



# TAOGLAS®



## Datasheet

**Part No:**  
PC14.03.3000D

### Description

Circular Dual-Band 2.4~5.2GHz PCB antenna with cable and connector

### Features:

Ø42mm\*0.8mm

High efficiency antenna for Wi-Fi®/ Bluetooth®/ ZigBee® applications

3M Rg-174 RP-SMA(M)

Stable efficiency, gain and radiation patterns

Cable and Connector fully customizable

RoHS Compliant Custom Cables and Connectors Available

RoHS & Reach Compliant

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# 1. Introduction



The PC14.03.3000D is a high performance wireless antenna for internal use in Wi-Fi® or WLAN equipment worldwide. Omni-directional gain across both bands ensures constant reception and transmission. Its compact size and high performance make it ideal for integration into today's devices.

Many module manufacturers specify peak gain limits for any antennas that are to be connected to that module. Those peak gain limits are based on free-space conditions. In practice, the peak gain of an antenna tested in free-space can degrade by at least 1 or 2dBi when put inside a device. So ideally you should go for a slightly higher peak gain antenna than mentioned on the module specification to compensate for this effect, giving you better performance.

Upon testing of any of our antennas with your device and a selection of appropriate layout, integration technique, or cable, Taoglas can make sure any of our antennas' peak gain will be below the peak gain limits. Taoglas can then issue a specification and/or report for the selected antenna in your device that will clearly show it complying with the peak gain limits, so you can be assured you are meeting regulatory requirements for that module.

For example, a module manufacturer may state that the antenna must have less than 2dBi peak gain, but you don't need to select an embedded antenna that has a peak gain of less than 2dBi in free-space. This will give you a less optimized solution. It is better to go for a slightly higher free-space peak gain of 3dBi or more if available. Once that antenna gets integrated into your device, performance will degrade below this 2dBi peak gain due to the effects of GND plane, surrounding components, and device housing. If you want to be absolutely sure, contact Taoglas and we will test. Choosing a Taoglas antenna with a higher peak gain than what is specified by the module manufacturer and enlisting our help will ensure you are getting the best performance possible without exceeding the peak gain limits.

Cable and connector are fully customizable.

## 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	2mm ABS	75.2	-1.24	5.07	50 $\Omega$	Linear	Omni	2W
		Free Space	76.0	-1.19	5.60				
Wi-Fi - 5GHz	5150-5850	2mm ABS	39.1	-4.08	4.28				
		Free Space	36.1	-4.43	3.78				

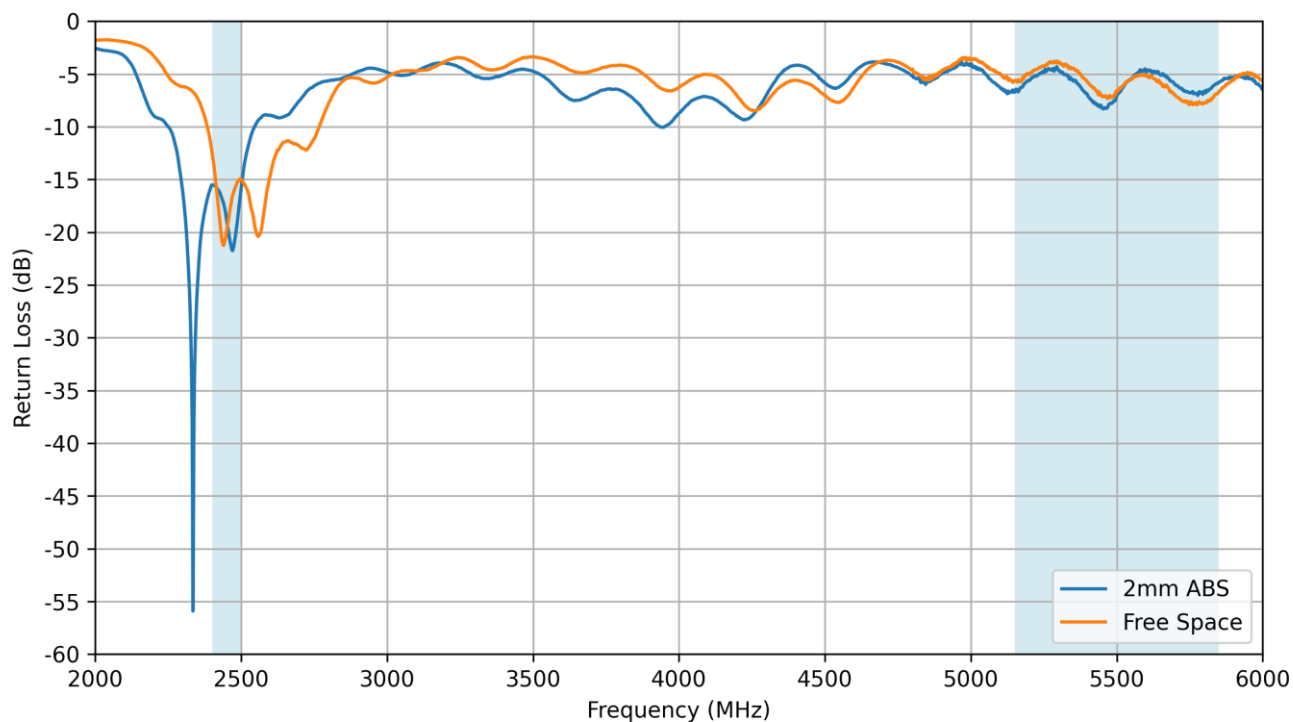
\*Tested with 300mm of cable (RG174).

Mechanical	
Dimensions	Ø42mm*0.8 mm
Connector	RP-SMA(M)
Cable Standard	RG-174
Weight	33g

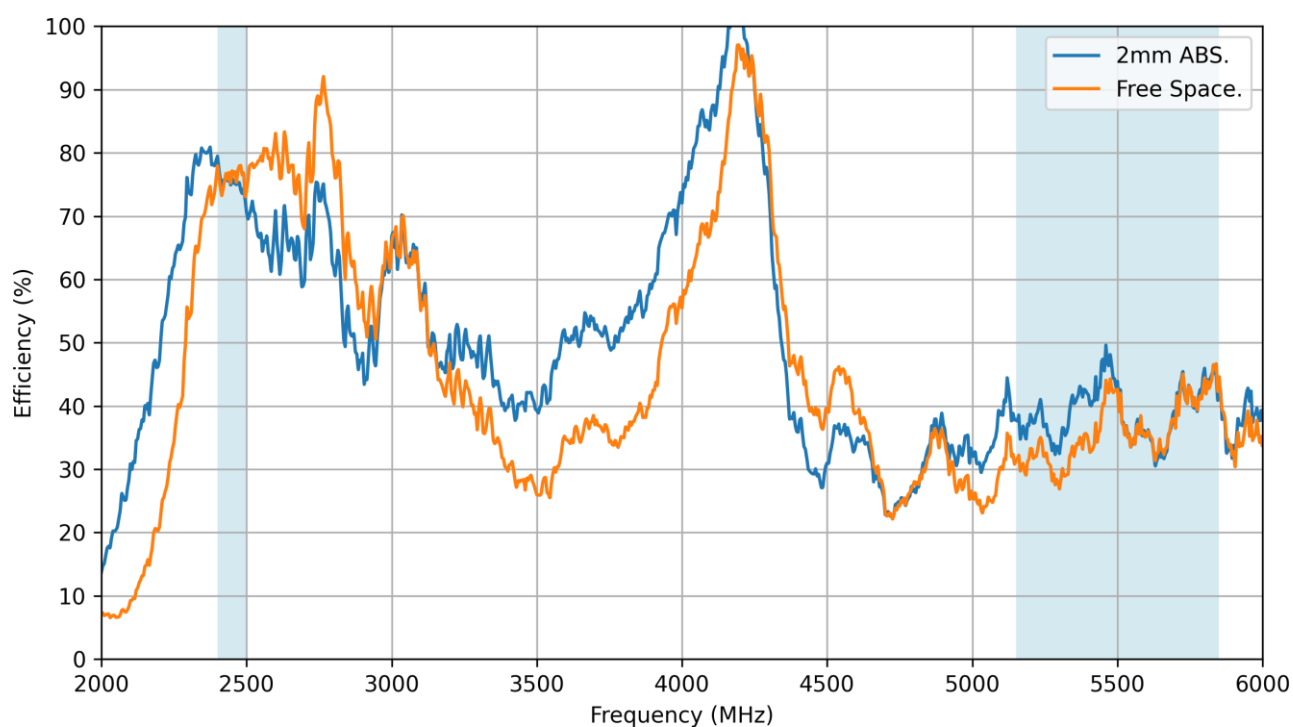
Environmental	
Operation Temperature	-40 °C ~ +85 °C
Storage Temperature	-40 °C ~ +85 °C
RoHS Compliant	Yes

## 3. Antenna Characteristics

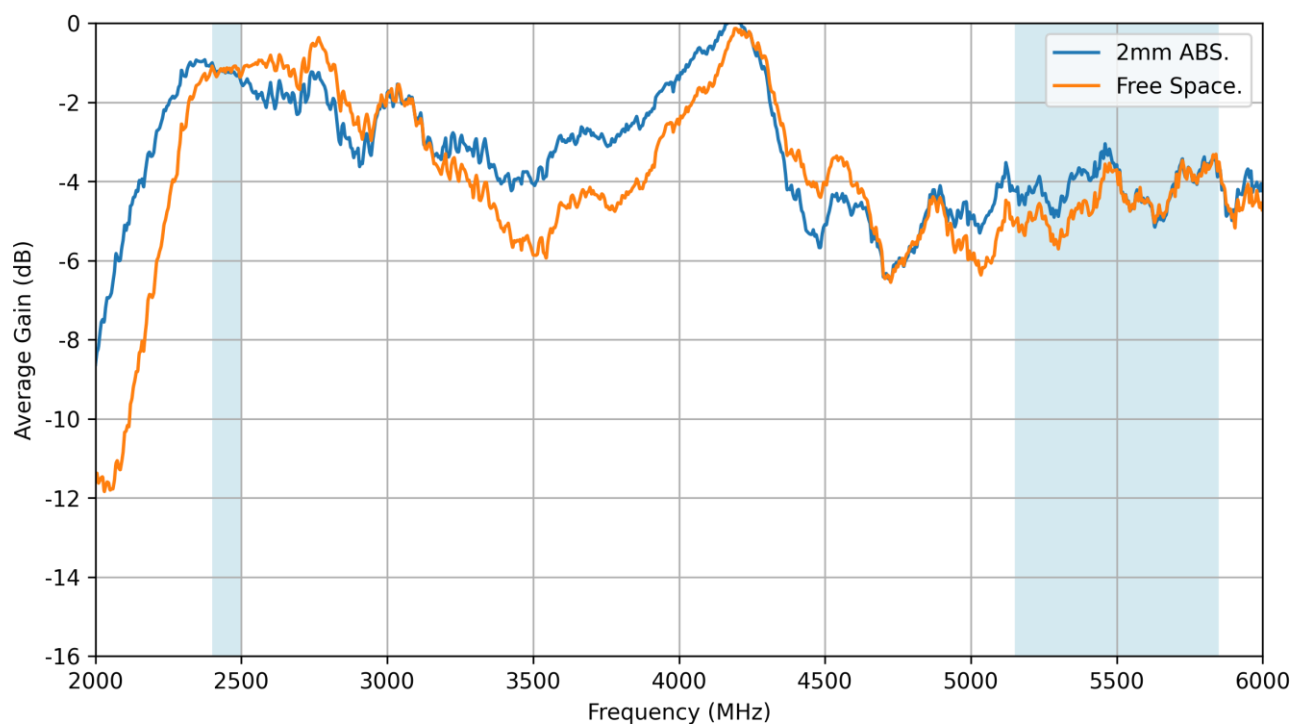
### 3.1 Return Loss



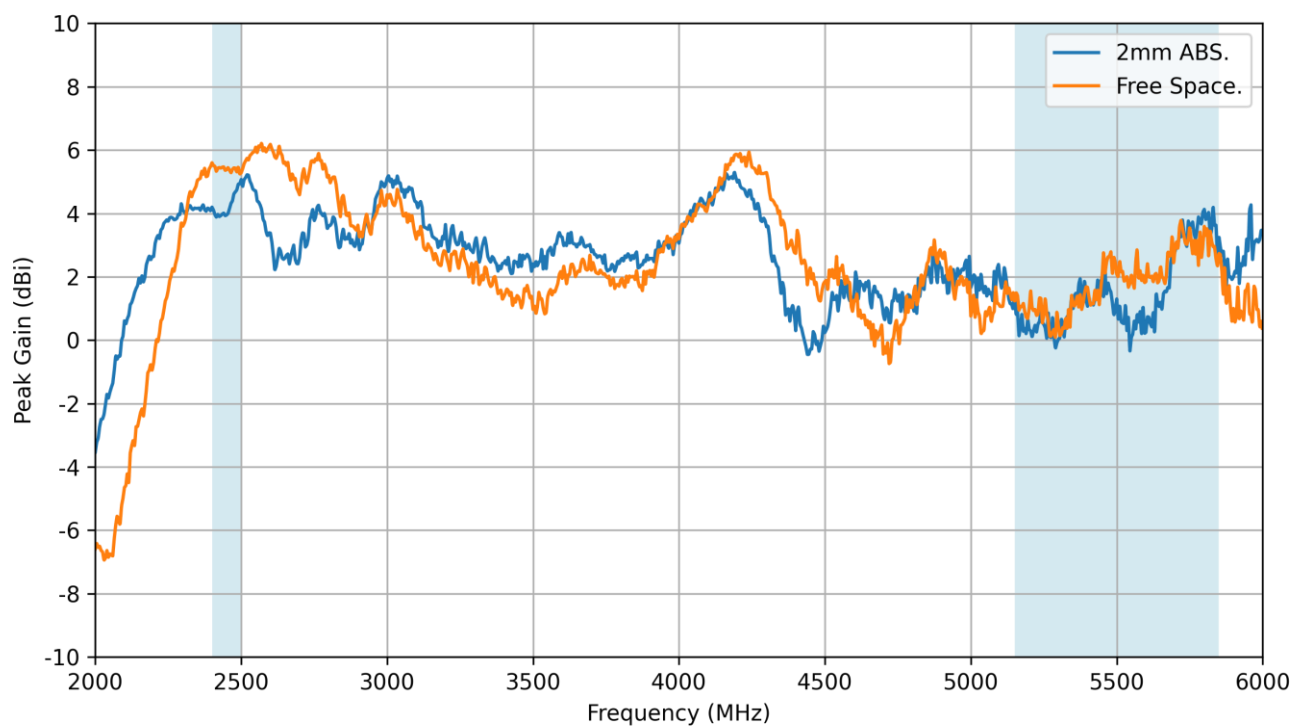
### 3.2 Efficiency



### 3.3 Average Gain

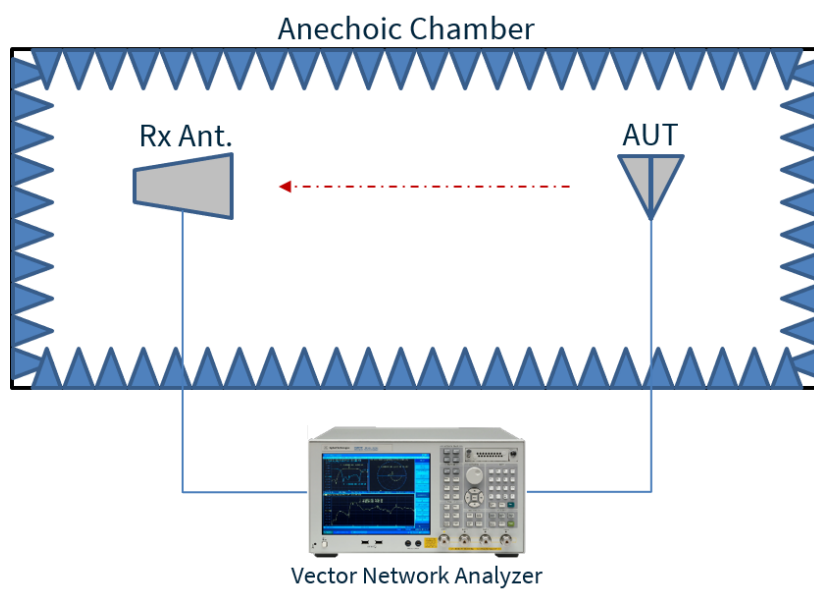


### 3.4 Peak Gain

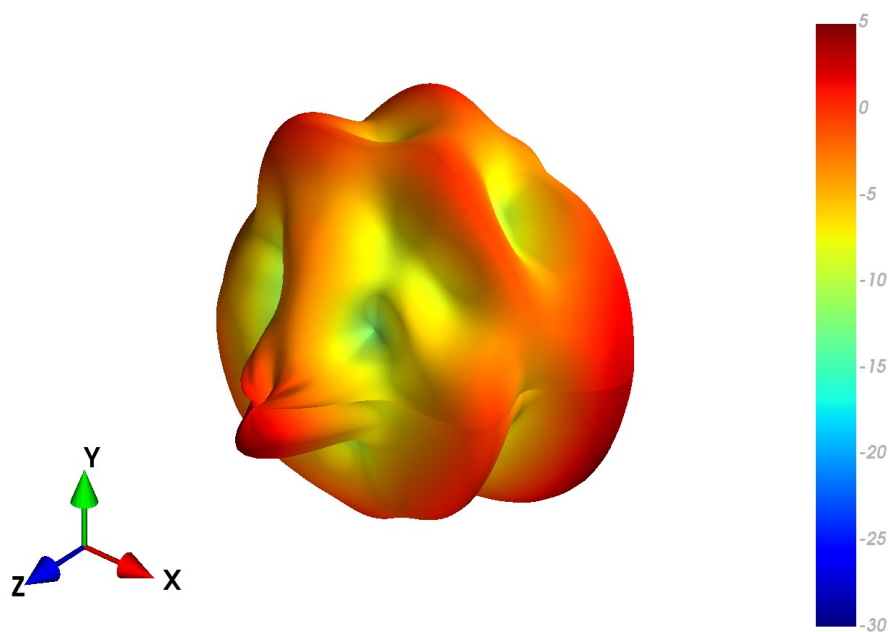


## 4. Radiation Patterns

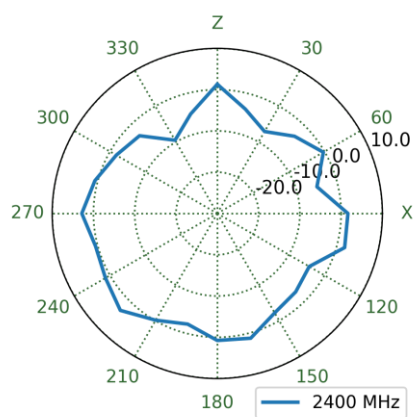
### 4.1 Test Setup



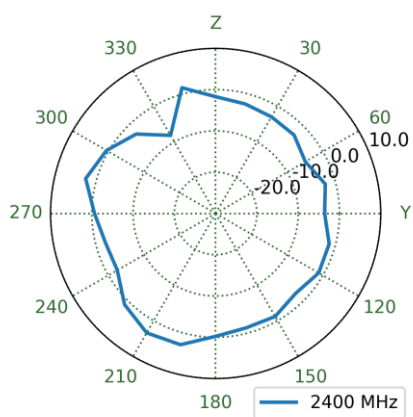
## 4.2 2mm ABS - Patterns at 2400 MHz



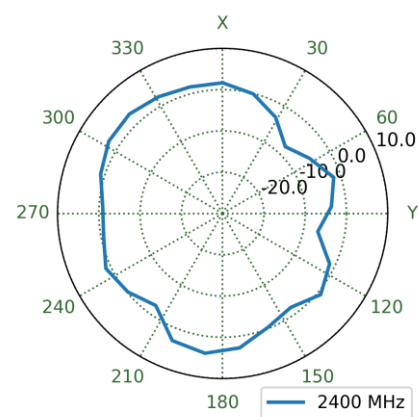
XZ Plane



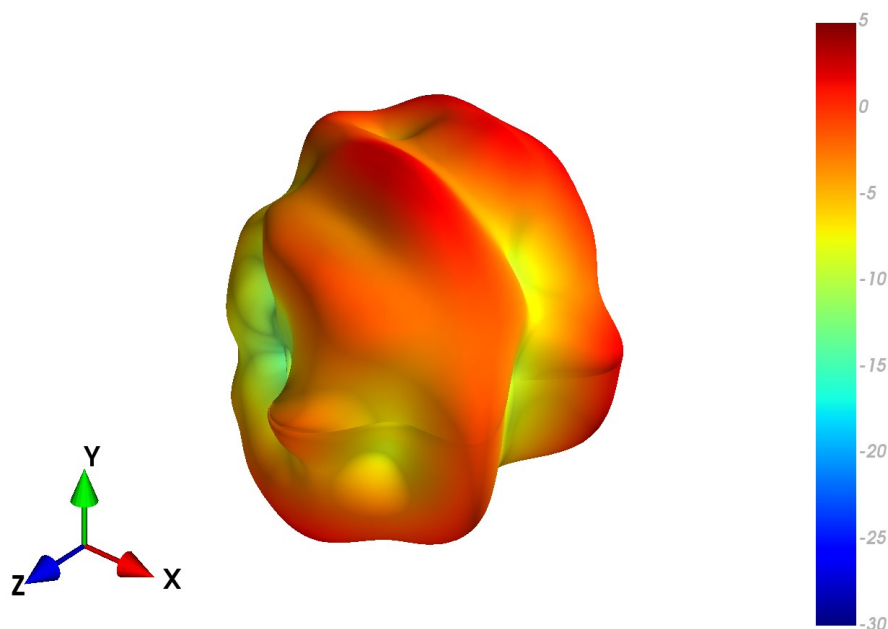
YZ Plane



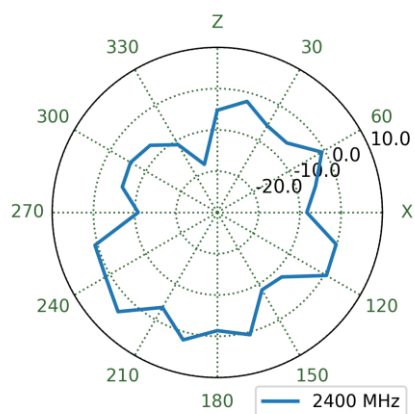
XY Plane



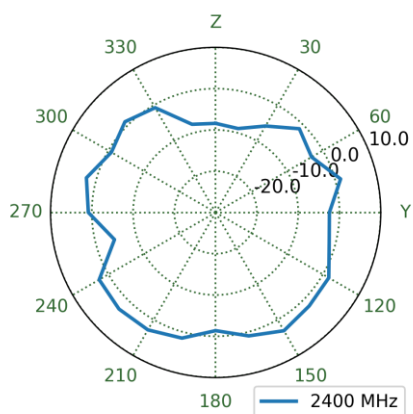
## 4.3 Free Space - Patterns at 2400 MHz



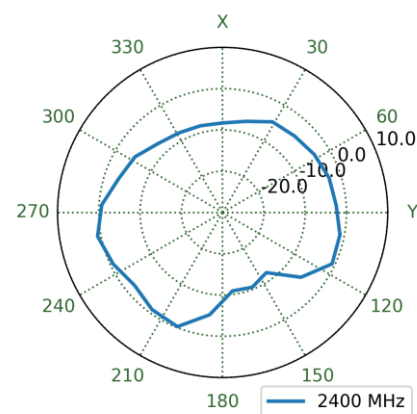
XZ Plane



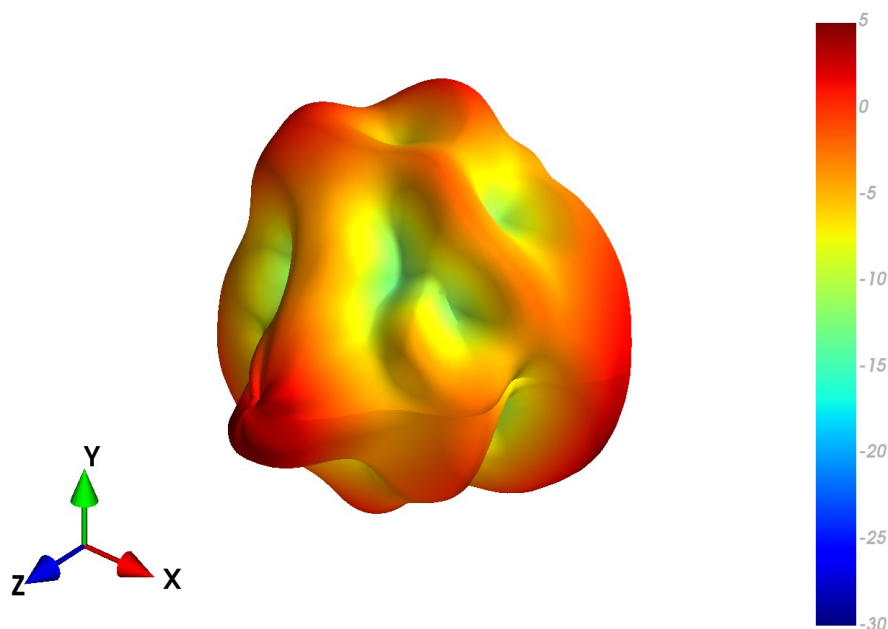
YZ Plane



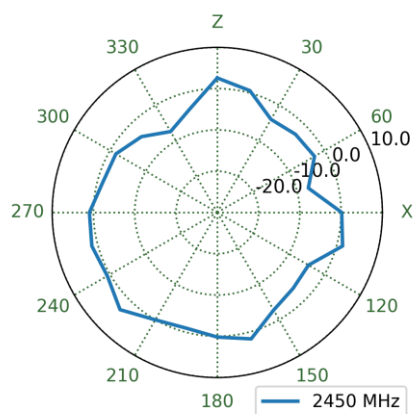
XY Plane



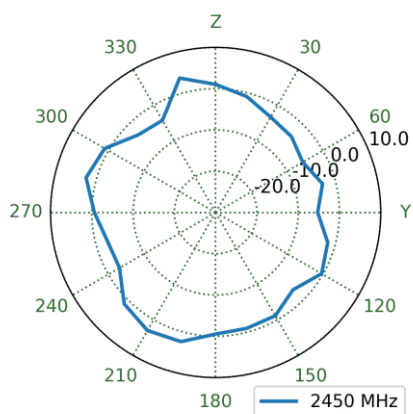
## 4.4 2mm ABS -Patterns at 2450 MHz



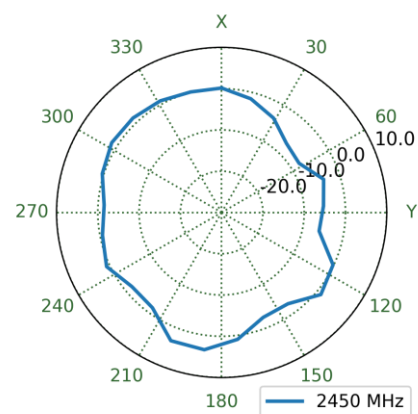
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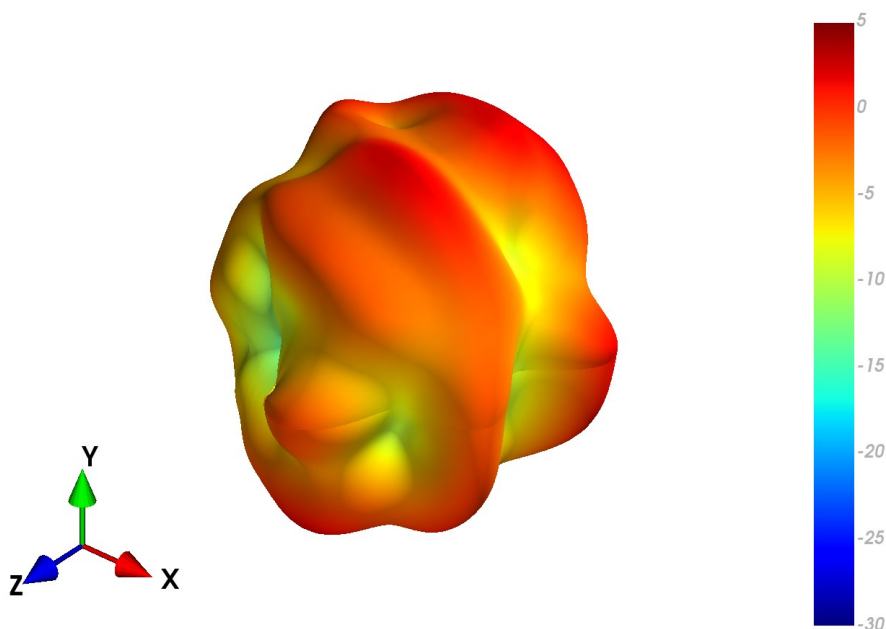
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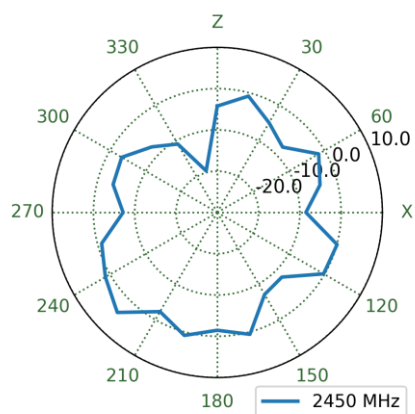
XY Plane



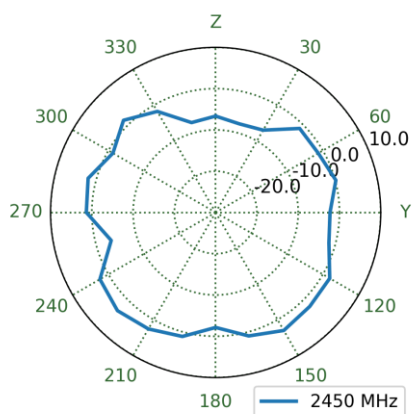
## 4.5 Free Space - Patterns at 2450 MHz



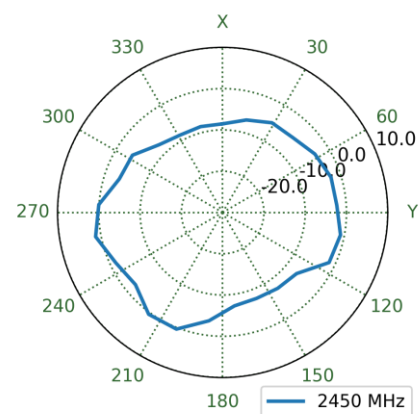
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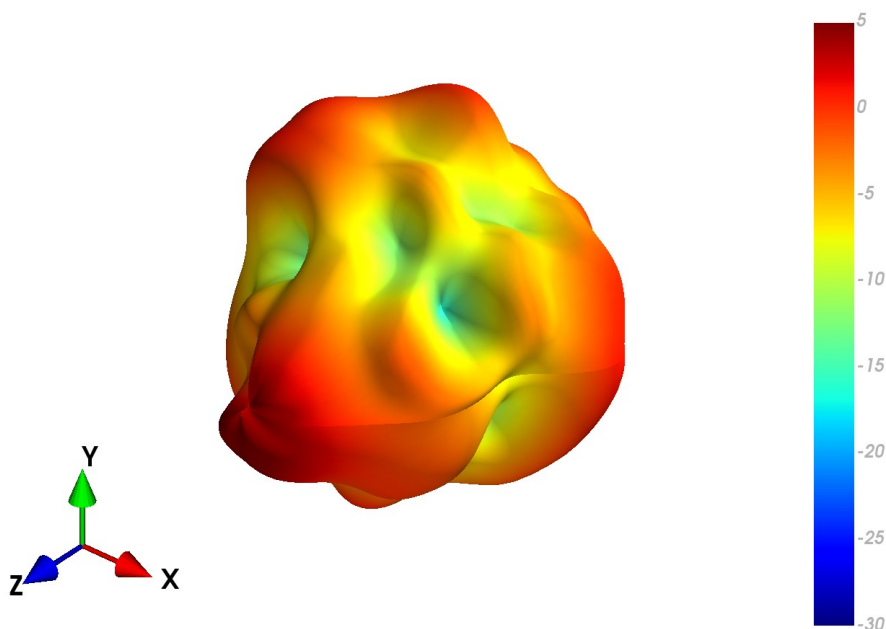
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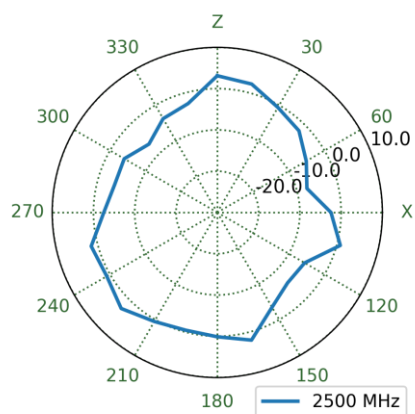
XY Plane



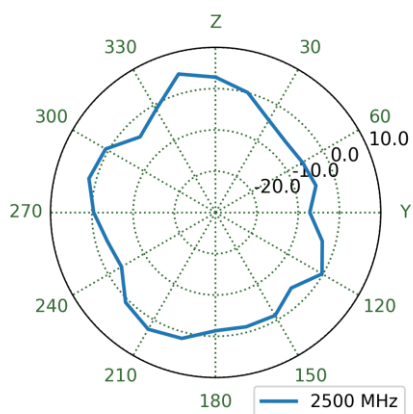
## 4.6 2mm ABS - Patterns at 2500 MHz



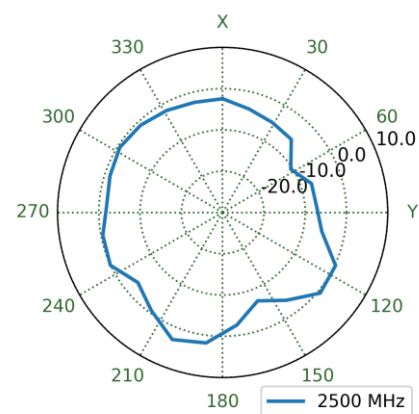
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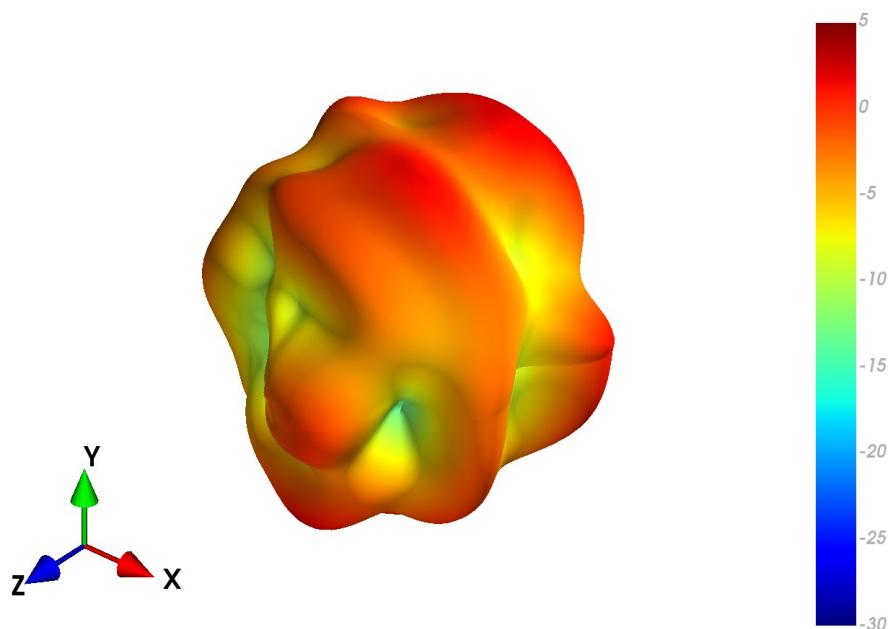
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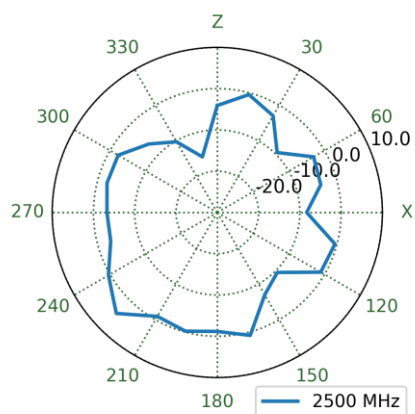
XY Plane



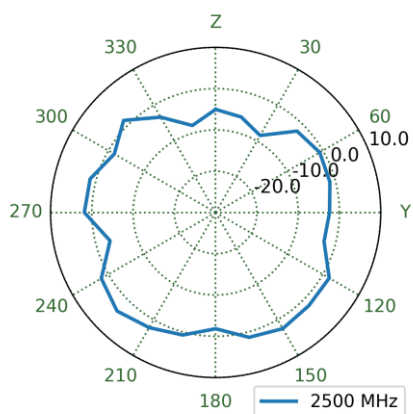
## 4.7 Free Space - Patterns at 2500 MHz



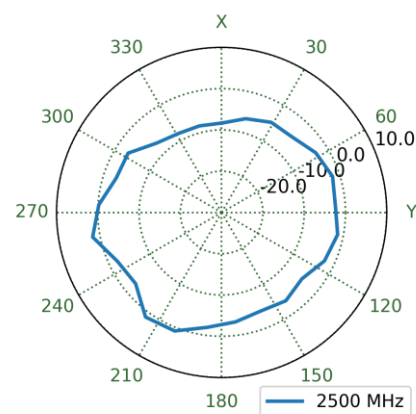
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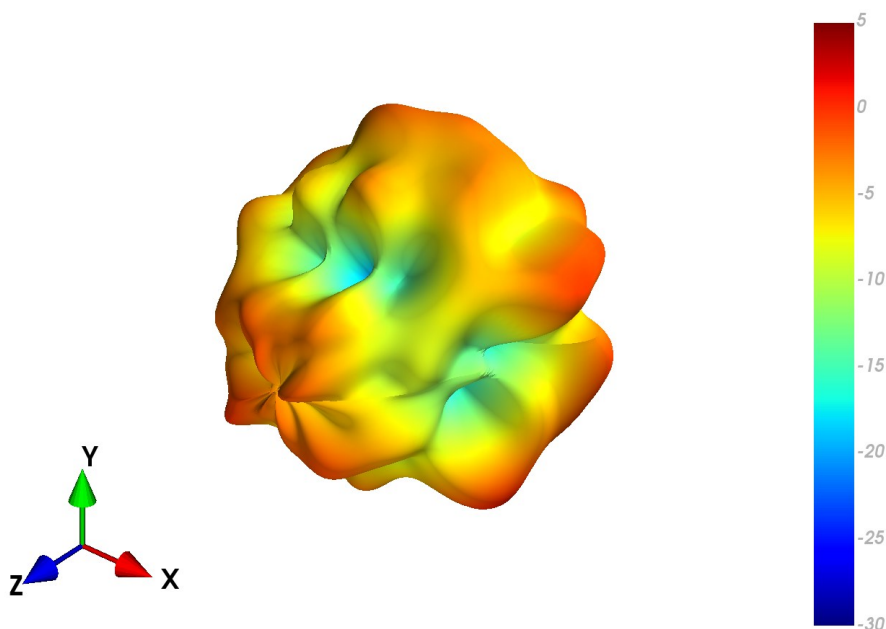
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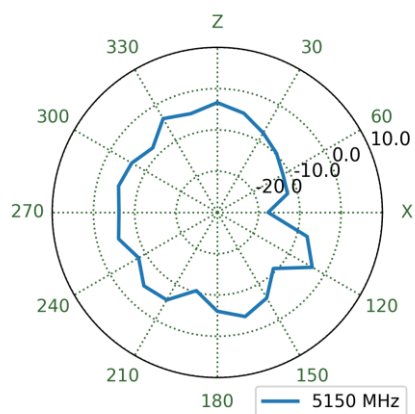
XY Plane



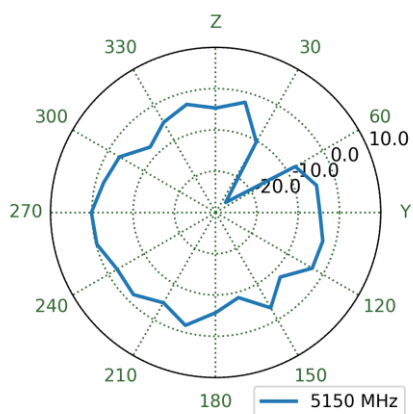
## 4.8 2mm ABS - Patterns at 5150 MHz



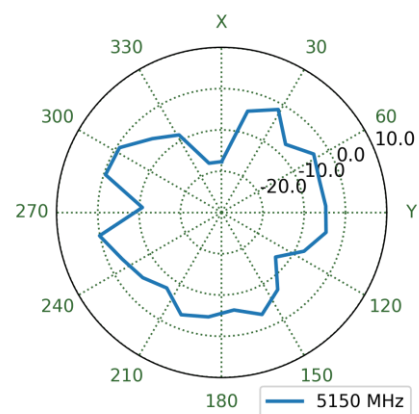
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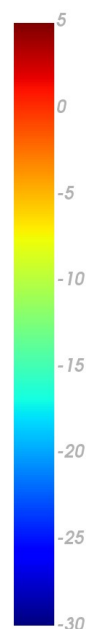
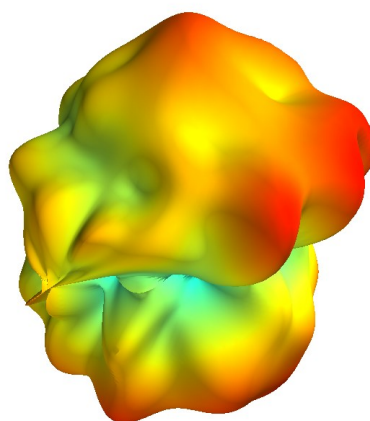
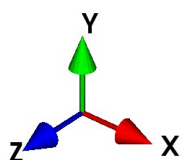
YZ Plane



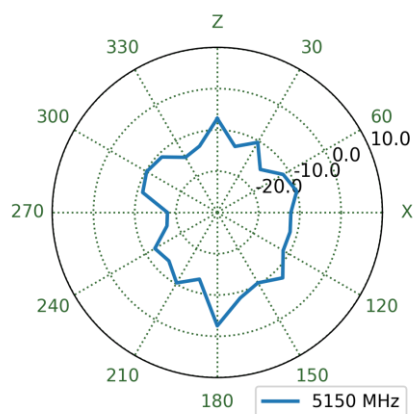
XY Plane



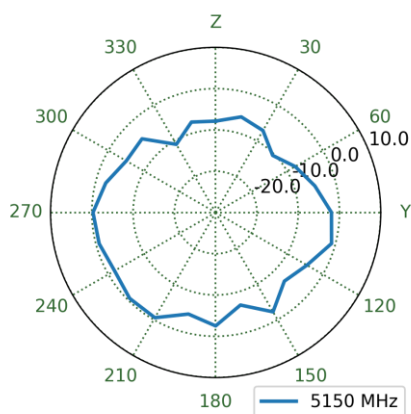
## 4.9 Free Space - Patterns at 5150 MHz



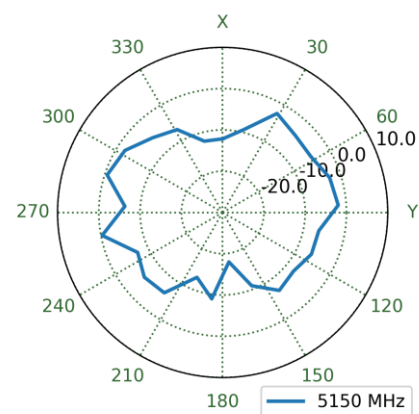
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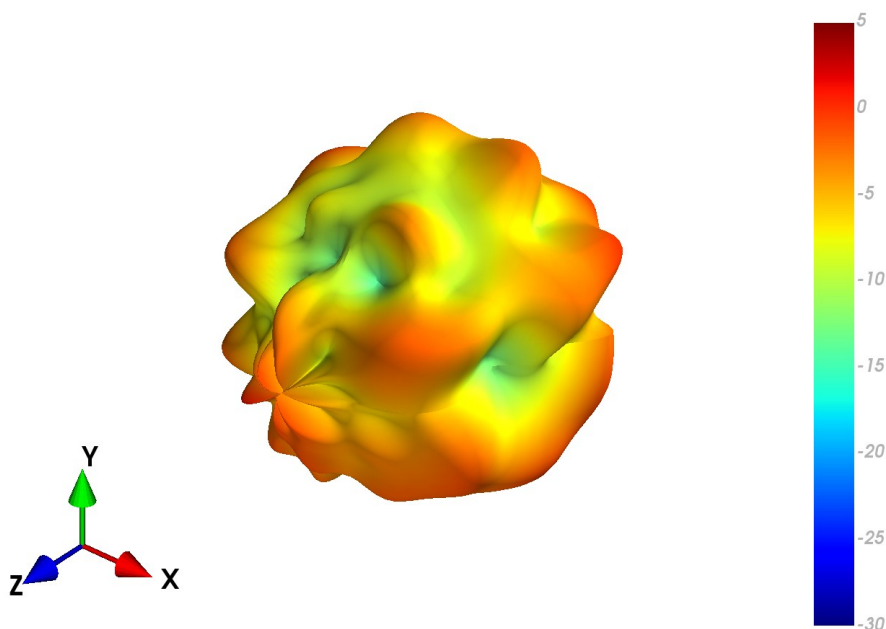
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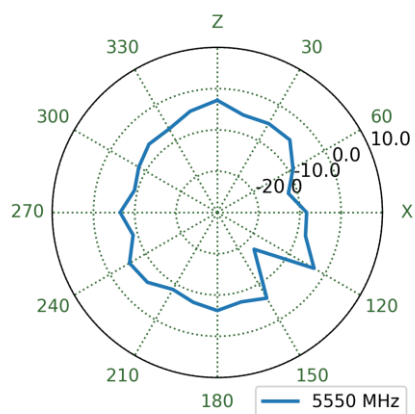
XY Plane



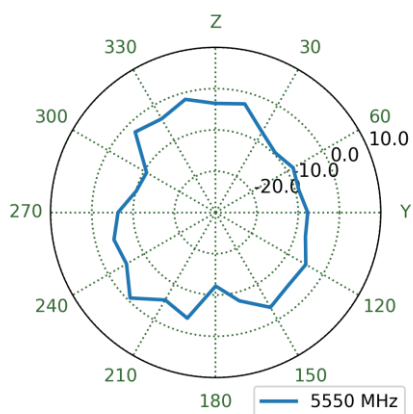
# 4.10 2mm ABS - Patterns at 5550 MHz



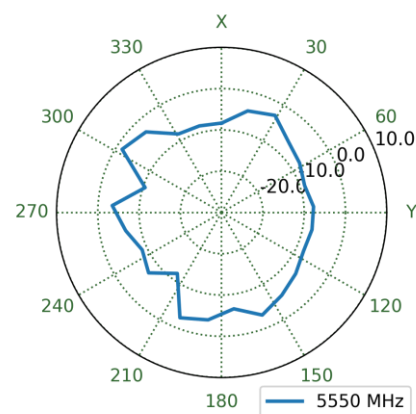
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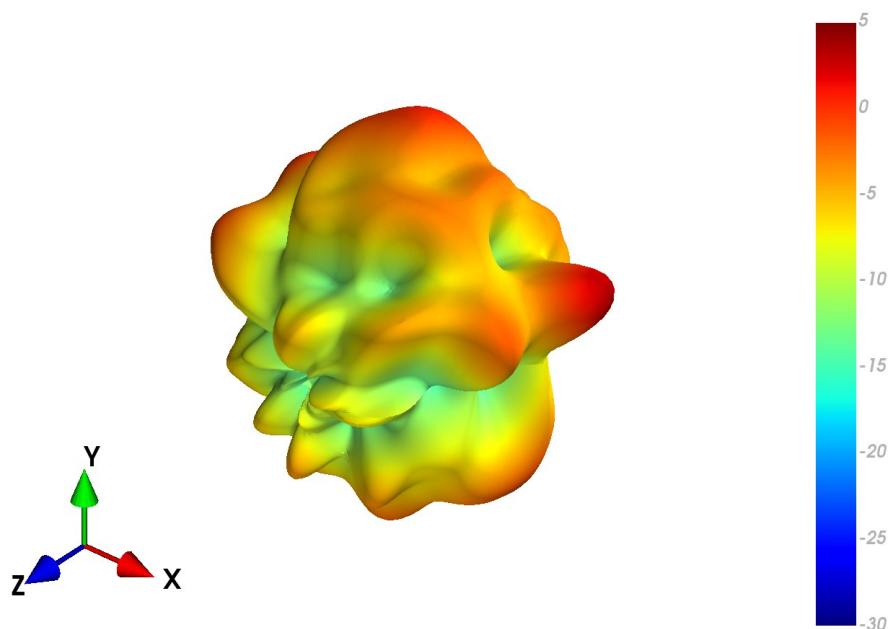
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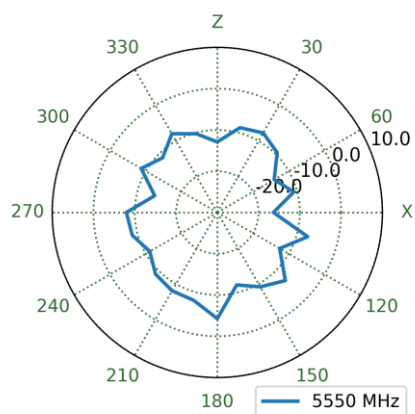
XY Plane



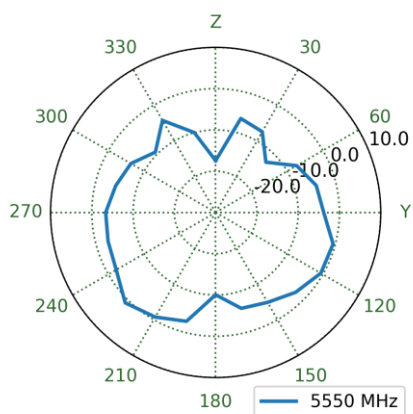
## 4.11 Free Space - Patterns at 5550 MHz



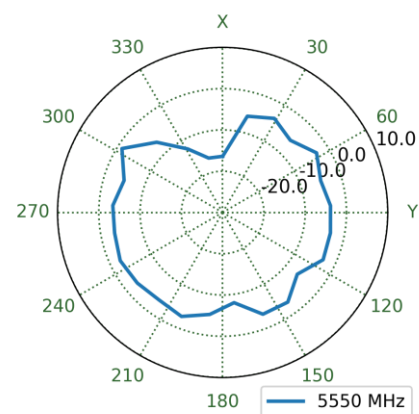
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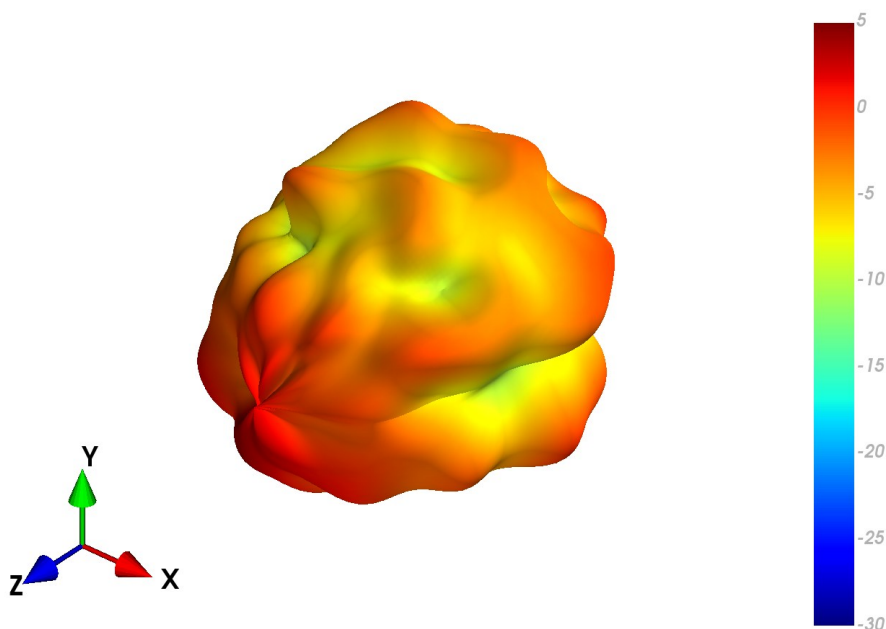
YZ Plane



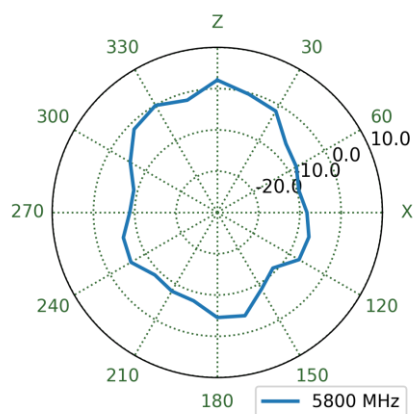
XY Plane



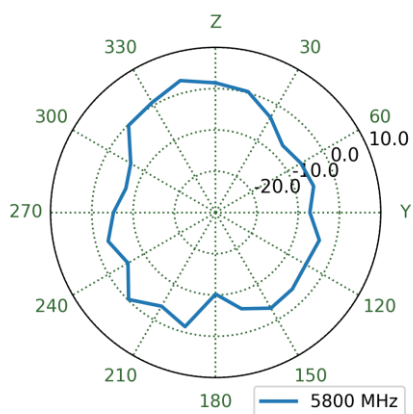
## 4.12 2mm ABS - Patterns at 5800 MHz



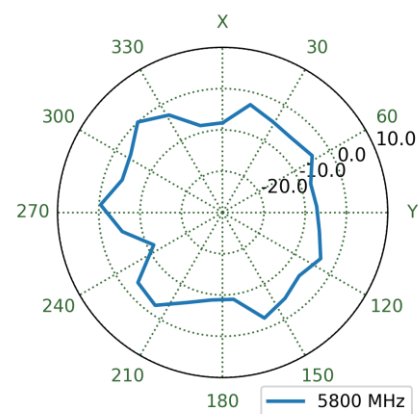
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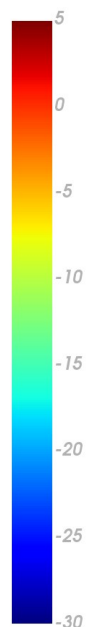
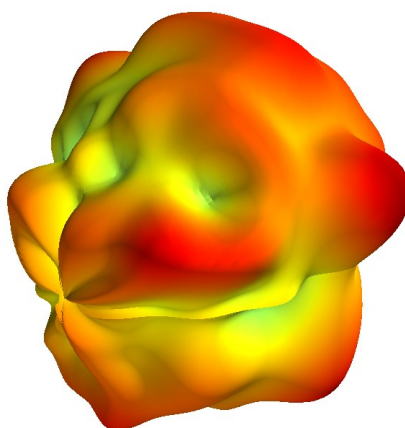
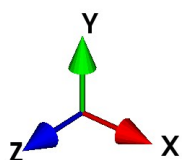
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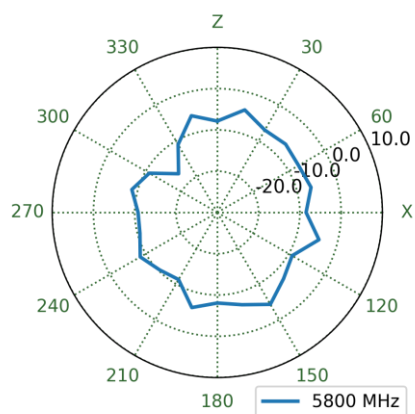
XY Plane



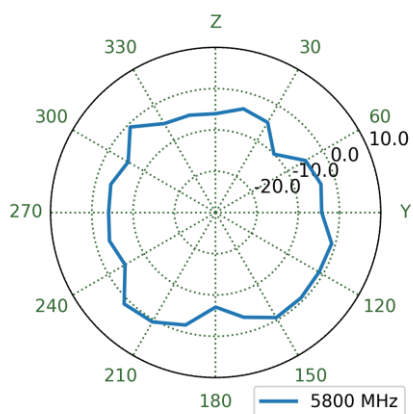
## 4.13 Free Space - Patterns at 5800 MHz



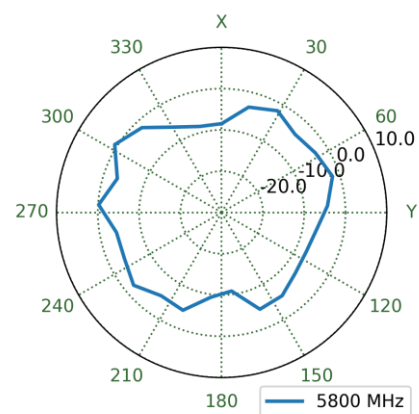
XZ Plane



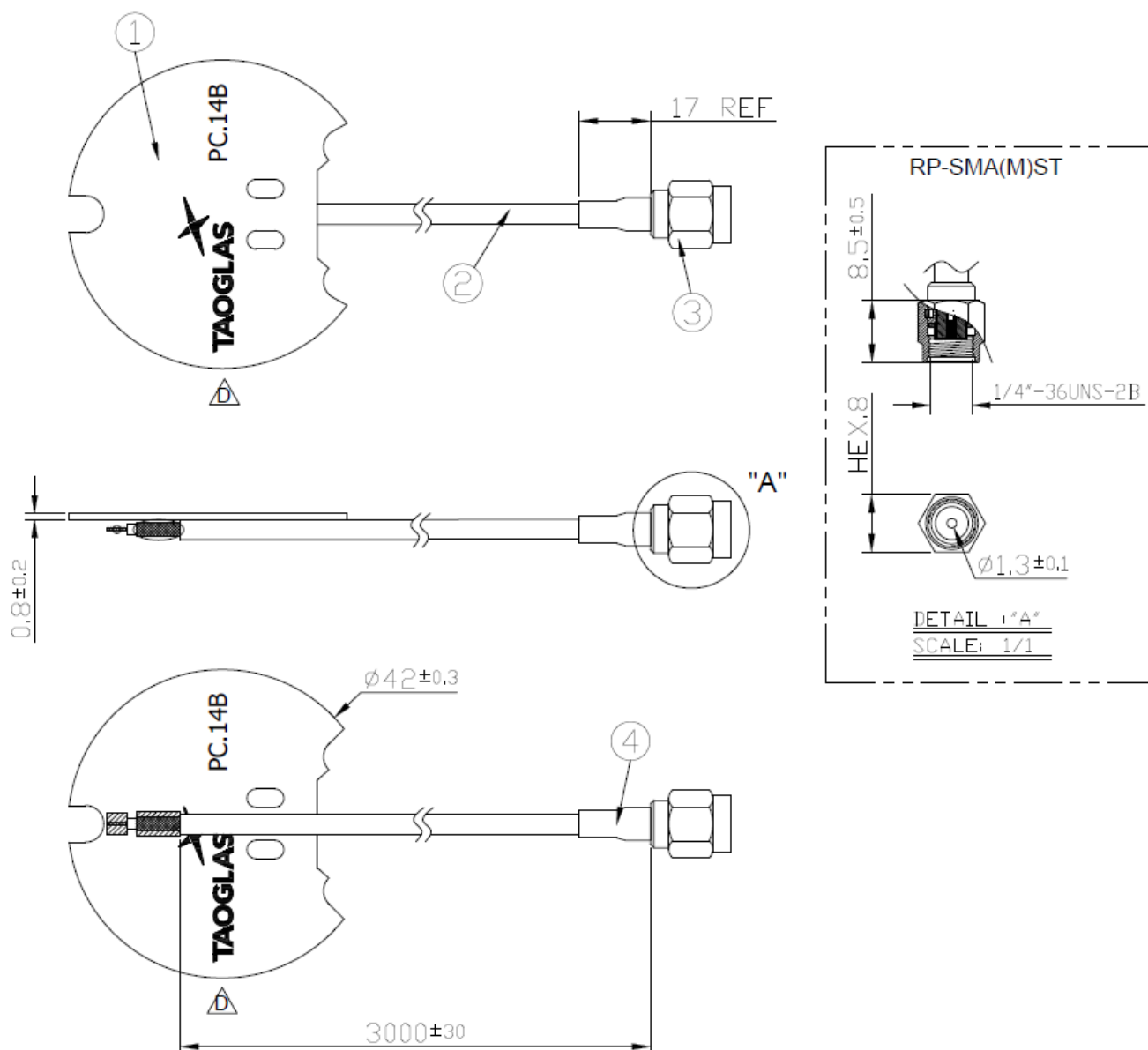
YZ Plane



XY Plane



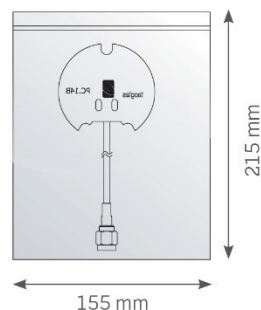
## 5. Mechanical Drawing



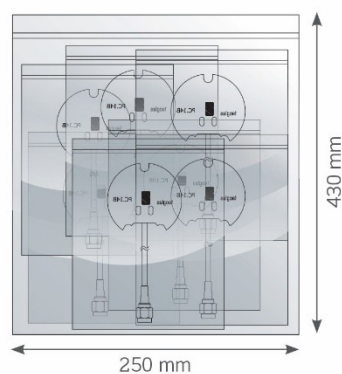
	Name	P/N		Material	Finish	QTY
1	PC.14B PCB	100211D000011A		FR4 0.8t	Black	1
2	RG174	301313A000002A		PVC	Black	1
3	RP-SMA(M)ST	200211J010002A		Brass	Gold	1
4	Heat Shrink Tube	001311F000002A		PE	Black	1

## 6. Packaging

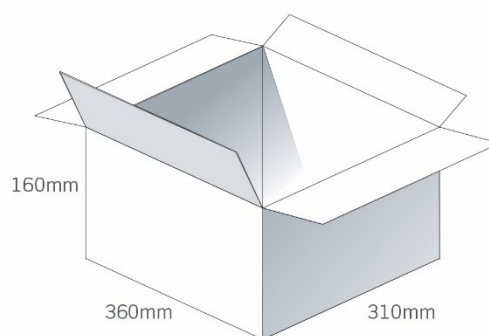
1pc PC14.03.3000D per PE Bag  
Bag Dimensions - 215 x 155mm  
Weight - 44g



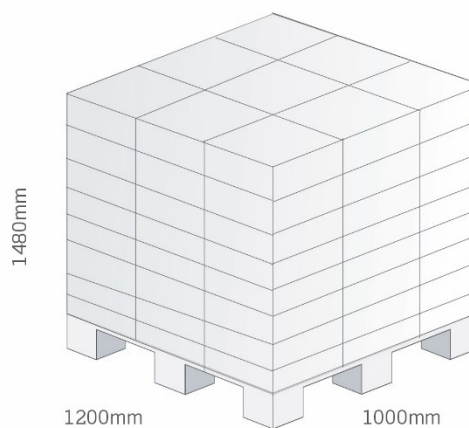
25pcs PC14.03.3000D per PE Large Bag  
Bag Dimensions - 430 x 250mm  
Weight - 1.1kg



200 pcs PC14.03.3000D per carton  
Carton - 360 x 310 x 160mm  
Weight - 8.8Kg



Pallet Dimensions 1200x 1000 x 1480mm  
72 Cartons per Pallet  
9 Cartons per layer  
8 Layers



## Changelog for the datasheet

### SPE-12-8-110 – PC14.03.3000D

#### Revision: D (Current Version)

Date:	2025-05-20
Changes:	Product photo update
Changes Made by:	Cesar Sousa

#### Previous Revisions

##### Revision: C

Date:	2022-10-24
Changes:	Full datasheet update.
Changes Made by:	Gary West

##### Revision: B

Date:	2015-04-03
Changes:	
Changes Made by:	Technical Writer

##### Revision: A (Original First Release)

Date:	2012-08-15
Notes:	
Author:	Technical Writer



[www.taoglas.com](http://www.taoglas.com)

