



# TAOGLAS®



# Datasheet

## Guardian

**Part No:**  
MA964.A.CGMM.003.je

### Description:

Guardian 4-in-1 Wi-Fi® Adhesive Mount Combination Antenna

### Features:

Low-Profile Adhesive Mount Housing – Mounts Flush to Wall

4\* Wi-Fi® (including Wi-Fi® 6) MIMO 2.4GHz/5.8/7.1GHz

IP67 Waterproof Resistant Enclosure

Cable: 3m TGC-200

Connectors: FAKRA Code I Beige

Dimensions: 146 \* 134 \* 20 mm

RoHS & Reach Compliant

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# 1. Introduction



The MA964 Guardian is a low-profile 4-in-1 Wi-Fi<sup>®</sup> (with Wi-Fi<sup>®</sup> 6 included) MIMO adhesive mount external antenna. As part of the first series of panel antenna worldwide designed for IoT gateway and router devices, it belongs to a new generation of combination antenna. The antenna functions at all Wi-Fi<sup>®</sup> frequencies (2.4-2.5GHz, 5-7.125GHz) meaning it is a future-proof solution for any Wi-Fi devices.

The MA964 Guardian is ideal for Wi-Fi<sup>®</sup> applications requiring the increased data throughput and range provided by MIMO technology, all in a convenient and compact form factor. It is designed with high efficiency and gain as well as high isolation between the antennas to prevent self-interference. Low loss cables are used to keep efficiency high over long cable lengths. With its heavy-duty, fully IP67 casing, the MA964 Guardian can withstand a range of environments.

All these factors make the MA964 Guardian antenna an excellent choice for use by RF professionals in:

- IoT Gateway and Routers
- HD Video Streaming
- Transportation
- Remote monitoring applications

The standard MA964 Guardian antenna comes with 3 meter, low loss TGC-200 coaxial cable. Customized cables and connector versions are also available. Also available in white, contact your regional Taoglas customer support team for further information.

## 2. Specifications

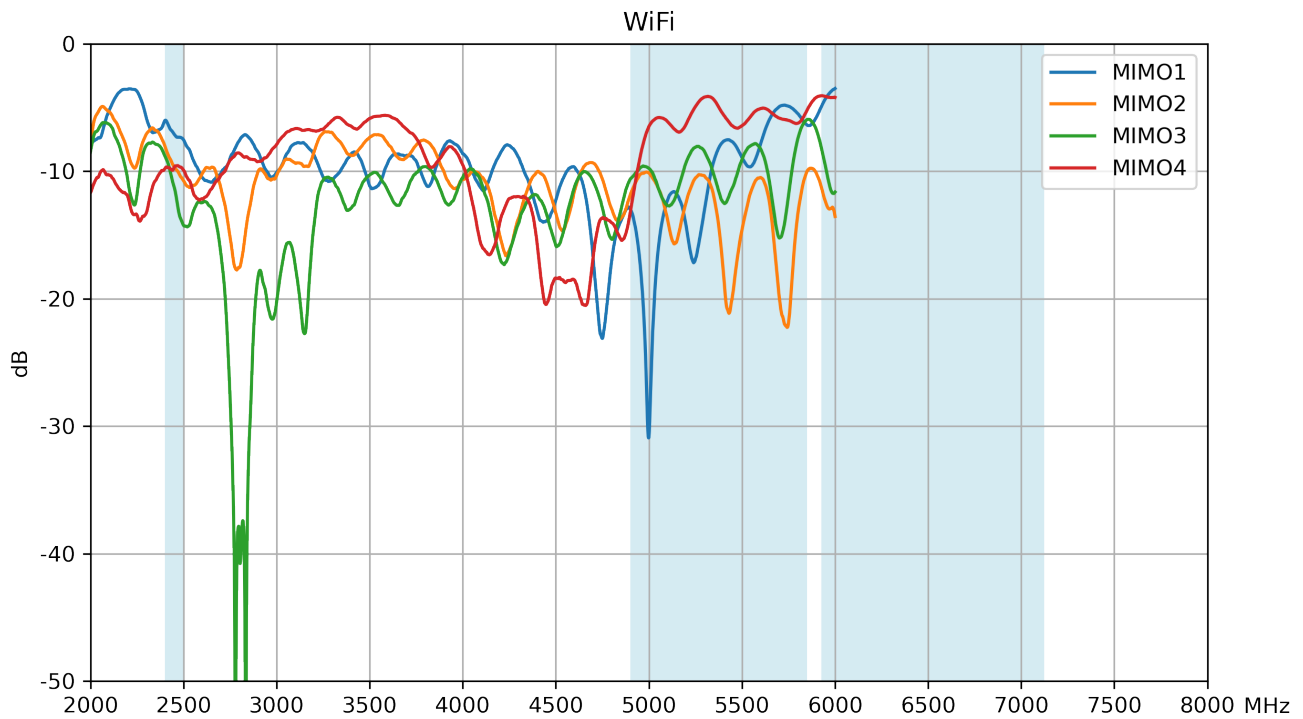
Wi-Fi MIMO Free Space Electrical									
Band	Frequency (MHz)	Setup	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Max Power Input	Polarization	Radiation Pattern
2.4GHz Wi-Fi	2400~2500	MIMO 1	61.5	-2.11	5.73	50 Ω	10W	Linear	Omni-Directional
		MIMO 2	69.9	-1.55	5.09				
		MIMO 3	74.3	-1.29	5.03				
		MIMO 4	74.2	-1.29	3.89				
5.8GHz Wi-Fi	5150~5850	MIMO 1	39.4	-4.04	7.31				
		MIMO 2	72.8	-1.38	5.48				
		MIMO 3	63.5	-1.97	5.16				
		MIMO 4	38.1	-4.19	6.30				
7.1GHz Wi-Fi 6	5925~7125	MIMO 1	32.8	-4.9	2.6				
		MIMO 2	67.3	-1.7	5.2				
		MIMO 3	53.8	-2.7	4.6				
		MIMO 4	29.6	-5.3	3.7				

Mechanical	
Antenna Dimensions	146*134*20mm
Casing	ASA
Weight (including cable)	700g
Ingress Protection Rating	IP67
Connector	4* FAKRA Code I Beige
Cables	4* 3000mm TGC200
Environmental	
Operation Temperature	-40°C to 85°C
Storage Temperature	-40°C to 90°C
Humidity	Non-condensing 65°C 95% RH

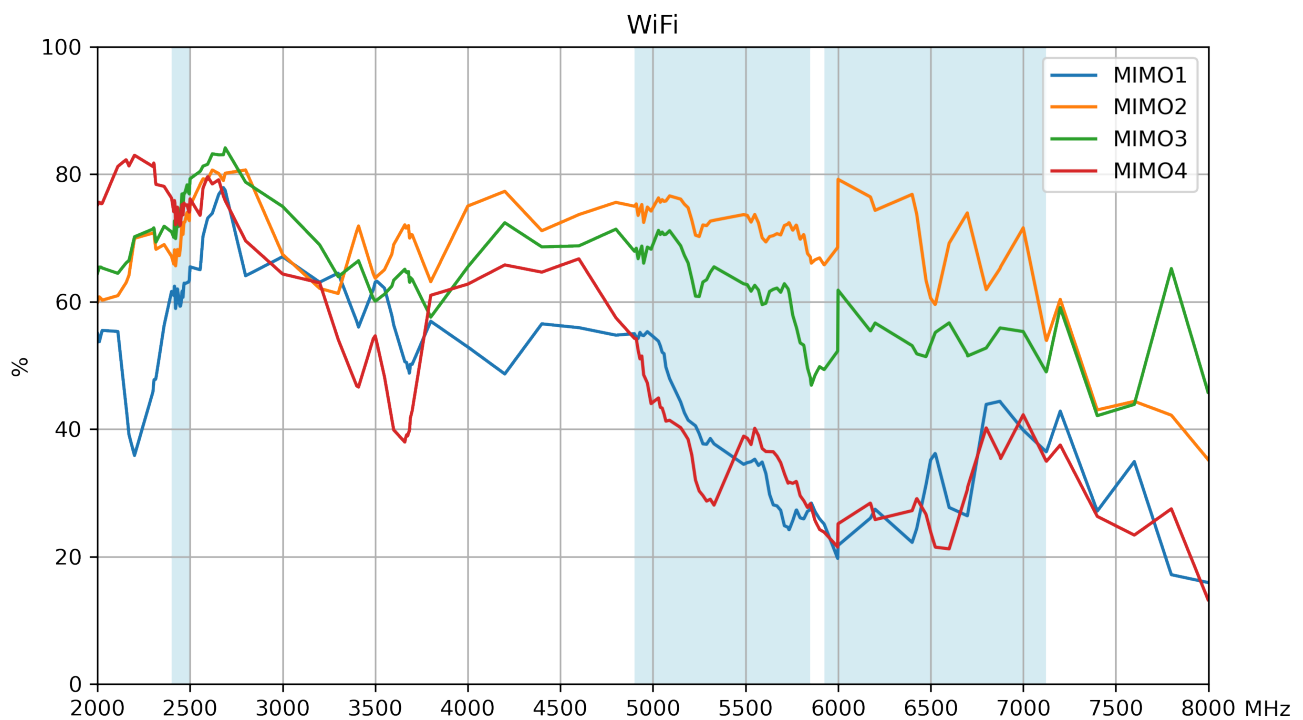


### 3. Antenna Characteristics

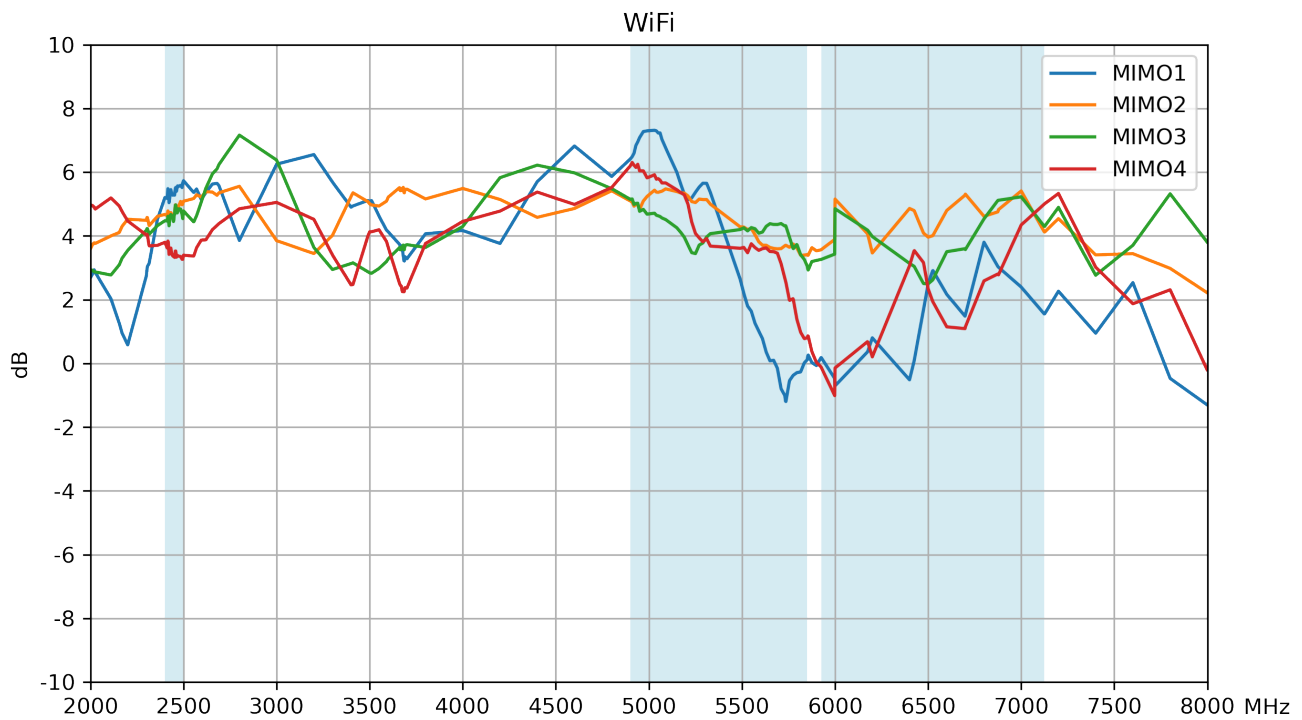
#### 3.1 Return Loss



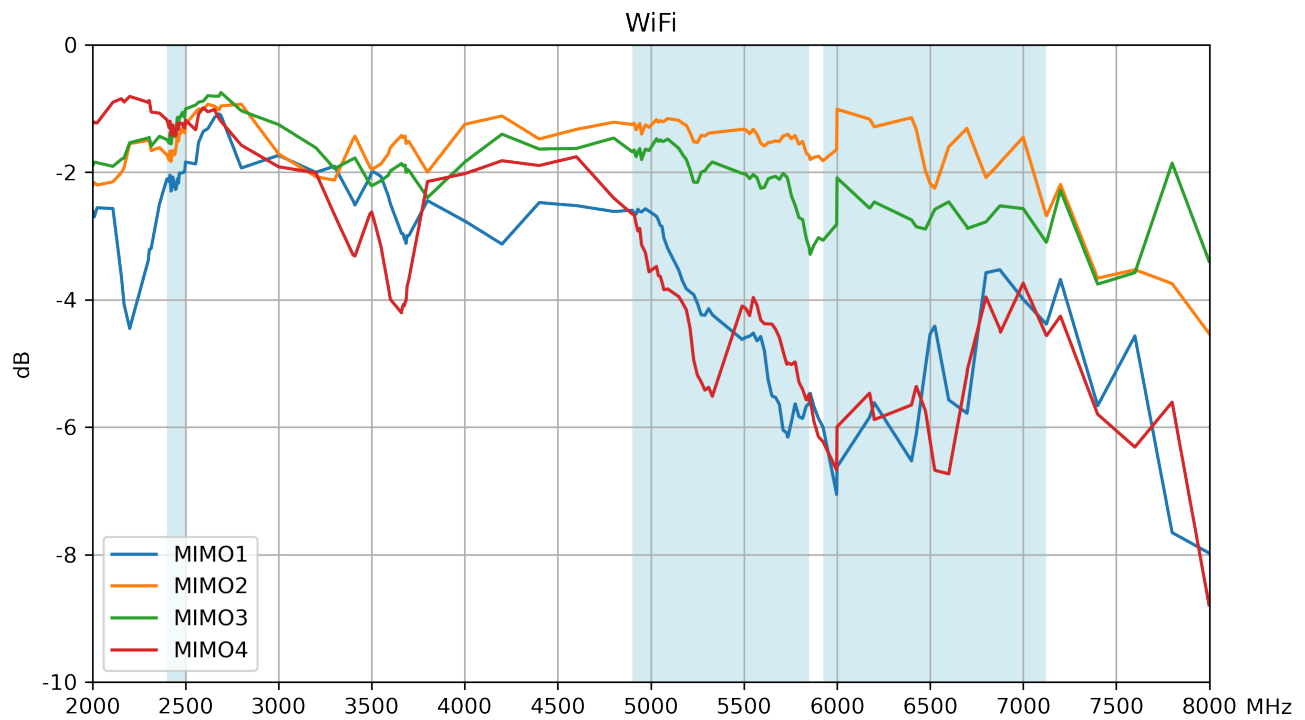
#### 3.2 Efficiency



### 3.3 Peak Gain



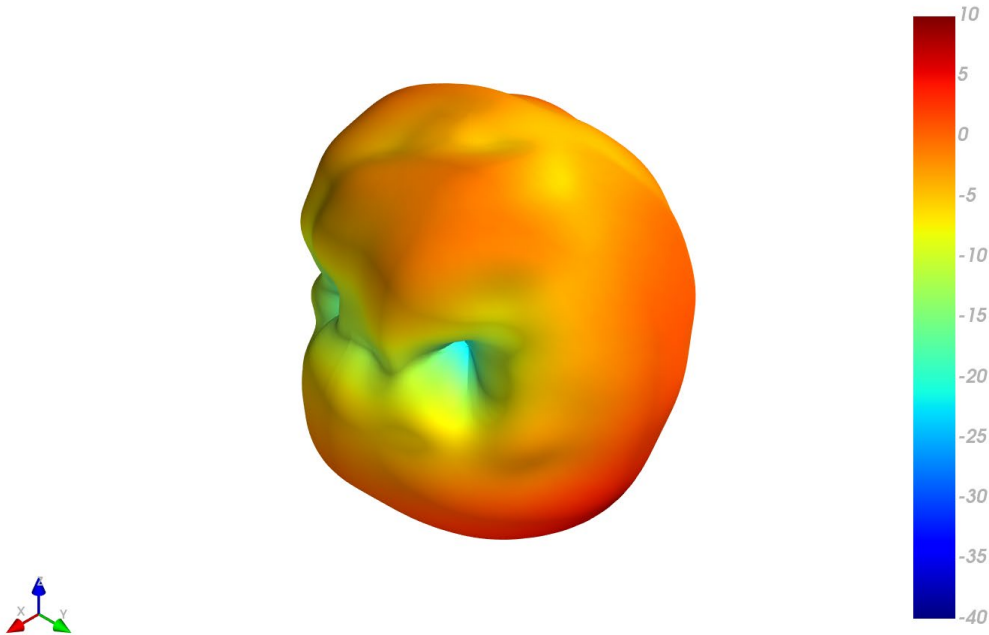
### 3.4 Average Gain



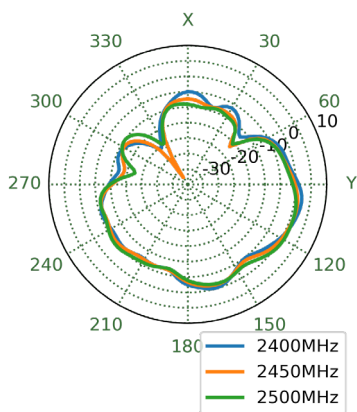
# 4. Radiation Patterns

## 4.1 Wi-Fi MIMO 1 3D and 2D Radiation Patterns

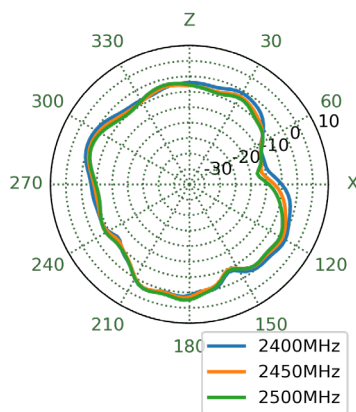
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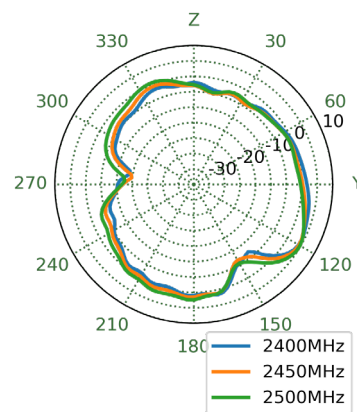
XY Plane



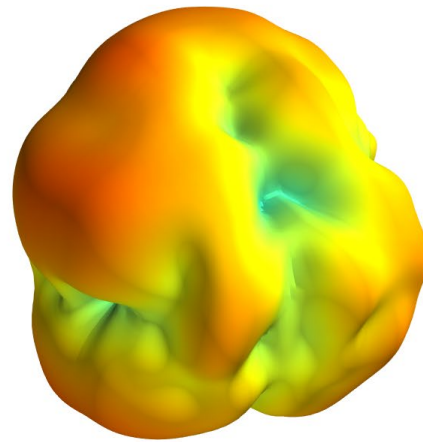
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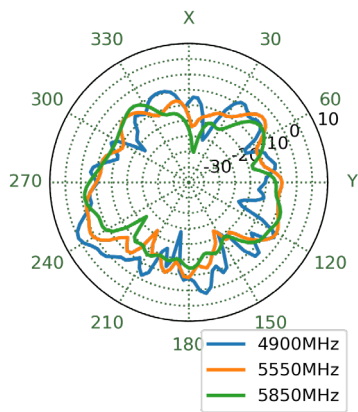
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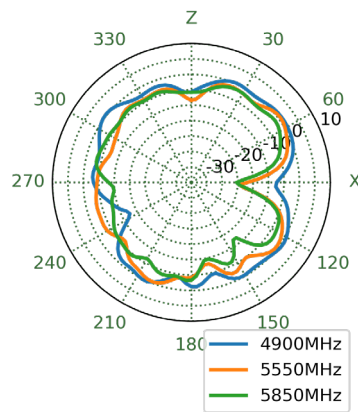
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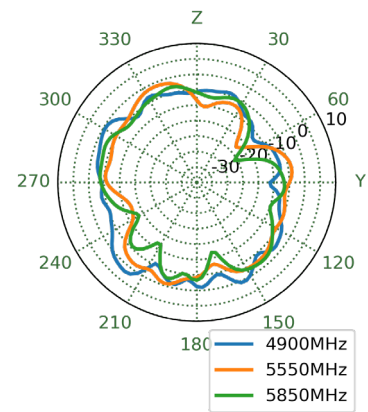
XY Plane



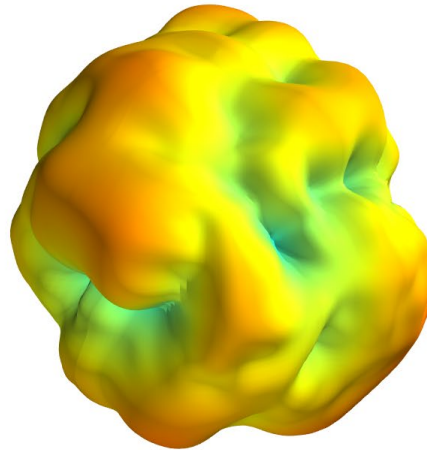
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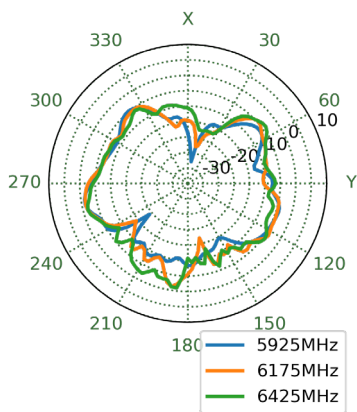
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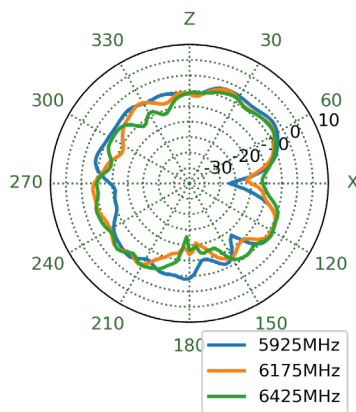
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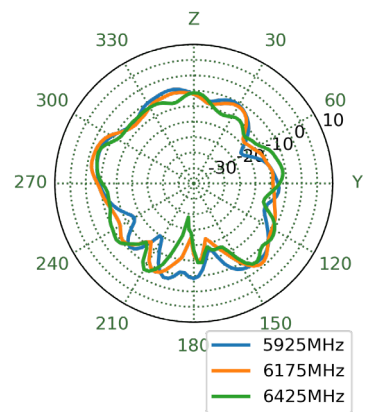
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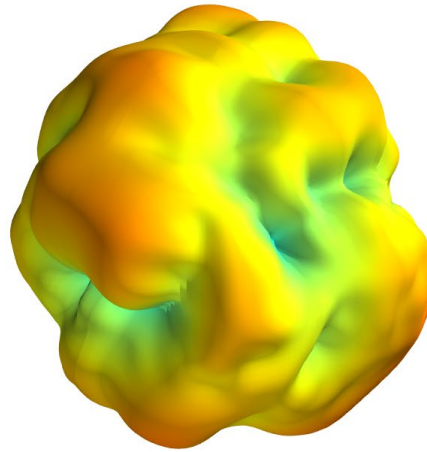
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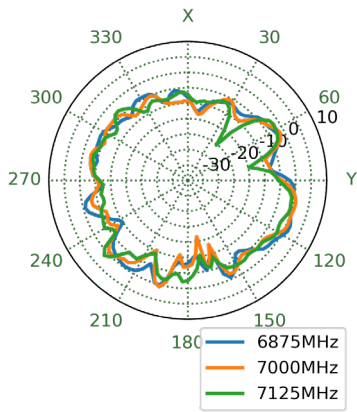
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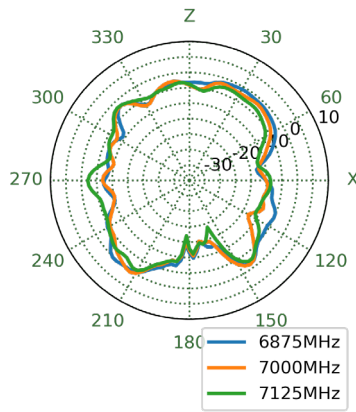
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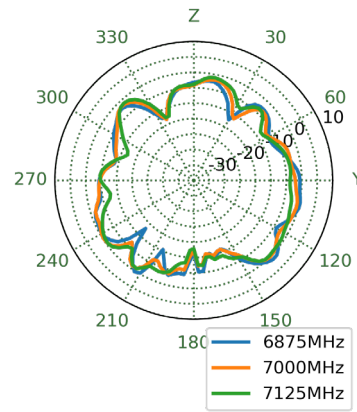
XY Plane



XZ Plane

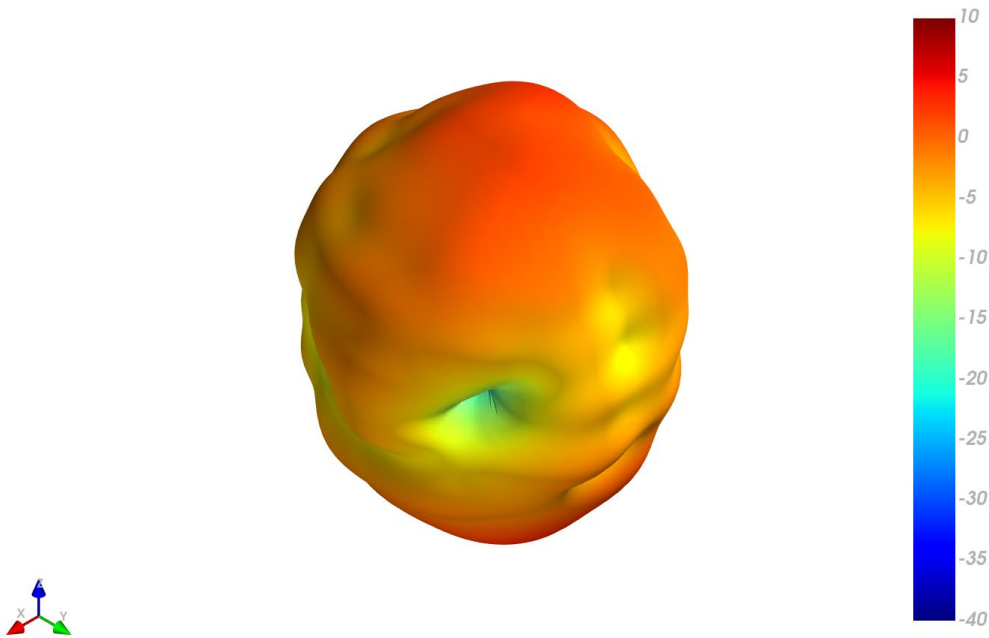


YZ Plane

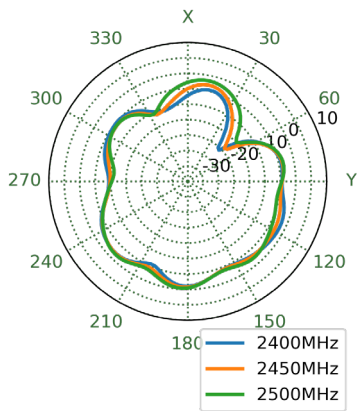


4.2 Wi-Fi MIMO 2 3D and 2D Radiation Patterns

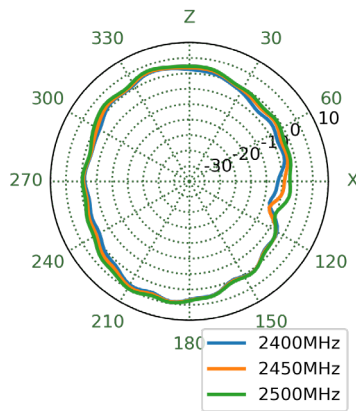
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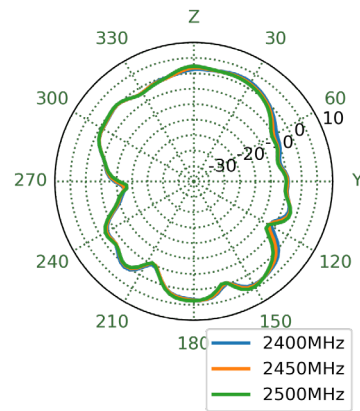
XY Plane



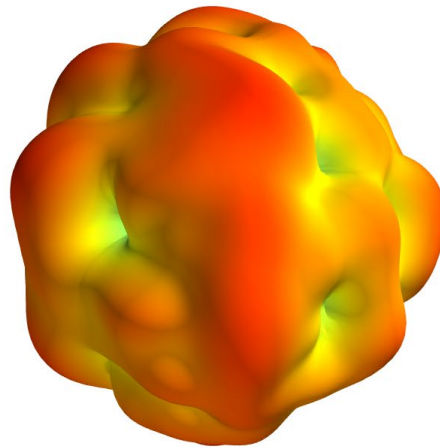
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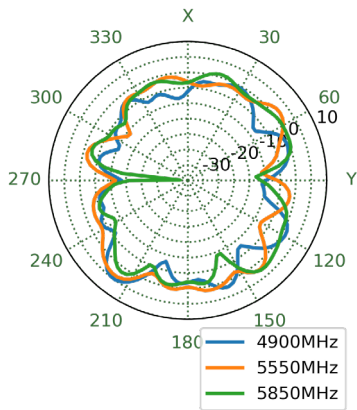
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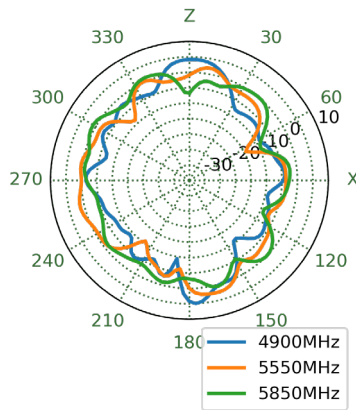
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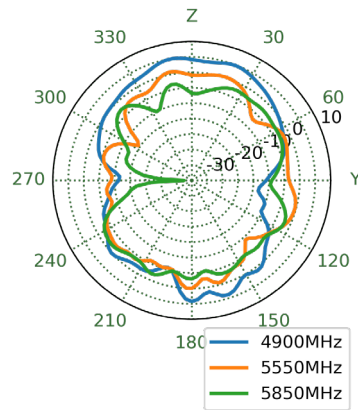
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XZ Plane

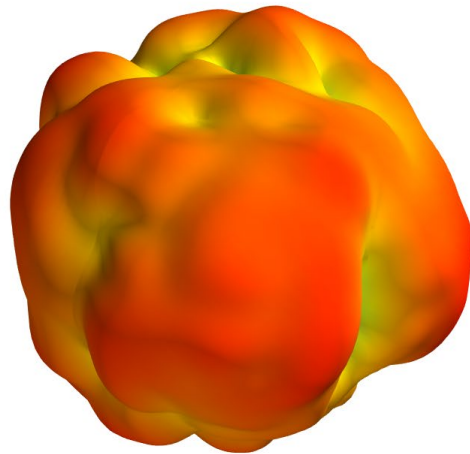


YZ Plane

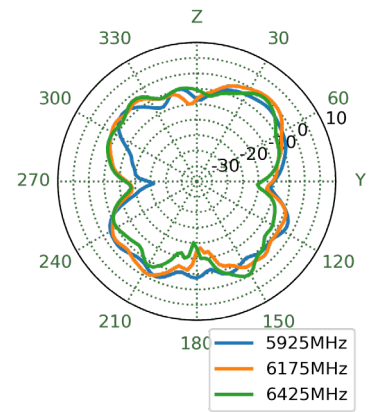
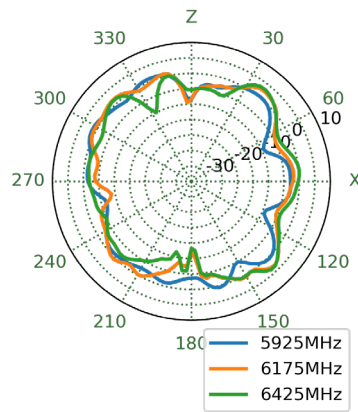
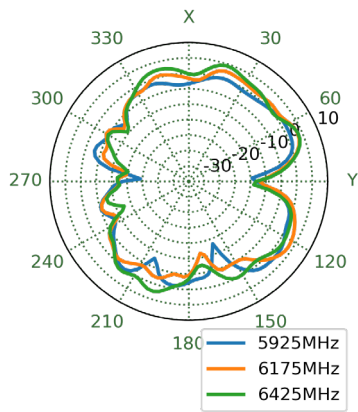




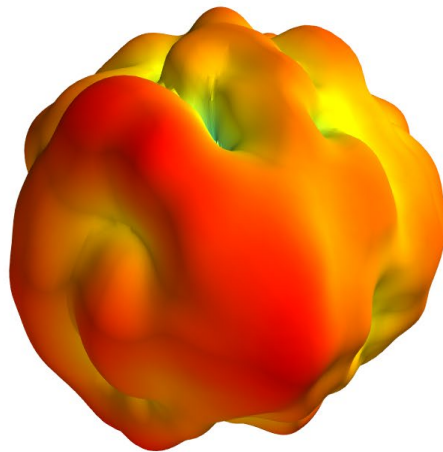
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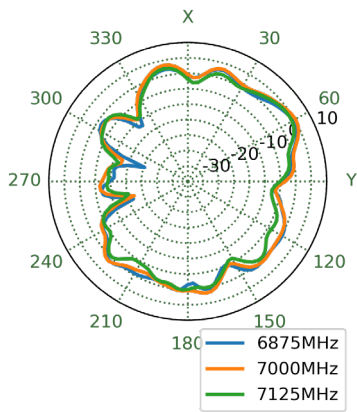
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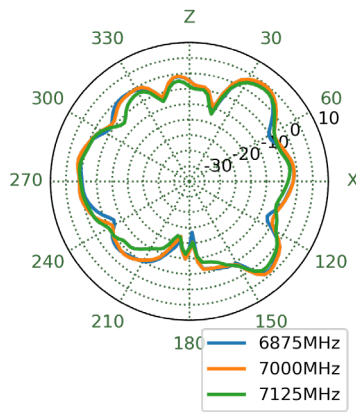
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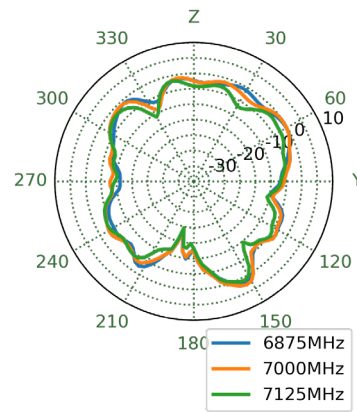
XY Plane



XZ Plane

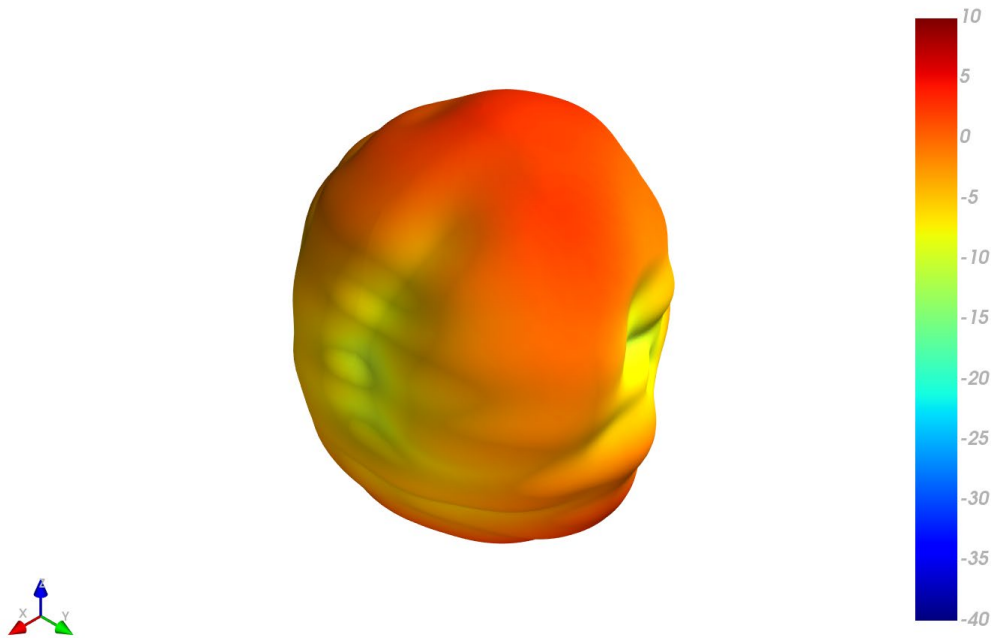


YZ Plane

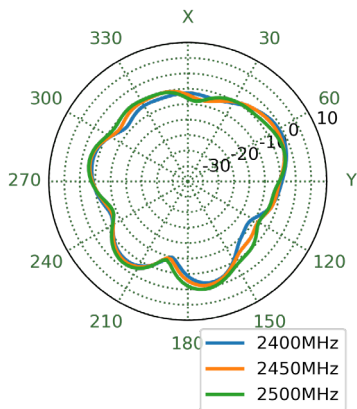


### 4.3 Wi-Fi MIMO 3 3D and 2D Radiation Patterns

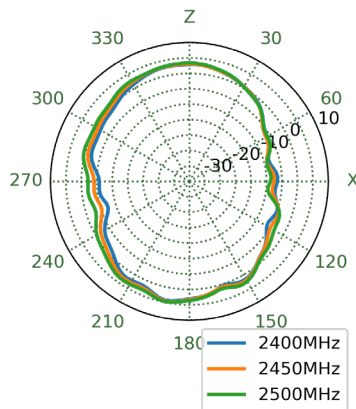
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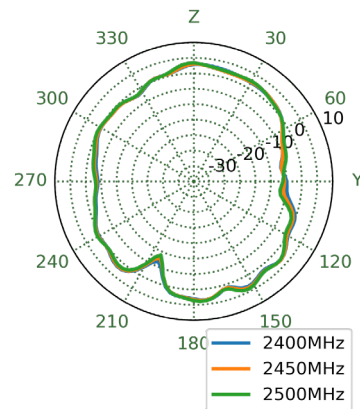
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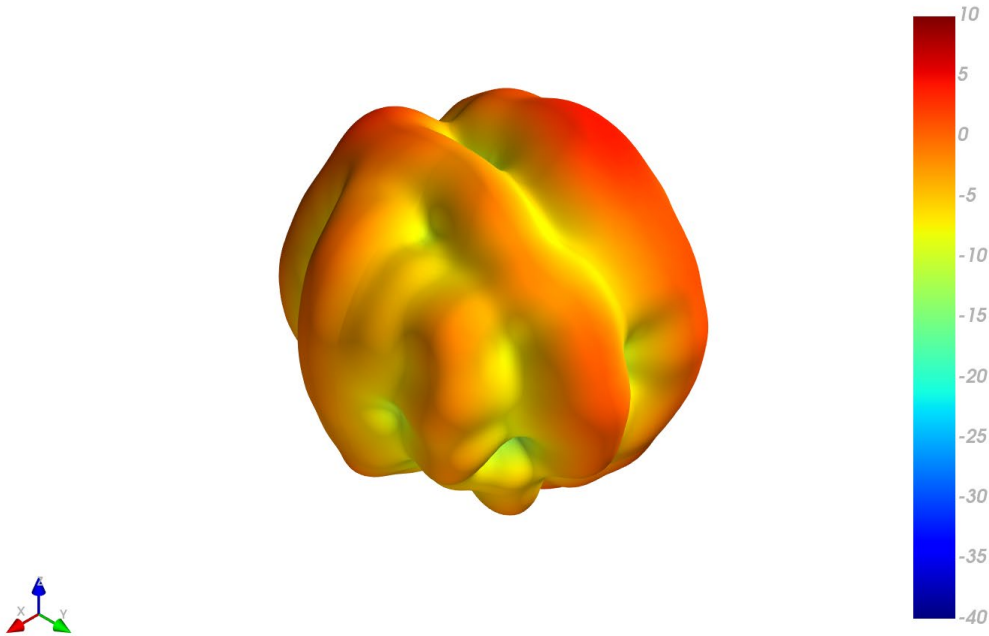
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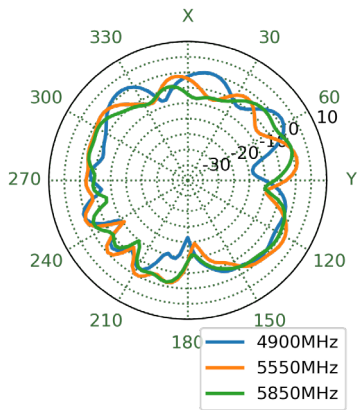
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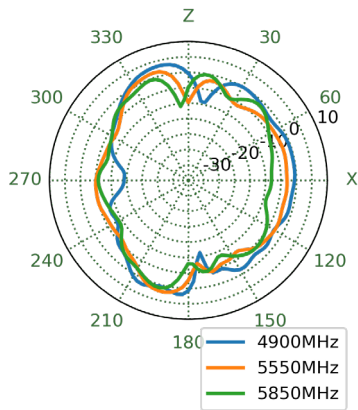
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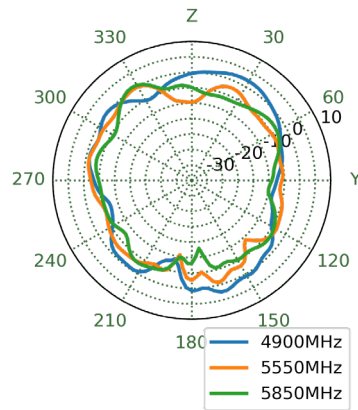
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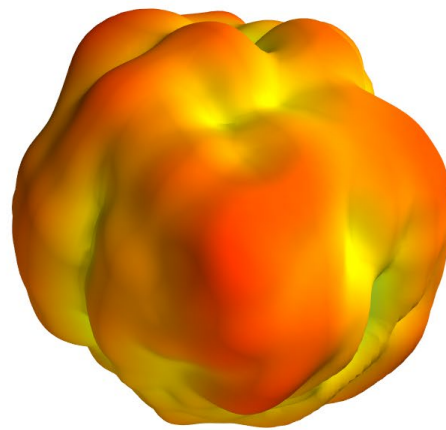
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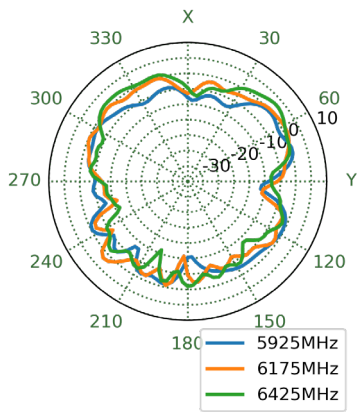
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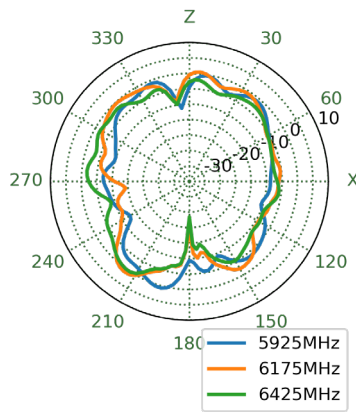
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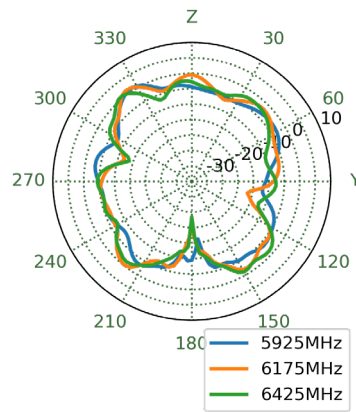
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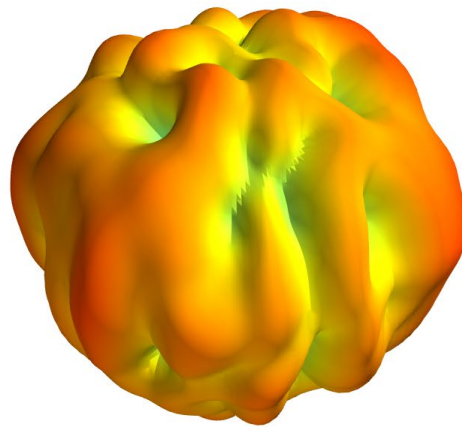
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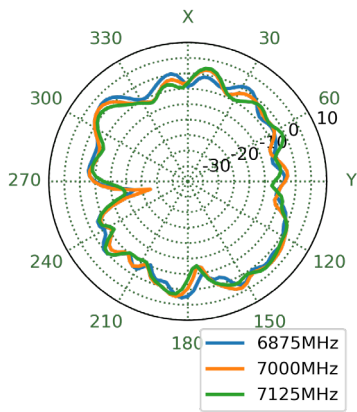
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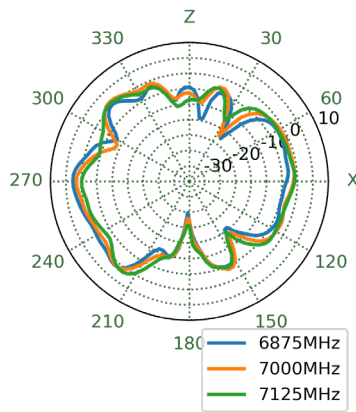
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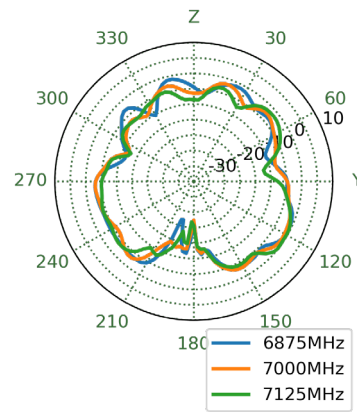
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XZ Plane

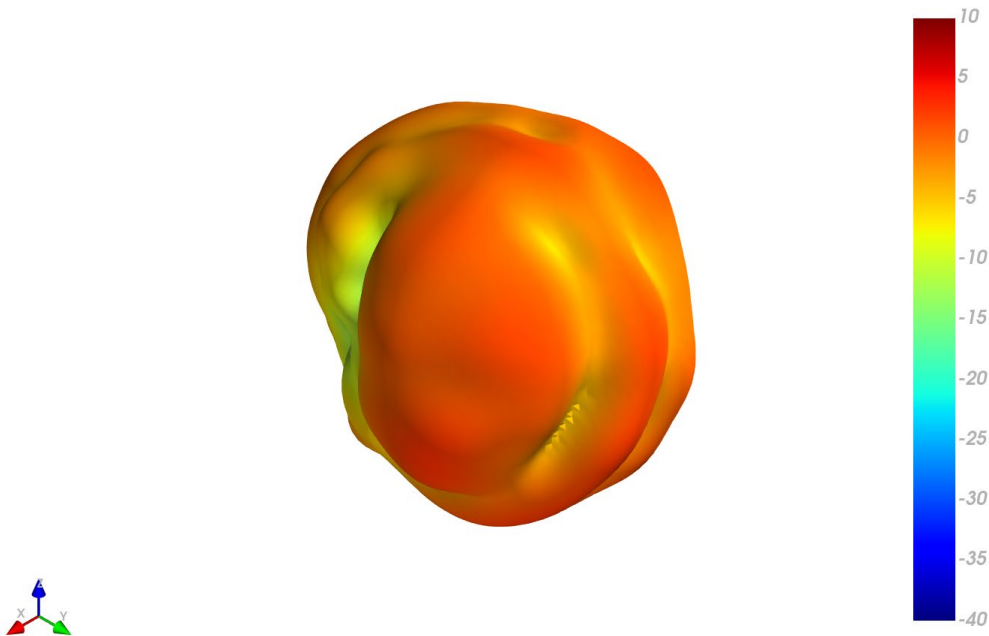


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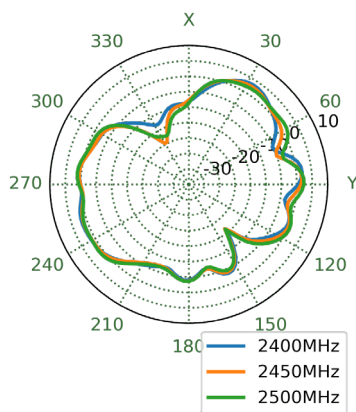


## 4.4 Wi-Fi MIMO 4 3D and 2D Radiation Patterns

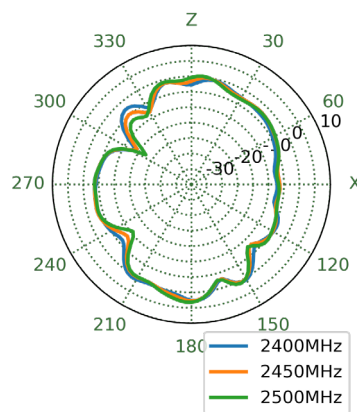
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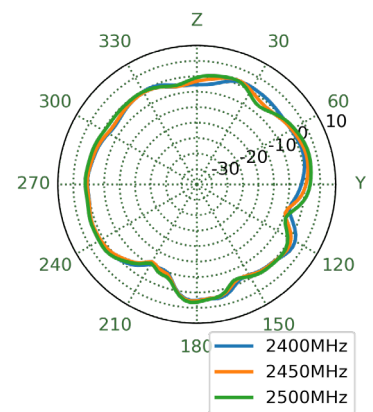
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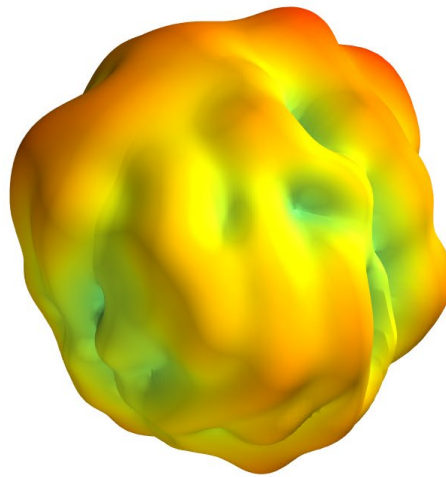
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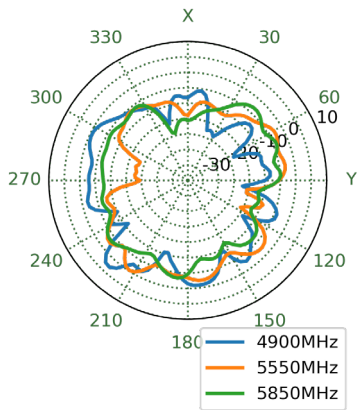
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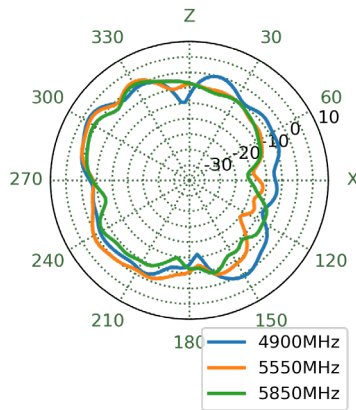
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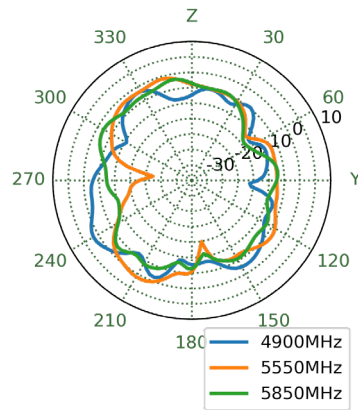
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XZ Plane

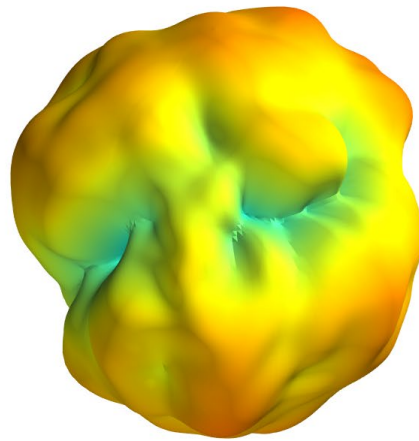


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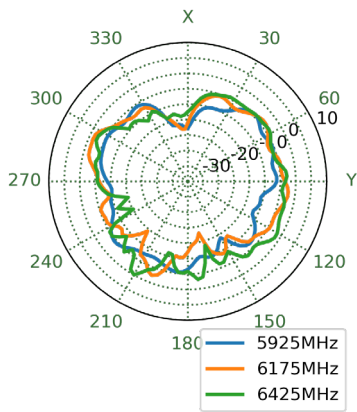




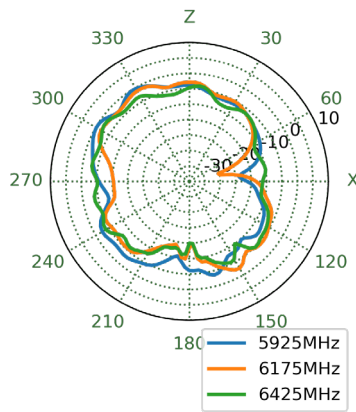
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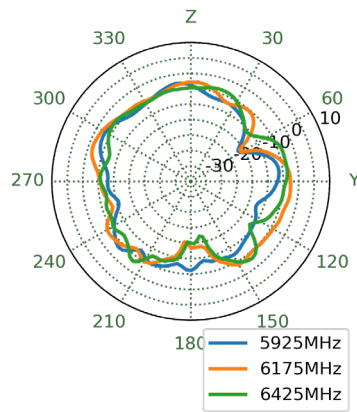
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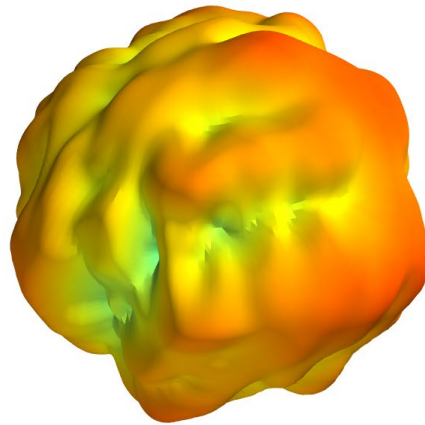
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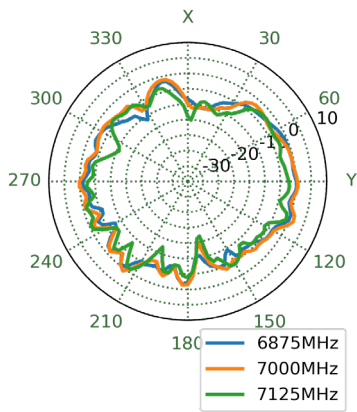
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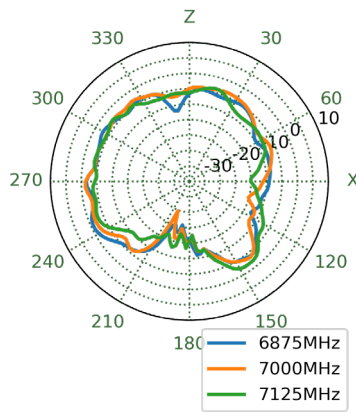
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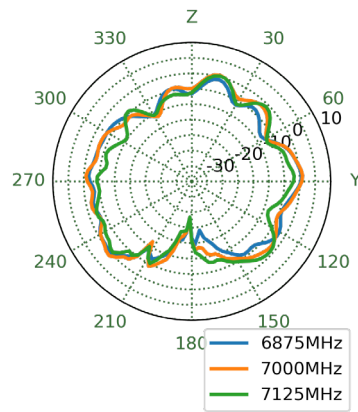
XY Plane



XZ Plane



YZ Plane



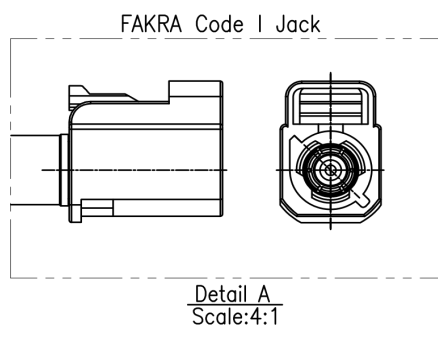
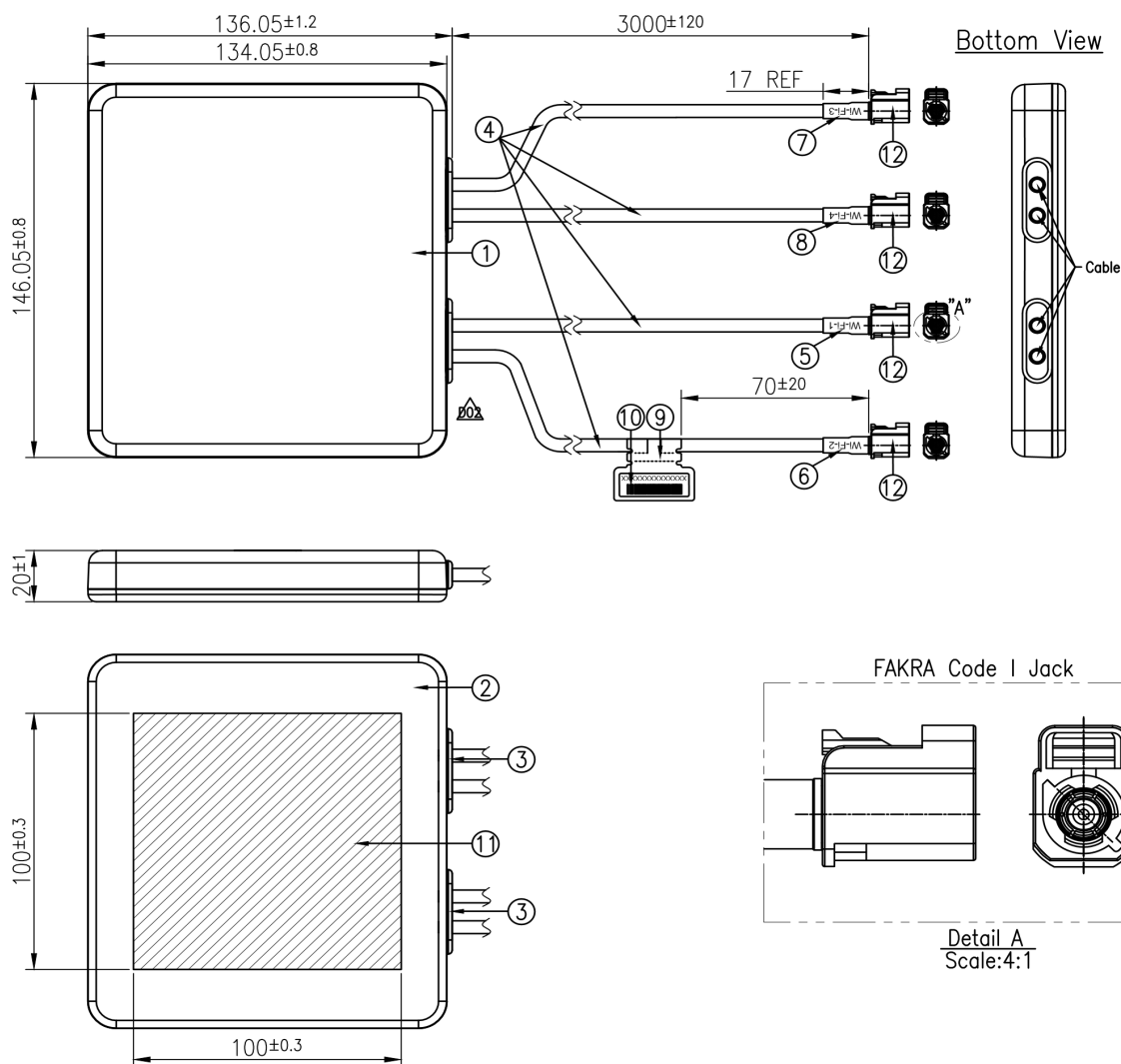
# 5. Mechanical Drawing (Units: mm)

ISO NO.: EDW-21-8-0538

STATE: Release

NOTES: 1. All material must be RoHS compliant.  
2. The connector orientation has a fixed position to the antenna as per drawing.  
3. Double Sided Adhesive Area :

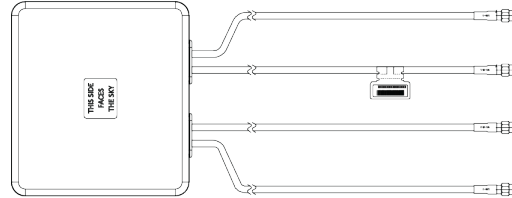
REV.	DESCRIPTION	ENG.	APPROVED	DATE
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<u>D02</u>	Remove this side faces sky label	Ruby	Aaron	2021/08/18



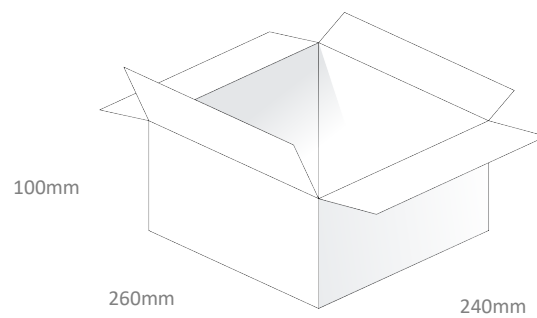
<u>D02</u>	Name	Material	Finish	QTY
1	Top Housing	ASA	Black	1
2	Bottom Housing	ASA	Black	1
3	Rubber-2 Holes	Silicone Rubber	Black	2
4	TGC200 Coaxial Cable	PE	Black	4
5	Heat Shrink Tube (Wi-Fi-1)	PE	Yellow Tube/Black Text	1
6	Heat Shrink Tube (Wi-Fi-2)	PE	Yellow Tube/Black Text	1
7	Heat Shrink Tube (Wi-Fi-3)	PE	Yellow Tube/Black Text	1
8	Heat Shrink Tube (Wi-Fi-4)	PE	Yellow Tube/Black Text	1
9	Empty Label	PEPA	White	1
10	Barcode Label	PET	White	1
11	Double Sided Adhesive(Black Foam)	ON35-300WIK 15R	White Liner	1
12	FAKRA Code I SMB(F)	PA66	Beige	4

APPROVED BY: Aaron	 <small>TW Design Centre</small> This drawing and its inherent design concepts are property of Taoglas. Not to be copied or given to third parties without the written consent of Taoglas.
CHECK BY: Aaron	
DRAWN BY: Ruby	TITLE : Guardian 4in1 Adhesive Mount Antenna - 4* Wideband Wi-Fi 600-6000MHz with 3m TGC-200 & FAKRA I Pre-adhered PART NO. : MA964.A.CGHM.003.je
DATE: 2021/04/20	
UNLESS OTHERWISE SPECIFIED TOLERANCES ON: XX:±0.5 X:±0.3 X:±0.2 J:±0.1 J:XX:±0.05	UNIT: mm    SCALE: 1:2.5    PAGES: 1/1    REV. D02
THIRD ANGLE PROJECTION	

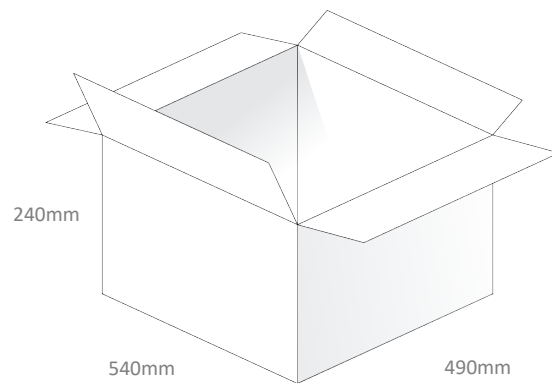
## 6. Packaging



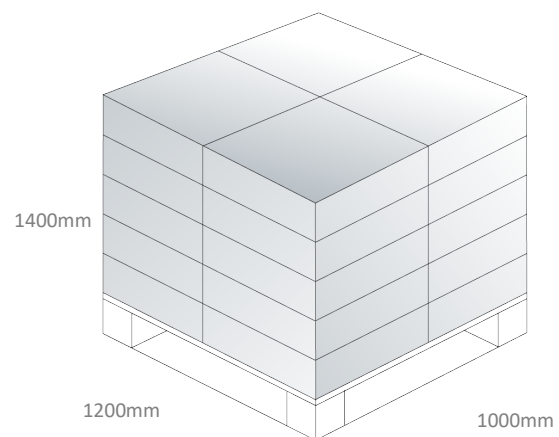
1 MA964.A.CGMN.003.je per small box  
 Box Dimensions - 260\*240\*100mm  
 Weight - 750g



Box Dimensions - 540\*490\*240mm  
 8 pcs MA964.A.CGMN.003.je per carton  
 Weight - 7Kg



Pallet Dimensions:  
 1200\*1000\*1400mm  
 20 Cartons per Pallet  
 4 Cartons per layer, 5 Layers



Changelog for the datasheet

SPE-21-8-060 – MA964.A.CGMMN.003.je

Revision: A (Original First Release)	
Date:	2021-08-13
Notes:	
Author:	Jack Conroy

Previous Revisions




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