



TAOGLAS®



Datasheet

Raptor X Series

Part No:
MA8010.A.001

Description

10in1 Screwmount 3m RG-174/TGC-1.5DS GNSS FAKRA C 5G/4G (1-4) FAKRA D Wi-Fi (1-5) FAKRA I

Features:

- 1*GNSS L1/L5 Bands
- 4* 5G/4G LTE Cellular 600-6000MHz
- 5* Wi-Fi 2.4/5.8GHz
- Dimensions: 350mm x 70mm x 39mm
- M22 Thread
- IP69K Rated Enclosure
- Cable: GNSS- 3m of RG-174, Wi-Fi & 5G/4G –3m of TGC-1.5DS
- IK10 Rated Enclosure
- Connector: GNSS – FAKRA C, 5G/4G – FAKRA D, Wi-Fi – FAKRA I
- Custom Cables and Connectors Available
- RoHS & Reach Compliant

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1. Introduction



The Taoglas Raptor X MA8010 is a 10-in-1 combination antenna that has been designed to be used in conjunction with the next generation of routers and gateways. The MA8010 has dual-band GNSS L1/L5 for precision navigational accuracy, high efficiency 5G/4G wideband cellular from 600-6000MHz for enhanced connectivity, and Dual-Band Wi-Fi for future-proof applications at 2.4/5.8GHz.

The MA8010 has an extremely small form factor of just 350 x 70 x 39mm, much smaller than the market standard size for a product containing up to 10 connections. At just 39mm in height, the MA8010 is perfect for mounting on roofs of vehicles where max height is often 80mm. Its thin size of 70mm in width means it can be used on various NEMA cabinets.

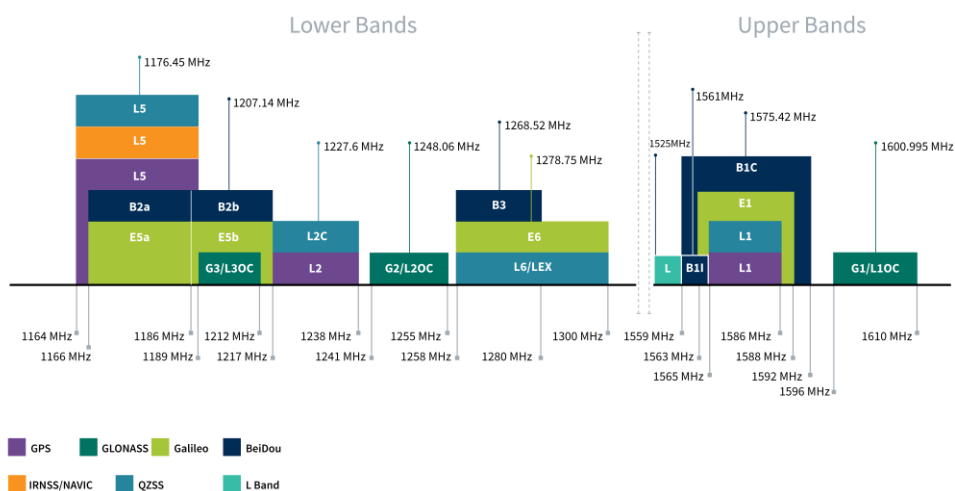
Typical applications include:

- Emergency and First Responder Vehicles
- EV Chargers
- Smart Industry
- Warehouses
- Private LTE Network

The MA8010 is IP69K rated and it's 10 connections can be customized to any requirements below 10-in-1 for specific router and customer configurations to include GNSS up to 4 cellular connections and 5 Wi-Fi connections. The cables and connectors are fully customizable, for further information, please contact your regional Taoglas customer support team.

2. Specification

GNSS Frequency Bands					
GPS	L1 1575.42 MHz	L2 1227.6 MHz	L5 1176.45 MHz		
	■	□	■		
GLONASS	G1 1602 MHz	G2 1248 MHz	G3 1207 MHz		
	■	□	□		
Galileo	E1 1575.24 MHz	E5a 1176.45 MHz	E5b 1201.5 MHz	E6 1278.75 MHz	
	■	■	□	□	
BeiDou	B1C 1575.42 MHz	B1I 1561 MHz	B2a 1176.45 MHz	B2b 1207.14 MHz	B3 1268.52 MHz
	■	■	■	□	□
L-Band	L-Band 1542 MHz				
	□				
QZSS (Regional)	L1 1575.42 MHz	L2C 1227.6 MHz	L5 1176.45 MHz	L6 1278.75e6	
	■	□	■	□	
IRNSS (Regional)	L5 1176.45 MHz				
	■				
SBAS	L1/E1/B1 1575.42 MHz	L5/B2a/E5a 1176.45 MHz	G1 1602 MHz	G2 1248 MHz	G3 1207 MHz
	■	■	■	□	□



Bands and Constellations Table

GNSS Electrical				
Frequency (MHz)	GPS_L5	BeiDou_B1	GPS_L1	GLONASS_G1
	1164-1189	1559-1592	1565-1586	1596-1610
Average Gain (dB)	-2.95	-2.00	-1.77	-2.62
Efficiency (%)	50.7	63.0	66.5	54.7
Peak Gain (dBi)	2.49	3.93	3.93	3.38
Axial Ratio at Zenith	5	4.8	11.7	13.1
Impedance	50 Ω			
Polarization	RHCP			

LNA and Filter Electrical Properties (3.3V Typ.)		
Frequency (MHz)		High-Band
LNA Gain (dB)		32.3
Noise Figure (dB)		2.4
Current Consumption (mA)		16.8
Outer Band Attenuation (dB)	At 500 ~ 1000 MHz	60 dB
	At 2000 ~ 2690MHz	60 dB
	At 3300~ 6000MHz	60 dB
Output Impedance		50 ohm
Input Voltage(V)		+1.8 to 5.5

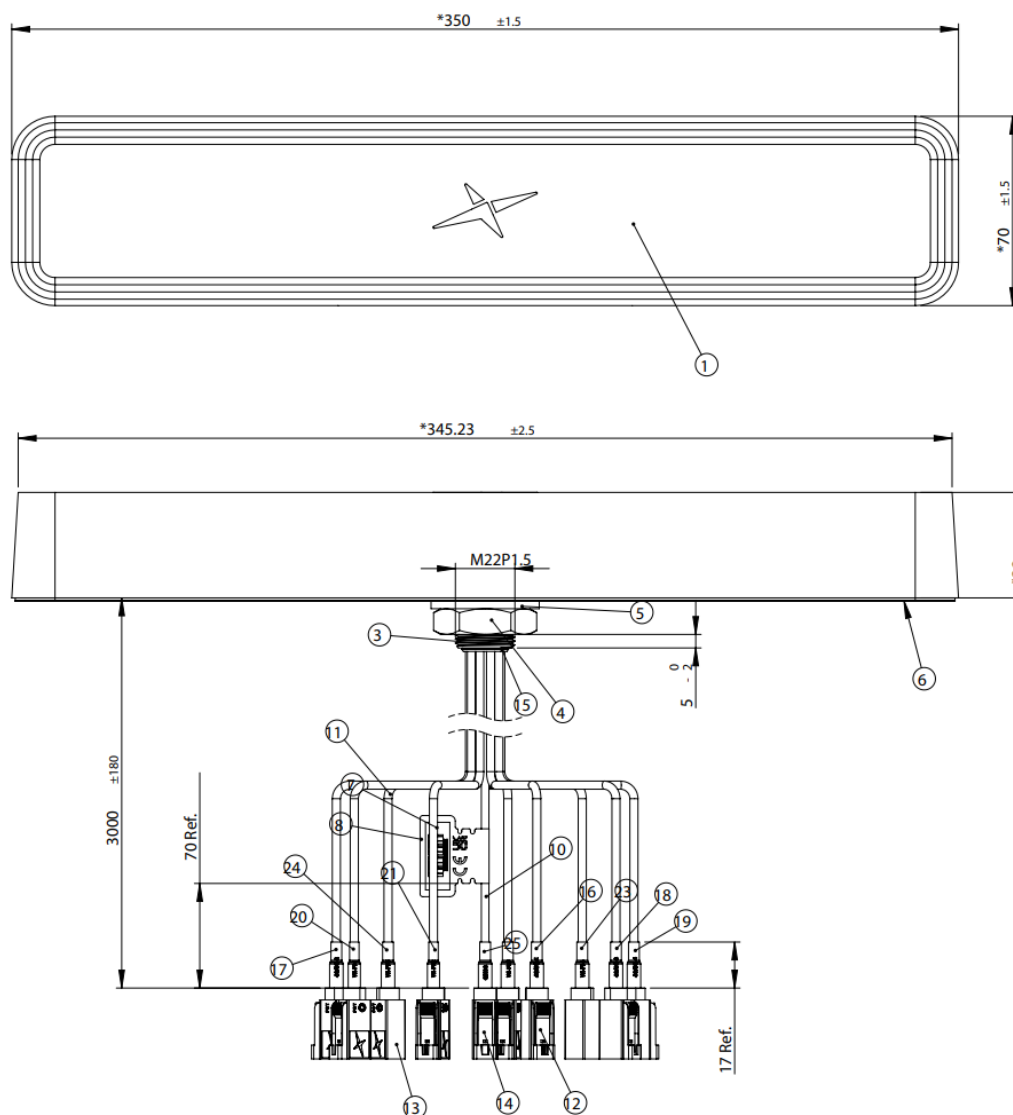
LTE Electrical								
Band	Frequency (MHz)	Set-up	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern
5G NR Band 71	617-698	4G5G-1	49.8	-3.03	0.87	50 Ω	Linear	Omni
		4G5G-2	36.6	-4.37	0.91			
		4G5G-3	36.4	-4.38	1.03			
		4G5G-4	44.5	-3.52	2.25			
LTE700	698-824	4G5G-1	49.7	-3.04	2.94			
		4G5G-2	39.5	-4.03	2.11			
		4G5G-3	35.4	-4.51	1.97			
		4G5G-4	50.3	-2.99	2.25			
GSM800 900	824-960	4G5G-1	50.8	-2.94	2.64			
		4G5G-2	43.7	-3.60	2.18			
		4G5G-3	37.5	-4.26	2.17			
		4G5G-4	48.0	-3.19	2.25			
5G NR Band 1500	1427-1518	4G5G-1	27.9	-5.54	1.01			
		4G5G-2	27.8	-5.56	1.21			
		4G5G-3	24.5	-6.10	1.11			
		4G5G-4	26.7	-5.74	0.99			
5GNR N66	1710-2200	4G5G-1	47.7	-3.21	5.15			
		4G5G-2	53.7	-2.70	5.44			
		4G5G-3	51.2	-2.91	5.63			
		4G5G-4	42.5	-3.72	4.65			
LTE2600	2300-2690	4G5G-1	45.2	-3.45	6.16			
		4G5G-2	56.8	-2.45	6.97			
		4G5G-3	52.6	-2.79	6.72			
		4G5G-4	47.0	-3.28	6.15			
5GNR N77	3300-4200	4G5G-1	63.8	-1.95	6.23			
		4G5G-2	63.1	-2.00	6.78			
		4G5G-3	59.7	-2.24	7.74			
		4G5G-4	61.2	-2.13	5.97			
5GNR N78	3300-3800	4G5G-1	64.2	-1.92	6.23			
		4G5G-2	63.5	-1.97	6.78			
		4G5G-3	60.3	-2.20	7.74			
		4G5G-4	61.7	-2.10	5.97			
5GNR N79	4400-5000	4G5G-1	49.9	-3.02	5.49			
		4G5G-2	51.2	-2.91	6.77			
		4G5G-3	52.9	-2.76	5.80			
		4G5G-4	45.4	-3.43	5.96			
LTE5200	5150-5925	4G5G-1	48.9	-3.11	5.76			
		4G5G-2	41.2	-3.86	4.93			
		4G5G-3	43.5	-3.62	6.48			
		4G5G-4	40.1	-3.97	4.44			

Wi-Fi Electrical		
Frequency (MHz)	Frequency (MHz)	
	2400-2500	4900-5850
Efficiency (%)		
Wi-Fi-1	40.2	48.8
Wi-Fi-2	53.7	45.8
Wi-Fi-3	50.0	46.4
Wi-Fi-4	38.8	39.4
Wi-Fi-5	31.2	40.9
Average Gain (dB)		
Wi-Fi-1	-3.96	-3.12
Wi-Fi-2	-2.70	-3.40
Wi-Fi-3	-3.01	-3.34
Wi-Fi-4	-4.12	-4.05
Wi-Fi-5	-5.05	-3.89
Peak Gain (dBi)		
Wi-Fi-1	3.56	6.56
Wi-Fi-2	6.71	6.82
Wi-Fi-3	6.09	5.42
Wi-Fi-4	2.54	5.61
Wi-Fi-5	2.37	4.48
Impedance	50 Ω	
Polarization	Linear	
Radiation Pattern	Omni	
*Tested with 0.3m of Cable on a 30x30cm Ground Plane		

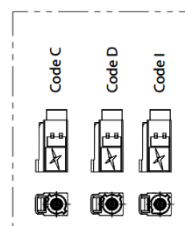
Mechanical	
Dimensions	350mm * 70mm * 39 mm
Weight	1.05kg
Material	PC
Connector	GNSS: FAKRA C, 5G/4G(1-4): FAKRA D, Wi-Fi(1-5): – FAKRA I
Cable	GNSS:3m of RG-174, 5G/4G(1-4) Wi-Fi(1-5):3m of TGC-1.5DS
Enclosure Impact Rating	IK10

Environmental	
Waterproof Rating	IP69K
Temperature Range	-40°C to + 85°C
Humidity	Non-condensing 65°C 95% RH

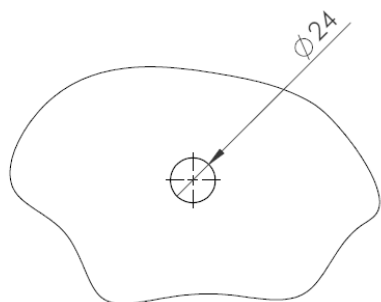
3. Mechanical Drawing



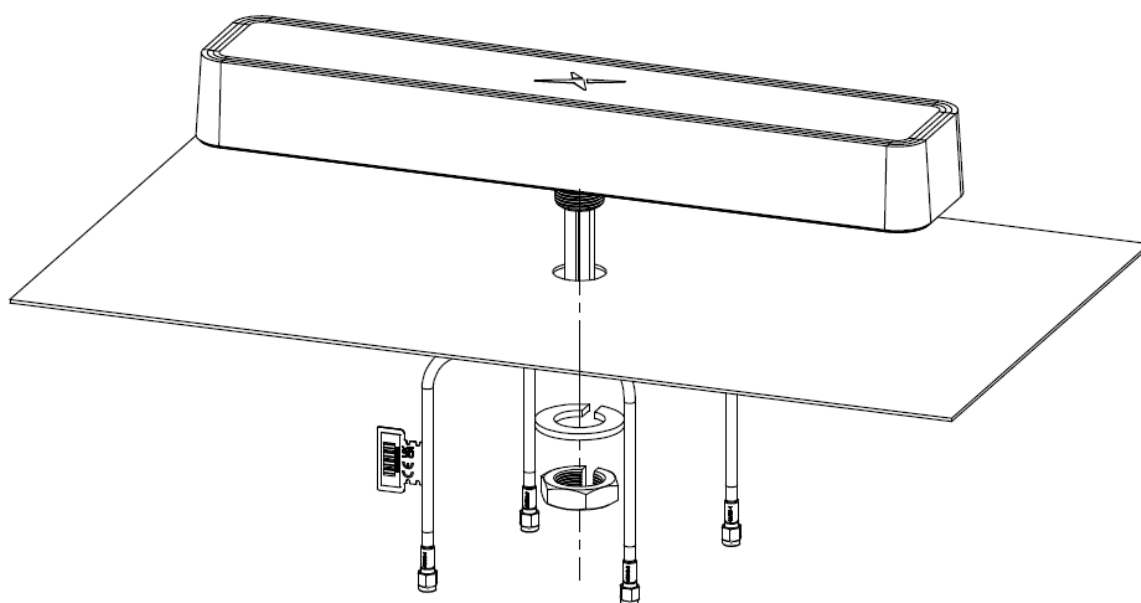
	Name	Material	Finish	QTY
1	Top Housing	PC	Black	1
2	Bottom Housing	PC	Black	1
3	Metal Stem	Zinc Alloy	Ni Plated	1
4	Nut_M22x1.5P	Steel	Ni-Zn Plated	1
5	Washer_M22	Steel	Ni-Zn Plated	1
6	Double Side Adhesive	3M 9448HM + CR4305 2T	Black	1
7	Barcode Label	PET	White	1
8	CE, WEEE and UKCA mark Label	PEPA	White	1
9	Screw	SUS	N/A	20
10	RG174 Coaxial Cable	PVC	Black	1
11	LOW LOSS COAXIAL CABLE 1.505-Q18	PVC	Black	9
12	FAKRA Code D SMB/75T Bendeaux	PBT	Violet	4
13	FAKRA Code I SMB/75T	PBT	Beige	5
14	FAKRA Code C SMB/75T	PBT	Blue	1
15	Grommet	Silicone Rubber	Black	1
16	Heat Shrink Tube(4G/SG-1)	PE	Red Tube/White Text	1
17	Heat Shrink Tube(4G/SG-2)	PE	Red Tube/White Text	1
18	Heat Shrink Tube(4G/SG-3)	PE	Red Tube/White Text	1
19	Heat Shrink Tube(4G/SG-4)	PE	Red Tube/White Text	1
20	Heat Shrink Tube (WIFI-1)	PE	Yellow tube/Black text	1
21	Heat Shrink Tube (WIFI-2)	PE	Yellow Tube/Black Text	1
22	Heat Shrink Tube (WIFI-3)	PE	Yellow Tube /Black Text	1
23	Heat Shrink Tube (WIFI-4)	PE	Yellow Tube /Black Text	1
24	Heat Shrink Tube (WIFI-5)	PE	Yellow Tube /Black Text	1
25	Heat Shrink Tube(GNSS)	PE	Blue Tube/White Text	1



4. Installation Guide



RECOMMENDED HOLE SIZE FOR MOUNTING
MAX PANEL THICKNESS = 6MM



5. Packaging

1pc MA8010.A.001 per PE Bag



10pcs MA8010.A.001 per carton
Dimensions 370 x 370 x 300mm



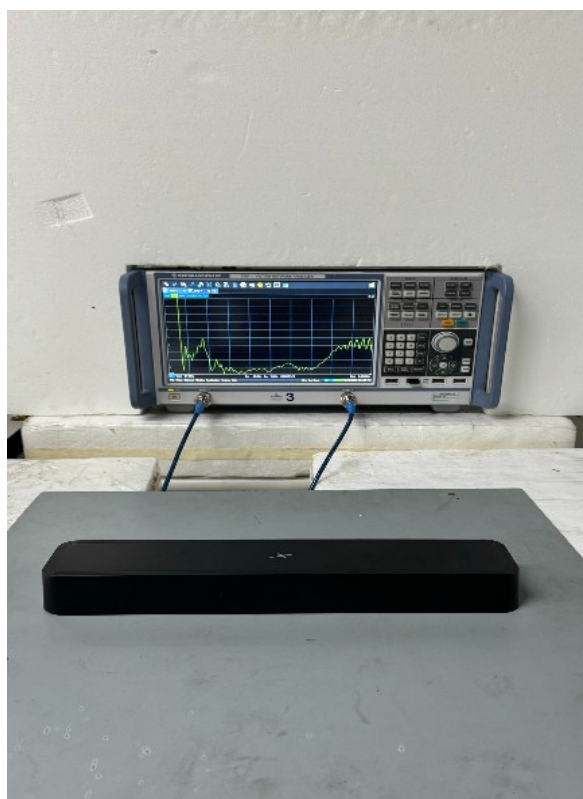
6. Antenna Characteristics

6.1 Test Set-up

AUT

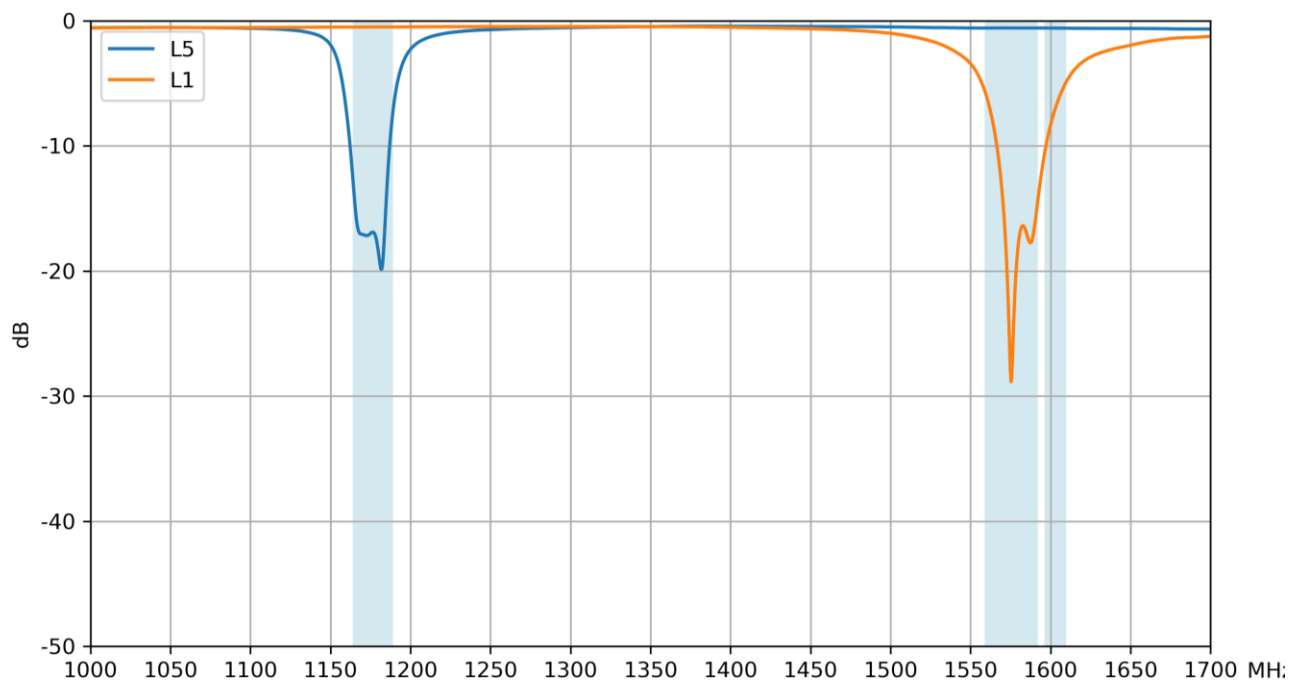


Vector Network Analyzer

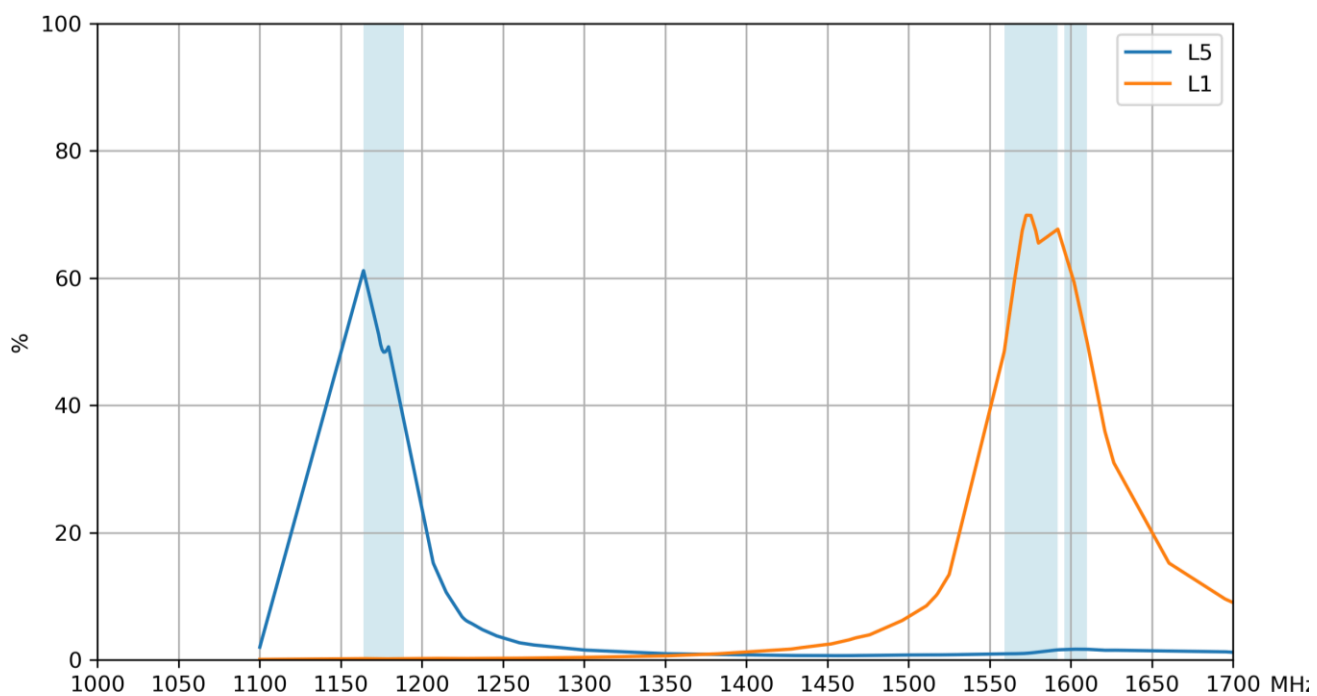


VNA Test Set up

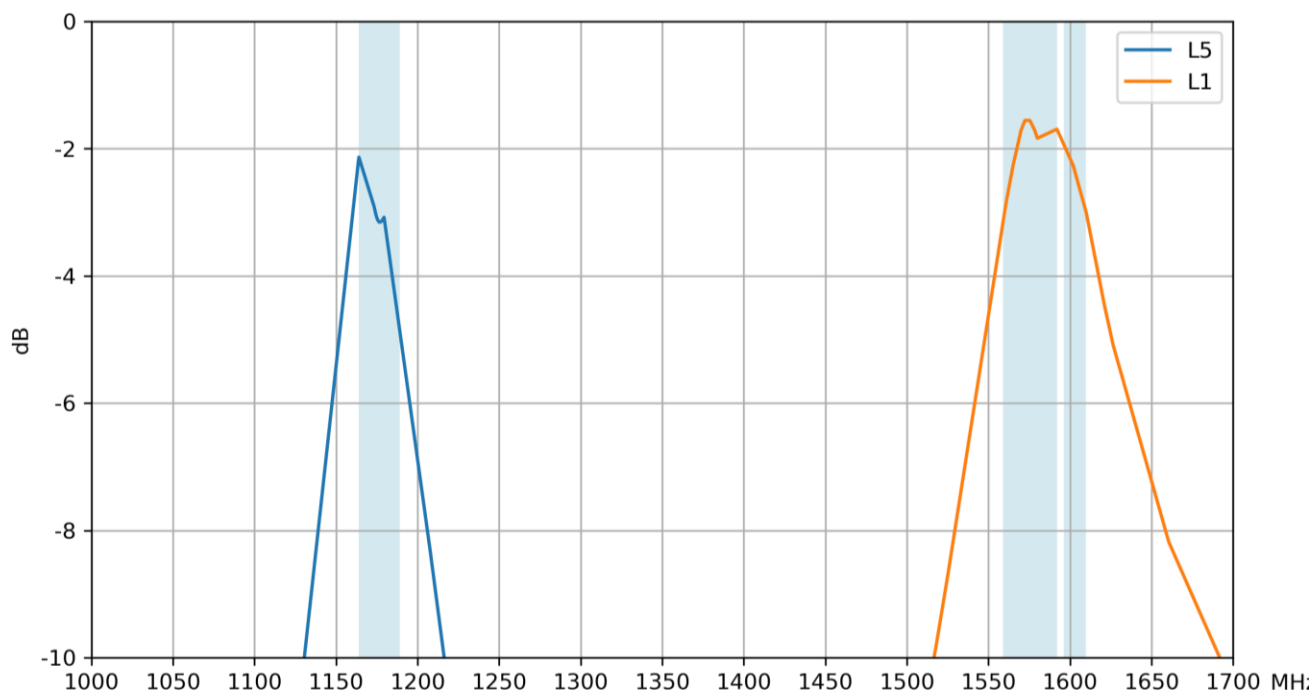
6.2 Return Loss (GNSS)



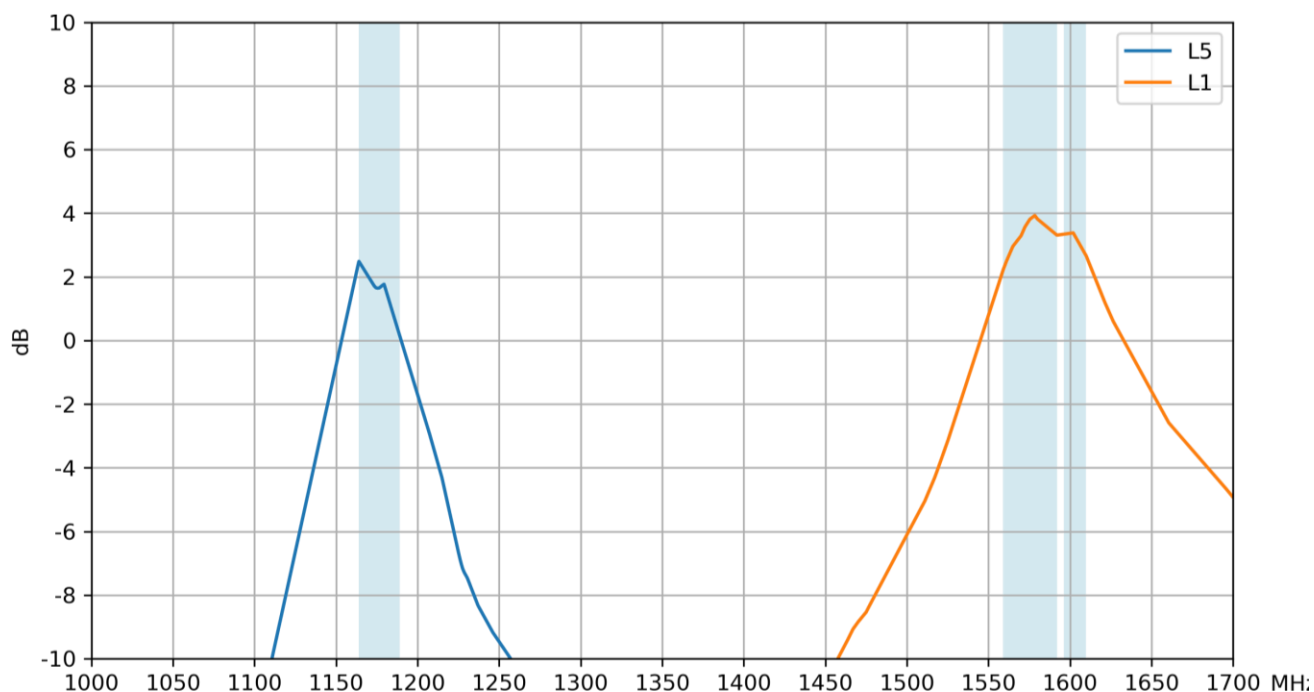
6.3 Efficiency (GNSS)



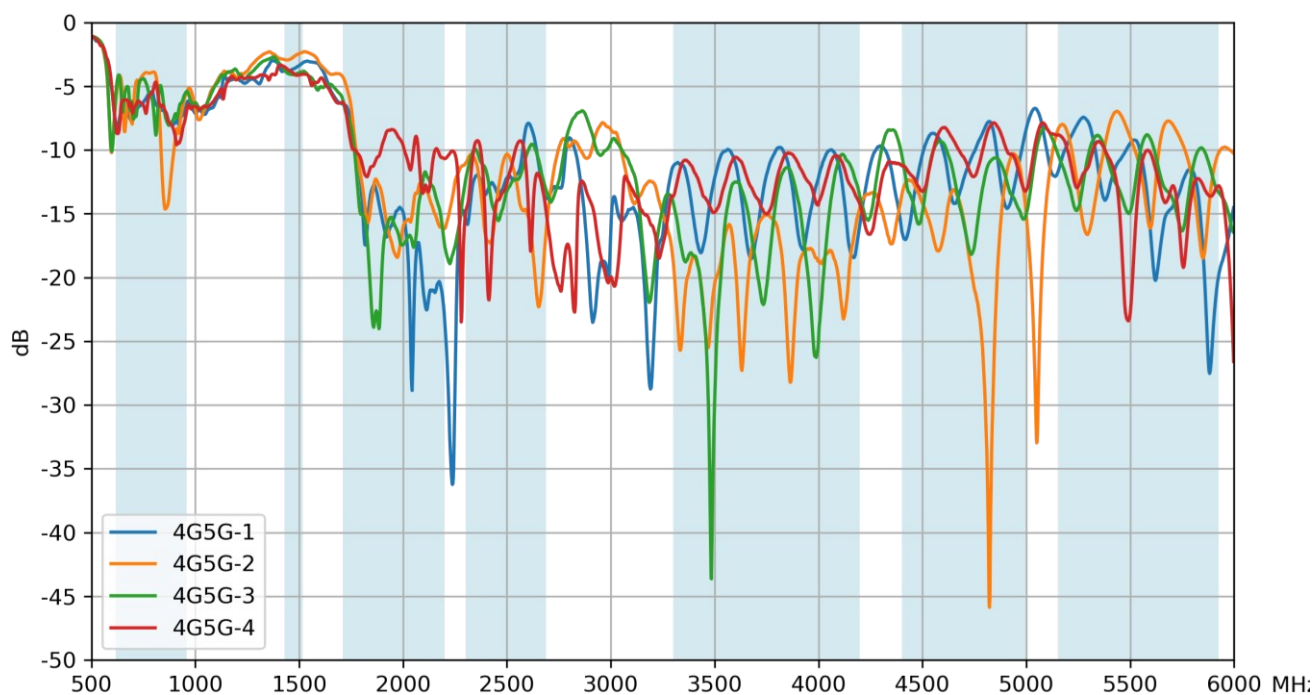
6.4 Average Gain (GNSS)



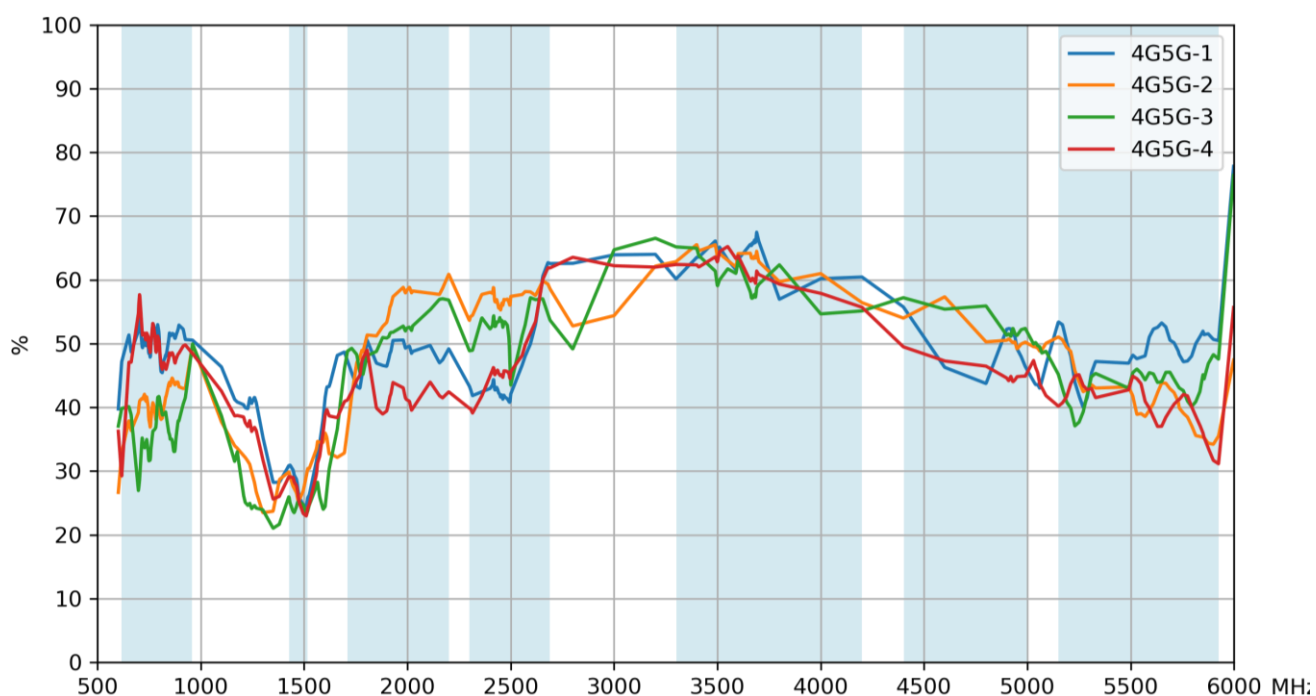
6.5 Peak Gain (GNSS)



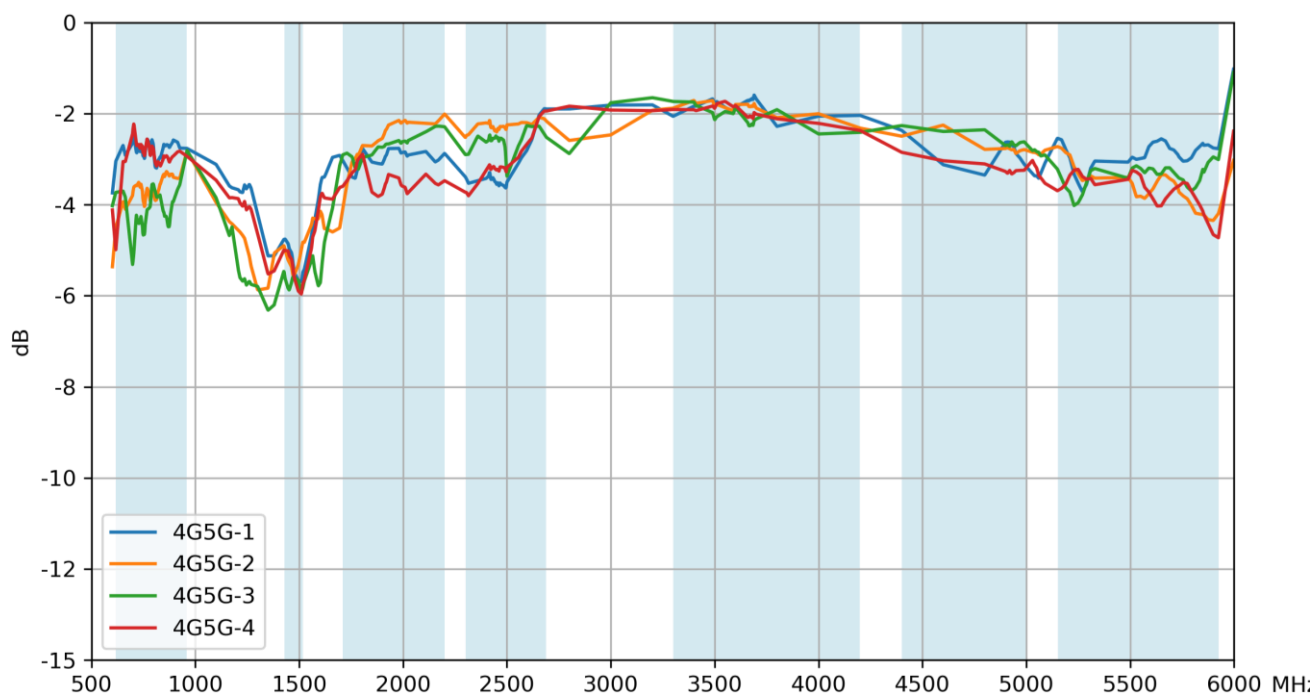
6.6 Return Loss (4G/5G)



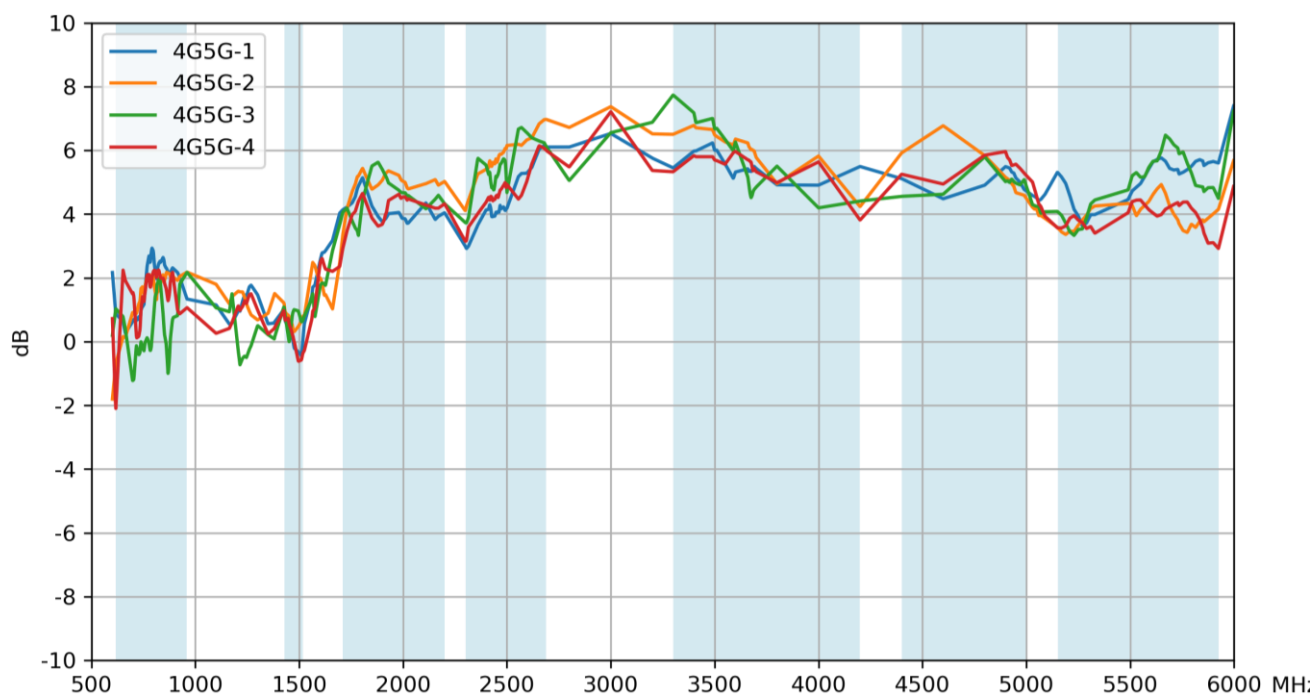
6.7 Efficiency (4G/5G)



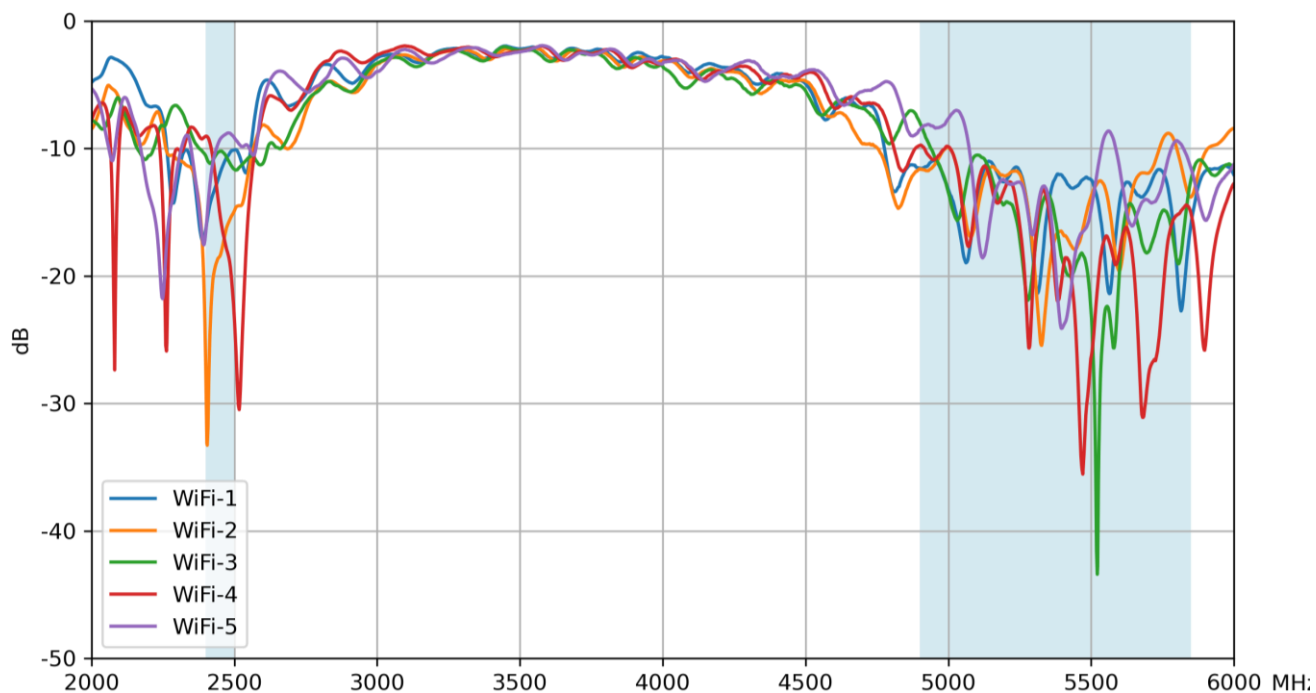
6.8 Average Gain (4G/5G)



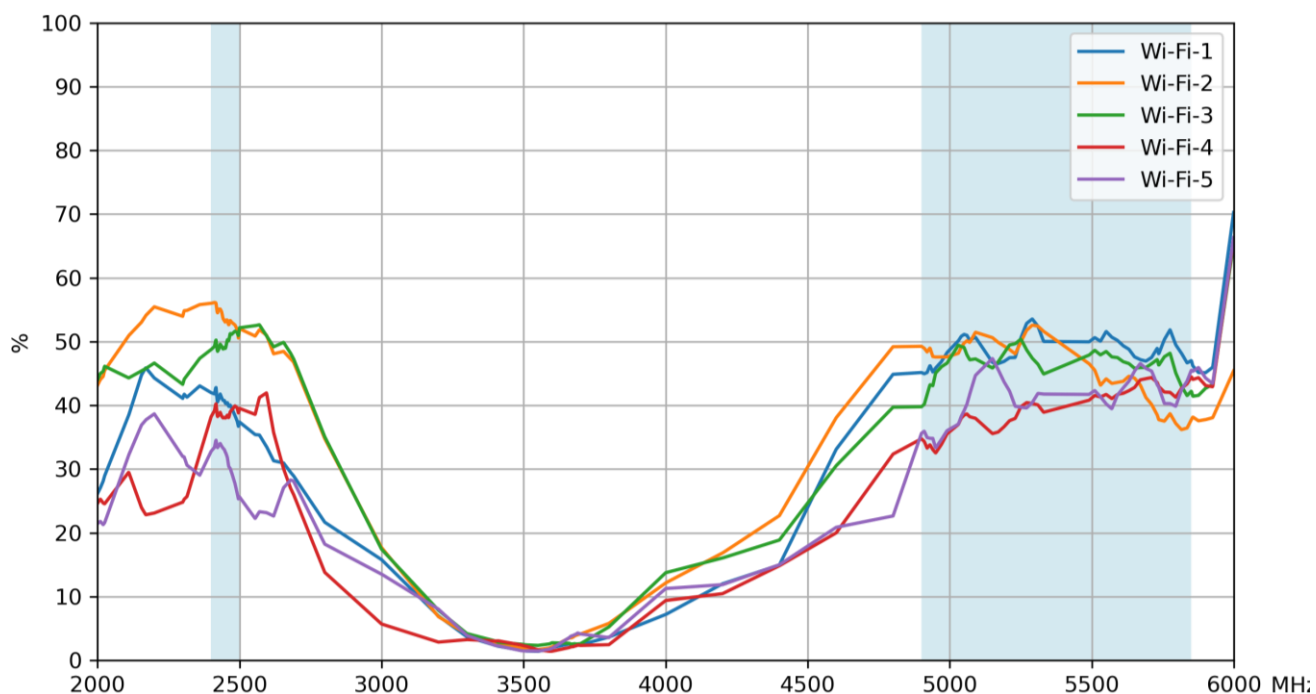
6.9 Peak Gain (4G/5G)



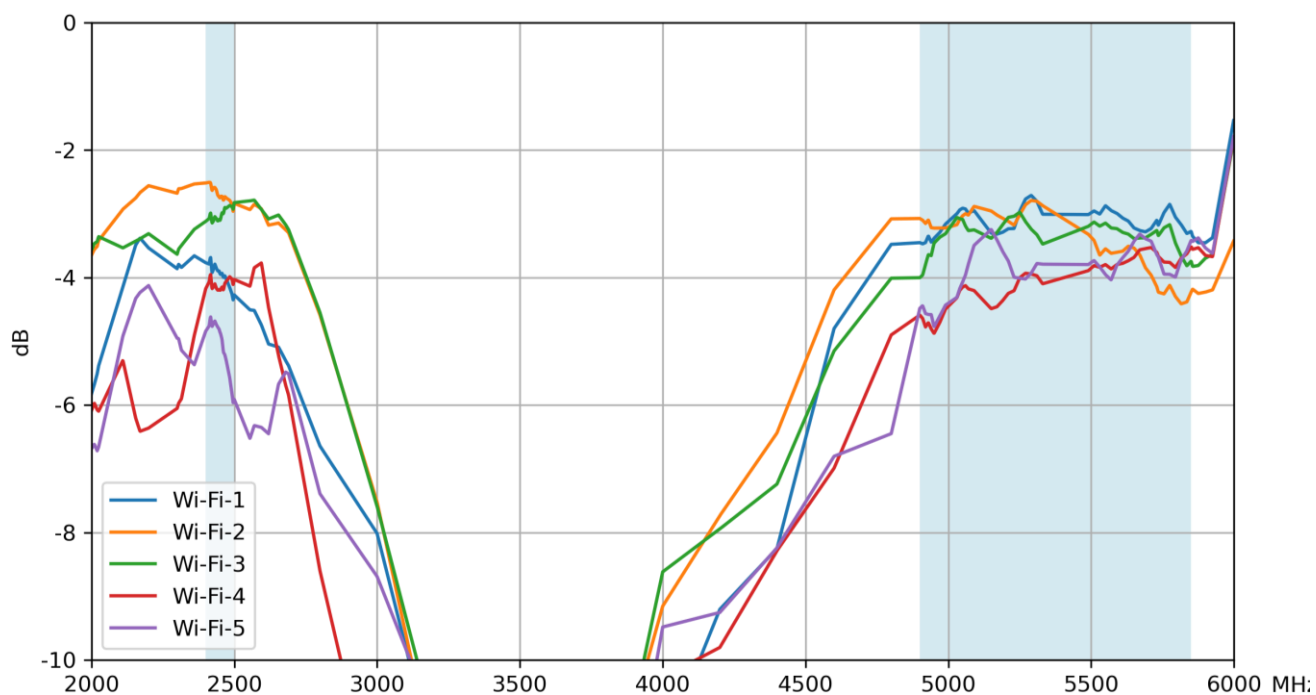
6.10 Return Loss (Wi-Fi)



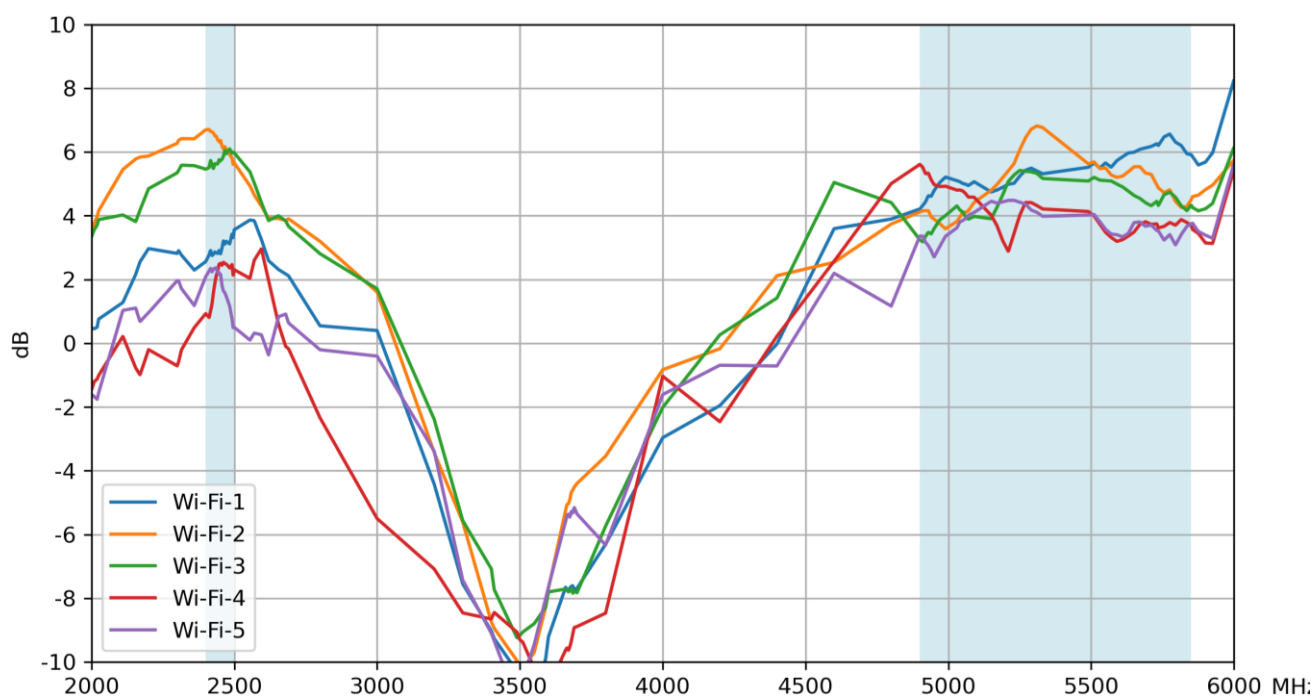
6.11 Efficiency (Wi-Fi)



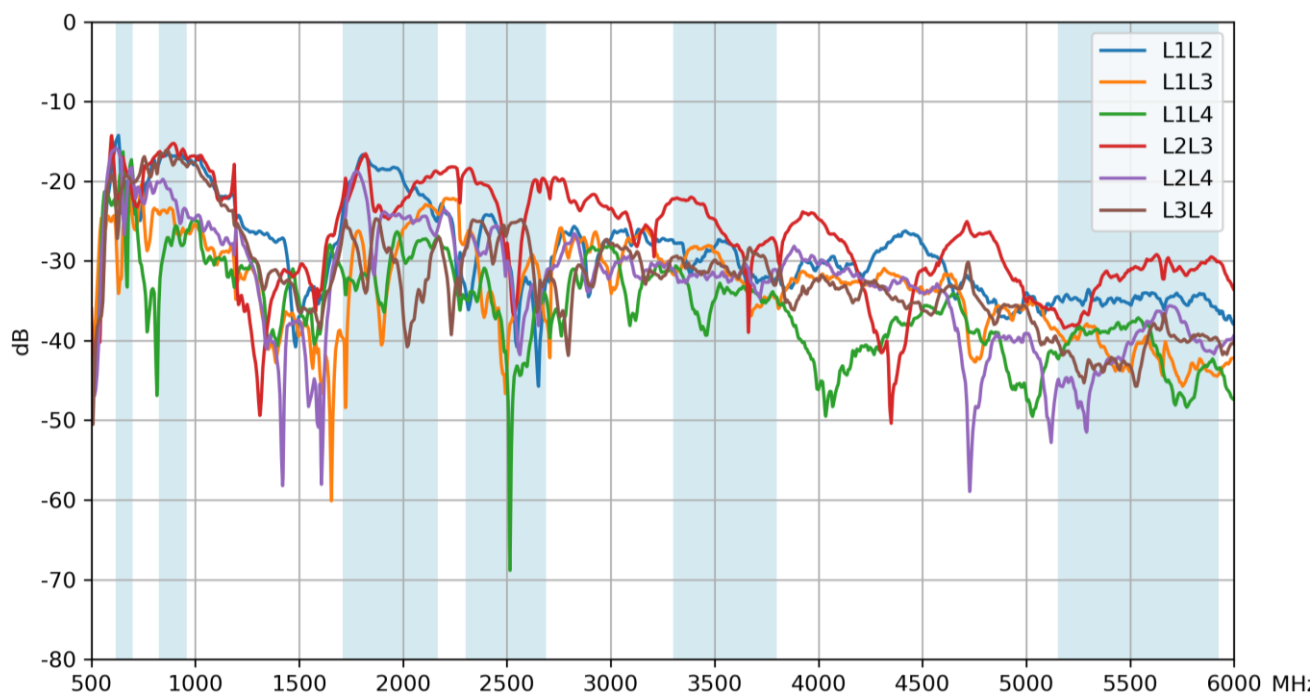
6.12 Average Gain (Wi-Fi)



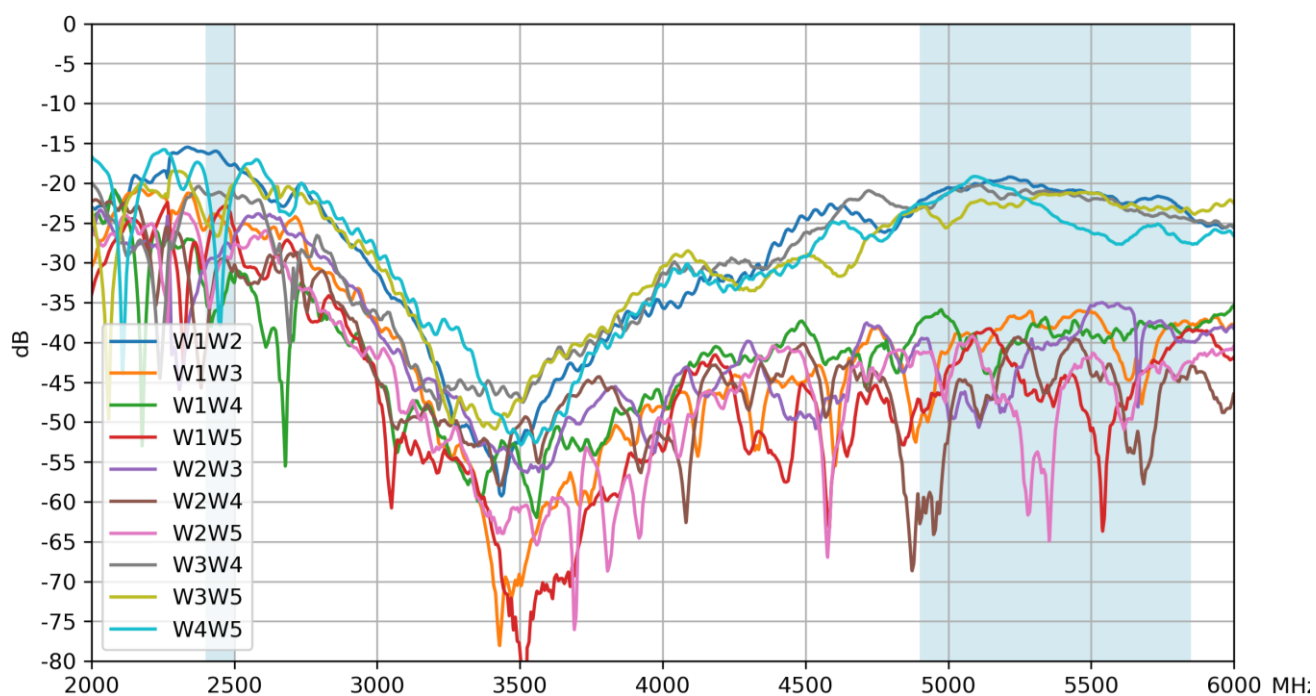
6.13 Peak Gain (Wi-Fi)



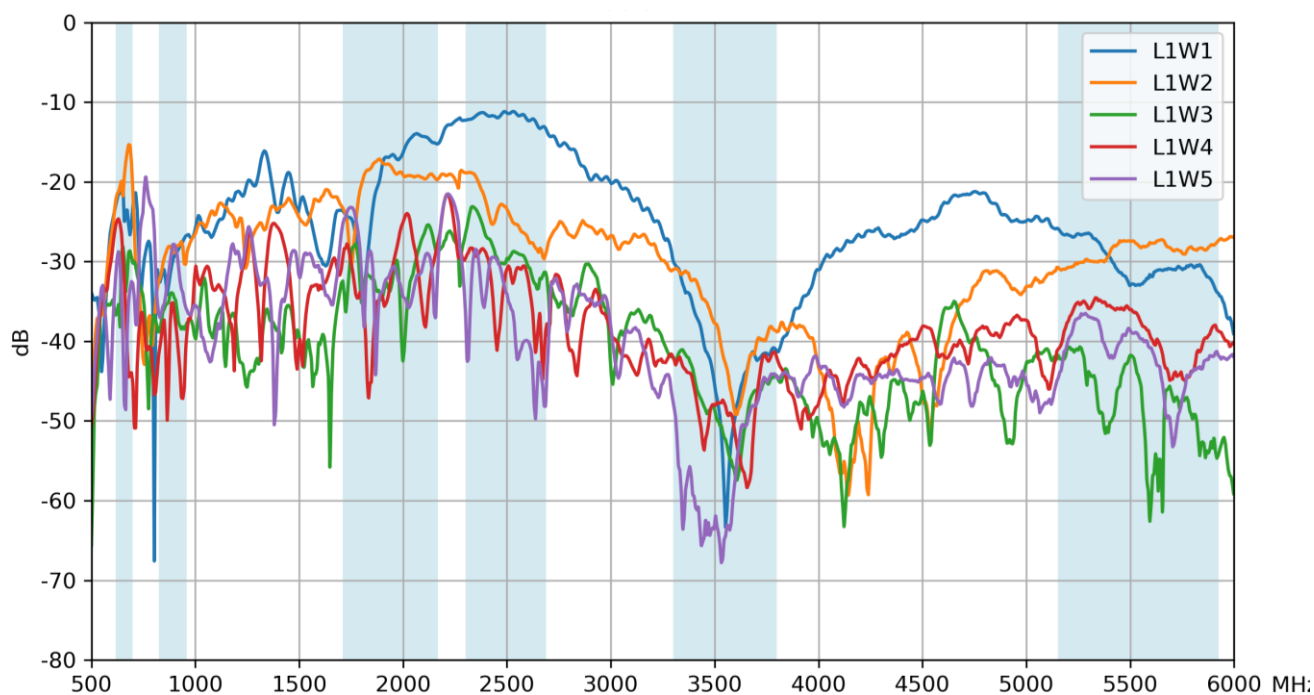
6.14 Isolation (4G/5G)



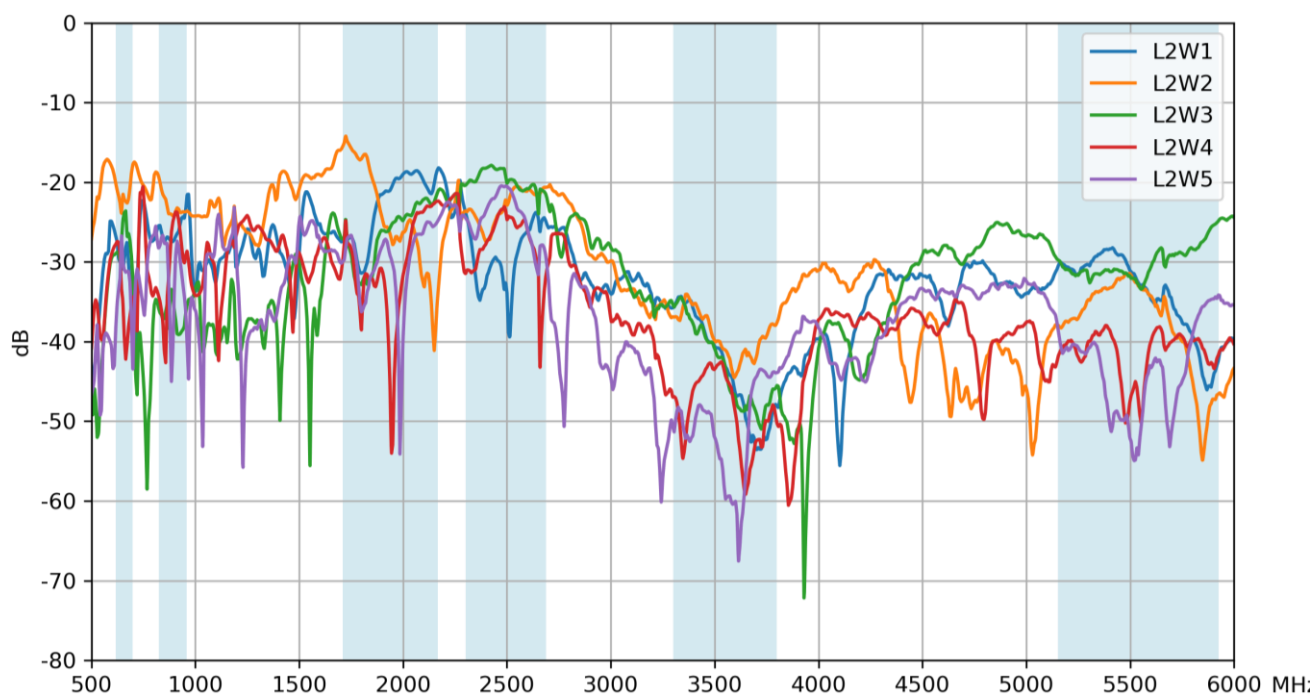
6.15 Isolation (Wi-Fi)



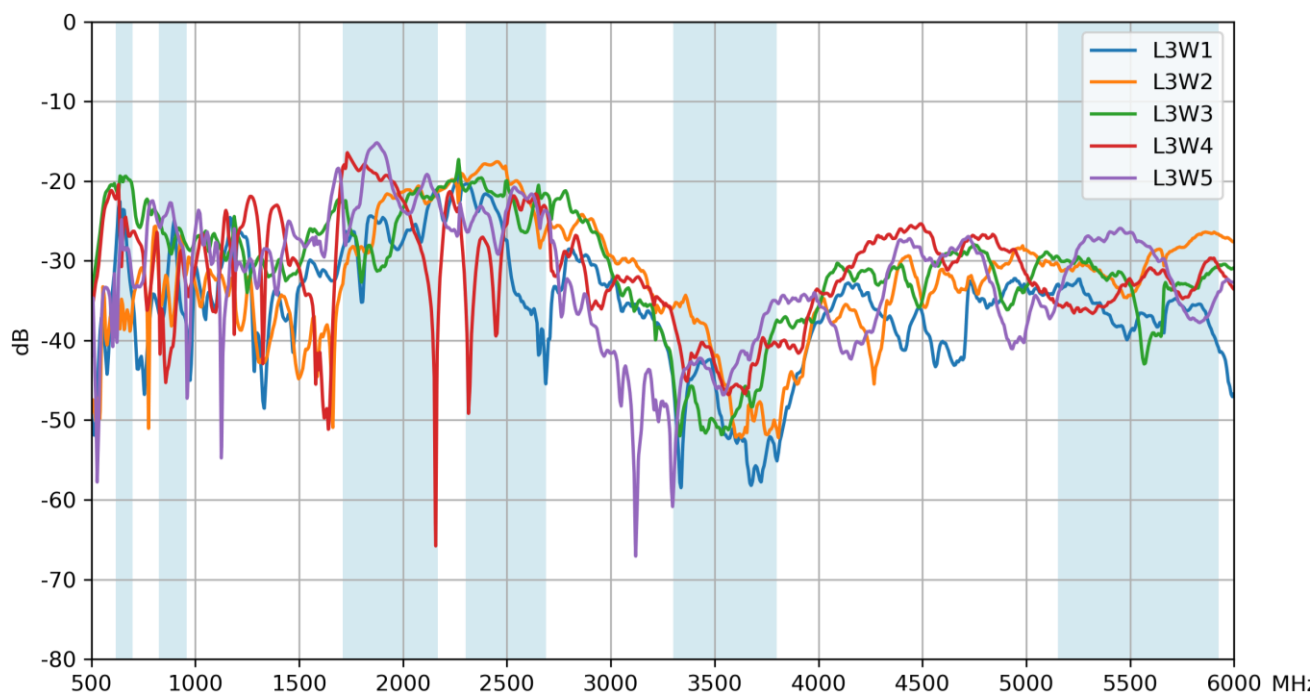
6.16 Isoalation (4G/5G-1 – Wi-Fi)



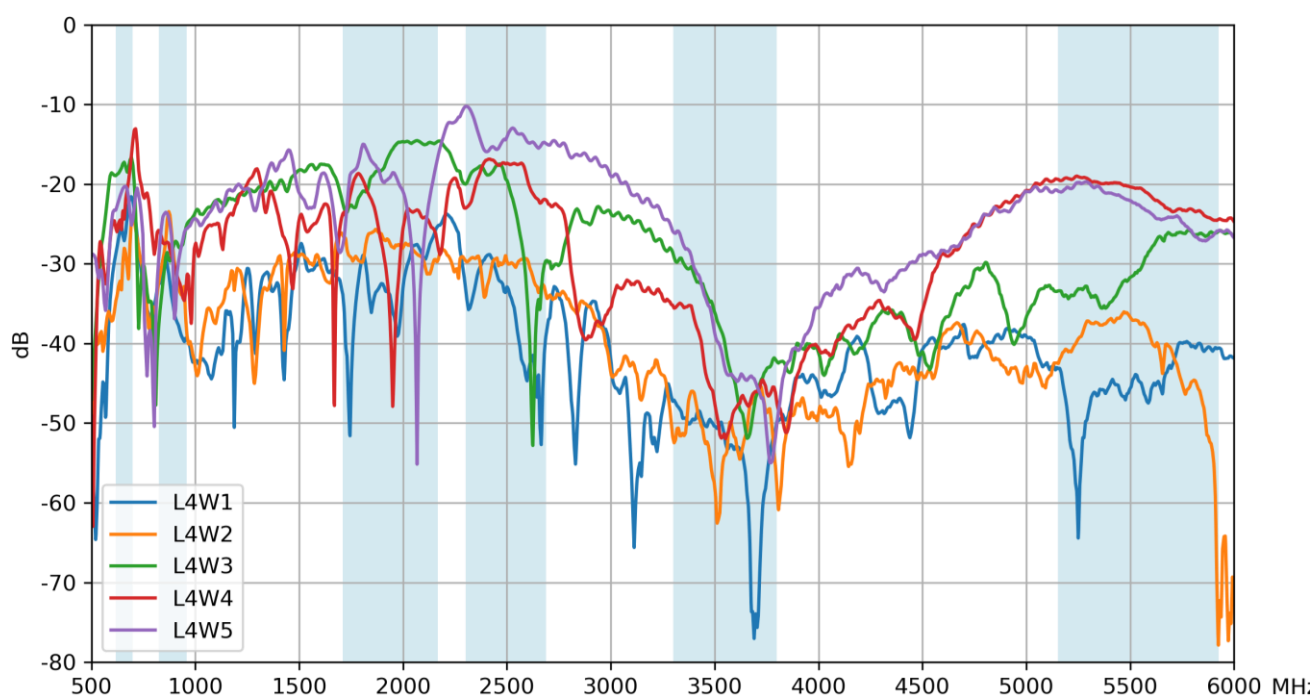
6.17 Isolation (4G/5G-2 – Wi-Fi)



6.18 Isoalation (4G/5G-3 – Wi-Fi)

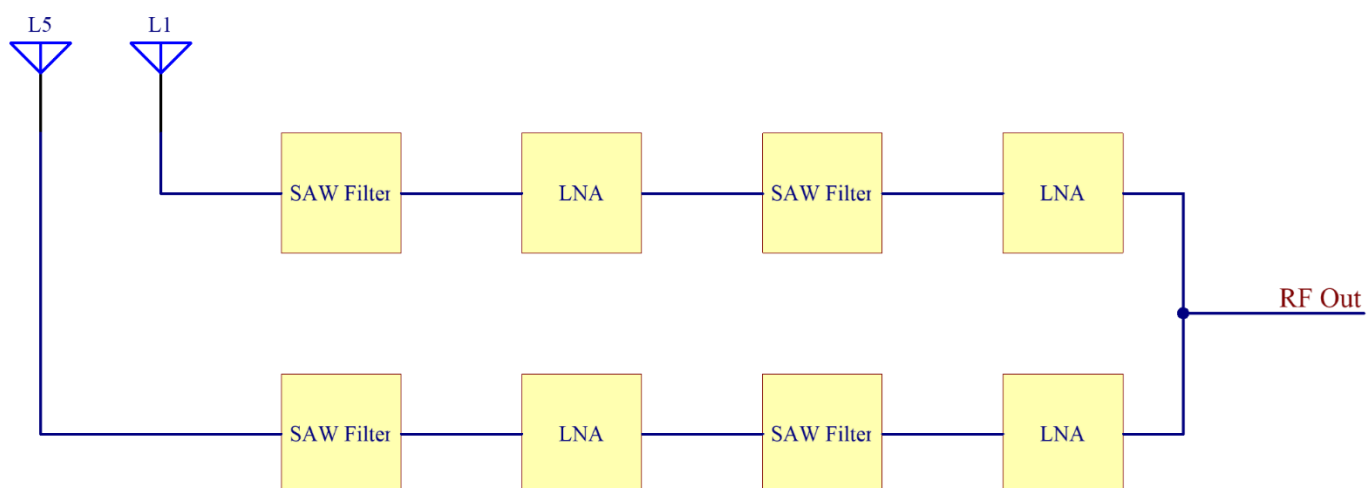


6.19 Isolation (4G/5G-4 – Wi-Fi)

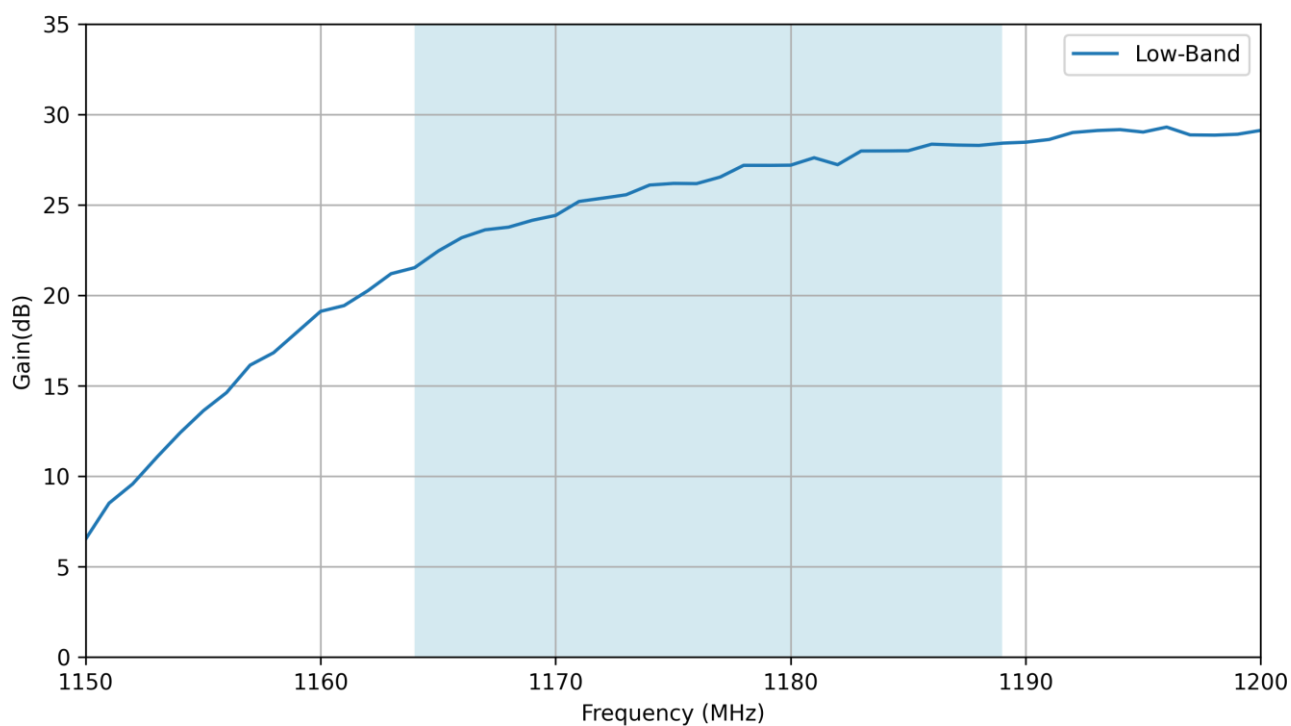


7. LNA Characteristics

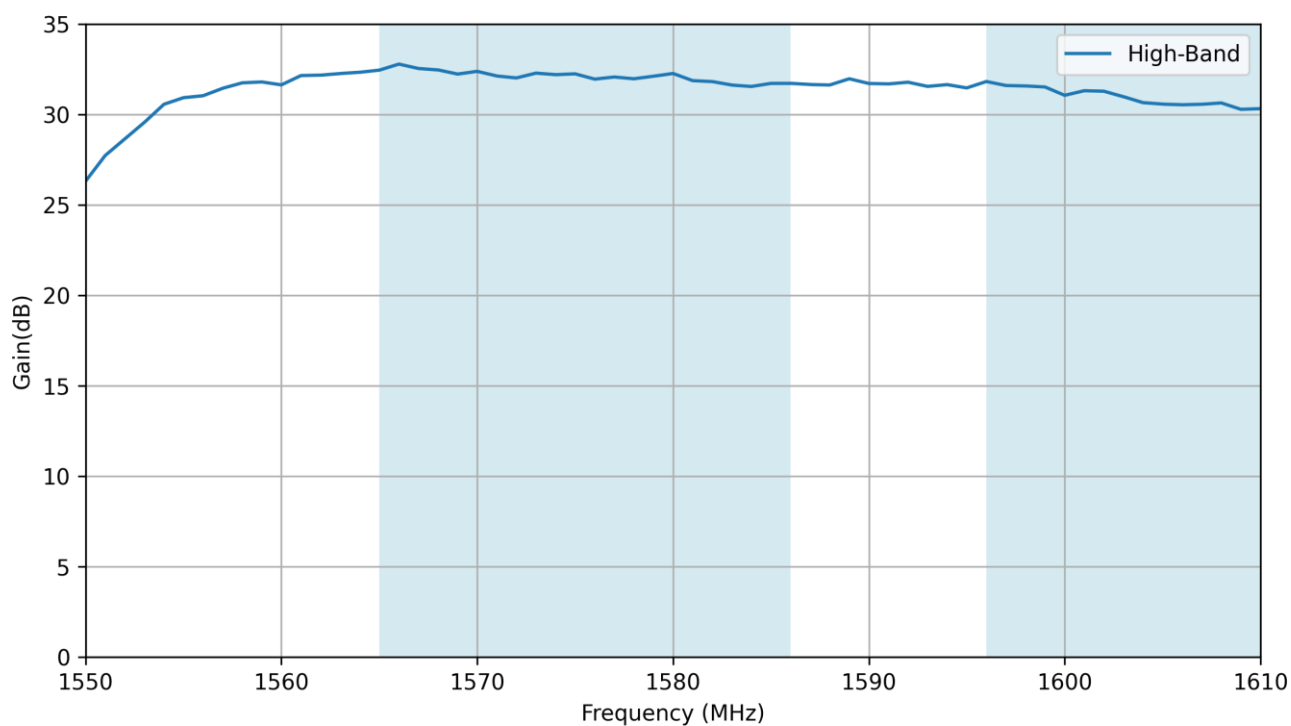
7.1 Block Diagram



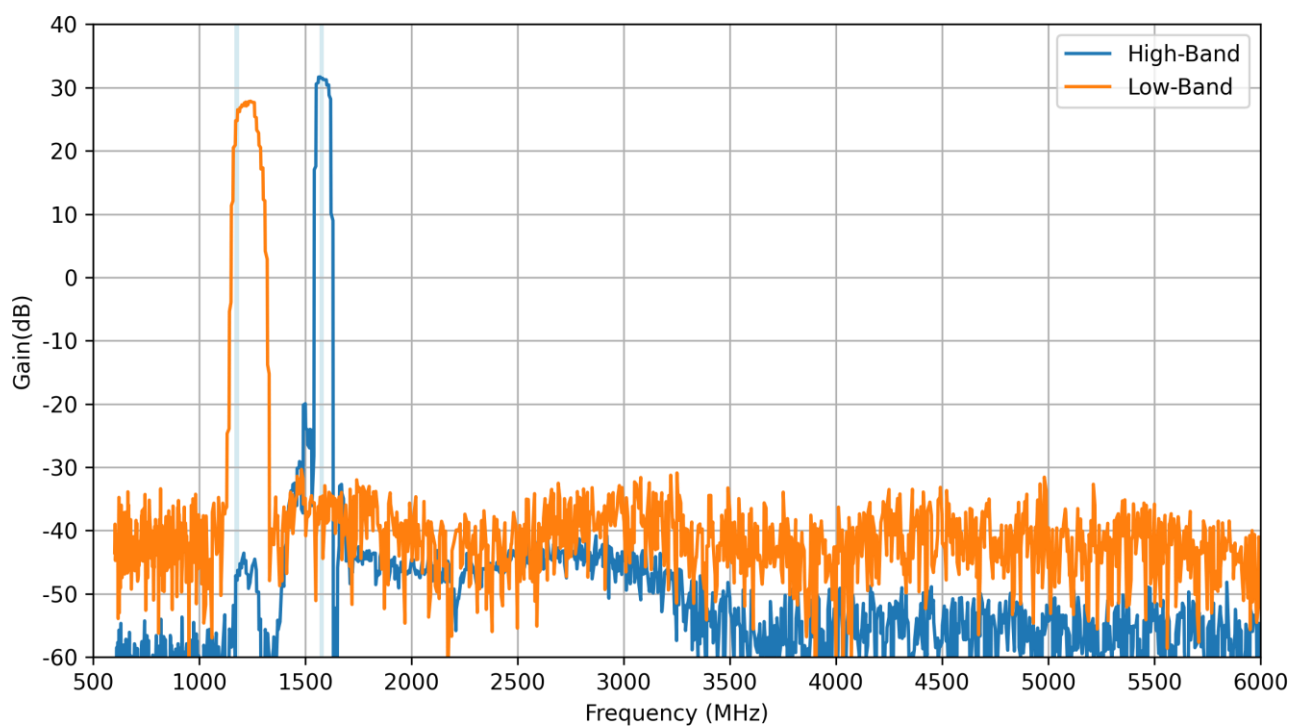
7.2 Gain – Low-Band



7.3 Gain – High-Band

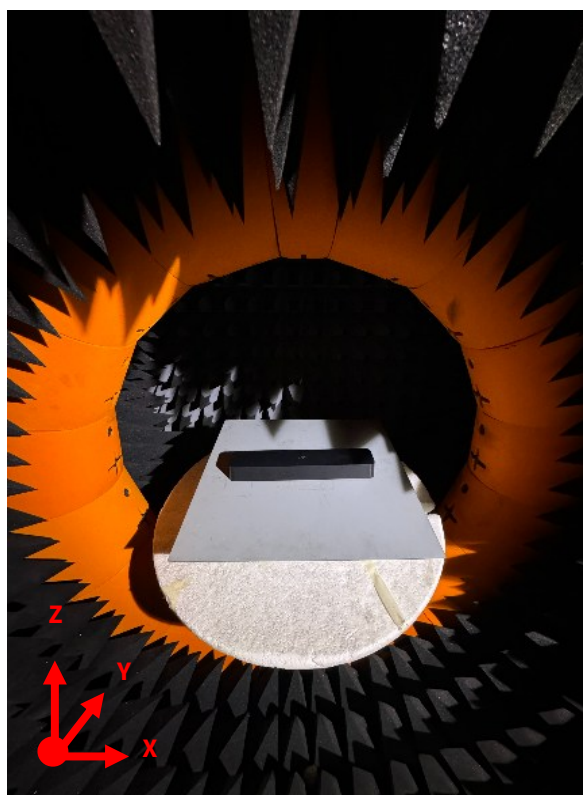
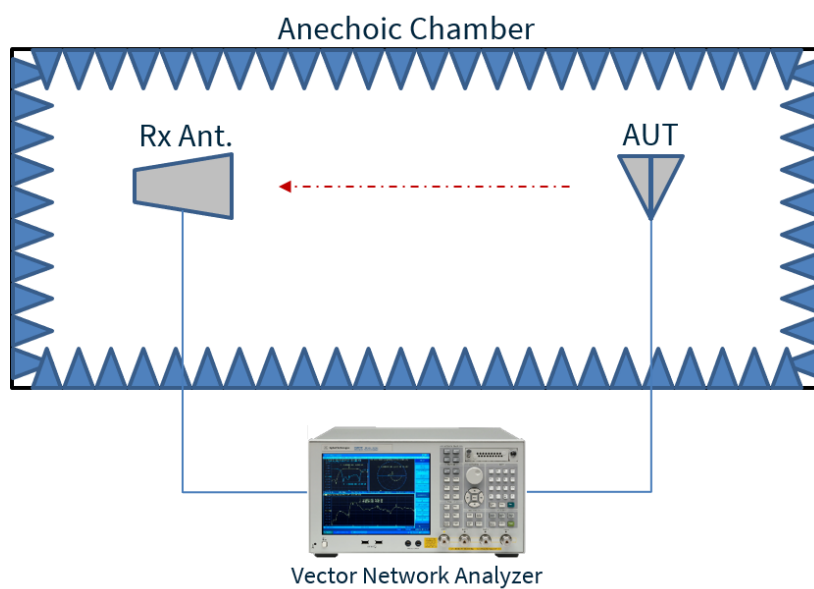


7.4 Out Of Band Attenuation



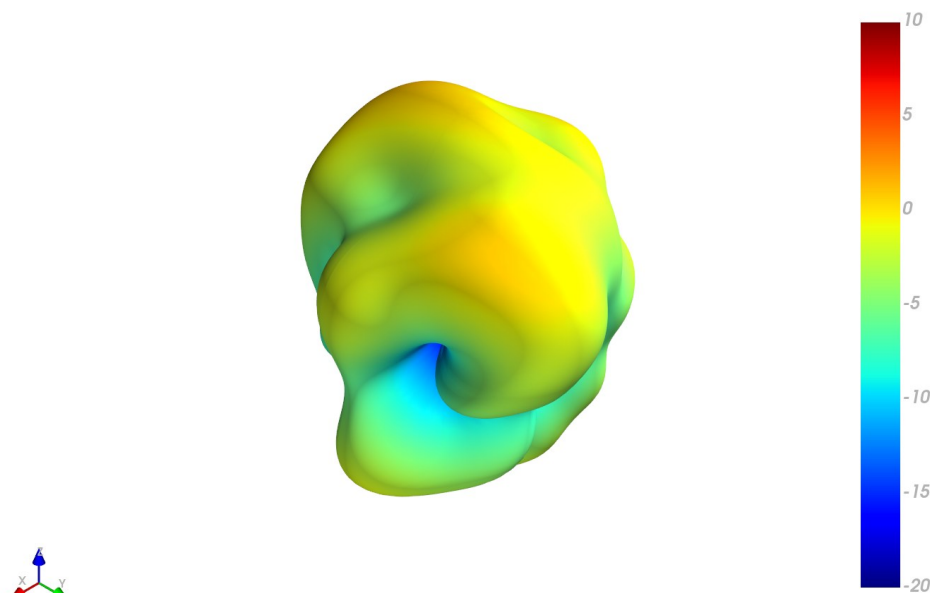
8. Radiation Patterns

8.1 Test Setup

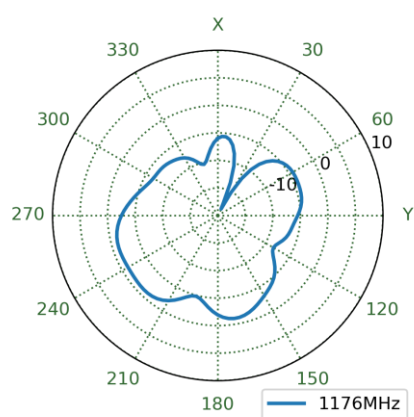


Chamber Test Set up

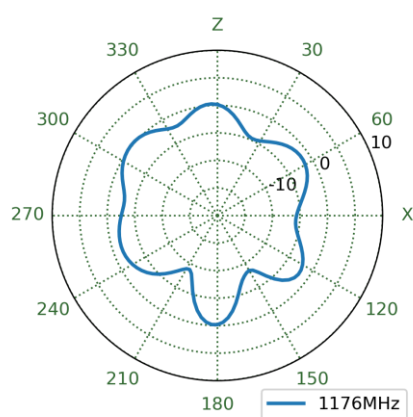
8.2 GNSS - Patterns at 1176 MHz



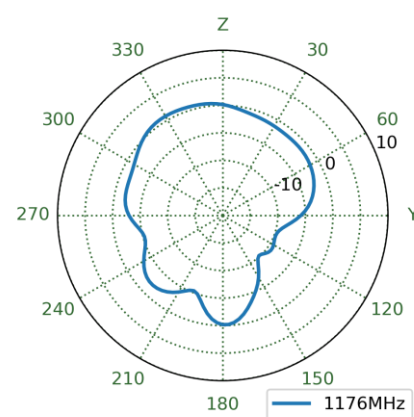
XY Plane



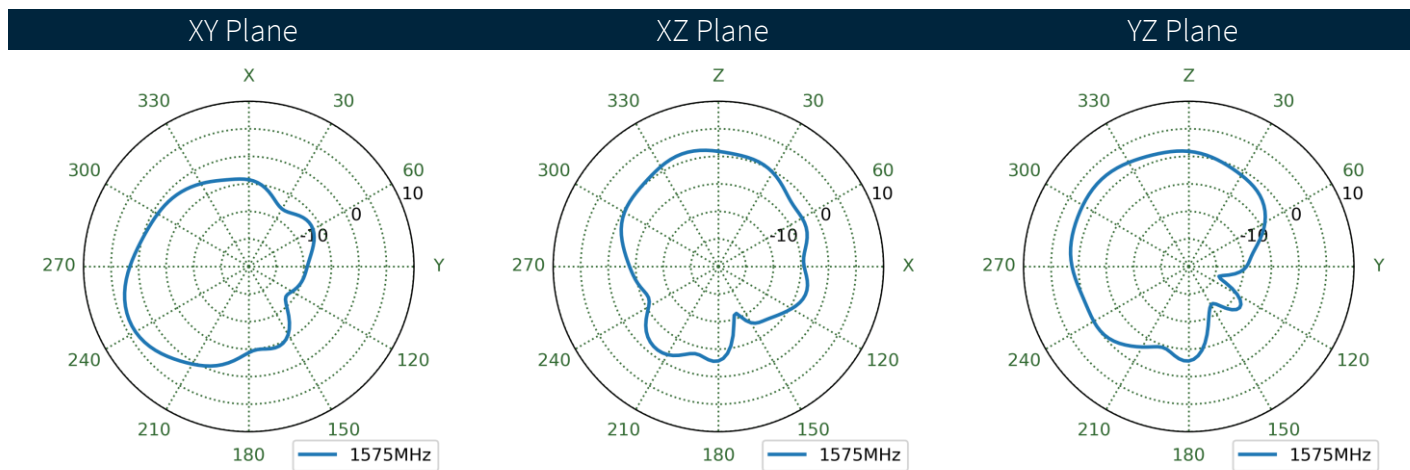
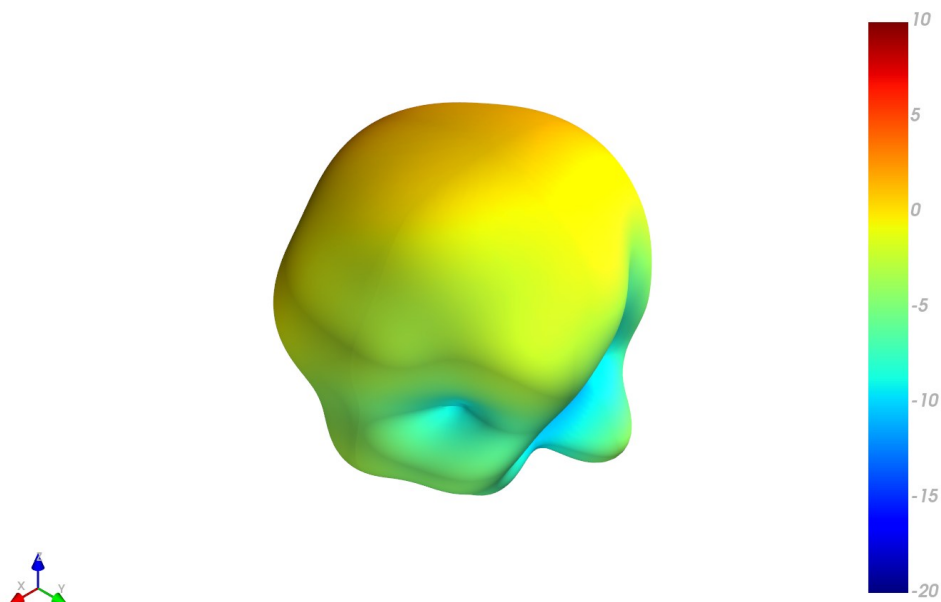
XZ Plane



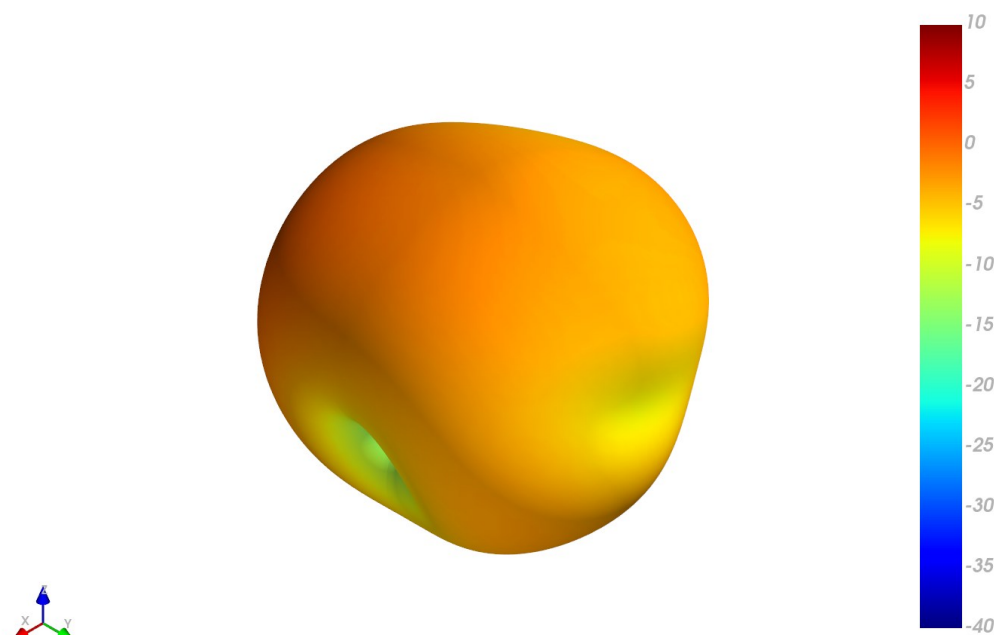
YZ Plane



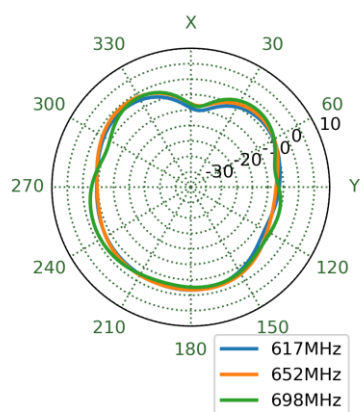
8.3 GNSS - Patterns at 1575 MHz



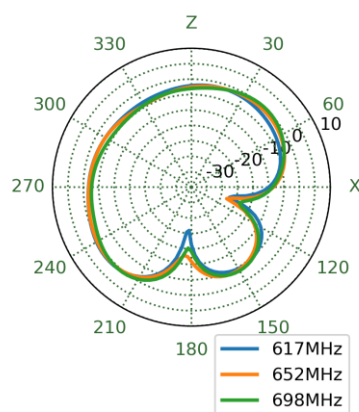
8.4 4G/5G-1 - Patterns at 652 MHz



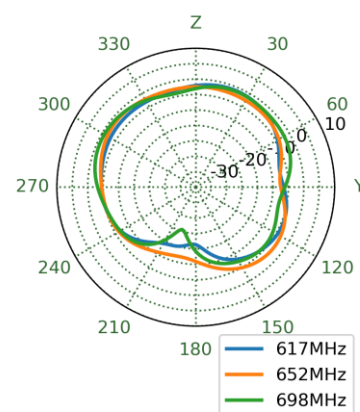
XY Plane



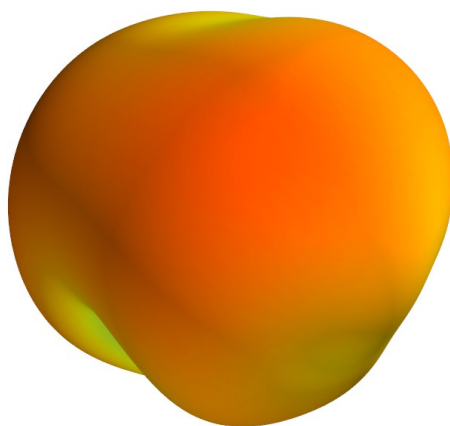
XZ Plane



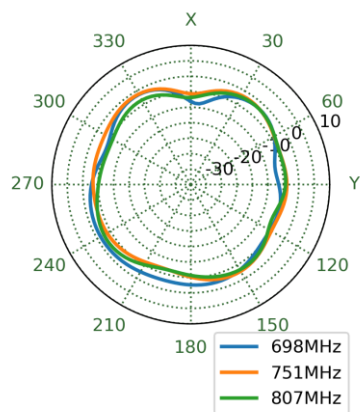
YZ Plane



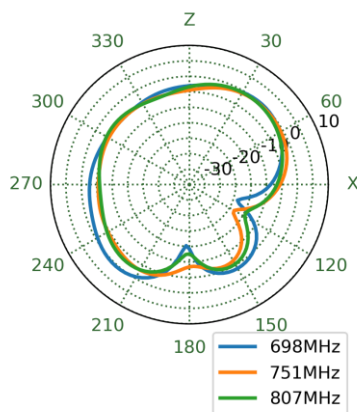
8.5 4G/5G-1 - Patterns at 751 MHz



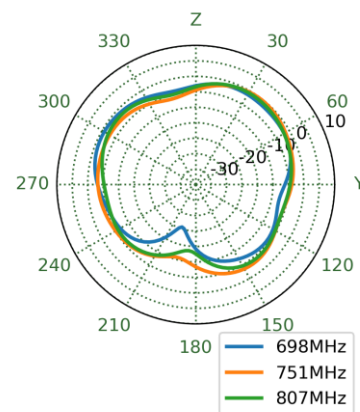
XY Plane



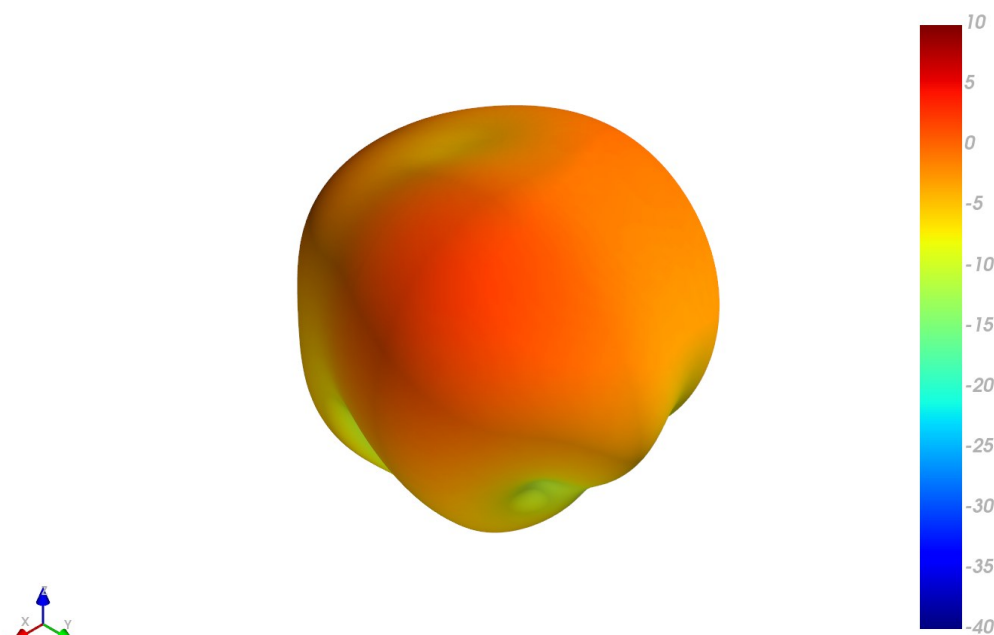
XZ Plane



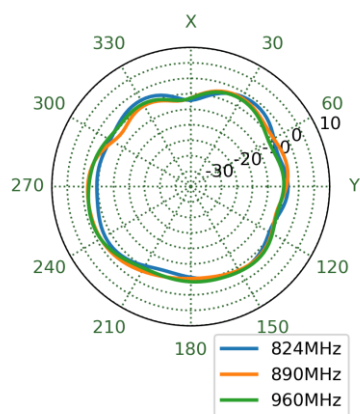
YZ Plane



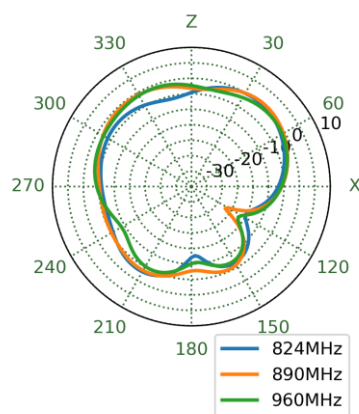
8.6 4G/5G-1 - Patterns at 890 MHz



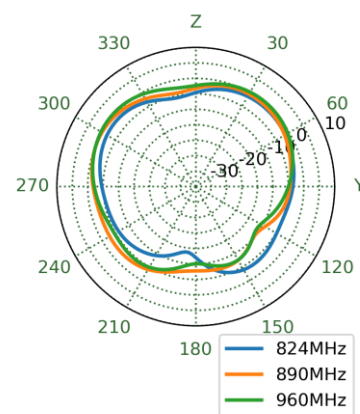
XY Plane



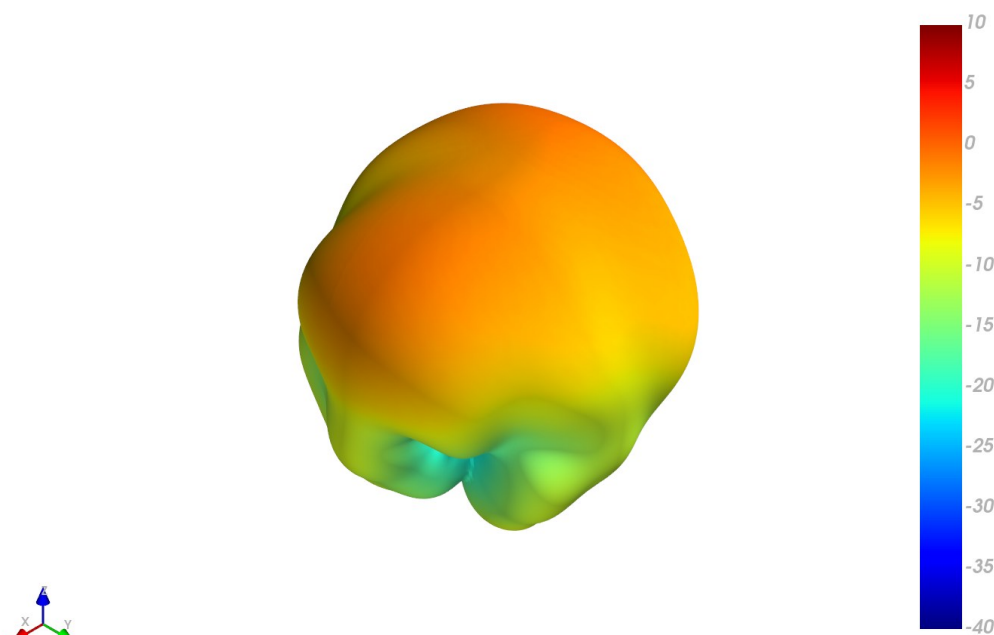
XZ Plane



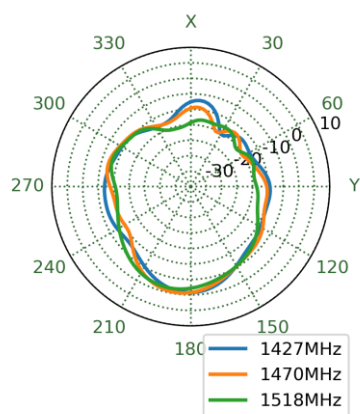
YZ Plane



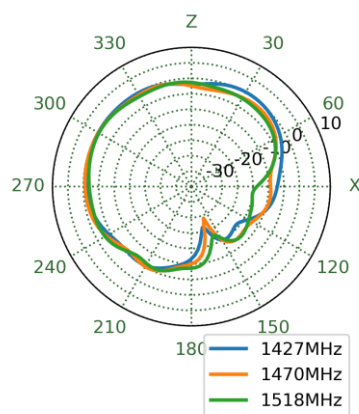
8.7 4G/5G-1 - Patterns at 1470 MHz



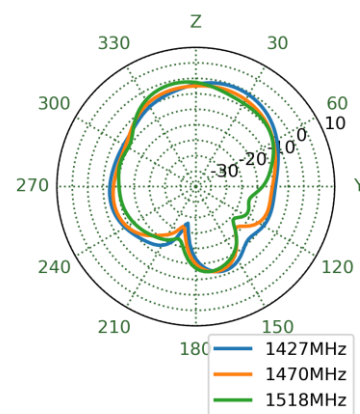
XY Plane



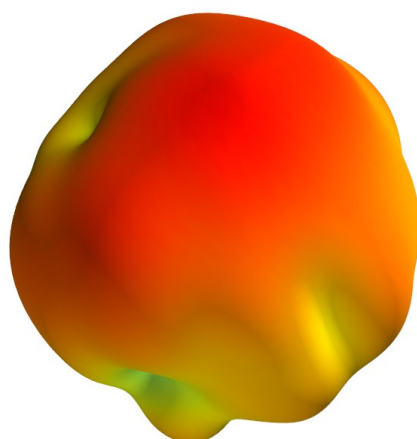
XZ Plane



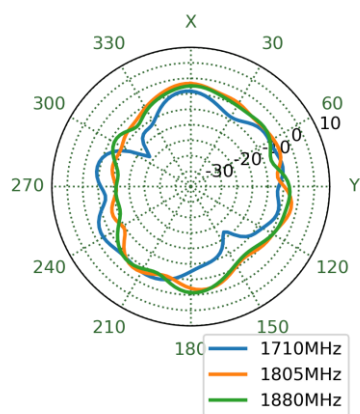
YZ Plane



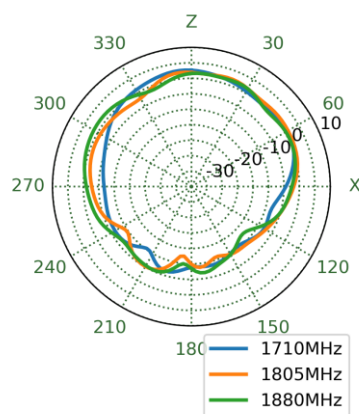
8.8 4G/5G-1 - Patterns at 1805 MHz



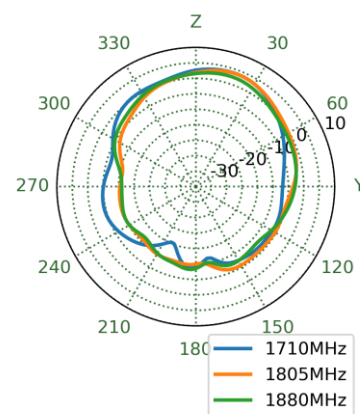
XY Plane



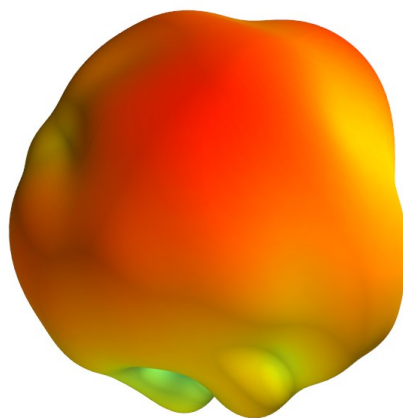
XZ Plane



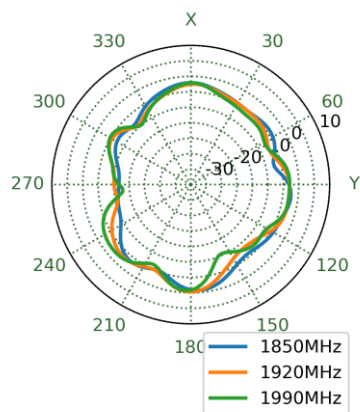
YZ Plane



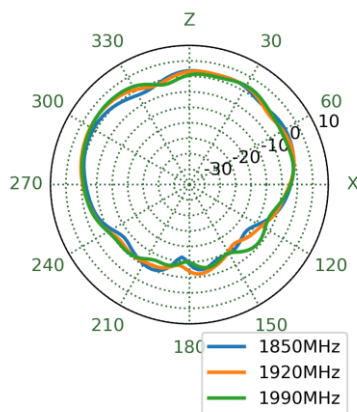
8.9 4G/5G-1 - Patterns at 1920 MHz



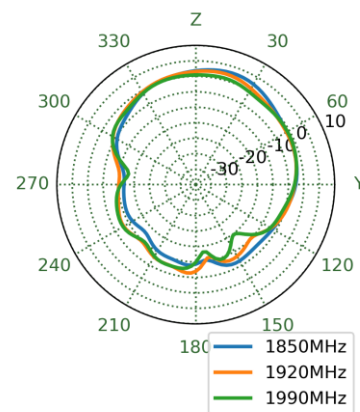
XY Plane



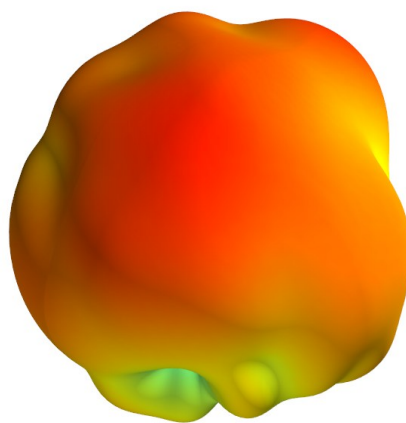
XZ Plane



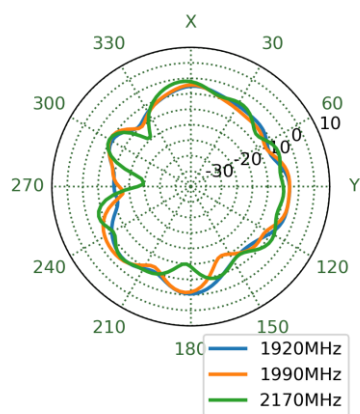
YZ Plane



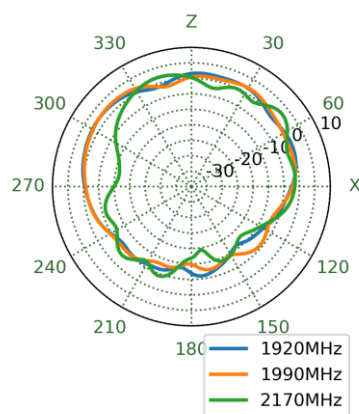
8.10 4G/5G-1 - Patterns at 1990 MHz



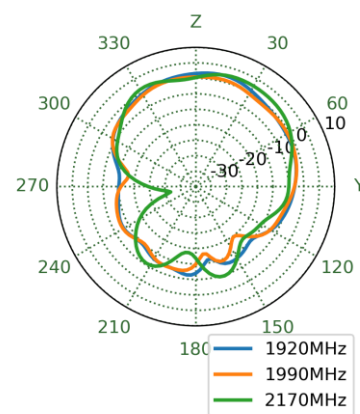
XY Plane



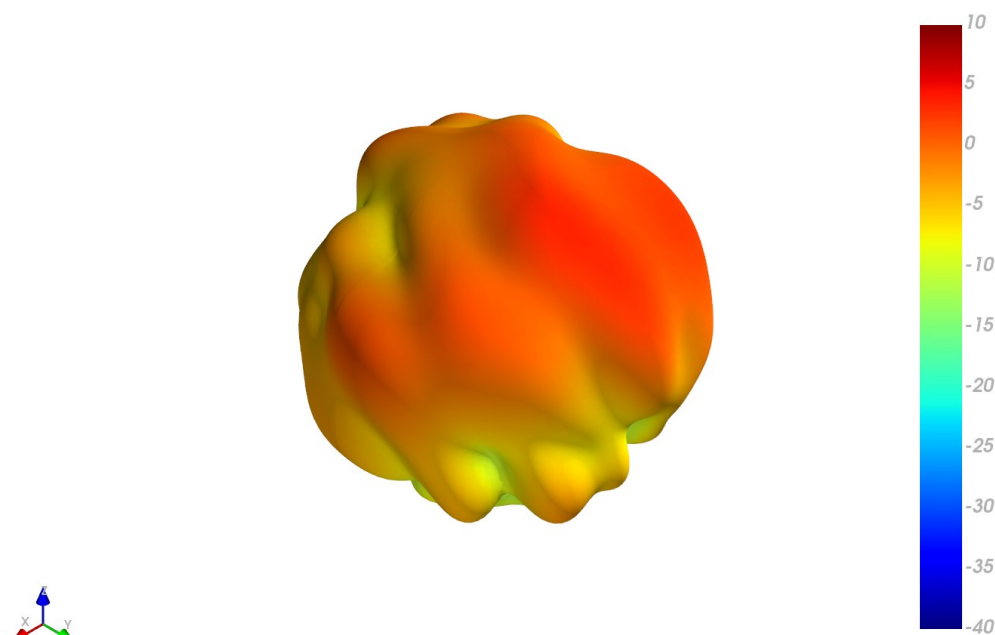
XZ Plane



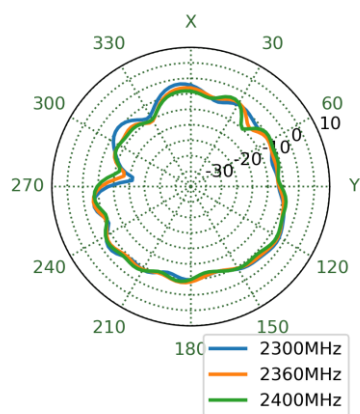
YZ Plane



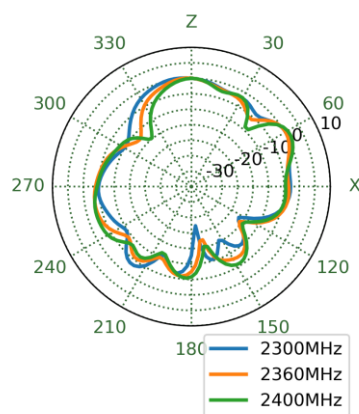
8.11 4G/5G-1 - Patterns at 2360 MHz



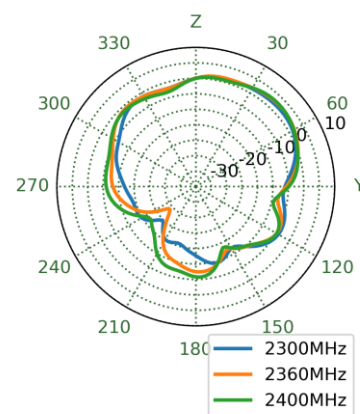
XY Plane



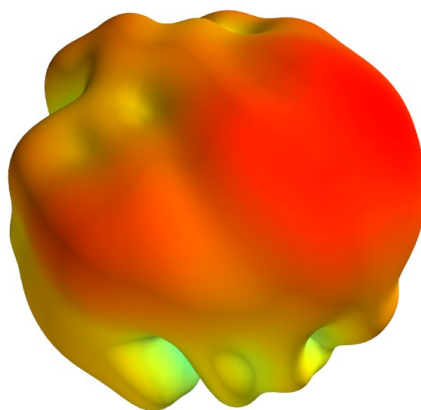
XZ Plane



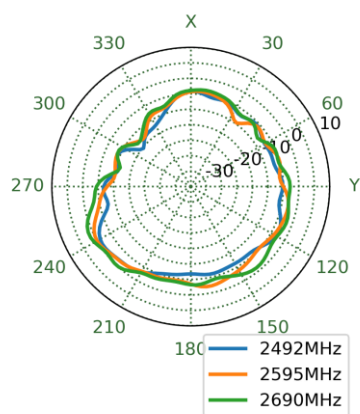
YZ Plane



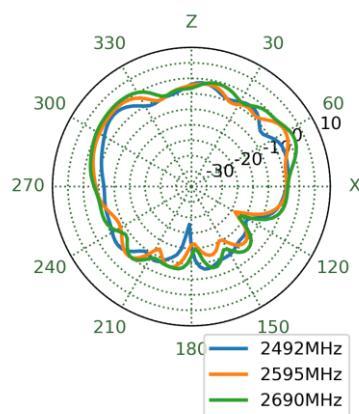
8.12 4G/5G-1 - Patterns at 2595 MHz



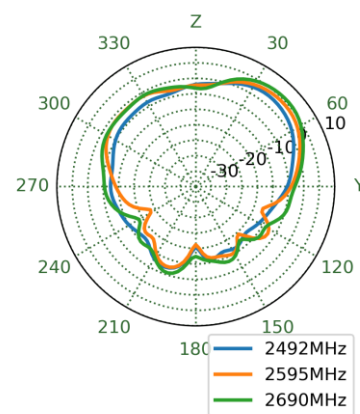
XY Plane



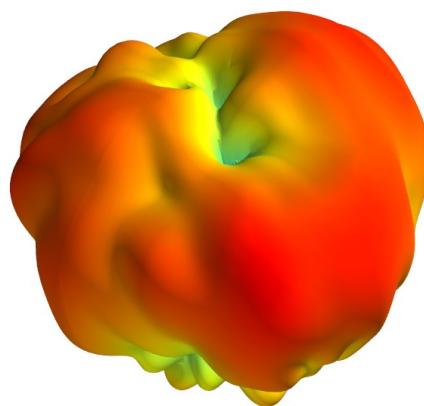
XZ Plane



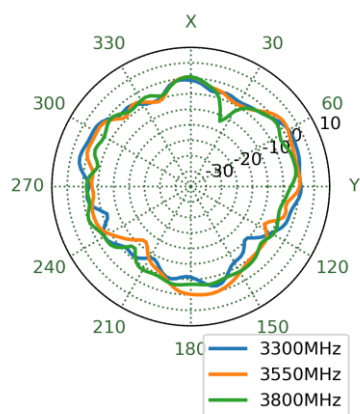
YZ Plane



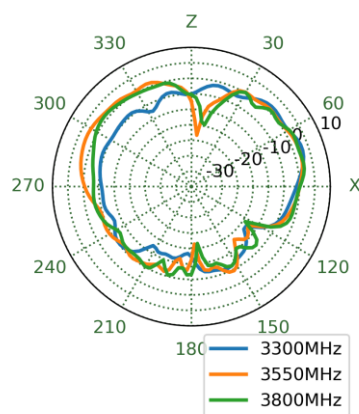
8.13 4G/5G-1 - Patterns at 3550 MHz



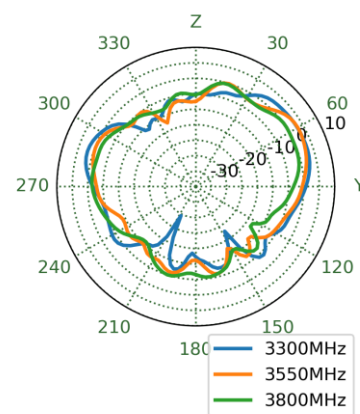
XY Plane



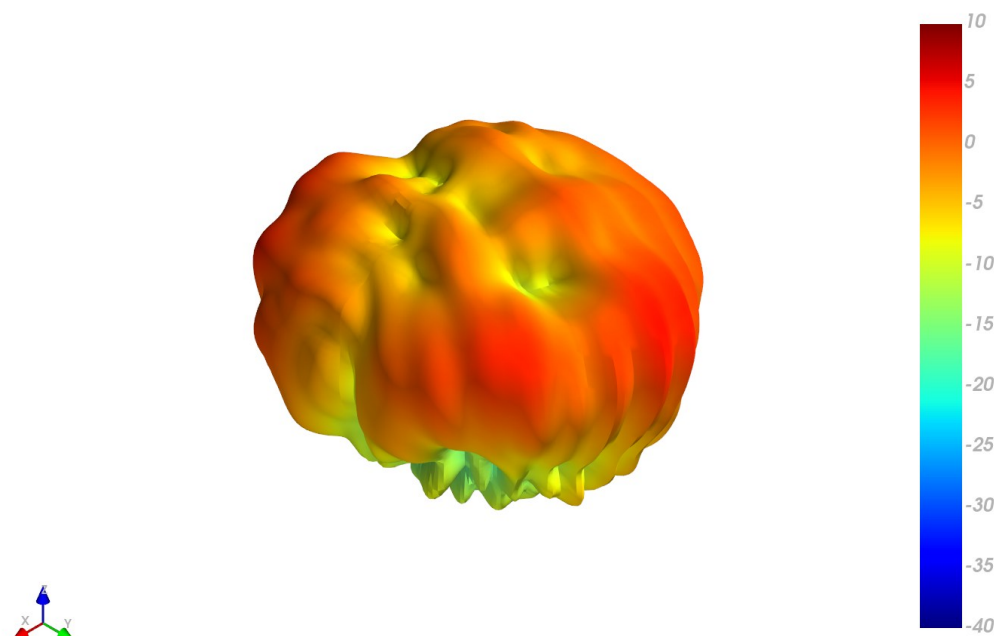
XZ Plane



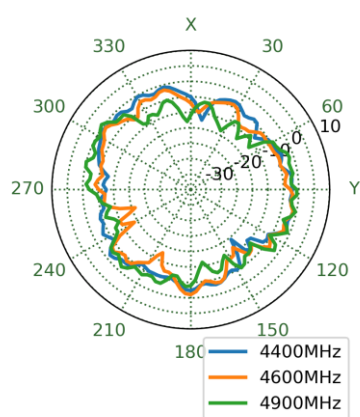
YZ Plane



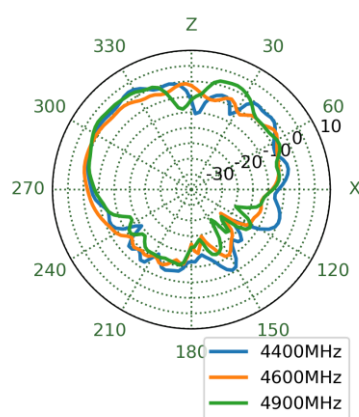
8.14 4G/5G-1 - Patterns at 4600 MHz



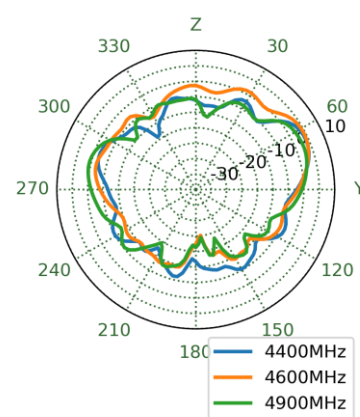
XY Plane



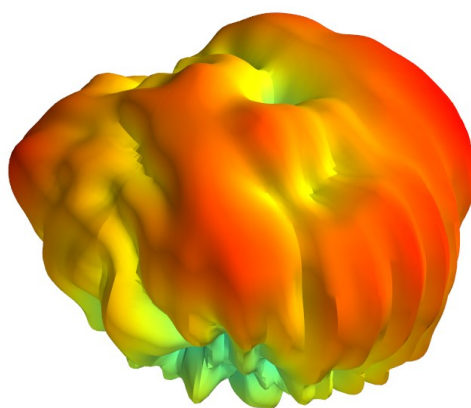
XZ Plane



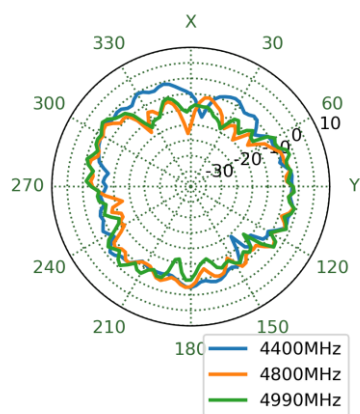
YZ Plane



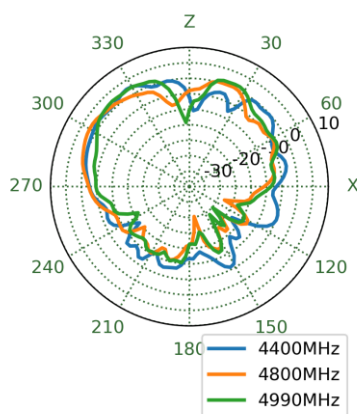
8.15 4G/5G-1 - Patterns at 4800 MHz



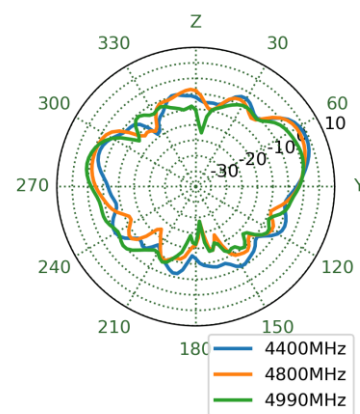
XY Plane



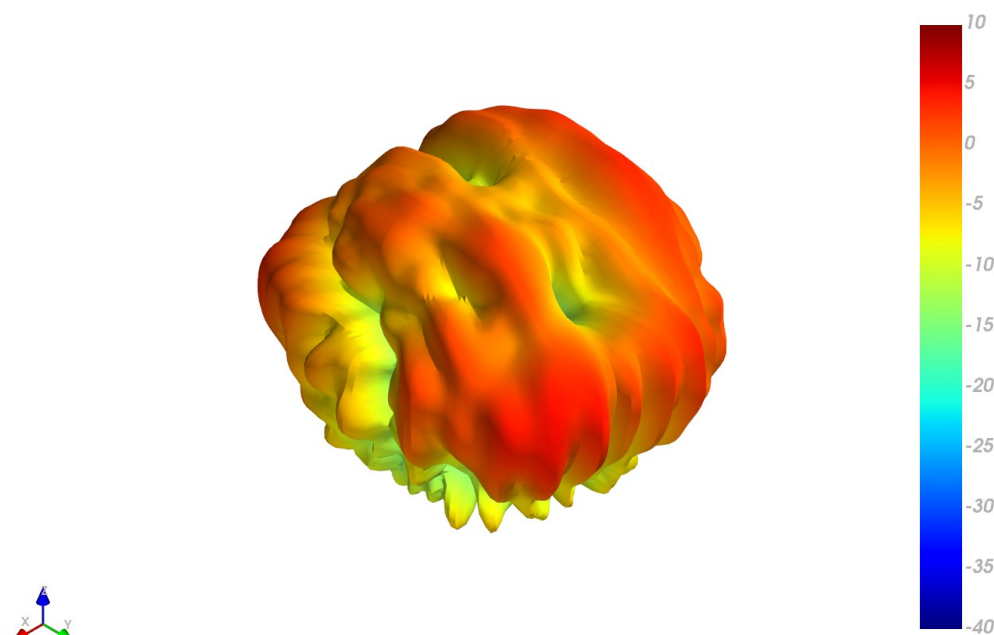
XZ Plane



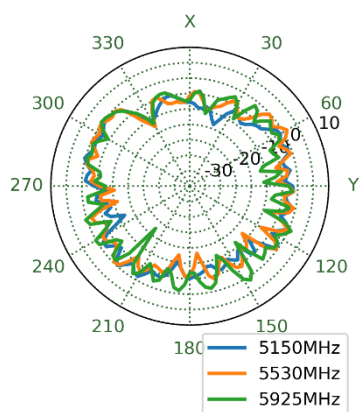
YZ Plane



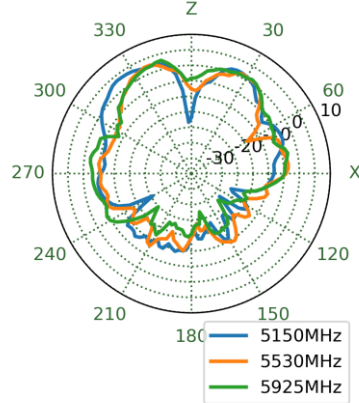
8.16 4G/5G-1 - Patterns at 5530 MHz



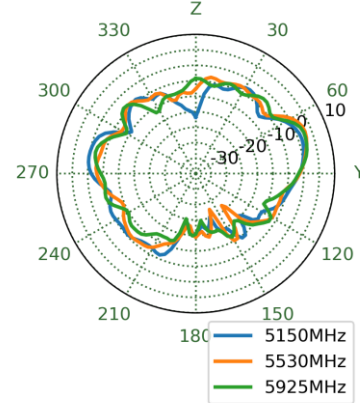
XY Plane



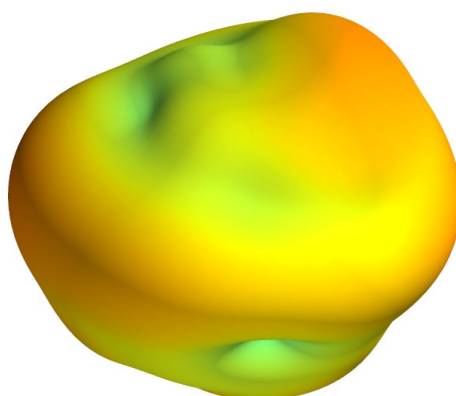
XZ Plane



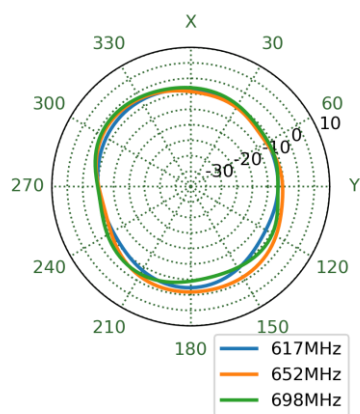
YZ Plane



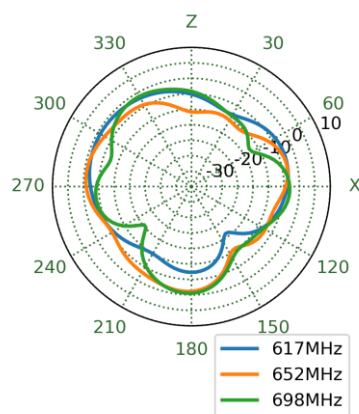
8.17 4G/5G-2 - Patterns at 652 MHz



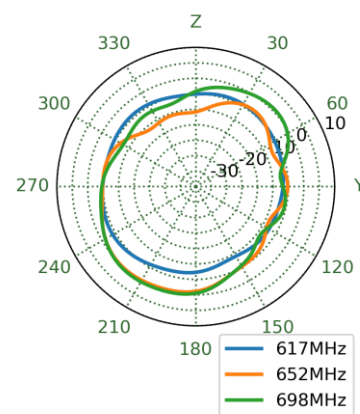
XY Plane



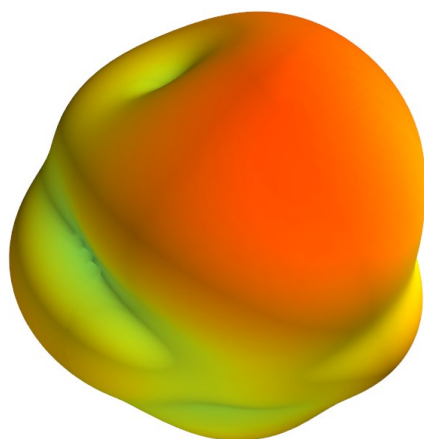
XZ Plane



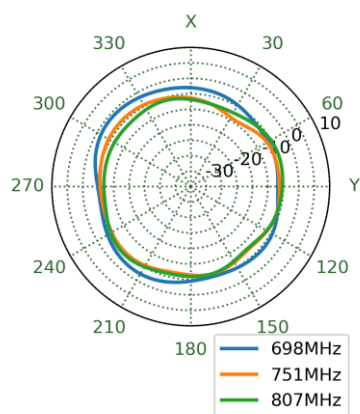
YZ Plane



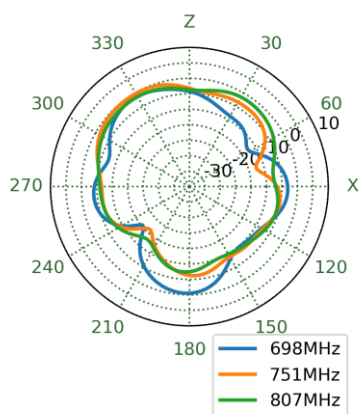
8.18 4G/5G-2 - Patterns at 751 MHz



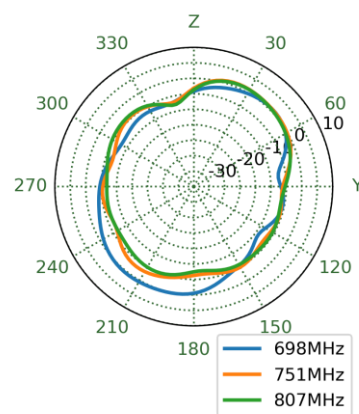
XY Plane



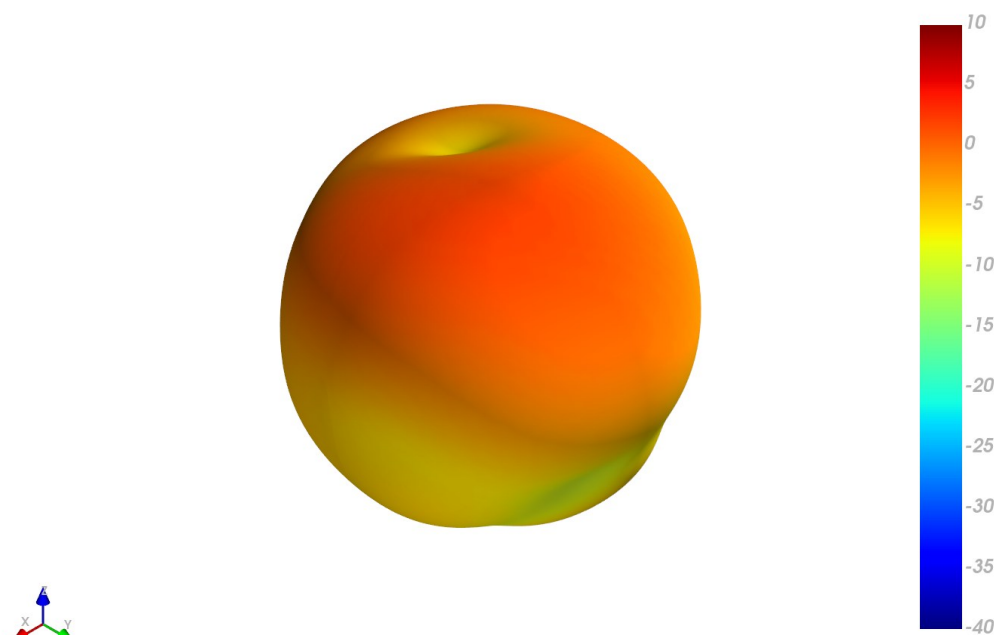
XZ Plane



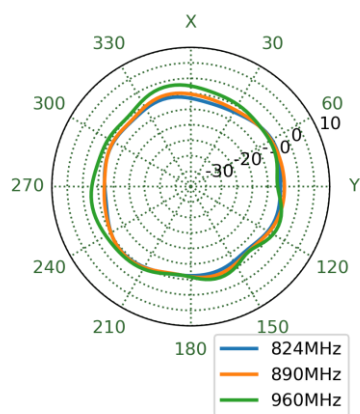
YZ Plane



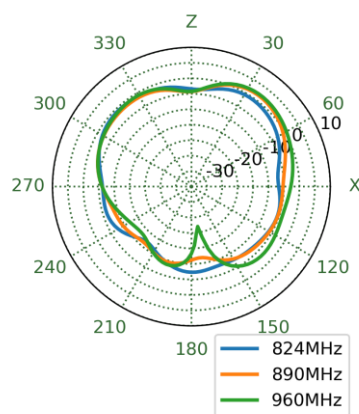
8.19 4G/5G-2 - Patterns at 890 MHz



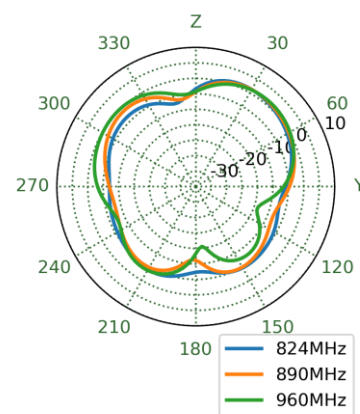
XY Plane



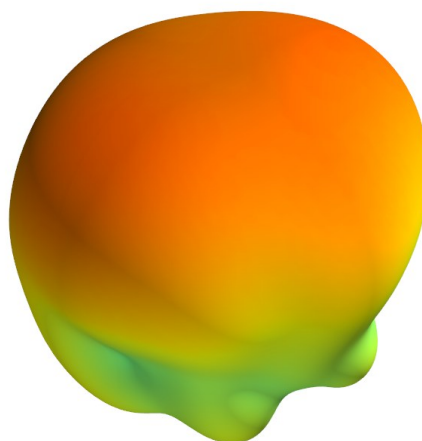
XZ Plane



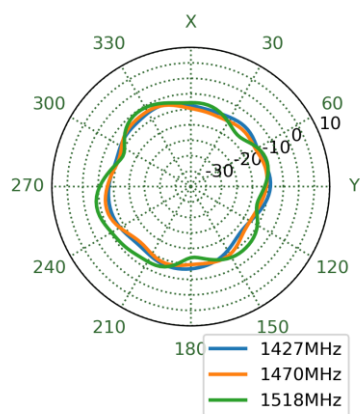
YZ Plane



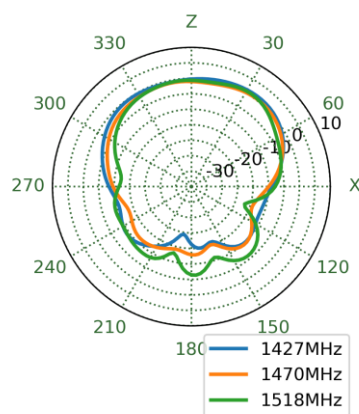
8.20 4G/5G-2 - Patterns at 1470 MHz



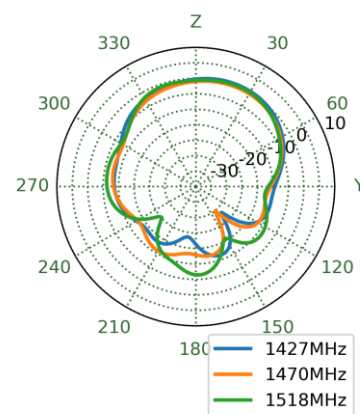
XY Plane



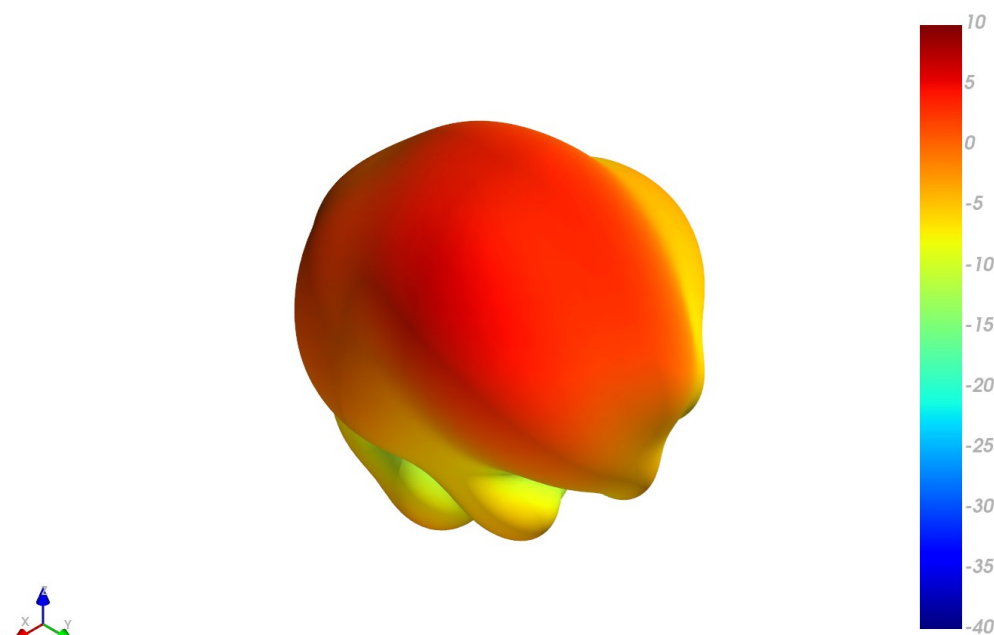
XZ Plane



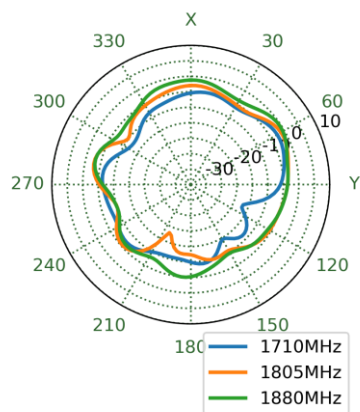
YZ Plane



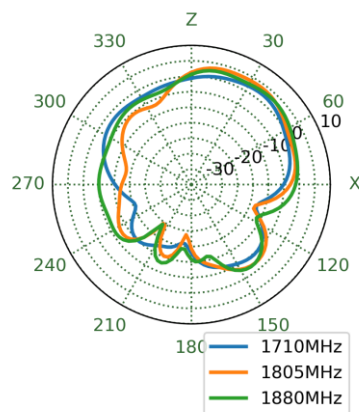
8.21 4G/5G-2 - Patterns at 1805 MHz



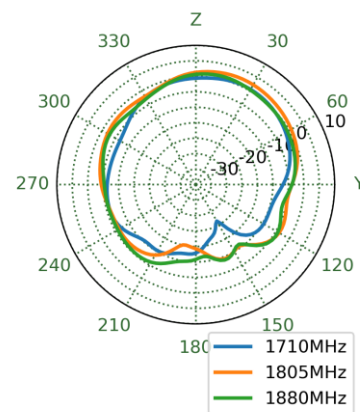
XY Plane



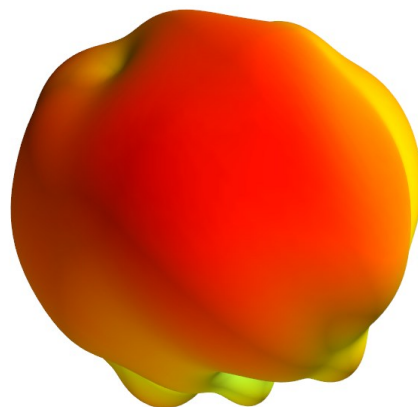
XZ Plane



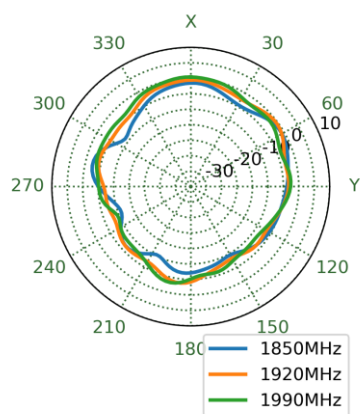
YZ Plane



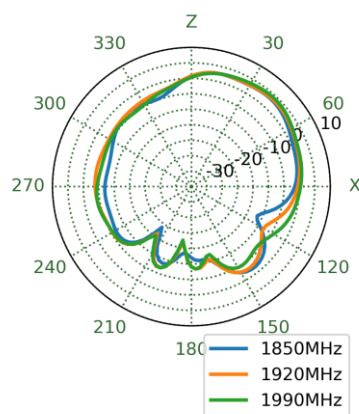
8.22 4G/5G-2 - Patterns at 1920 MHz



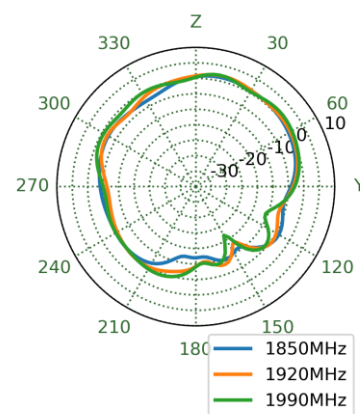
XY Plane



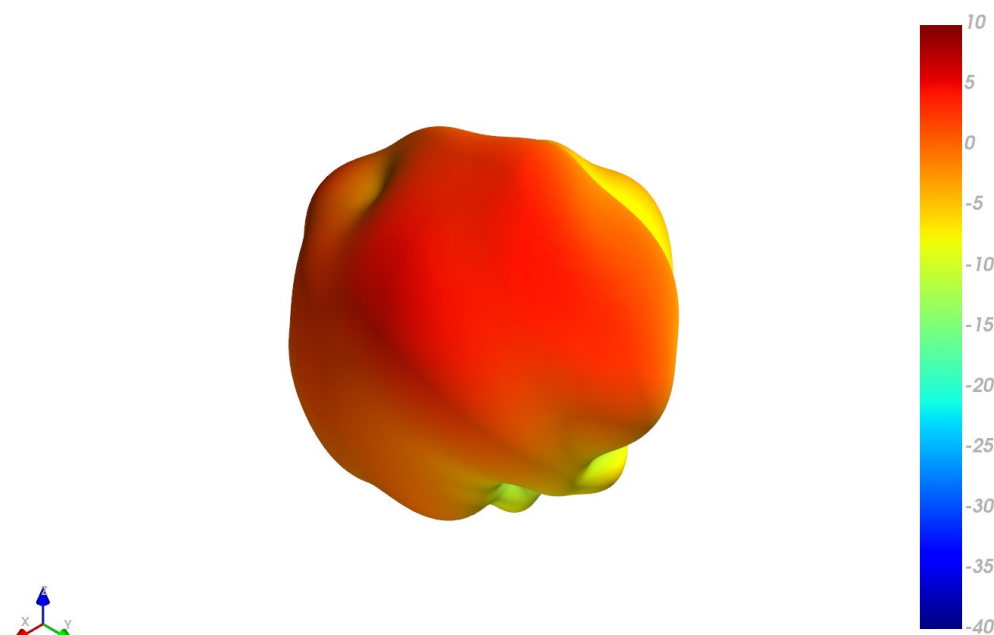
XZ Plane



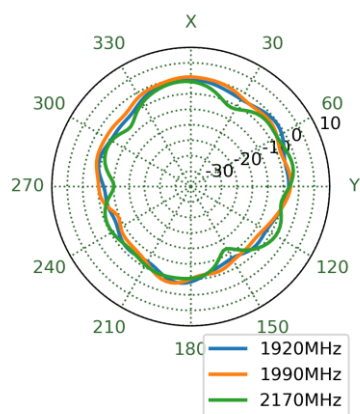
YZ Plane



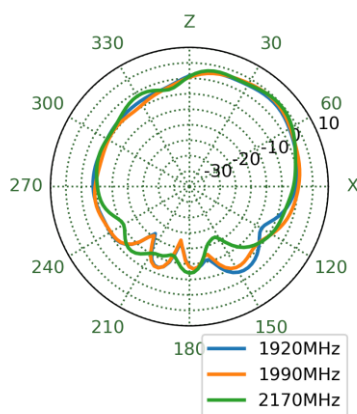
8.23 4G/5G-2 - Patterns at 1990 MHz



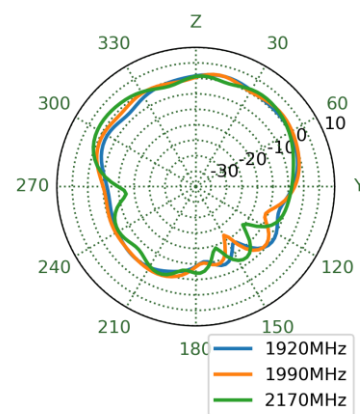
XY Plane



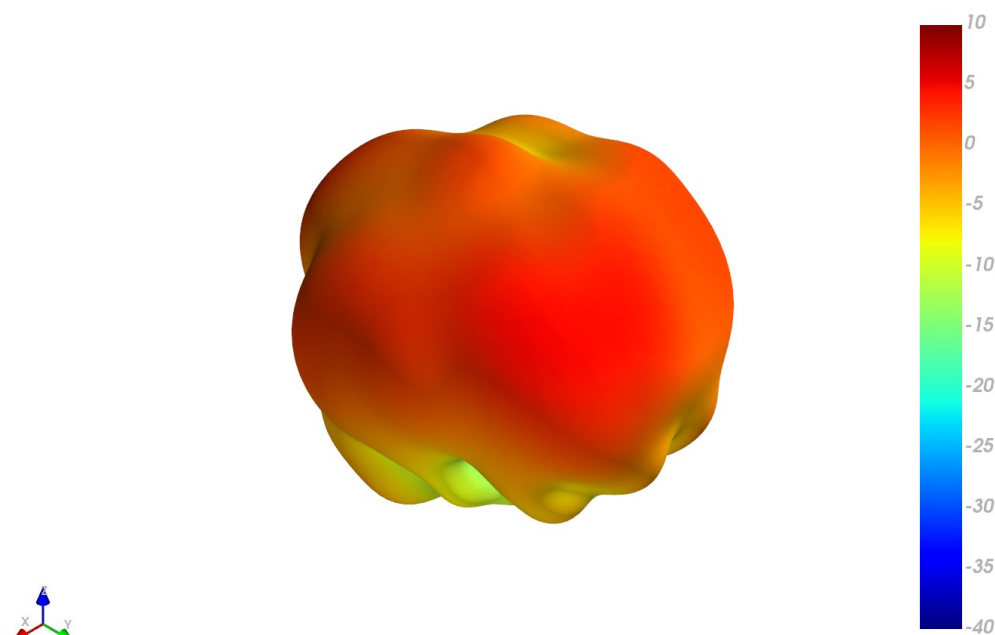
XZ Plane



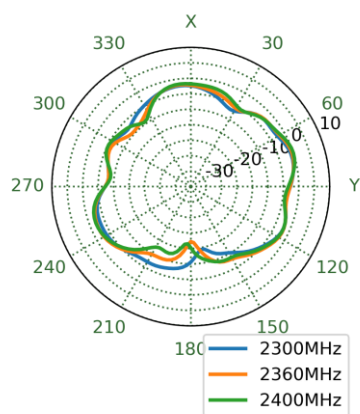
YZ Plane



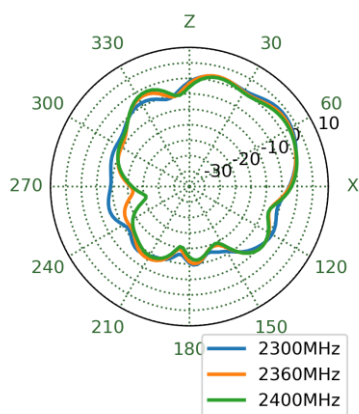
8.24 4G/5G-2 - Patterns at 2360 MHz



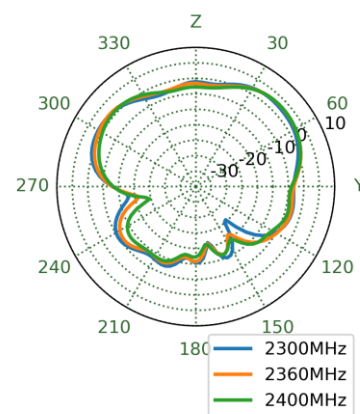
XY Plane



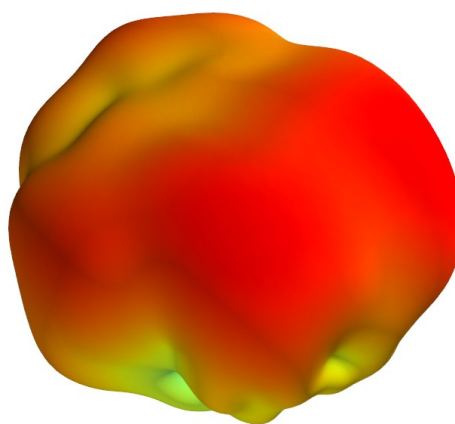
XZ Plane



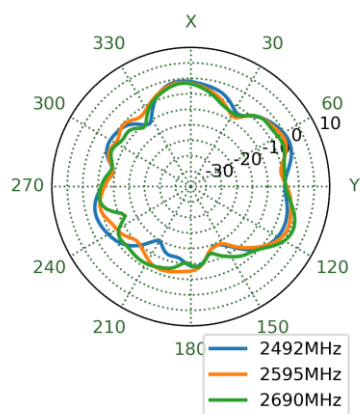
YZ Plane



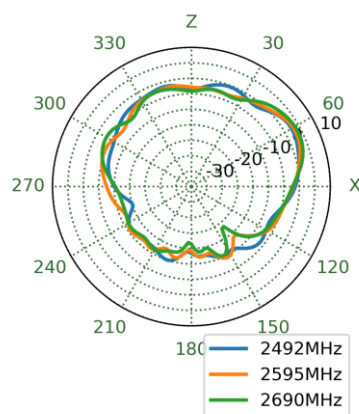
8.25 4G/5G-2 - Patterns at 2595 MHz



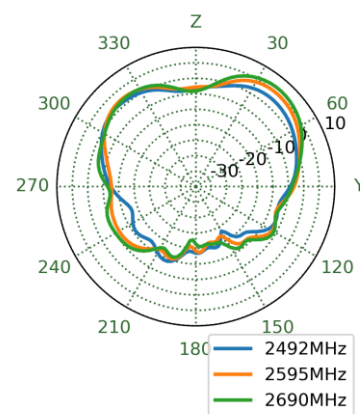
XY Plane



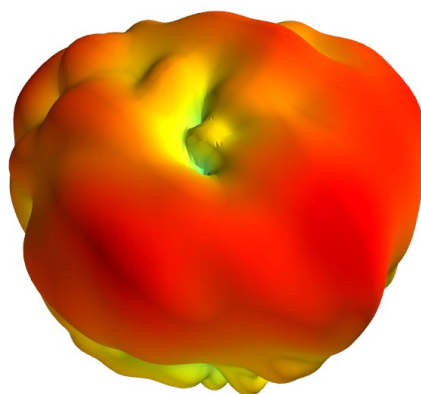
XZ Plane



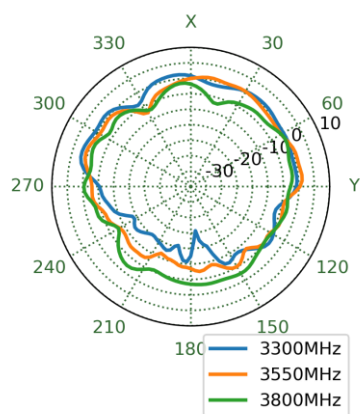
YZ Plane



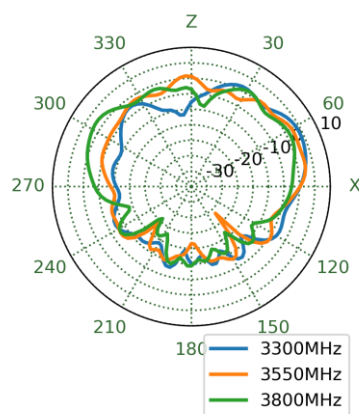
8.26 4G/5G-2 - Patterns at 3550 MHz



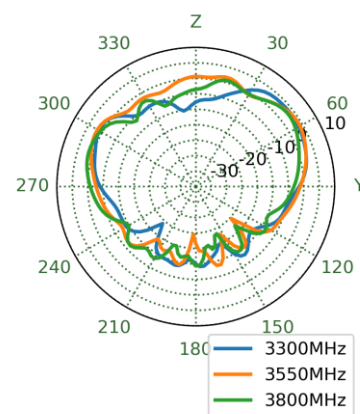
XY Plane



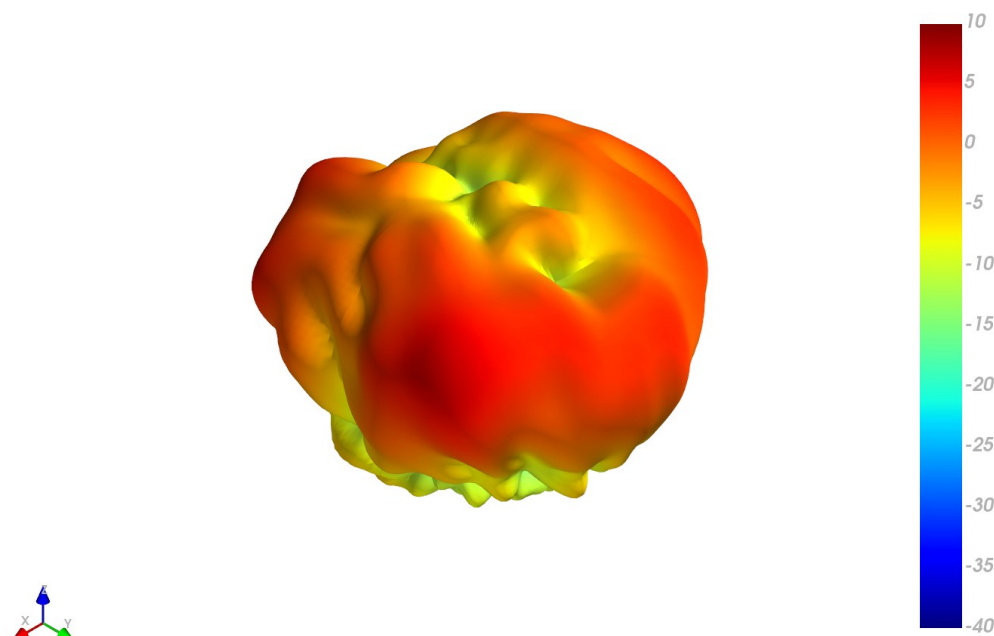
XZ Plane



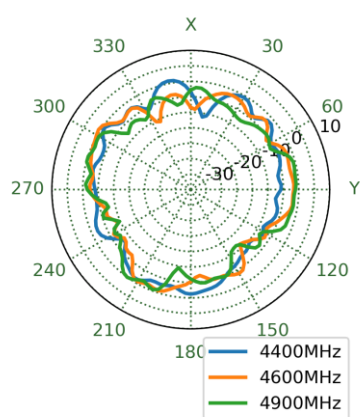
YZ Plane



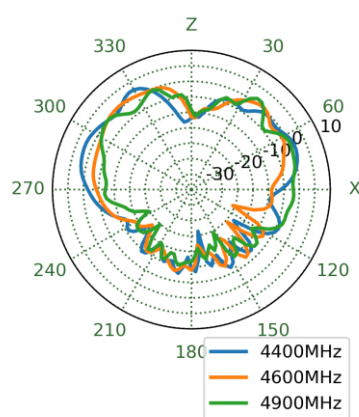
8.27 4G/5G-2 - Patterns at 4600 MHz



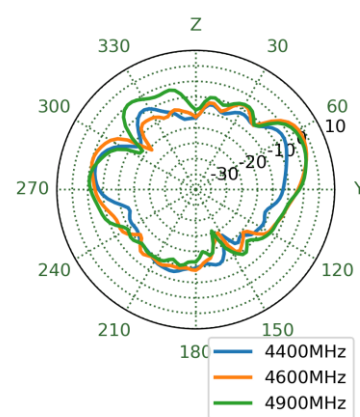
XY Plane



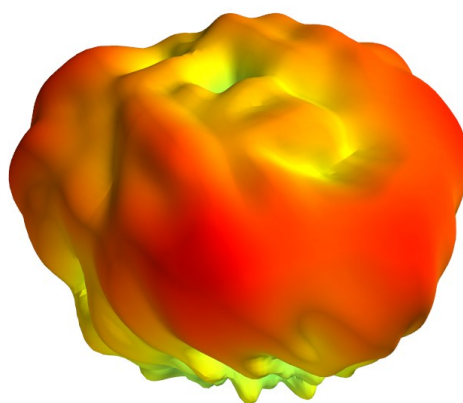
XZ Plane



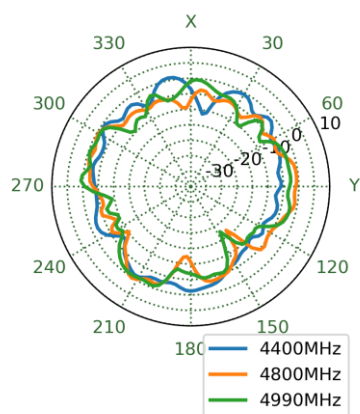
YZ Plane



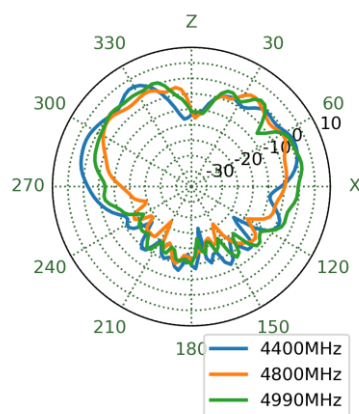
8.28 4G/5G-2 - Patterns at 4800 MHz



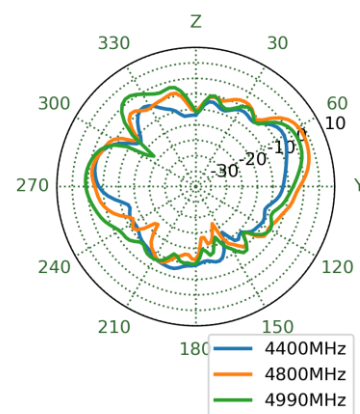
XY Plane



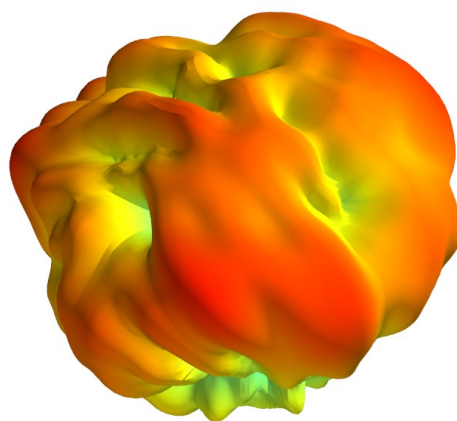
XZ Plane



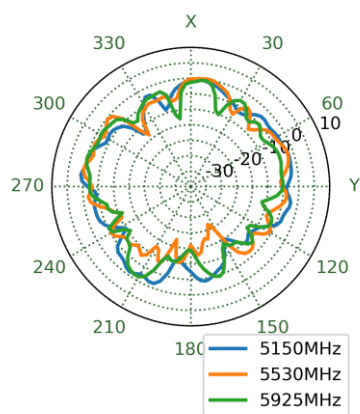
YZ Plane



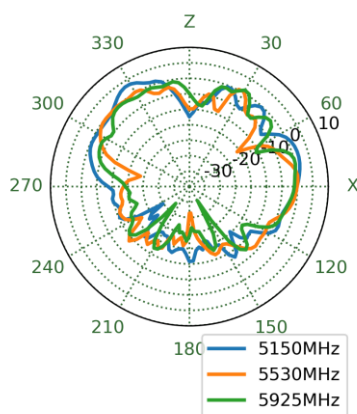
8.29 4G/5G-2 - Patterns at 5530 MHz



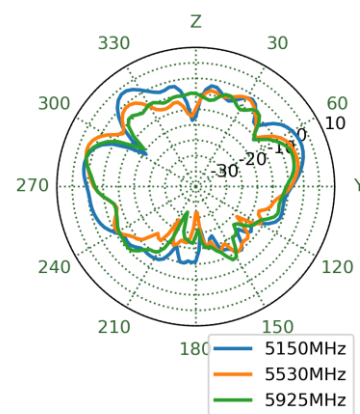
XY Plane



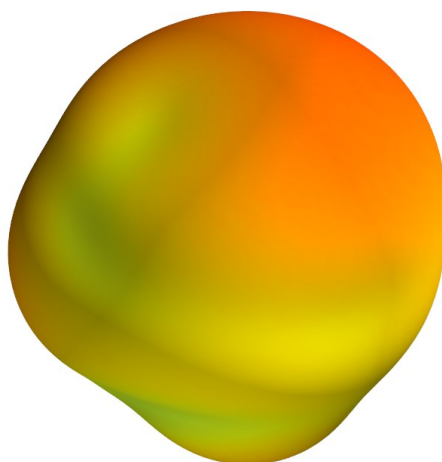
XZ Plane



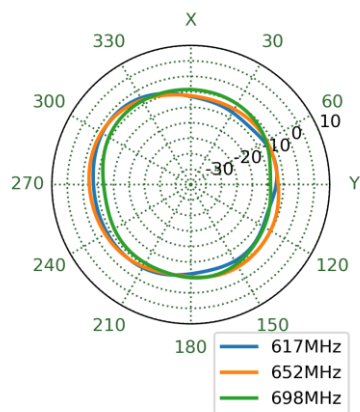
YZ Plane



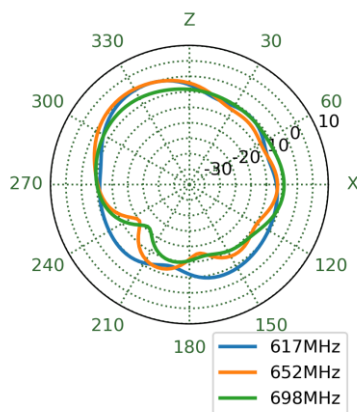
8.30 4G/5G-3 - Patterns at 652 MHz



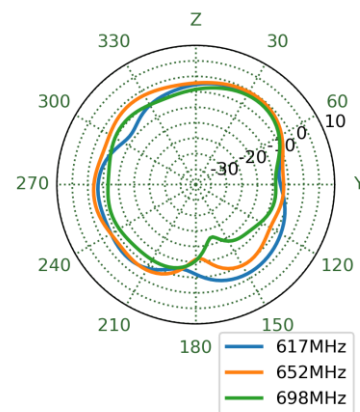
XY Plane



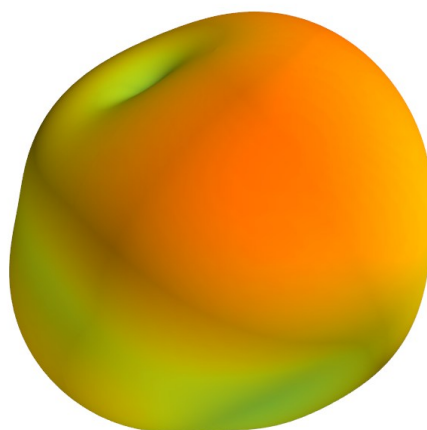
XZ Plane



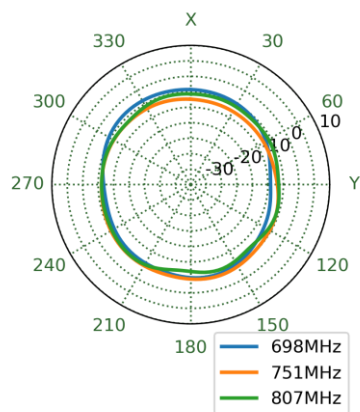
YZ Plane



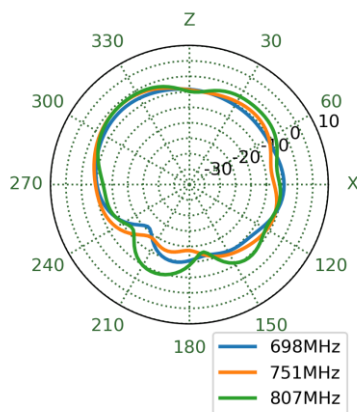
8.31 4G/5G-3 - Patterns at 751 MHz



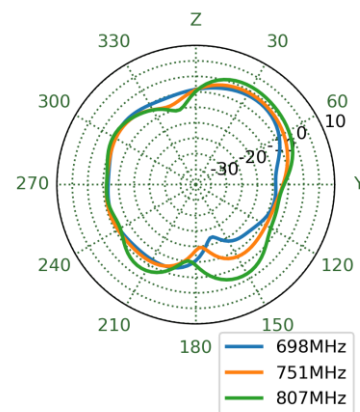
XY Plane



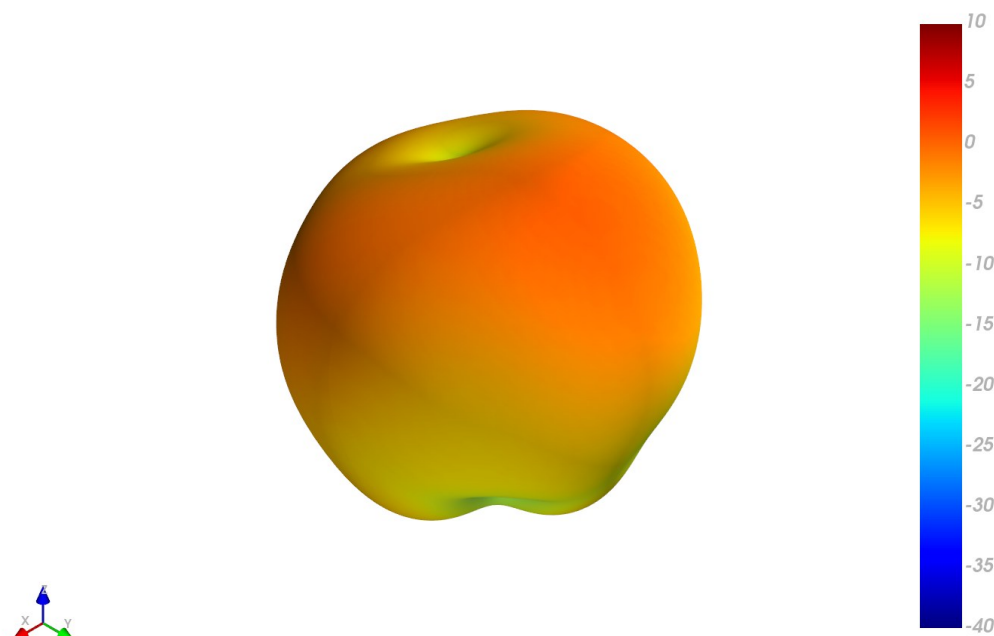
XZ Plane



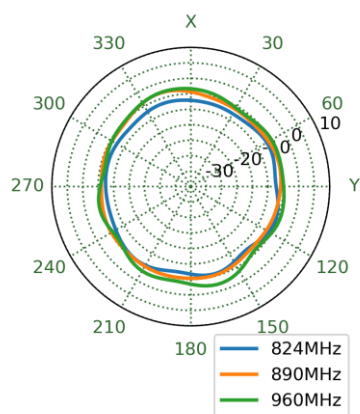
YZ Plane



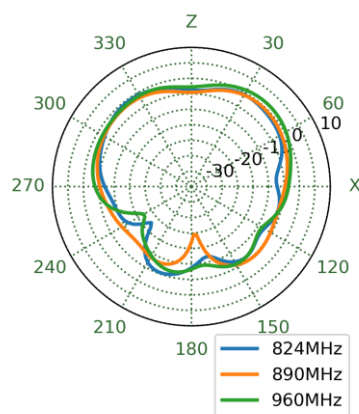
8.32 4G/5G-3 - Patterns at 890 MHz



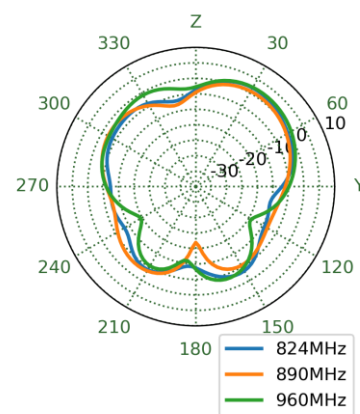
XY Plane



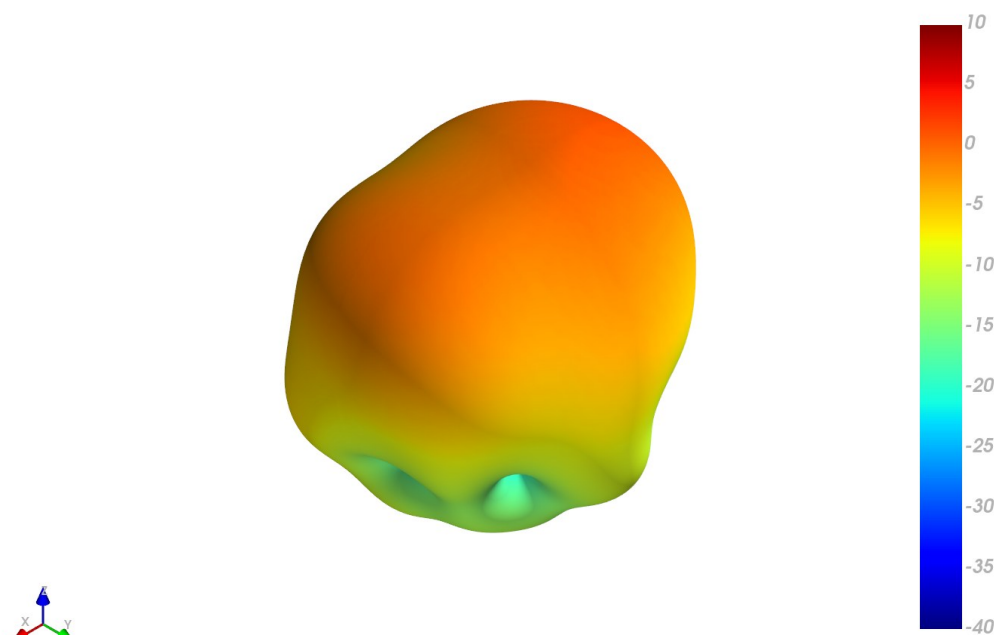
XZ Plane



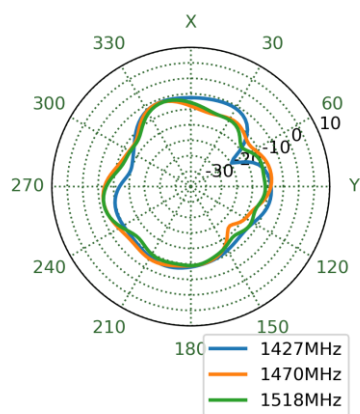
YZ Plane



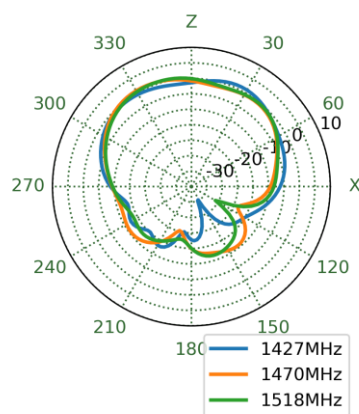
8.33 4G/5G-3 - Patterns at 1470 MHz



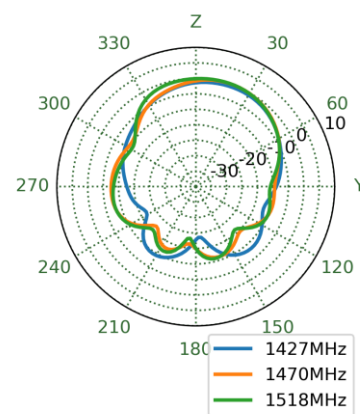
XY Plane



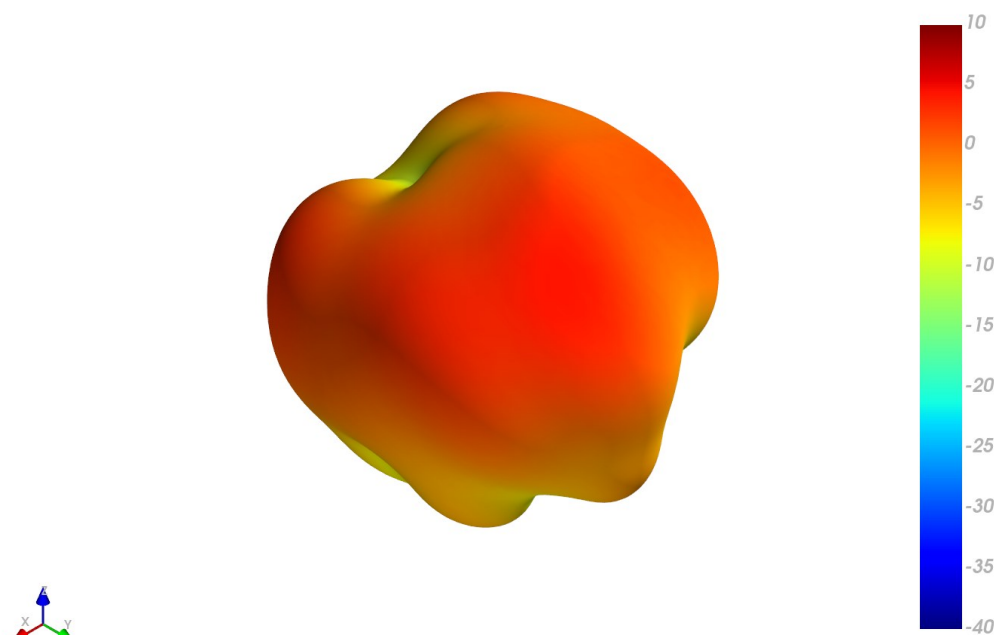
XZ Plane



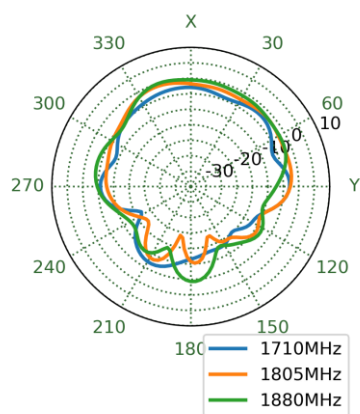
YZ Plane



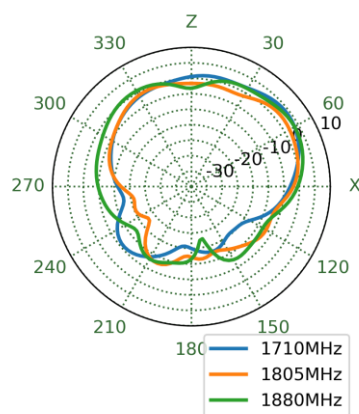
8.34 4G/5G-3 - Patterns at 1805 MHz



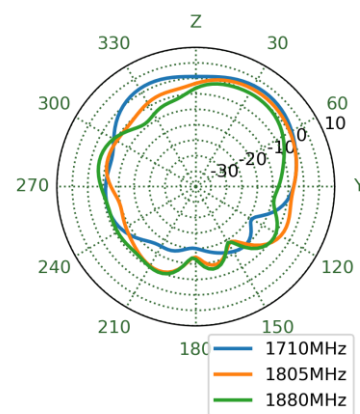
XY Plane



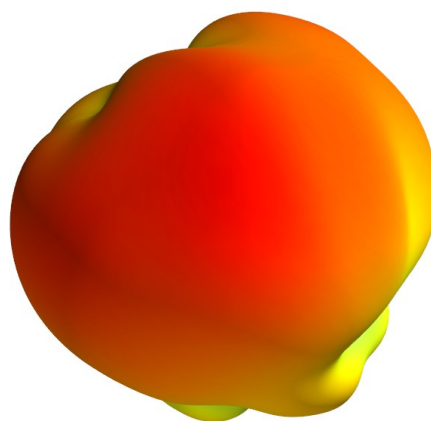
XZ Plane



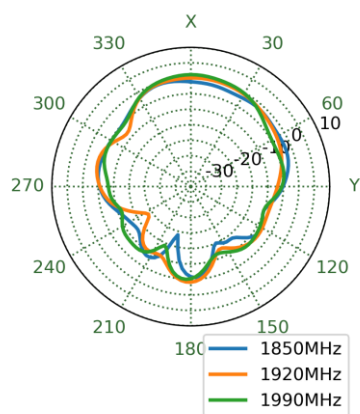
YZ Plane



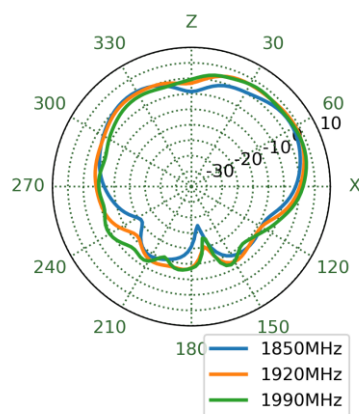
8.35 4G/5G-3 - Patterns at 1920 MHz



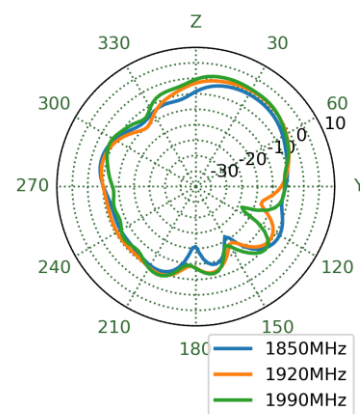
XY Plane



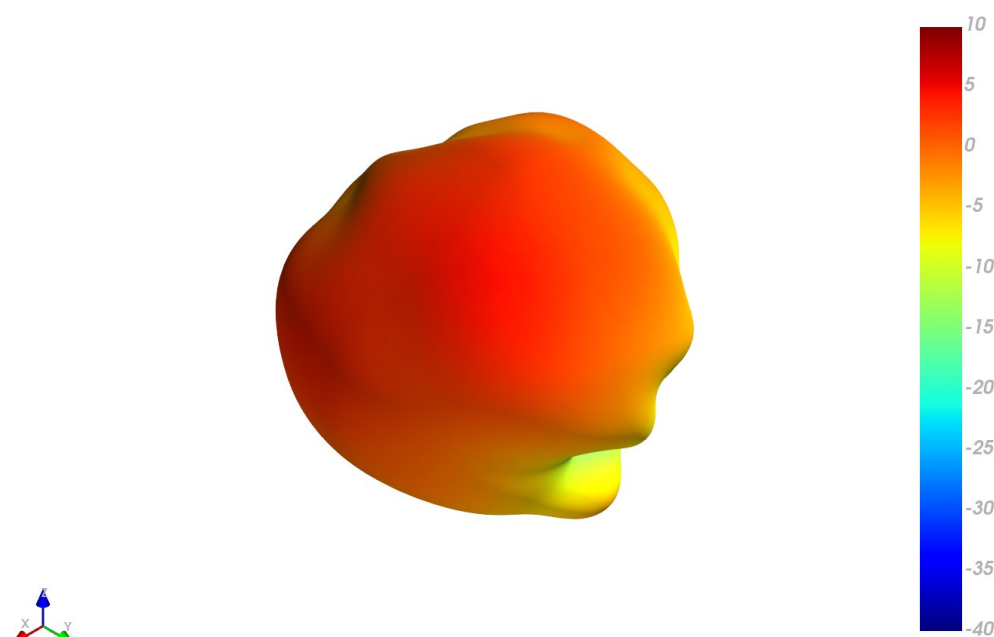
XZ Plane



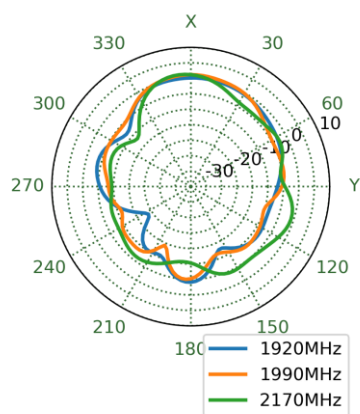
YZ Plane



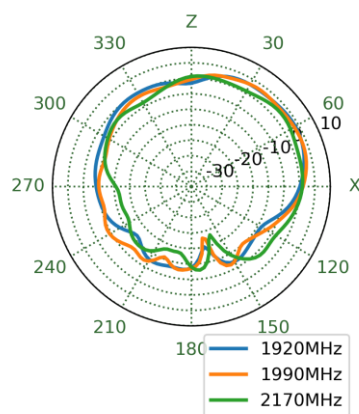
8.36 4G/5G-3 - Patterns at 1990 MHz



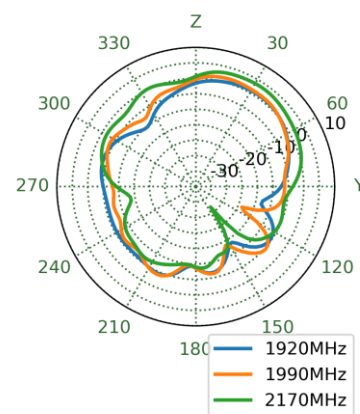
XY Plane



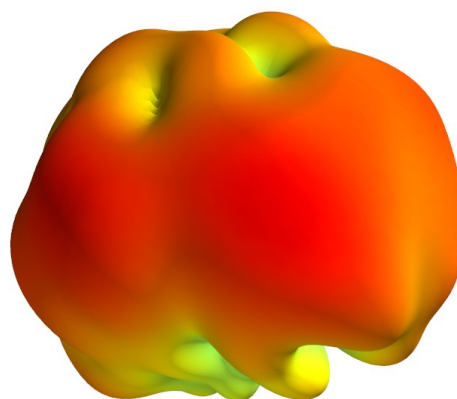
XZ Plane



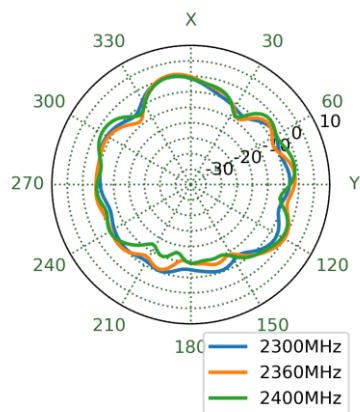
YZ Plane



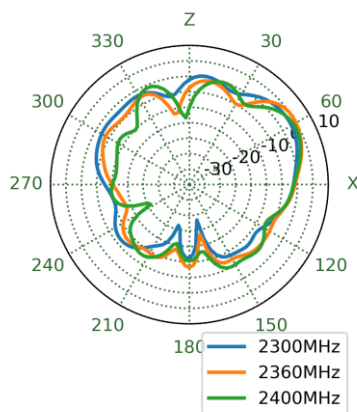
8.37 4G/5G-3 - Patterns at 2360 MHz



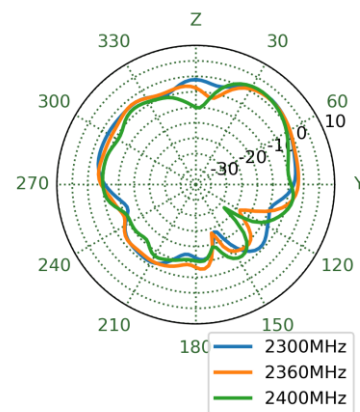
XY Plane



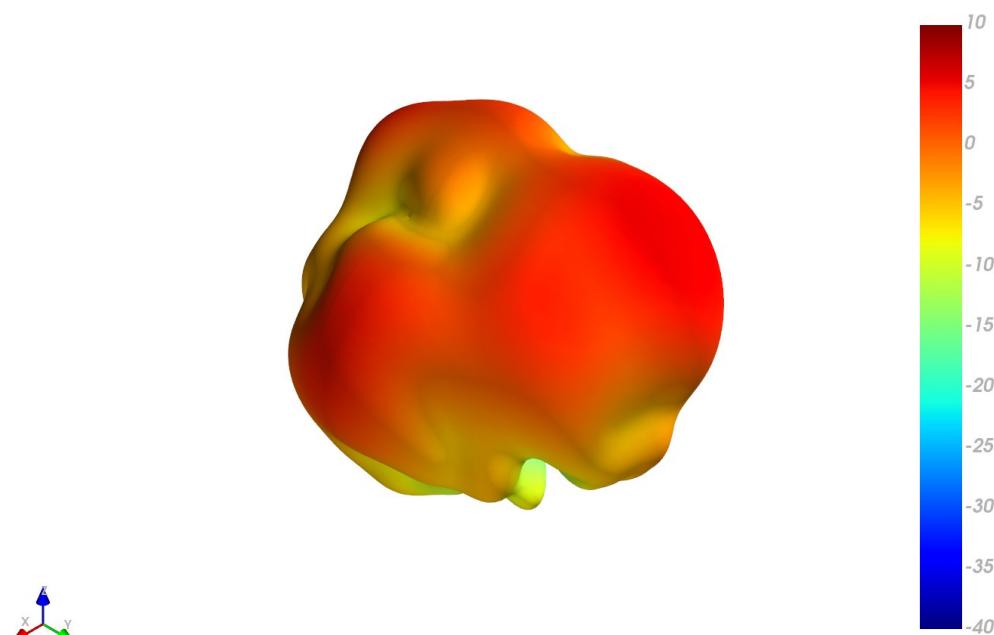
XZ Plane



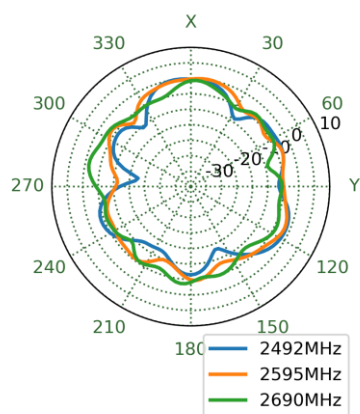
YZ Plane



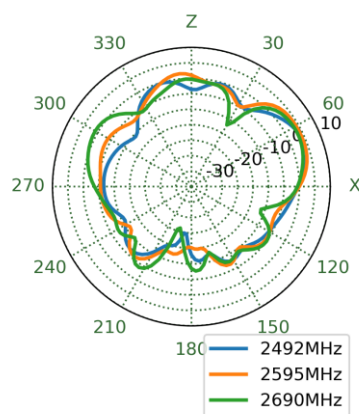
8.38 4G/5G-3 - Patterns at 2595 MHz



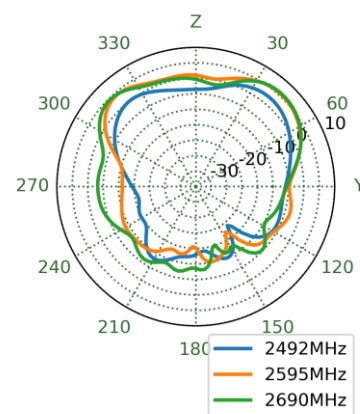
XY Plane



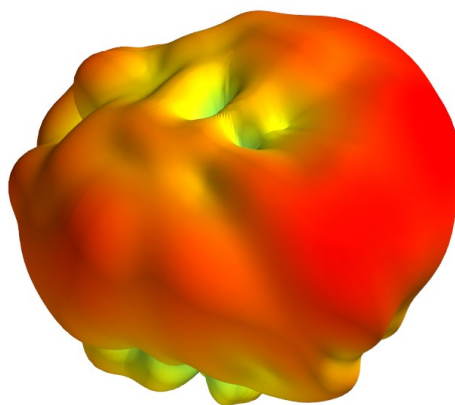
XZ Plane



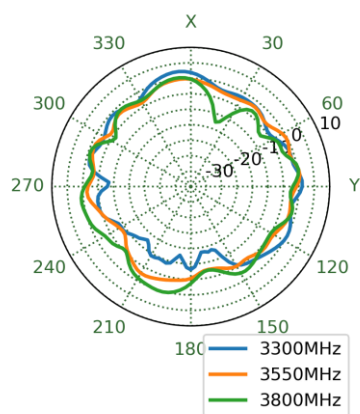
YZ Plane



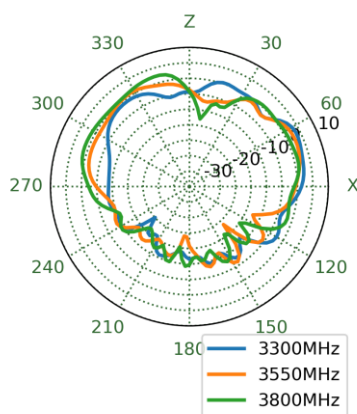
8.39 4G/5G-3 - Patterns at 3550 MHz



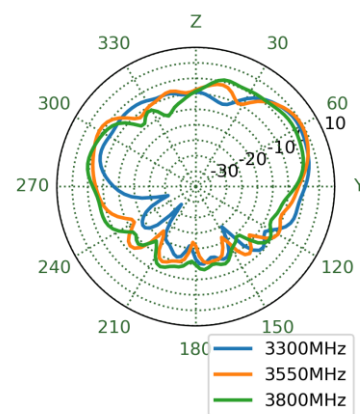
XY Plane



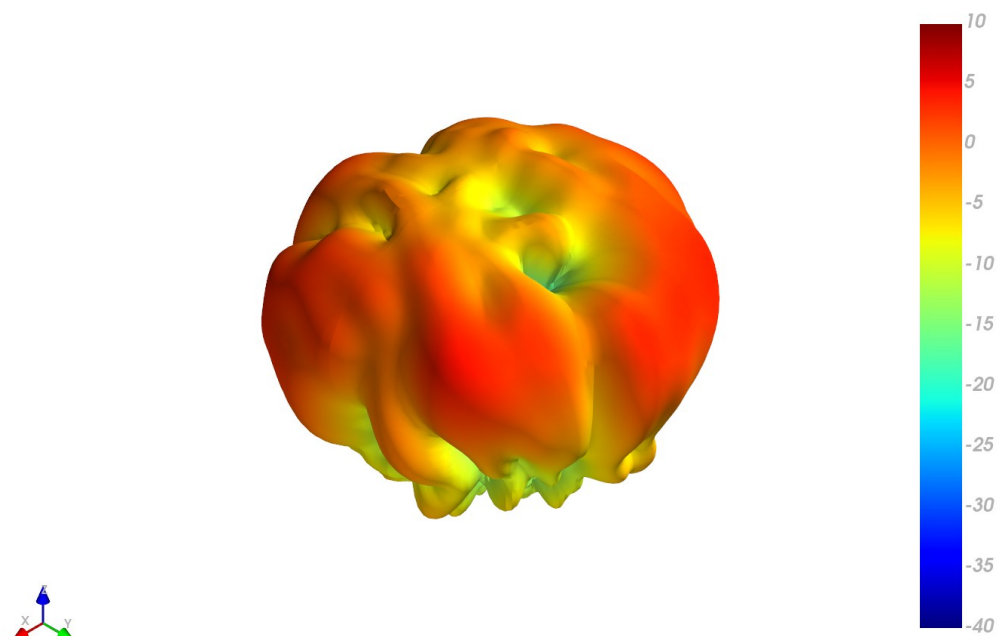
XZ Plane



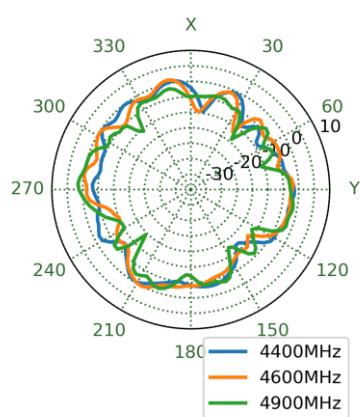
YZ Plane



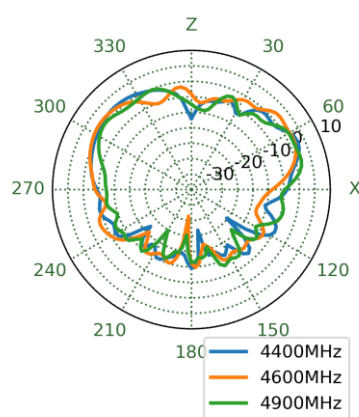
8.40 4G/5G-3 - Patterns at 4600 MHz



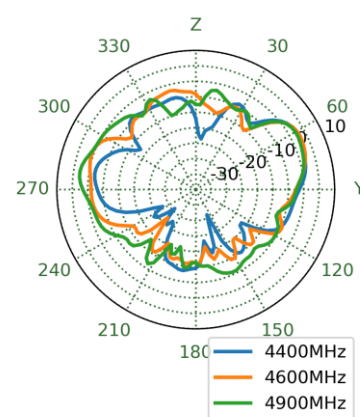
XY Plane



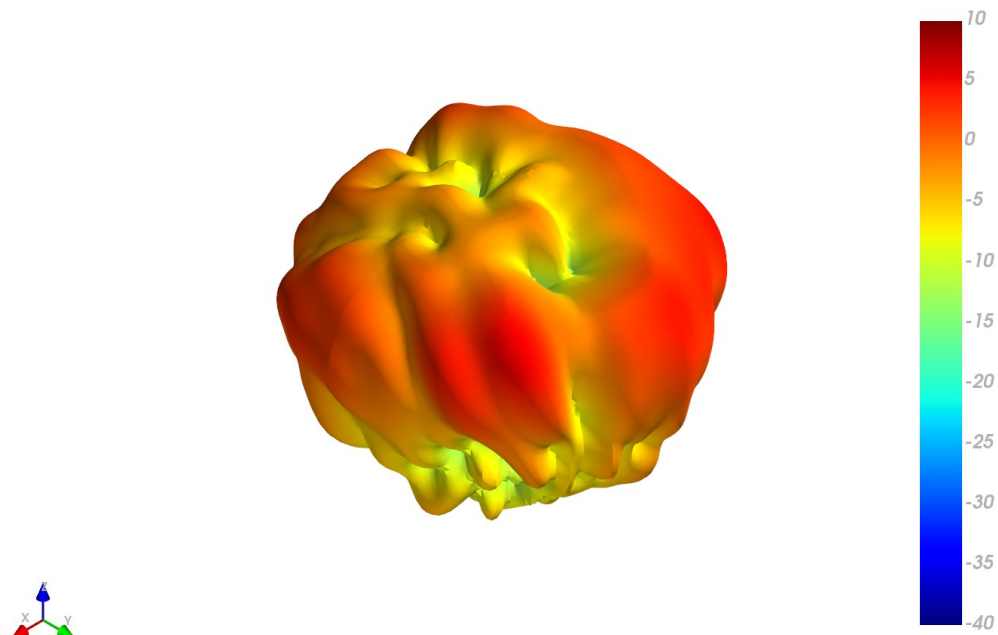
XZ Plane



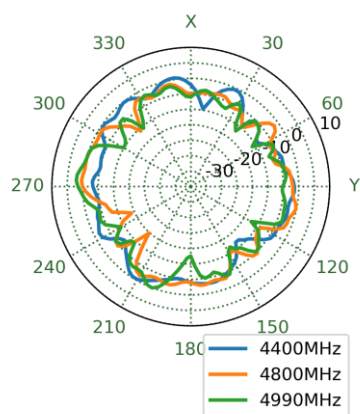
YZ Plane



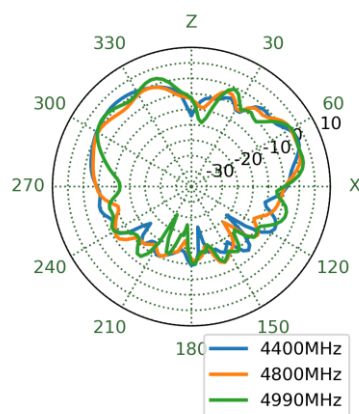
8.41 4G/5G-3 - Patterns at 4800 MHz



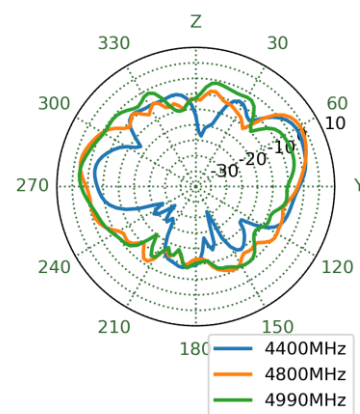
XY Plane



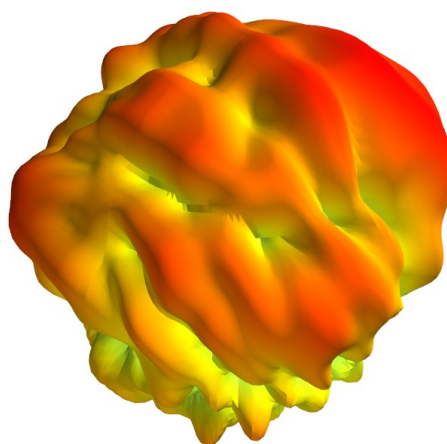
XZ Plane



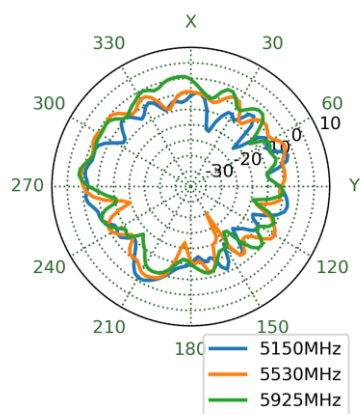
YZ Plane



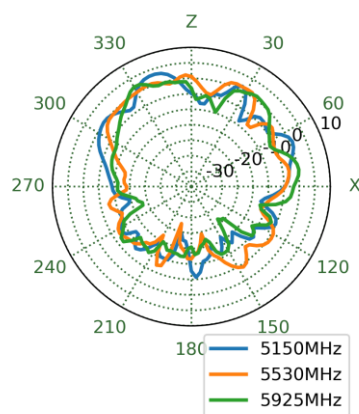
8.42 4G/5G-3 - Patterns at 5530 MHz



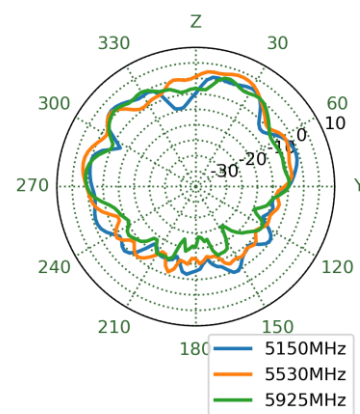
XY Plane



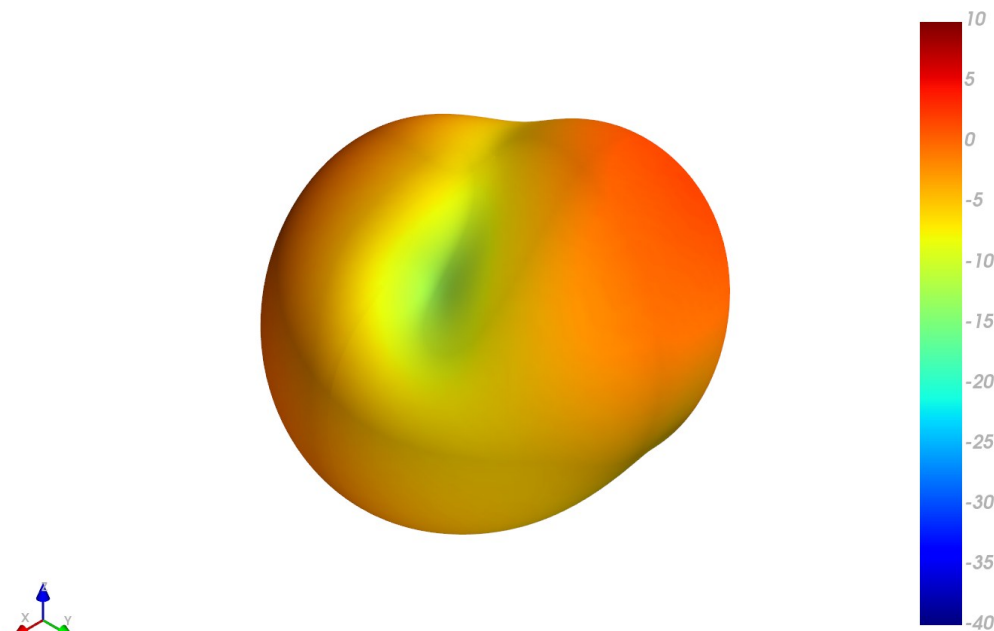
XZ Plane



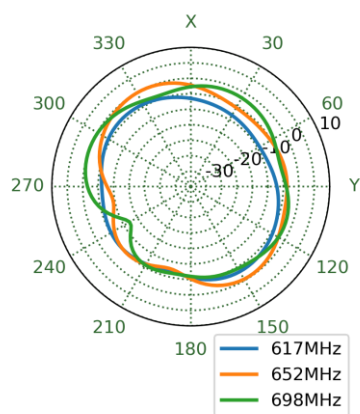
YZ Plane



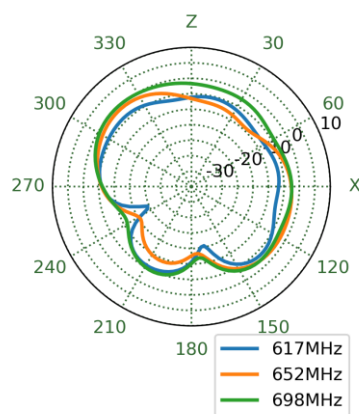
8.43 4G/5G-4 - Patterns at 652 MHz



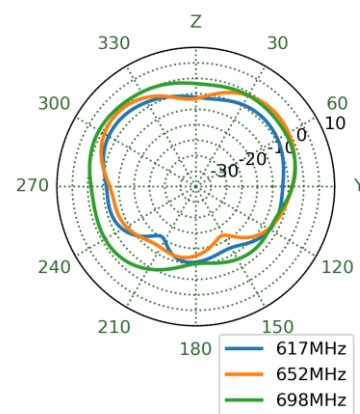
XY Plane



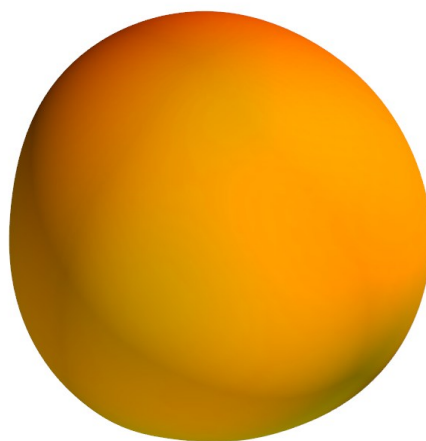
XZ Plane



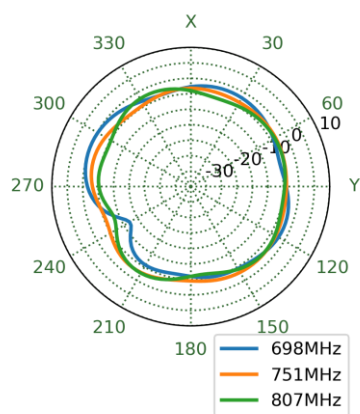
YZ Plane



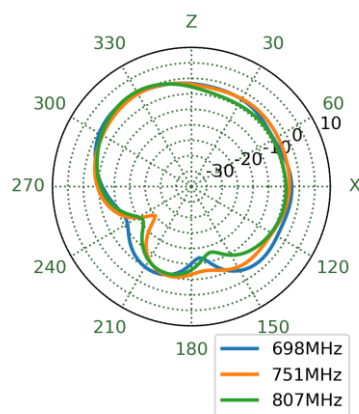
8.44 4G/5G-4 - Patterns at 751 MHz



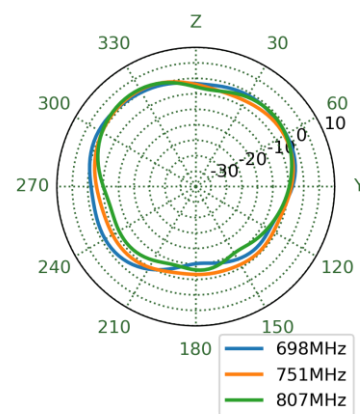
XY Plane



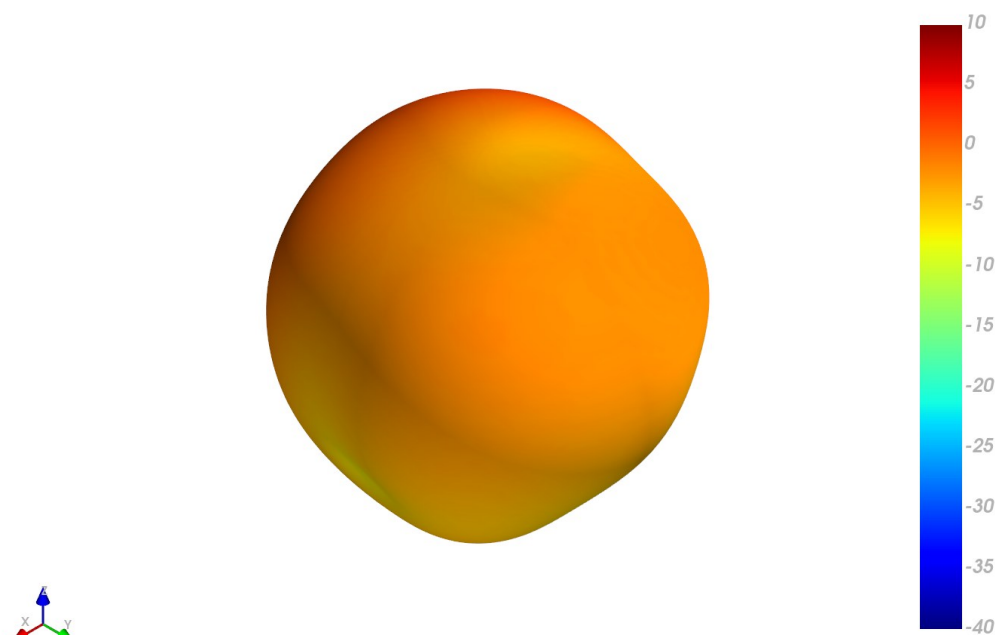
XZ Plane



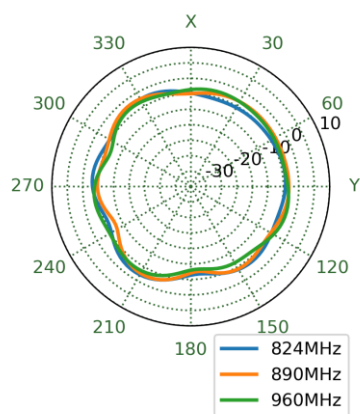
YZ Plane



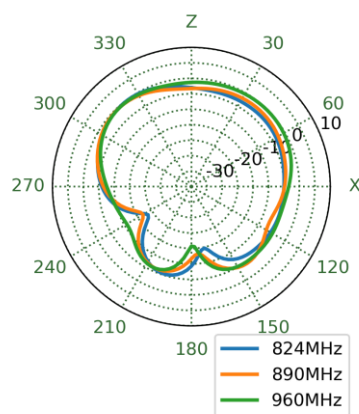
8.45 4G/5G-4 - Patterns at 890 MHz



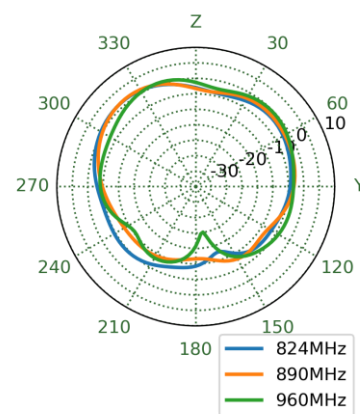
XY Plane



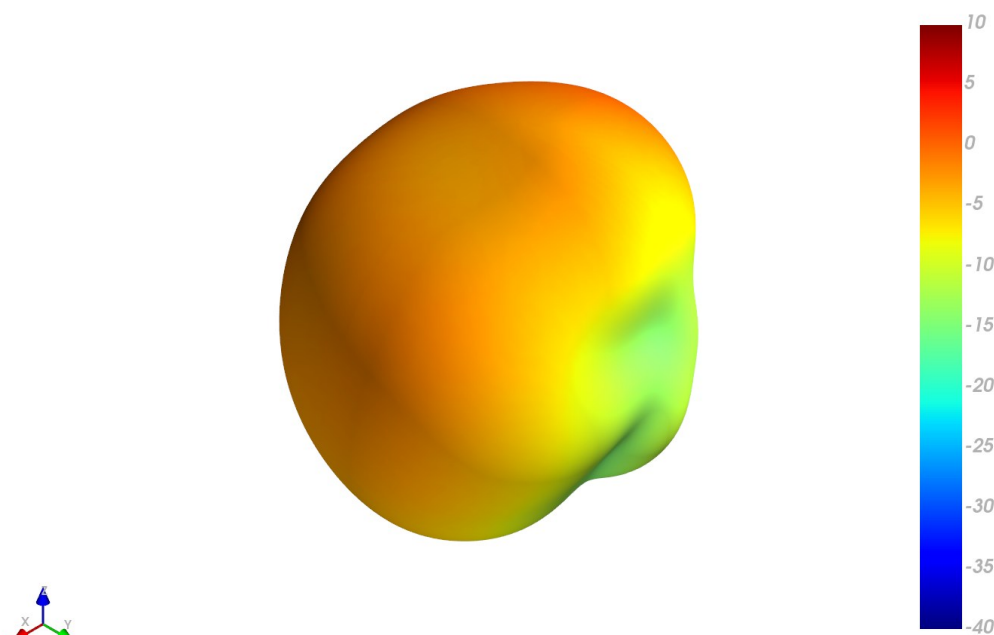
XZ Plane



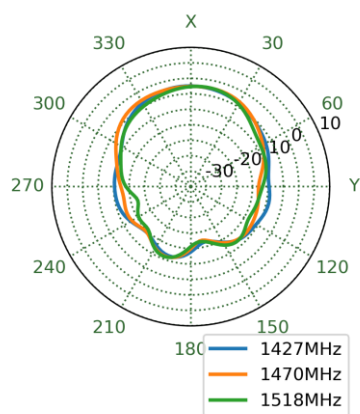
YZ Plane



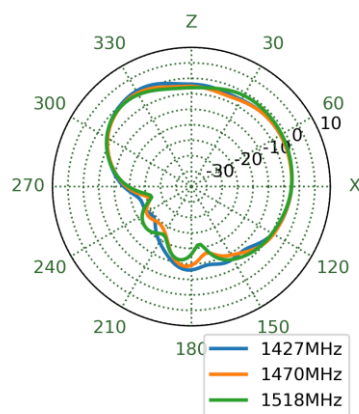
8.46 4G/5G-4 - Patterns at 1470 MHz



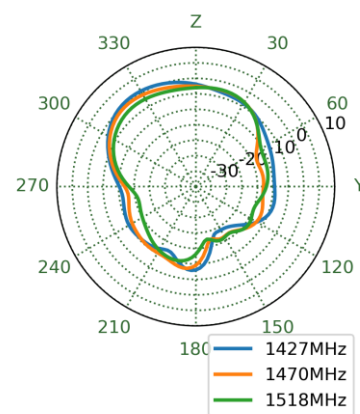
XY Plane



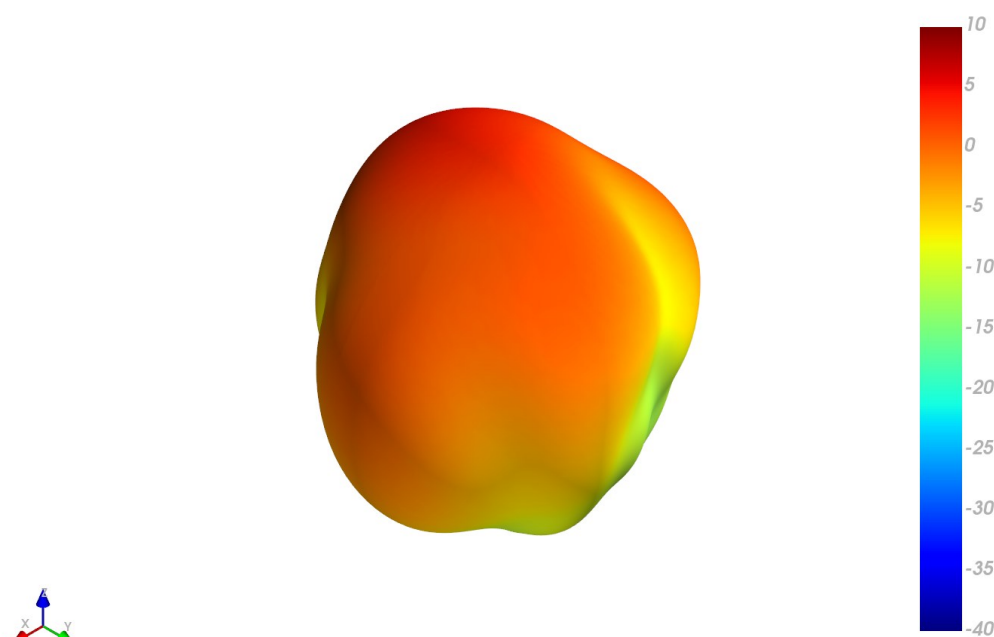
XZ Plane



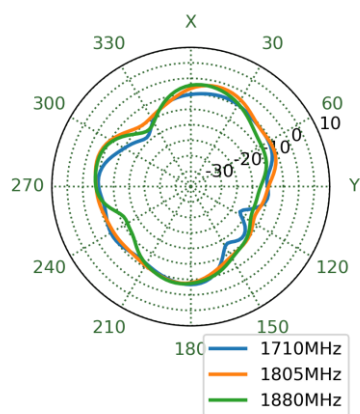
YZ Plane



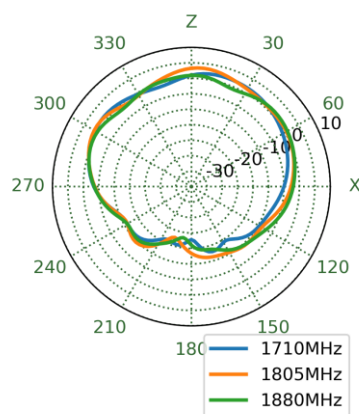
8.47 4G/5G-4 - Patterns at 1805 MHz



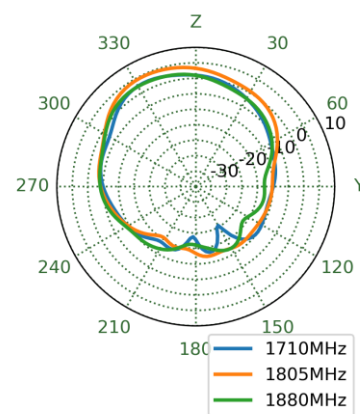
XY Plane



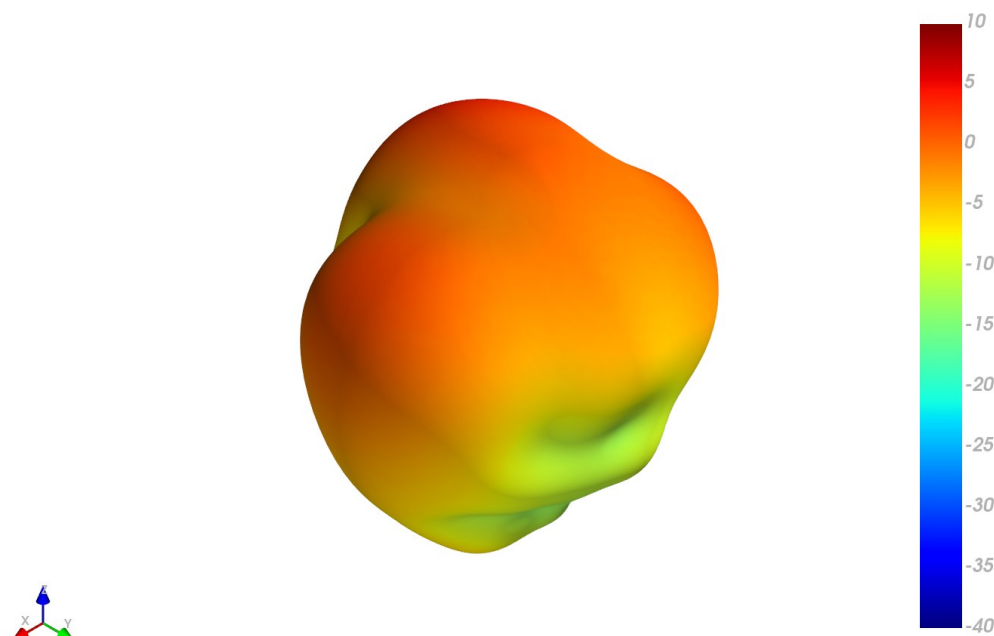
XZ Plane



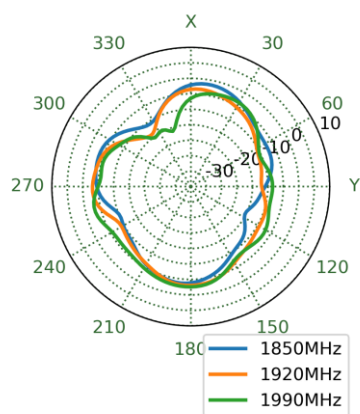
YZ Plane



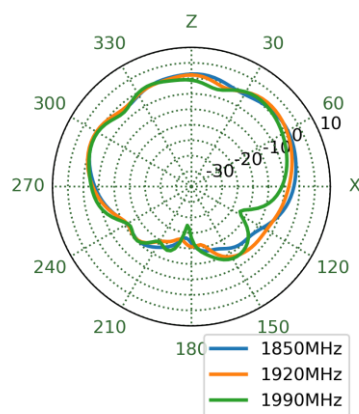
8.48 4G/5G-4 - Patterns at 1920 MHz



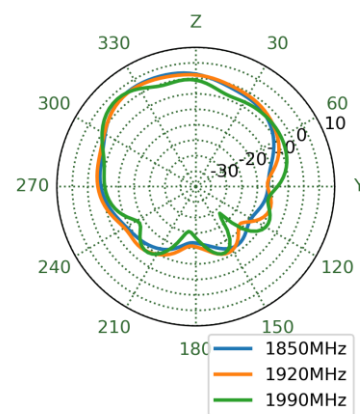
XY Plane



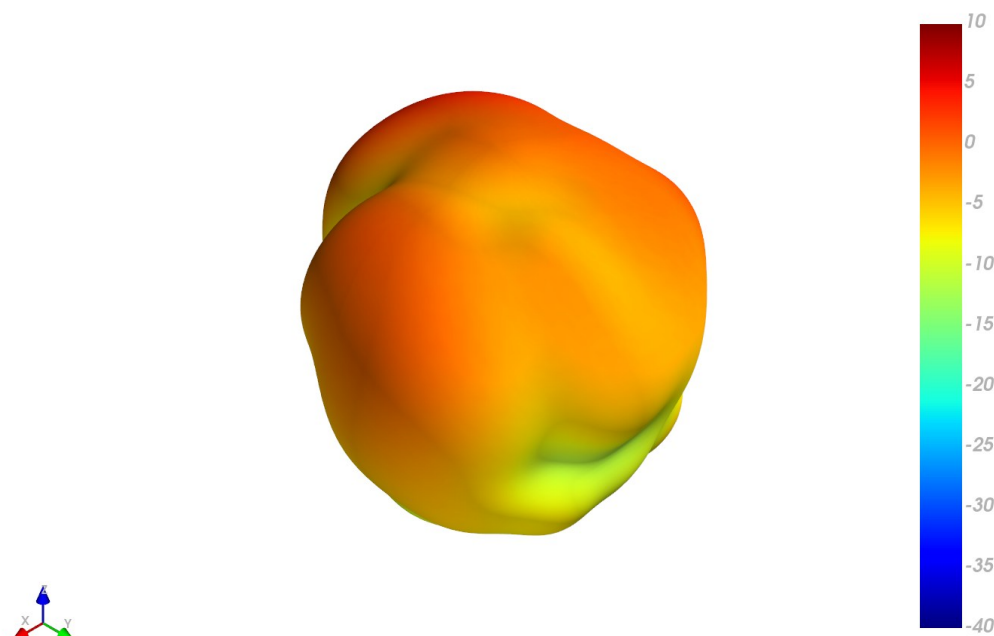
XZ Plane



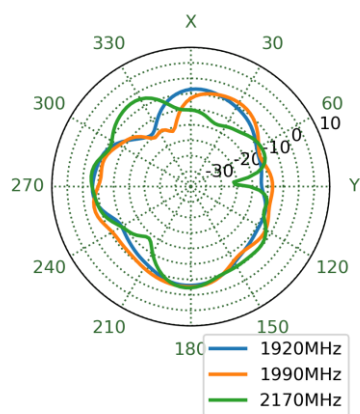
YZ Plane



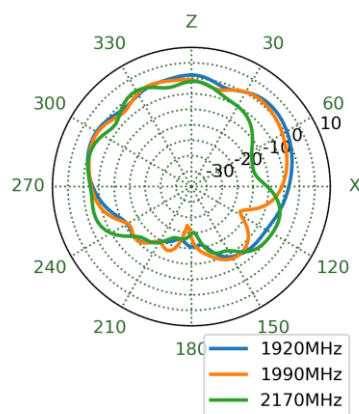
8.49 4G/5G-4 - Patterns at 1990 MHz



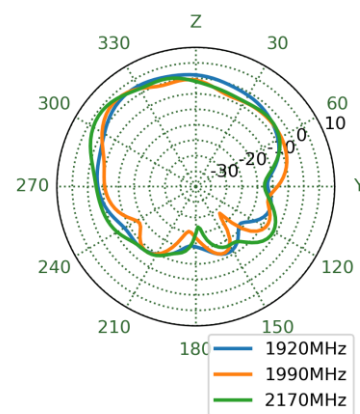
XY Plane



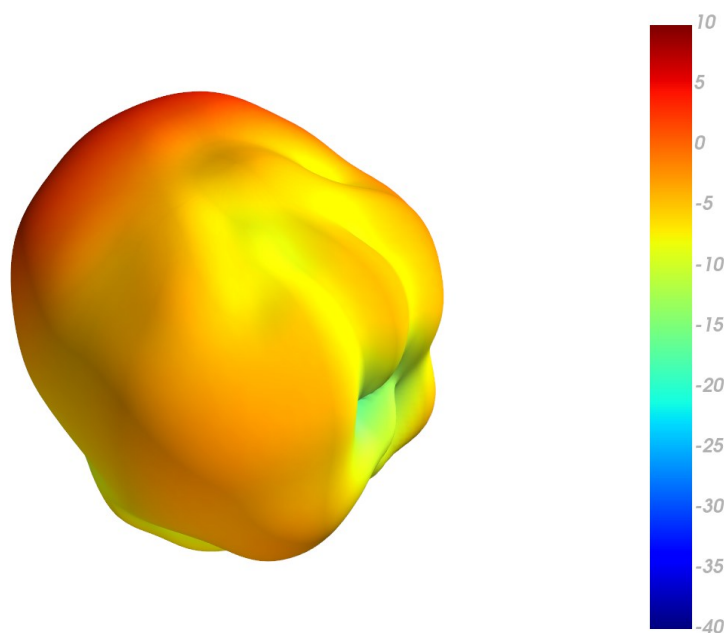
XZ Plane



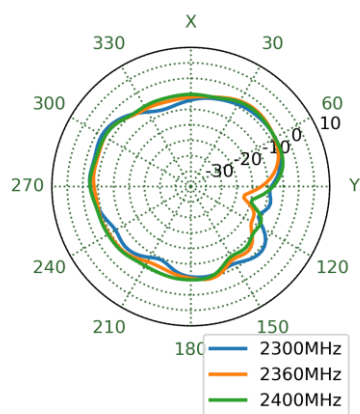
YZ Plane



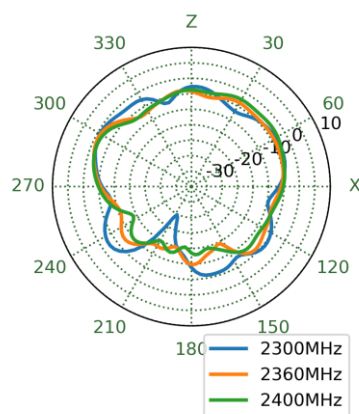
8.50 4G/5G-4 - Patterns at 2360 MHz



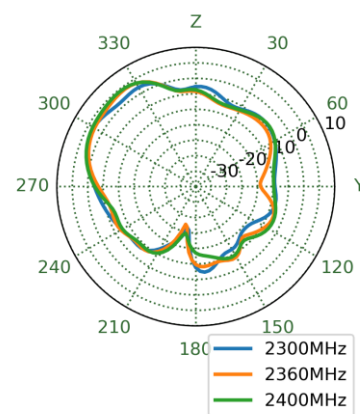
XY Plane



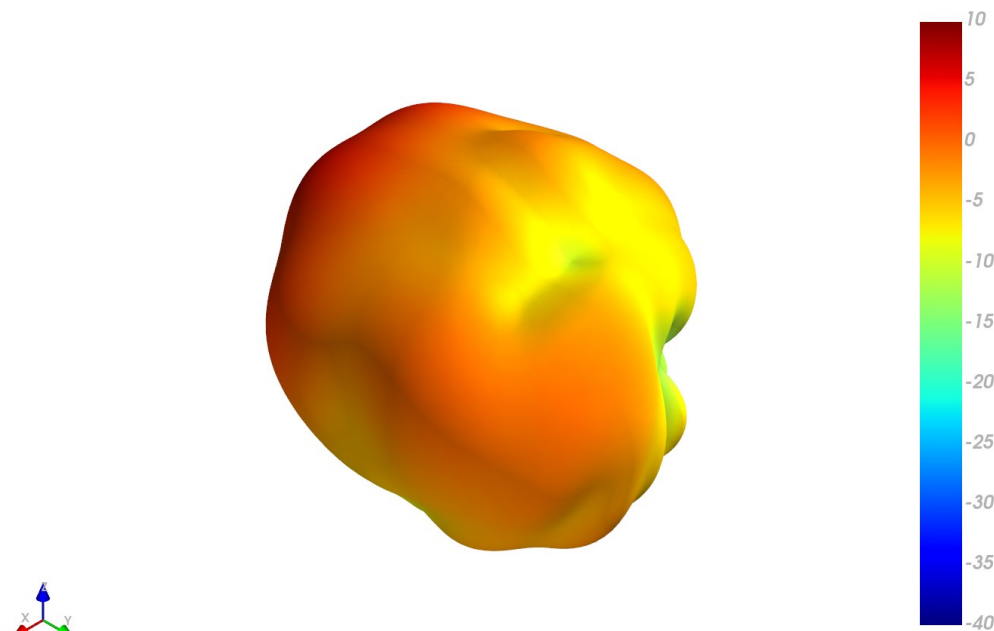
XZ Plane



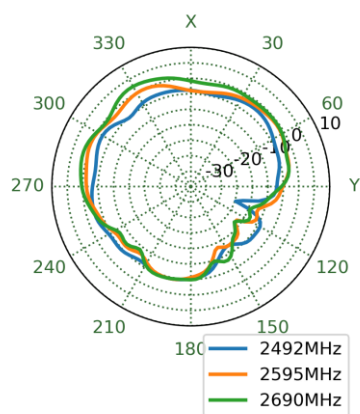
YZ Plane



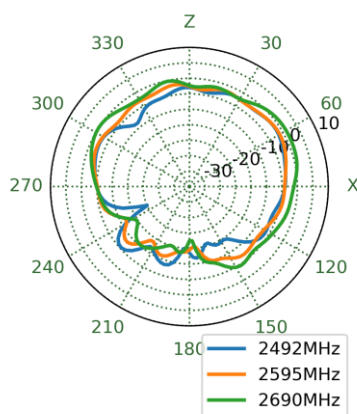
8.51 4G/5G-4 - Patterns at 2595 MHz



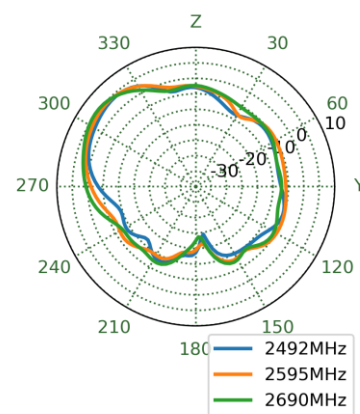
XY Plane



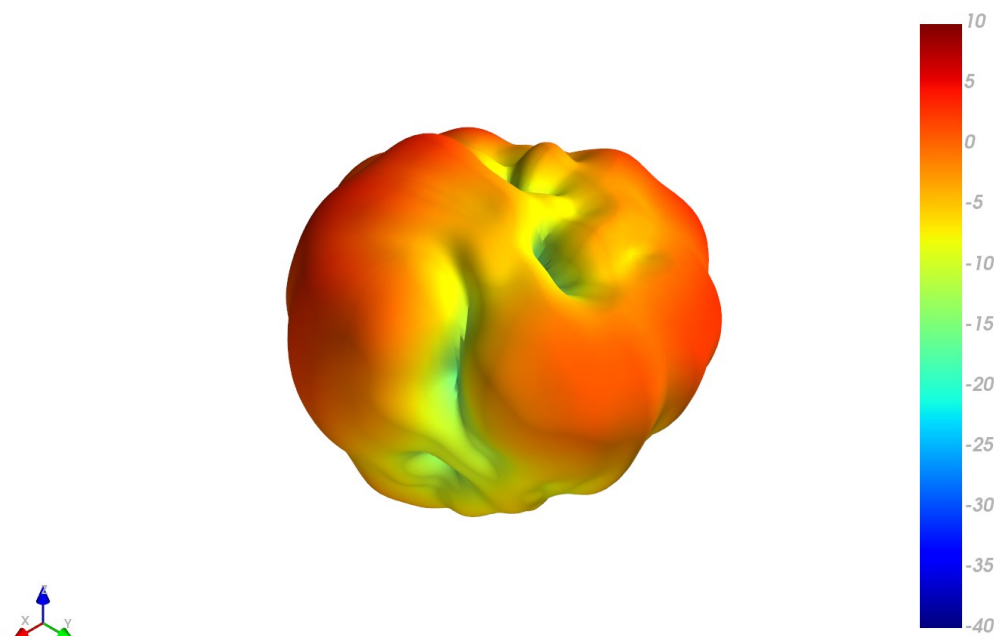
XZ Plane



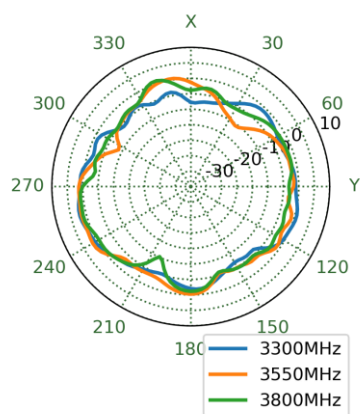
YZ Plane



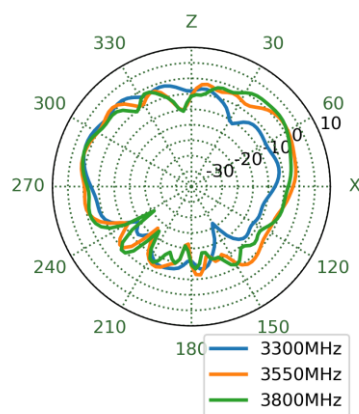
8.52 4G/5G-4 - Patterns at 3550 MHz



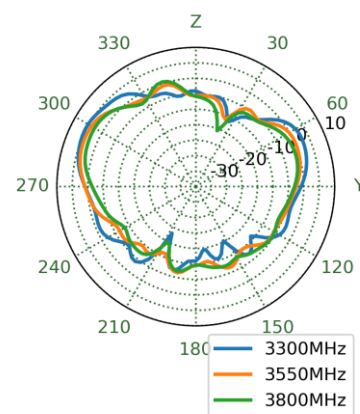
XY Plane



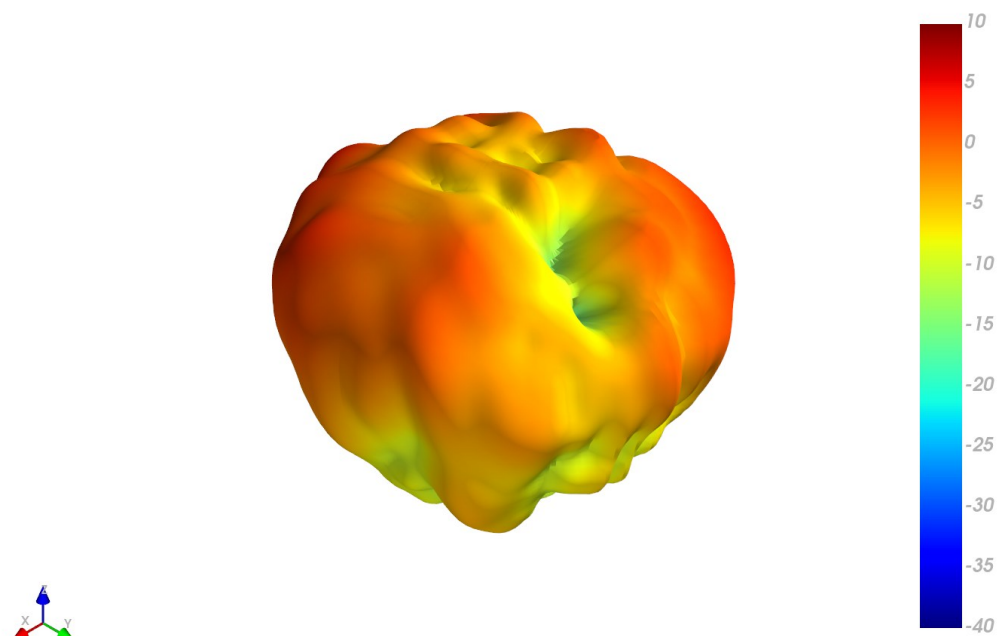
XZ Plane



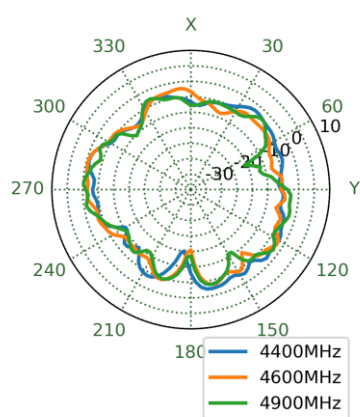
YZ Plane



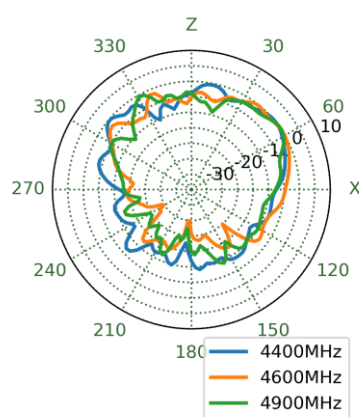
8.53 4G/5G-4 - Patterns at 4600 MHz



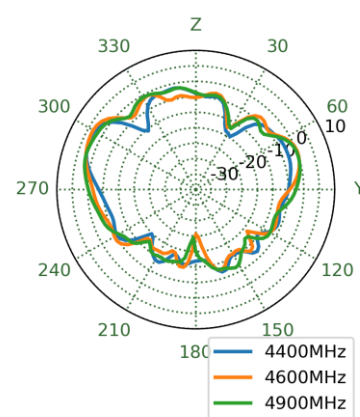
XY Plane



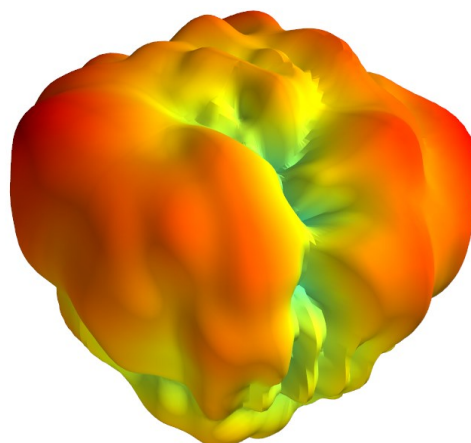
XZ Plane



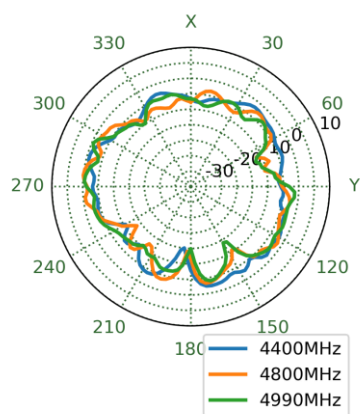
YZ Plane



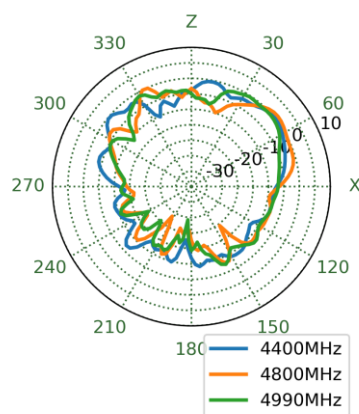
8.54 4G/5G-4 - Patterns at 4800 MHz



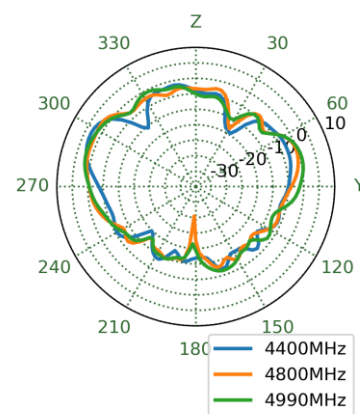
XY Plane



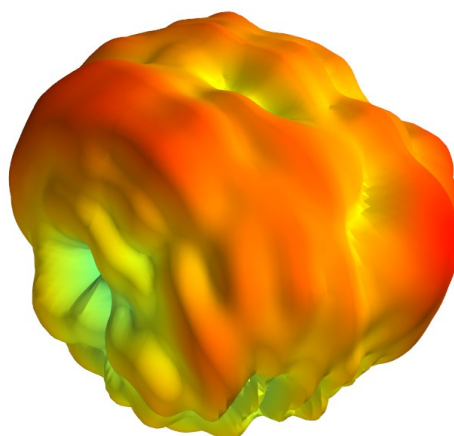
XZ Plane



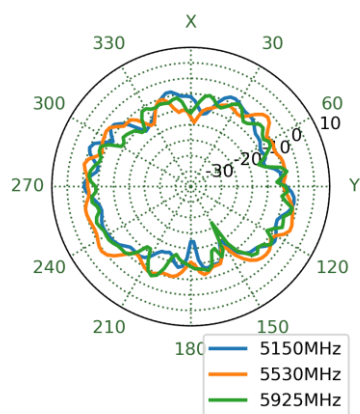
YZ Plane



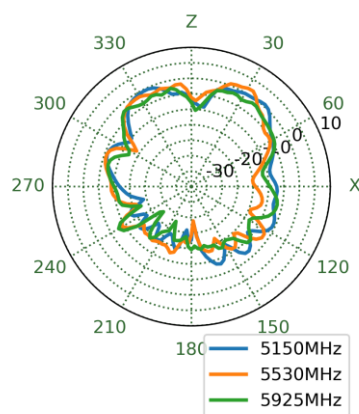
8.55 4G/5G-4 - Patterns at 5530 MHz



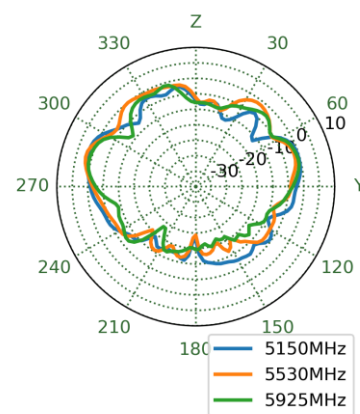
XY Plane



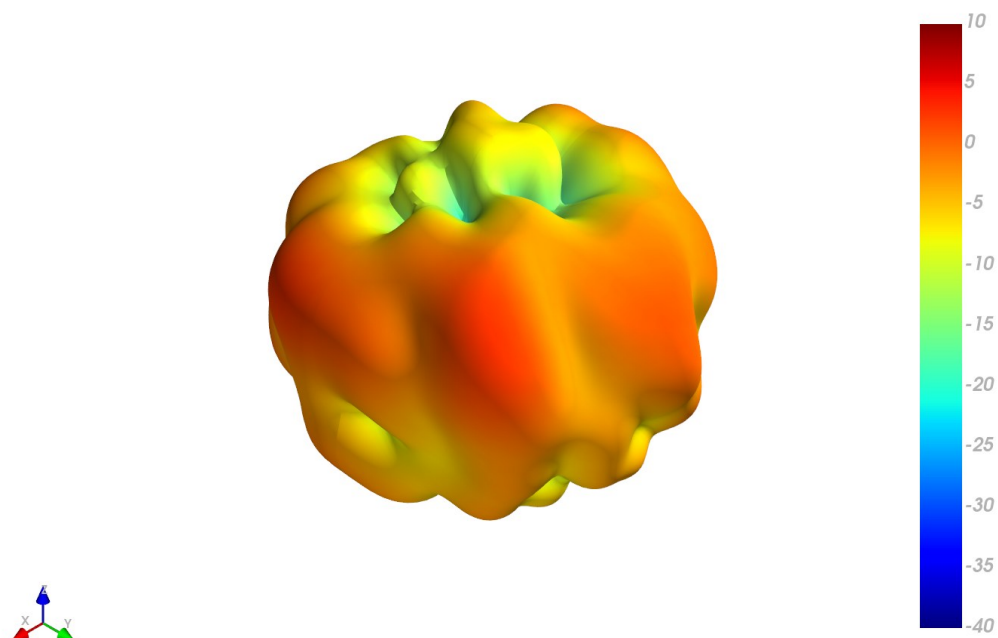
XZ Plane



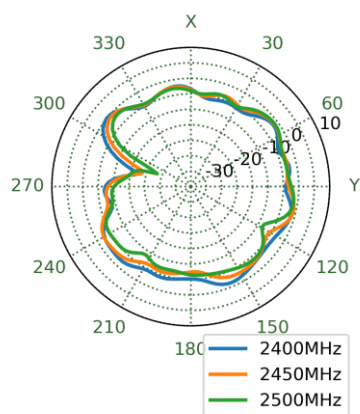
YZ Plane



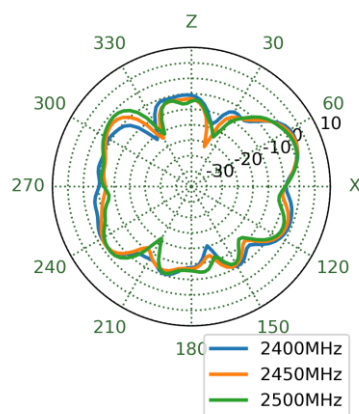
8.56 Wi-Fi-1 - Patterns at 2450 MHz



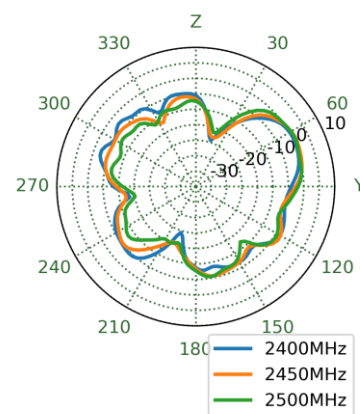
XY Plane



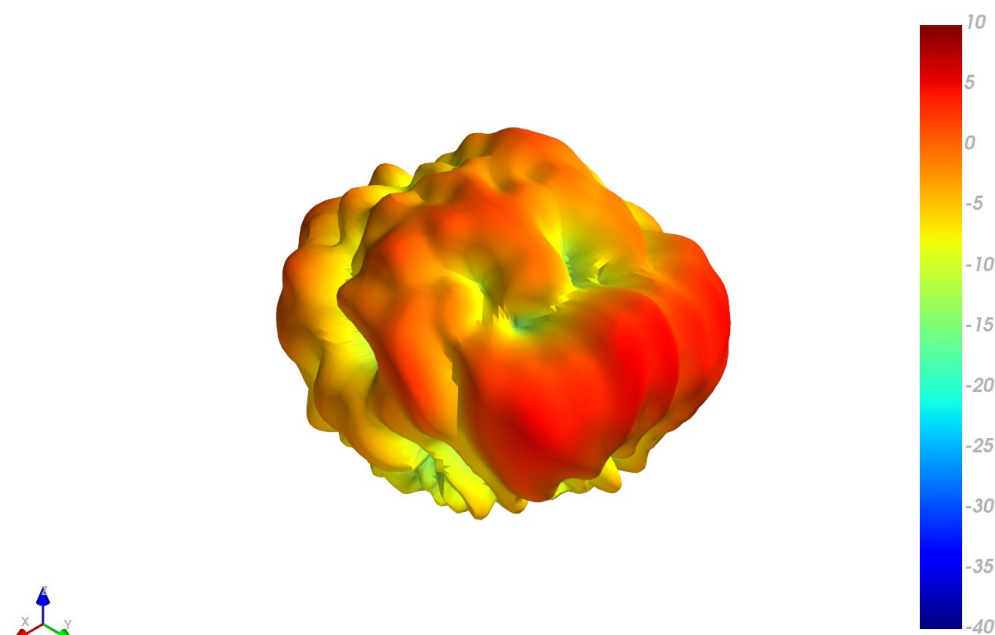
XZ Plane



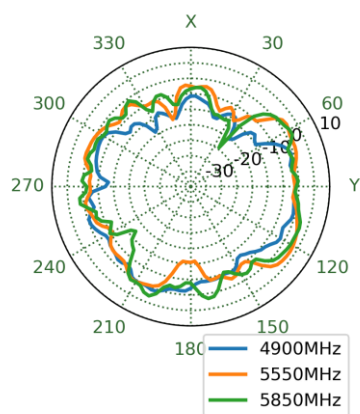
YZ Plane



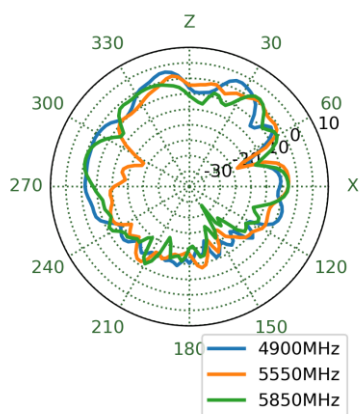
8.57 Wi-Fi-1 - Patterns at 5550 MHz



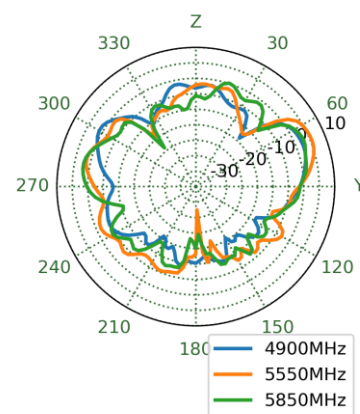
XY Plane



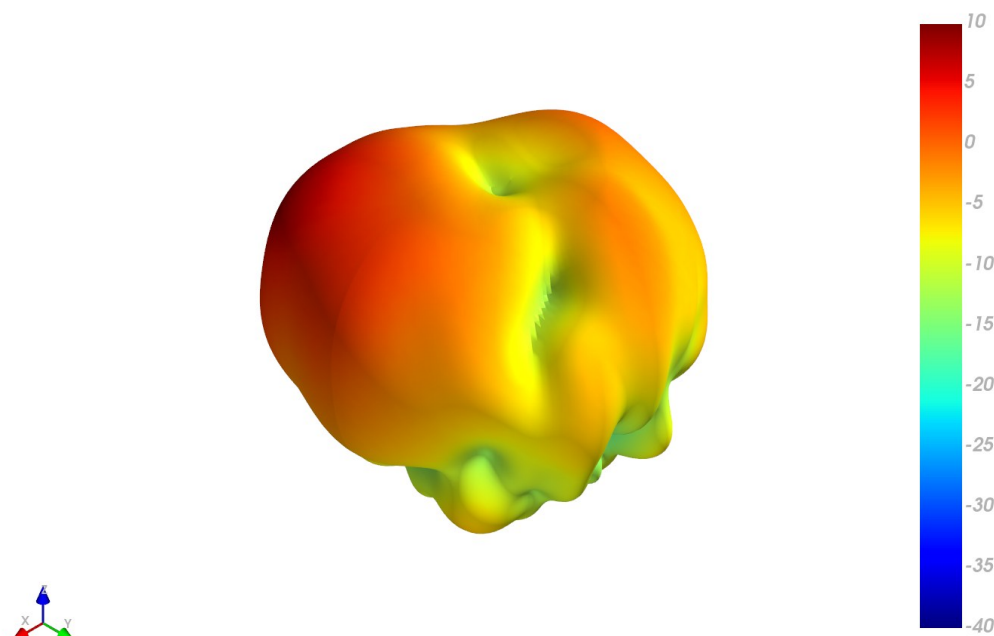
XZ Plane



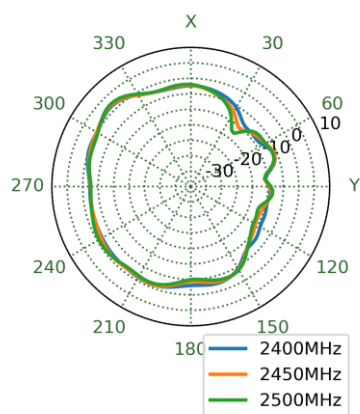
YZ Plane



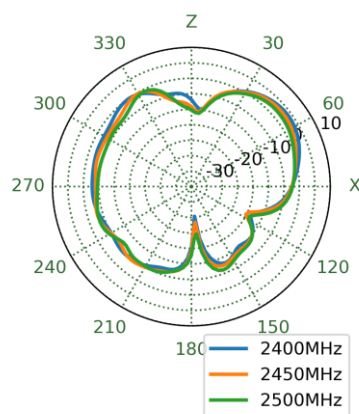
8.58 Wi-Fi-2 - Patterns at 2450 MHz



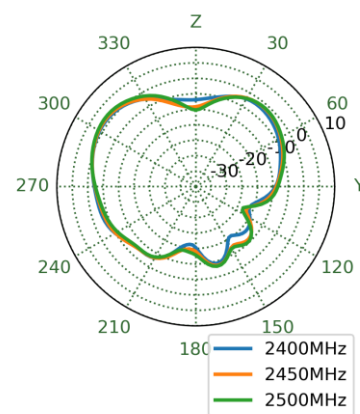
XY Plane



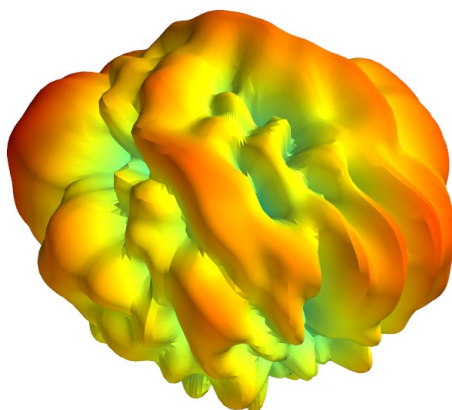
XZ Plane



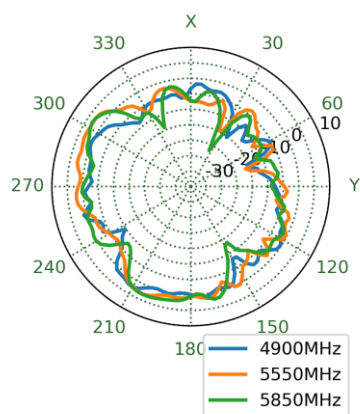
YZ Plane



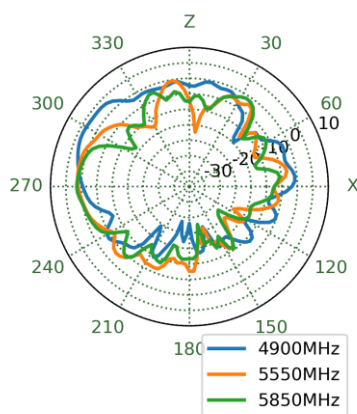
8.59 Wi-Fi-2 - Patterns at 5550 MHz



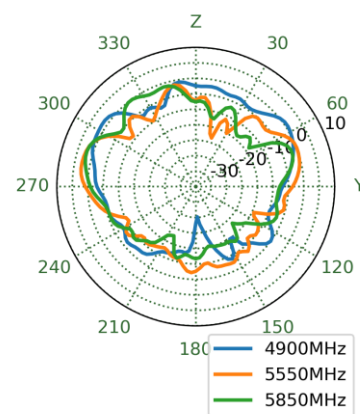
XY Plane



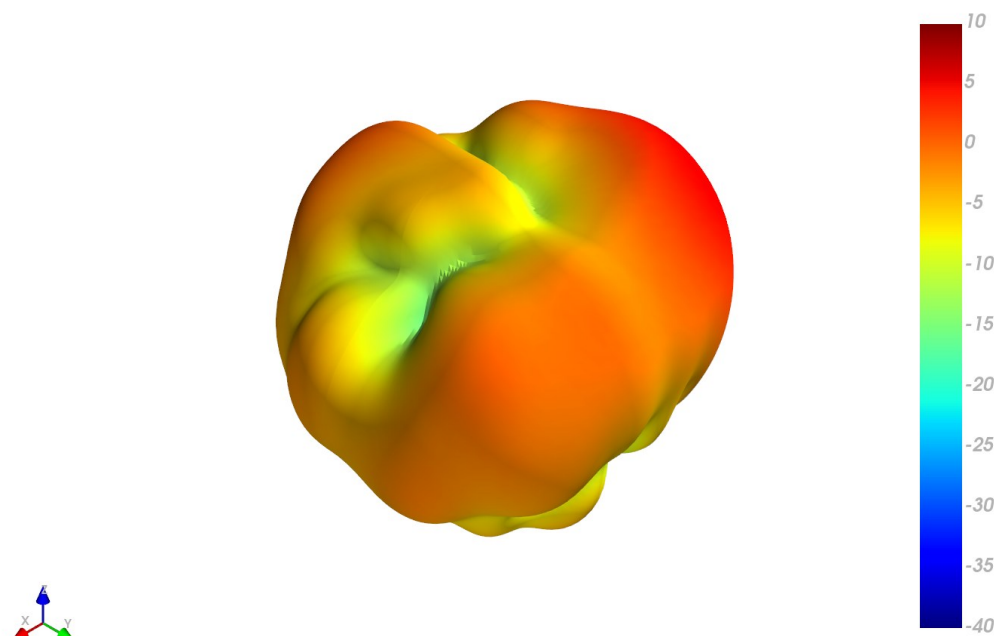
XZ Plane



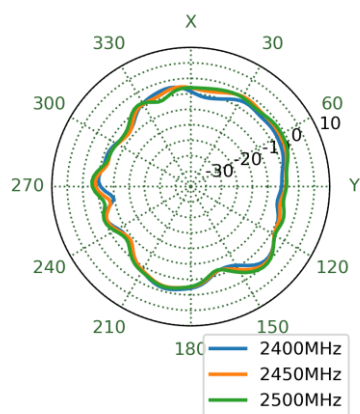
YZ Plane



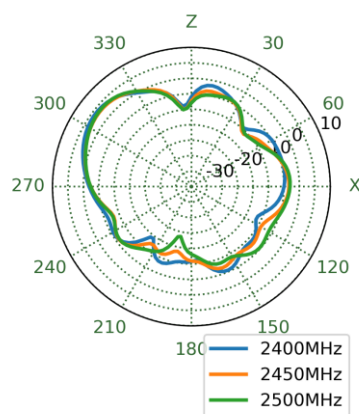
8.60 Wi-Fi-3 - Patterns at 2450 MHz



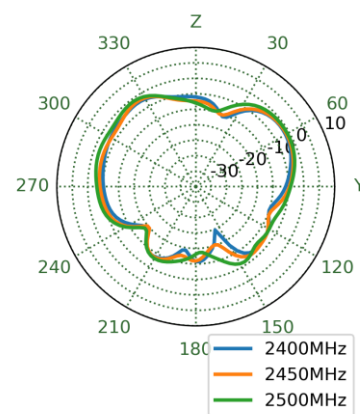
XY Plane



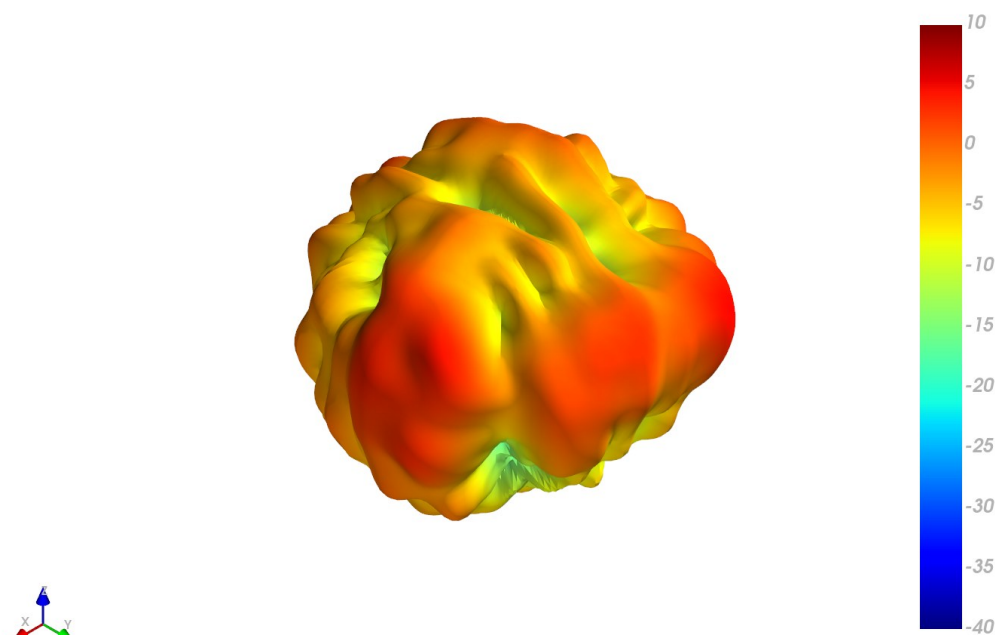
XZ Plane



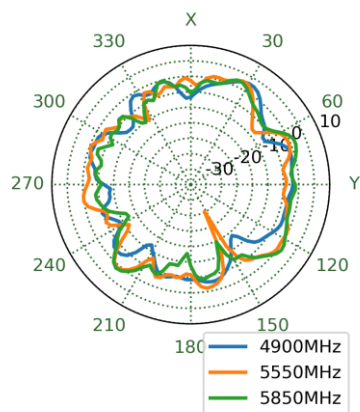
YZ Plane



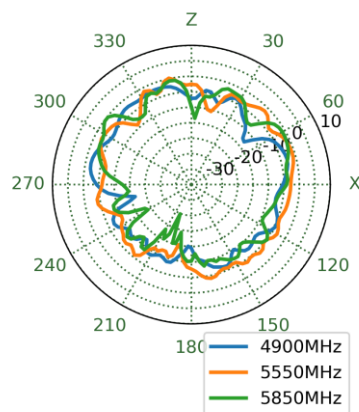
8.61 Wi-Fi-3 - Patterns at 5550 MHz



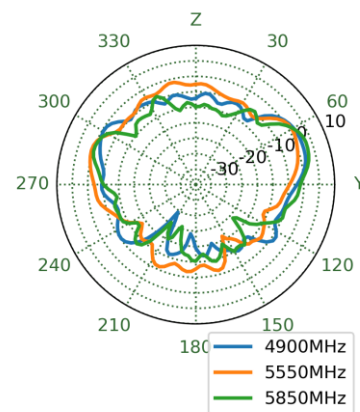
XY Plane



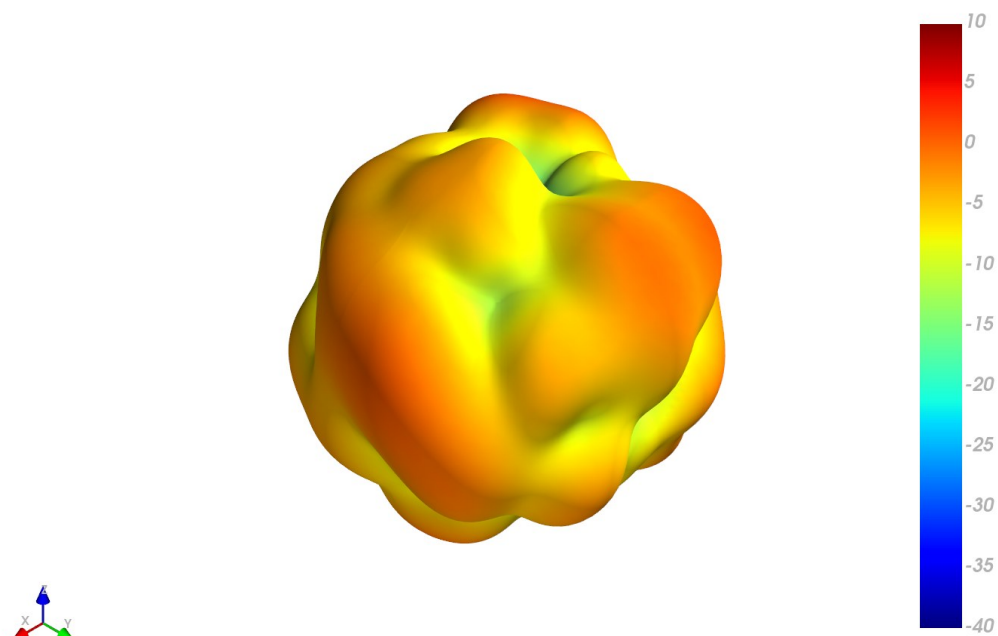
XZ Plane



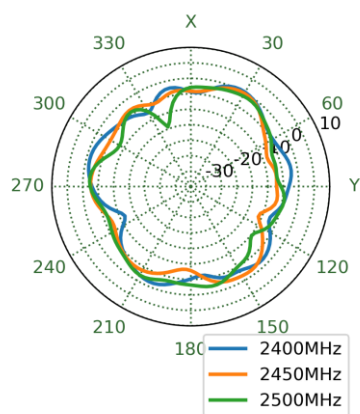
YZ Plane



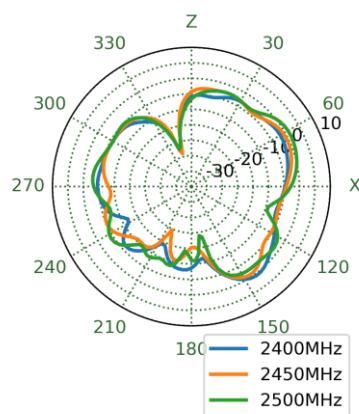
8.62 Wi-Fi-4 - Patterns at 2450 MHz



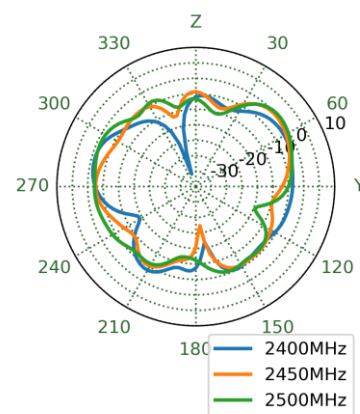
XY Plane



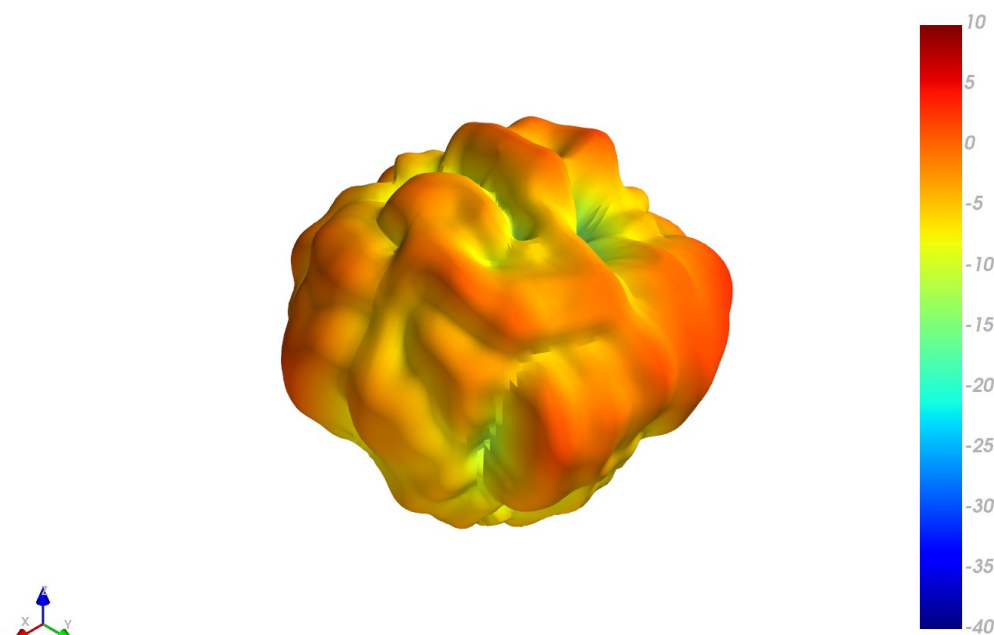
XZ Plane



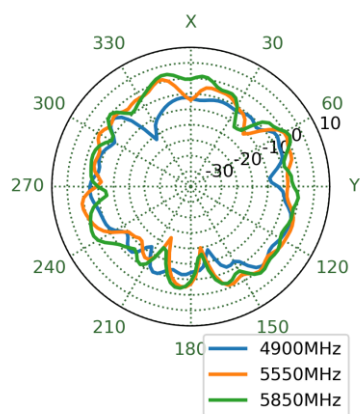
YZ Plane



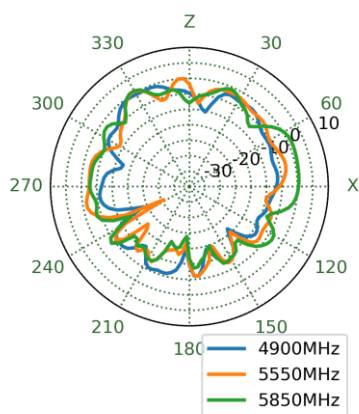
8.63 Wi-Fi-4 - Patterns at 5550 MHz



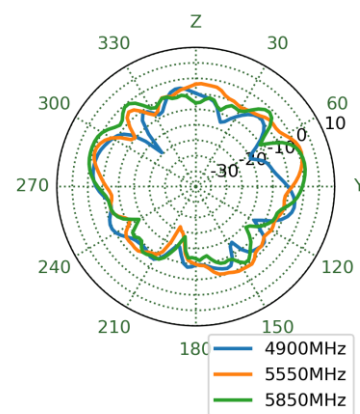
XY Plane



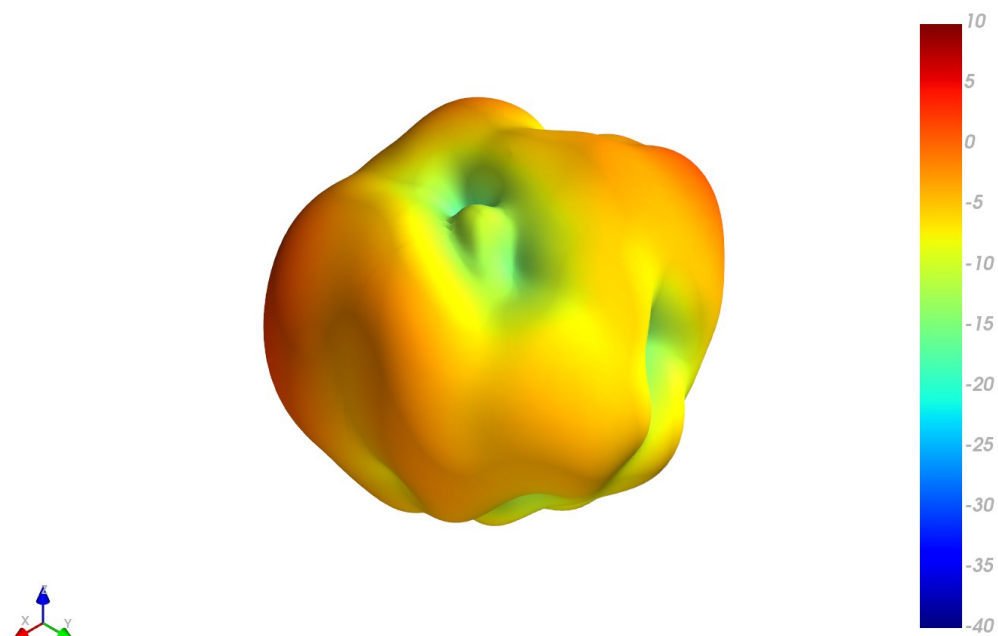
XZ Plane



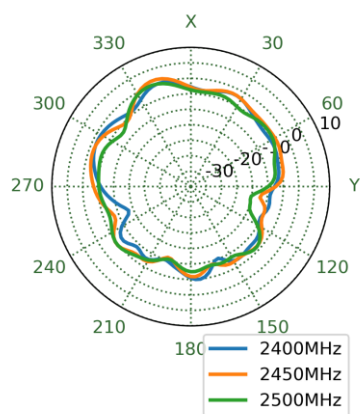
YZ Plane



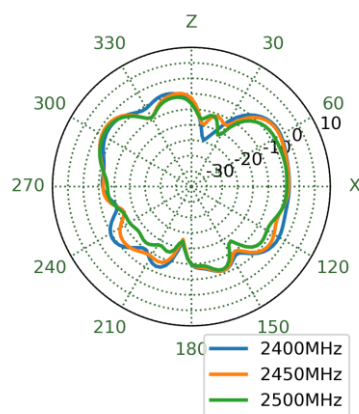
8.64 Wi-Fi-5 - Patterns at 2450 MHz



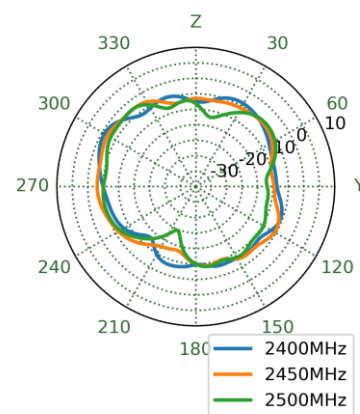
XY Plane



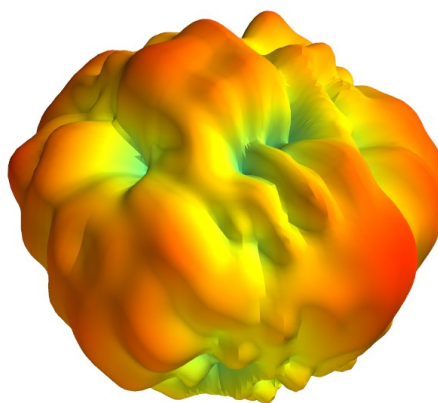
XZ Plane



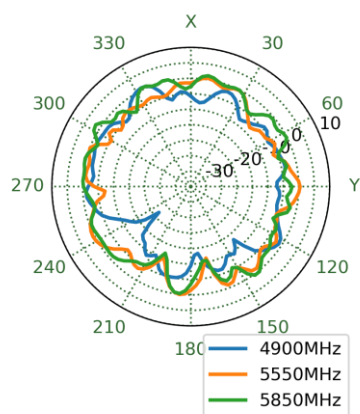
YZ Plane



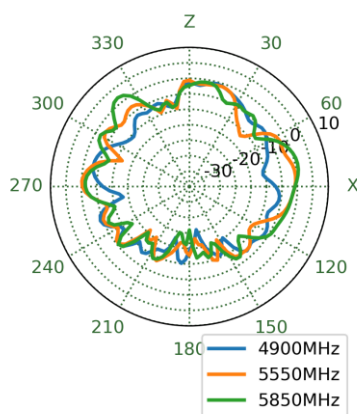
8.65 Wi-Fi-5 - Patterns at 5550 MHz



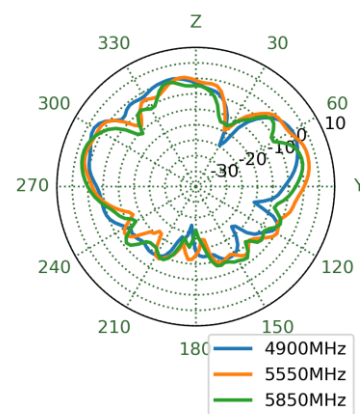
XY Plane



XZ Plane



YZ Plane



Changelog for the datasheet

SPE-24-8-008 - MA8010.A.001

Revision: D (Current Version)	
Date:	2025-12-08
Notes:	Added noise figure to spec table.
Author:	Gary West

Previous Revisions

Revision: C	
Date:	2025-01-13
Notes:	Updated drawing, reference to IK10 rating, product description, reference of PC Material on the enclosure and certification logos.
Author:	Conor McGrath

Revision: B	
Date:	2024-04-17
Notes:	Full datasheet and flow update
Author:	Gary West

Revision: A (Original First Release)	
Date:	2024-01-12
Notes:	Initial Release
Author:	Gary West

