



TAOGLAS®



Datasheet

Part No:
GW.71.5153

Description

2.4GHz/5.8GHz Terminal Mount Dipole Antenna for ISM Band and WLAN
IEEE 802.11a/b/g/h

Features:

Terminal Mount Dipole Antenna
Dimensions:
RP-SMA(M) Hinged Antenna
RoHS Compliant

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ISO 9001:2015
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ISO 9001:2015
Certified



1. Introduction



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.

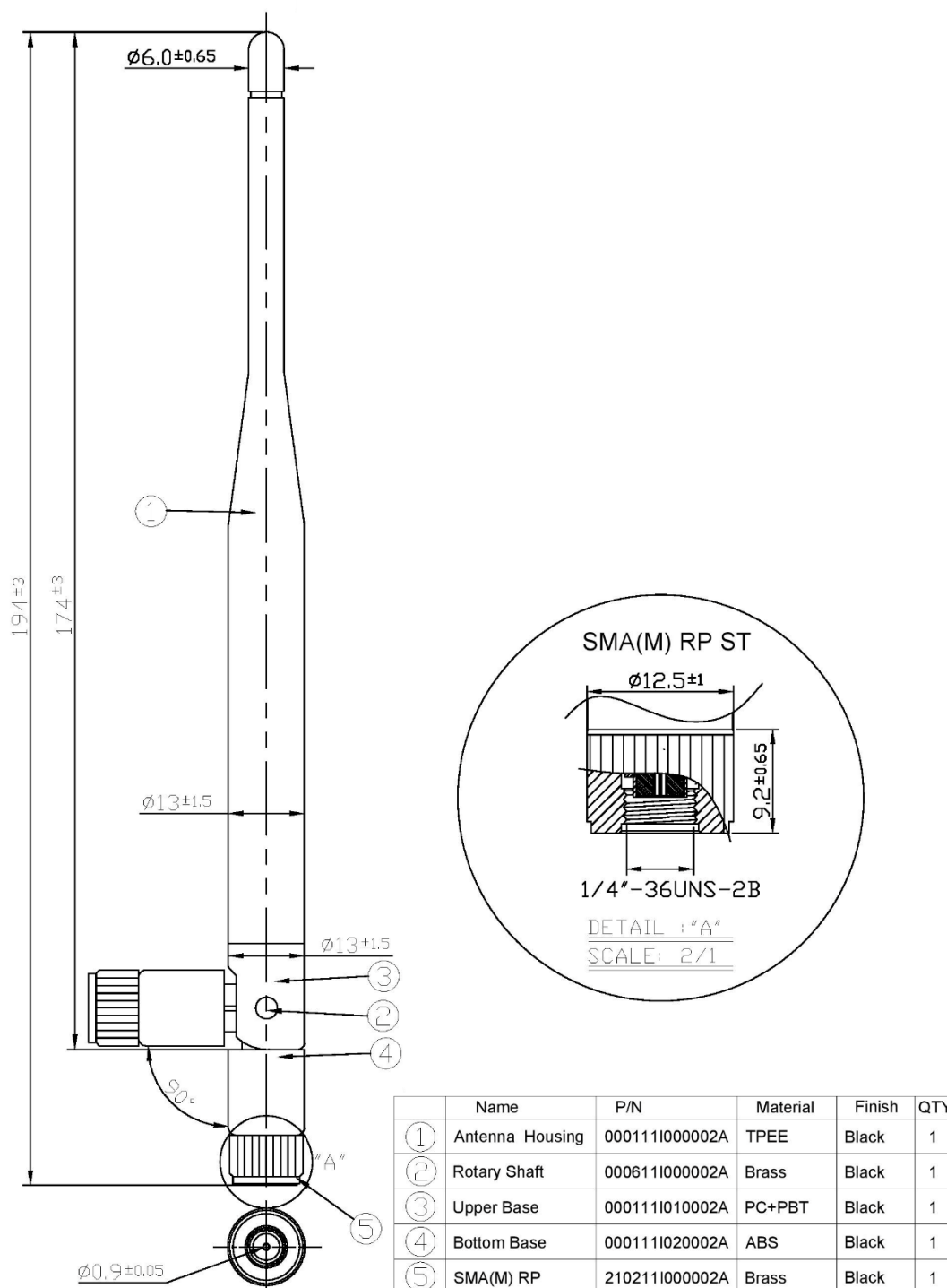
2. Specification

Electrical									
Band	Frequency (MHz)	Measurement	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
Wi-Fi - 2GHz	2400-2500	Bent in Free Space	77.6	-1.10	3.10	50 Ω	Linear	Omni directional	2W
		Bent on 15x9cm Ground Plane	74.4	-1.28	2.38				
		Straight in Free Space	74.3	-1.29	3.79				
		Straight on 15x9cm Ground Plane	72.7	-1.39	2.18				
Wi-Fi - 5GHz	5150-5850	Bent in Free Space	82.3	-0.85	4.32				
		Bent on 15x9cm Ground Plane	67.2	-1.73	4.14				
		Straight in Free Space	77.5	-1.11	3.43				
		Straight on 15x9cm Ground Plane	69.4	-1.59	3.09				

Mechanical	
Dimensions	$\varnothing 12.8 \times 194\text{mm}$
Weight	24.6g
Material	TPU
Connector	RP-SMA (M)

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

3. Mechanical Drawing



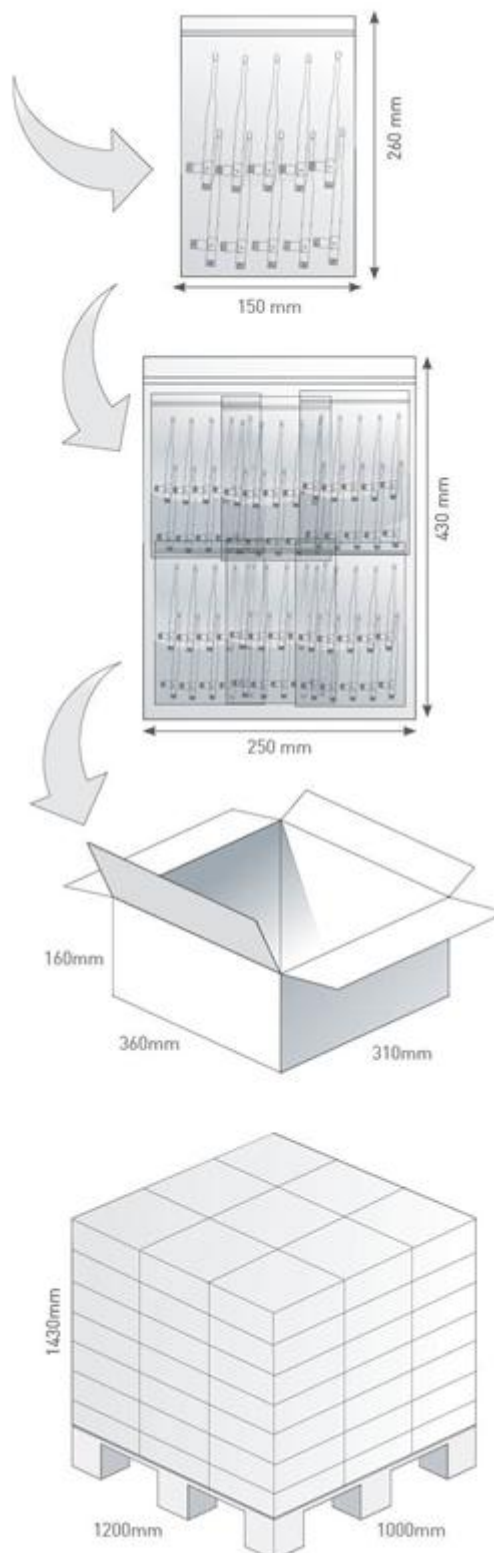
4. Packaging

10 pcs GW.71.5153 per PE bag
PE Bag Dimensions - 150*260mm
Weight - 257g

100 PE bags per large PE bag
100 pcs GW.71.5153 per large PE bags
Large PE bag Dimensions - 250*430mm
Weight - 2.57kg

4 Large PE bags per carton
400 pcs GW.71.5153 per carton
Carton Dimensions - 360*310*160mm
Weight - 10.7kg

Pallet Dimensions 1200*1000*1430mm
63 Cartons per Pallet
9 Cartons per layer
7 Layers



5. Antenna Characteristics

5.1 Test Setup

AUT



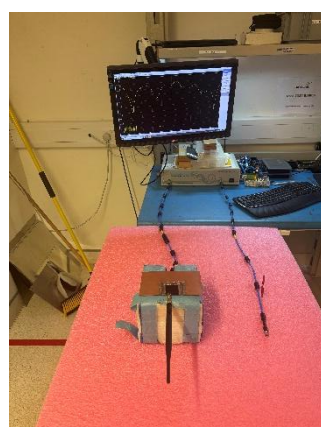
Vector Network Analyzer



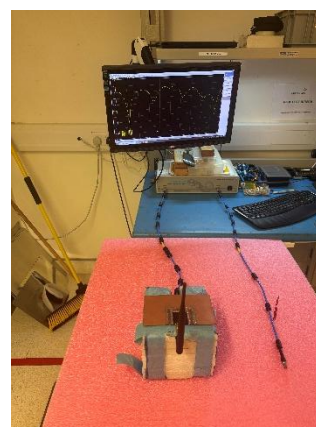
Straight in Free Space



Bent in Free Space

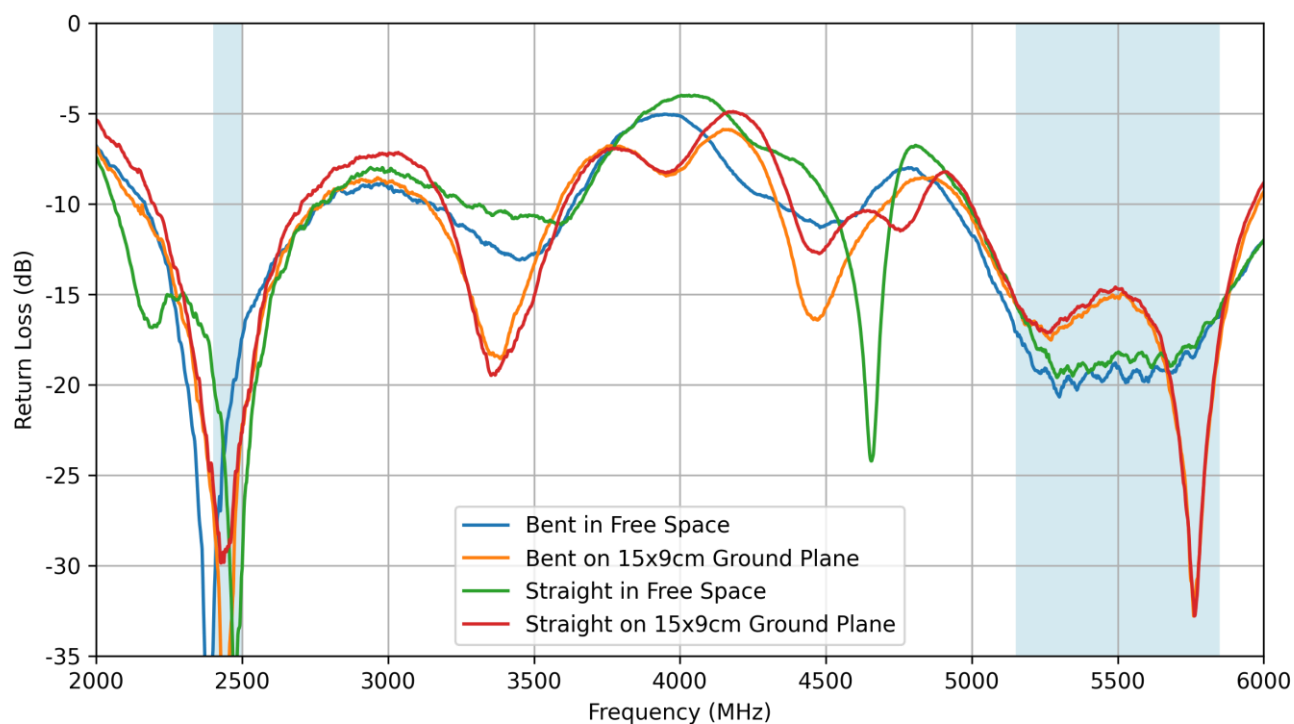


Straight on 15x9cm
Ground Plane

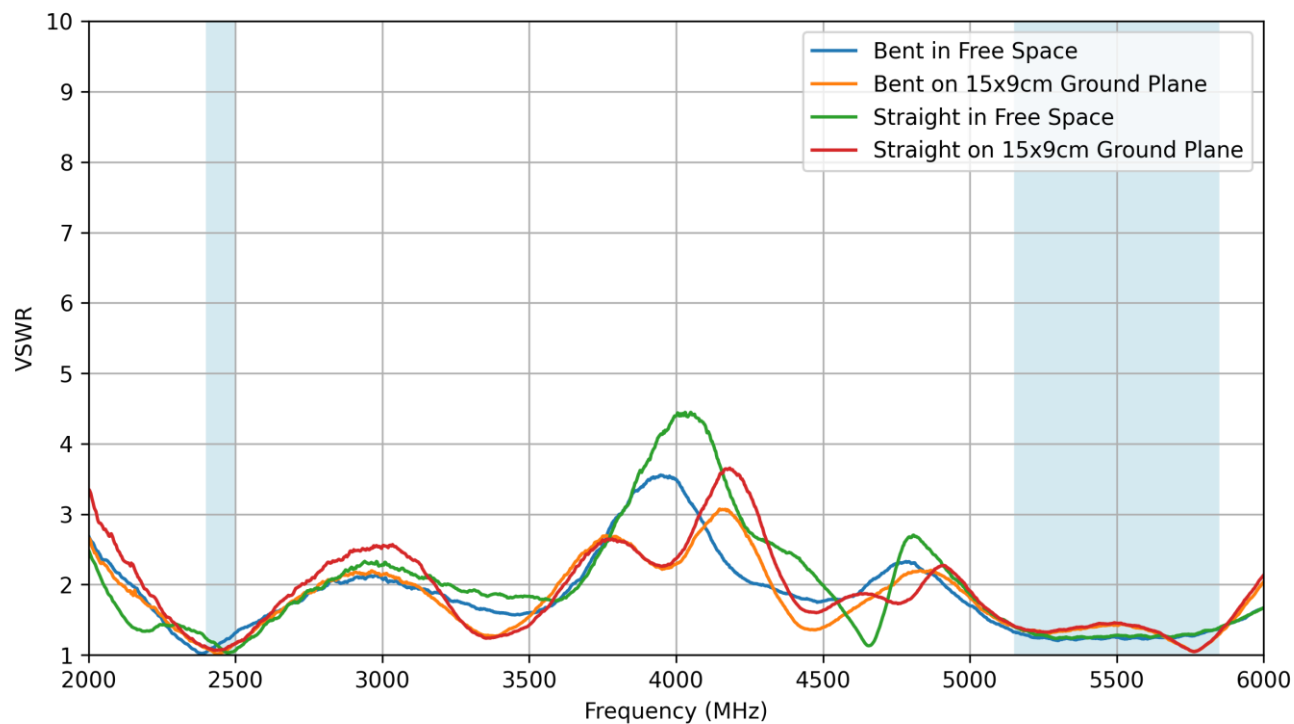


Bent on 15x9cm
Ground Plane

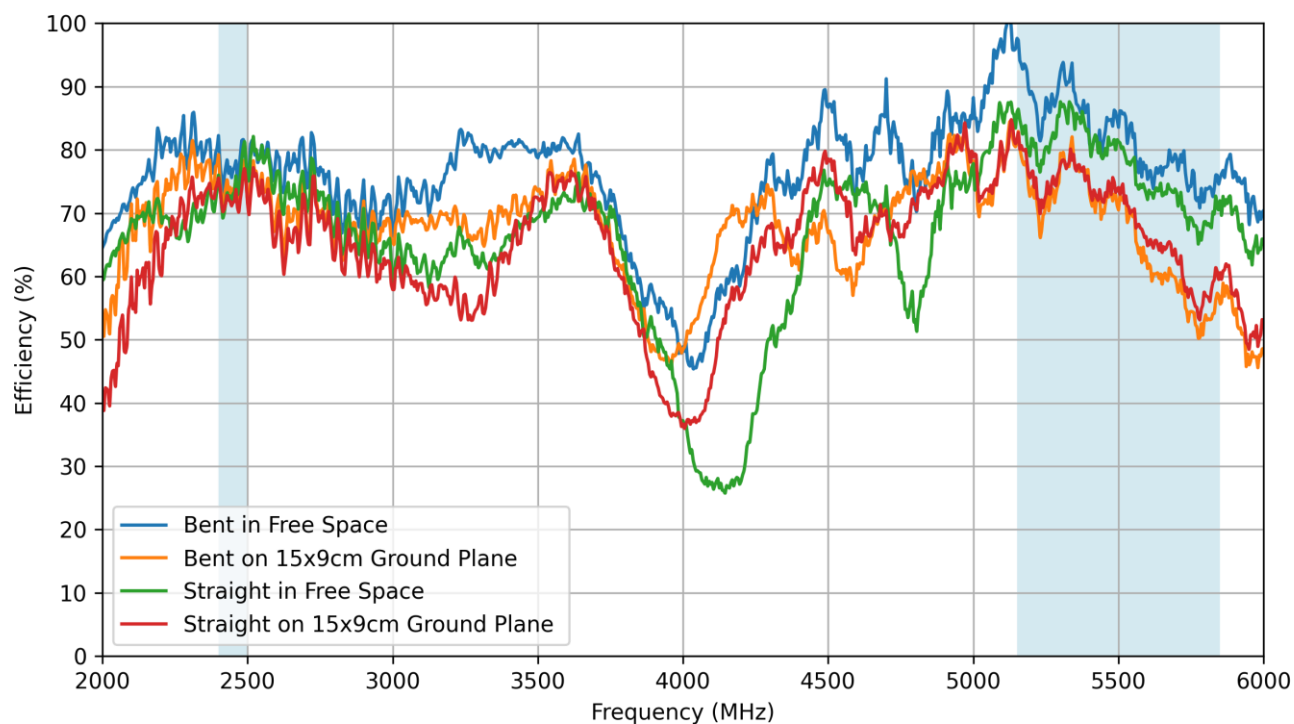
5.2 Return Loss



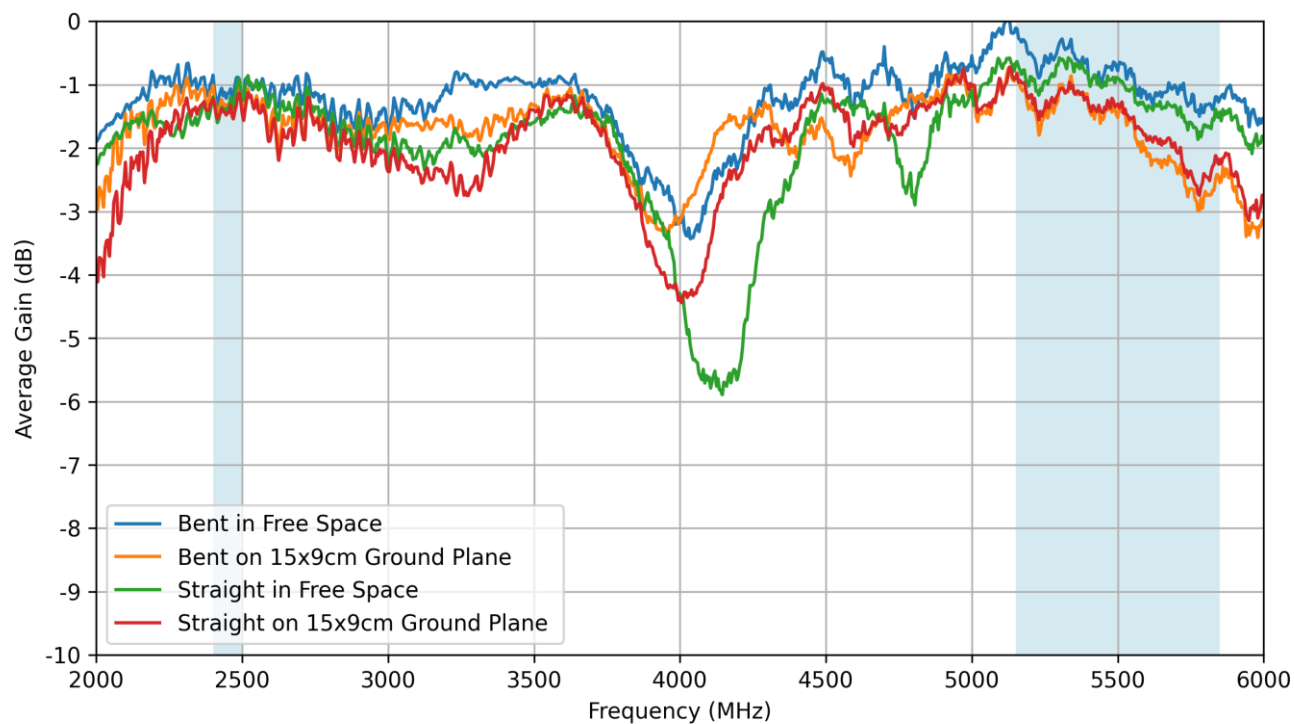
5.3 VSWR



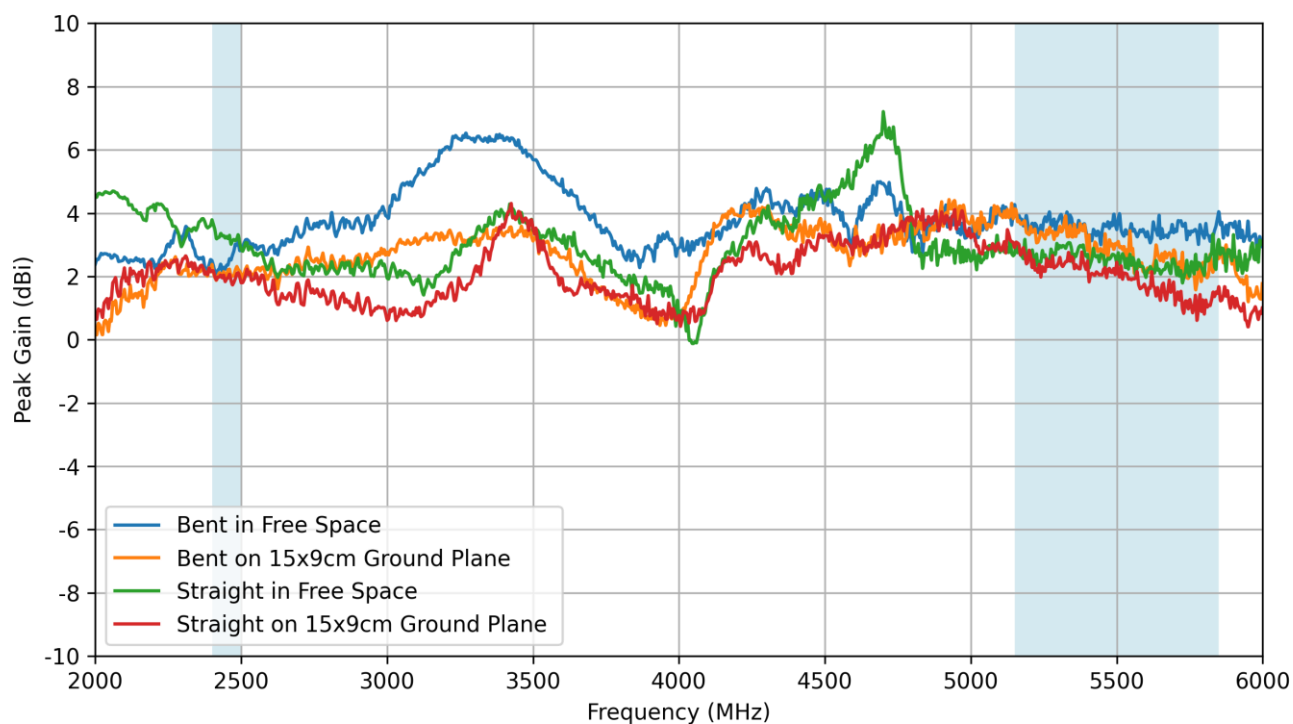
5.4 Efficiency



5.5 Average Gain

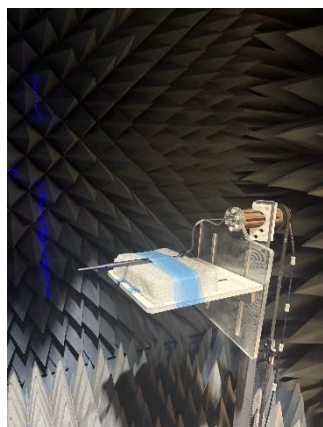
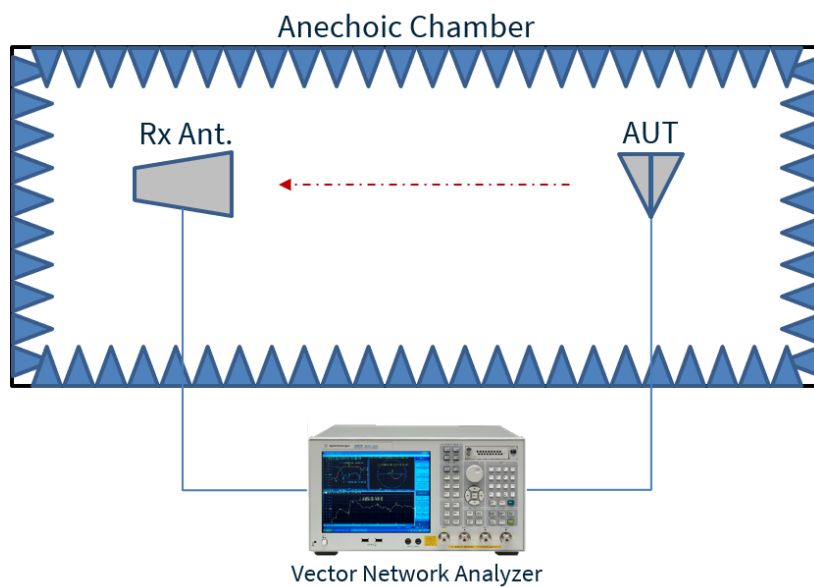


5.6 Peak Gain

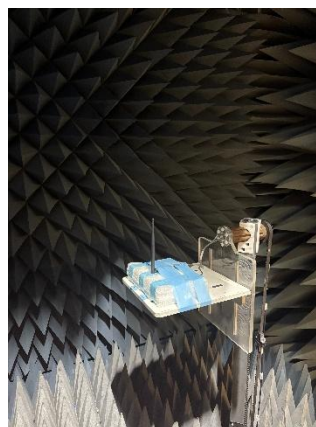


6. Radiation Patterns

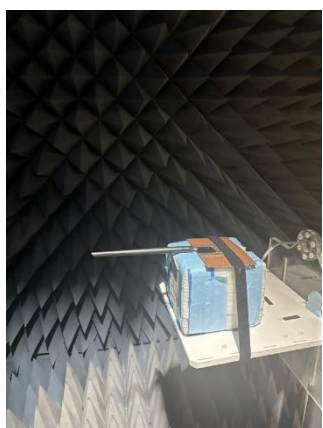
6.1 Test Setup



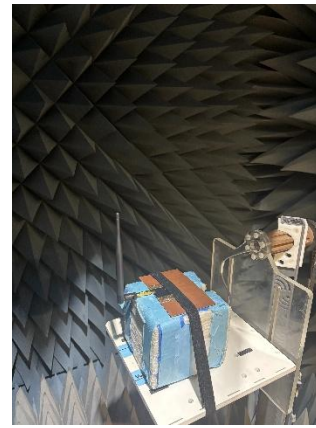
Straight in Free Space



Bent in Free Space

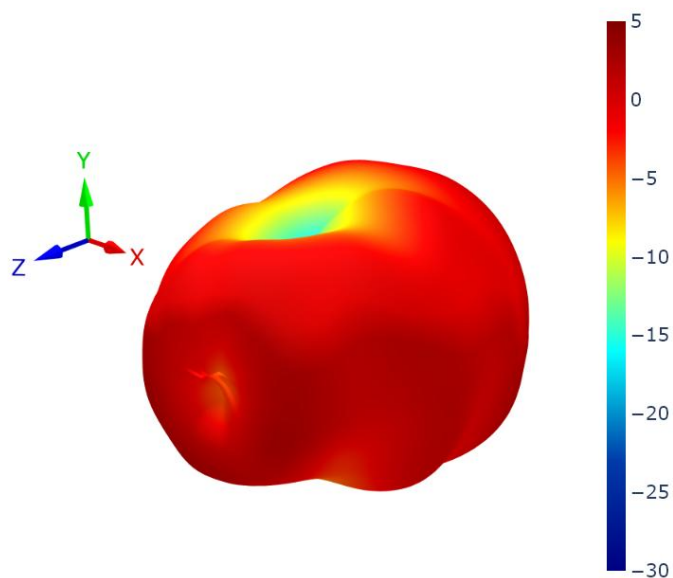


Straight on 15x9cm
Ground Plane

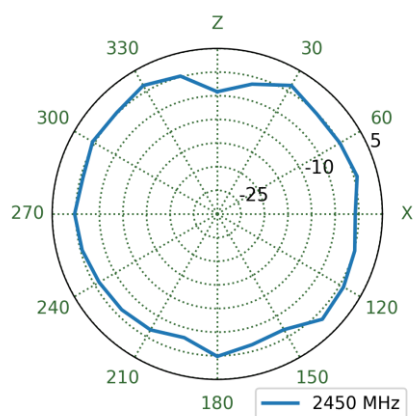


Bent on 15x9cm
Ground Plane

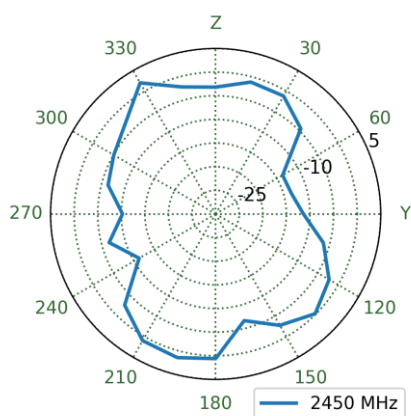
6.2 Bent in Free Space - Patterns at 2450 MHz



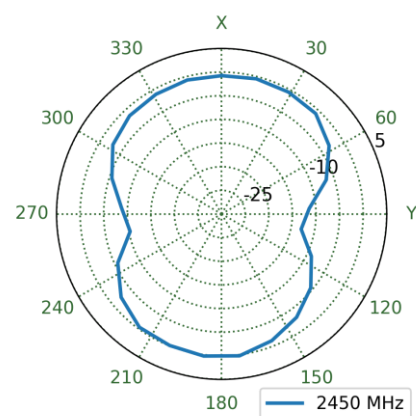
XZ Plane



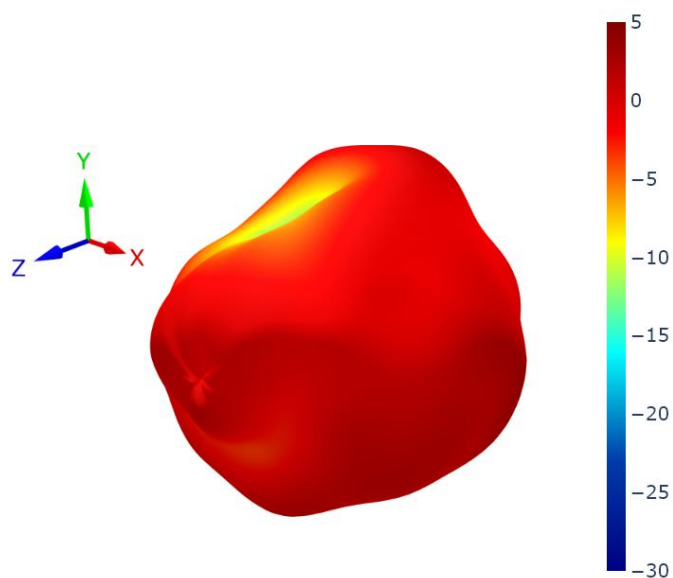
YZ Plane



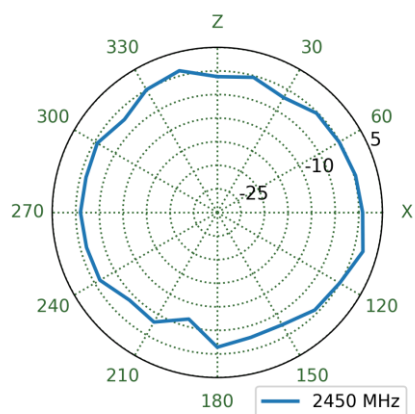
XY Plane



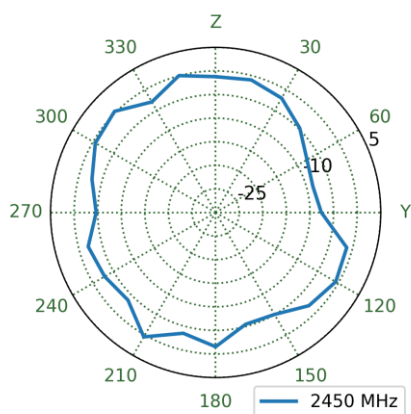
6.3 Bent on 15x9cm Ground Plane - Patterns at 2450 MHz



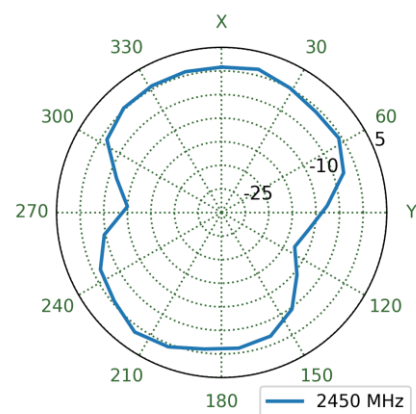
XZ Plane



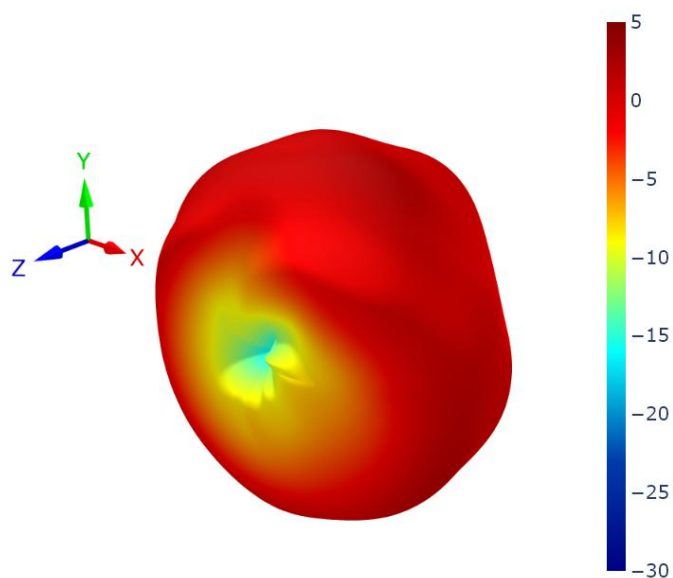
YZ Plane



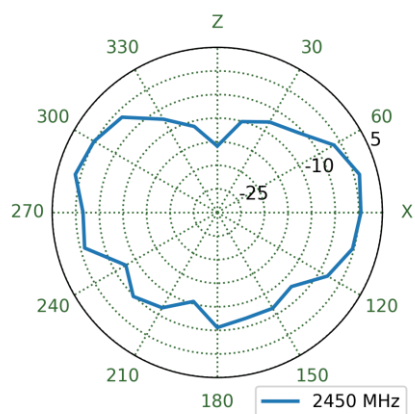
XY Plane



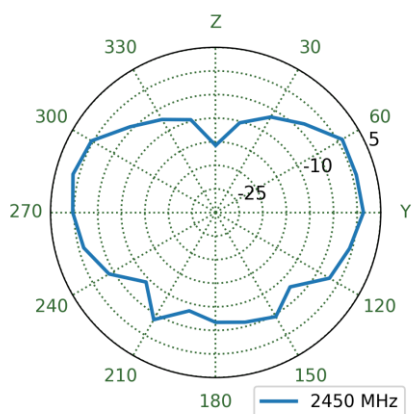
6.4 Straight in Free Space - Patterns at 2450 MHz



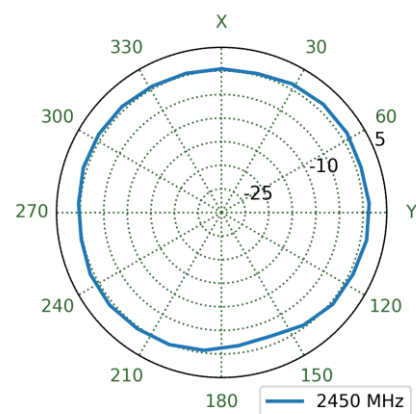
XZ Plane



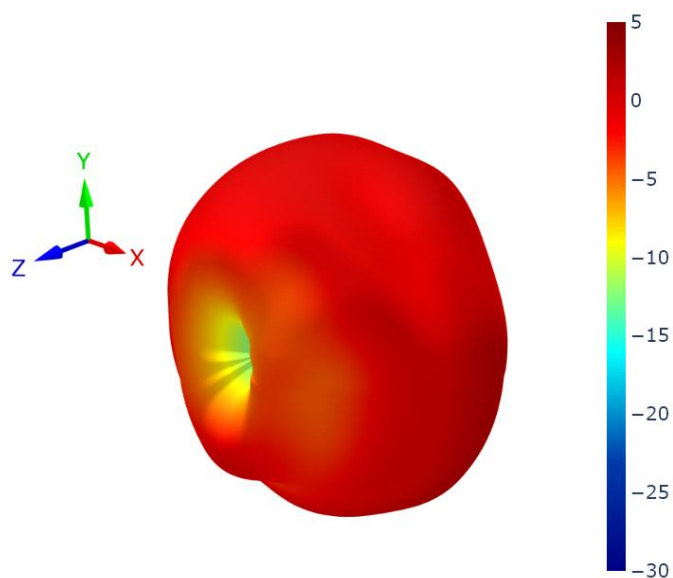
YZ Plane



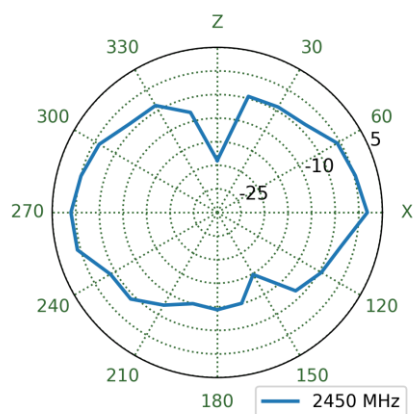
XY Plane



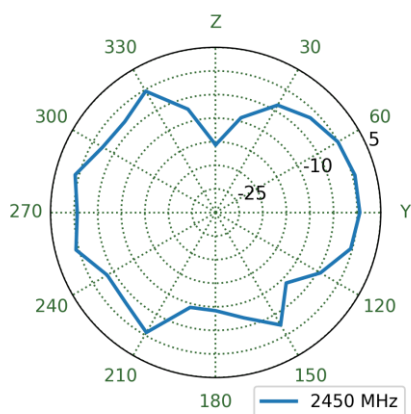
6.5 Straight on 15x9cm Ground Plane - Patterns at 2450 MHz



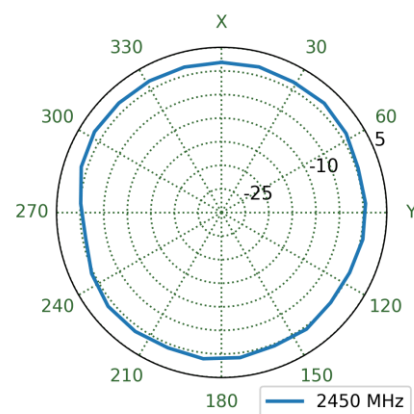
XZ Plane



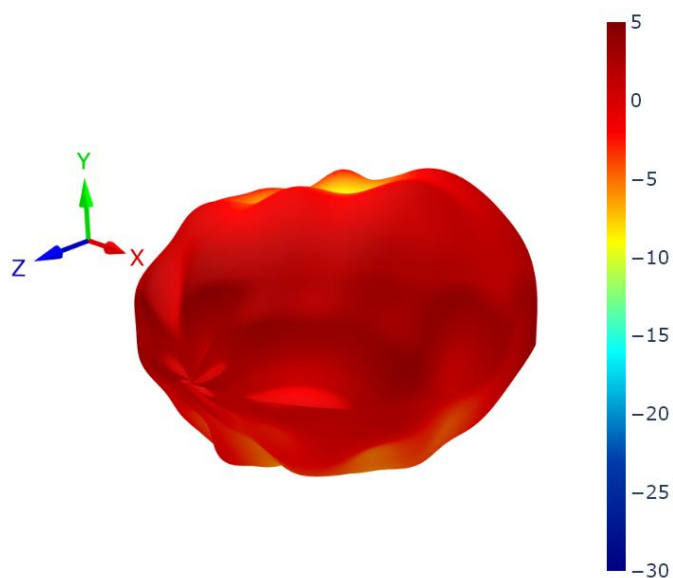
YZ Plane



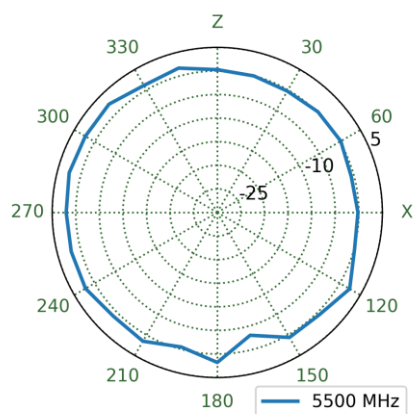
XY Plane



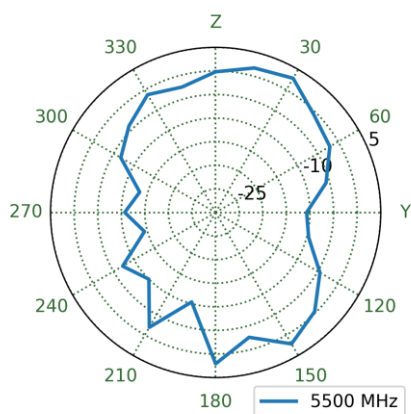
6.6 Bent in Free Space - Patterns at 5500 MHz



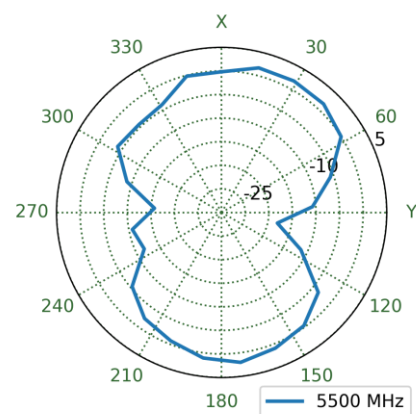
XZ Plane



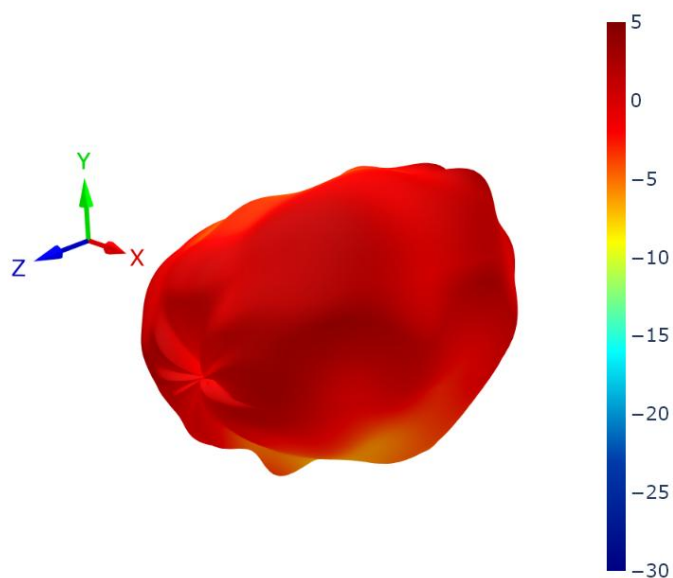
YZ Plane



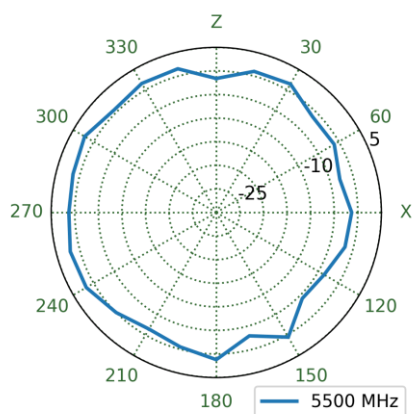
XY Plane



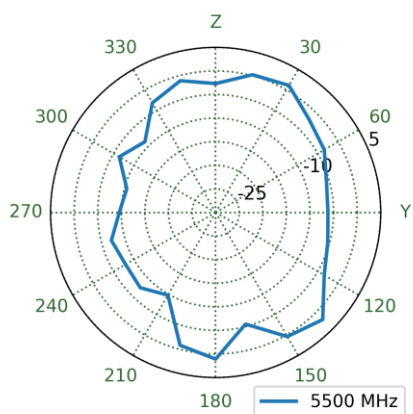
6.7 Bent on 15x9cm Ground Plane - Patterns at 5500 MHz



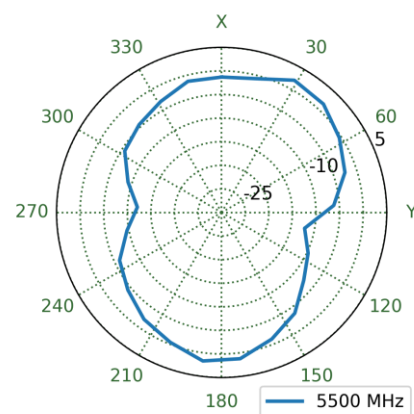
XZ Plane



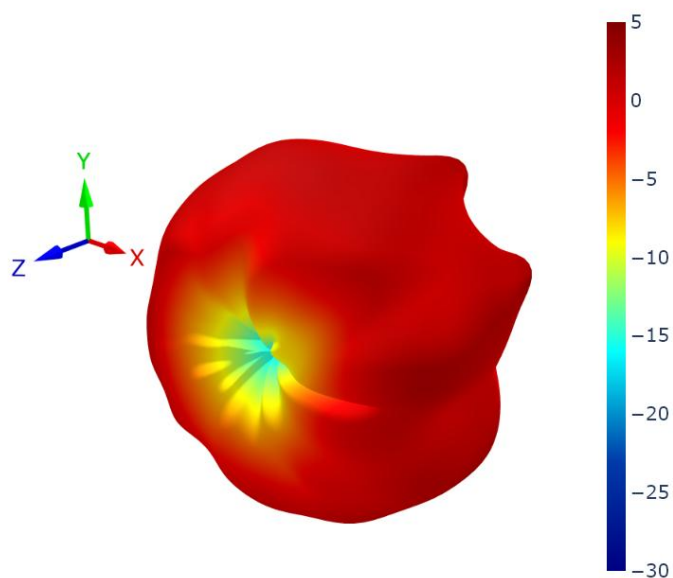
YZ Plane



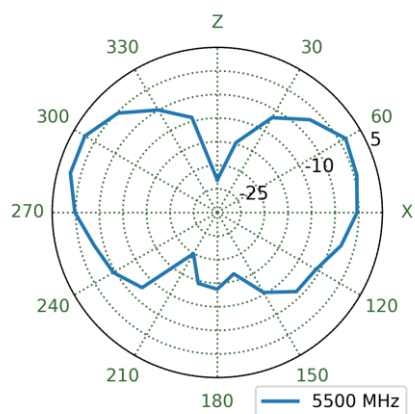
XY Plane



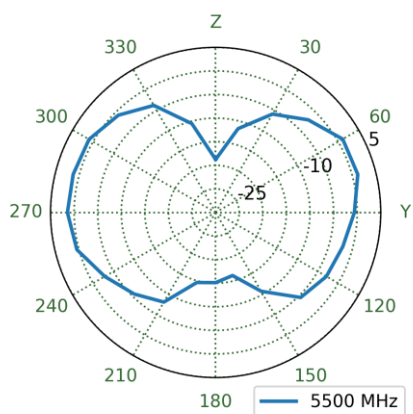
6.8 Straight in Free Space - Patterns at 5500 MHz



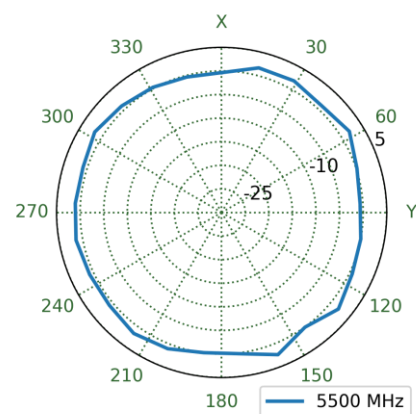
XZ Plane



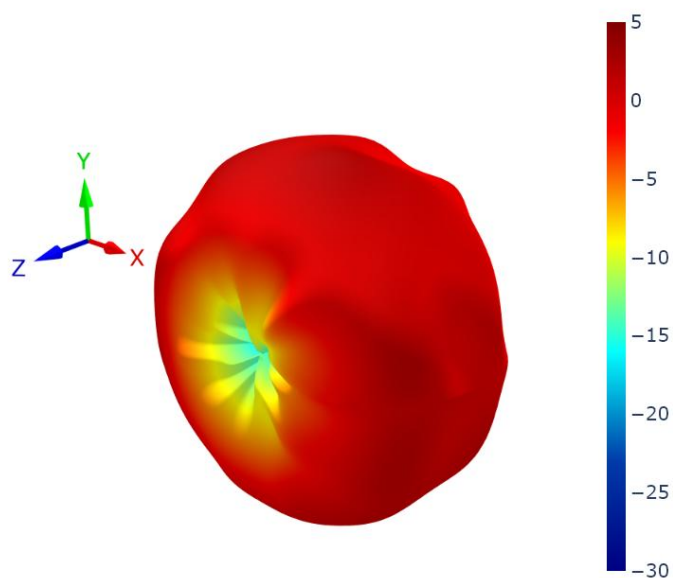
YZ Plane



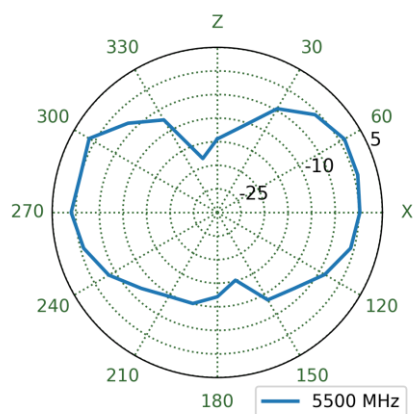
XY Plane



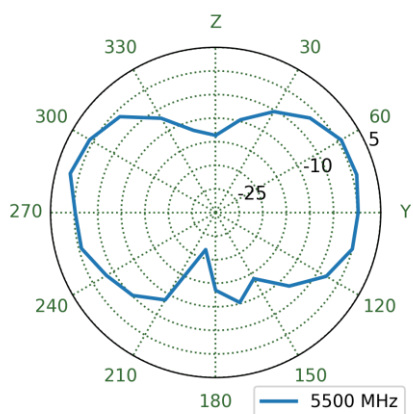
6.9 Straight on 15x9cm Ground Plane - Patterns at 5500 MHz



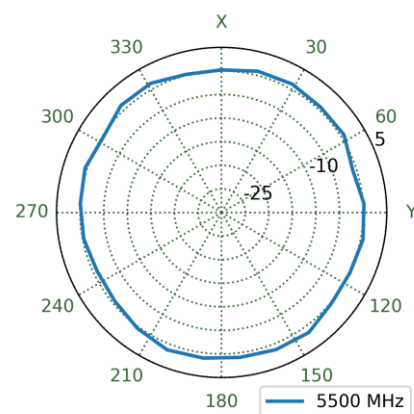
XZ Plane



YZ Plane



XY Plane



Changelog for the datasheet

SPE-11-8-125 – GW.71.5153

Revision: H (Current Version)

Date:	2025-06-06
Notes:	Full datasheet update
Author:	Gary West

Previous Revisions

Revision: G

Date:	2016-05-16
Notes:	Added packaging
Author:	Aine Doyle

Revision: B

Date:	2011-11-11
Notes:	Updated drawing
Author:	Technical Writer

Revision: F

Date:	2015-11-03
Notes:	Added weight
Author:	Aine Doyle

Revision: A (Original First Release)

Date:	2011-10-20
Notes:	
Author:	Technical Writer

Revision: E

Date:	2013-09-24
Notes:	updated VSWR data
Author:	Aine Doyle

Revision: D

Date:	2013-08-14
Notes:	Added in 3D radiation
Author:	Aine Doyle

Revision: C

Date:	2011-11-22
Notes:	
Author:	Technical Writer



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