



TAOGLAS®



Datasheet

Hercules Wi-Fi 6 Antenna

Part No:
WS.03.B.305151

Description:

Hercules – Permanent Mount Wi-Fi Antenna including Wi-Fi 6 frequencies
Covering Frequencies 2.4 – 2.5 / 5.1 - 5.8 / 5.9 - 7.125GHz

Features:

Wi-Fi 2.4/5.8/7.1GHz
Covers Wi-Fi 6 Frequencies: 5.9-7.125GHz
UV and Vandal Resistant ABS Housing
Dimensions: Ø49 x 29mm
Connector: RP-SMA Male
Cable: 3m of TGC-200
RoHS & Reach Compliant

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1. Introduction



The Hercules WS.03 is a high efficiency, high gain permanent mount antenna designed to cover all Wi-Fi bands including the necessary 6GHz plus frequencies for Wi-Fi 6, for external use on vehicles and outdoor assets worldwide. Omni-directional gain across both bands ensures constant reception and transmission making the WS.03 an ideal solution for varied Wi-Fi applications, including future-proofing for the transition to Wi-Fi 6.

It has been designed for heavy duty work with extra thick threads; with durable UV-resistant ASA housing is resistant to vandalism and direct attack. At only 29mm high it complies with the latest EU height restrictions directives for roof-mounted objects, whilst also enabling covert operation with a diameter of 49mm.

Typical Applications Include:

- Remote Monitoring
- Gateways and Routers
- HD Video Streaming
- Smart Cities

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.

The cable and connectors are fully customizable, for further information please contact your regional Taoglas customer support team.

2. Specifications

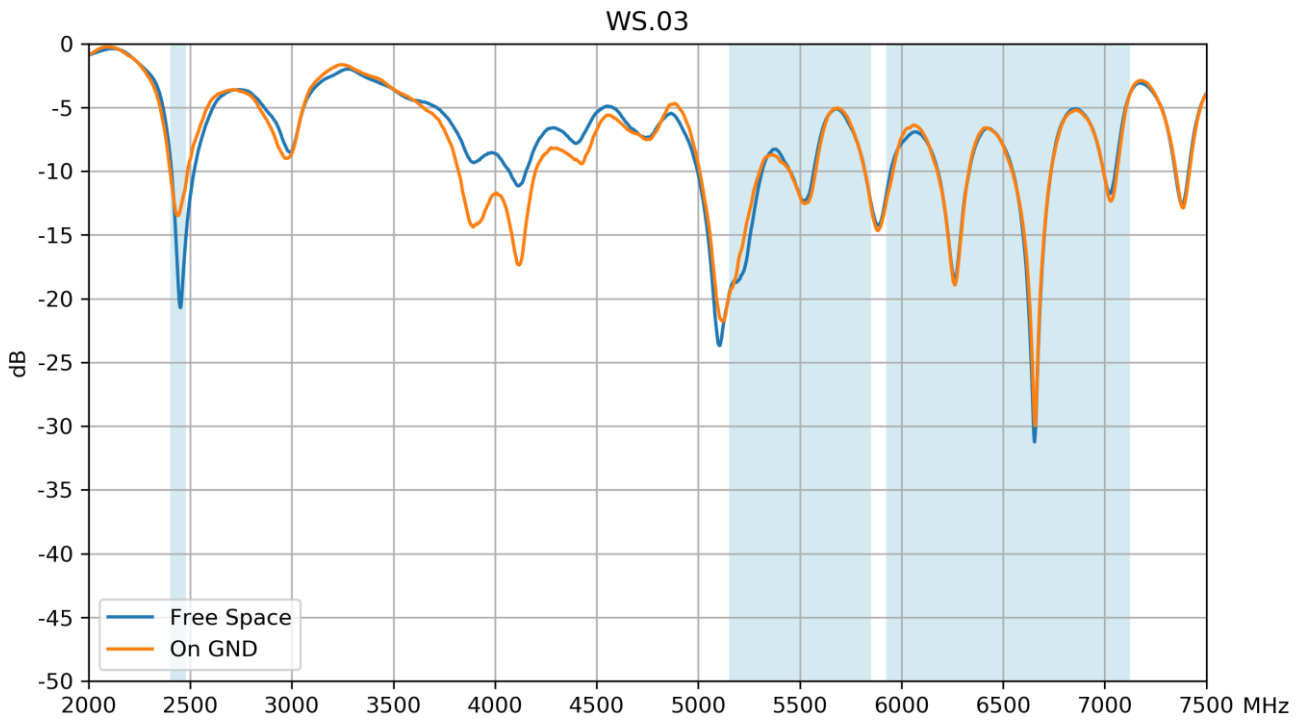
Wi-Fi Electrical									
Band	Frequency (MHz)		Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max Input Power
2.4GHz Wi-Fi	2400~2500	Free Space	33	-4.8	2.7	50 Ω	Linear	Omni-Directional	10W
		Ground Plane	39	-4.1	1.8				
5.8GHz Wi-Fi	5150~5850	Free Space	27.5	-5.6	2.4				
		Ground Plane	28.3	-5.5	3.2				
7.1GHz Wi-Fi 6	5925~7125	Free Space	32	-5	2.2				
		Ground Plane	31	-5.1	4.3				

*30x30cm Ground Plane

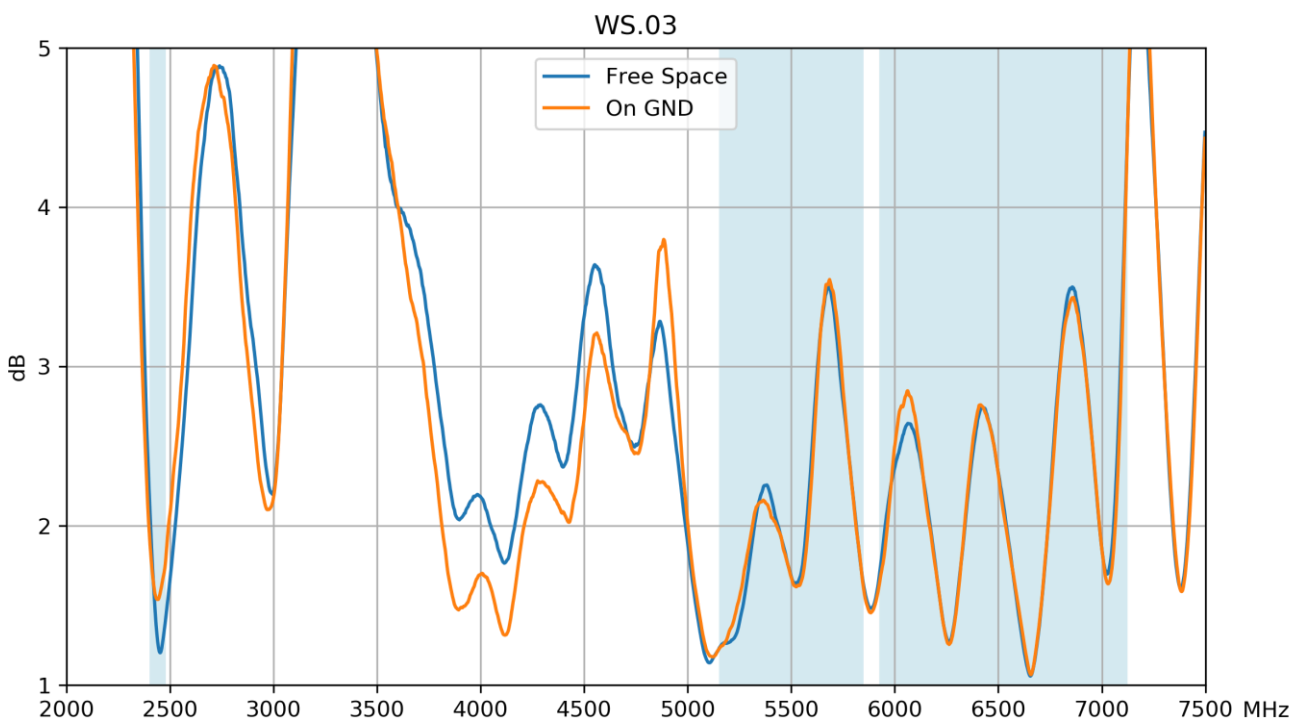
Mechanical	
Height	29 mm
Planner Dimension	49 mm
Casing	ASA
Cable	3000mm of TGC-200
Connector	Reverse Polarity SMA Male
Base and Thread	Zinc Alloy
Thread Diameter	M18
Sealant	Silicon Rubber
Weight	130g
Recommended Mounting Torque	24.5N·m
Maximum Mounting Torque	29.4N·m
Environmental	
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

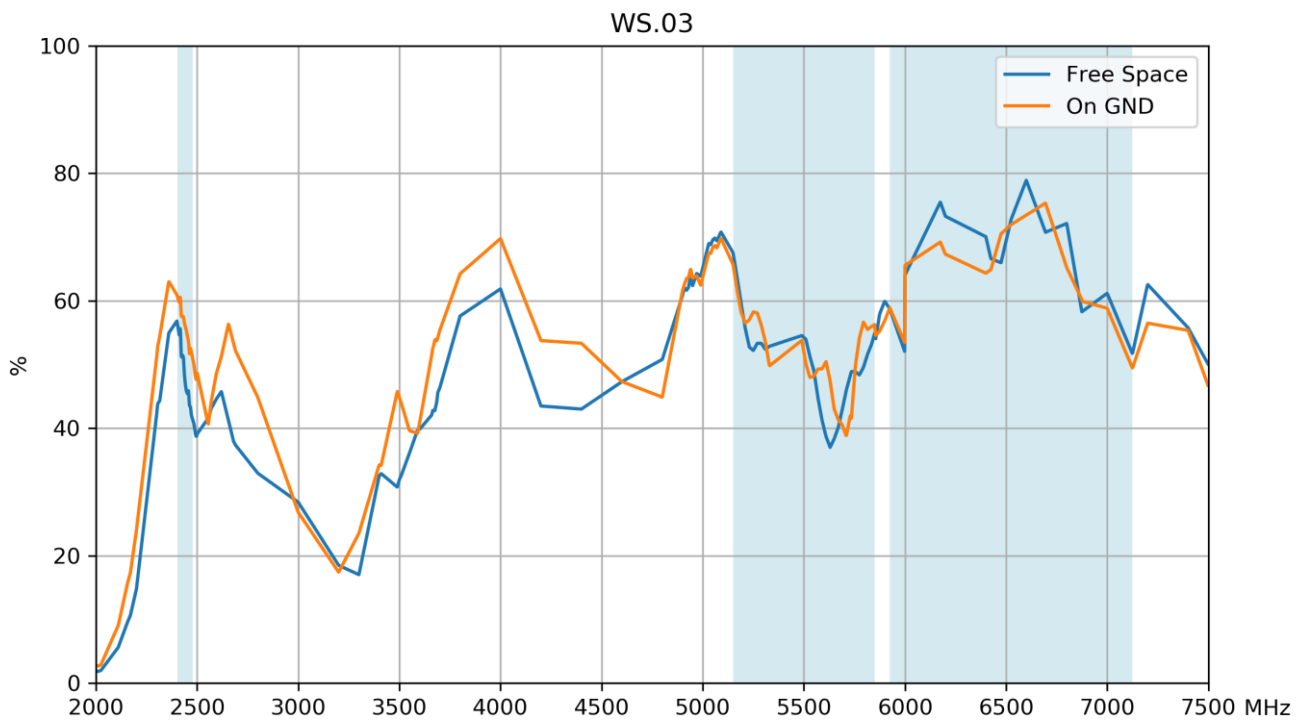
3.1 Return Loss



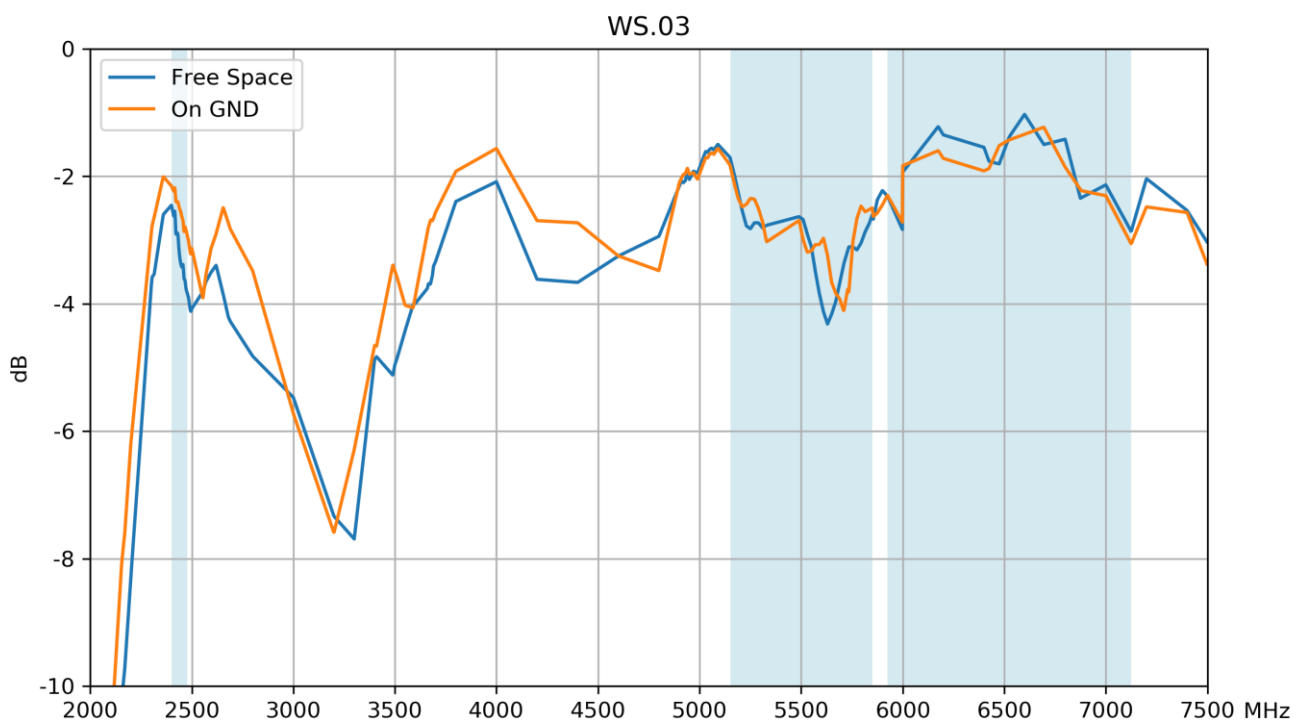
3.2 VSWR



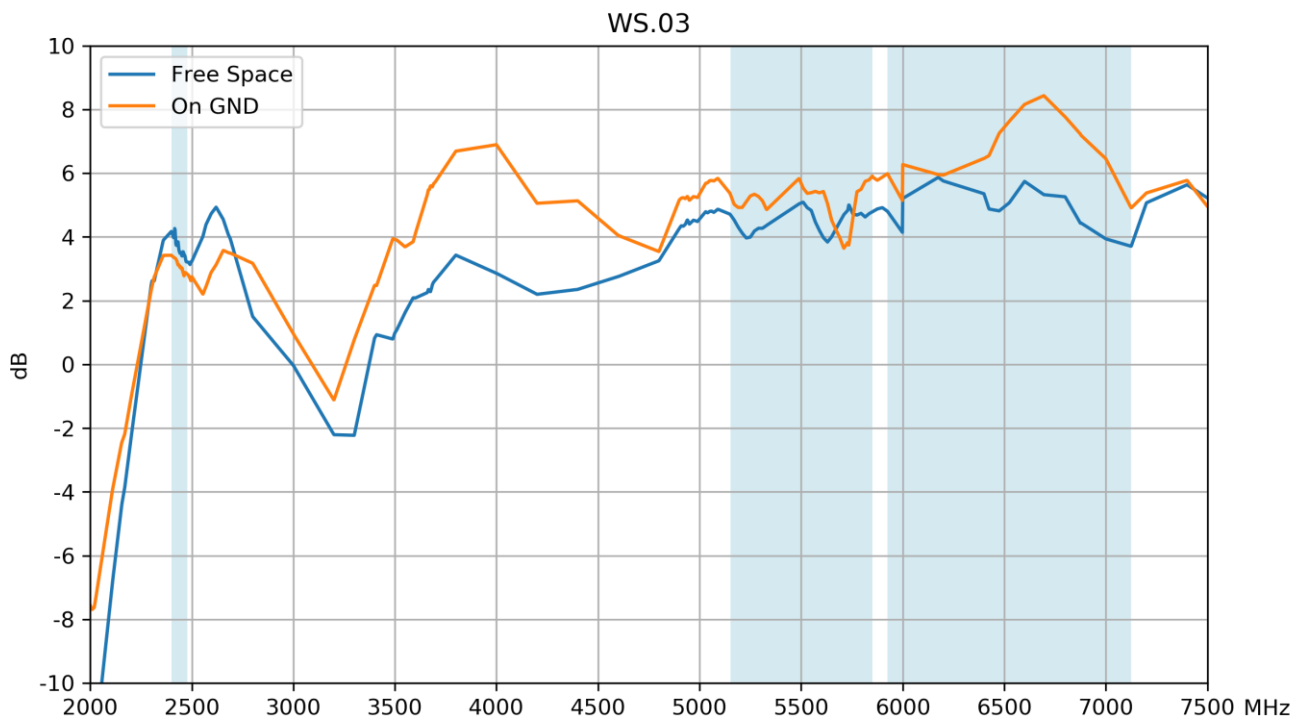
3.3 Efficiency



3.4 Average Gain

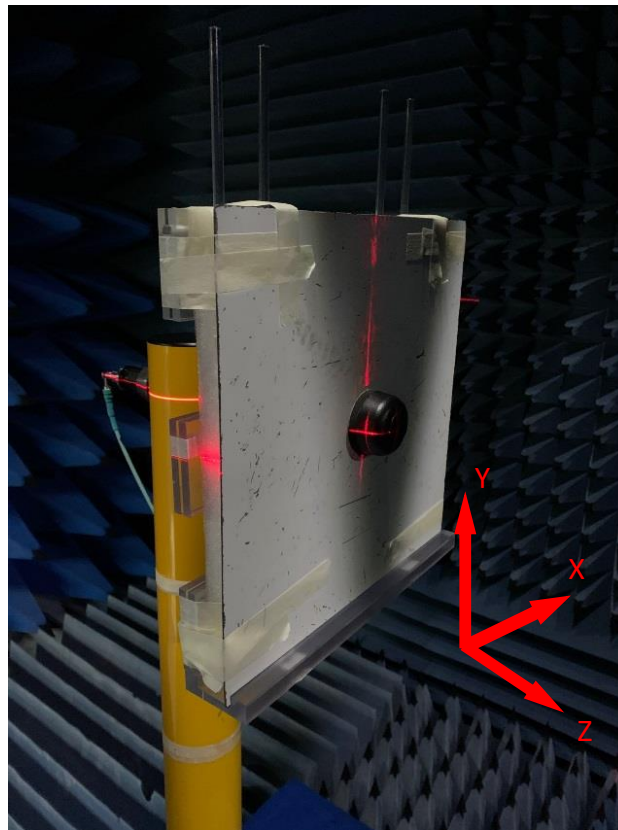


3.5 Peak Gain



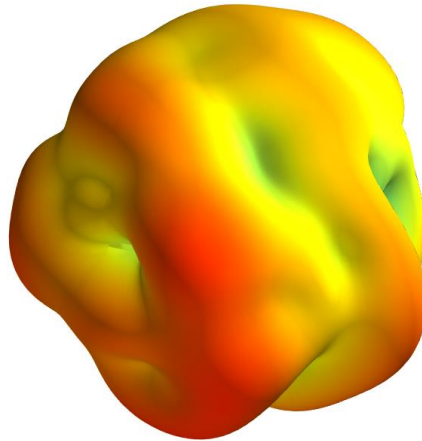
4. Radiation Patterns

4.1 Test Setup – on 30*30cm Ground Plane

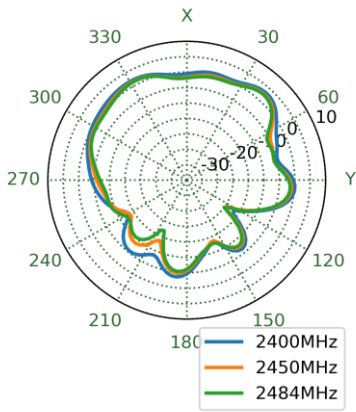


4.2 Free Space 3D and 2D Radiation Patterns

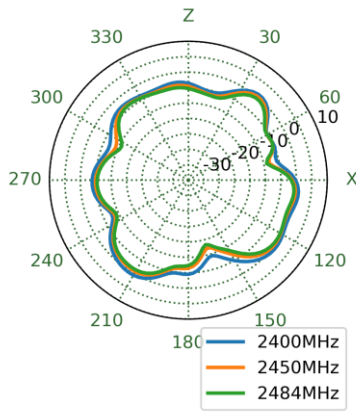
2450MHz



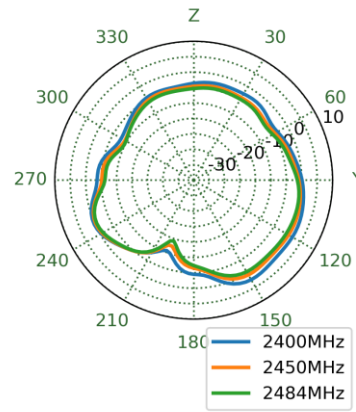
XY Plane



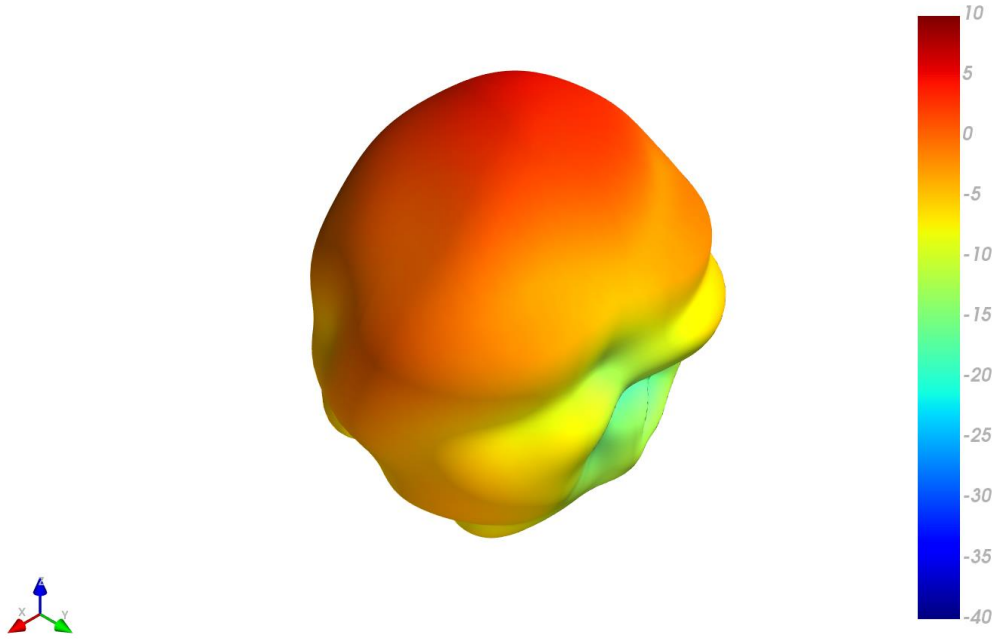
XZ Plane



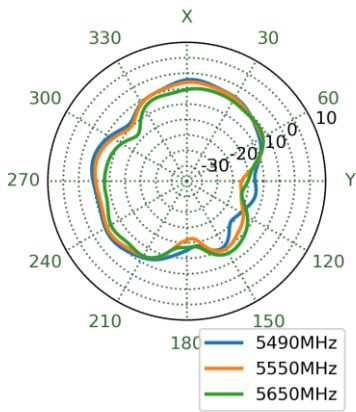
YZ Plane



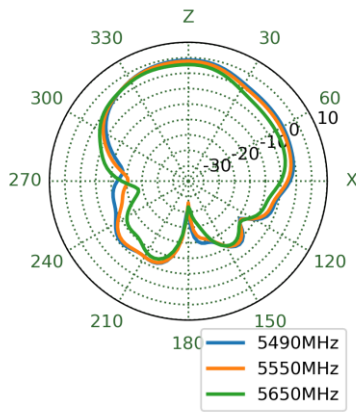
5550MHz



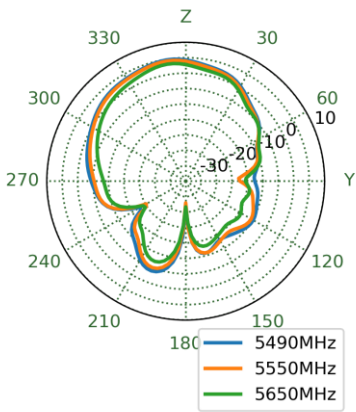
XY Plane



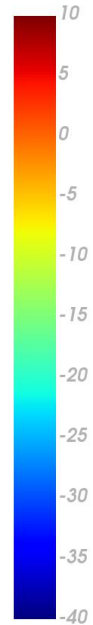
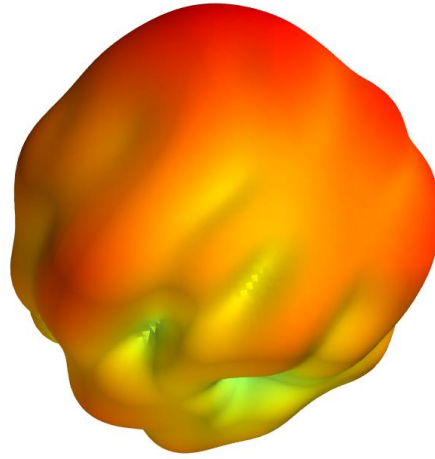
XZ Plane



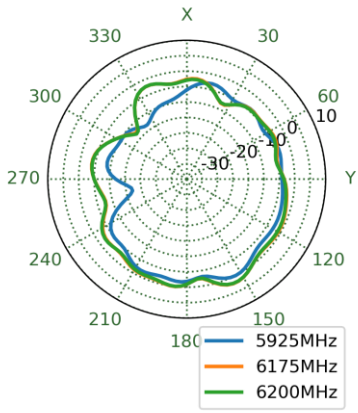
YZ Plane



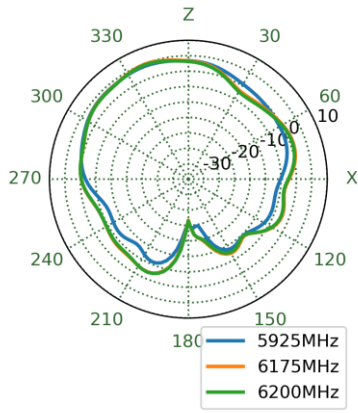
6175MHz



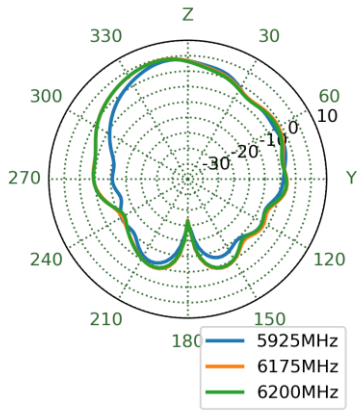
XY Plane



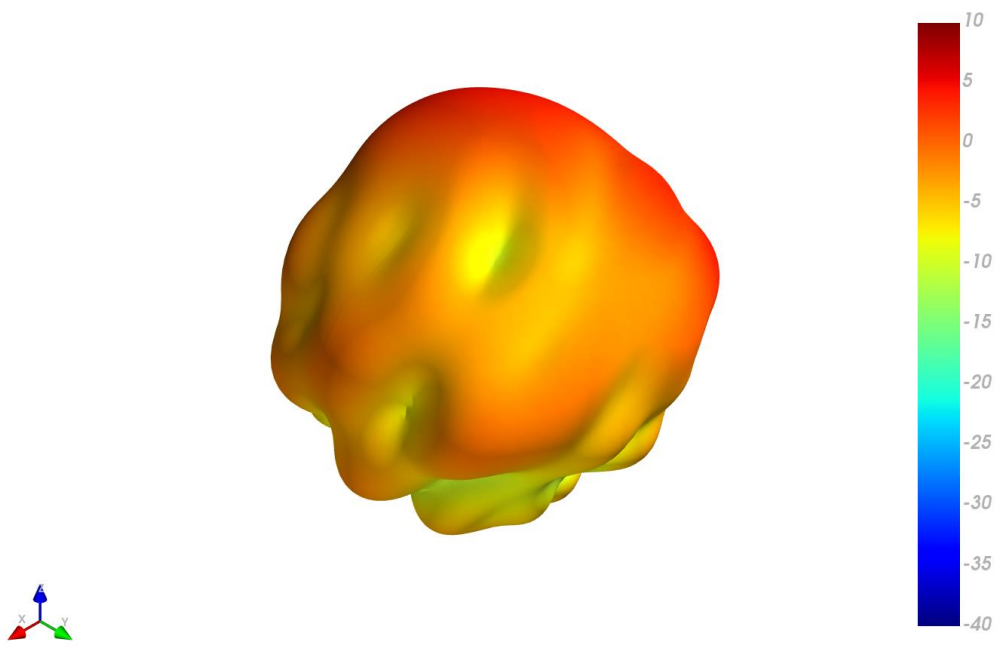
XZ Plane



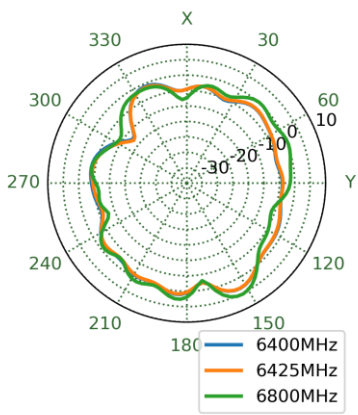
YZ Plane



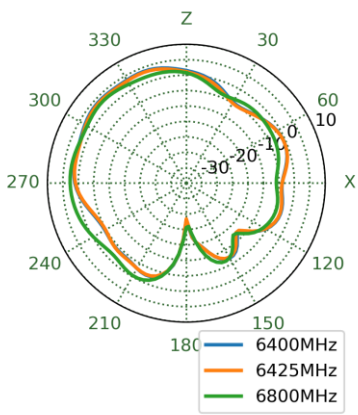
6425MHz



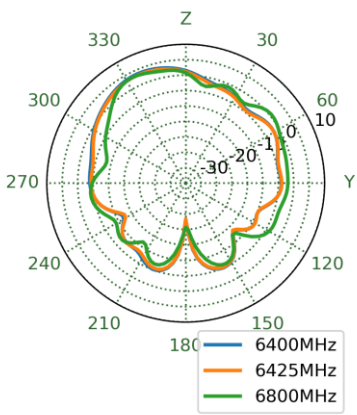
XY Plane



XZ Plane

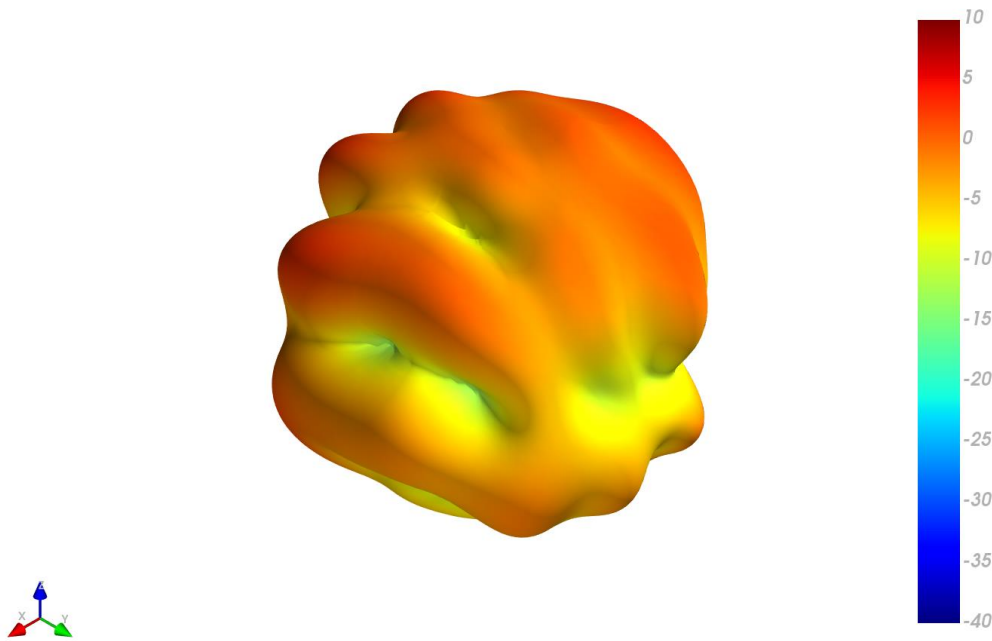


YZ Plane

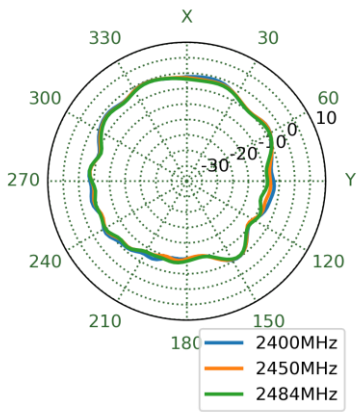


4.3 Ground Plane 3D and 2D Radiation Patterns

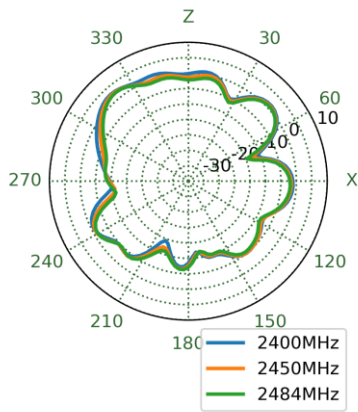
2450MHz



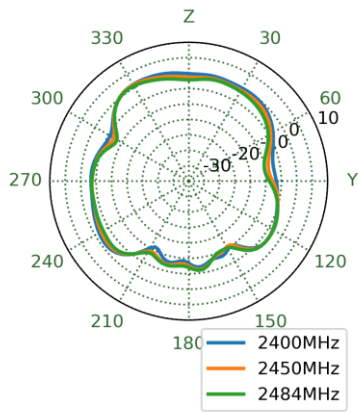
XY Plane



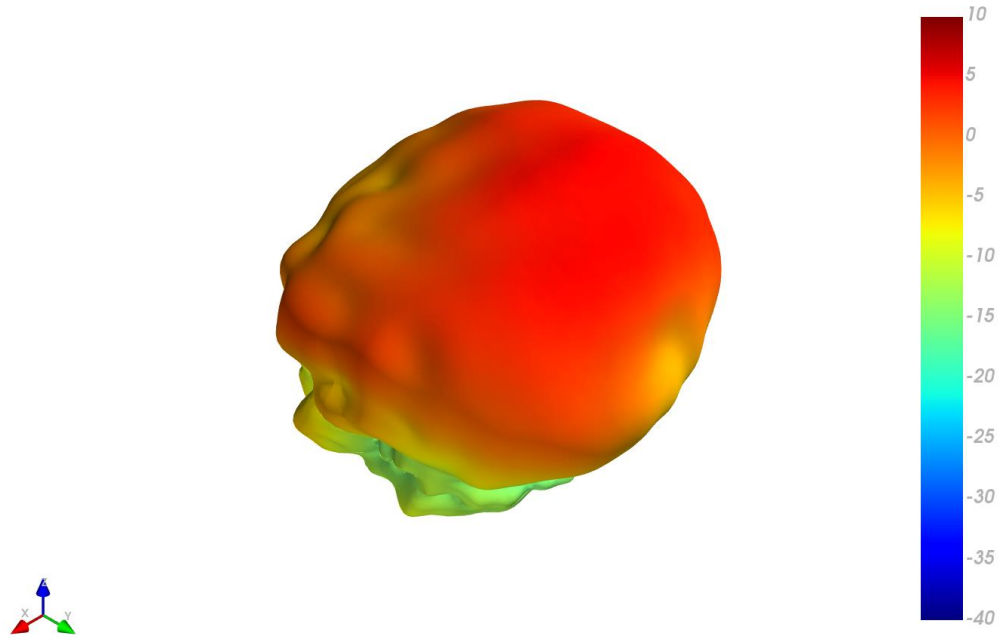
XZ Plane



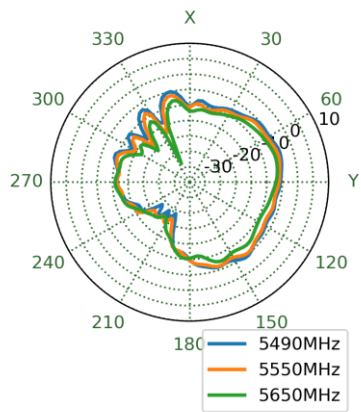
YZ Plane



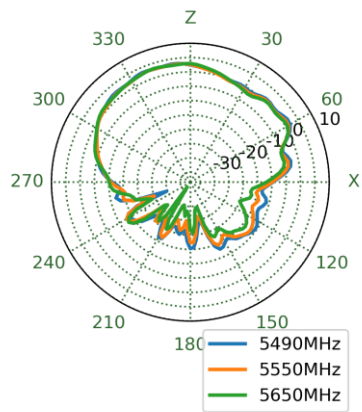
5550MHz



XY Plane



XZ Plane



YZ Plane

