TAOGLAS®

Datasheet

# Comet

***Part No:***
***Black - MA584.A.003***
***White - MA584.W.003***

## *Description*

4-in-1 4x2.4-8GHz Wi-Fi/5G MIMO Permanent Mount Puck Antenna with 300mm 1.37 Cable and SMA(M) Connectors

## *Features:*

Permanent Mount Puck Antenna
4* Wi-Fi MIMO Antennas Covering 2.4/5.8/7.125 GHz
IP67 Waterproof Enclosure
Dims: 101 x 101 x 20 mm
Cables: 300mm of 1.37 Micro Coaxial Black Cable
Connectors: SMA(M)
RoHS & Reach Compliant

# 1. Introduction

The Taoglas Comet MA584 is a low profile, puck style, screw mount antenna. The MA584 contains **4 Wi-Fi antennas** supporting multi-band coverage across **2.4GHz, 5.8GHz, and 7.125GHz**. Through innovative antenna engineering techniques, it delivers consistent gain and high efficiency across these bands performance that is typically difficult to achieve in smaller style antennas.

This robust design ensures dependable connectivity where other low-profile antennas fail, making the Comet series particularly well-suited for fleet and transport telematics, public safety, gateways, and other mission-critical applications that demand both a discreet form factor and reliable operation on metallic or equipment surfaces.

### Typical Applications Include:

- Gateways, Routers & Industrial Networks
- Digital Signage and Point of Sale Terminals
- First Responder and Emergency Services

The Comet has been designed to be permanent mount/screw mount. This allows it to be utilized and installed in applications where a strong and secure mechanical attachment is required, ensuring reliable performance even in high-vibration or harsh environments. The four Wi-Fi connections utilize 300mm of 1.37 Micro Coax Black cable with SMA(M) connectors as standard. Customized cable and connector versions are also available upon request. Contact your regional Taoglas customer support team for further information.

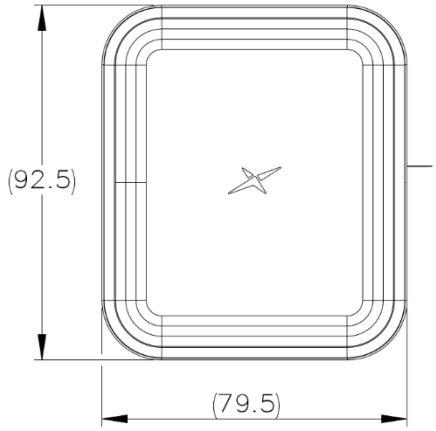
# 2. Specification

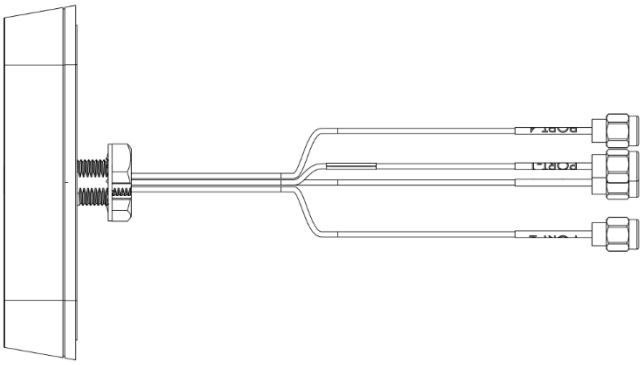
| Electrical | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Band** | Frequency (MHz) | Measurement | Efficiency (%) | Average Gain (dB) | Peak Gain (dBi) | Impedance | Polarization | Radiation Pattern | Max. input power |
| **Wi-Fi - 2GHz** | 2400-2500 | Wi-Fi 1 | 50.3 | -2.98 | 3.28 | 50 Ω | Linear | Omni directional | 10W |
| | | Wi-Fi 2 | 47.8 | -3.21 | 3.71 | | | | |
| | | Wi-Fi 3 | 49.8 | -3.03 | 2.74 | | | | |
| | | Wi-Fi 4 | 49.9 | -3.02 | 5.23 | | | | |
| **Wi-Fi - 5GHz** | 5150-5850 | Wi-Fi 1 | 55.0 | -2.60 | 3.88 | | | | |
| | | Wi-Fi 2 | 53.7 | -2.70 | 2.88 | | | | |
| | | Wi-Fi 3 | 51.5 | -2.88 | 2.40 | | | | |
| | | Wi-Fi 4 | 50.5 | -2.96 | 3.39 | | | | |
| **Wi-Fi - 6GHz** | 5925-7125 | Wi-Fi 1 | 55.4 | -2.56 | 5.04 | | | | |
| | | Wi-Fi 2 | 51.5 | -2.88 | 2.96 | | | | |
| | | Wi-Fi 3 | 52.8 | -2.78 | 3.31 | | | | |
| | | Wi-Fi 4 | 50.5 | -2.97 | 3.20 | | | | |

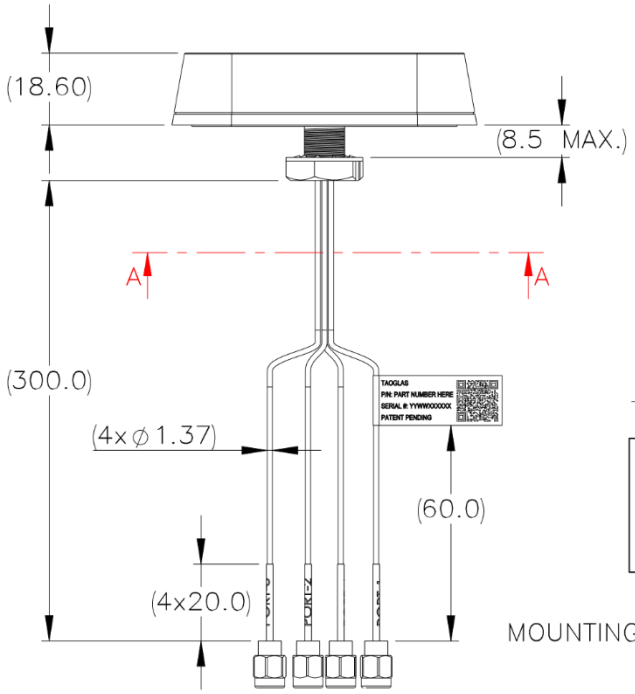
| Mechanical | |
|---|---|
| **Dimensions** | 101 x 101 x 20 mm |
| **Weight** | 102g |
| **Material** | ASA |
| **Connector** | SMA (M) |
| **Cable** | 300mm of 1.37 Micro Coaxial Black Cable |
| **Thead Diameter** | M12 |

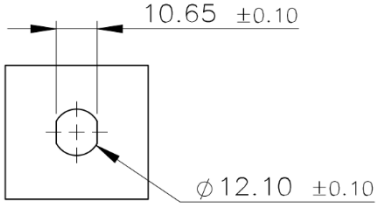
| Environmental | |
|---|---|
| **Waterproof Rating** | IP67 |
| **Operation Temperature** | -40°C to 85°C |
| **Storage Temperature** | -40°C to 85°C |
| **Relative Humidity** | Non-condensing 65°C 95% RH |
| **RoHS & REACH Compliant** | Yes |

# 3. Mechanical Drawing

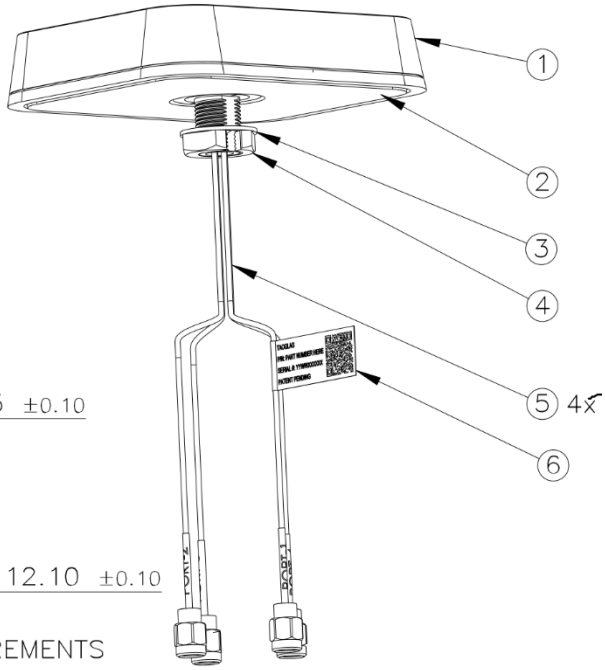


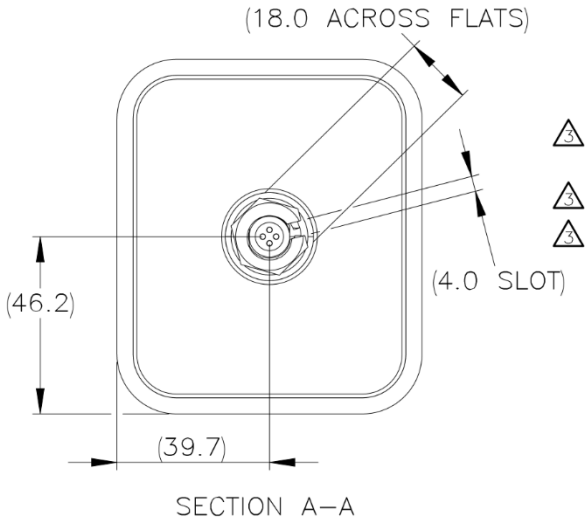






MOUNTING HOLE REQUIREMENTS




SECTION A–A

| ITEM NO. | DESCRIPTION | QTY. | COLOR |
|---|---|---|---|
| 1 | Antenna | 1 | RAL 9011-P Graphite Black, Logo Pantone 877C Metallic Silver |
| 2 | Foam Gasket with Two Sided PSA | 1 | Black |
| 3 | M12 Internal Tooth Washer | 1 | N/A |
| 4 | Hex Nut, M12 x 1P x 5mm, 4.0mm Slot | 1 | N/A |
| 5 | 360MM, 1.37MM Black, SMA(M), 1.5-2.3-4.5, PORT-2 | 1 | Cable Black, Heat Shrink Black With White Text |
| 6 | QR Label | 1 | White |

# Installation Instructions

## Comet MA58x Series

Low Profile Permanent Mount Combination Antenna

### A Introduction

The **Taoglas Comet MA58x Series** is a low-profile, puck-style, screw-mount antenna that integrates two high-performance 5G/4G MIMO cellular elements and one GNSS element. Covering all worldwide cellular frequencies from 600 MHz to 6 GHz, along with GPS, GLONASS, and BeiDou bands, it achieves stable gain and efficiency that are typically difficult to realize in such a compact 101 × 101 × 20 mm form factor.

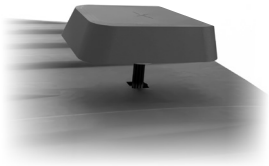
**Electrical Safety**
The Comet can contains an active GPS/GNSS antenna.
Rated voltage: 1.8-5.5VDC Rated current: 10mA maximum
**The supply to this device must be provided with overcurrent protection of 1A maximum.**

**Power consumption @ 1.8-5.5V ; 10 mA**

### B Mounting & Location

Secured via a ø12mm diameter threaded mounting stud, The Comet is recommended to be fitted by drilling a ø13mm hole will need to be drilled in the roof or enclosure surface.

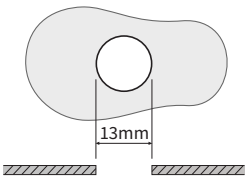
When mounting on a vehicle roof panel ensure to mount on a flat surface, and measure for a central position. Care should be taken to mount the Comet antenna as far as possible from other roof-mounted features such as the aircon unit, light bar etc.



**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 foam gasket and adhesive against the mounting panel should be checked and a small bead of neutral cure silicone sealant can be applied around the periphery of the enclosure if required.

### C Surface Preparation

When preparing to drill the hole, mask the area around the hole position to protect the surface. If an existing OEM antenna mounting hole is not present, drill a pilot hole and increase the hole size to ø12mm (0.472”). Ensure the drill bit does not contact the headliner. Then deburr and clean the area around the hole carefully removing all waste.




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

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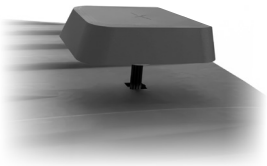
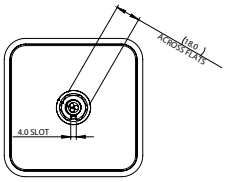
## D Adhesive Foam Gasket

On the underside of the antenna there is a 3M adhesive foam gasket. 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 ensure the antenna is 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.




## F Cable Routing and Connection

The cables supplied are RG-174 and TGC-1.5DS for all 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.

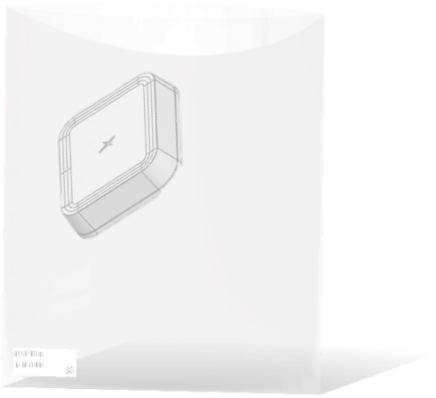
**European Waste Electronic Equipment Directive 2012/19/EU**
Please ensure that your old Waste Electricals and Electronics are recycled do not throw them away into standard waste.

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

**View CE Certificate online:**
**www.taoglas.com/assets/ce/CE-Declaration-of-Conformity-RoHS-RED-Patriot-Series.pdf**

**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. Referencing CENELEC EN 55032 Class B.

# 5. Packaging



☑ 1 PCS / PE bag

☑ PE bag (mm): 160x300 (Ref)

☑ SPQ Label

☑ Weight (g): 102 ±3%

☑ 60 PCS / Carton

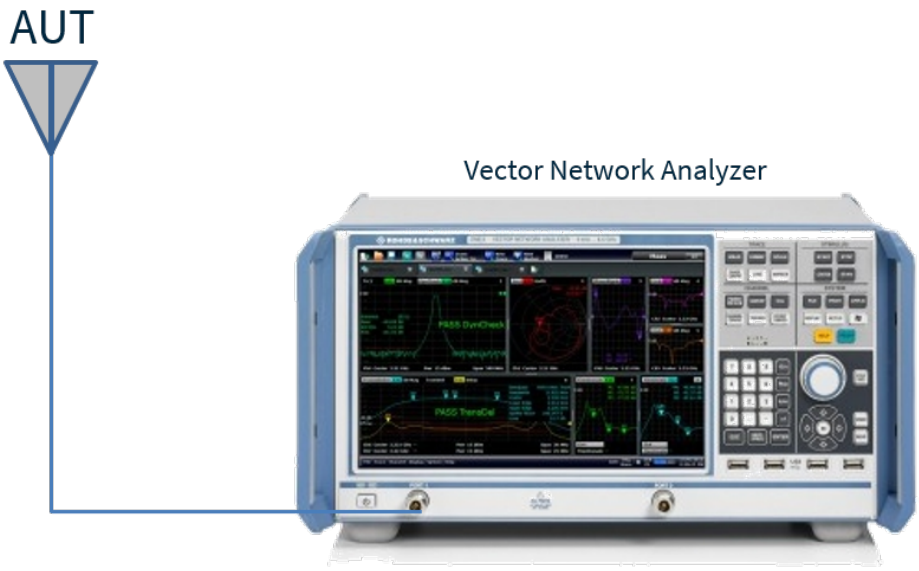
☑ Carton(mm): 370x370x300

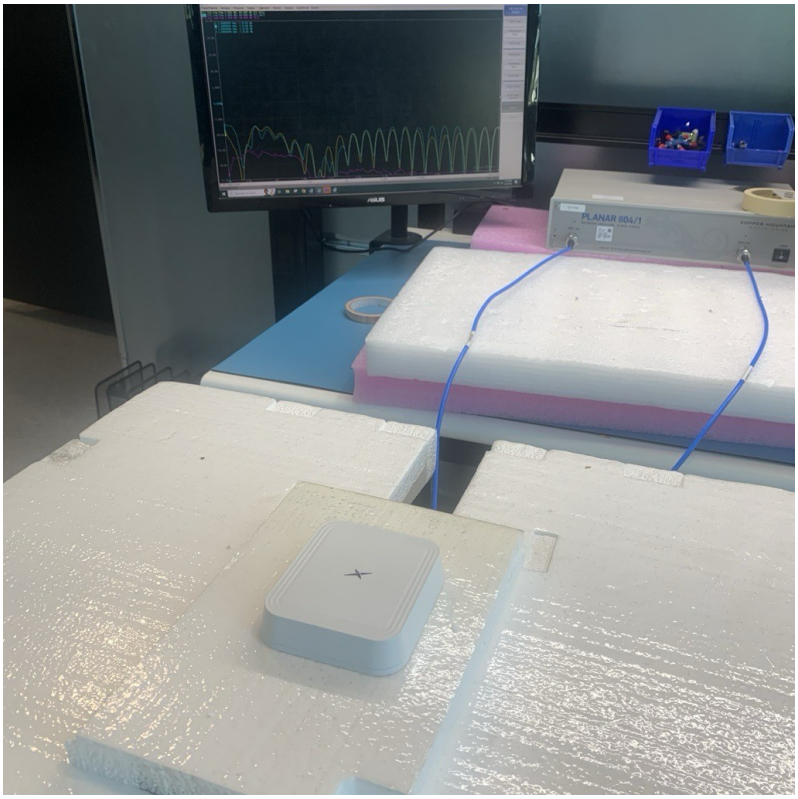
☑ Carton Label

☑ Weight (kg): 6.92 ±3%

# 6. Antenna Characteristics

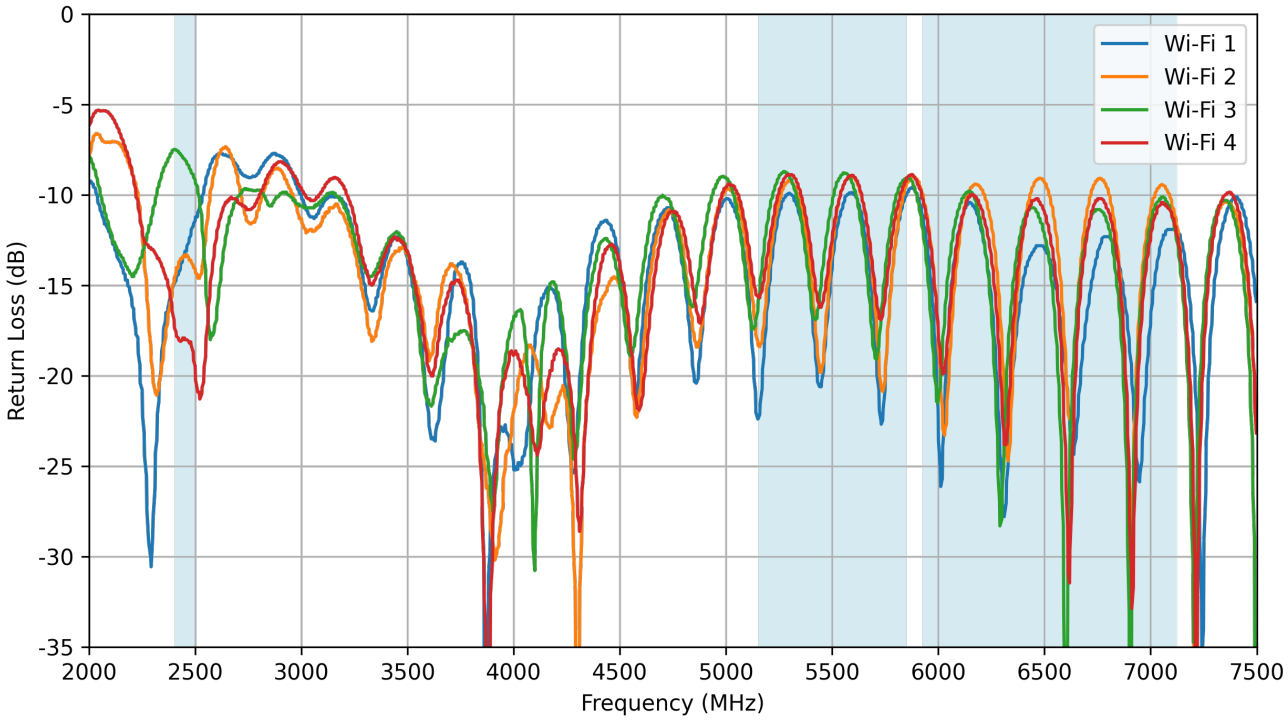
## 6.1 Test Setup



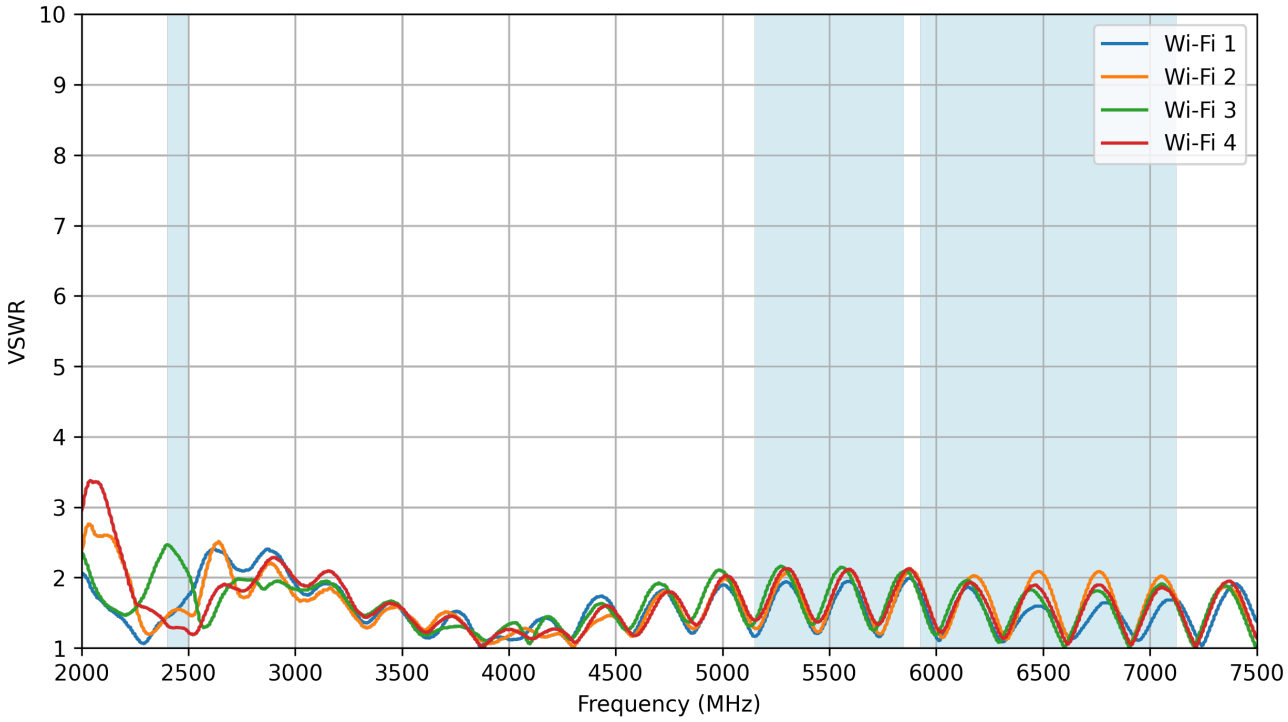



VNA Set-up in Free Space

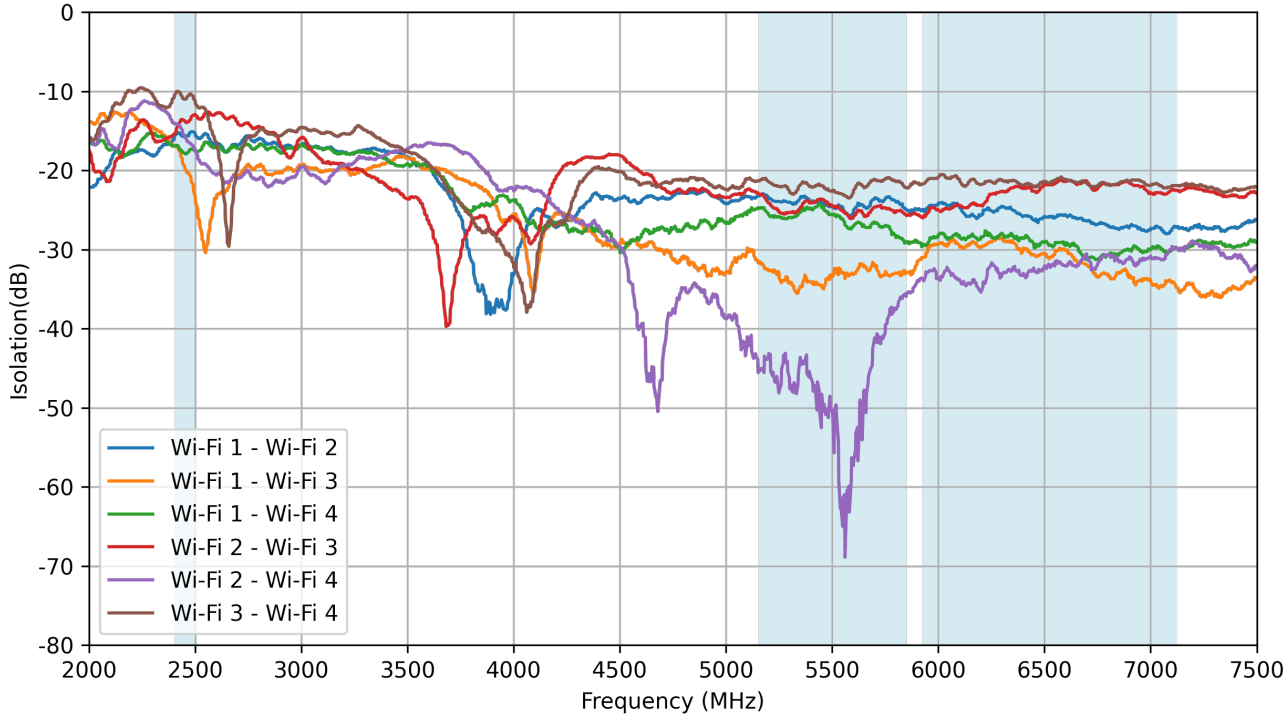
## 6.2 Return Loss



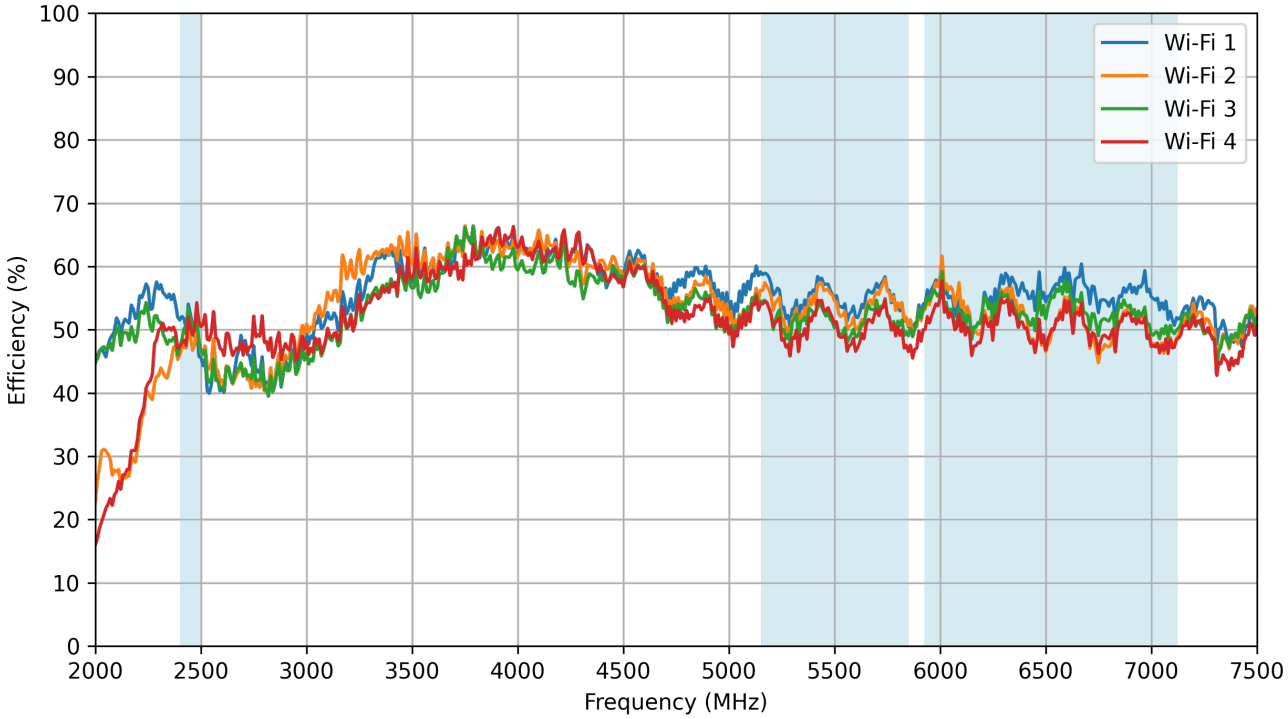

## 6.3 VSWR



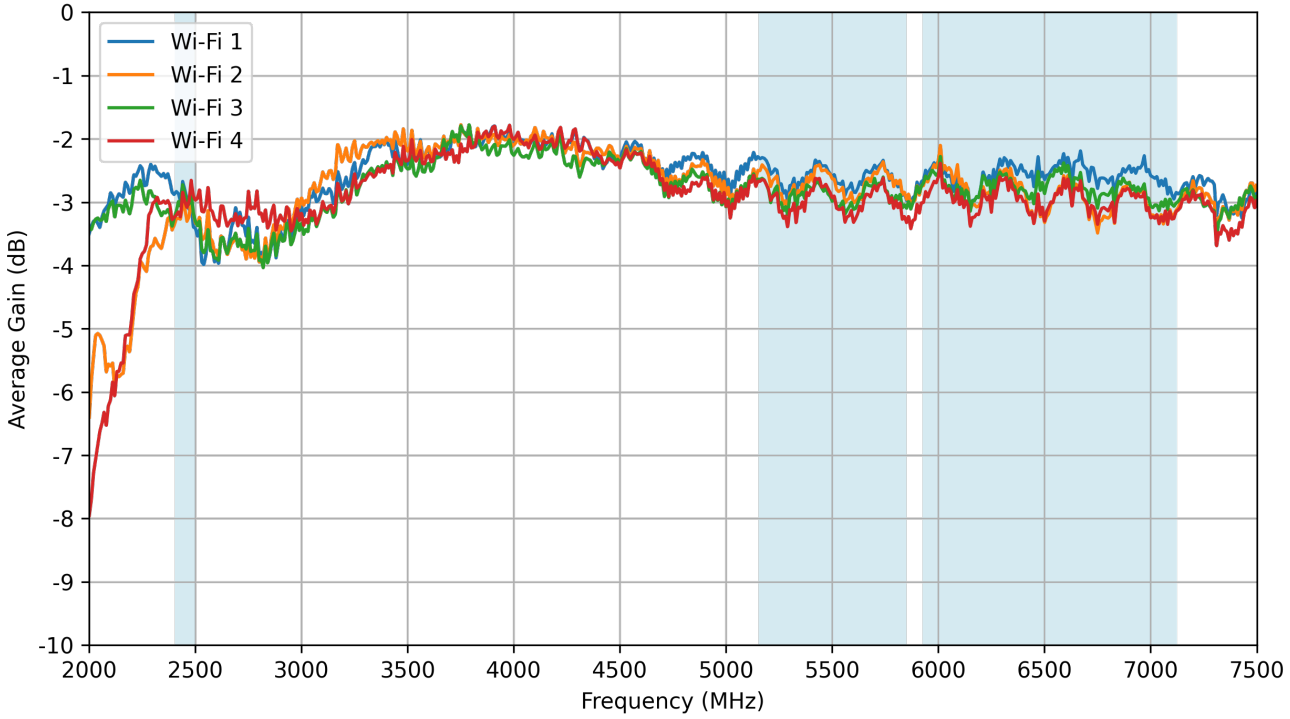
## 6.4 Isolation



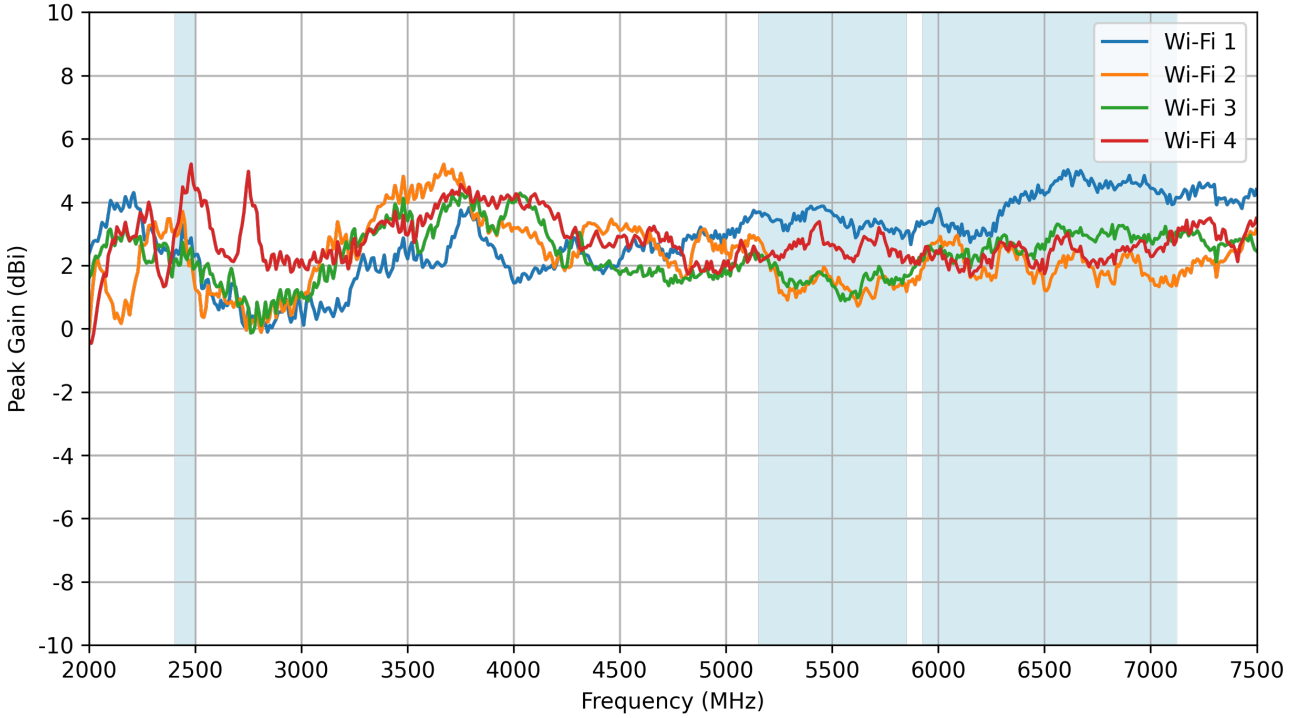

## 6.5 Efficiency



## 6.6 Average Gain

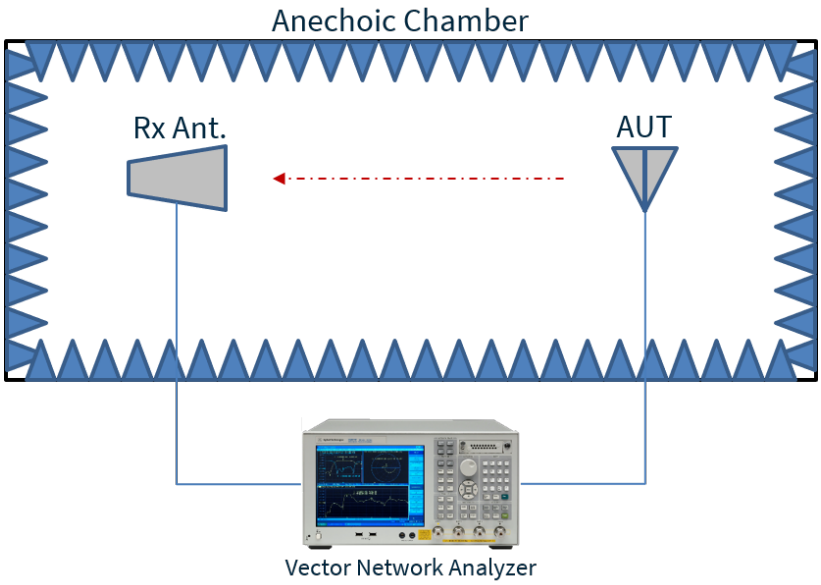


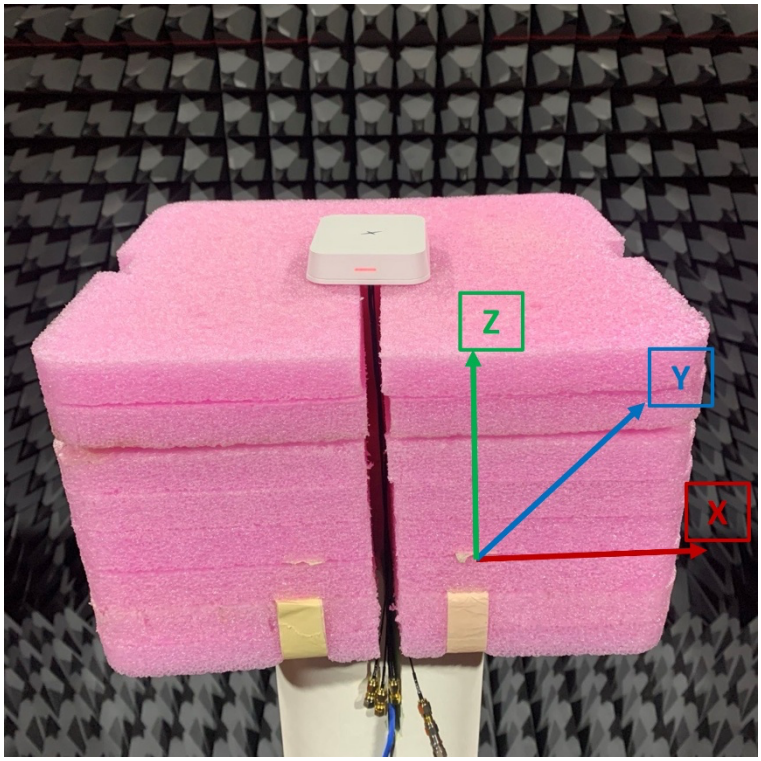

## 6.7 Peak Gain



# 7. Radiation Patterns

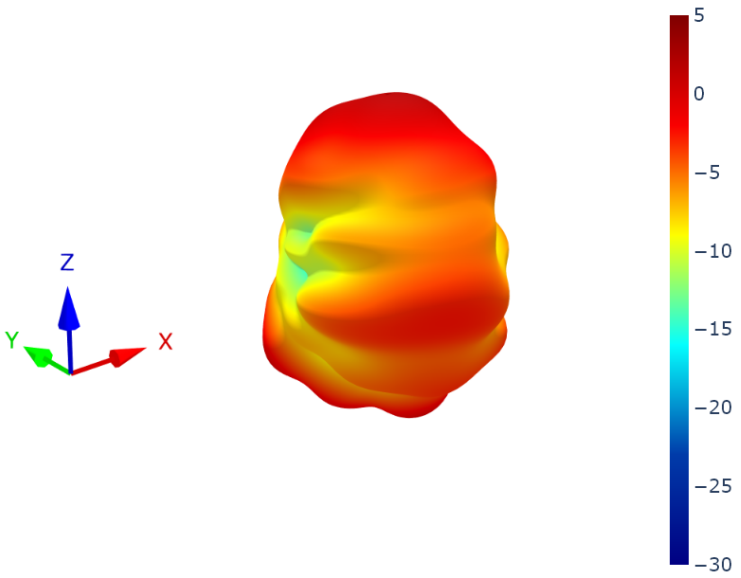
## 7.1 Test Setup



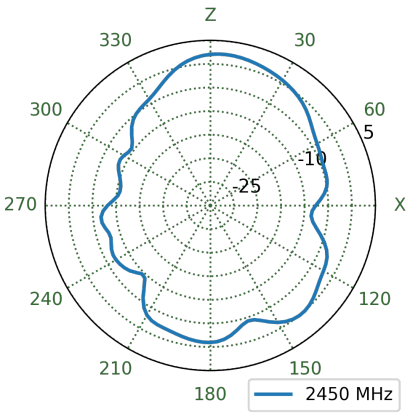



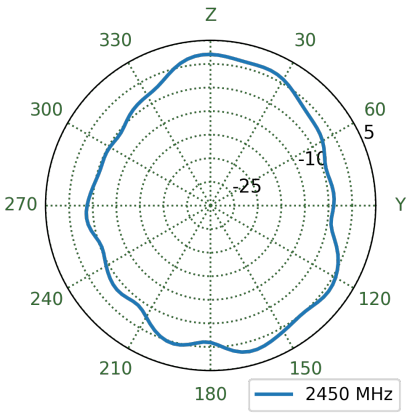

Chamber Set-up in Free Space

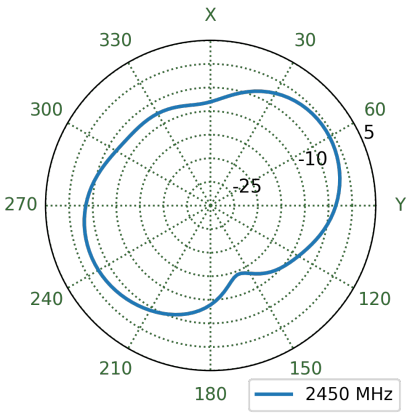
## 7.2 Wi-Fi 1 Patterns at 2450 MHz



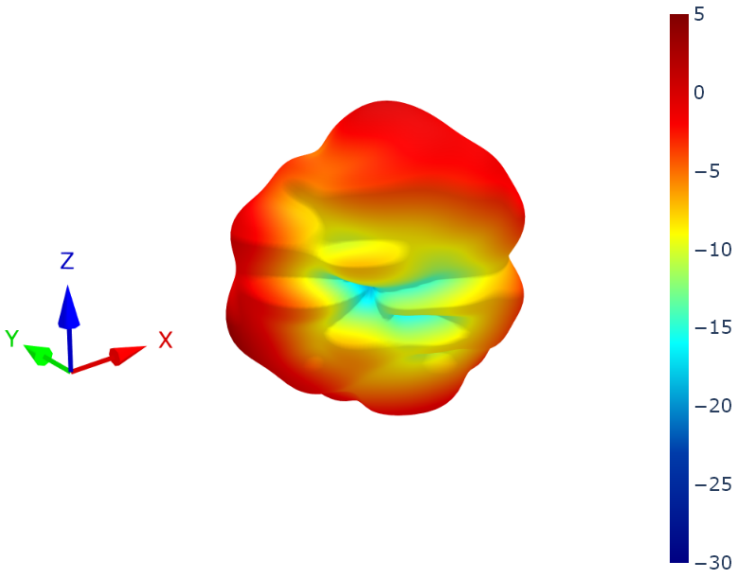

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|

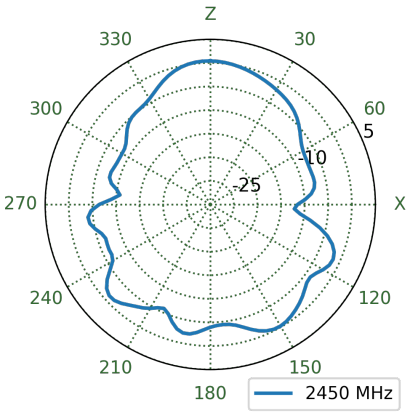
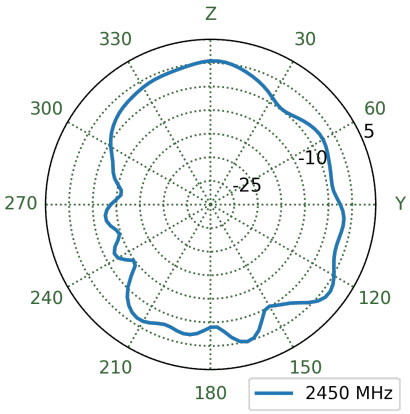
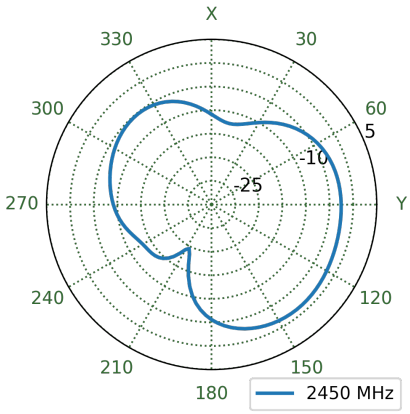


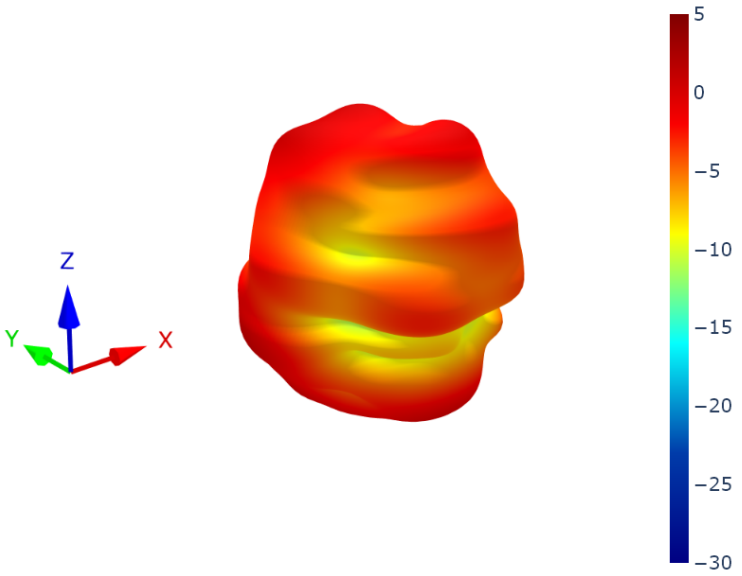



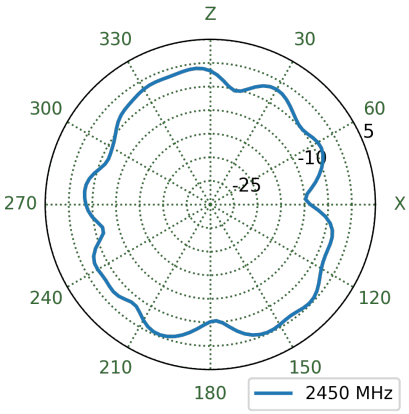
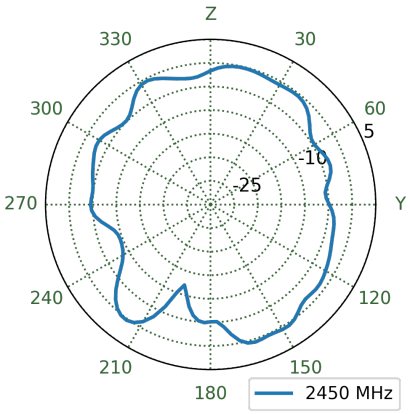
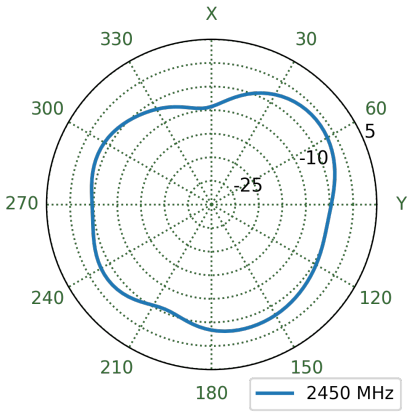
## 7.3 Wi-Fi 2 Patterns at 2450 MHz



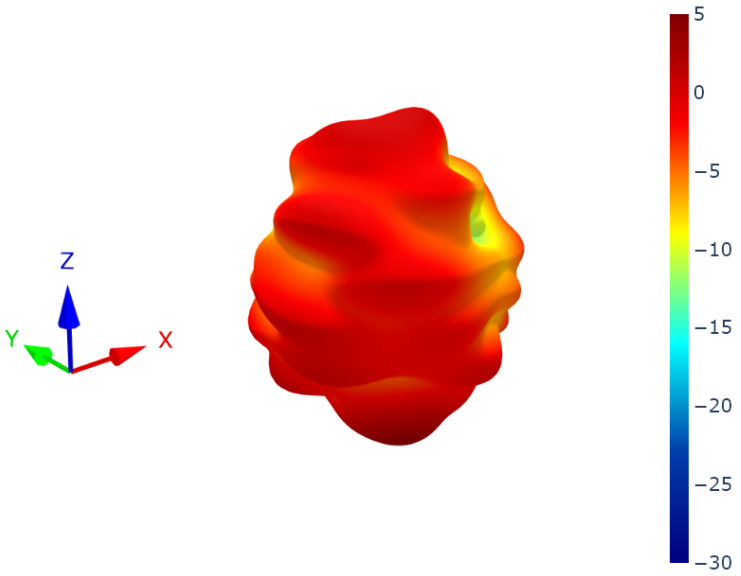

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

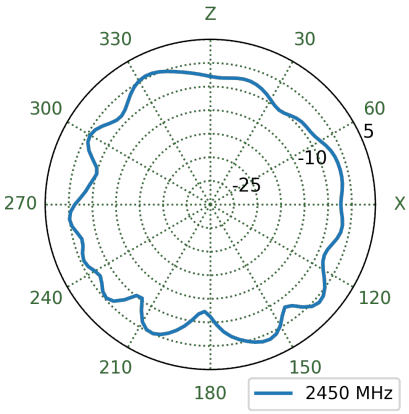
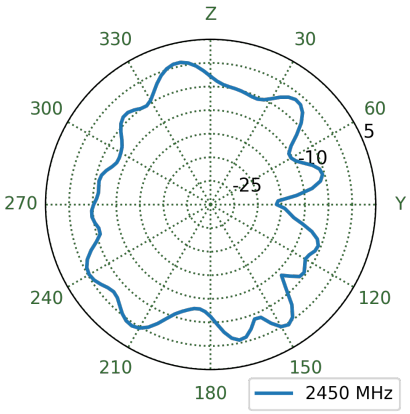
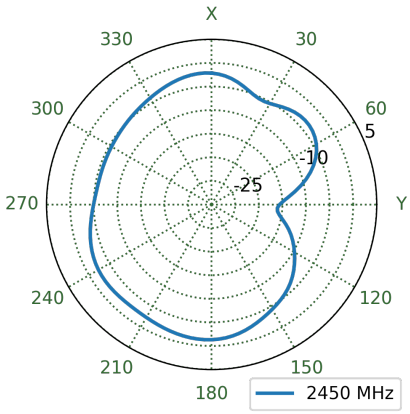
## 7.4 Wi-Fi 3 Patterns at 2450 MHz



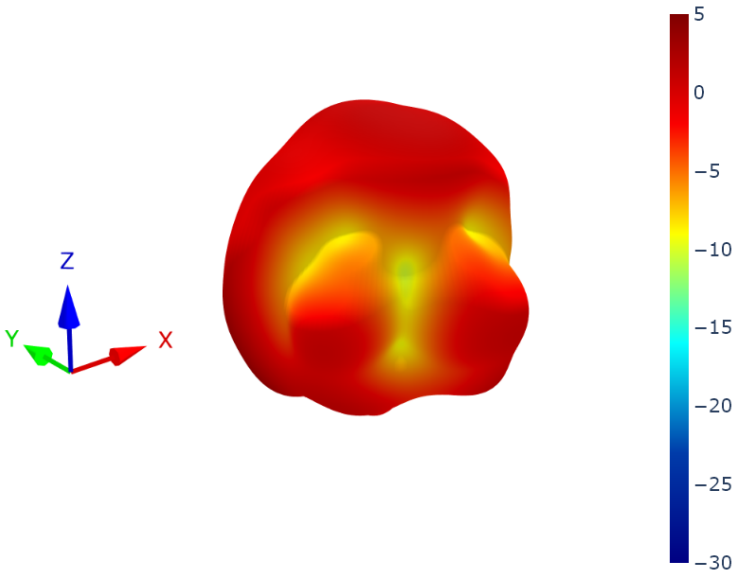

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

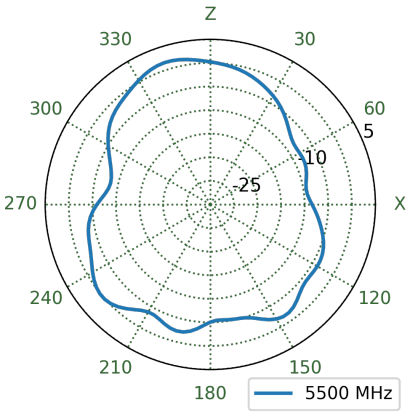
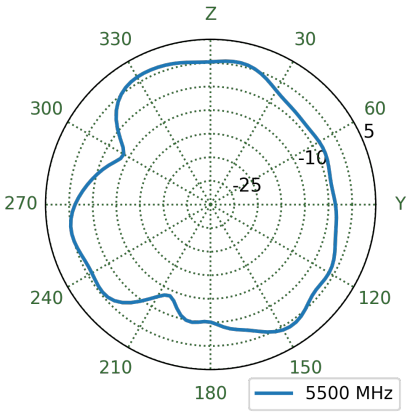
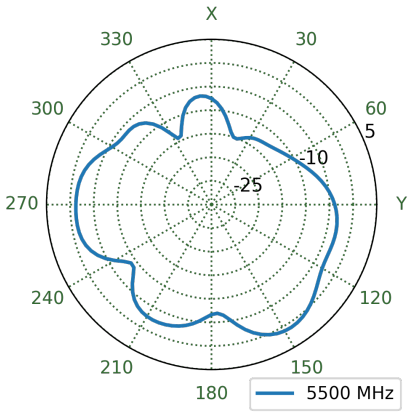
## 7.5 Wi-Fi 4 Patterns at 2450 MHz



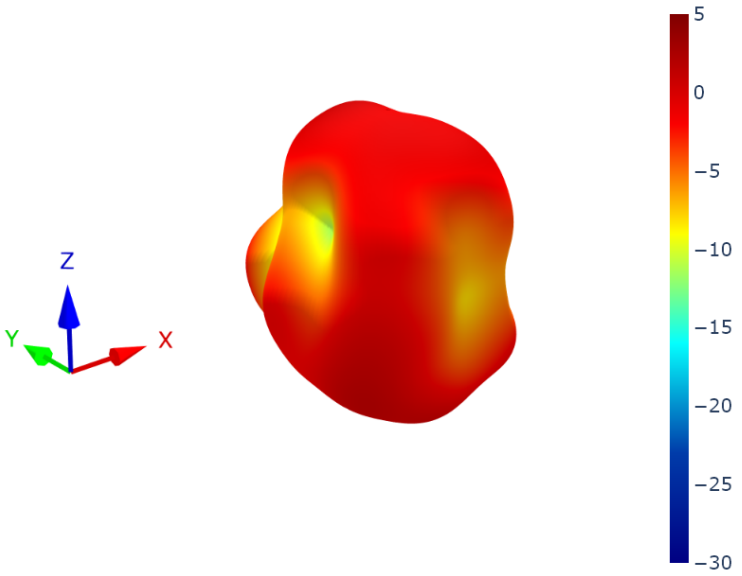

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

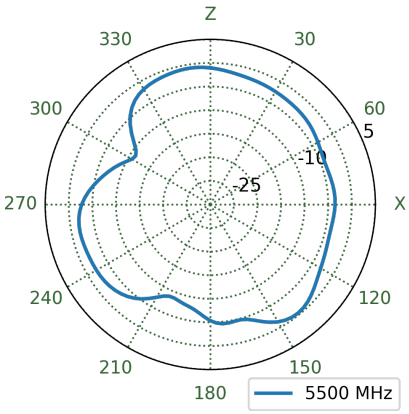
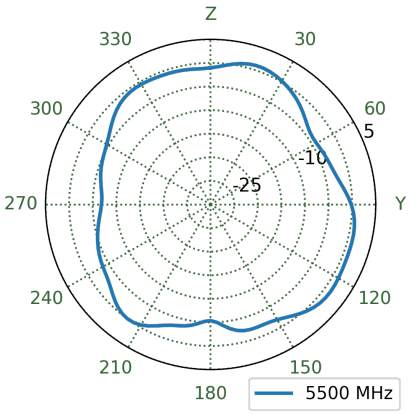
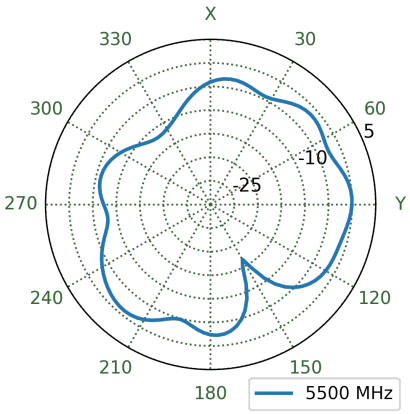
## 7.6 Wi-Fi 1 Patterns at 5500 MHz



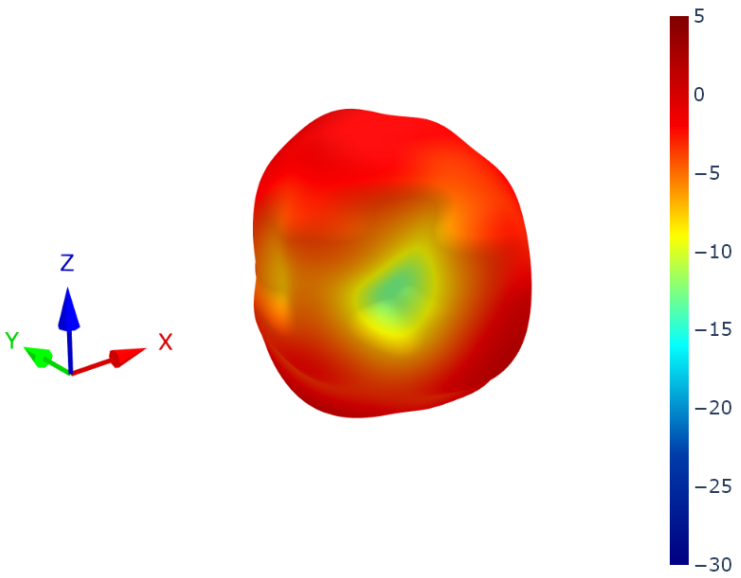

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

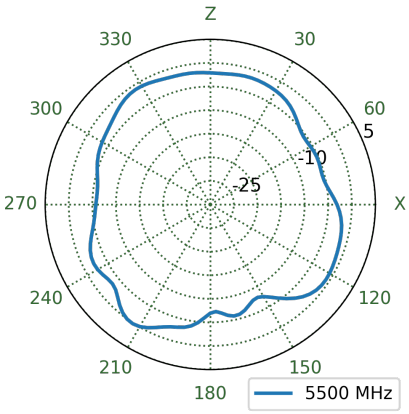
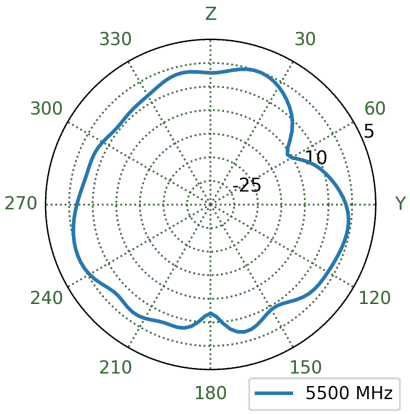
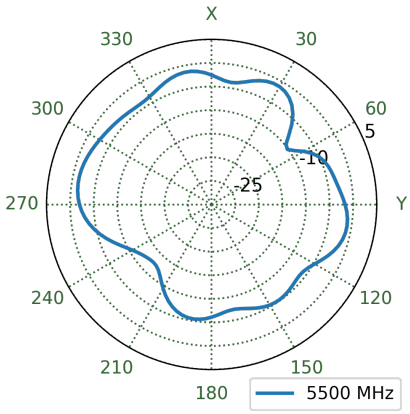
## 7.7 Wi-Fi 2 Patterns at 5500 MHz



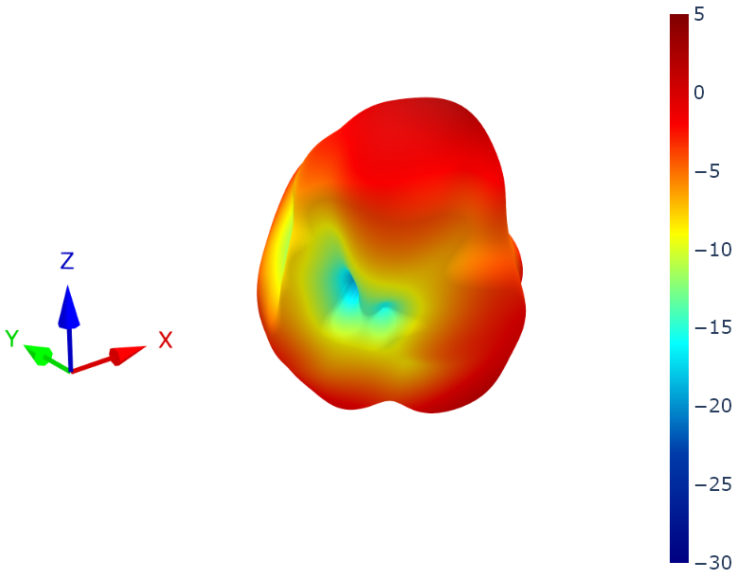

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

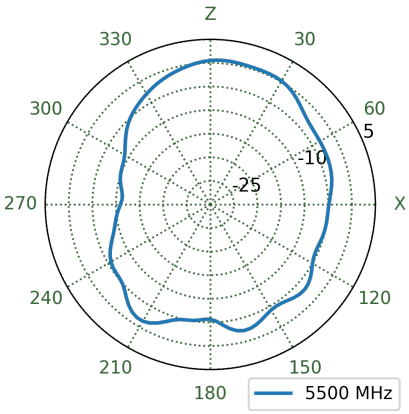
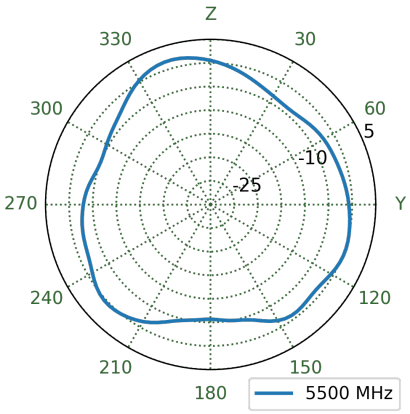
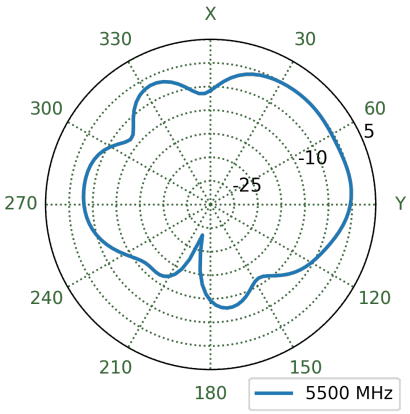
## 7.8 Wi-Fi 3 Patterns at 5500 MHz



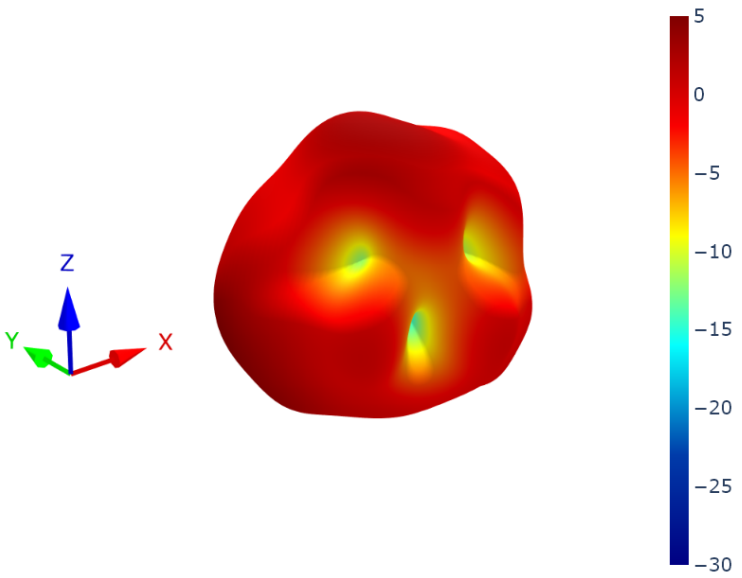

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

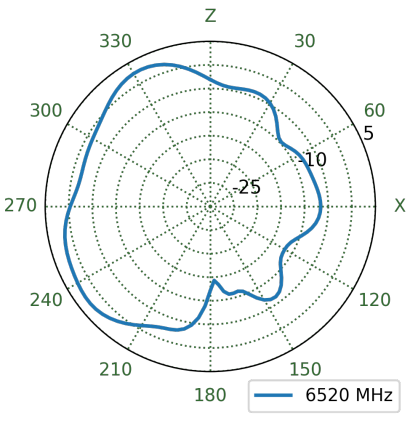
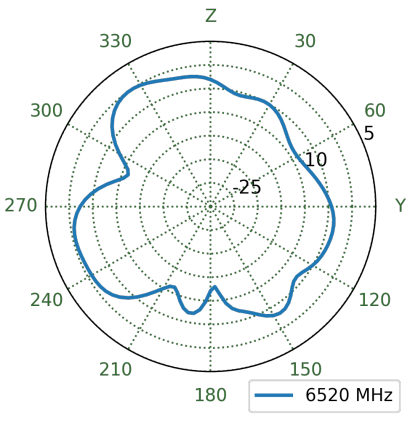
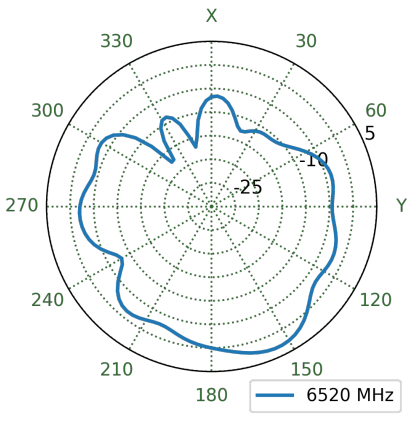
## 7.9 Wi-Fi 4 Patterns at 5500 MHz



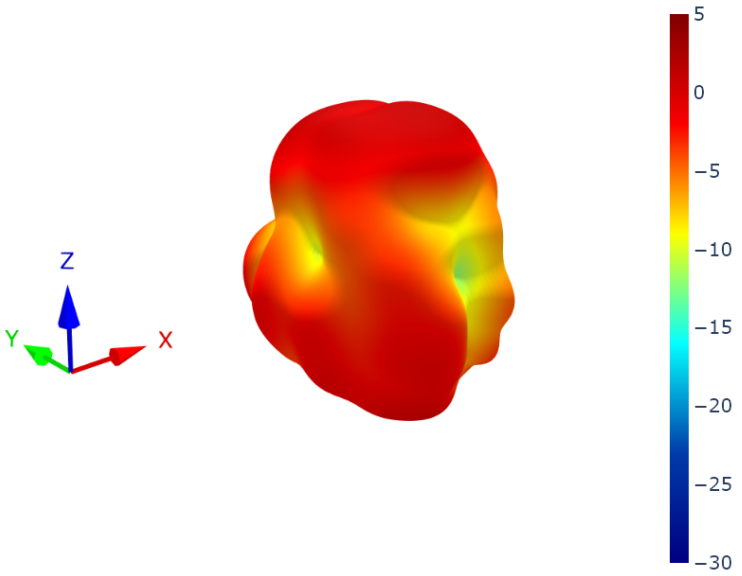

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

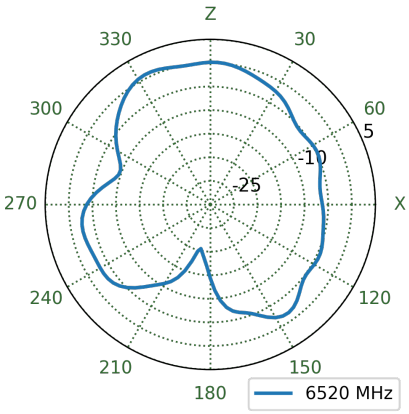
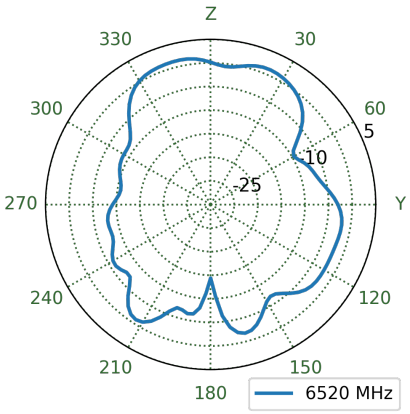
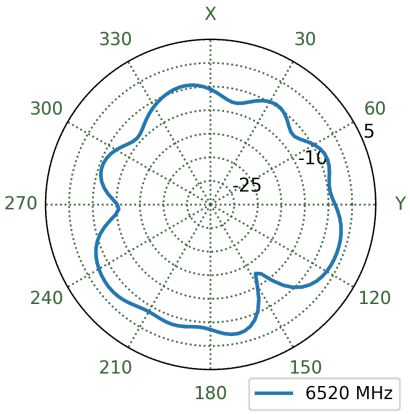
## 7.10 Wi-Fi 1 Patterns at 6525 MHz



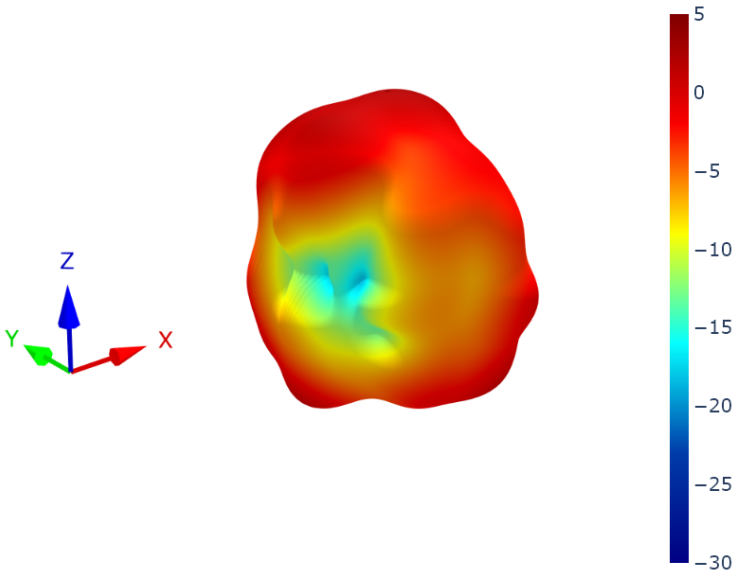

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

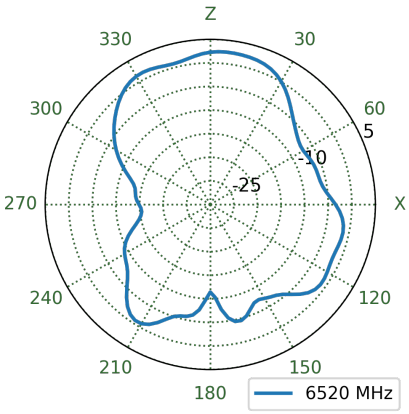
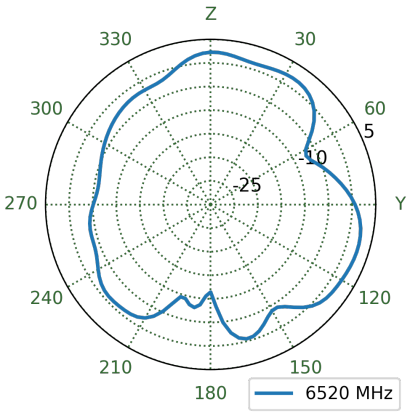
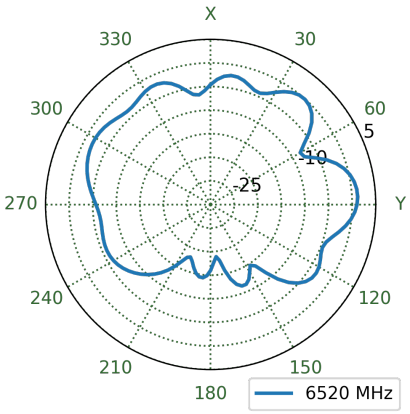
## 7.11 Wi-Fi 2 Patterns at 6525 MHz



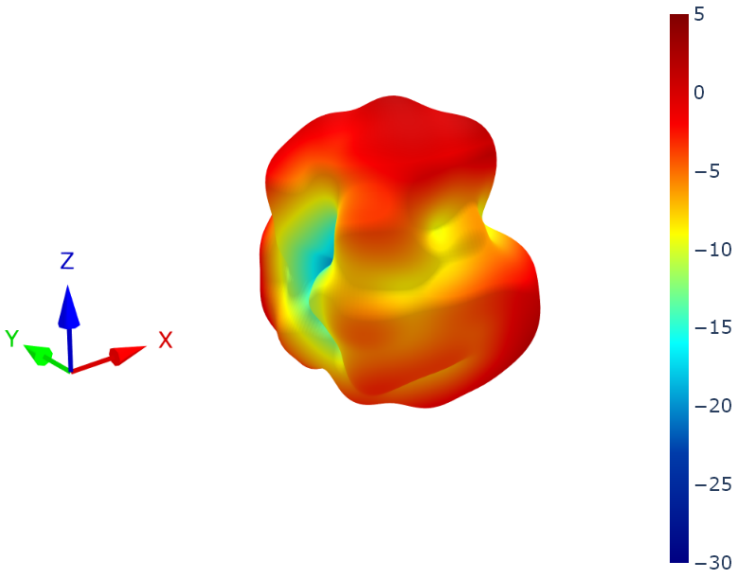

| XZ Plane | YZ Plane | XY Plane |
|---|---|---|
|  |  |  |

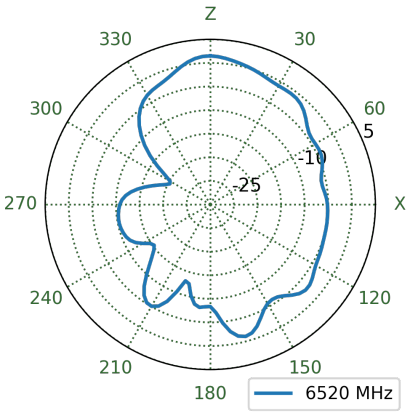
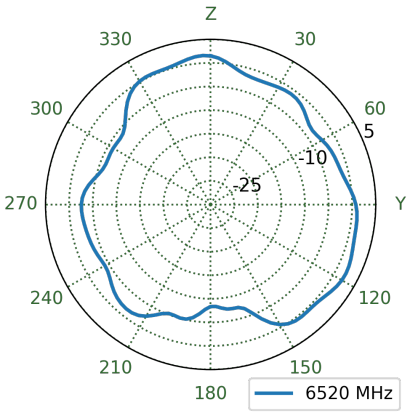
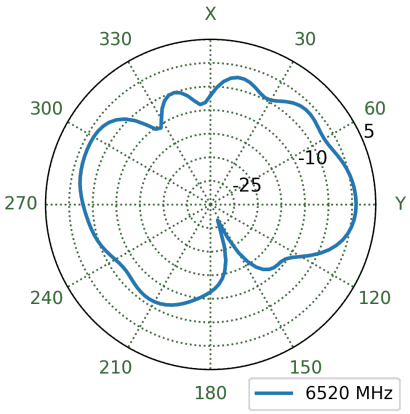
## 7.12 Wi-Fi 3 Patterns at 6525 MHz




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

## 7.13 Wi-Fi 4 Patterns at 6525 MHz




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

Changelog for the datasheet

## SPE-25-8-191 - MA584.A.003_MA584.W.003

| Revision: A (Initial Release) | |
|---|---|
| Date: | 2025-07-09 |
| Notes: | Initial Datasheet Release |
| Author: | Cesar Sousa |

**Previous Revisions**

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