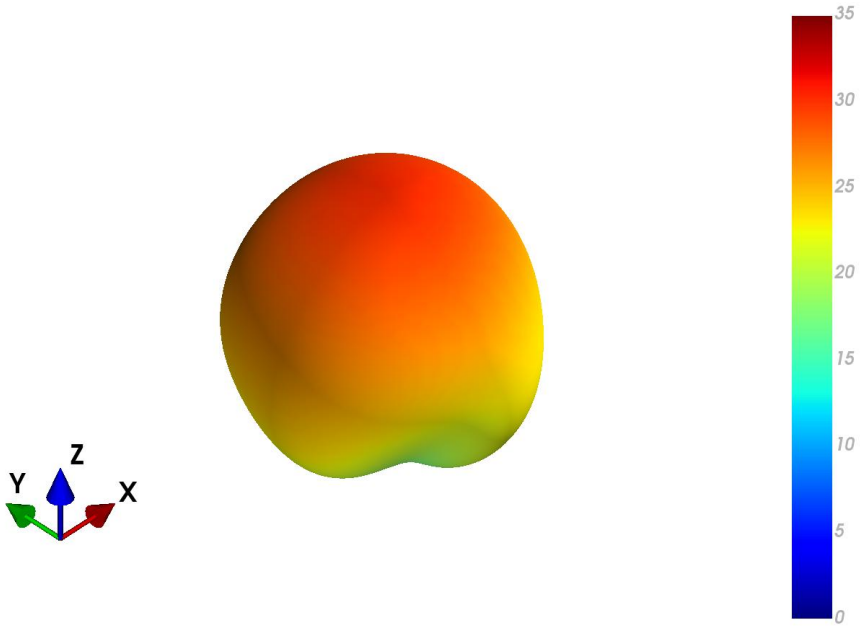

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

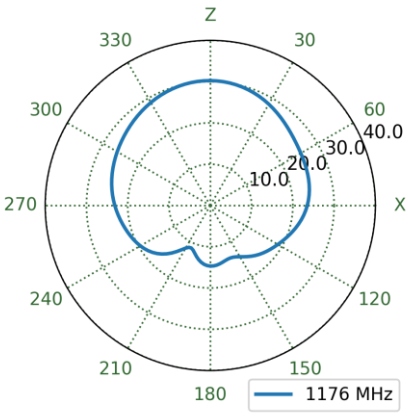
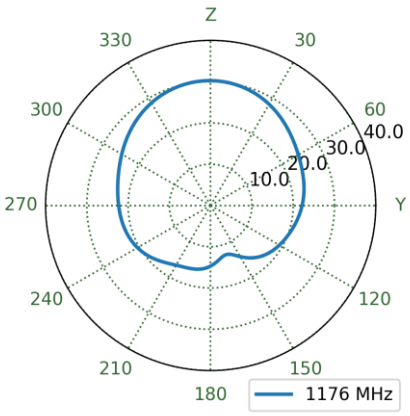
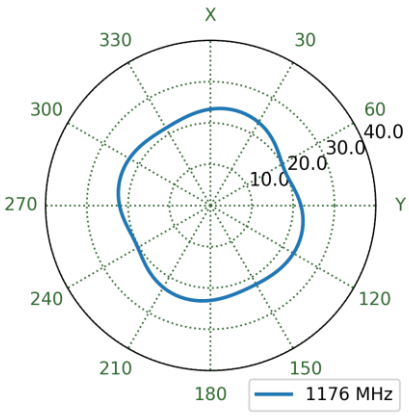
## 7.2 GNSS Free Space Patterns at 1227 MHz



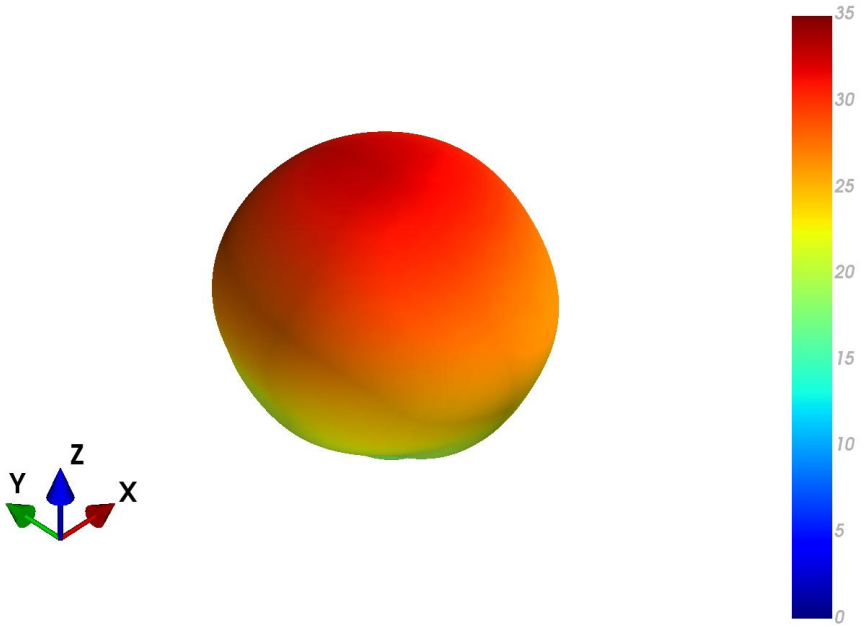

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

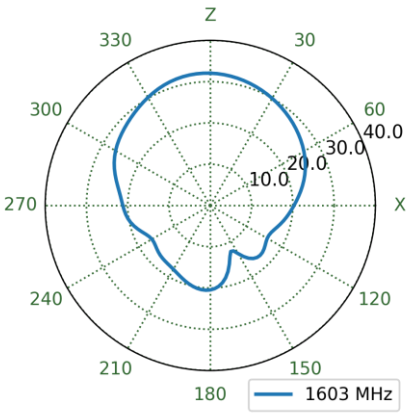
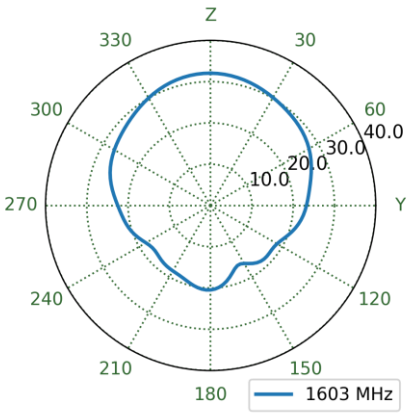
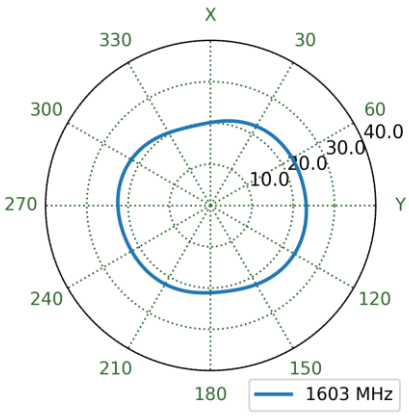
## 7.3 GNSS Free Space Patterns at 1176 MHz



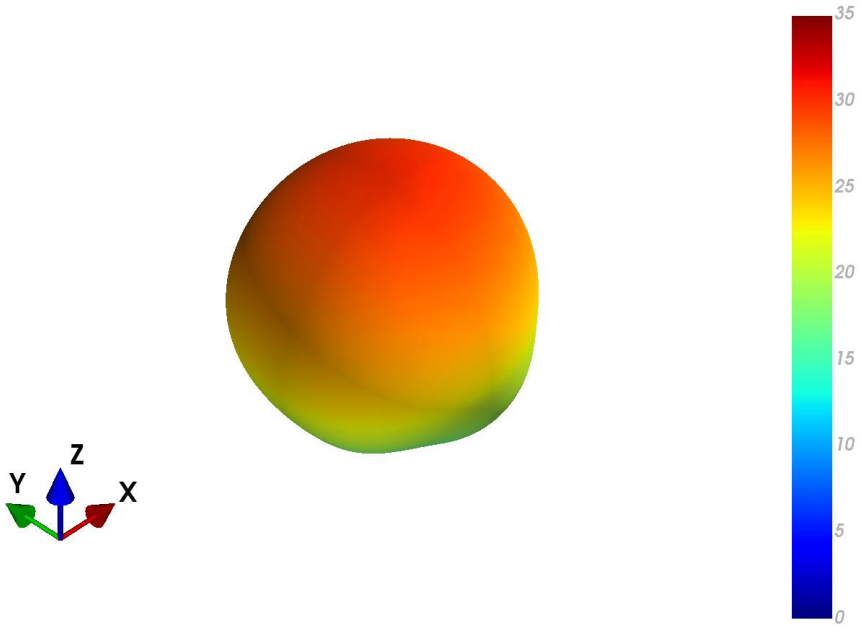

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

## 7.4 GNSS Free Space Patterns at 1603 MHz

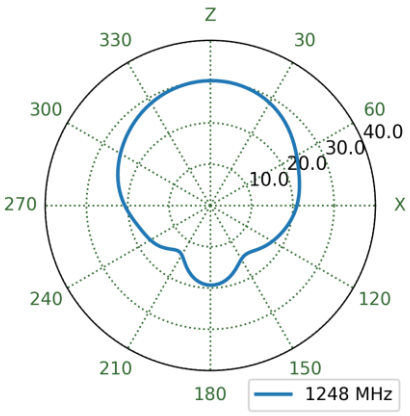


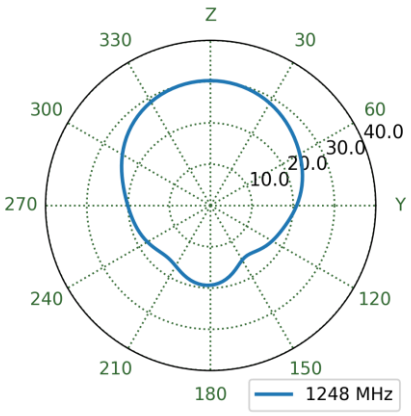

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

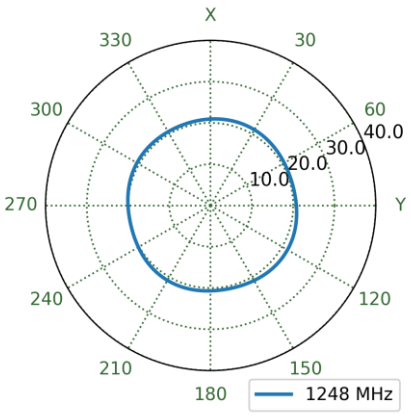
## 7.5 GNSS Free Space Patterns at 1248 MHz



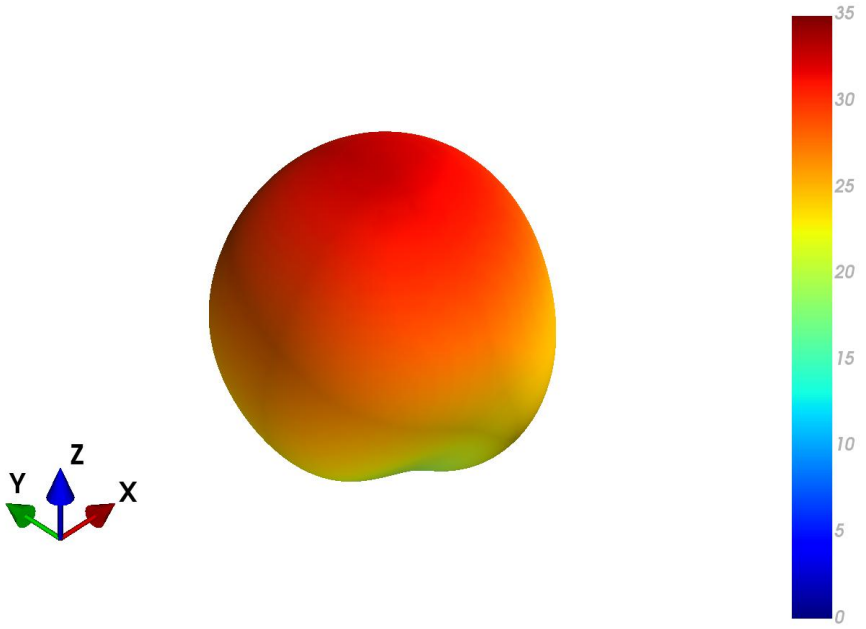

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

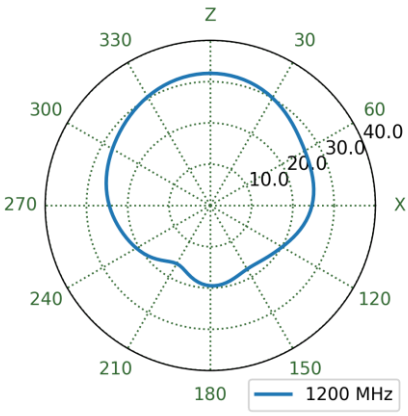
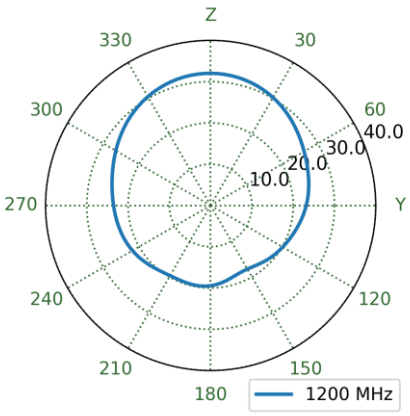
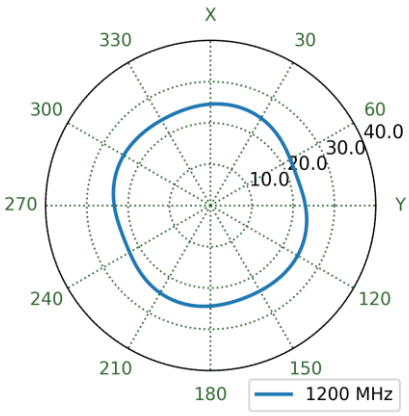


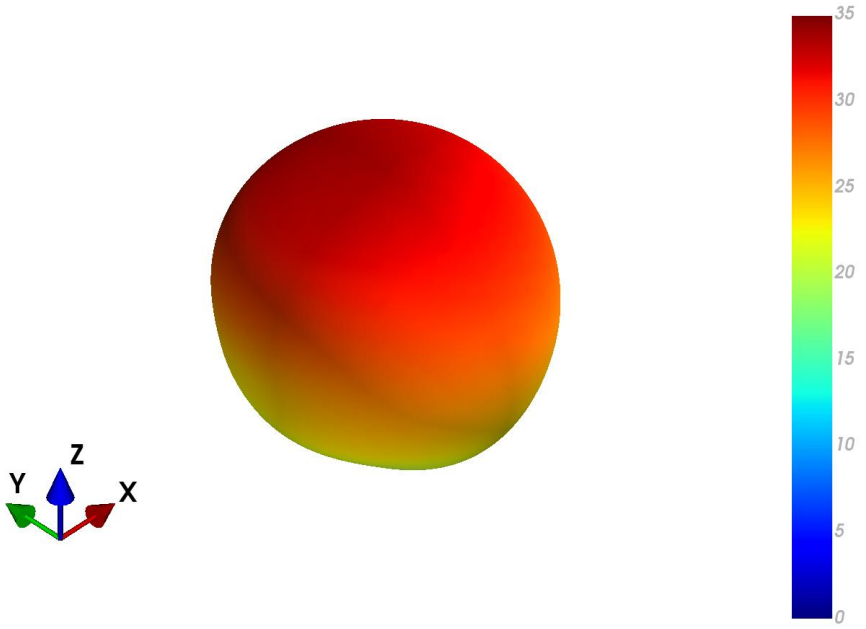



## 7.6 GNSS Free Space Patterns at 1200 MHz

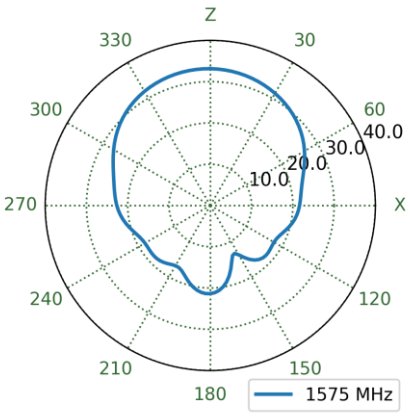


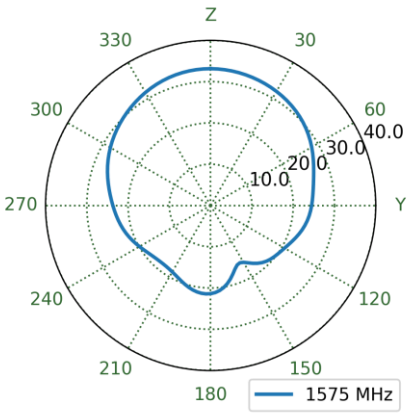

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

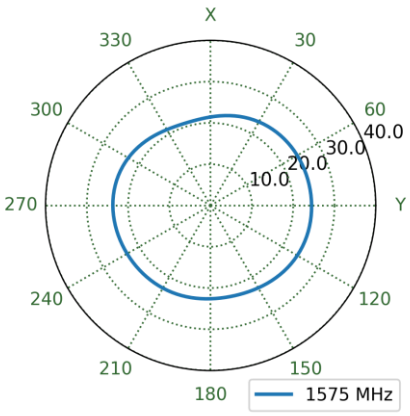
## 7.7 GNSS Free Space Patterns at 1575 MHz



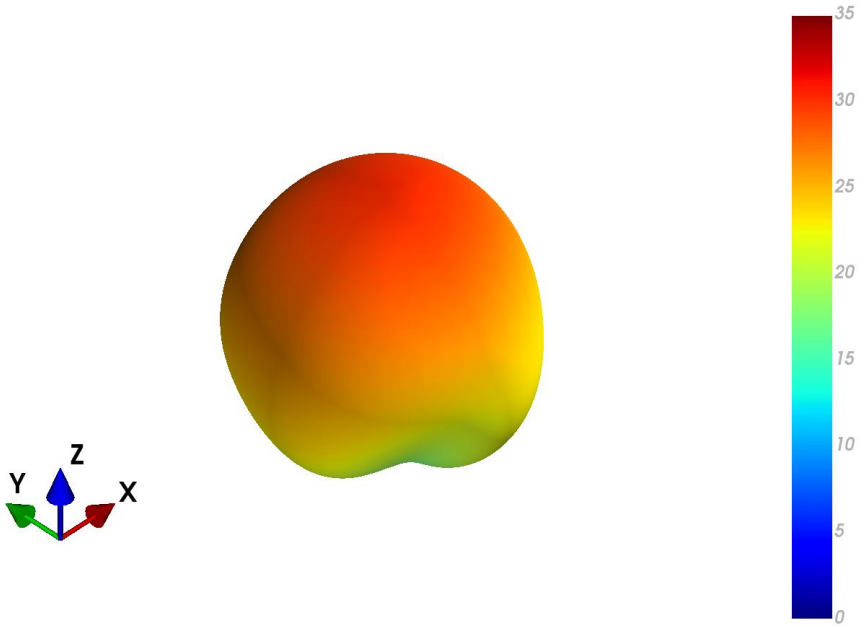

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

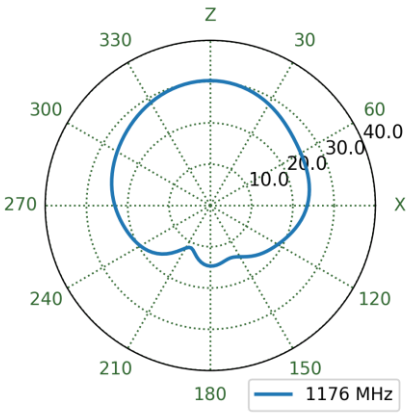
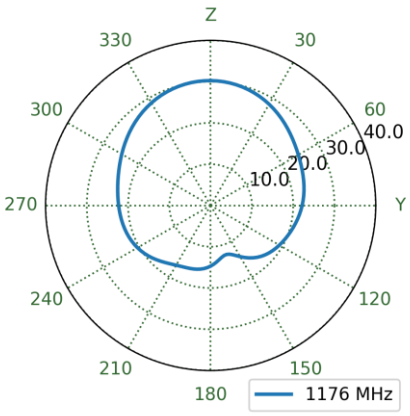
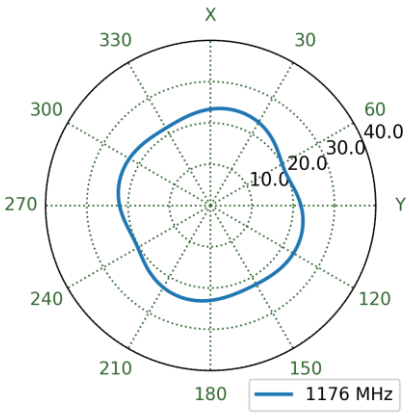


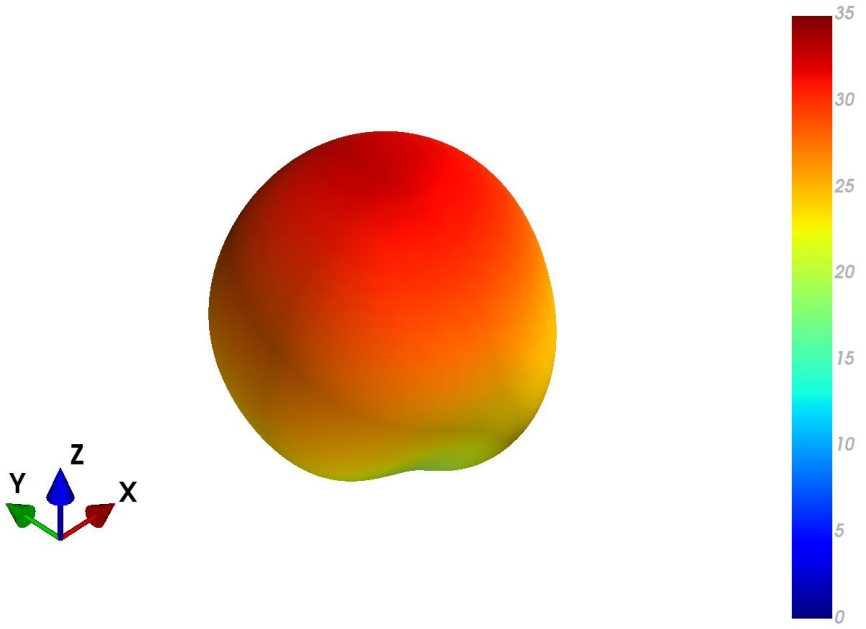



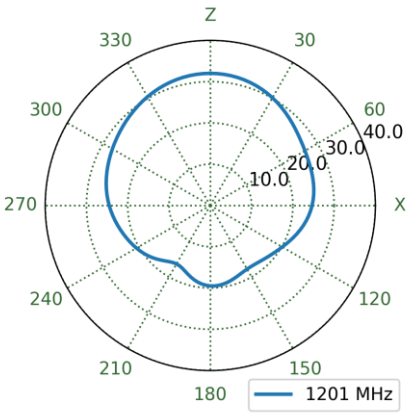
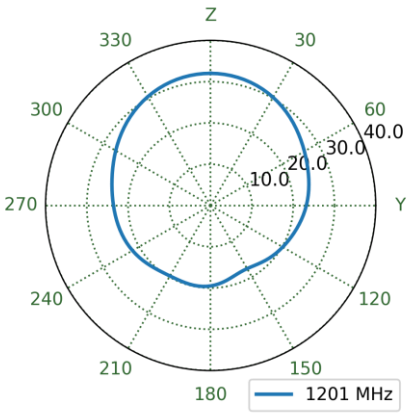
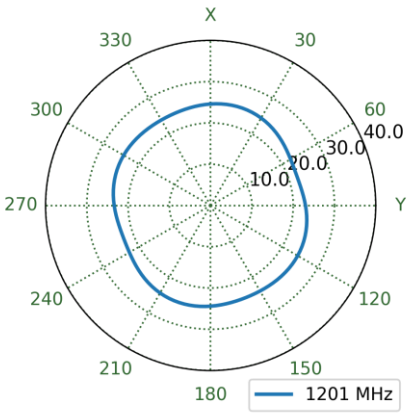
## 7.8 GNSS Free Space Patterns at 1176 MHz



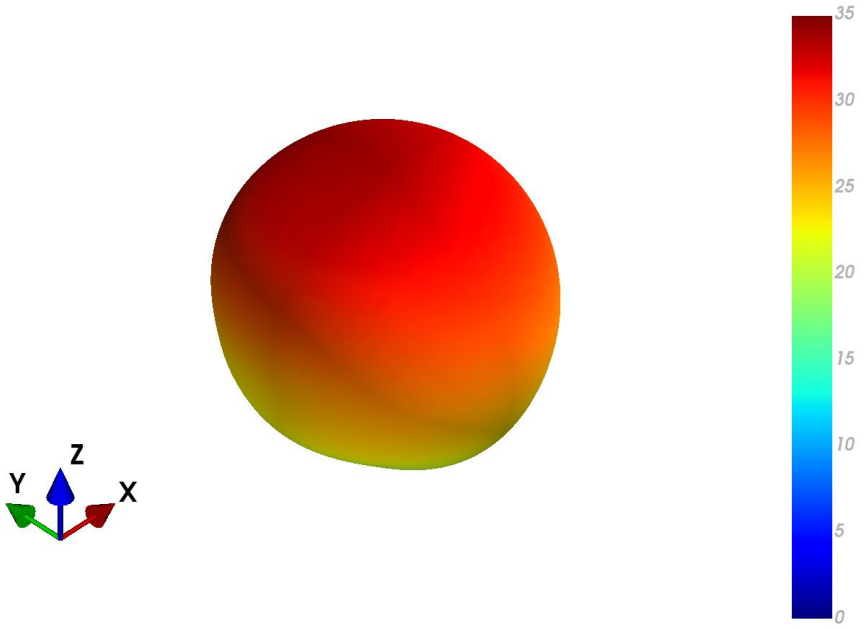

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

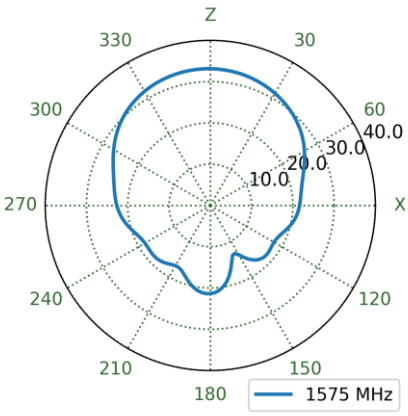
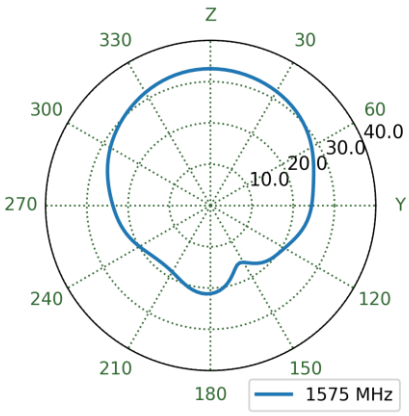
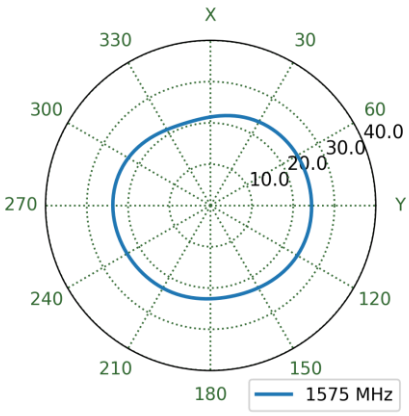
## 7.9 GNSS Free Space Patterns at 1201 MHz



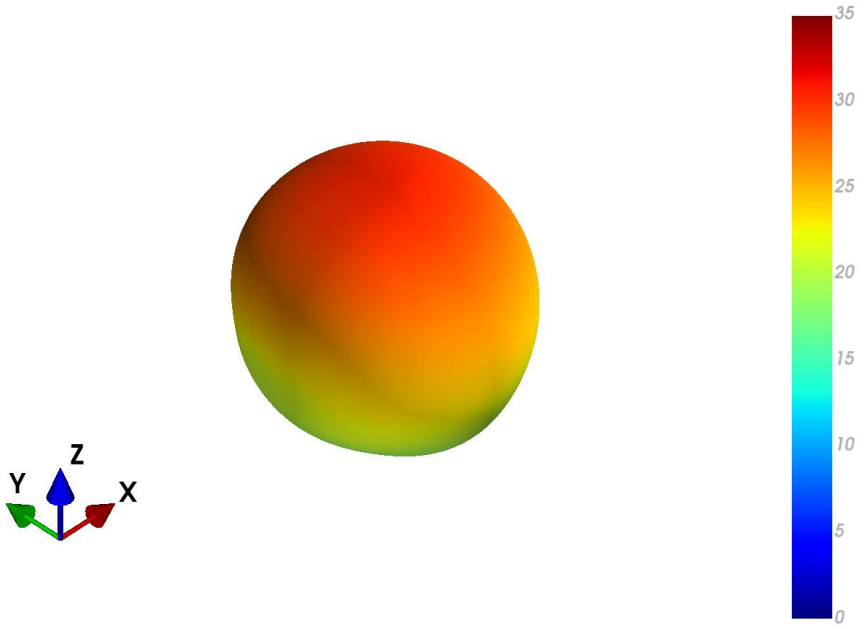

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

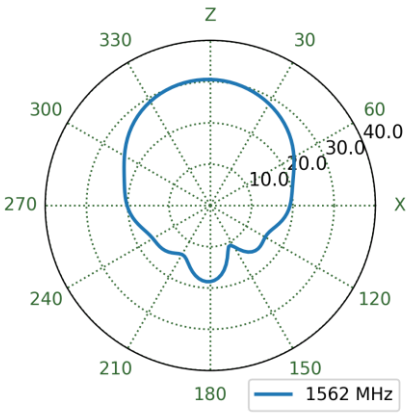
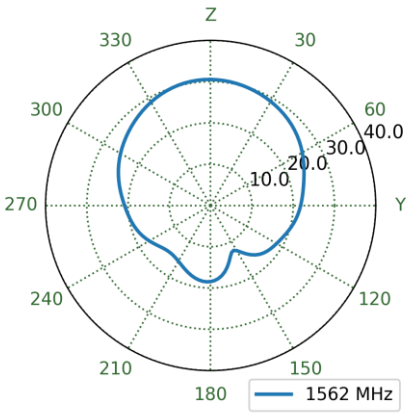
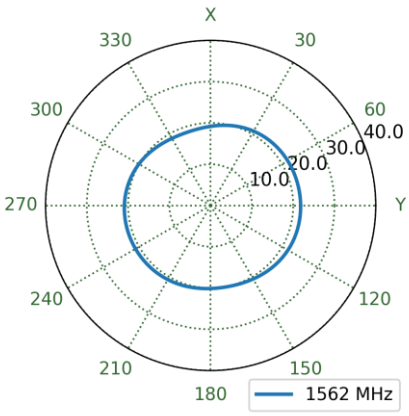
## 7.10 GNSS Free Space Patterns at 1575 MHz



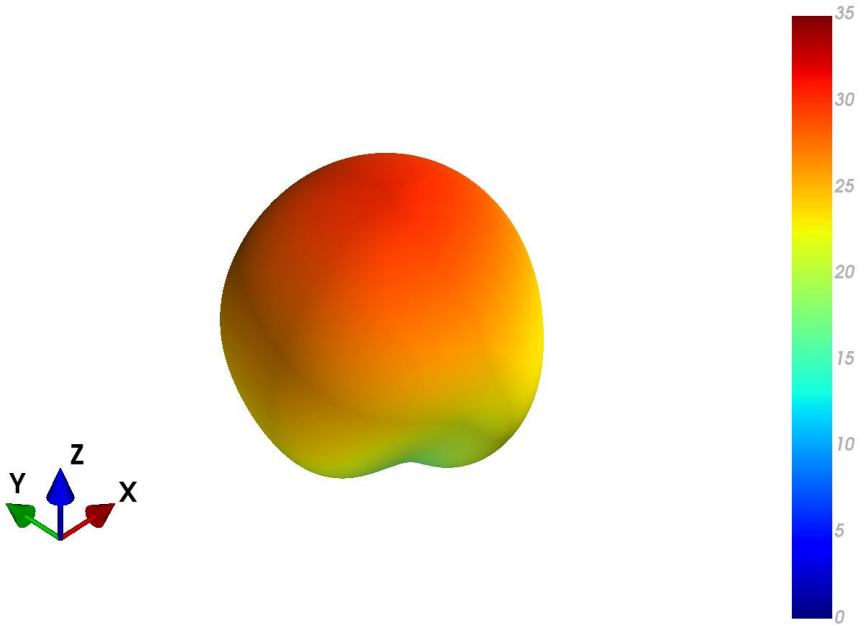

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

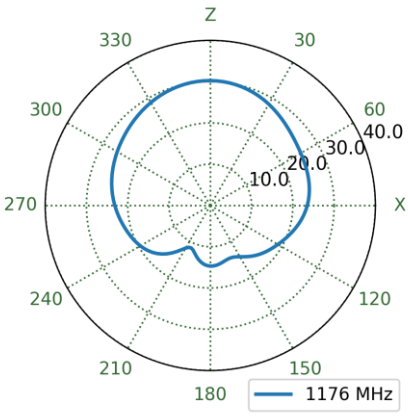
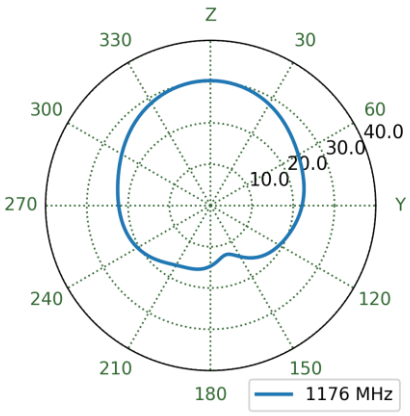
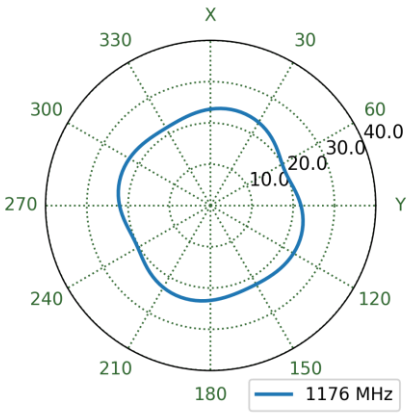
## 7.11 GNSS Free Space Patterns at 1562 MHz



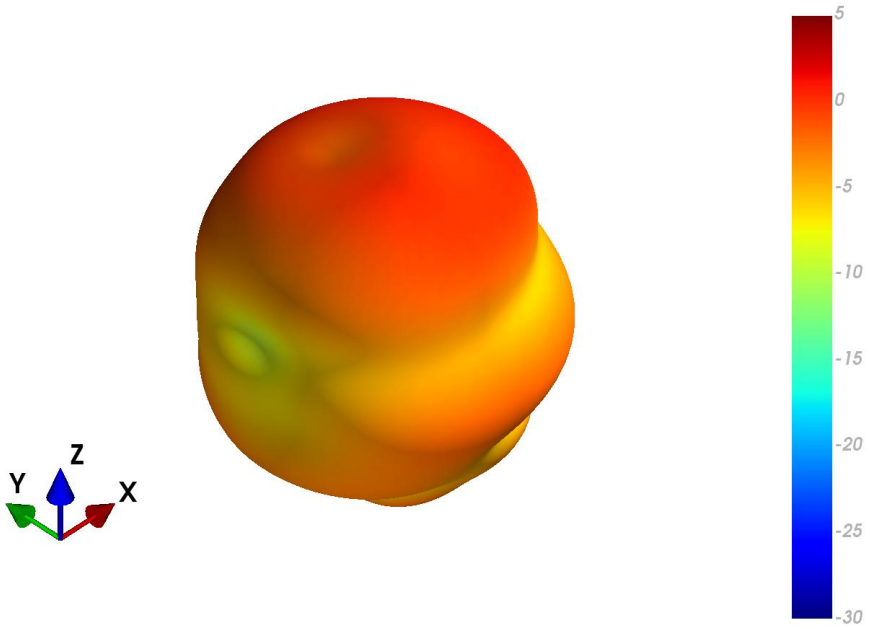

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

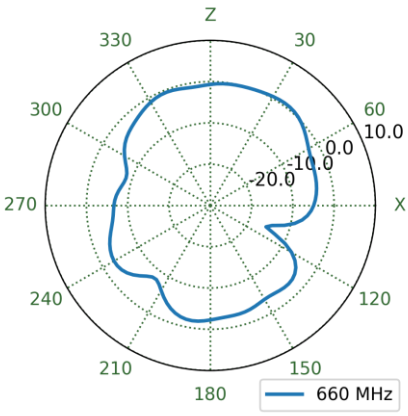
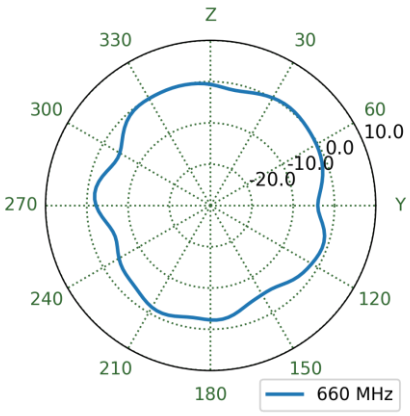
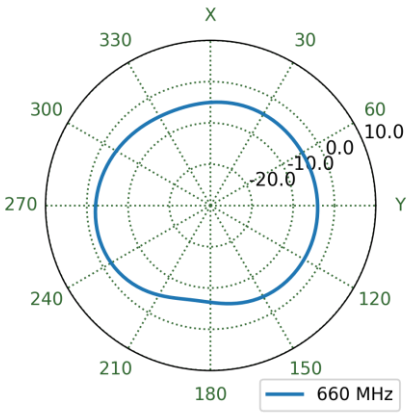
## 7.12 GNSS Free Space Patterns at 1176 MHz



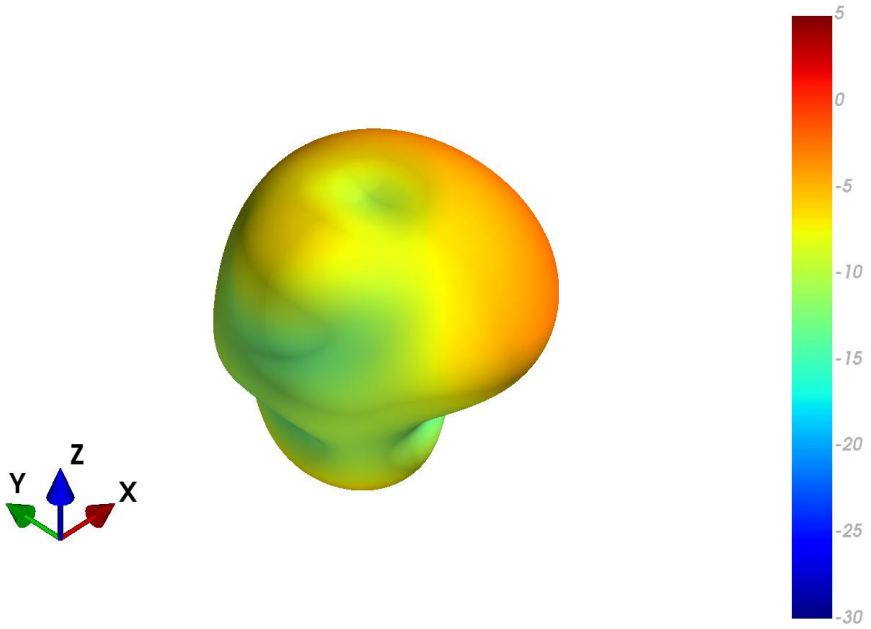

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

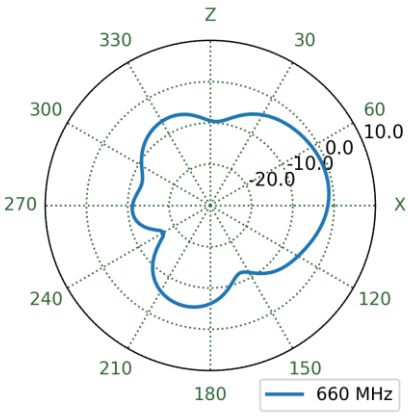
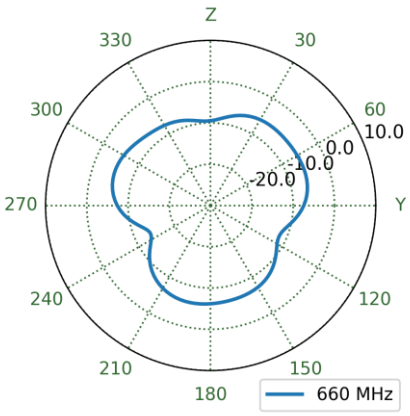
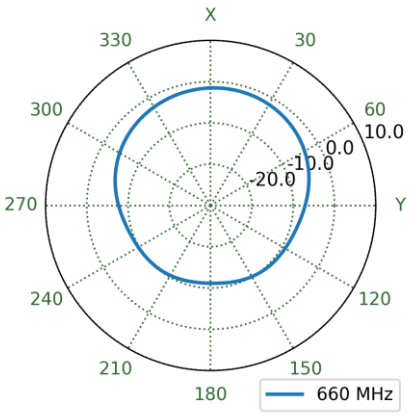
## 7.13 MIMO1 5G/4G Free Space Patterns at 660 MHz



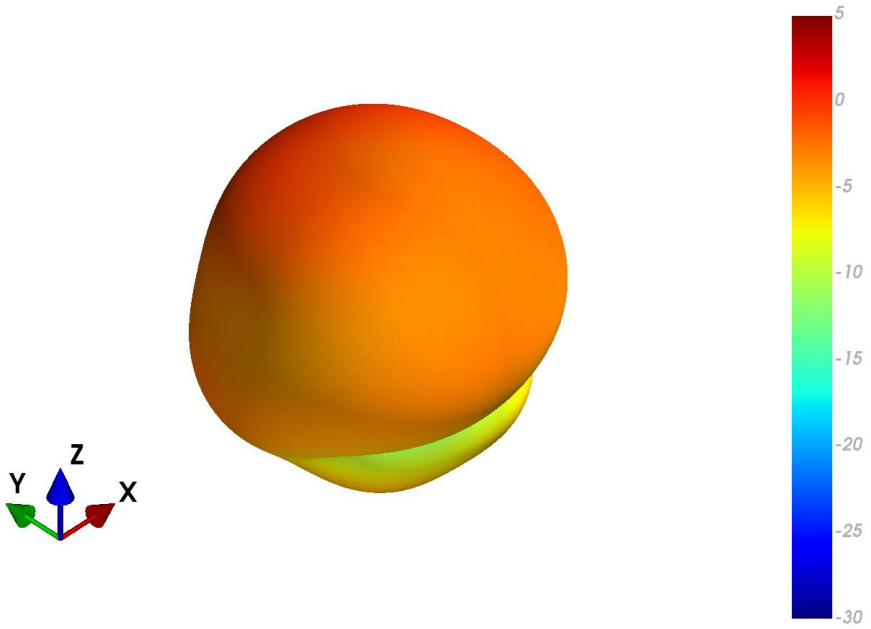

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

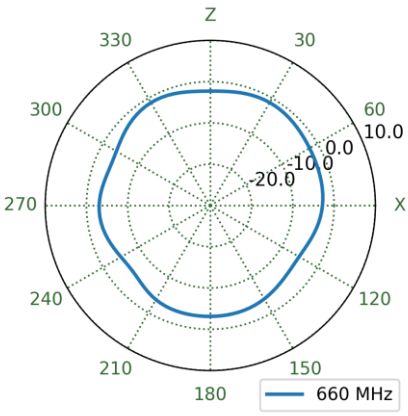
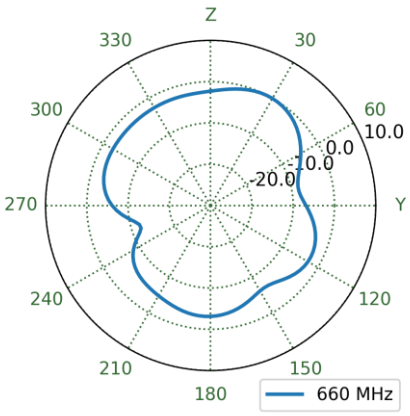
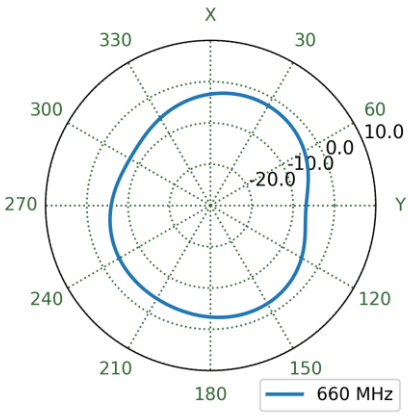
## 7.14 MIMO1 5G/4G Ground Plane Patterns at 660 MHz



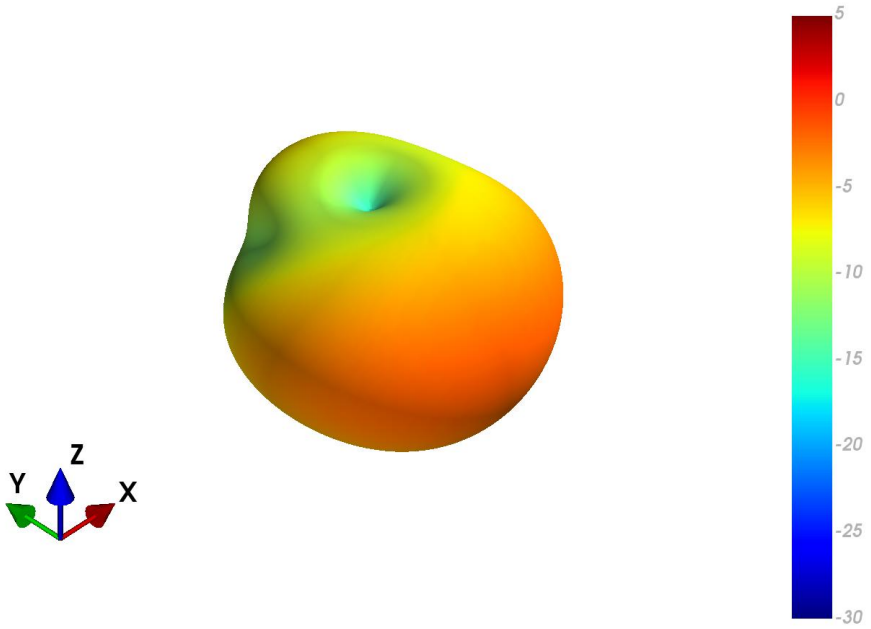

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

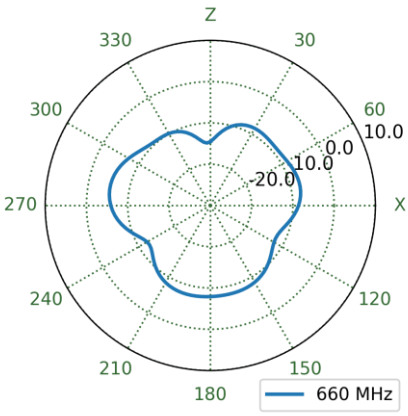
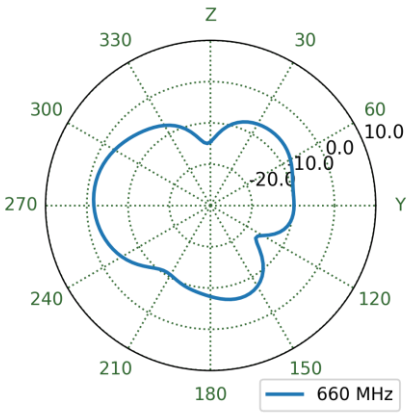
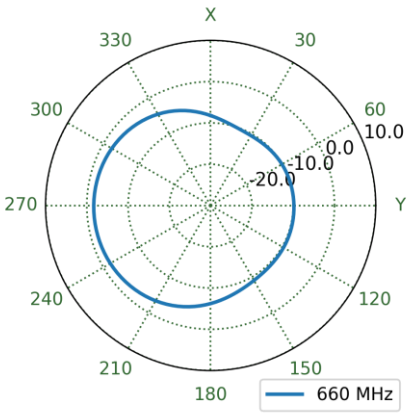
## 7.15 MIMO2 5G/4G Free Space Patterns at 660 MHz



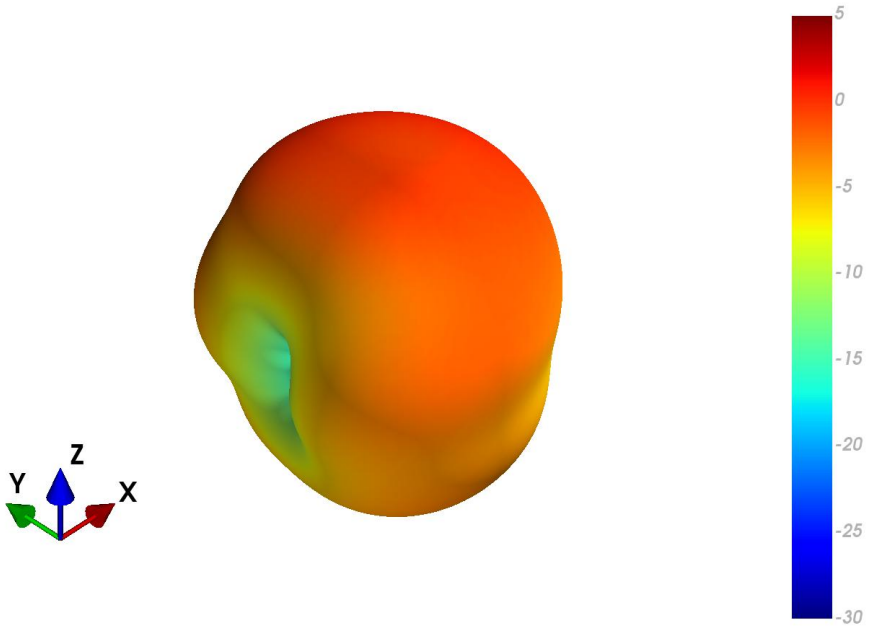

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

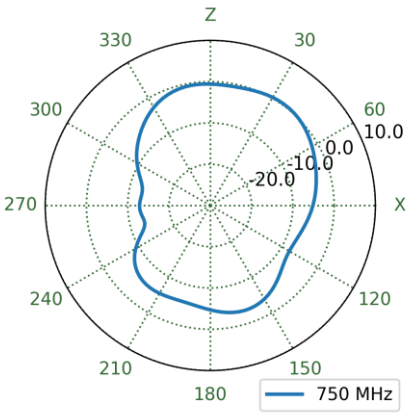
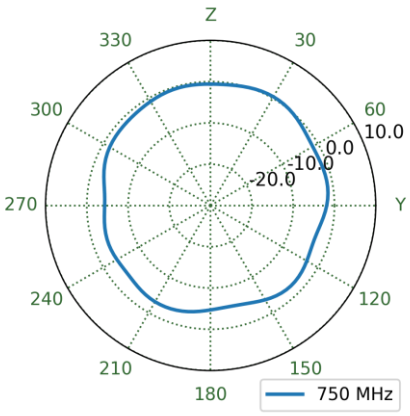
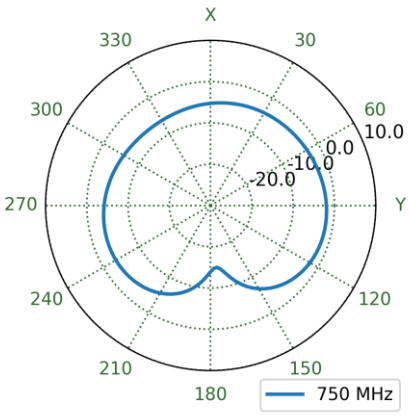
## 7.16 MIMO2 5G/4G Ground Plane Patterns at 660 MHz



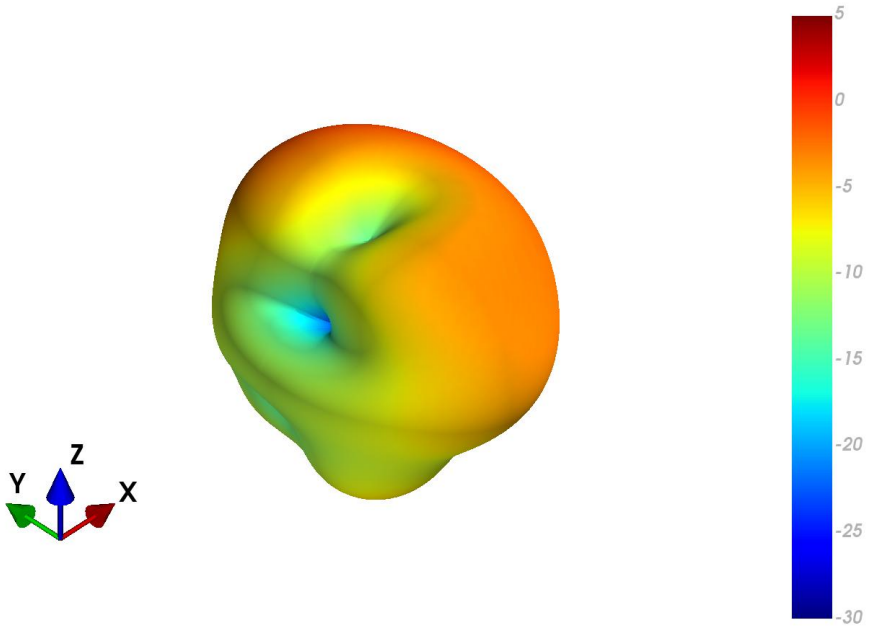

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

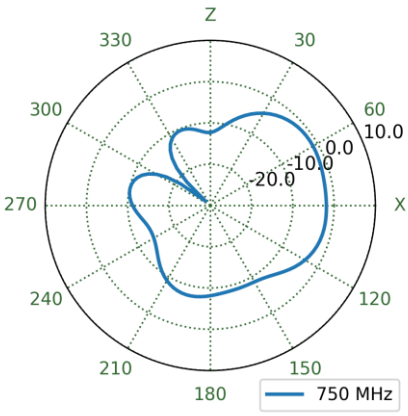
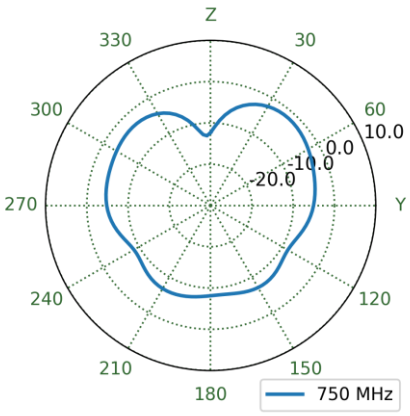
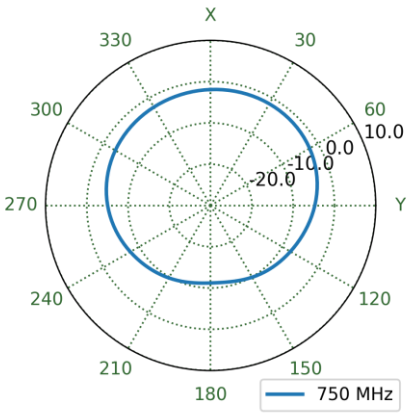
## 7.17 MIMO1 5G/4G Free Space Patterns at 750 MHz



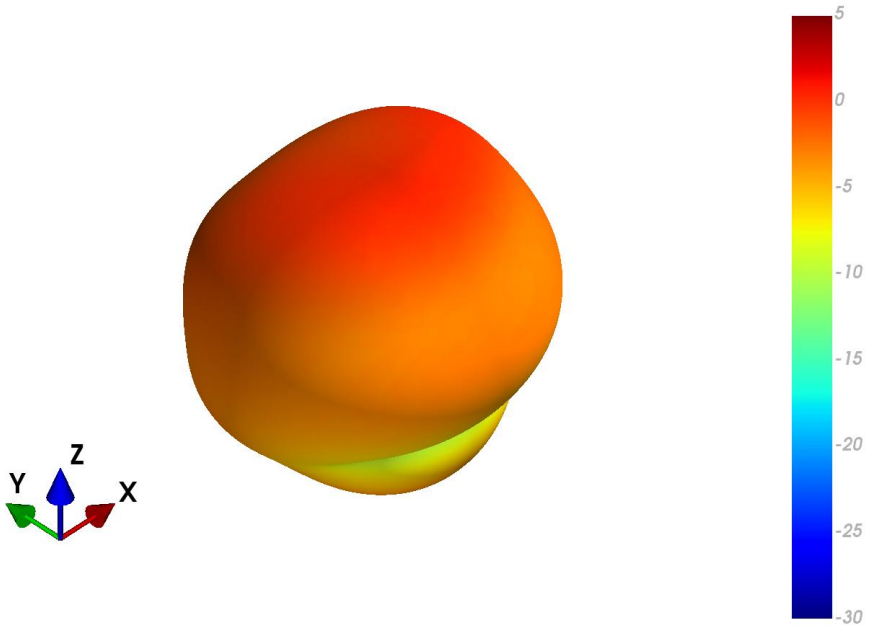

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

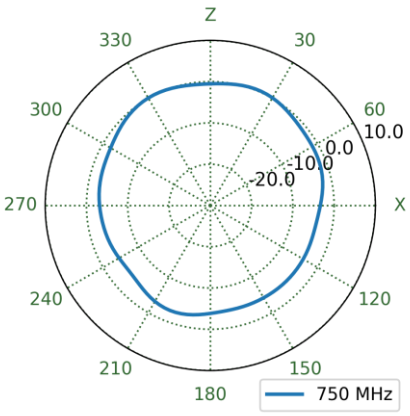
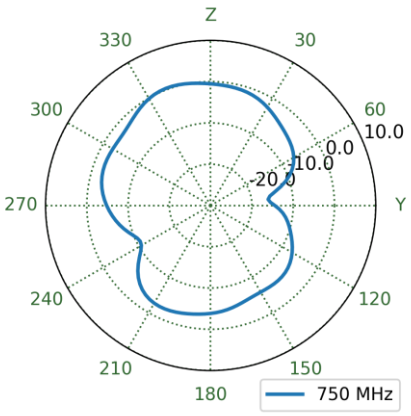
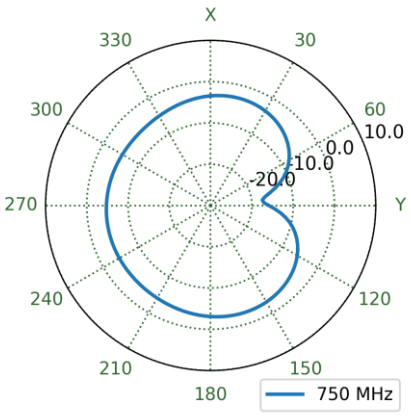
## 7.18 MIMO1 5G/4G Ground Plane Patterns at 750 MHz



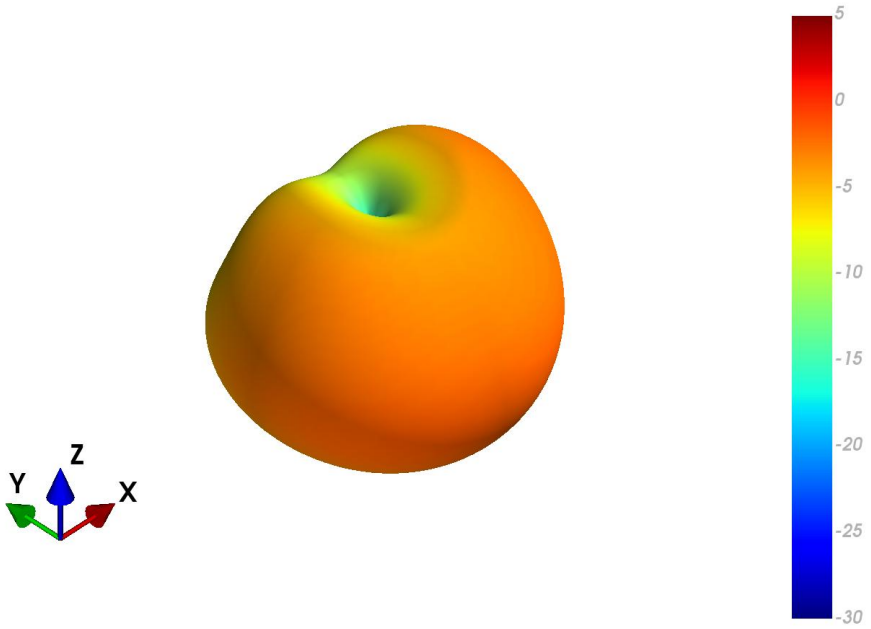

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

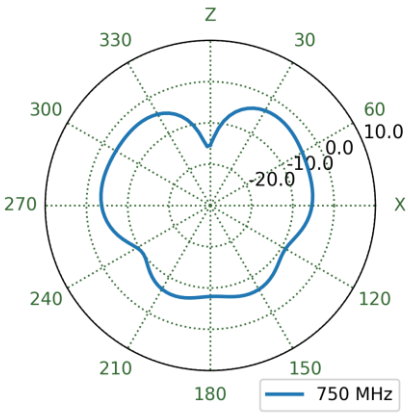
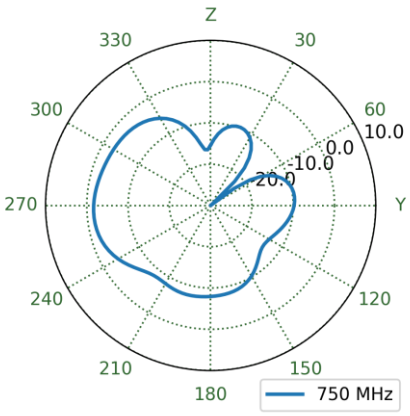
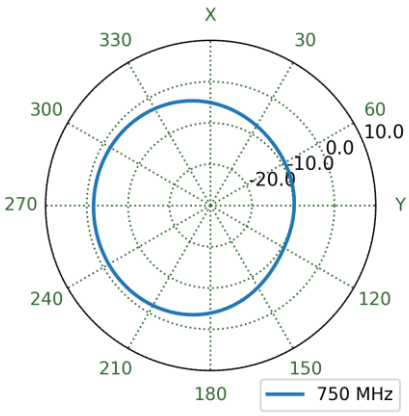
## 7.19 MIMO2 5G/4G Free Space Patterns at 750 MHz



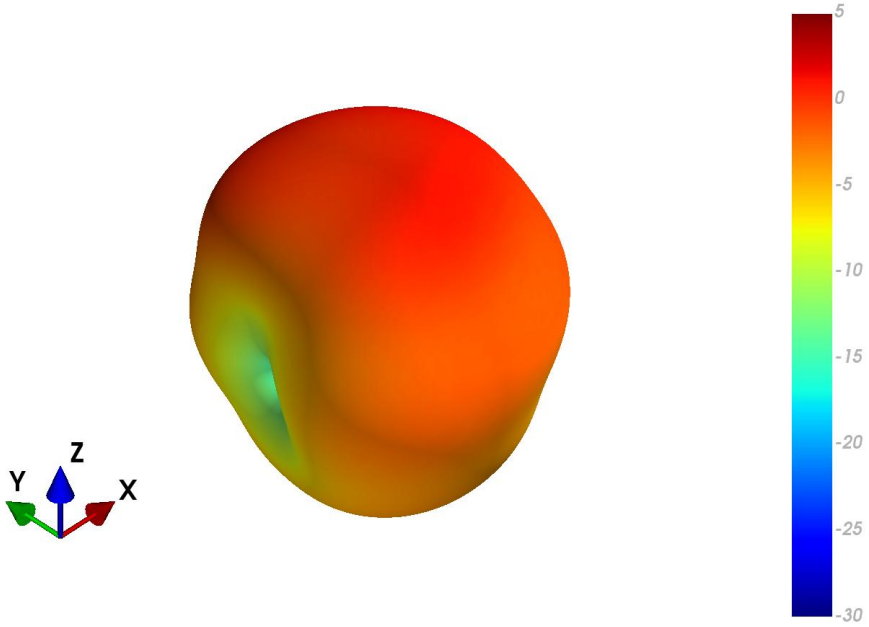

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

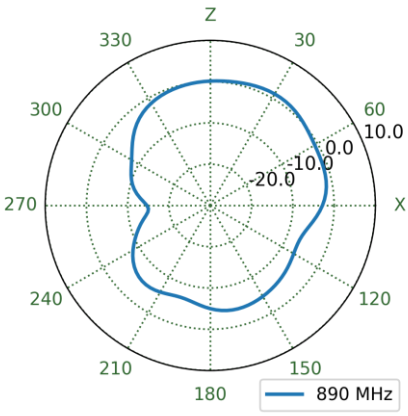
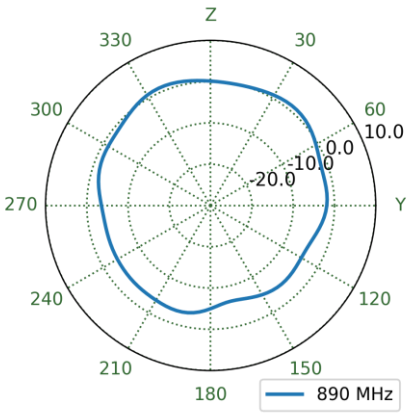
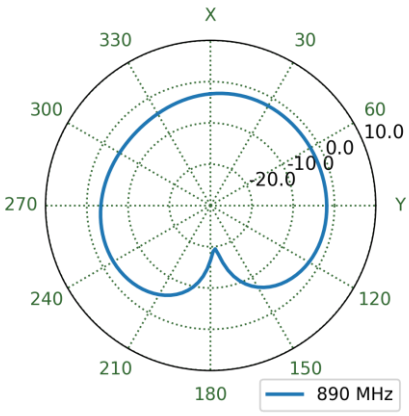
## 7.20 MIMO2 5G/4G Ground Plane Patterns at 750 MHz



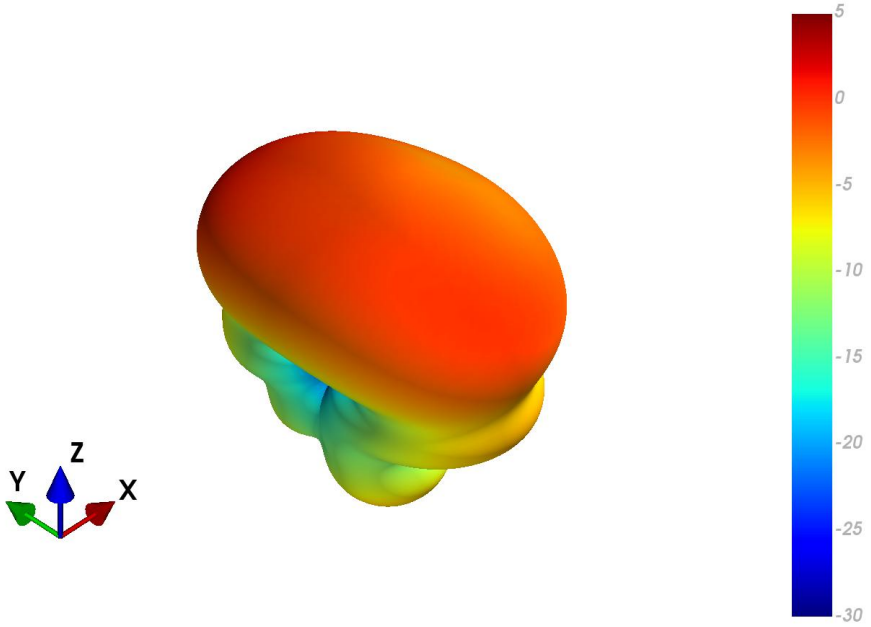

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

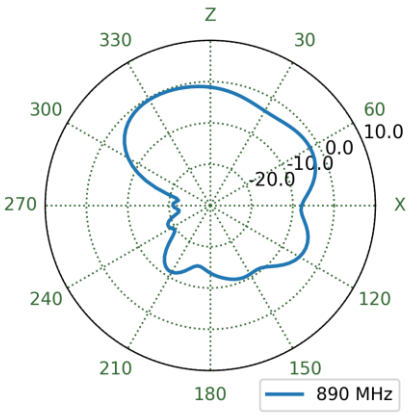
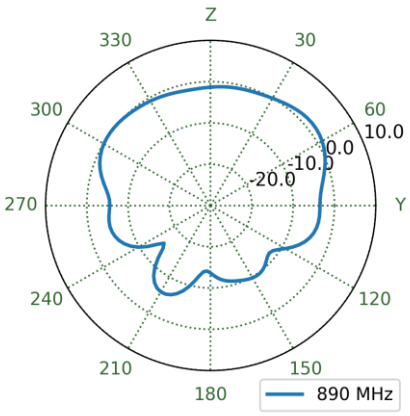
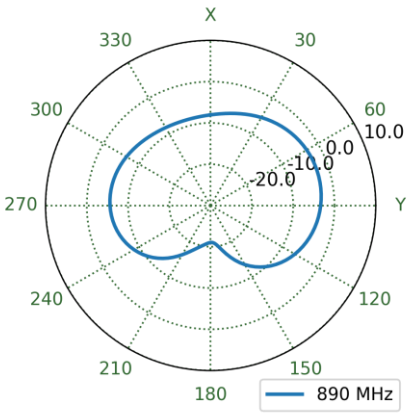
## 7.21 MIMO1 5G/4G Free Space Patterns at 890 MHz



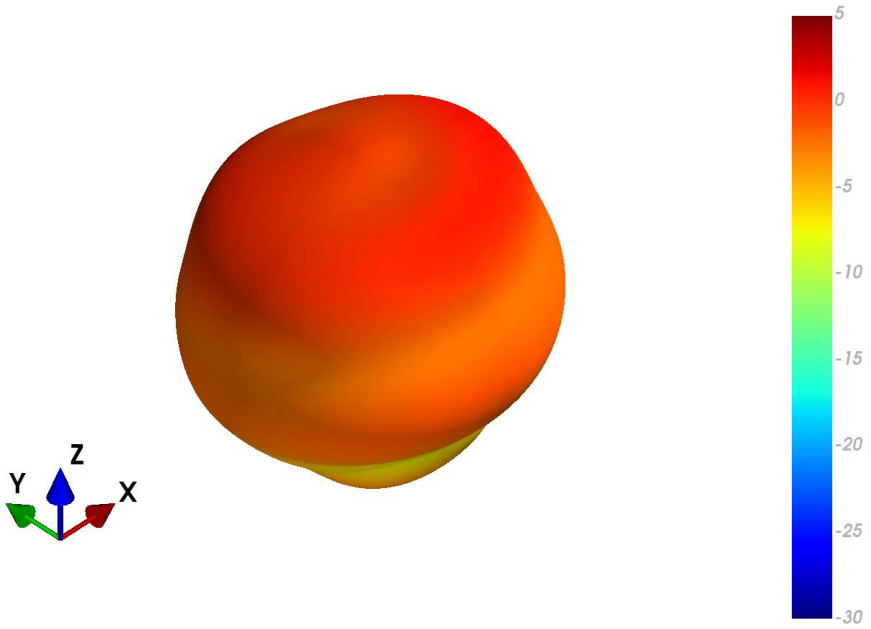

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

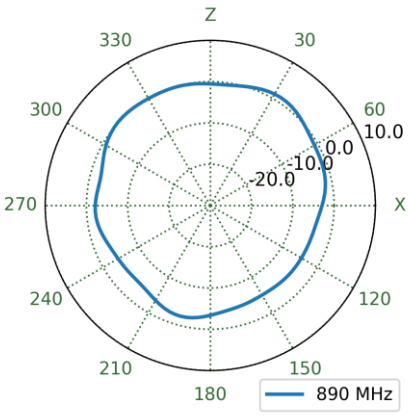
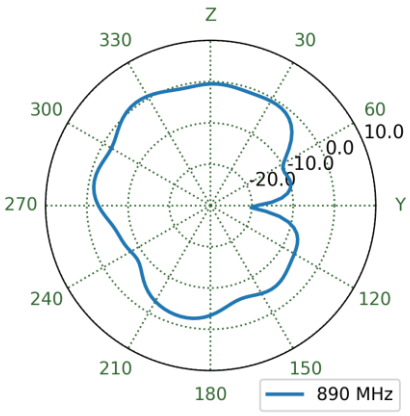
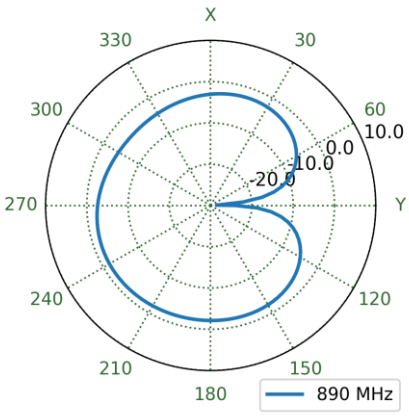
## 7.22 MIMO1 5G/4G Ground Plane Patterns at 890 MHz



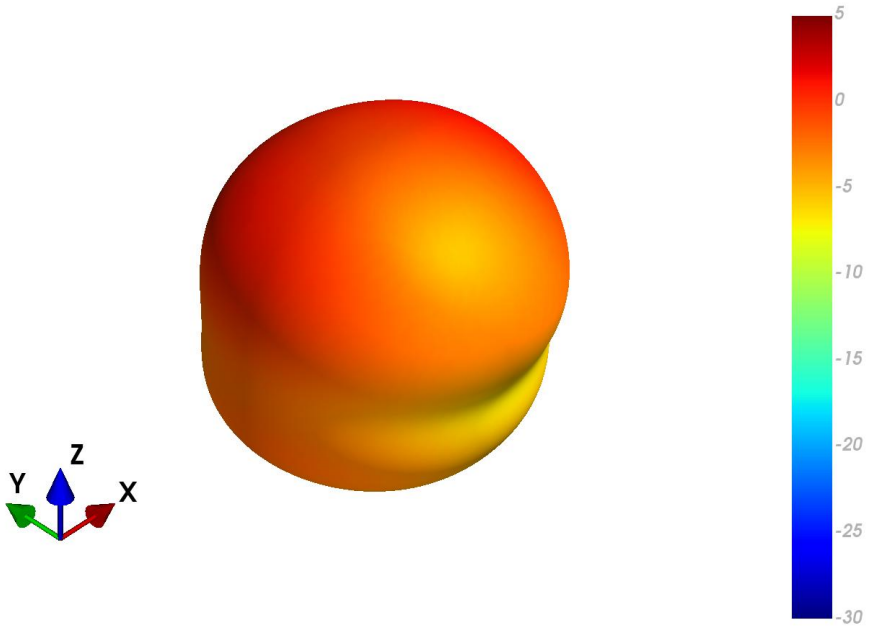

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

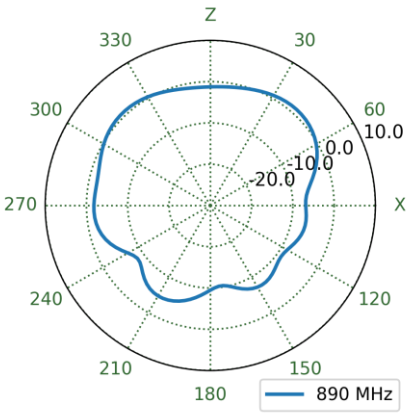
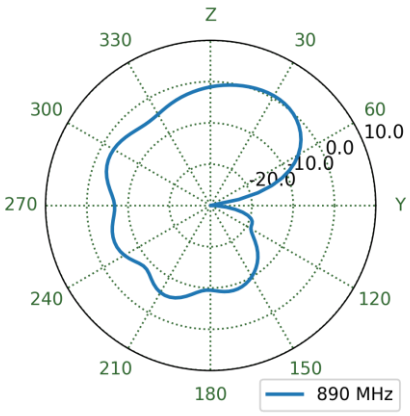
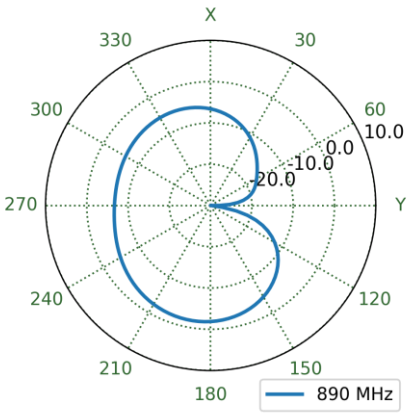
## 7.23 MIMO2 5G/4G Free Space Patterns at 890 MHz



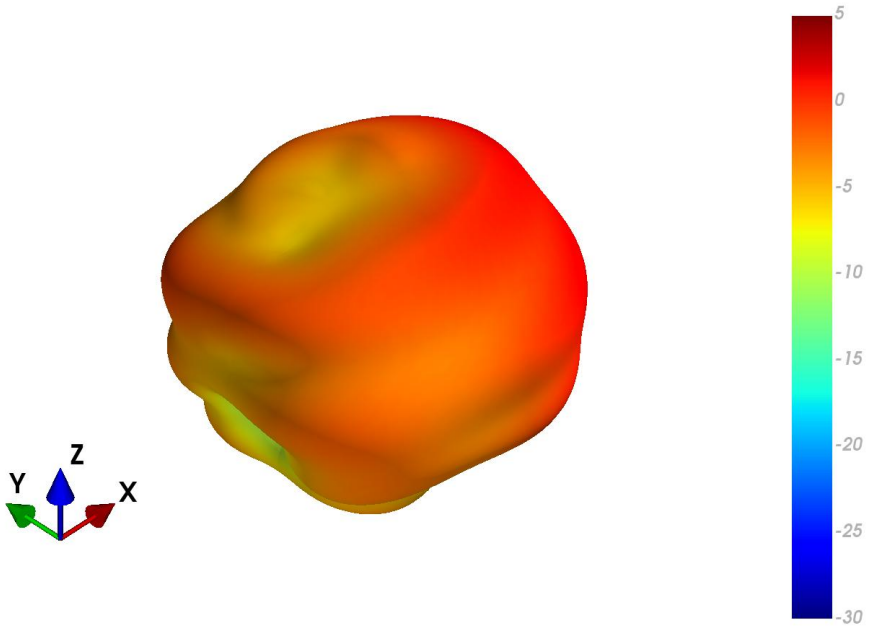

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

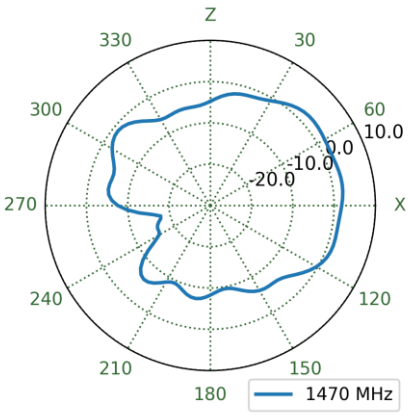
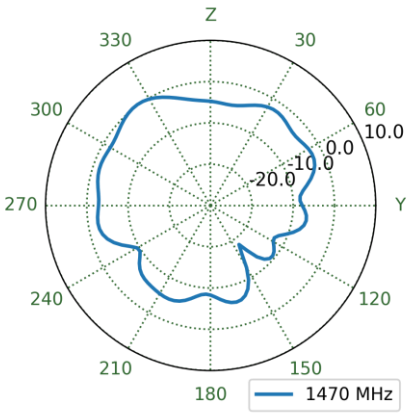
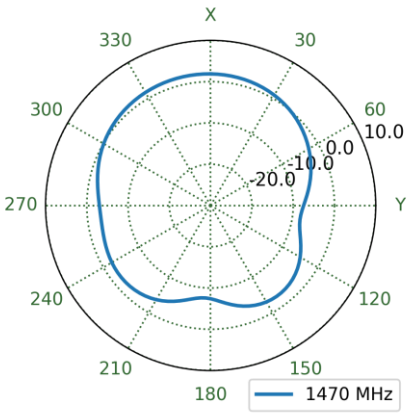
## 7.24 MIMO2 5G/4G Ground Plane Patterns at 890 MHz



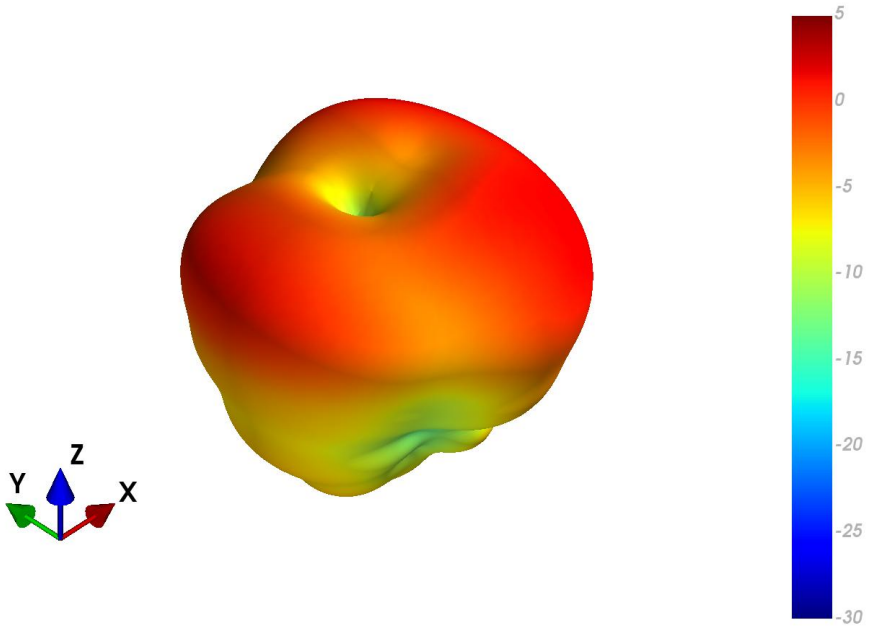

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

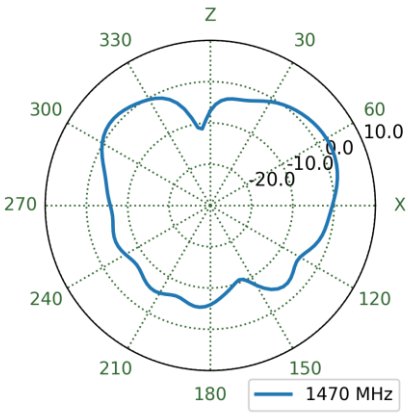
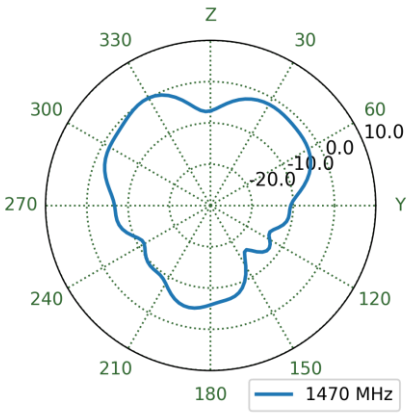
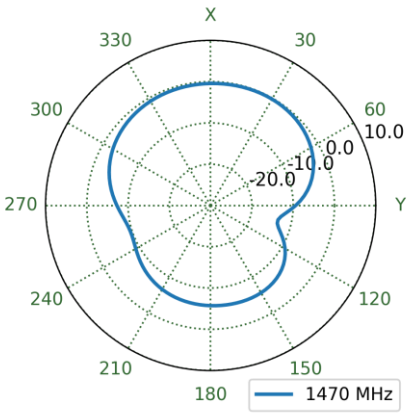
## 7.25 MIMO1 5G/4G Free Space Patterns at 1470 MHz



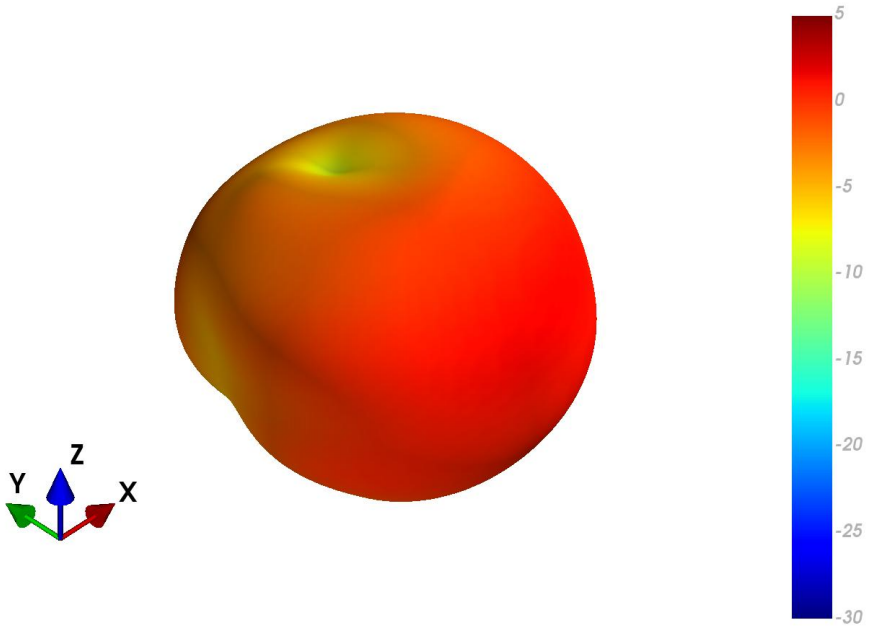

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

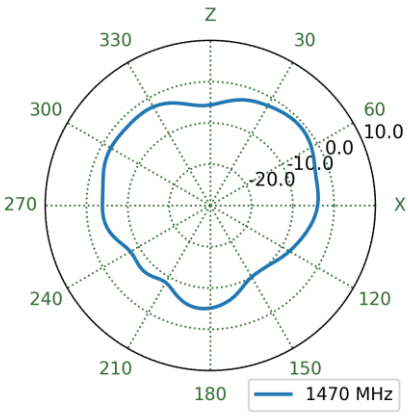
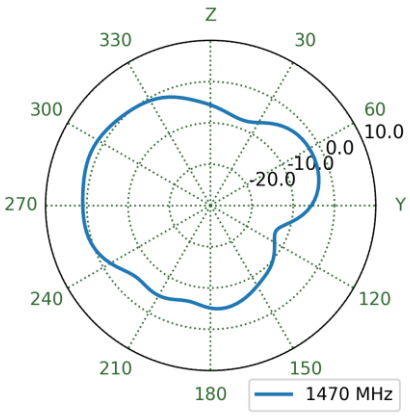
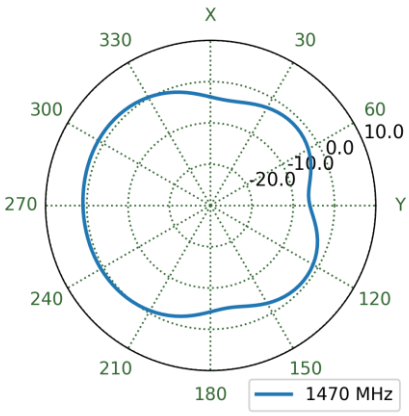
## 7.26 MIMO1 5G/4G Ground Plane Patterns at 1470 MHz



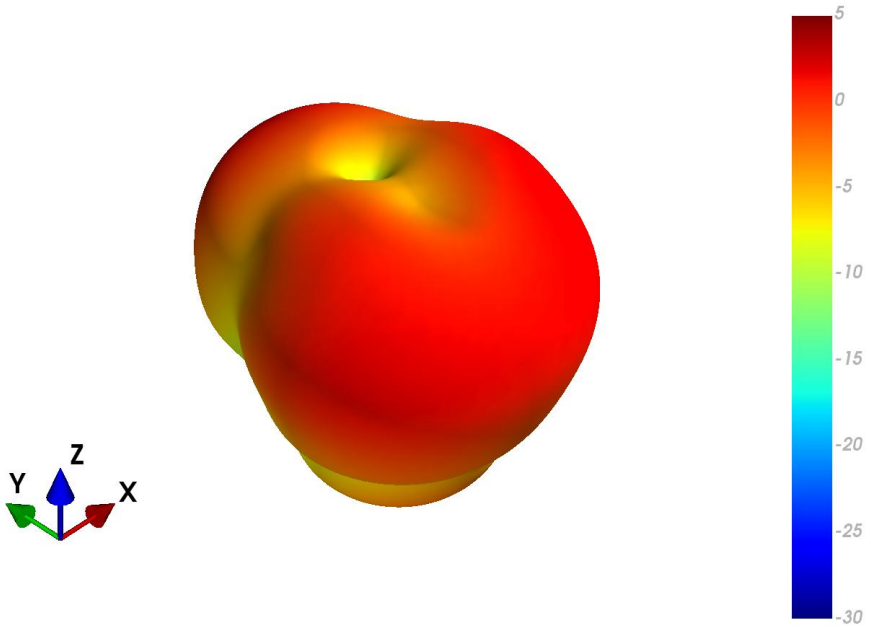

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

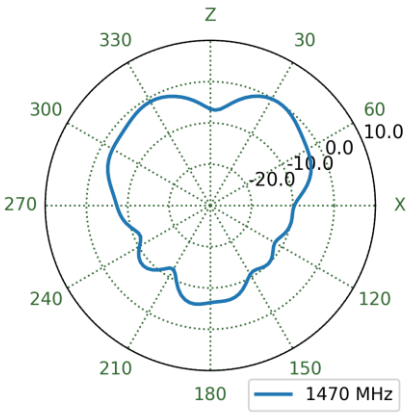
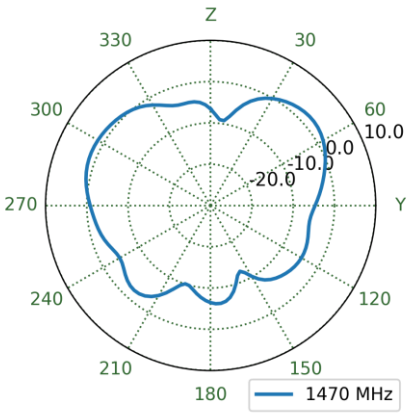
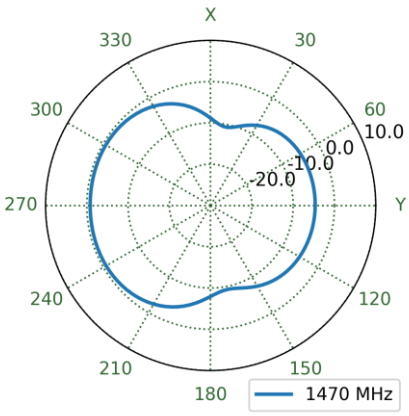
## 7.27 MIMO2 5G/4G Free Space Patterns at 1470 MHz



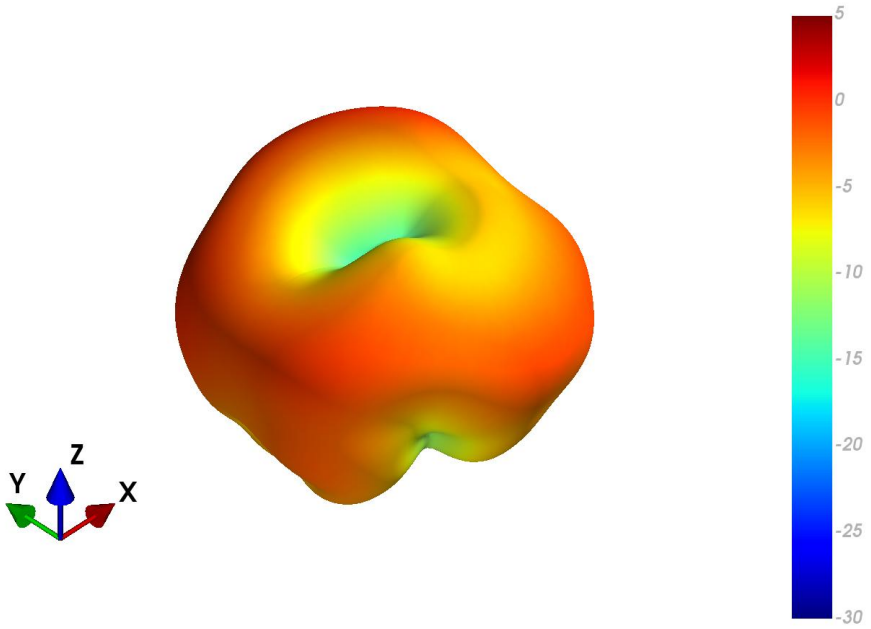

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

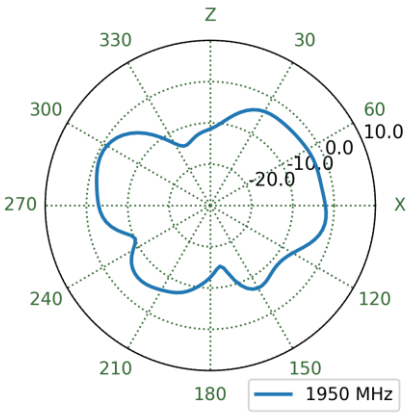
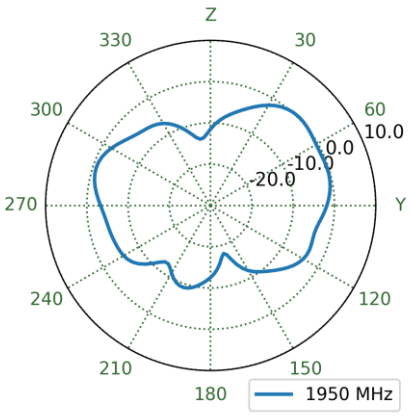
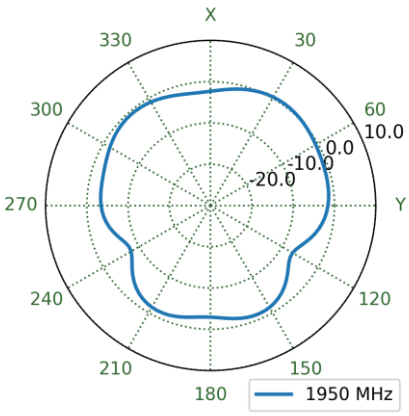
## 7.28 MIMO2 5G/4G Ground Plane Patterns at 1470 MHz



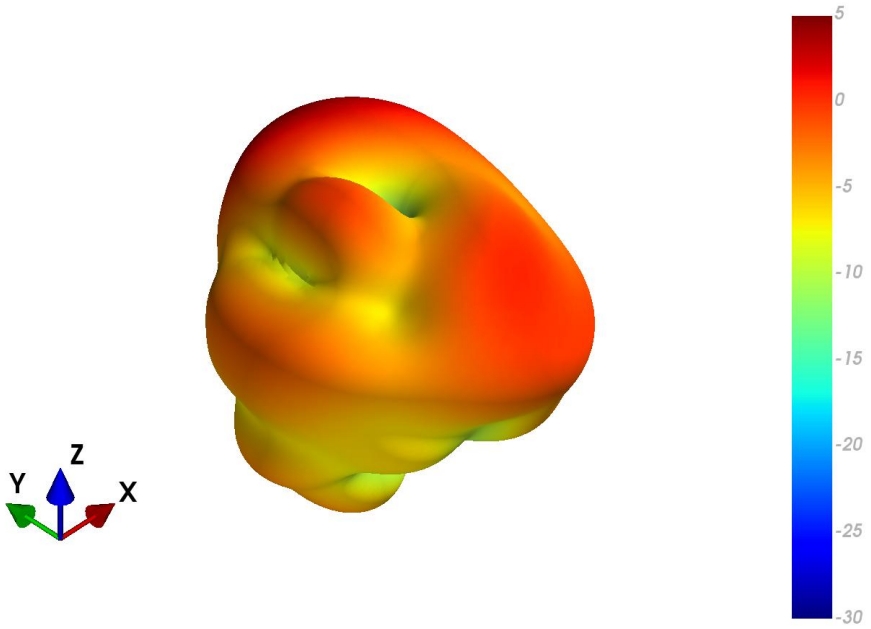

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

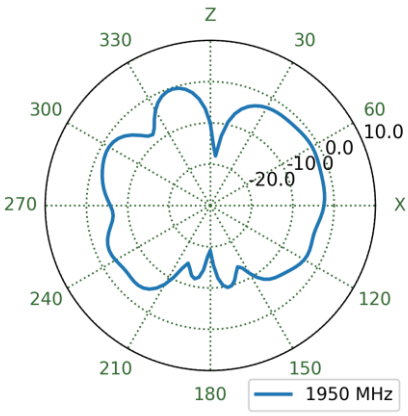
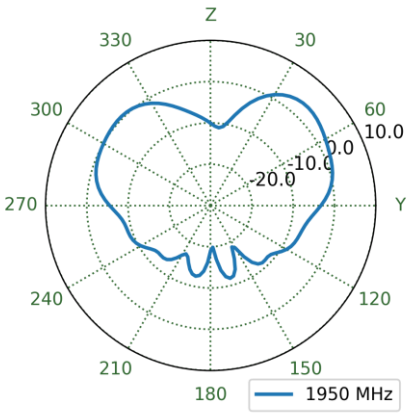
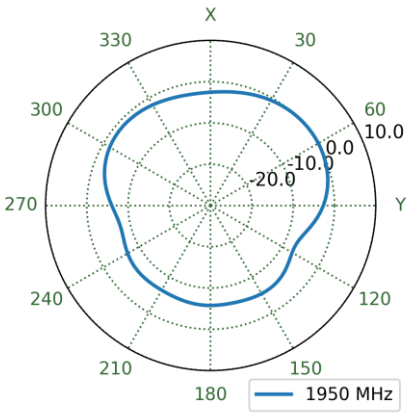
## 7.29 MIMO1 5G/4G Free Space Patterns at 1950 MHz



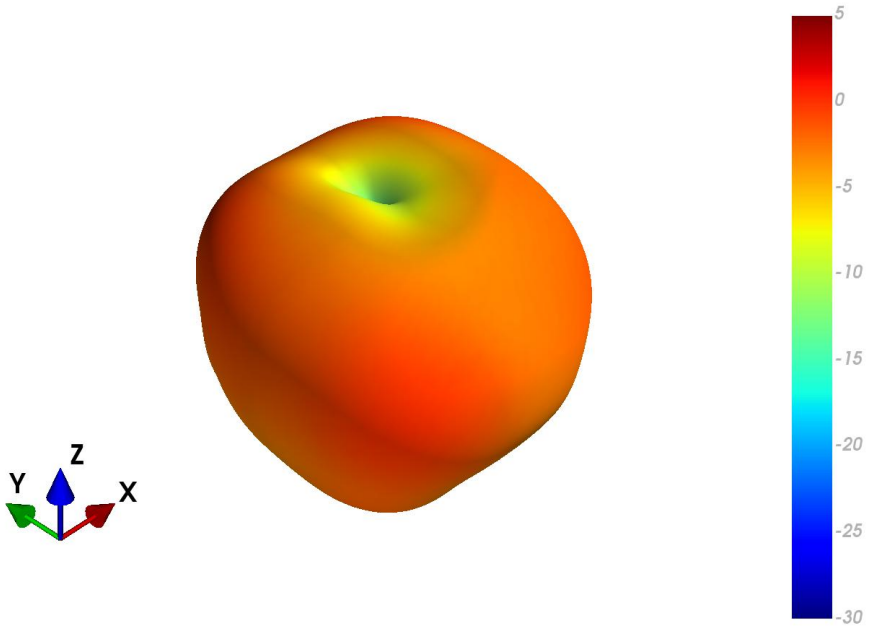

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

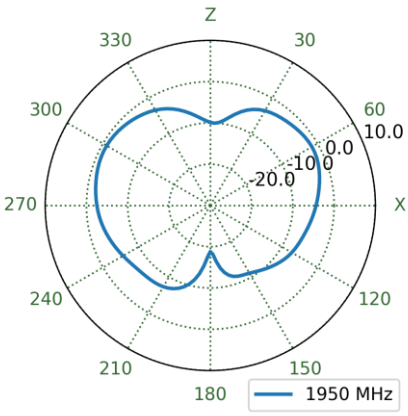
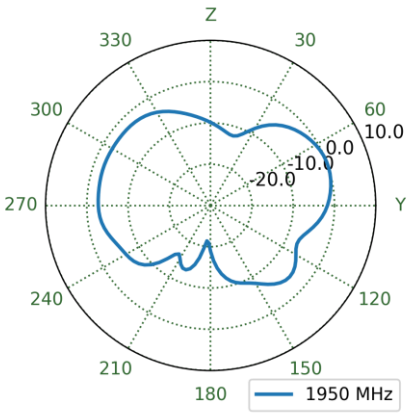
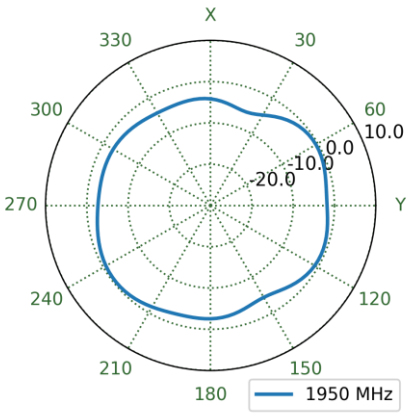
## 7.30 MIMO1 5G/4G Ground Plane Patterns at 1950 MHz



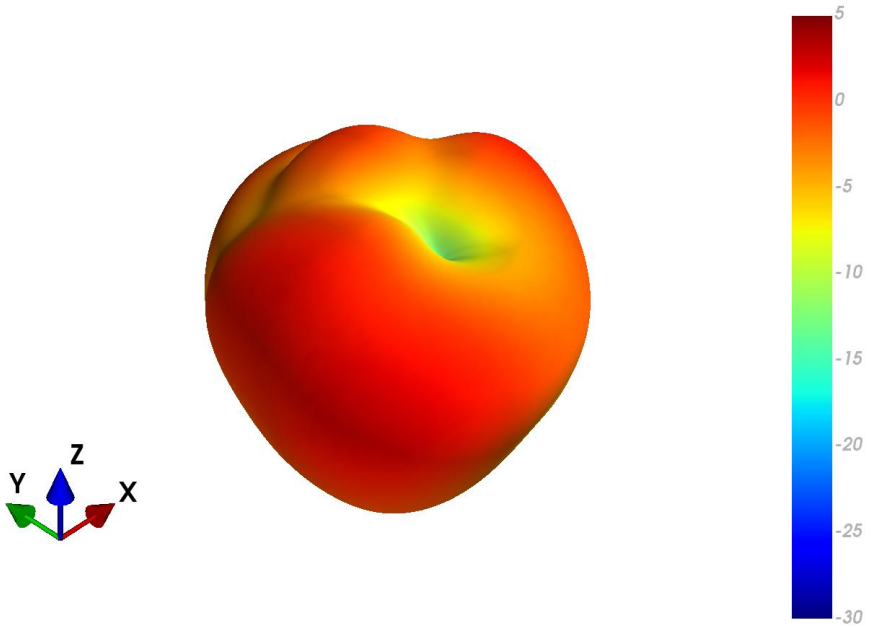

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

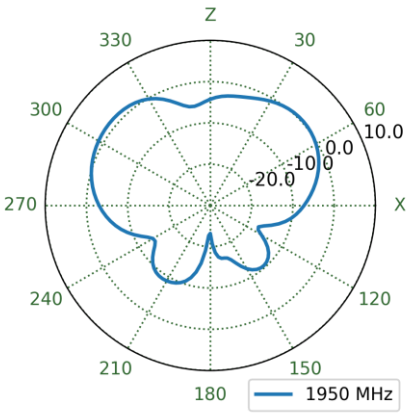
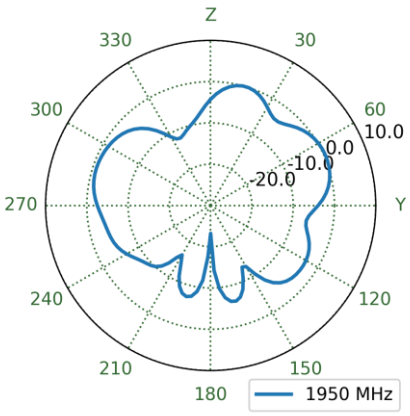
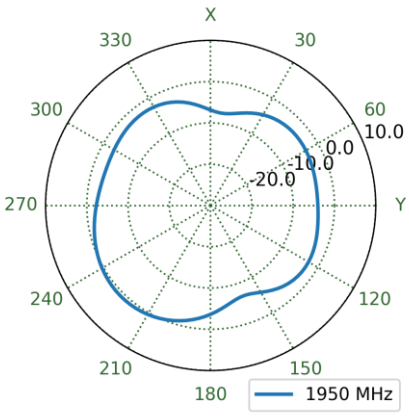
## 7.31 MIMO2 5G/4G Free Space Patterns at 1950 MHz



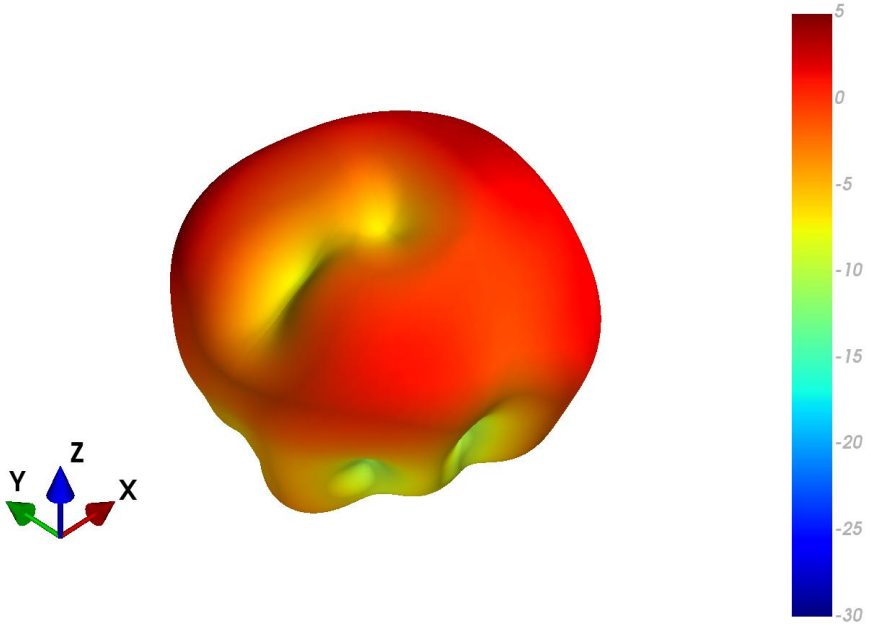

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

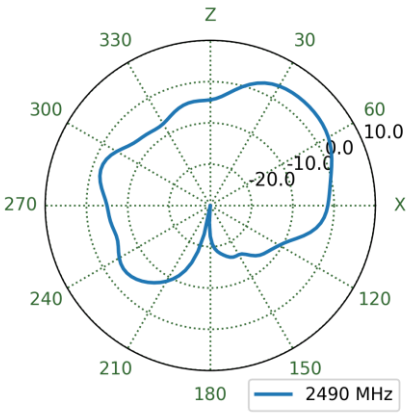
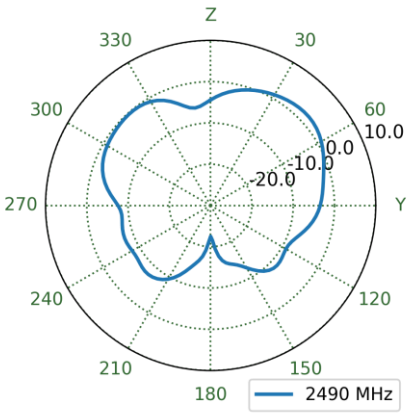
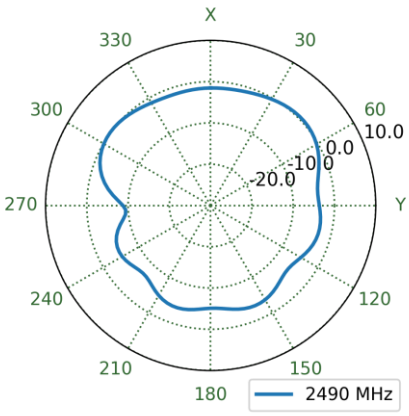
## 7.32 MIMO2 5G/4G Ground Plane Patterns at 1950 MHz



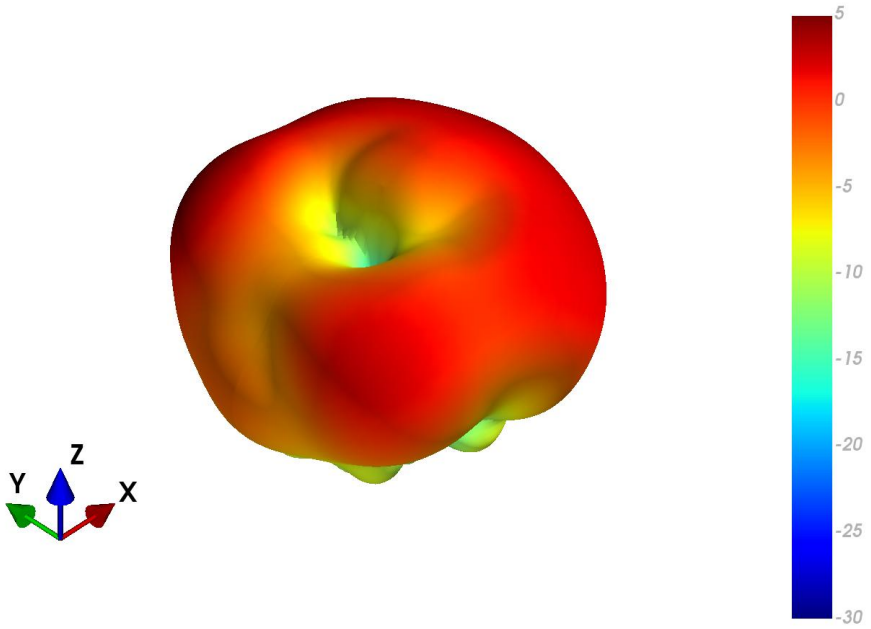

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

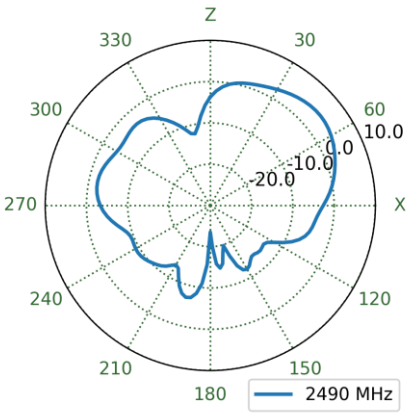
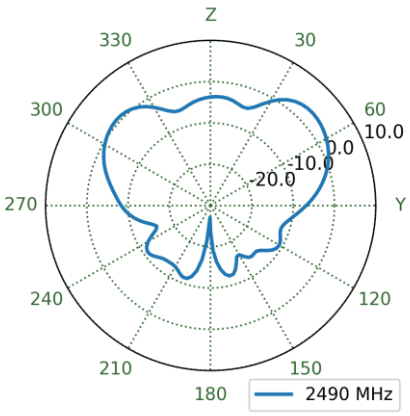
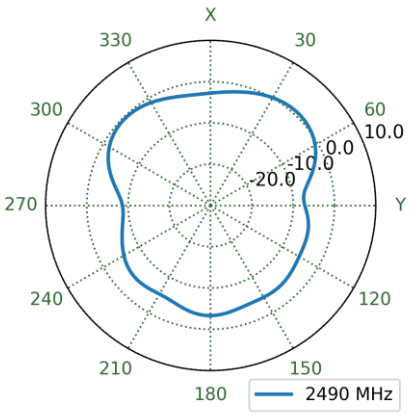
## 7.33 MIMO1 5G/4G Free Space Patterns at 2490 MHz



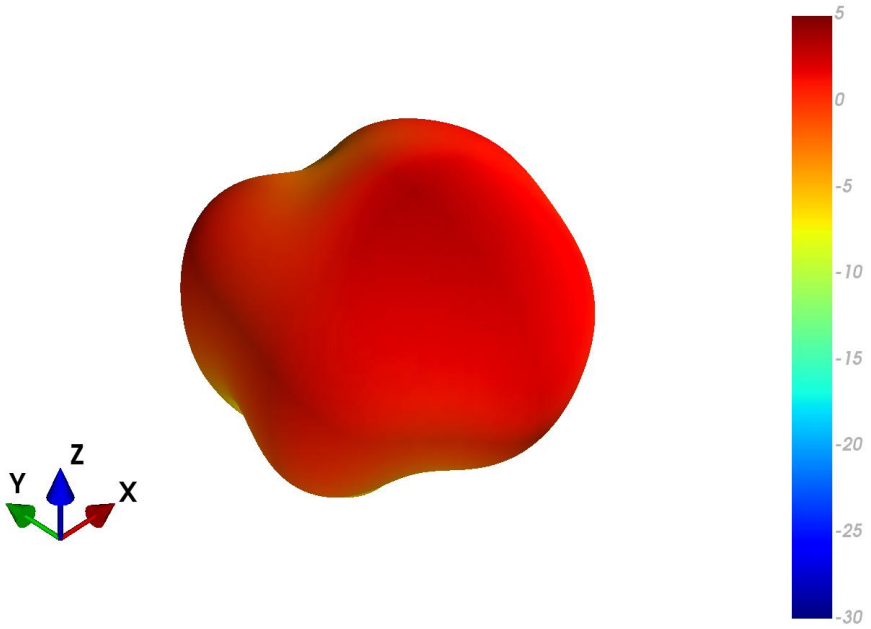

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

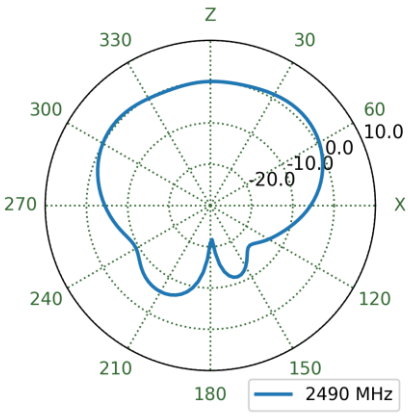
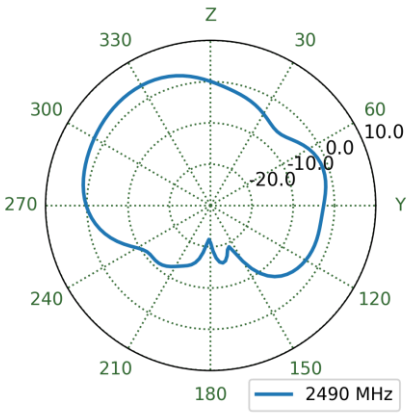
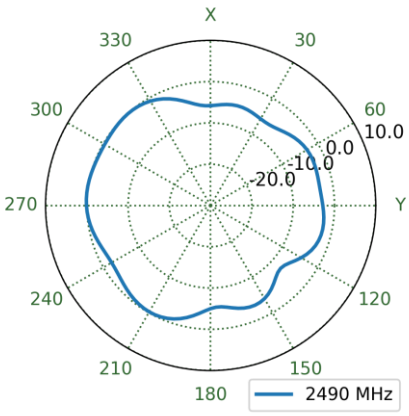
## 7.34 MIMO1 5G/4G Ground Plane Patterns at 2490 MHz



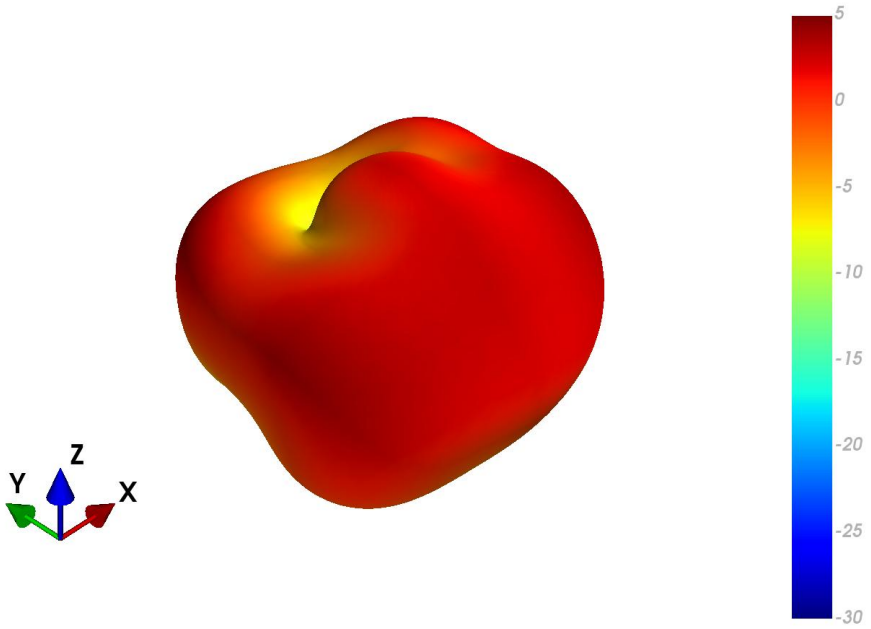

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

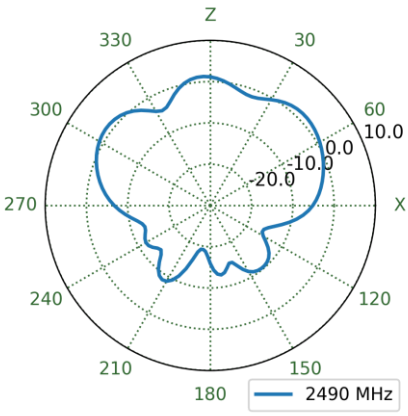
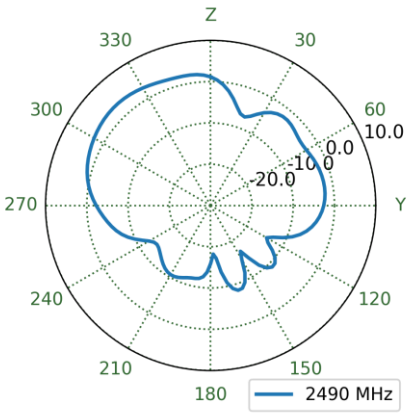
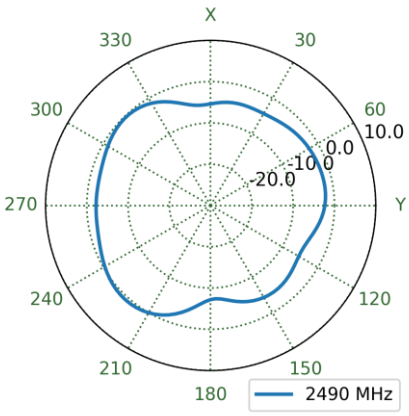
## 7.35 MIMO2 5G/4G Free Space Patterns at 2490 MHz



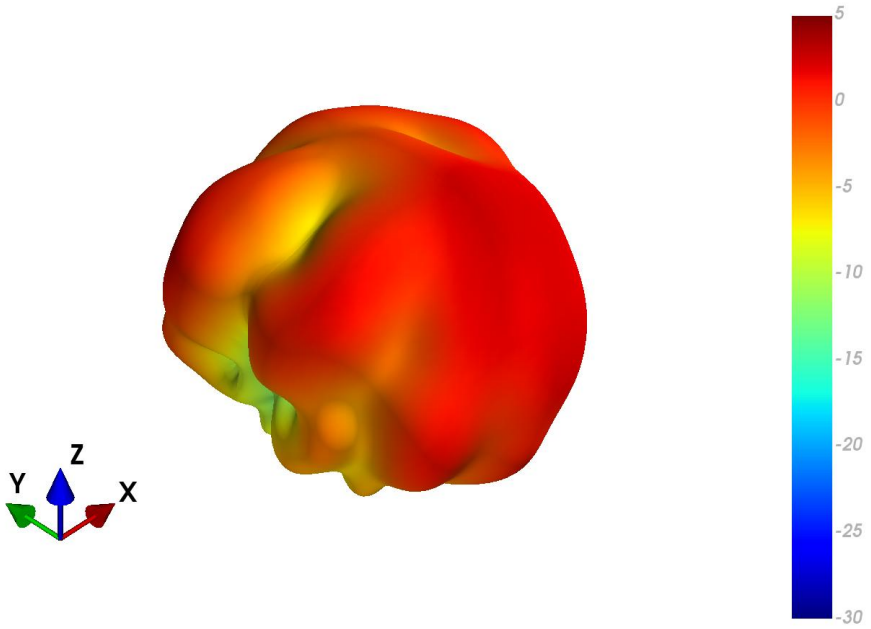

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

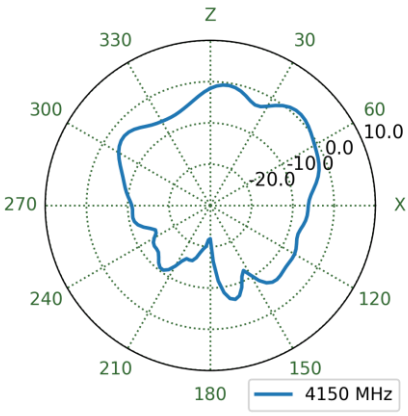
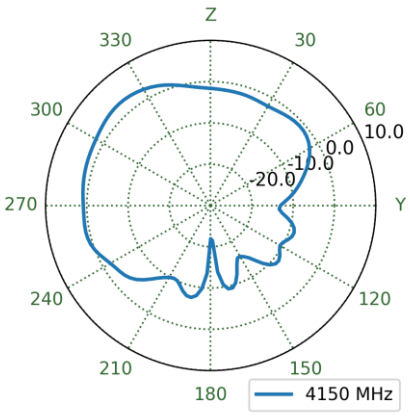
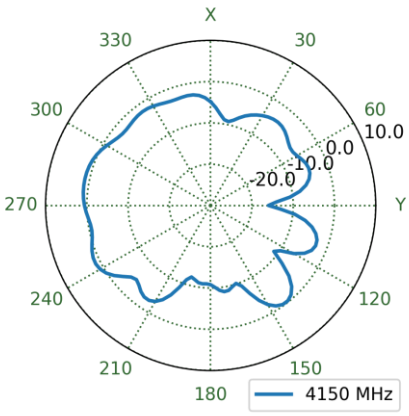
## 7.36 MIMO2 5G/4G Ground Plane Patterns at 2490 MHz



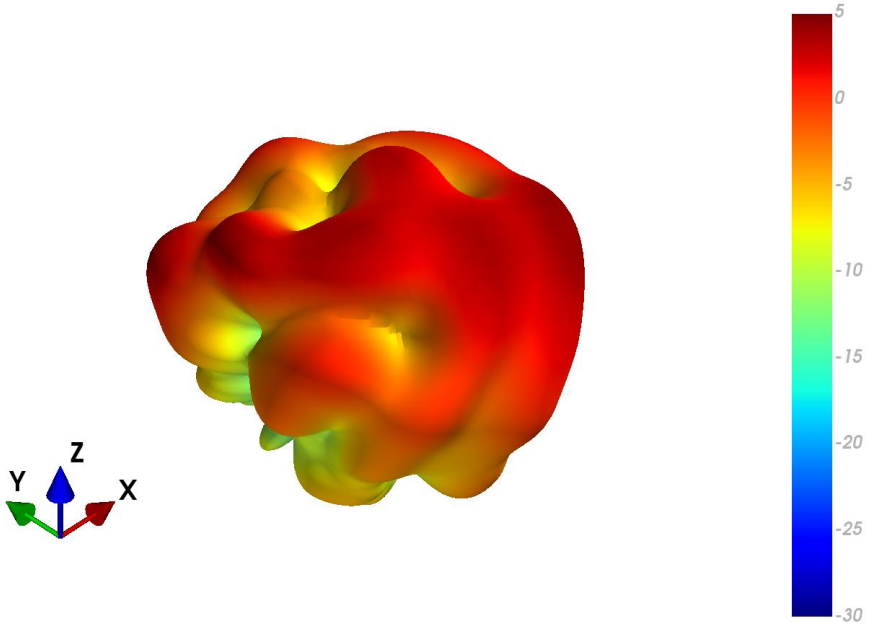

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

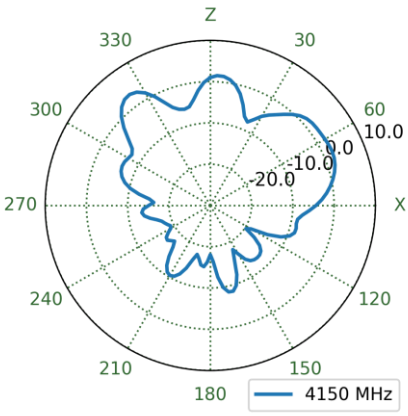
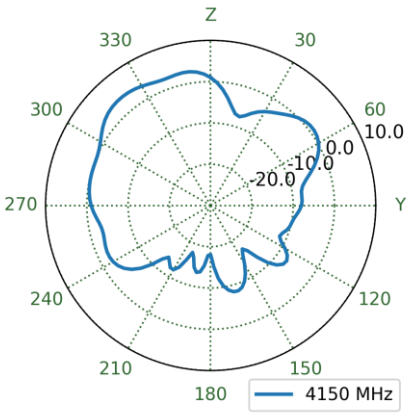
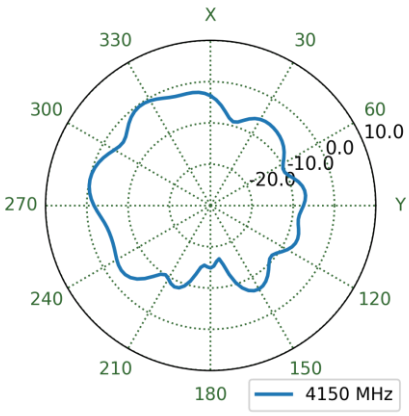
## 7.37 MIMO1 5G/4G Free Space Patterns at 4150 MHz



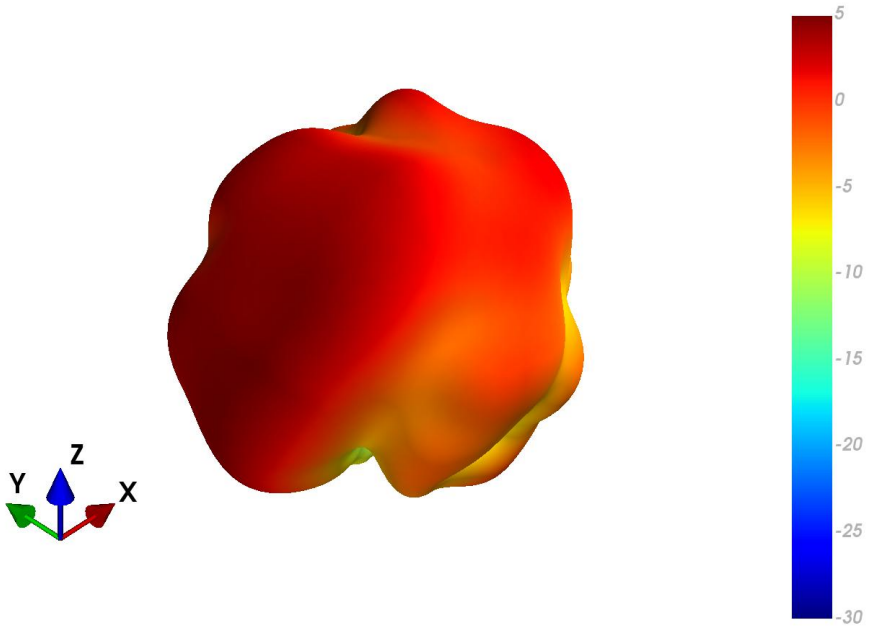

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

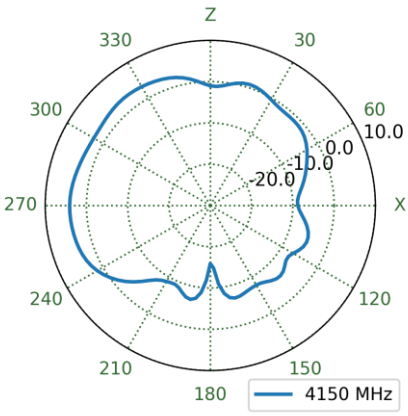
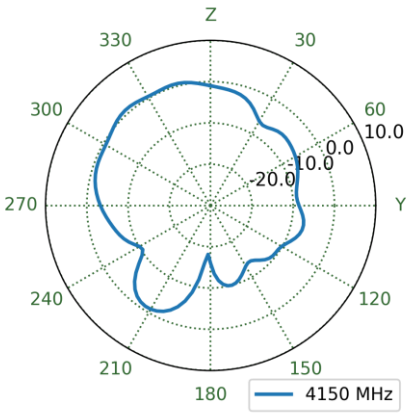
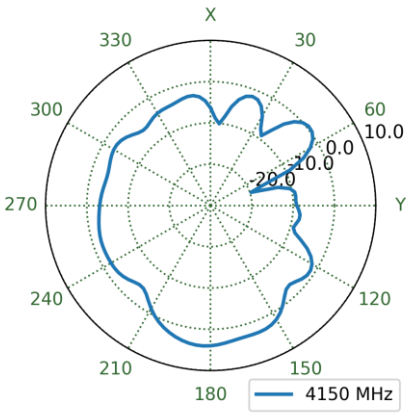
## 7.38 MIMO1 5G/4G Ground Plane Patterns at 4150 MHz



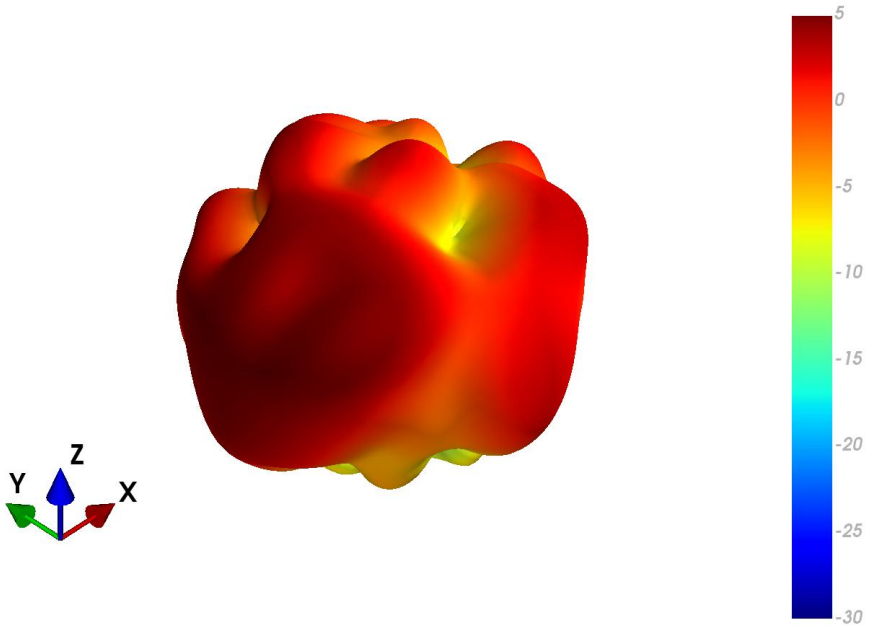

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

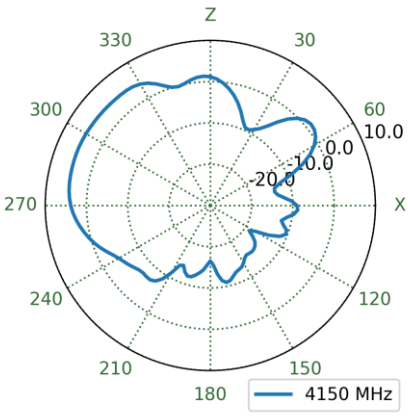
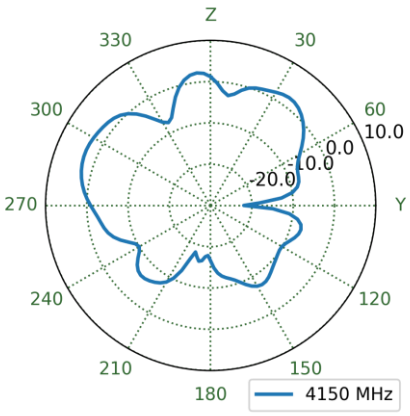
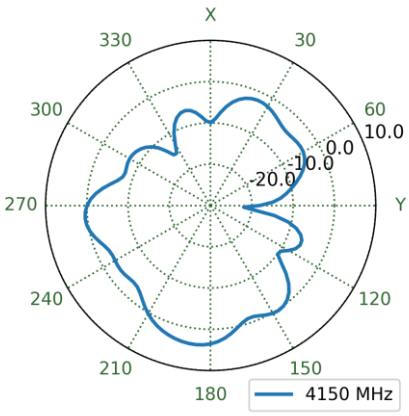
## 7.39 MIMO2 5G/4G Free Space Patterns at 4150 MHz



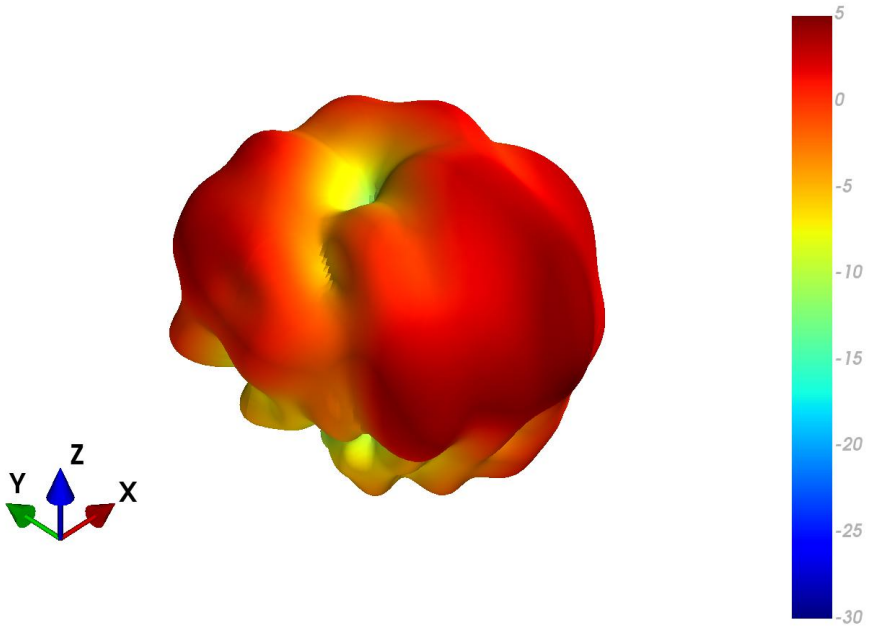

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

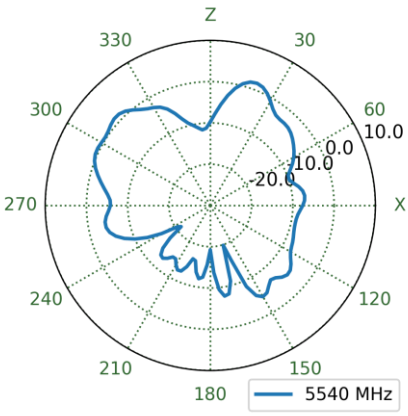
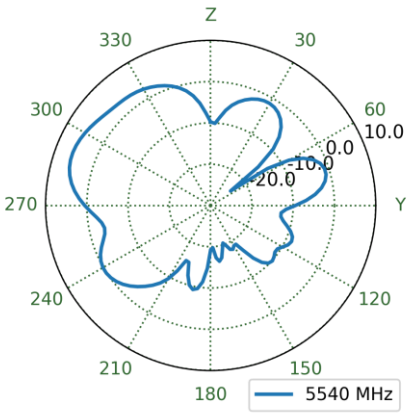
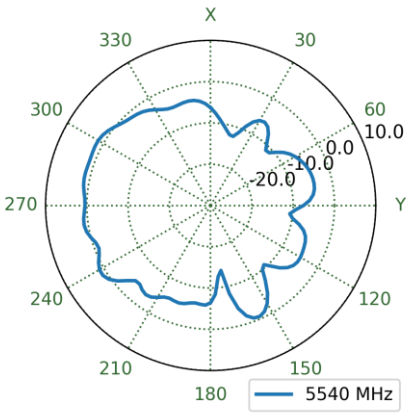
## 7.40 MIMO2 5G/4G Ground Plane Patterns at 4150 MHz



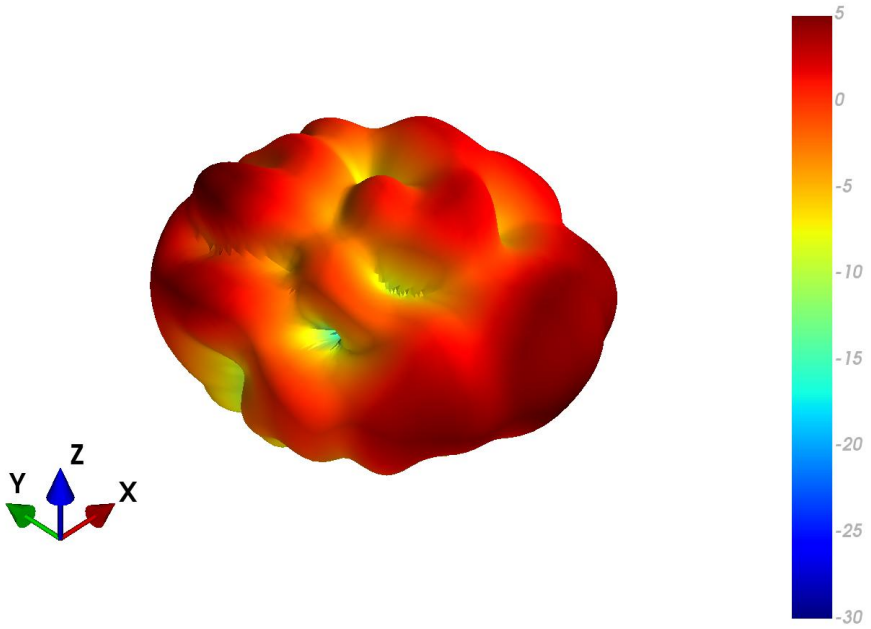

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

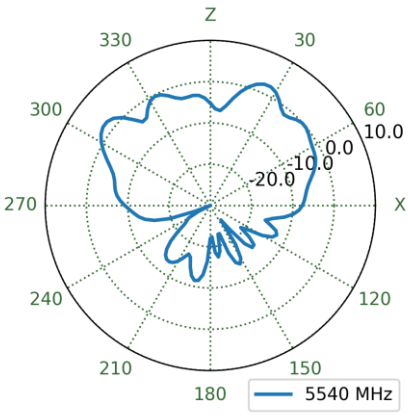
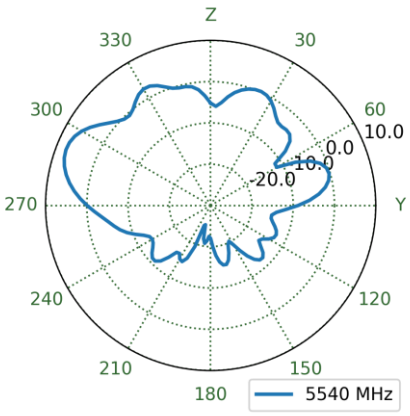
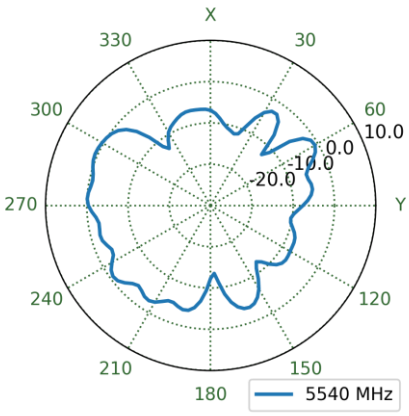
## 7.41 MIMO1 5G/4G Free Space Patterns at 5540 MHz



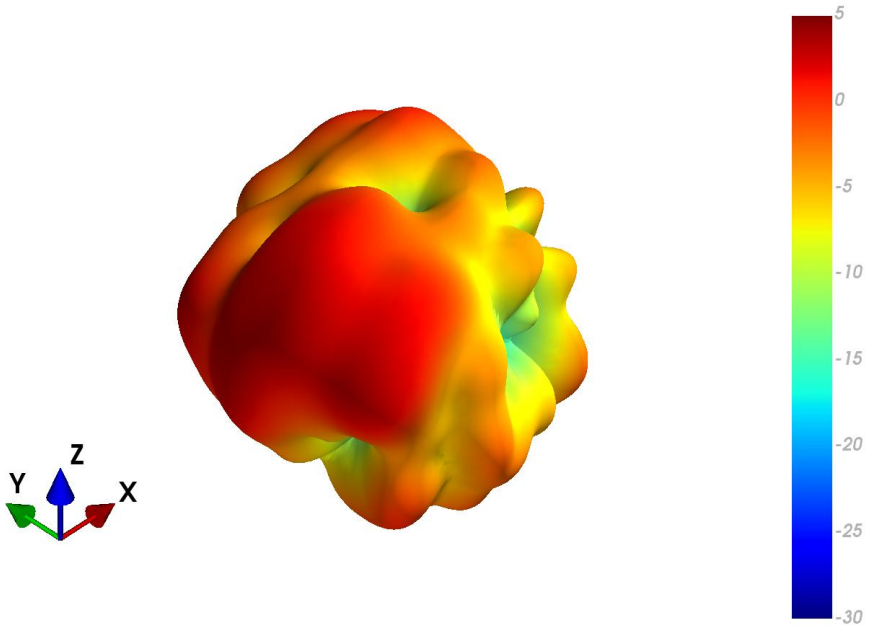

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

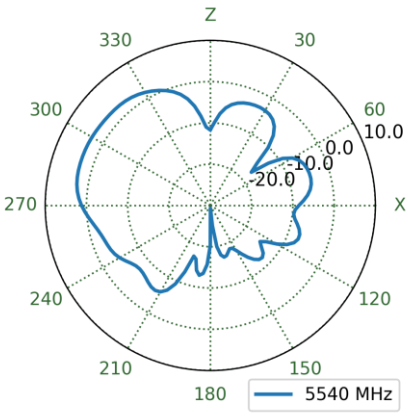
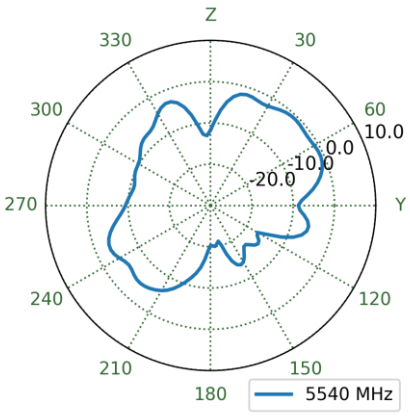
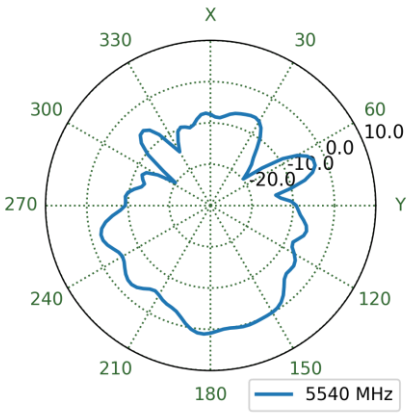
## 7.42 MIMO1 5G/4G Ground Plane Patterns at 5540 MHz



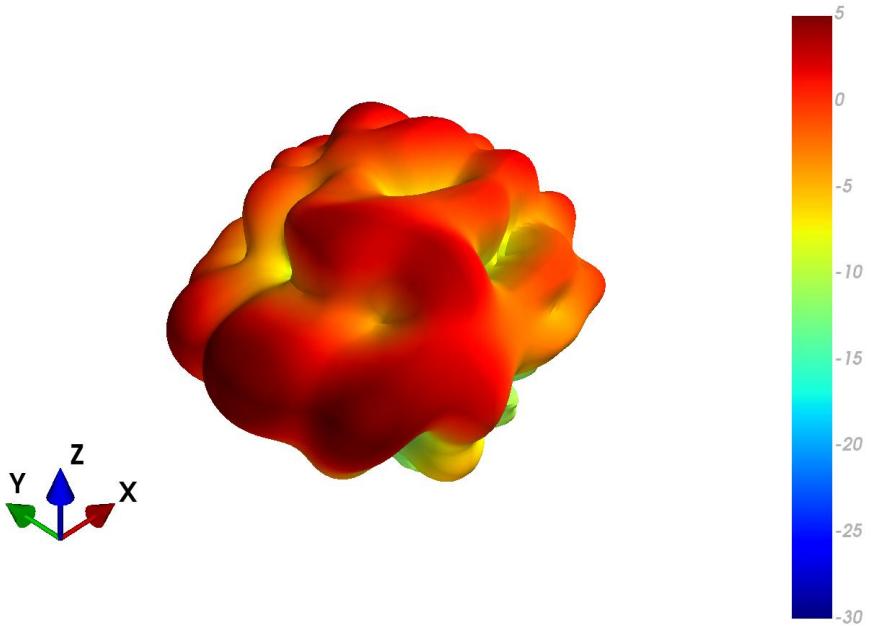

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

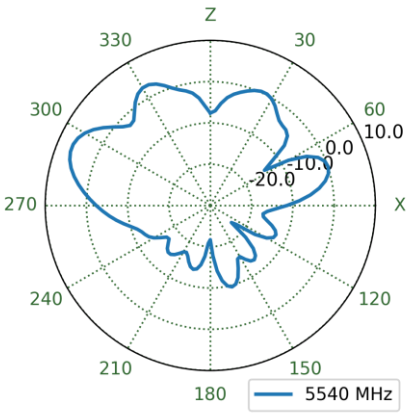
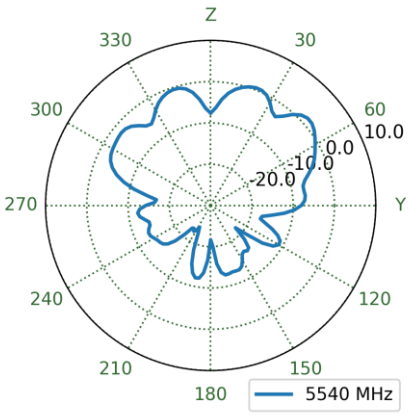
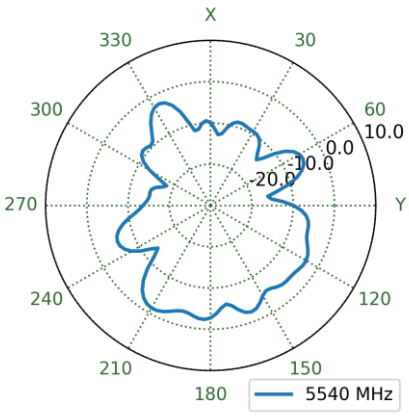
## 7.43 MIMO2 5G/4G Free Space Patterns at 5540 MHz



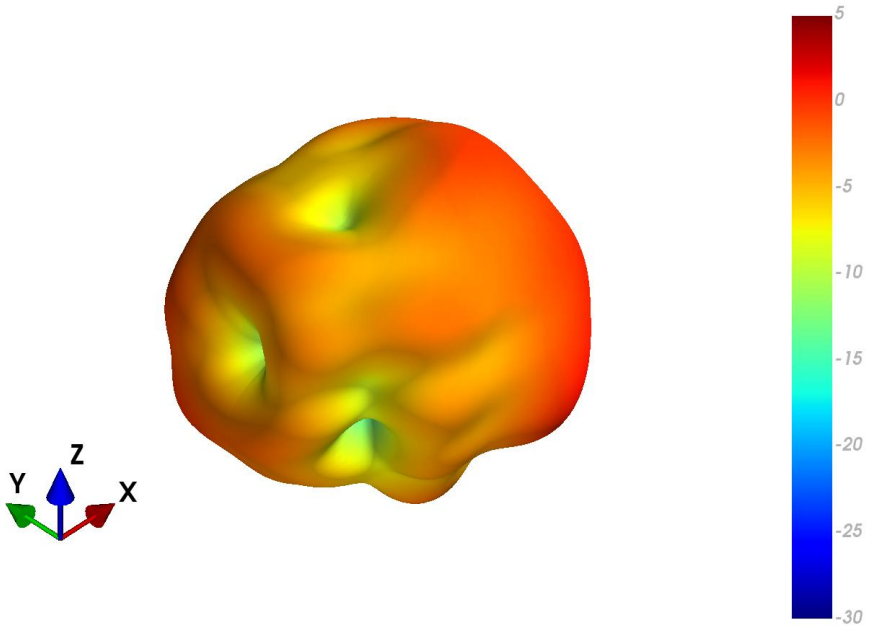

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

## 7.44 MIMO2 5G/4G Ground Plane Patterns at 5540 MHz

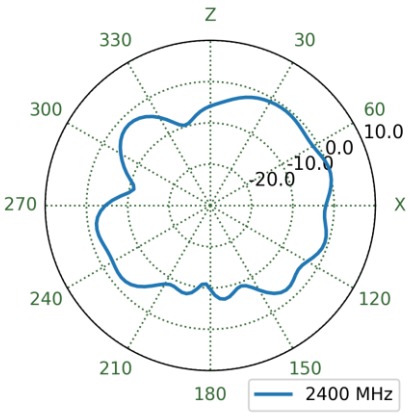


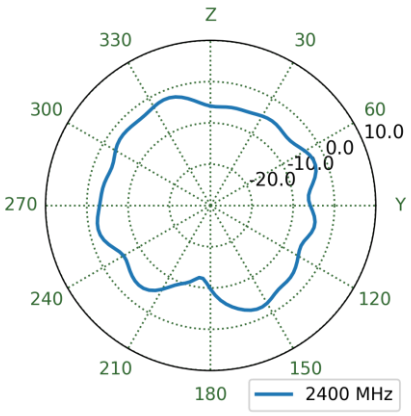

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

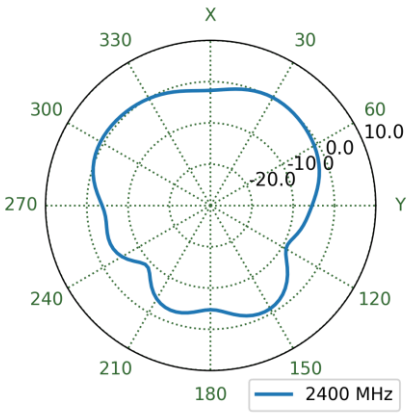
## 7.45 MIMO1 Wi-Fi Free Space Patterns at 2400 MHz



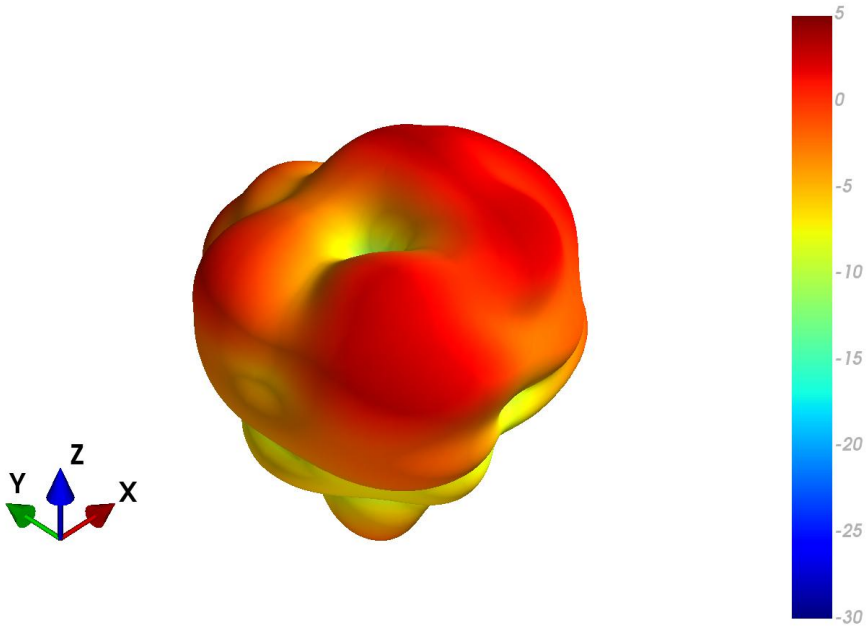

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

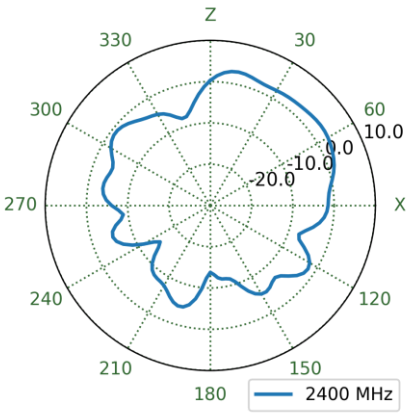
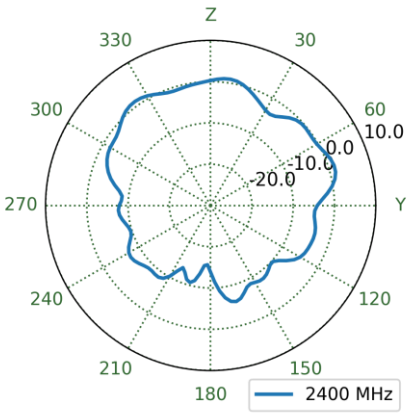
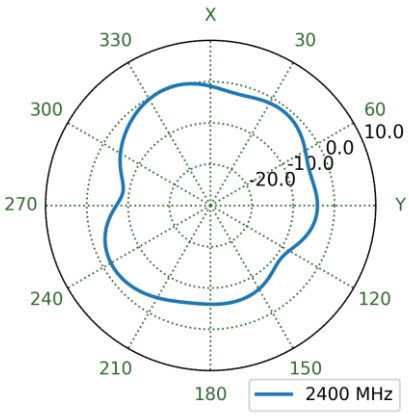


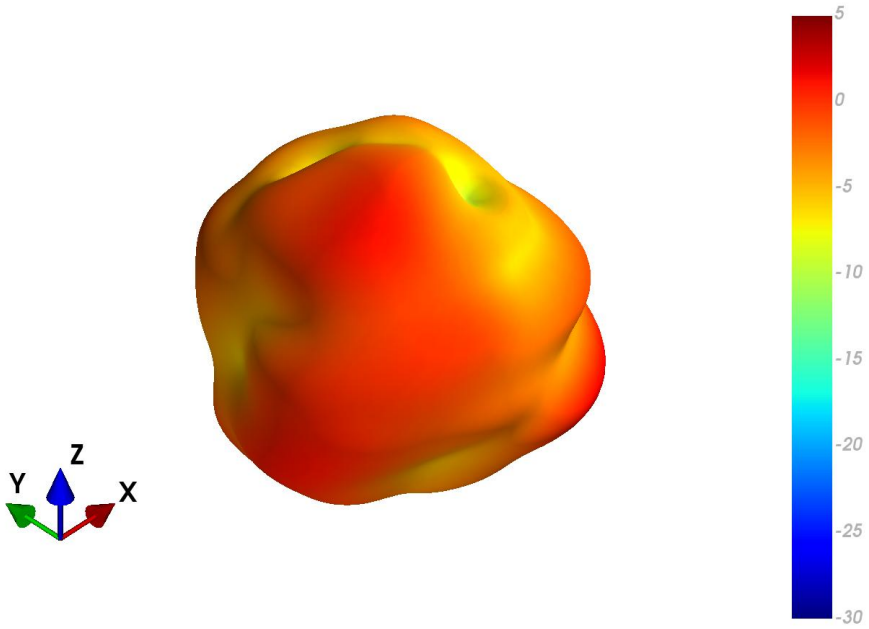



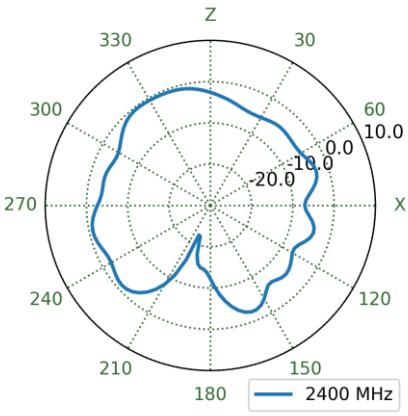
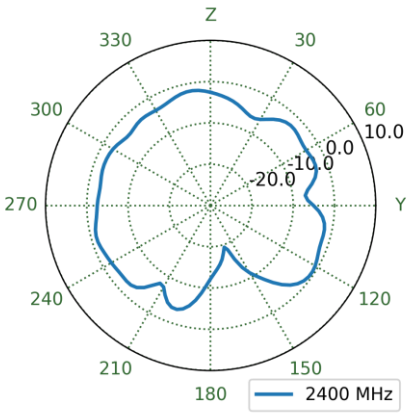
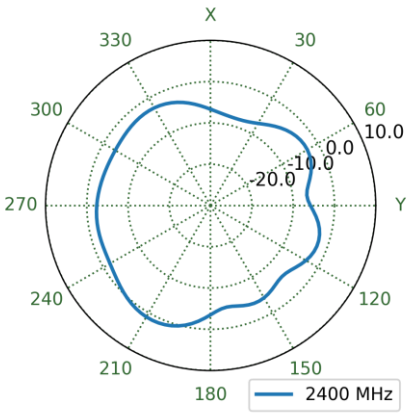
## 7.46 MIMO1 Wi-Fi Ground Plane Patterns at 2400 MHz



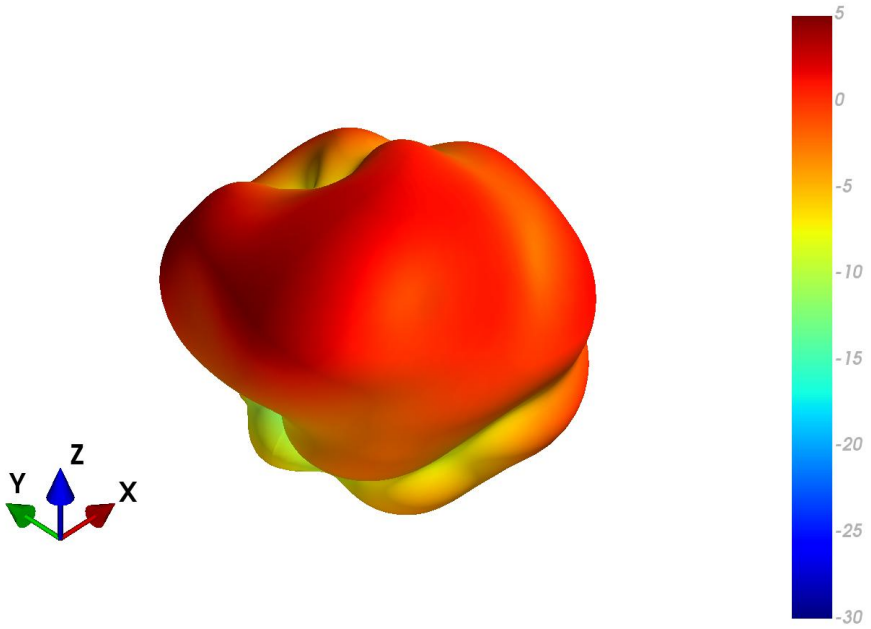

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

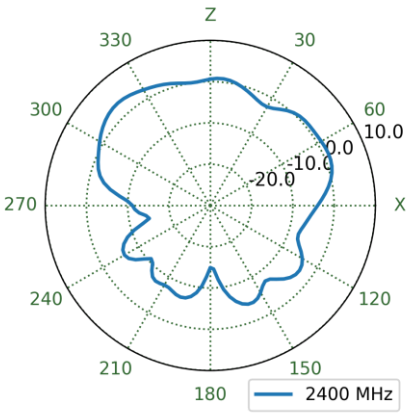
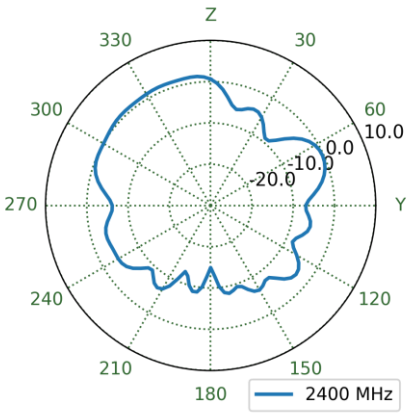
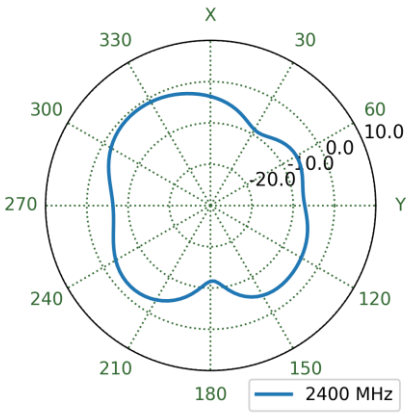
## 7.47 MIMO2 Wi-Fi Free Space Patterns at 2400 MHz



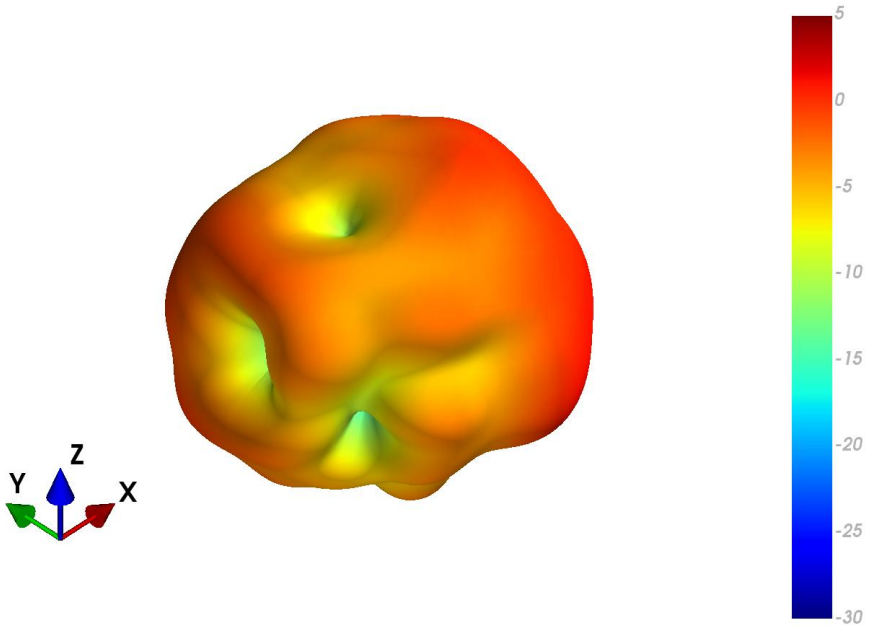

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

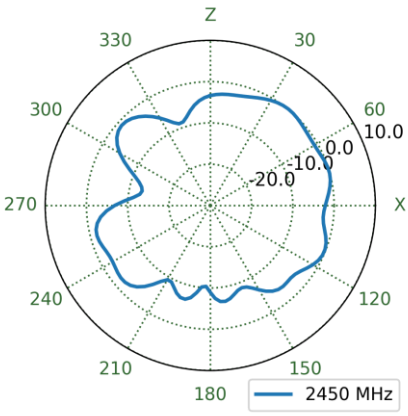
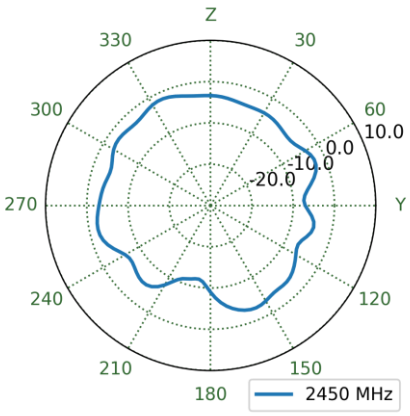
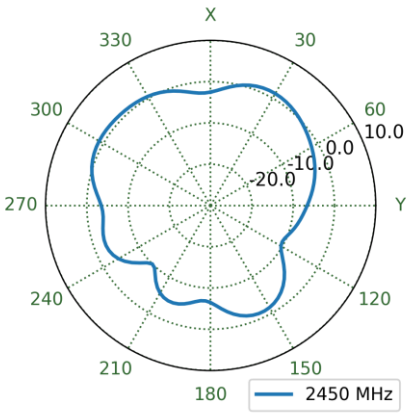
## 7.48 MIMO2 Wi-Fi Ground Plane Patterns at 2400 MHz



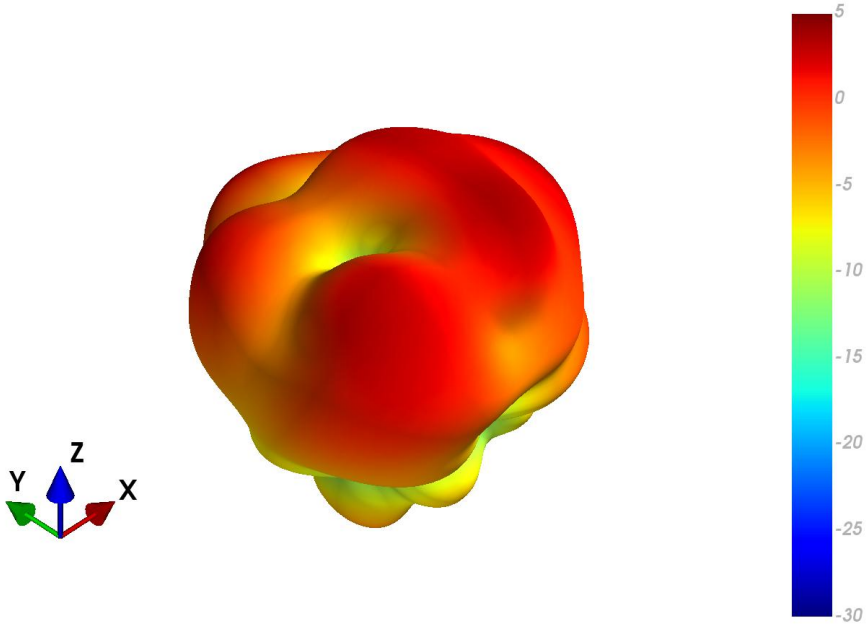

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

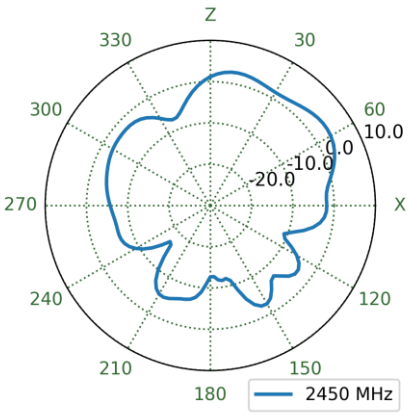
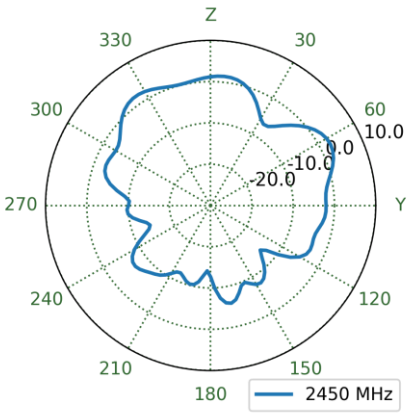
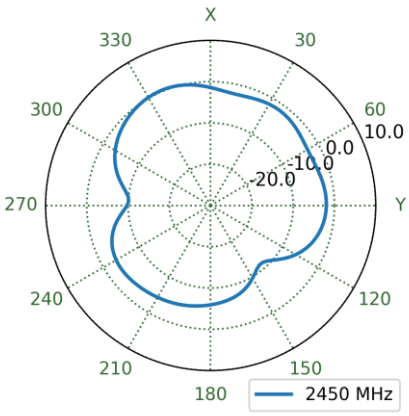
## 7.49 MIMO1 Wi-Fi Free Space Patterns at 2450 MHz



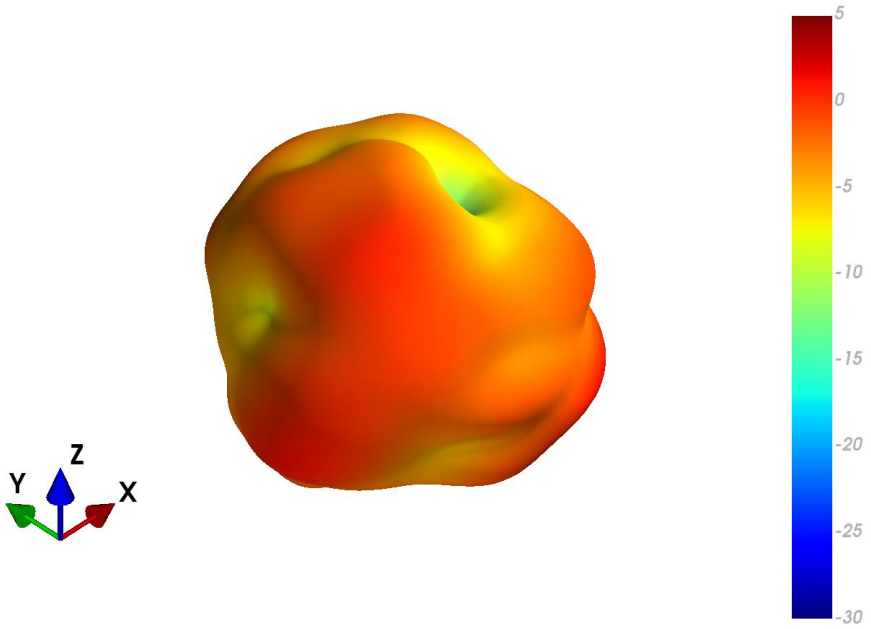

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

## 7.50 MIMO1 Wi-Fi Ground Plane Patterns at 2450 MHz

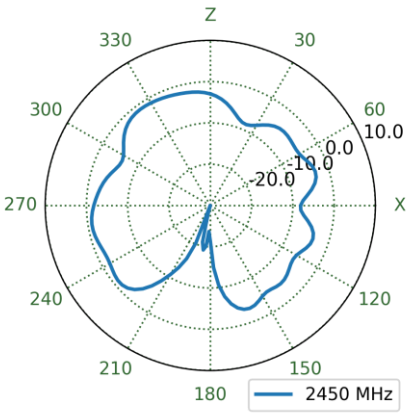


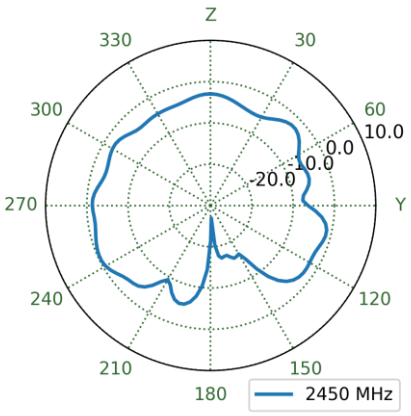

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

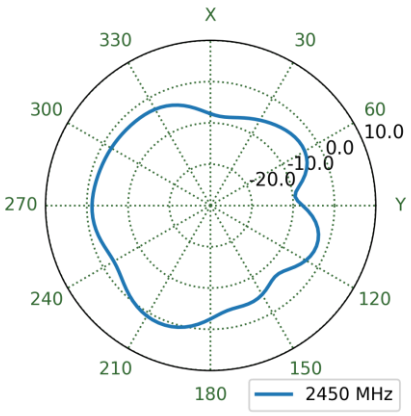
## 7.51 MIMO2 Wi-Fi Free Space Patterns at 2450 MHz



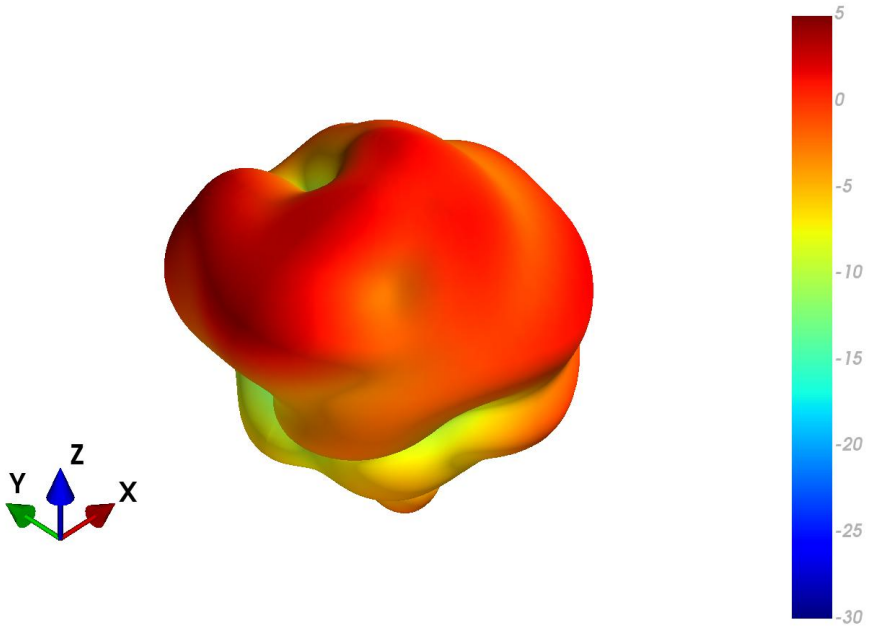

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

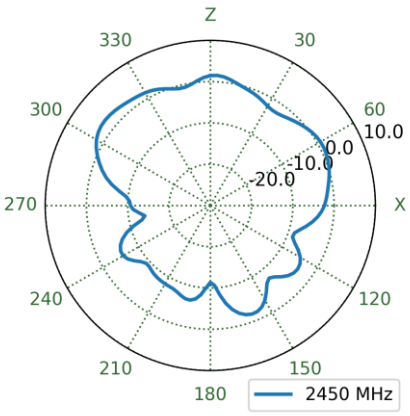
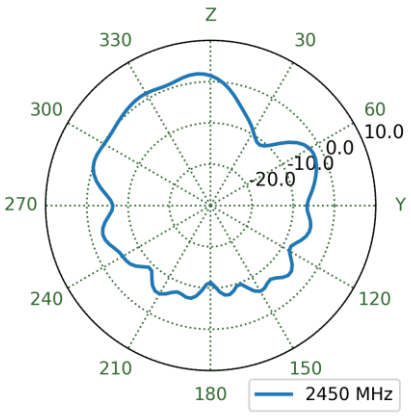
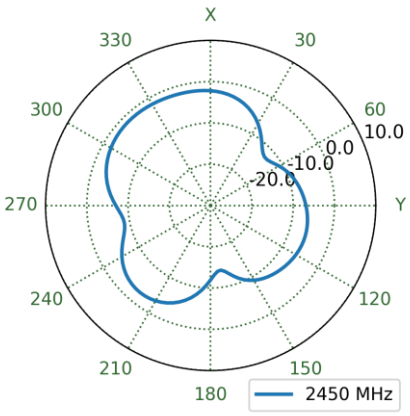


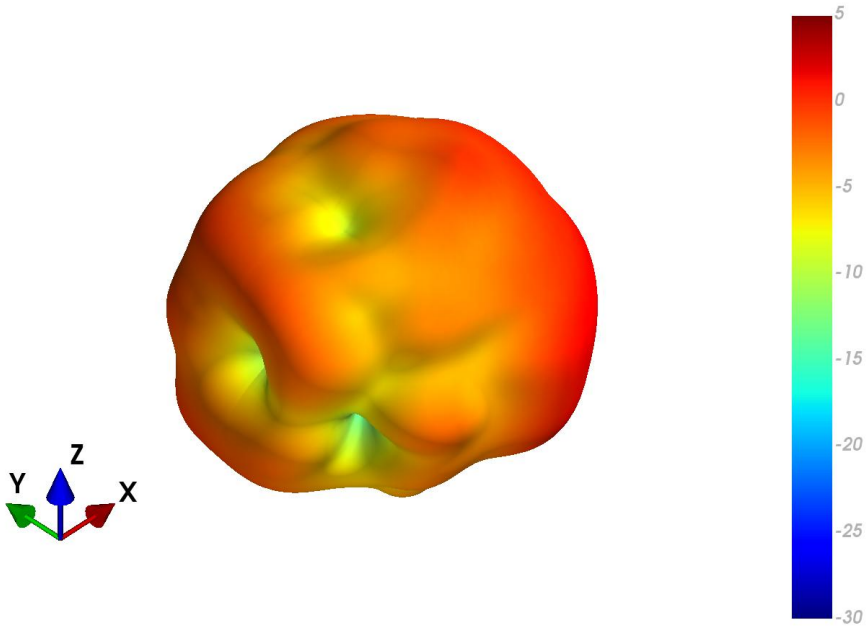



## 7.52 MIMO2 Wi-Fi Ground Plane Patterns at 2450 MHz

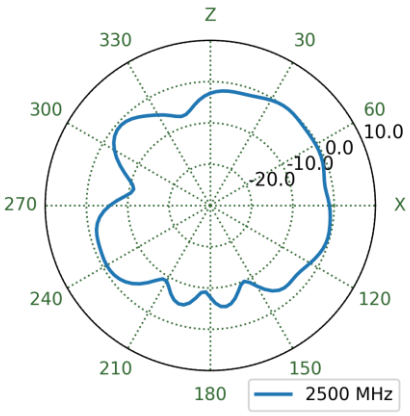


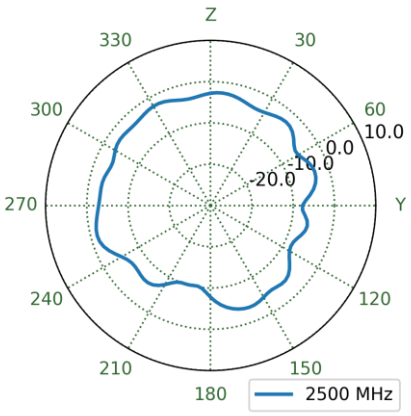

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

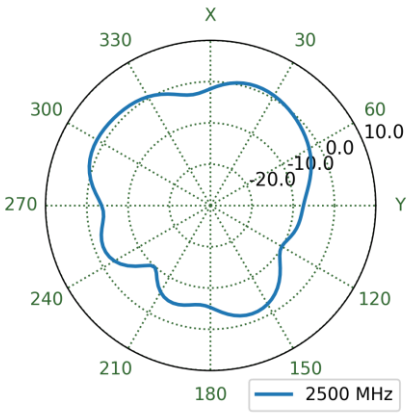
## 7.53 MIMO1 Wi-Fi Free Space Patterns at 2500 MHz



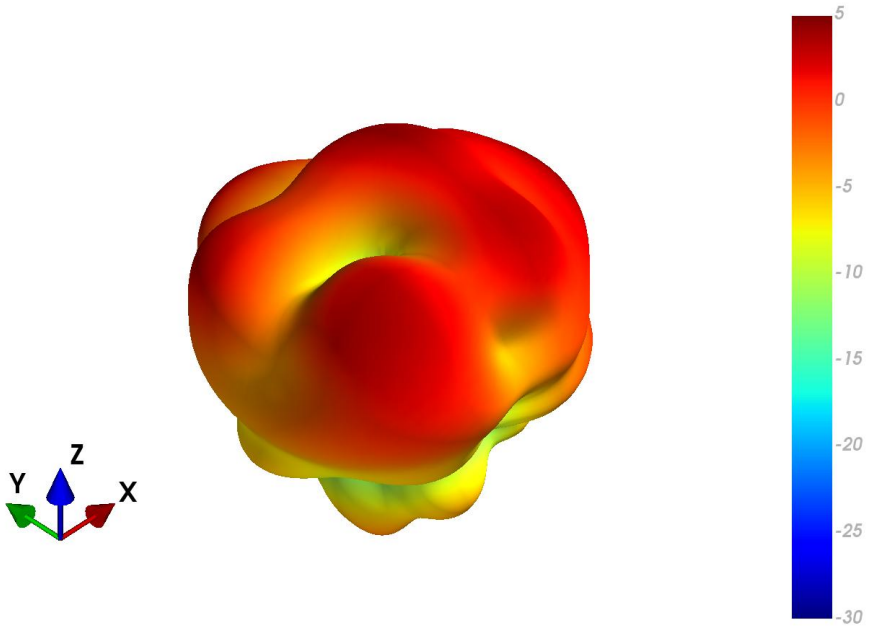

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

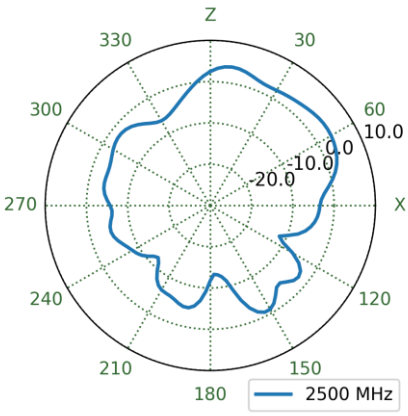
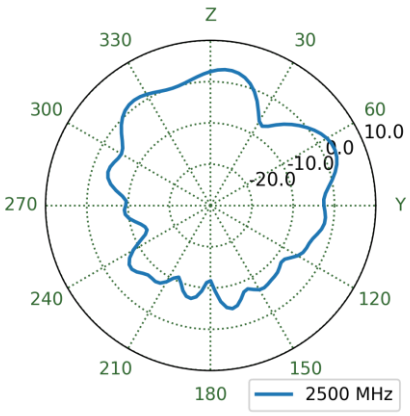
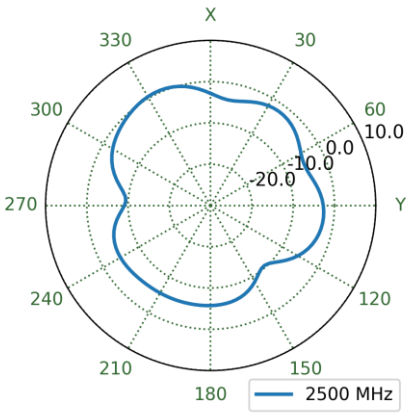


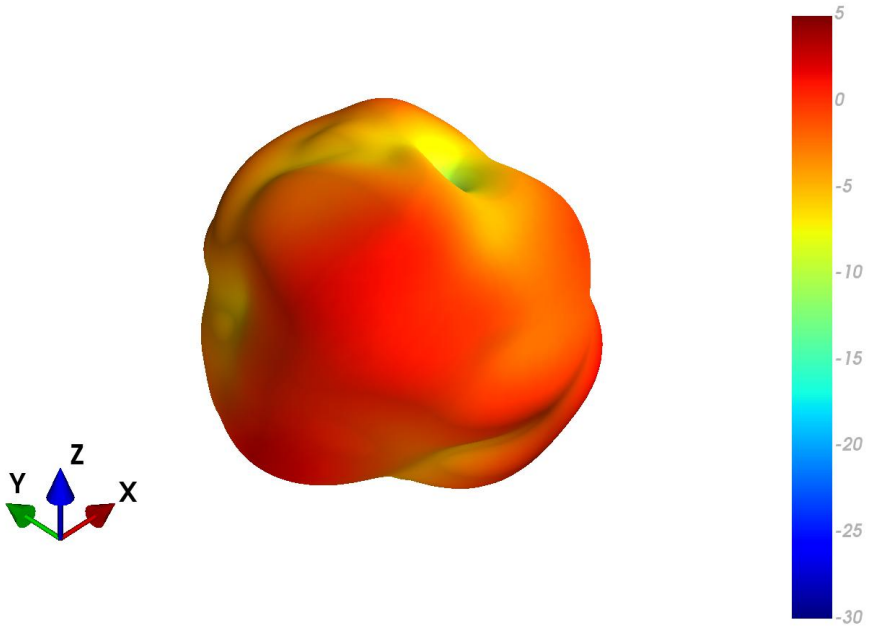



## 7.54 MIMO1 Wi-Fi Ground Plane Patterns at 2500 MHz

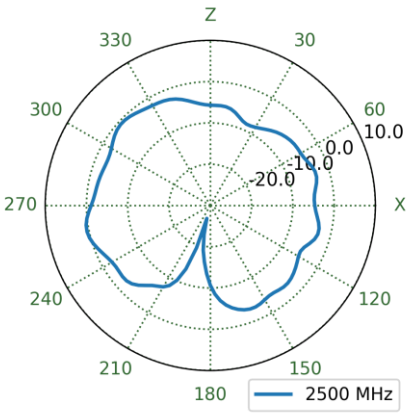


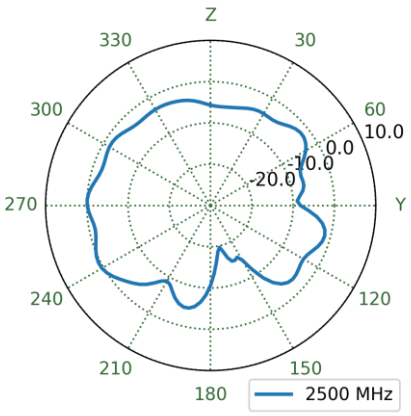

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

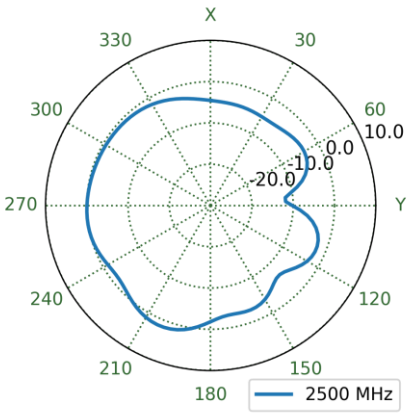
## 7.55 MIMO2 Wi-Fi Free Space Patterns at 2500 MHz



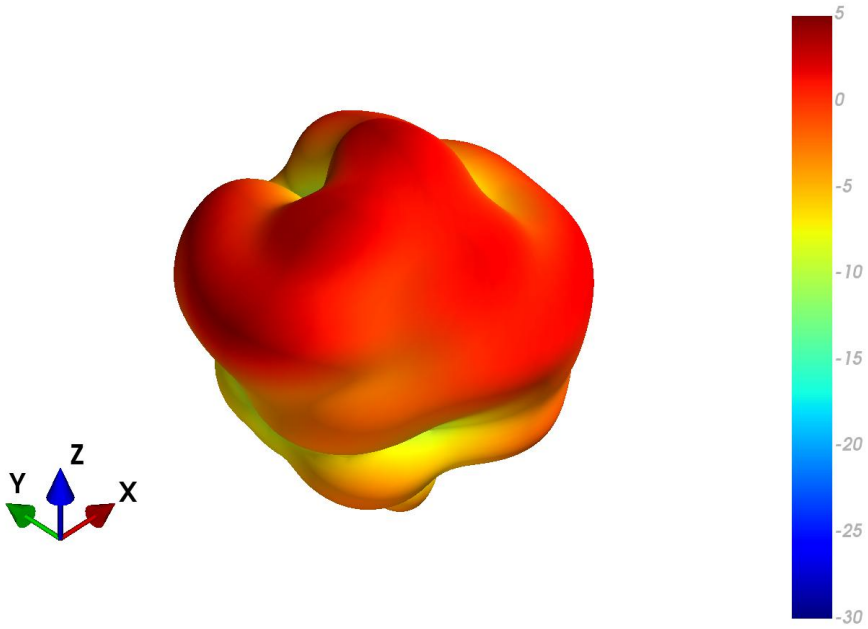

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

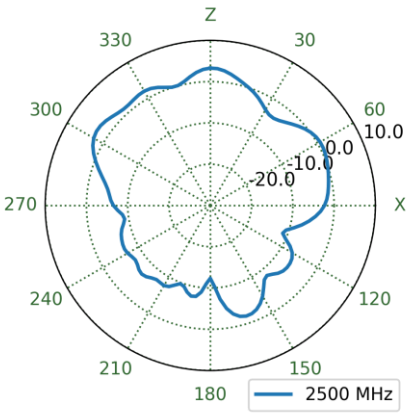
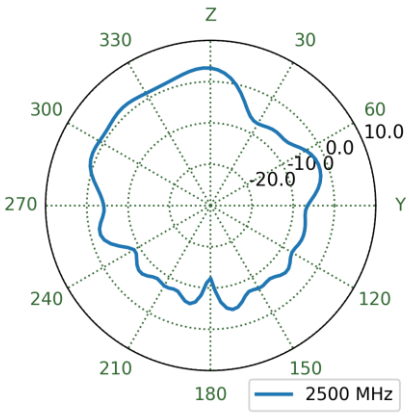
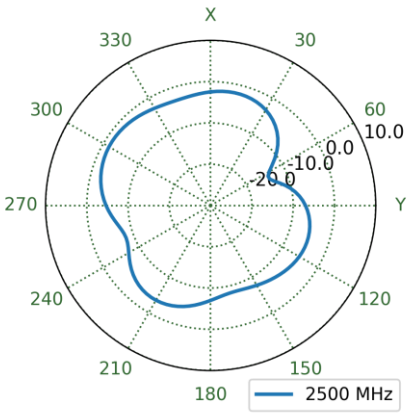


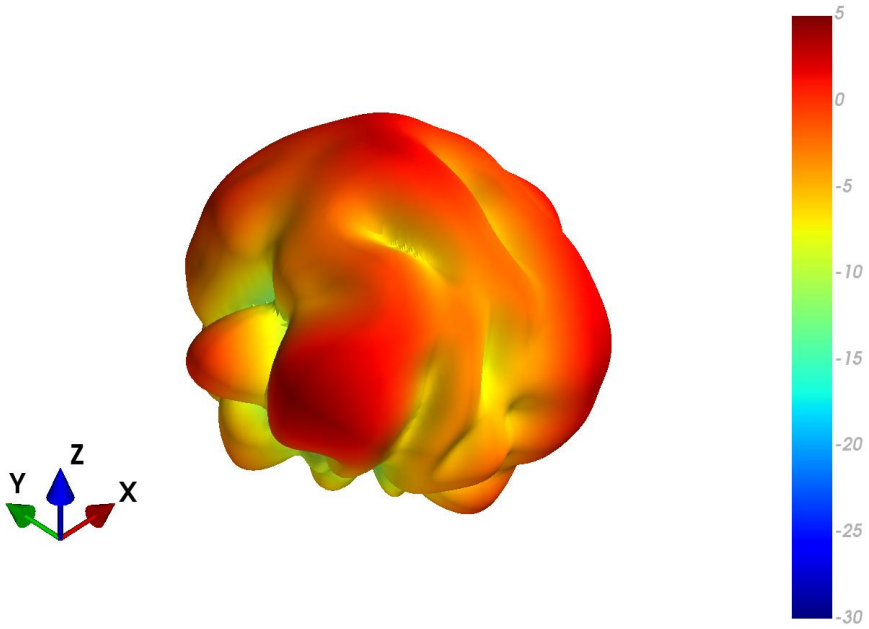



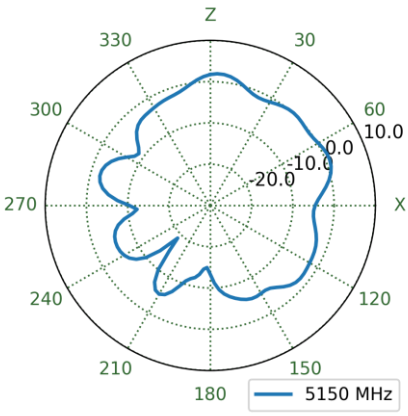
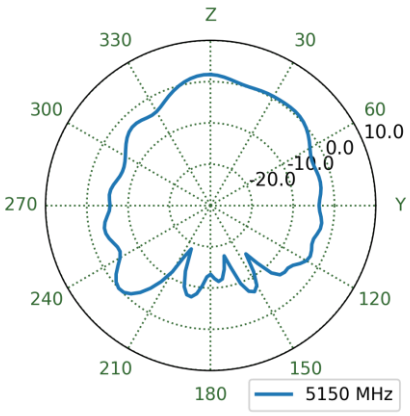
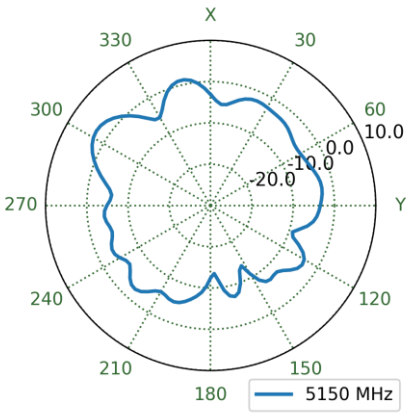
## 7.56 MIMO2 Wi-Fi Ground Plane Patterns at 2500 MHz



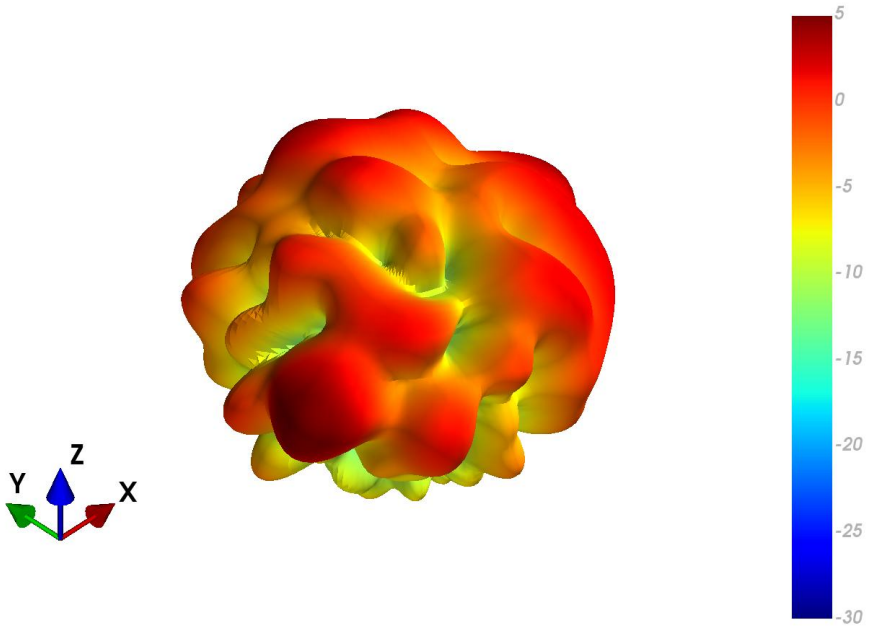

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

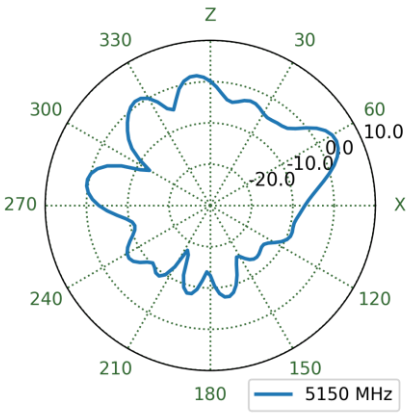
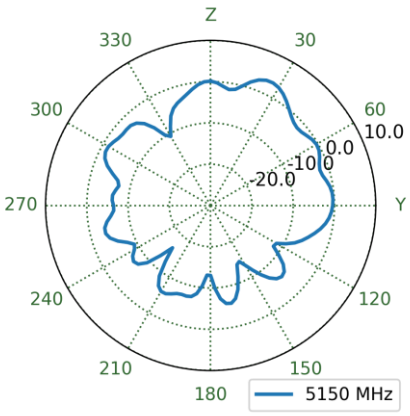
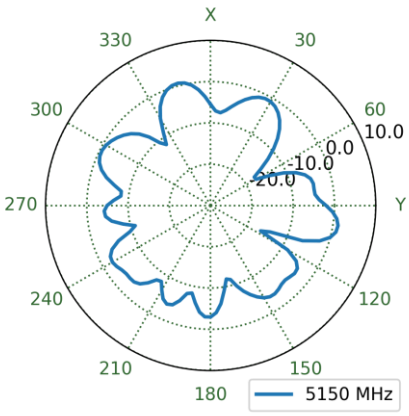
## 7.57 MIMO1 Wi-Fi Free Space Patterns at 5150 MHz



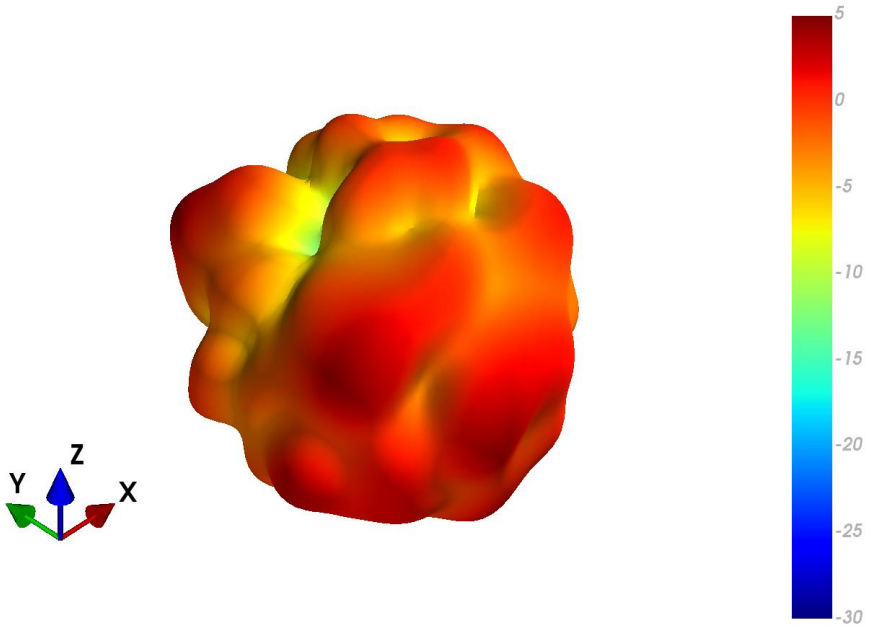

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

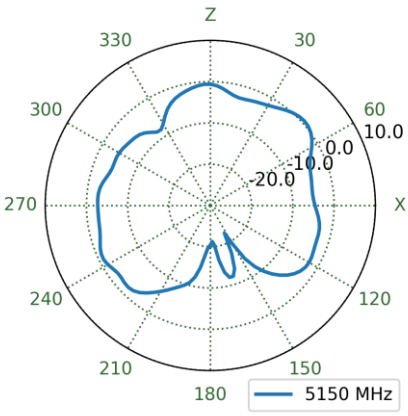
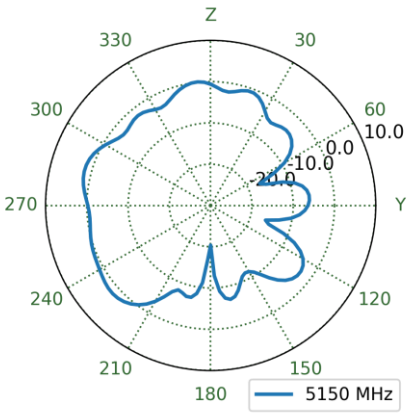
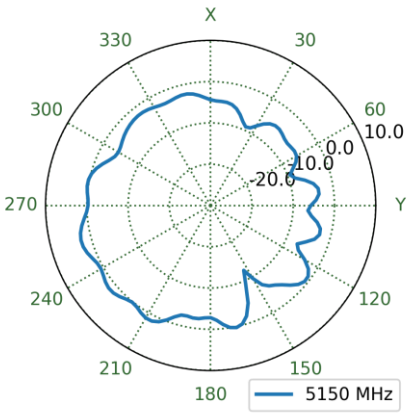
## 7.58 MIMO1 Wi-Fi Ground Plane Patterns at 5150 MHz



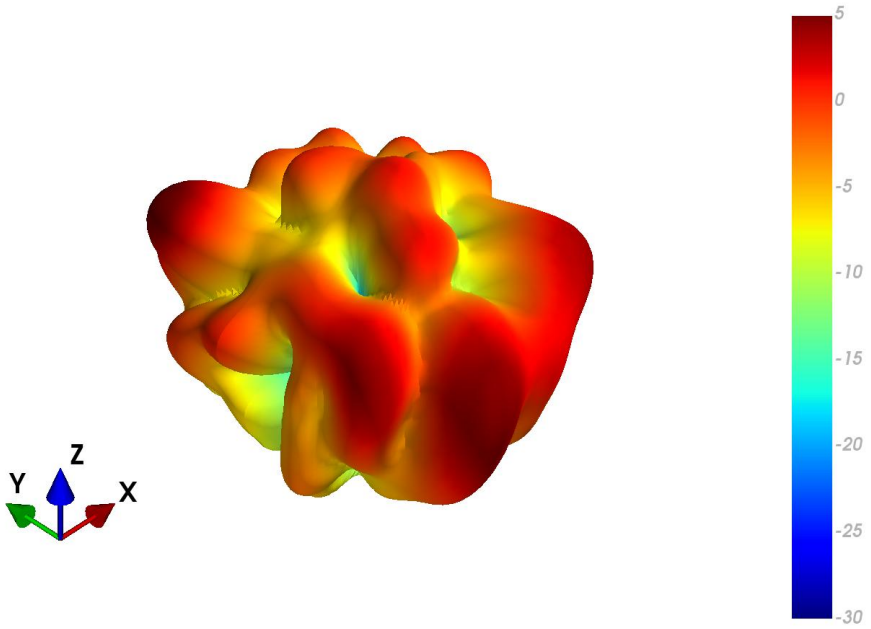

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

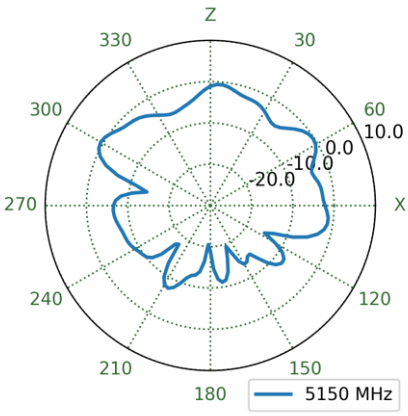
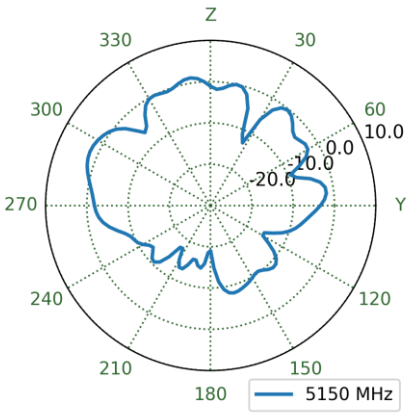
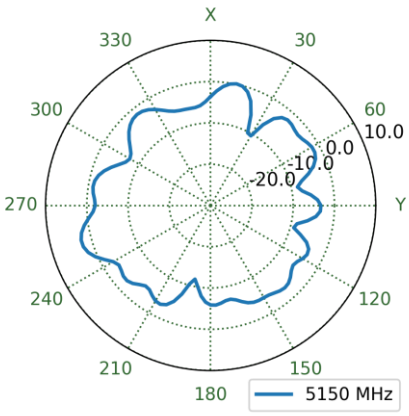
## 7.59 MIMO2 Wi-Fi Free Space Patterns at 5150 MHz



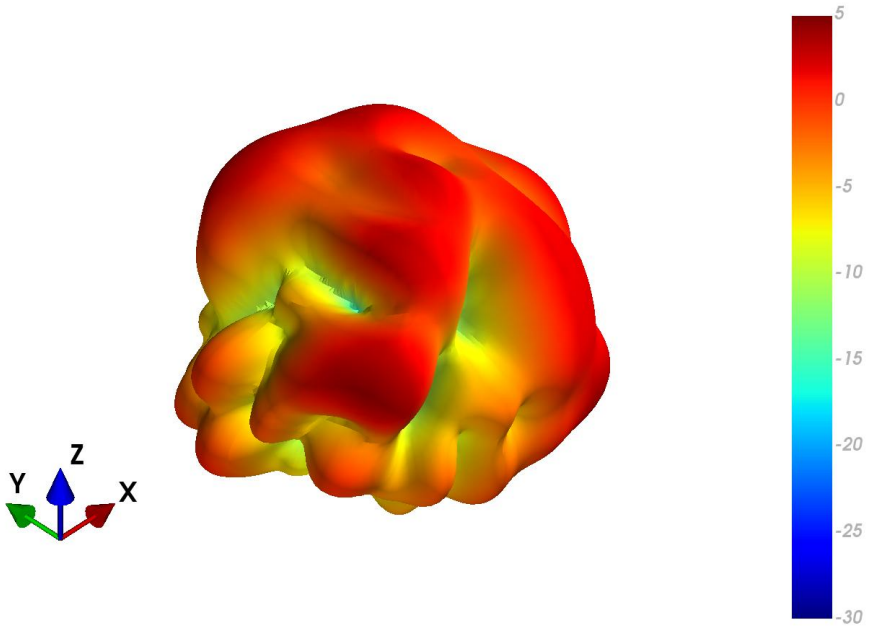

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

## 7.60 MIMO2 Wi-Fi Ground Plane Patterns at 5150 MHz

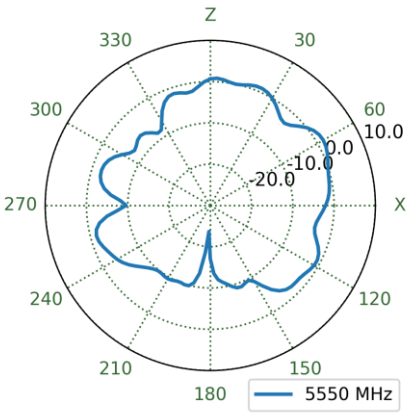


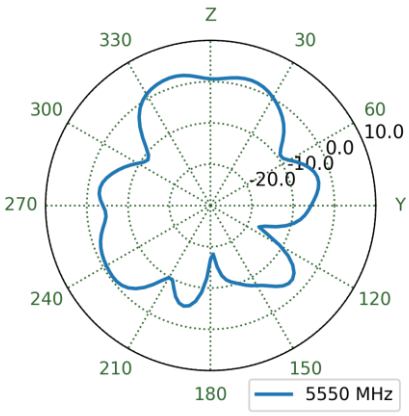

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

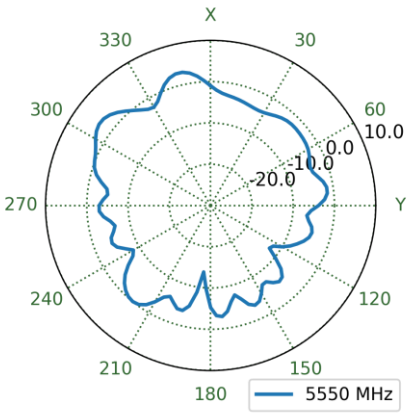
## 7.61 MIMO1 Wi-Fi Free Space Patterns at 5550 MHz



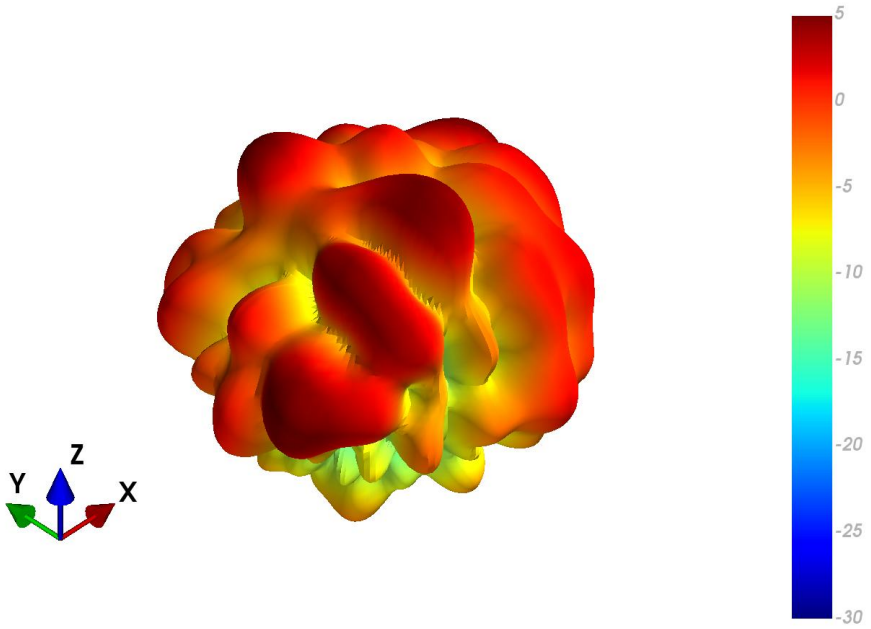

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

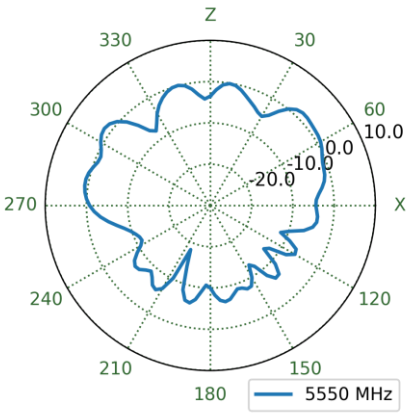
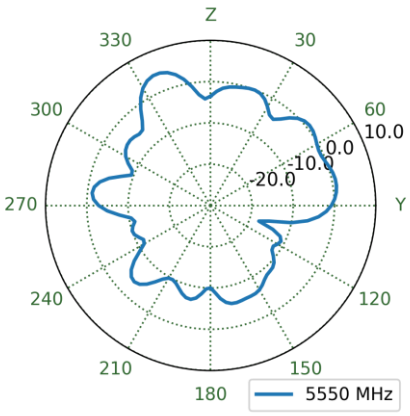
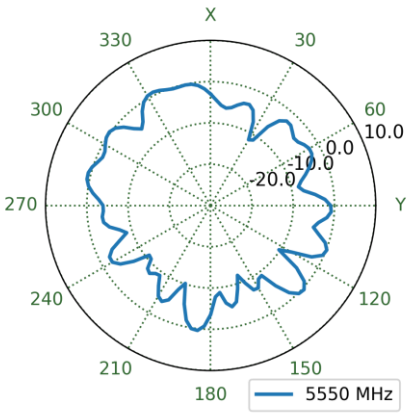


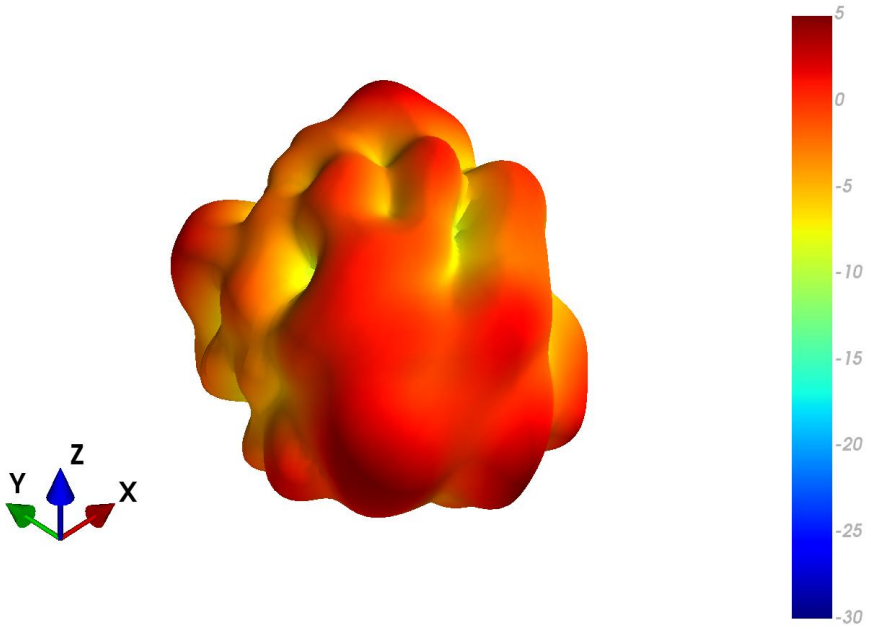



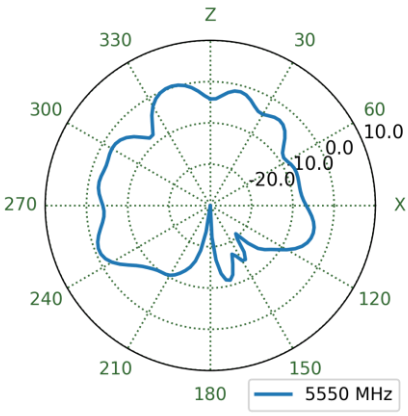
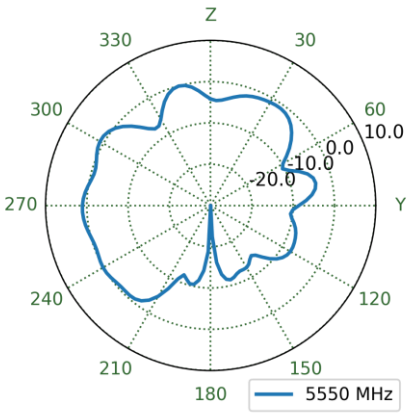
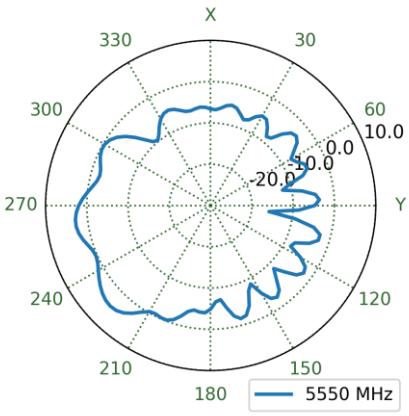
## 7.62 MIMO1 Wi-Fi Ground Plane Patterns at 5550 MHz



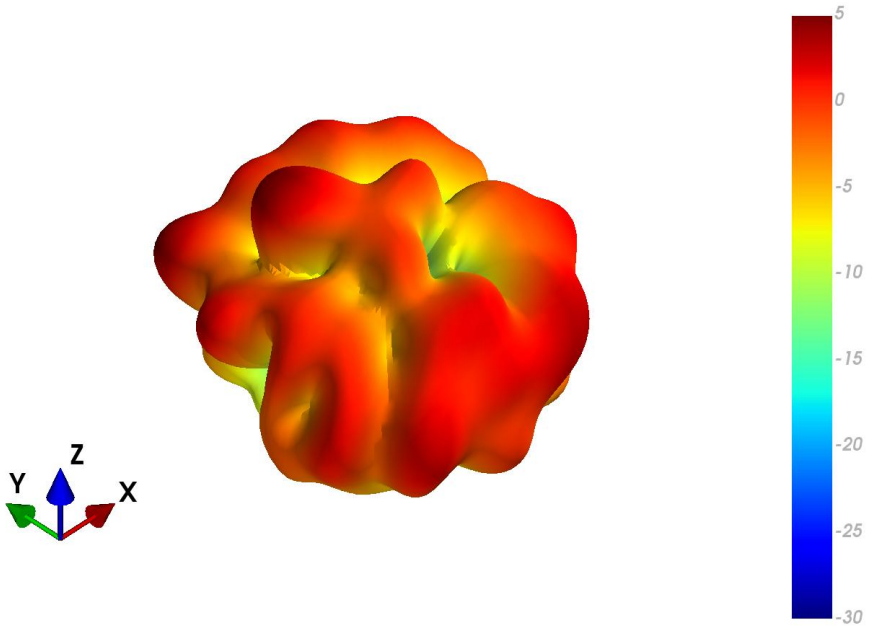

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

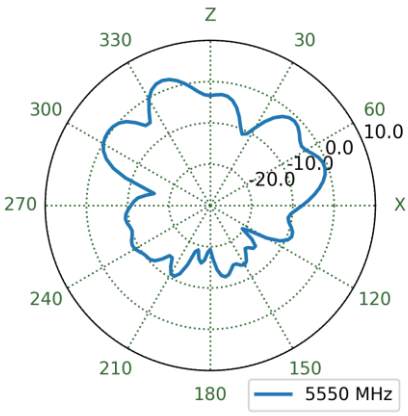
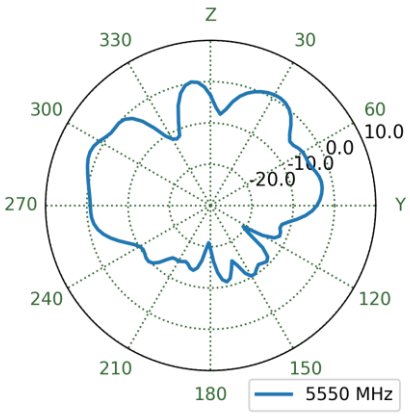
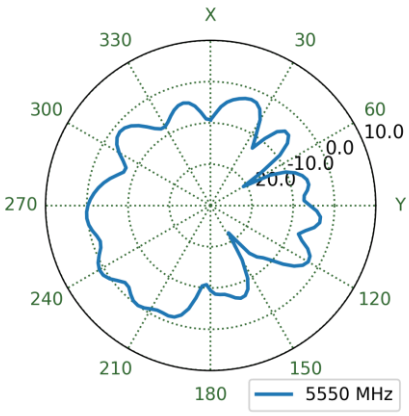
## 7.63 MIMO2 Wi-Fi Free Space Patterns at 5550 MHz



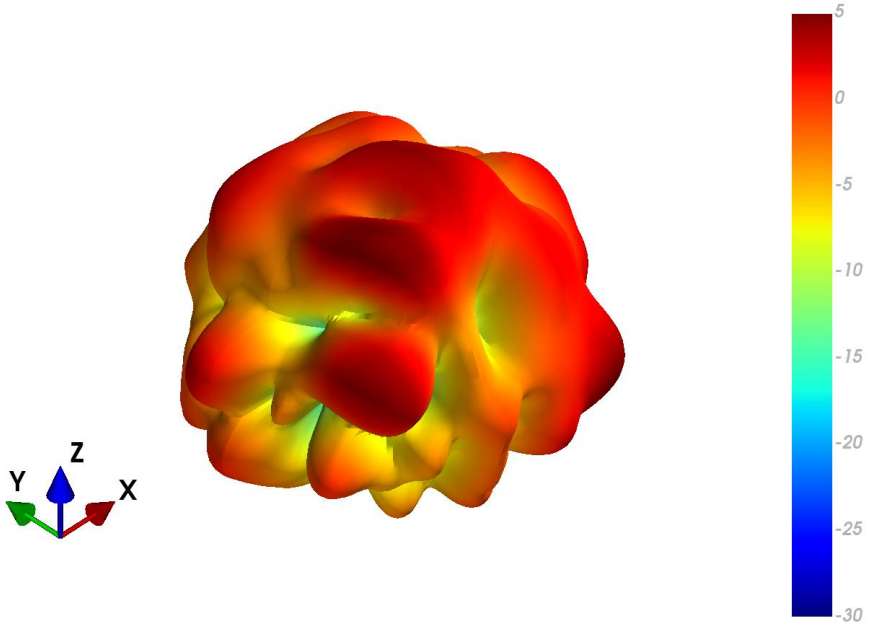

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

## 7.64 MIMO2 Wi-Fi Ground Plane Patterns at 5550 MHz

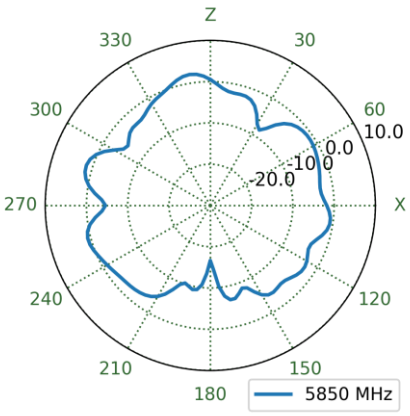


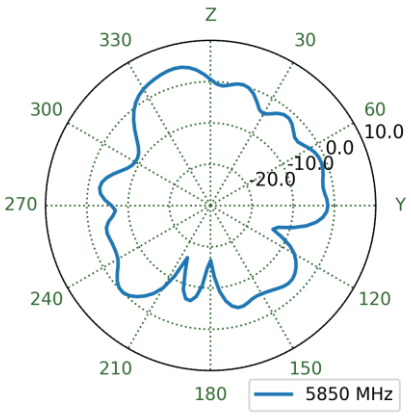

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

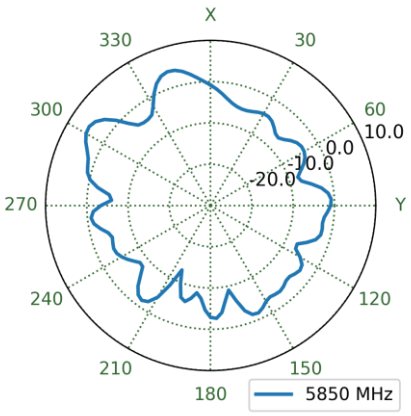
## 7.65 MIMO1 Wi-Fi Free Space Patterns at 5850 MHz



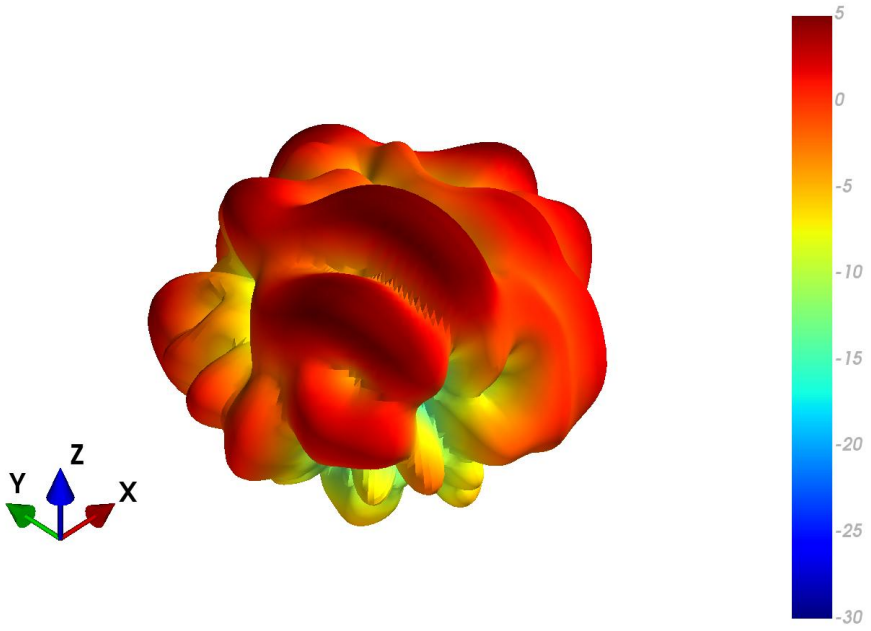

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

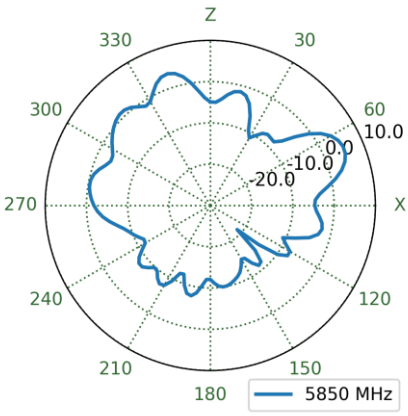
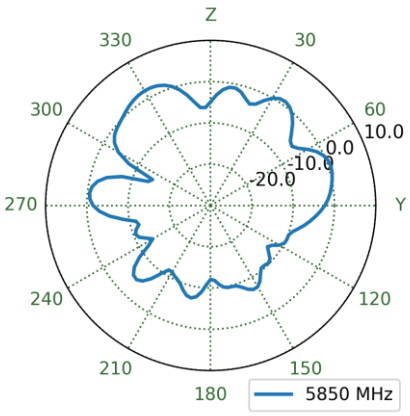
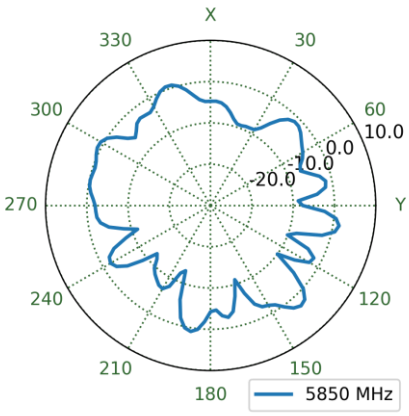


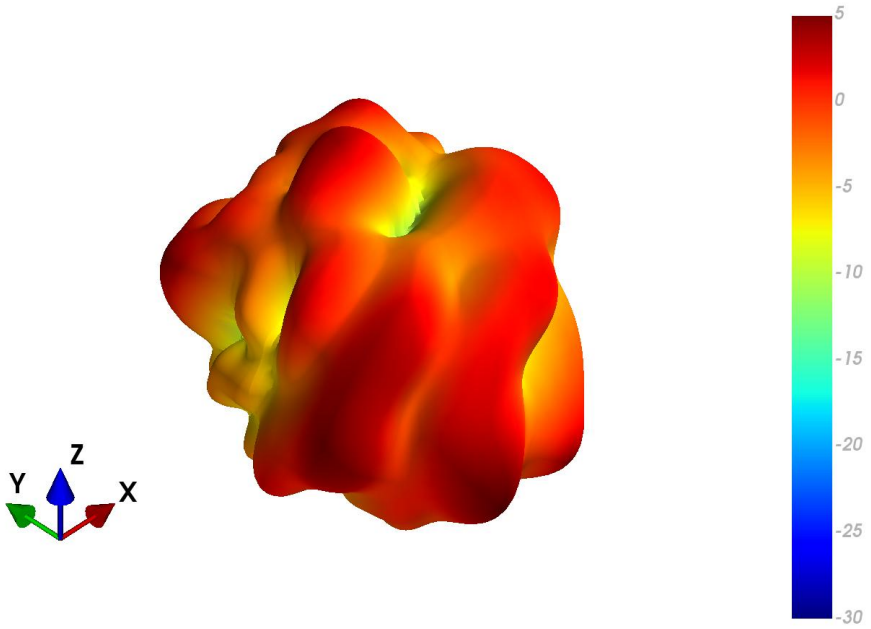



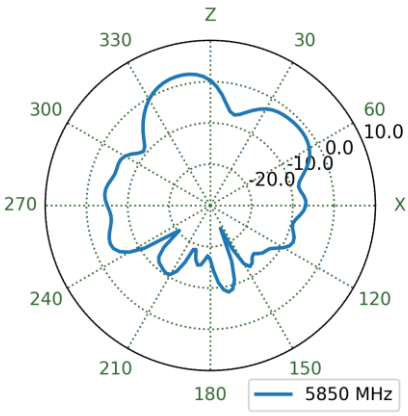
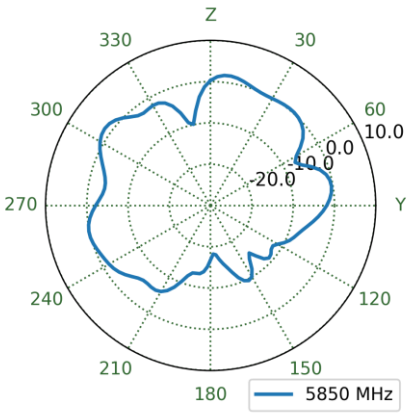
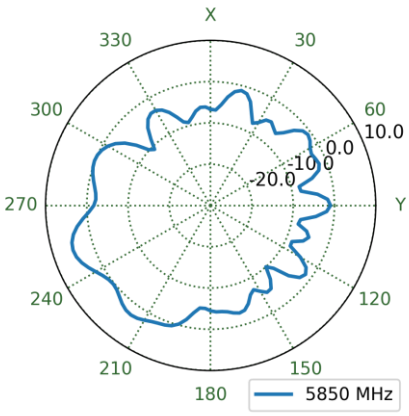
## 7.66 MIMO1 Wi-Fi Ground Plane Patterns at 5850 MHz



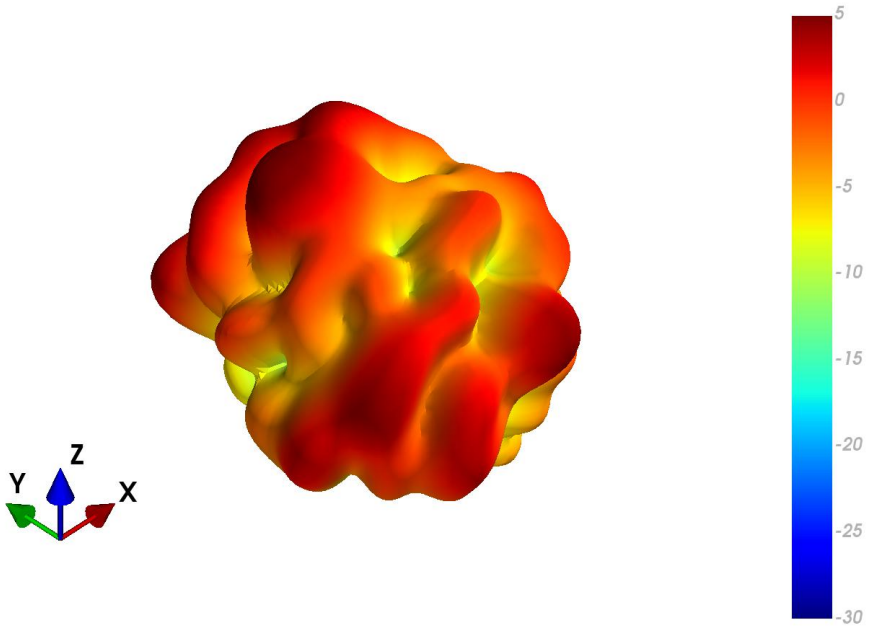

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

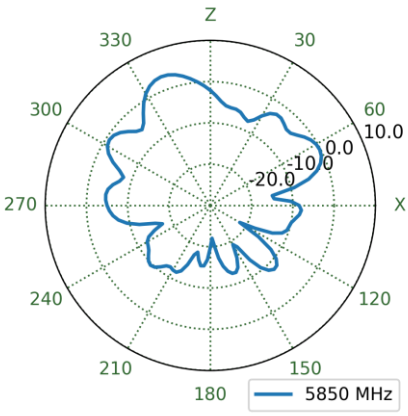
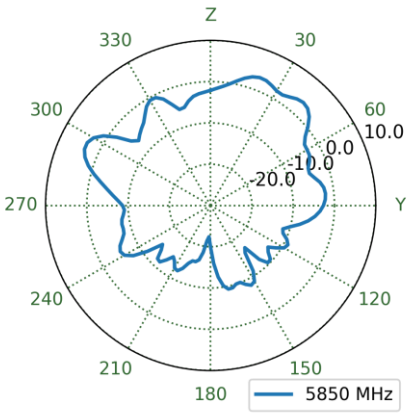
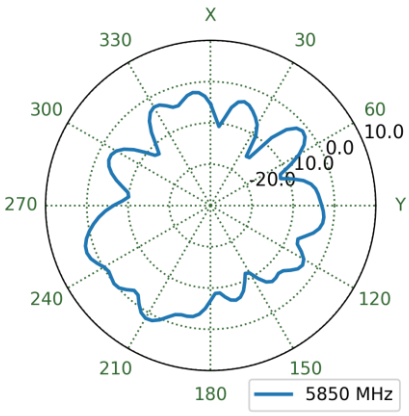
## 7.67 MIMO2 Wi-Fi Free Space Patterns at 5850 MHz



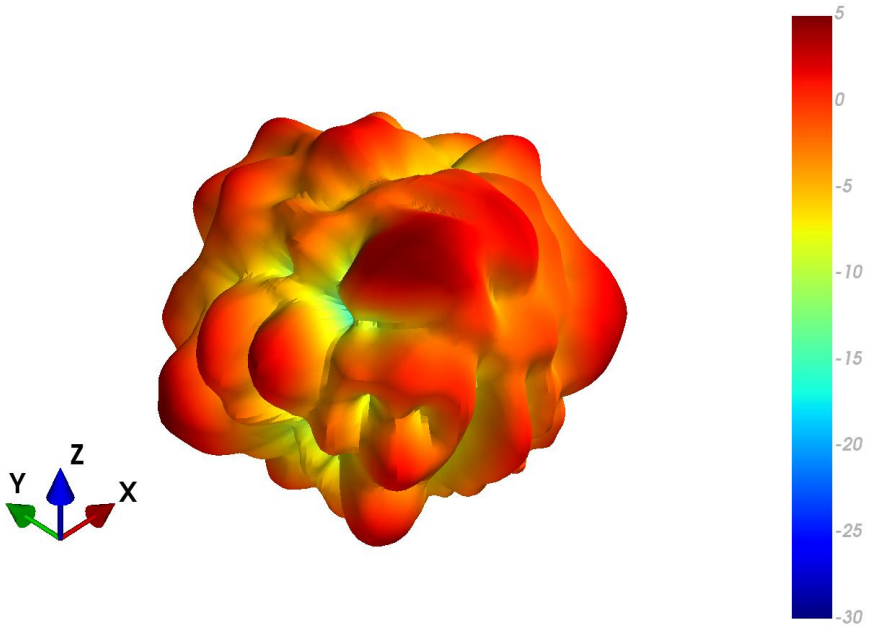

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

## 7.68 MIMO2 Wi-Fi Ground Plane Patterns at 5850 MHz

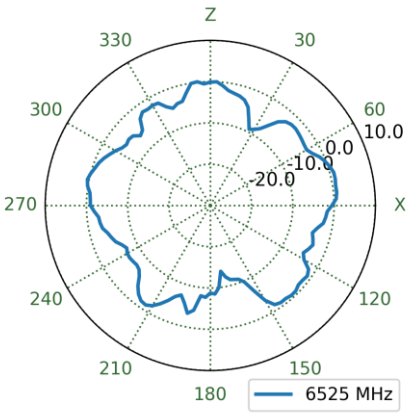


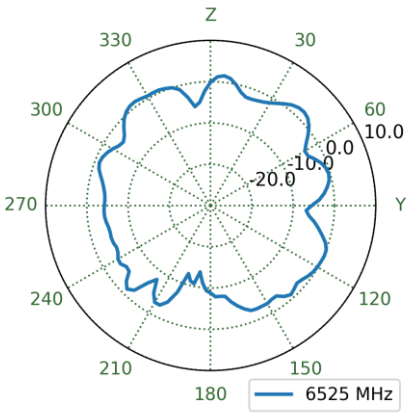

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

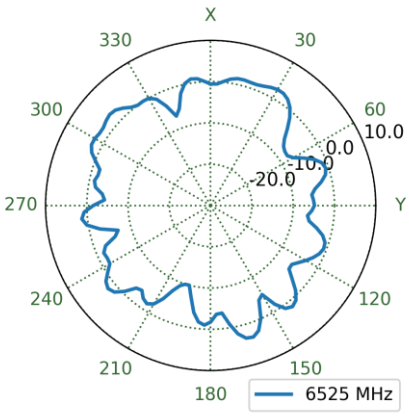
## 7.69 MIMO1 Wi-Fi Free Space Patterns at 6525 MHz



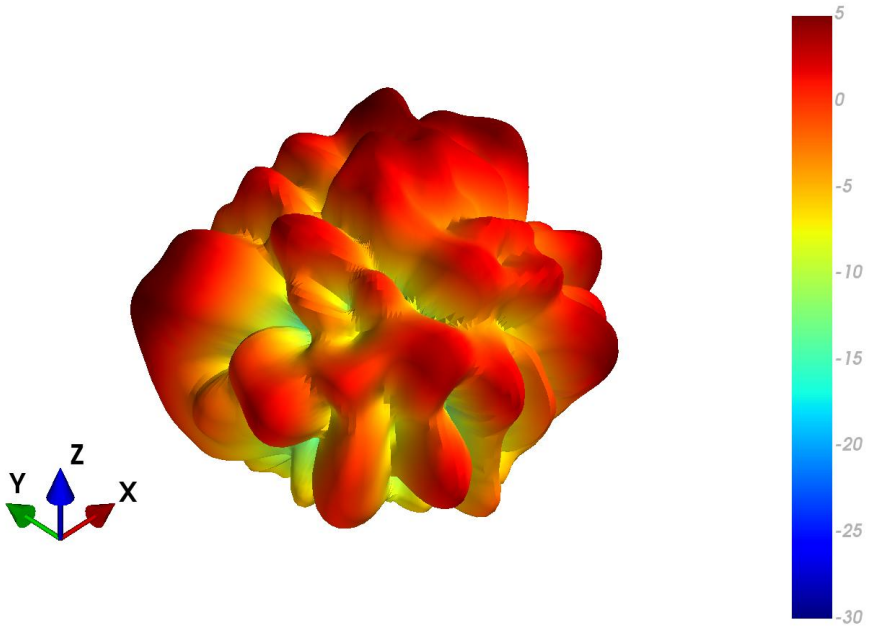

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

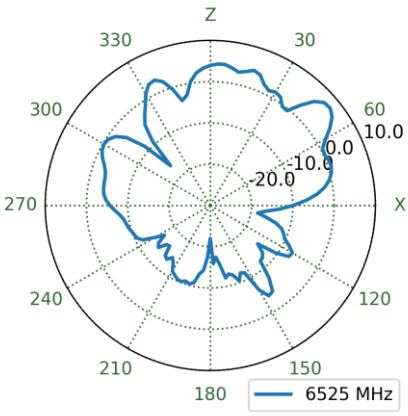
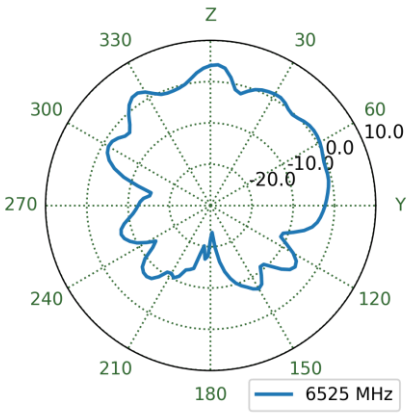
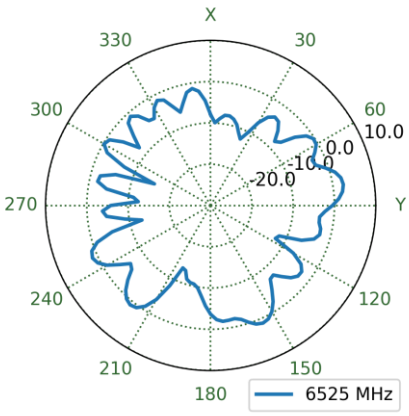


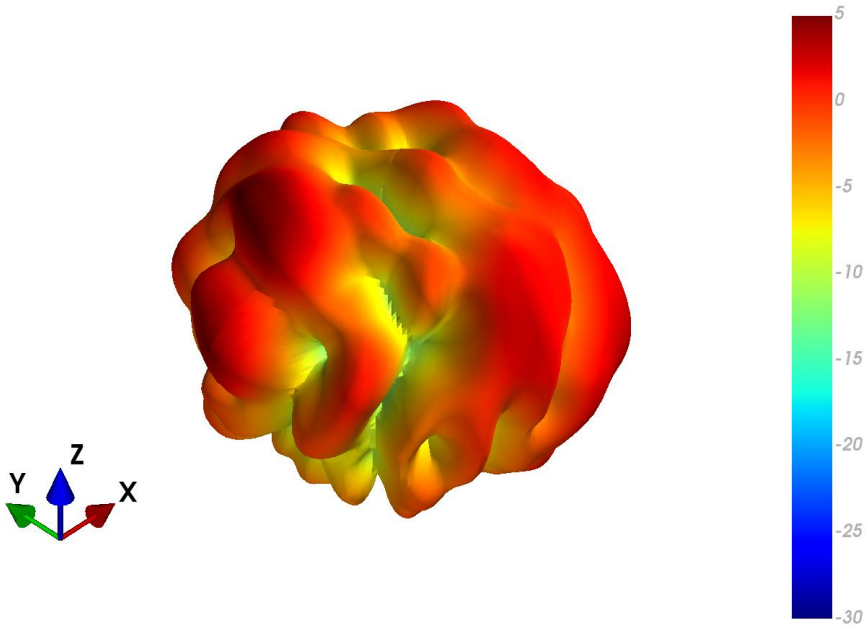



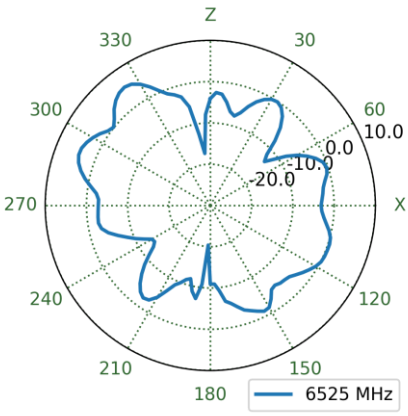
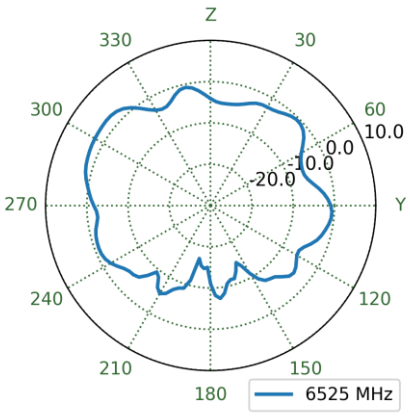
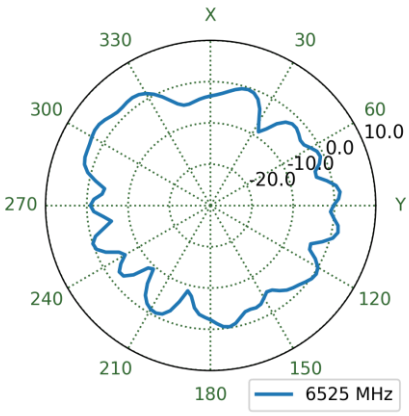
## 7.70 MIMO1 Wi-Fi Ground Plane Patterns at 6525 MHz



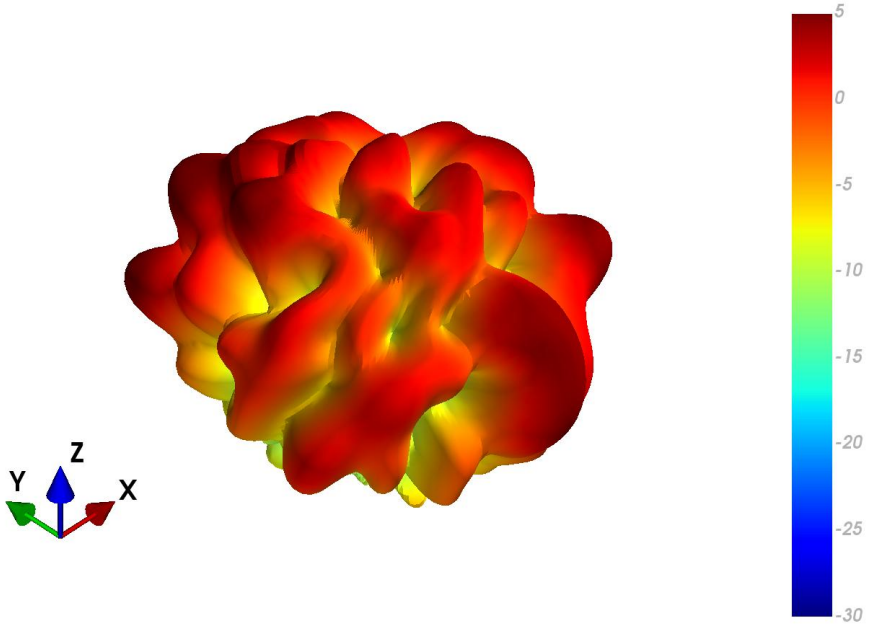

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

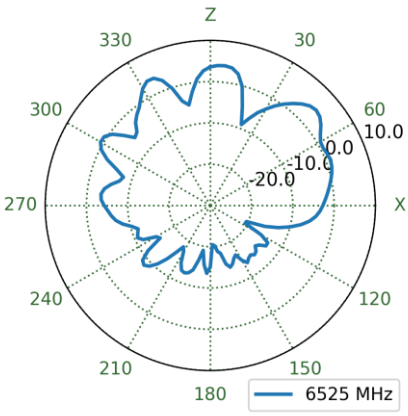
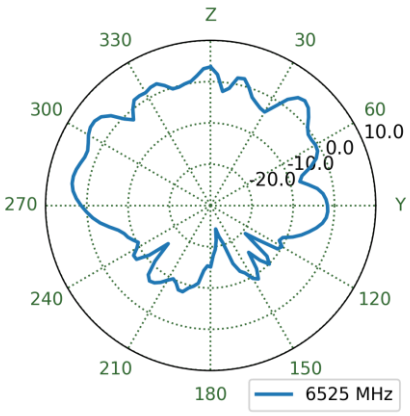
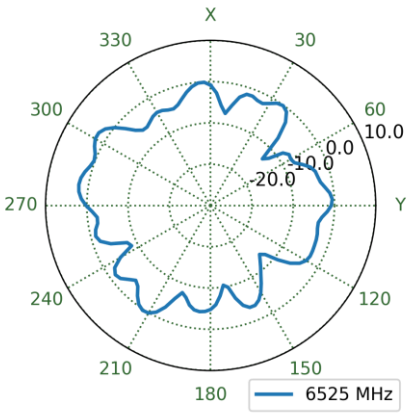
## 7.71 MIMO2 Wi-Fi Free Space Patterns at 6525 MHz



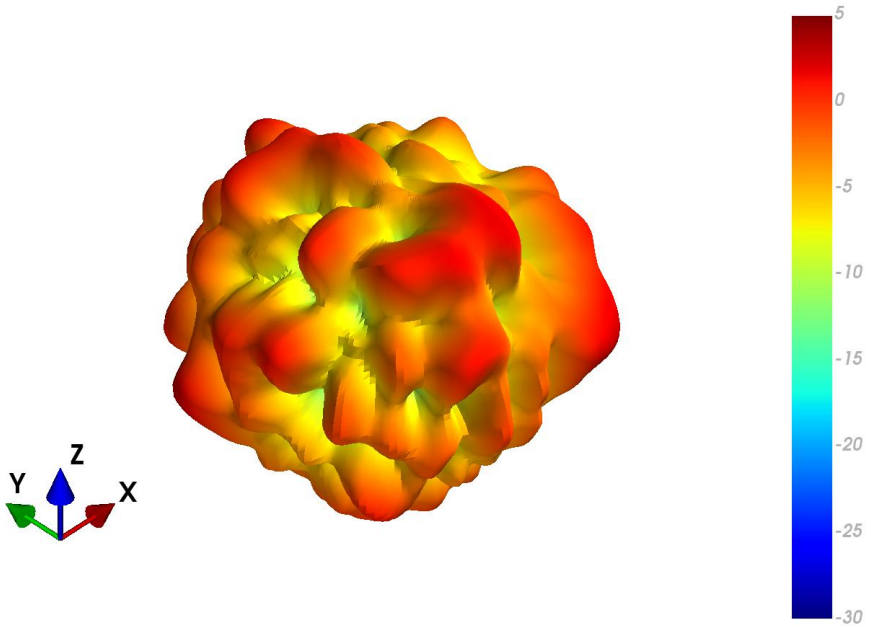

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

## 7.72 MIMO2 Wi-Fi Ground Plane Patterns at 6525 MHz

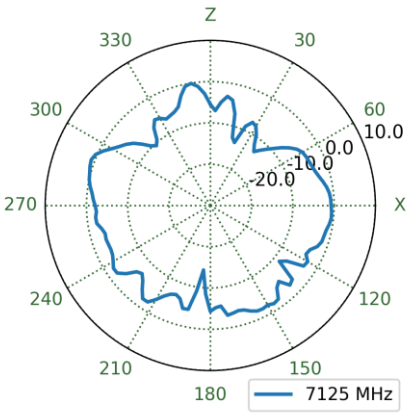


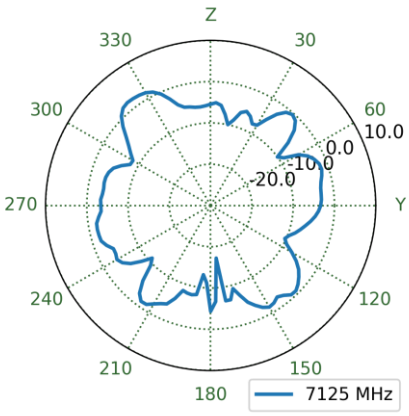

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

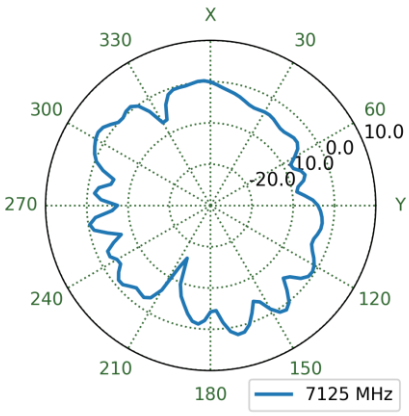
## 7.73 MIMO1 Wi-Fi Free Space Patterns at 7125 MHz



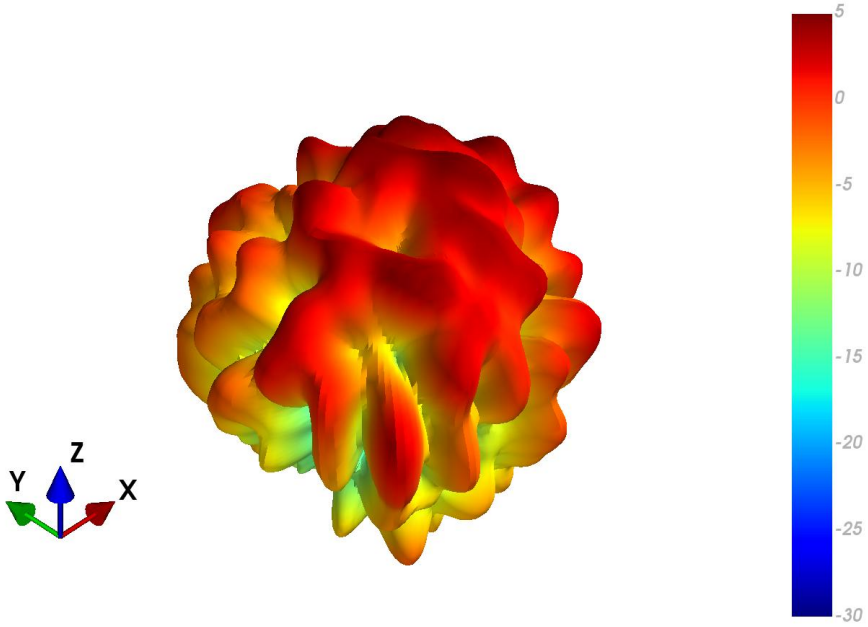

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

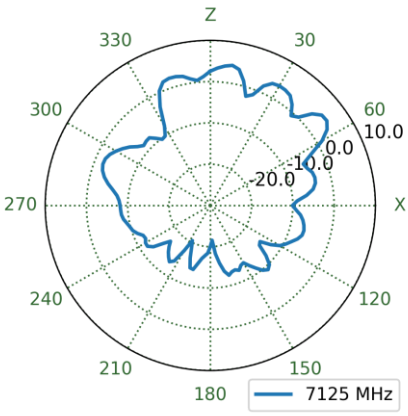
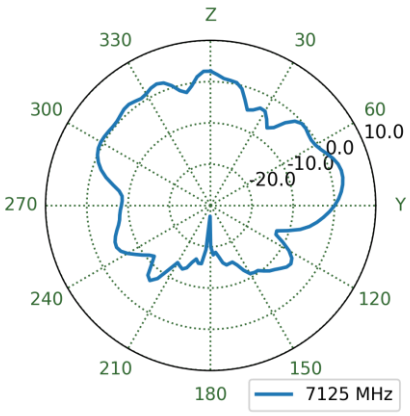
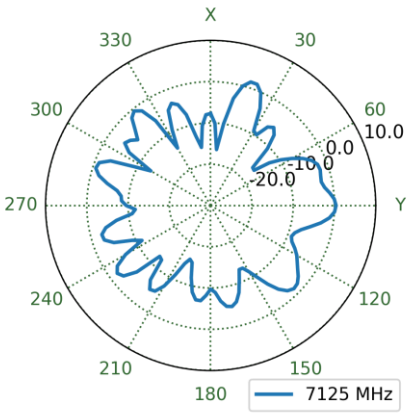


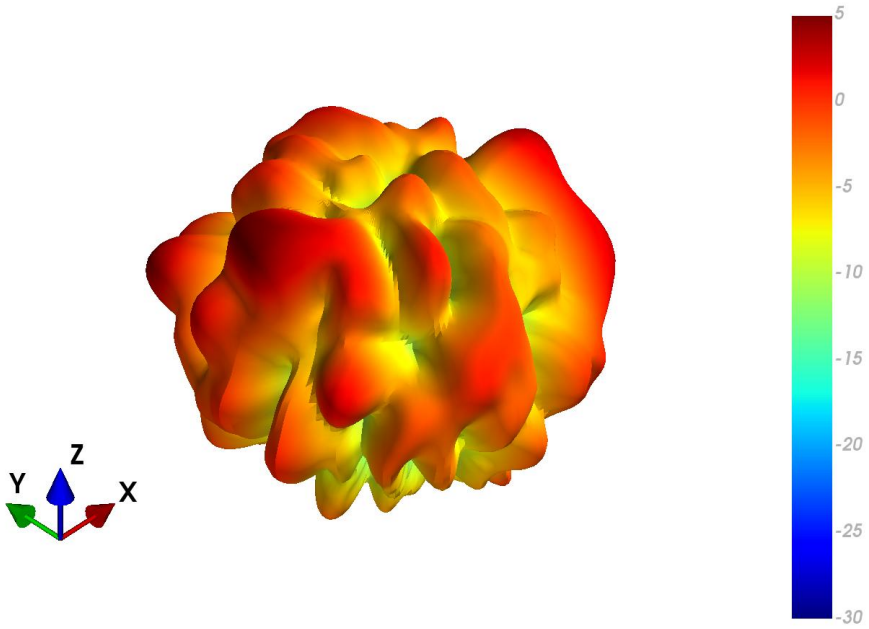



## 7.74 MIMO1 Wi-Fi Ground Plane Patterns at 7125 MHz

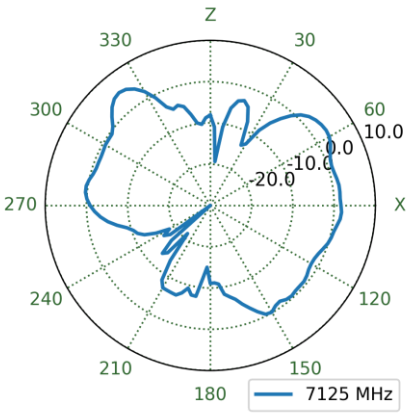


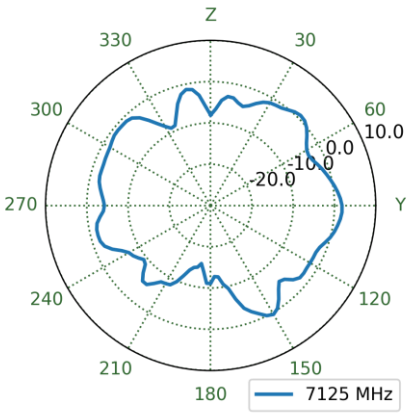

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

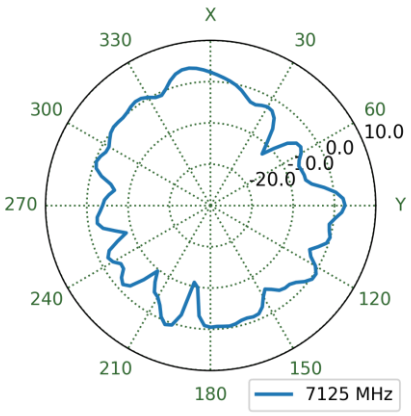
## 7.75 MIMO2 Wi-Fi Free Space Patterns at 7125 MHz



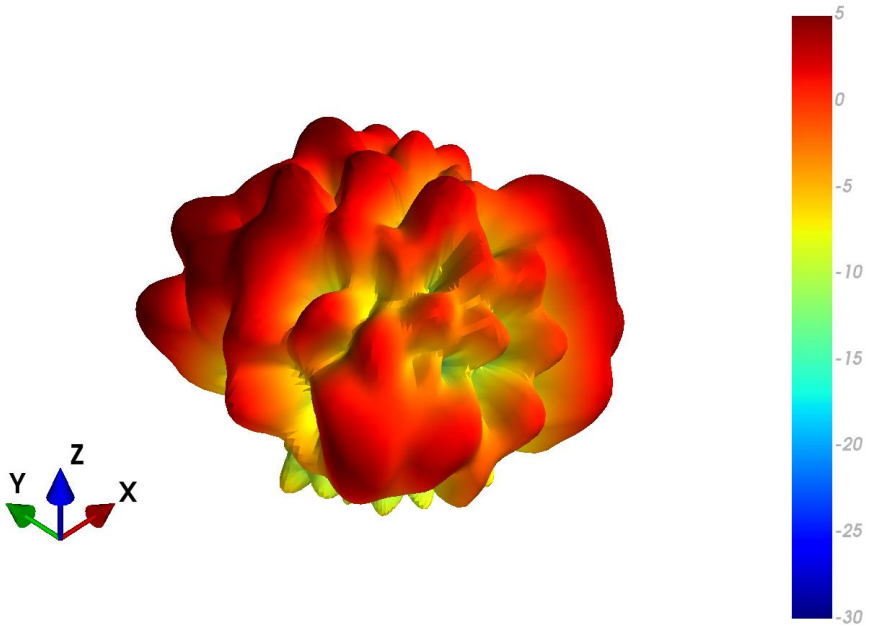

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

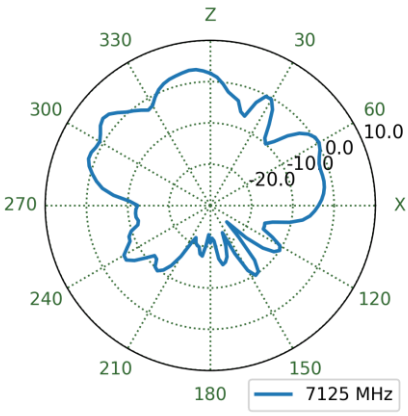
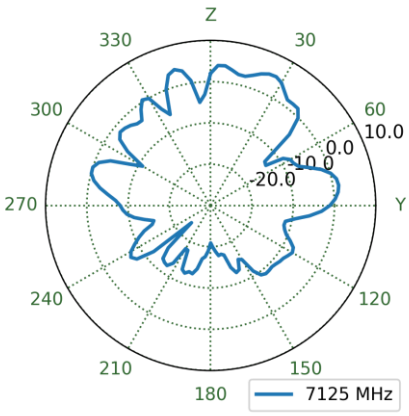
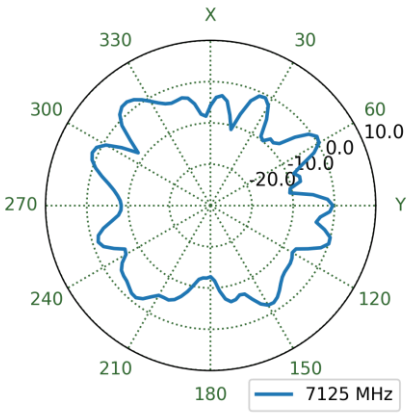


## 7.76 MIMO2 Wi-Fi Ground Plane Patterns at 7125 MHz




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

Changelog for the datasheet

## SPE-22-8-161 - MA1555.A.001

| Revision: I (Current Version) | |
|---|---|
| Date: | 2026-03-09 |
| Notes: | Updated cable length in spec table was incorrect. |
| Author: | Gary West |

**Previous Revisions**

| Revision: H | |
|---|---|
| Date: | 2025-10-30 |
| Notes: | Updated product features and introduction |
| Author: | Conor McGrath |

| Revision: C | |
|---|---|
| Date: | 2023-05-16 |
| Notes: | Added Installation Instructions |
| Author: | Cesar Sousa |

| Revision: G | |
|---|---|
| Date: | 2025-02-27 |
| Notes: | Updated chamber setup photo |
| Author: | Gary West |

| Revision: B | |
|---|---|
| Date: | 2023-03-02 |
| Notes: | Updated specifications |
| Author: | Cesar Sousa |

| Revision: F | |
|---|---|
| Date: | 2025-01-28 |
| Notes: | Updated Installation Instructions |
| Author: | Cesar Sousa |

| Revision: A (Original First Release) | |
|---|---|
| Date: | 2022-10-09 |
| Notes: | First initial Release |
| Author: | Gary West |

| Revision: E | |
|---|---|
| Date: | 2024-11-27 |
| Notes: | Updated Passive GNSS Data |
| Author: | Gary West |

| Revision: D | |
|---|---|
| Date: | 2024-07-23 |
| Notes: | Updated drawing |
| Author: | Conor McGrath |

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