



TAOGLAS®



Datasheet

5G/4G 4*MIMO Cross-Polarized Antenna

Part No:
TGX.04.A.001

Description:

Wideband 450-6000MHz 5G/4G 4*MIMO Cross Polarized Antenna
With Multi-mount Bracket (Wall, Pole and Suction Cup Mounting options)

Features:

- Highest efficiency for 450-6000MHz wideband applications
- Fully 5G/4G Cellular Operational
- Cross Polarized Dipole Antennas
- IP67 Rated Enclosure
- Omnidirectional Gain Patterns leading to better coverage
- Multi-function bracket including Wall, Pole and Glass Mount options
- Cable: 3m TGC-200
- Connector: SMA Male Straight
- Dimensions: 165 * 165 * 149 mm(Including Bracket)
- RoHS & Reach Compliant

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1. Introduction



The Taoglas TGX.04 is a 4* 5G/4G MIMO cross-polarized omnidirectional dipole antenna with a wide bandwidth covering all worldwide sub 6GHz cellular bands from 450 to 6000MHz. It uses four dipole antennas to deliver the best possible throughput and quality improvements in transmitting and receive signal levels, leading to better coverage and performance, especially in urban environments. It is designed for multiple mounting options to allow for a variety of use cases and is supplied with 3m of low loss cable with SMA(M) connectors as standard.

Typical Applications include:

- Agriculture and Rural 5G
- Coverage enhancement systems
- Commercial Transportation
- Connected Enterprise
- Public Safety and First Responder

The TGX.04 design is an evolution of our hugely successful TG.45 antenna design and it is unrivalled in its ability to cover all wideband 5G/4G Sub 6GHz bands. The antenna is tuned for great performance at the recently established 5G NR bands between 3300 - 4200MHz and covers Band 31 (450MHz) and Band 71 (617MHz) at the lower end of the 5G/4G frequency spectrum. High Efficiency and stable Gain is achievable at each band on all 4 MIMO antennas.

The cross polarized antennas' layout also enhances MIMO performance capabilities, thus improving signal quality. This is achieved by positioning the antenna elements orthogonal to each other aligning with the +/- 45-degree polarised signals received from most base station antennas and in turn, enhances throughput capacity giving the user the best possible cellular performance for their device. The TGX.04 has been designed for typical applications including gateways, routers and wireless access points that require, high efficiency and unrivalled performance.

The robust TGX.04 enclosure is IP67 rated and manufactured from ASA for exceptional mechanical performance. The bracket is designed to allow for multiple mounting options, including wall or pole or mounting and it is supplied with suction cups to facilitate glass mounting. All accessories for each mounting option are included with the product. The TGX.04 is an omnidirectional antenna, but the mounting bracket allows the user to position the antenna and lock it into place for optimal performance.

The TGC-200 cable and SMA(M) connector are fully customizable depending on your specific requirements. Contact your regional Taoglas customer support team for more information.



2. Specifications

Electrical									
Band	Frequency (MHz)		Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Max Input Power	Polarization	Radiation Pattern
4G/3G Band 31	430~470	MIMO 1	36.4	-4.39	1.0	50 Ω	10W	Cross Polarized Linear Antennas	Omni-Directional
		MIMO 2	39.5	-4.04	-0.4				
		MIMO 3	37.1	-4.31	-0.2				
		MIMO 4	29.5	-5.3	0.2				
5G NR/4G Band 71	617~698	MIMO 1	32.3	-4.91	0.7				
		MIMO 2	26.7	-5.73	1.1				
		MIMO 3	29	-5.38	-0.6				
		MIMO 4	33.9	-4.7	1.9				
4G/3G Band 12,13,14,17,28,29	698~806	MIMO 1	50	-3.01	2.7				
		MIMO 2	34.3	-4.65	1.9				
		MIMO 3	45.4	-3.43	0.9				
		MIMO 4	50.1	-3	2.3				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824~960	MIMO 1	57.2	-2.42	2.8				
		MIMO 2	50.1	-3	2.7				
		MIMO 3	53.5	-2.72	2.3				
		MIMO 4	37.1	-4.3	2.3				
5G NR/4G Band 21,32,74,75,76	1427~1518	MIMO 1	43	-3.67	2.2				
		MIMO 2	43.7	-3.6	3.1				
		MIMO 3	34.3	-4.65	1.3				
		MIMO 4	38.2	-4.18	2.4				
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710~2200	MIMO 1	49.7	-3.04	3.6				
		MIMO 2	42.1	-3.76	4.2				
		MIMO 3	42.7	-3.69	3.3				
		MIMO 4	48.3	-3.16	2.7				
4G/3G Band 7,30,38,40,41	2300~2690	MIMO 1	38	-4.2	3.7				
		MIMO 2	34	-4.68	4.3				
		MIMO 3	35	-4.56	3.8				
		MIMO 4	37.2	-4.3	3.0				
5G NR/4G Band 22,42,48,77,78,79	3300~5000	MIMO 1	39.7	-4.03	3.5				
		MIMO 2	39.2	-4.08	3.3				
		MIMO 3	38.8	-4.15	3.5				
		MIMO 4	40.6	-3.94	2.8				
LTE5200/ Wi-Fi 5800	5150~5925	MIMO 1	28.7	-5.42	1.6				
		MIMO 2	29	-5.38	2.2				
		MIMO 3	28.5	-5.45	2.3				
		MIMO 4	28.4	-5.47	1.5				

Cross Polar Discrimination (dB) – XPD			
Band	Frequency (MHz)		YZ Plane (Azimuth)
4G/3G Band 31	430~470	MIMO 1	22.58
		MIMO 2	19.76
		MIMO 3	17.03
		MIMO 4	14.80
5GNR/4G Band 71	617~698	MIMO 1	18.80
		MIMO 2	15.56
		MIMO 3	17.29
		MIMO 4	23.60
4G/3G Band 12,13,14,17,28,29	698~806	MIMO 1	25.85
		MIMO 2	23.17
		MIMO 3	16.32
		MIMO 4	24.70
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824~960	MIMO 1	26.24
		MIMO 2	25.46
		MIMO 3	18.42
		MIMO 4	31.80
5GNR/4G Band 21,32,74,75,76	1427~1518	MIMO 1	17.43
		MIMO 2	23.08
		MIMO 3	16.29
		MIMO 4	18.60
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710~2200	MIMO 1	26.31
		MIMO 2	25.16
		MIMO 3	20.84
		MIMO 4	20.40
4G/3G Band 7,30,38,40,41	2300~2690	MIMO 1	25.88
		MIMO 2	29.85
		MIMO 3	17.93
		MIMO 4	18.80
5GNR/4G Band 22,42,48,77,78,79	3300~5000	MIMO 1	26.0
		MIMO 2	26.5
		MIMO 3	20.2
		MIMO 4	19.0
LTE5200/ Wi-Fi 5800	5150~5925	MIMO 1	24.57
		MIMO 2	18.44
		MIMO 3	24.07
		MIMO 4	18.50

*XPD is the average of the maximum Cross Polar Discrimination at each frequency band

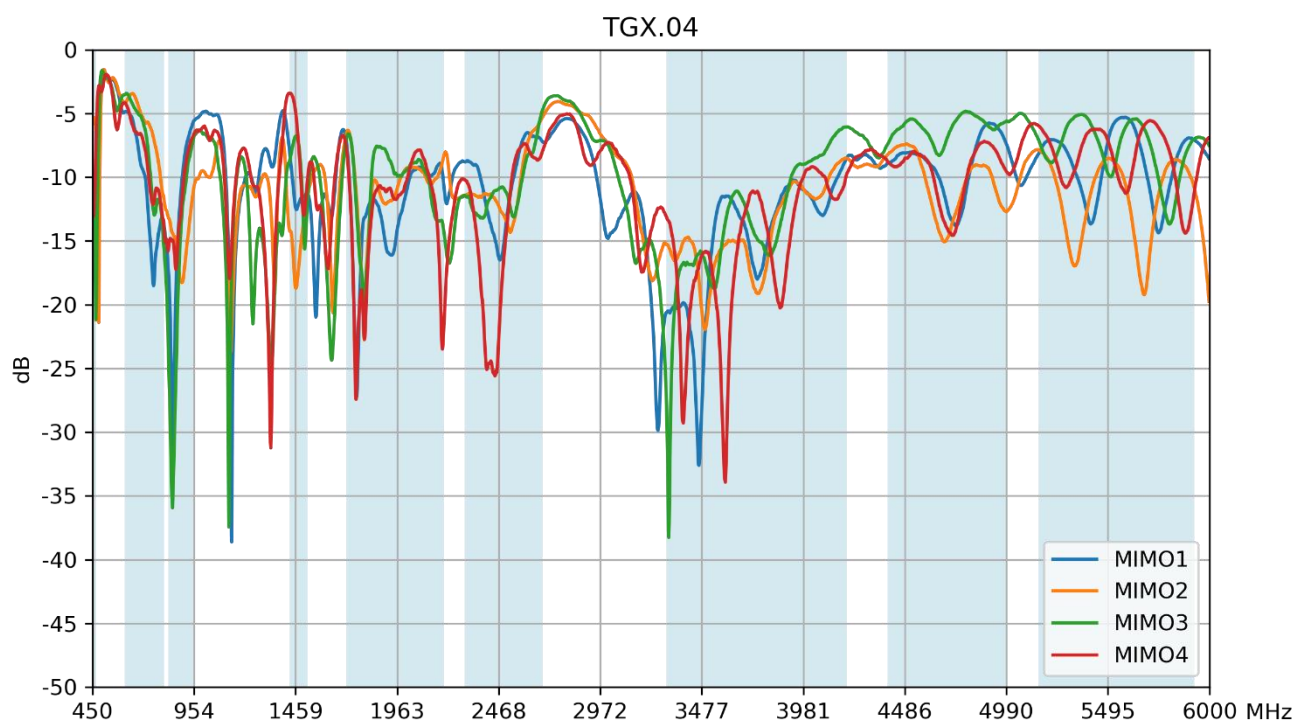
Mechanical	
Dimensions	165*165* 149mm
Weight	900g
Plastic Material	ASA
Waterproof Rating	IP67
Cable	3m TGC-200
Connector	SMA (M) Straight
Environmental	
Temperature Range	-40°C to 85°C

5G/4G Bands			
Band Number	5G NR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA		
	Uplink	Downlink	Covered
1	UL: 1920 to 1980	DL: 2110 to 2170	✓
2	UL: 1850 to 1910	DL: 1930 to 1990	✓
3	UL: 1710 to 1785	DL: 1805 to 1880	✓
4	UL: 1710 to 1755	DL: 2110 to 2155	✓
5	UL: 824 to 849	DL: 869 to 894	✓
7	UL: 2500 to 2570	DL: 2620 to 2690	✓
8	UL: 880 to 915	DL: 925 to 960	✓
9	UL: 1749.9 to 1784.9	DL: 1844.9 to 1879.9	✓
11	UL: 1427.9 to 1447.9	DL: 1475.9 to 1495.9	✓
12	UL: 699 to 716	DL: 729 to 746	✓
13	UL: 777 to 787	DL: 746 to 756	✓
14	UL: 788 to 798	DL: 758 to 768	✓
17	UL: 704 to 716	DL: 734 to 746	✓
18	UL: 815 to 830	DL: 860 to 875	✓
19	UL: 830 to 845	DL: 875 to 890	✓
20	UL: 832 to 862	DL: 791 to 821	✓
21	UL: 1447.9 to 1462.9	DL: 1495.9 to 1510.9	✓
22	UL: 3410 to 3490	DL: 3510 to 3590	✓
23	UL: 2000 to 2020	DL: 2180 to 2200	✓
24	UL: 1625.5 to 1660.5	DL: 1525 to 1559	✓
25	UL: 1850 to 1915	DL: 1930 to 1995	✓
26	UL: 814 to 849	DL: 859 to 894	✓
27	UL: 807 to 824	DL: 852 to 869	✓
28	UL: 703 to 748	DL: 758 to 803	✓
29	UL: -	DL: 717 to 728	✓
30	UL: 2305 to 2315	DL: 2350 to 2360	✓
31	UL: 452.5 to 457.5	DL: 462.5 to 467.5	✓
32	UL: -	DL: 1452 - 1496	✓
35		1850 to 1910	✓
38		2570 to 2620	✓
39		1880 to 1920	✓
40		2300 to 2400	✓
41		2496 to 2690	✓
42		3400 to 3600	✓
43		3600 to 3800	✓
48		3550 to 3700	✓
66	UL: 1710-1780	DL: 2110-2200	✓
71		617 to 698	✓
74/75/76		1427 to 1518	✓
77		3300 to 4200	✓
78		3300 to 3800	✓
79		4400 to 5000	✓

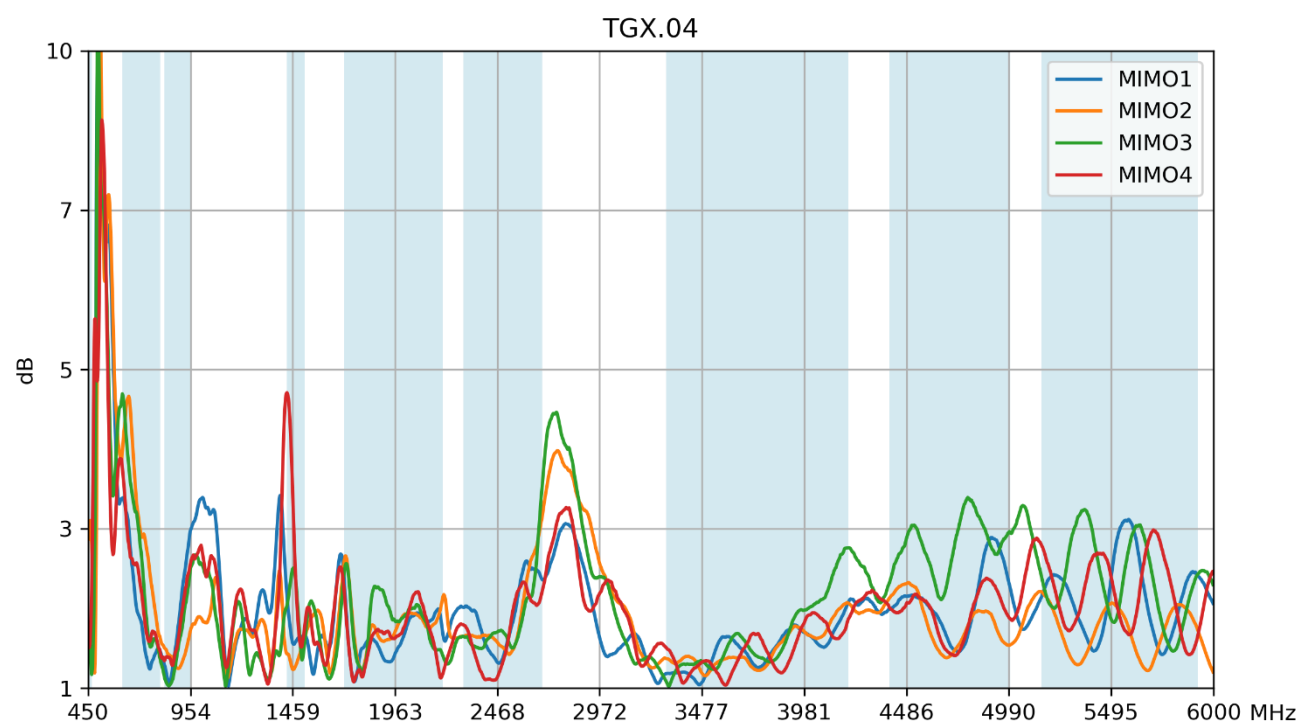
*Tested with 3m Cable in Free Space

3. Antenna Characteristics

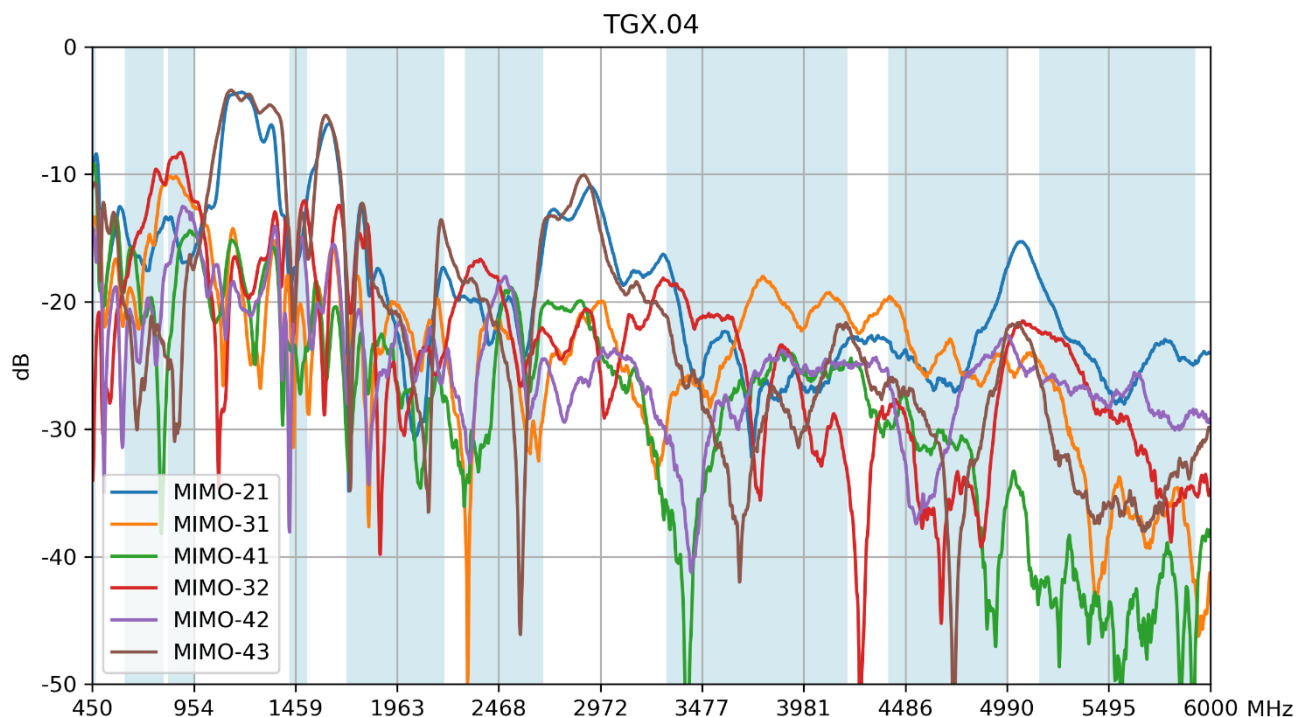
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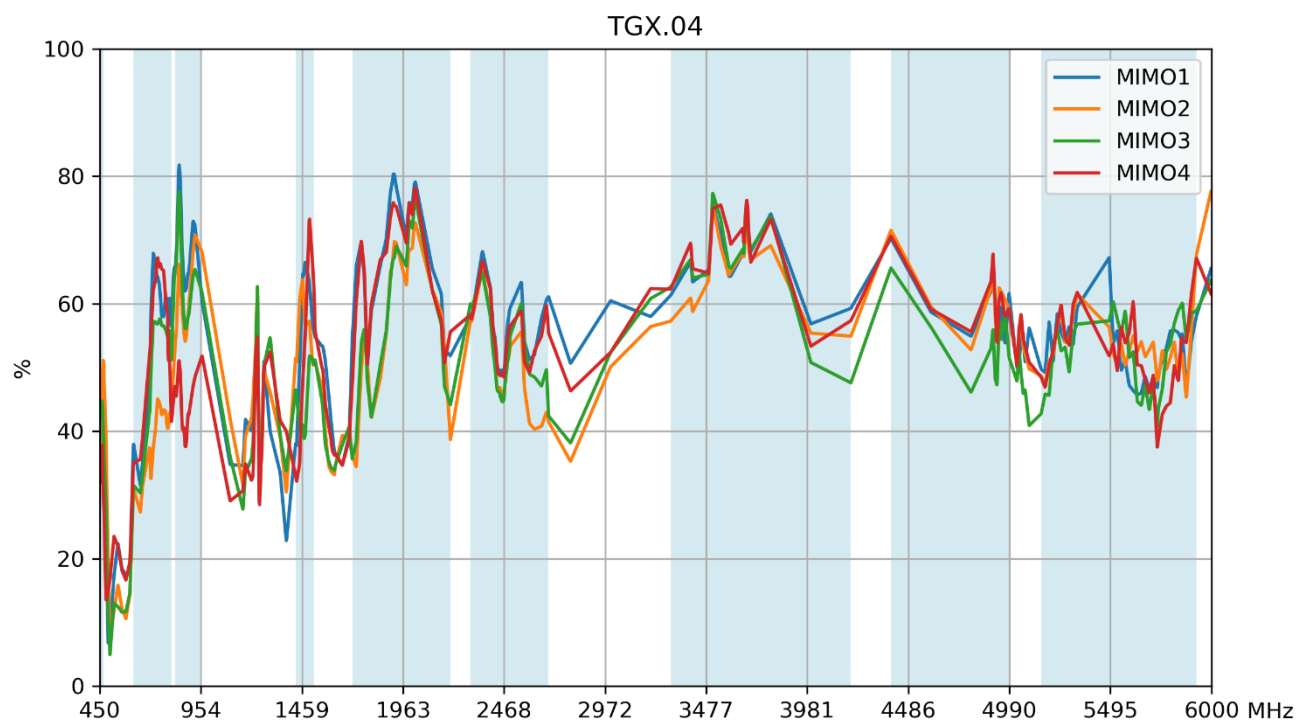
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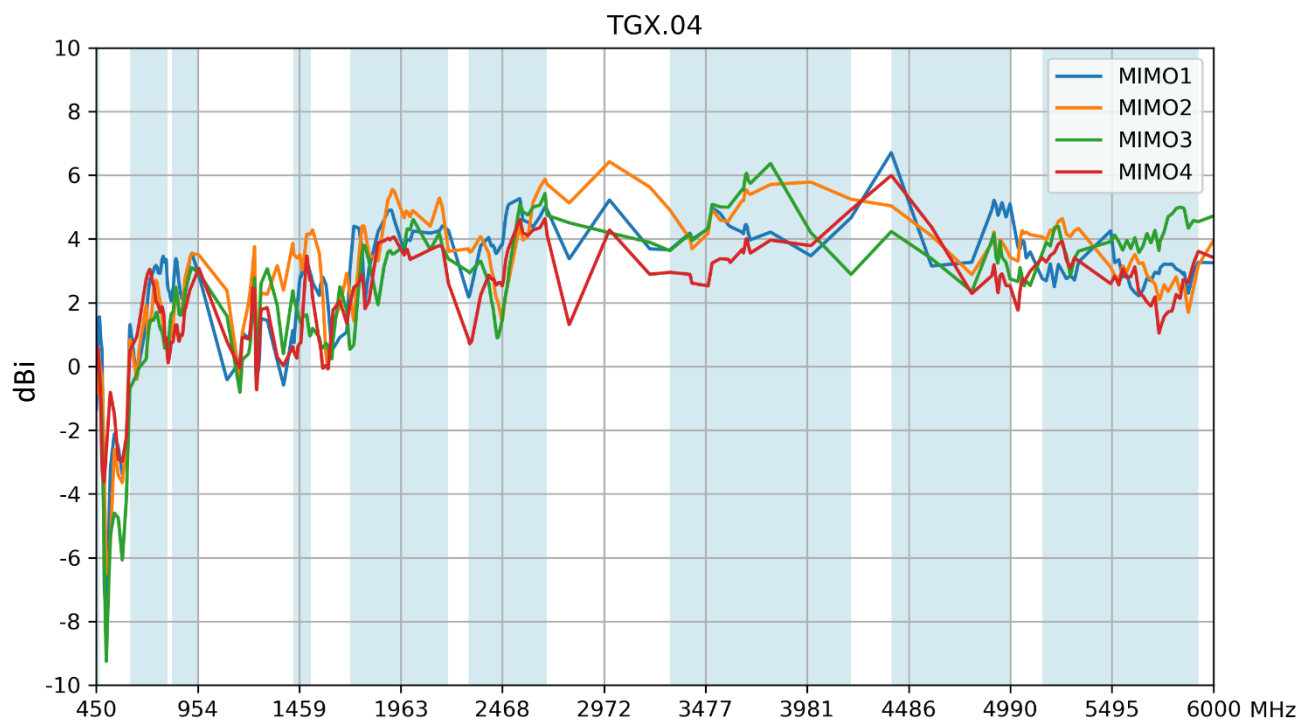
3.3 Isolation



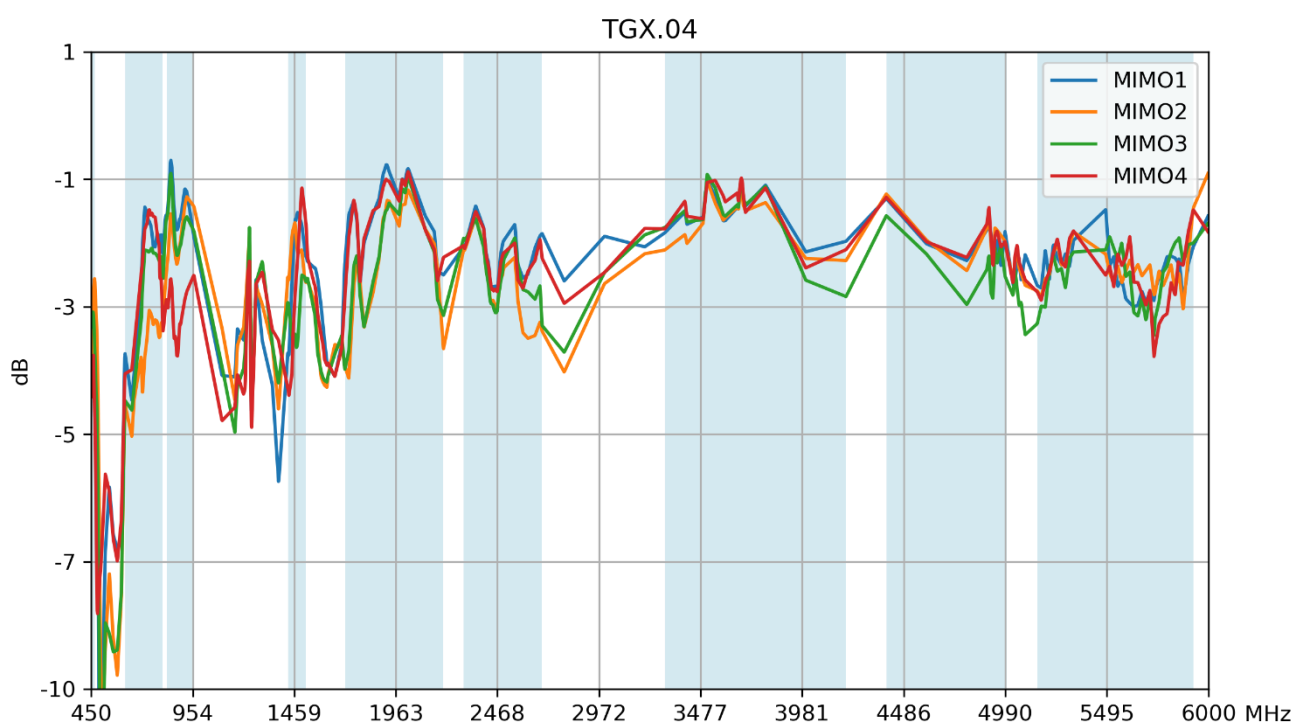
3.4 Efficiency



3.5 Peak Gain

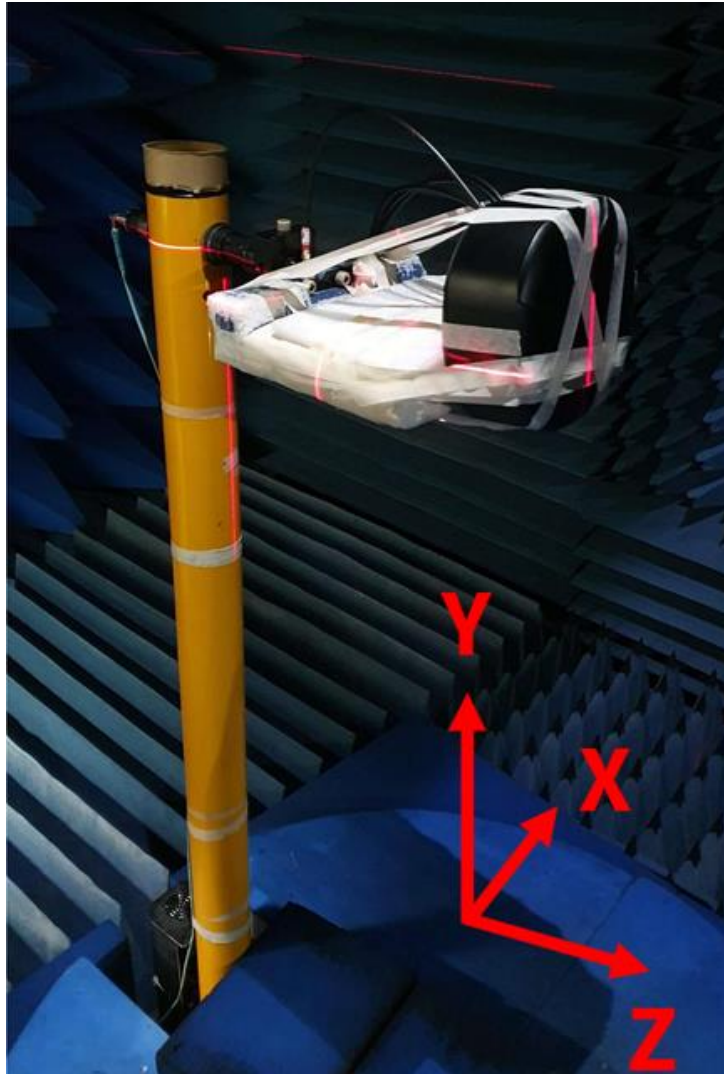


3.6 Average Gain



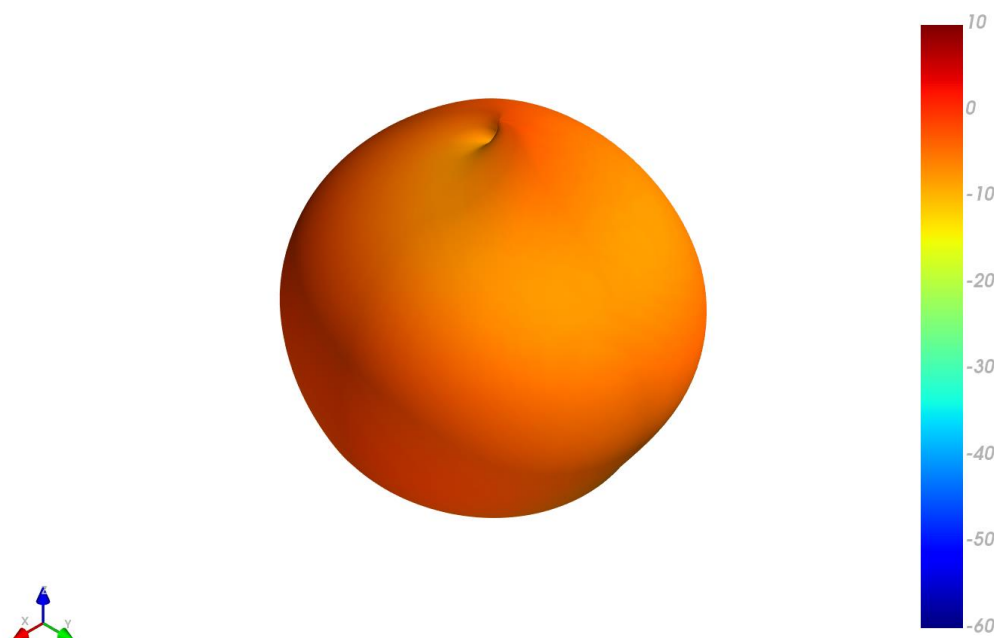
4. Radiation Patterns

4.1 Test Setup – in Free Space

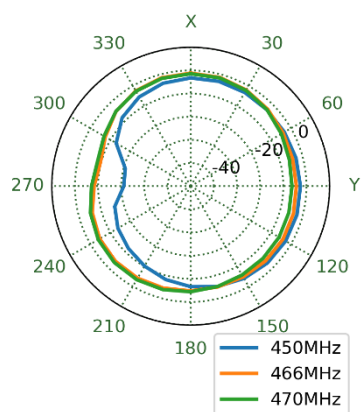


4.2 3D and 2D Radiation Patterns – MIMO 1

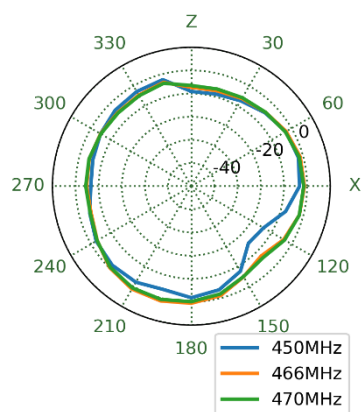
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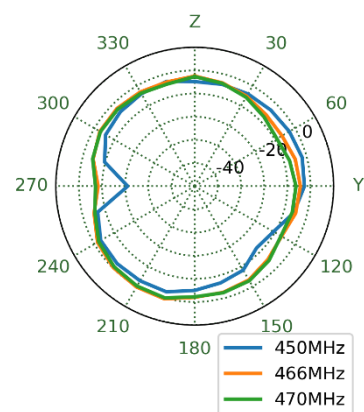
XY Plane



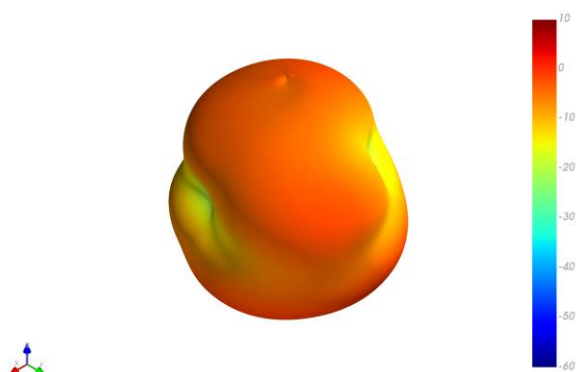
XZ Plane



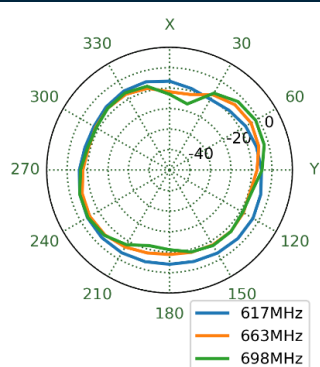
YZ Plane



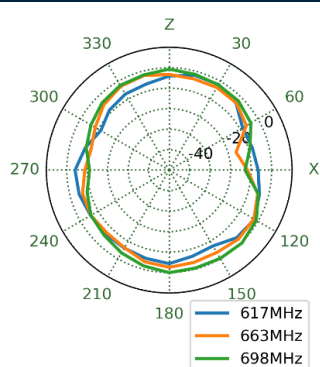
663MHz



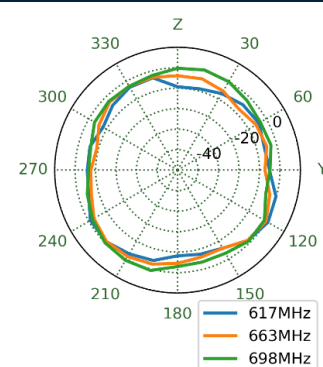
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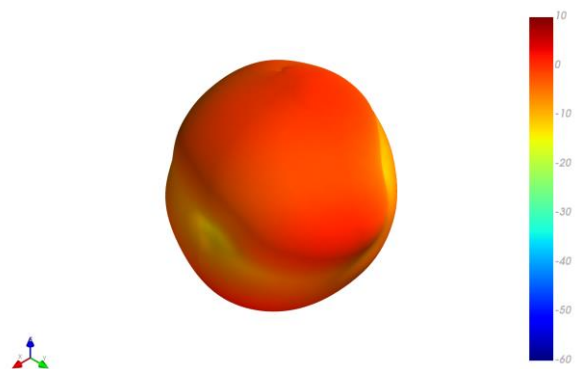
XZ Plane



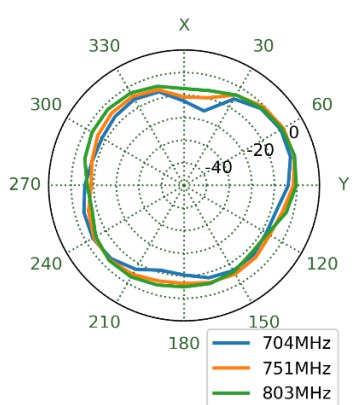
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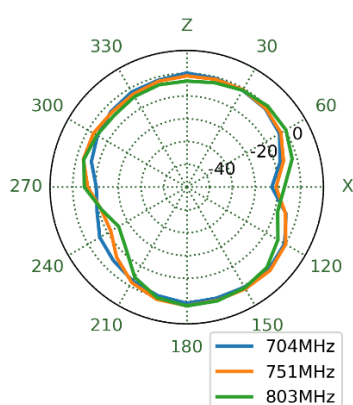
751MHz



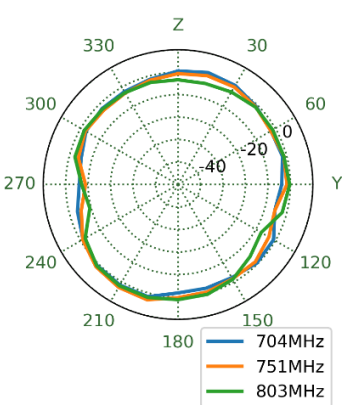
XY Plane



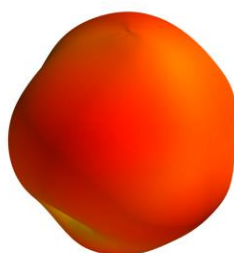
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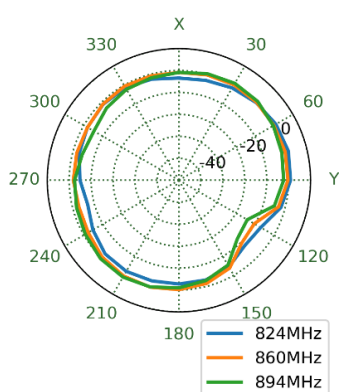
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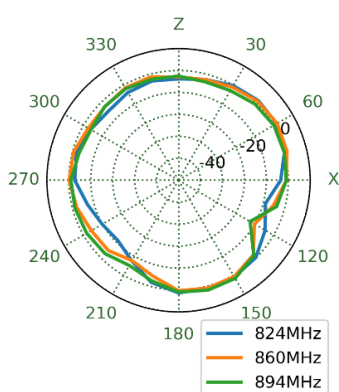
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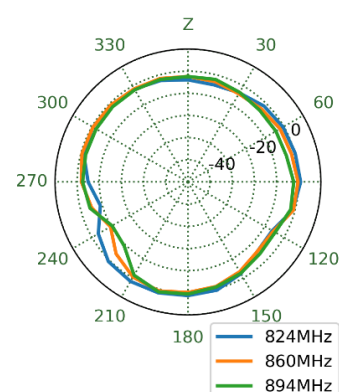
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XZ Plane



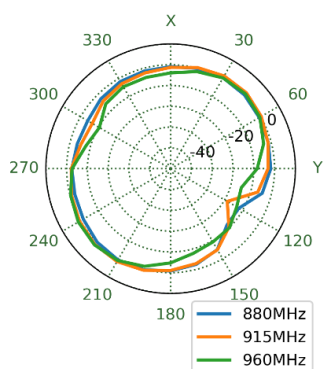
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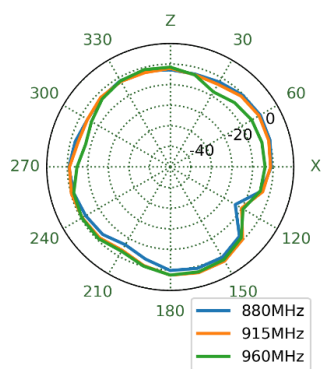
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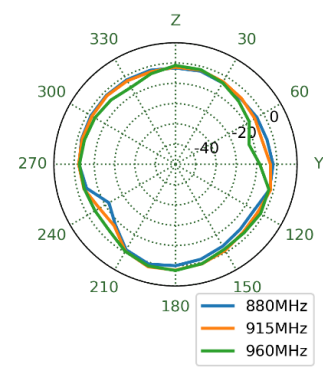
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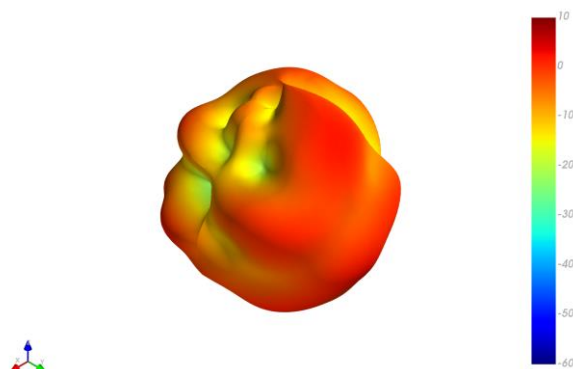
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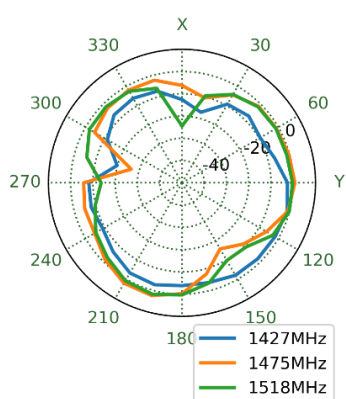
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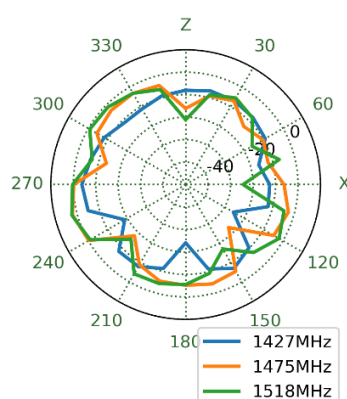
1475MHz



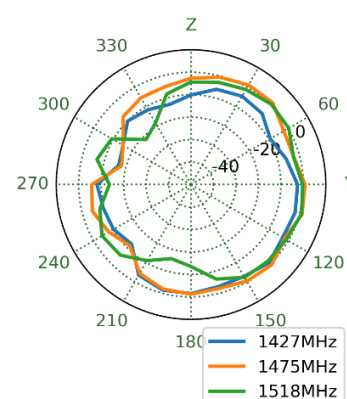
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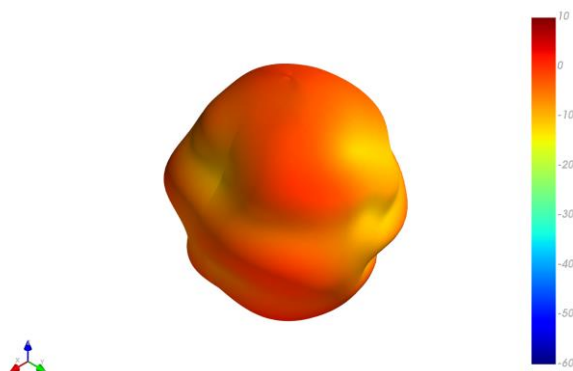
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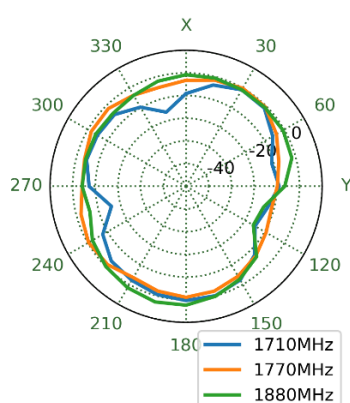
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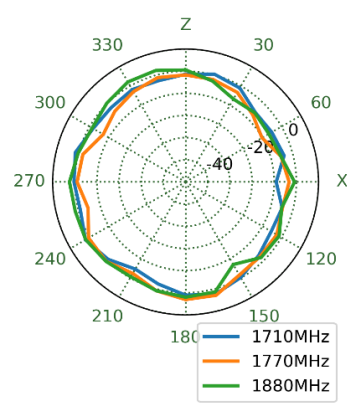
1770MHz



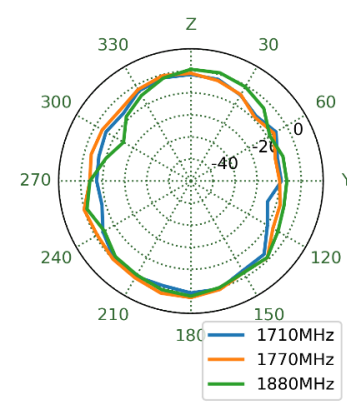
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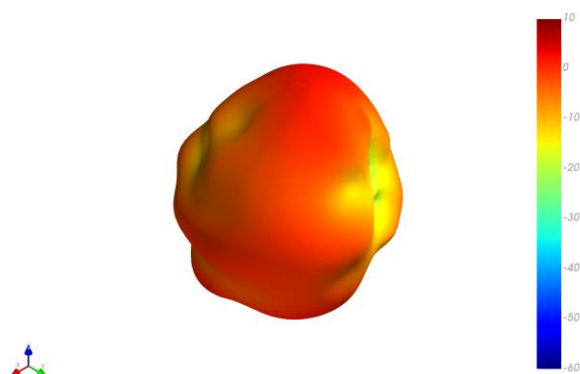
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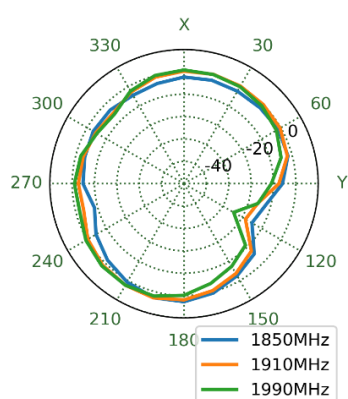
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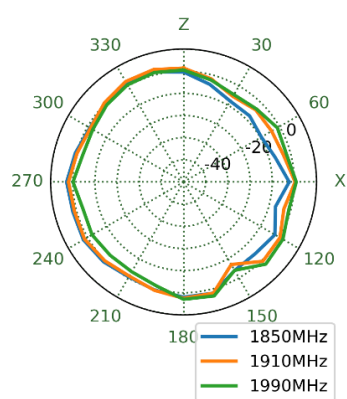
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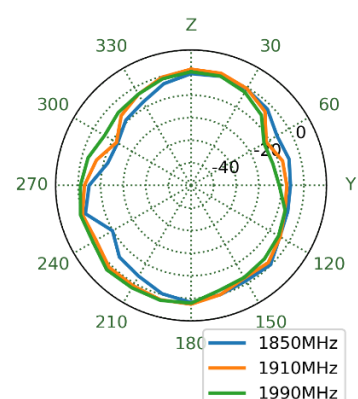
XY Plane



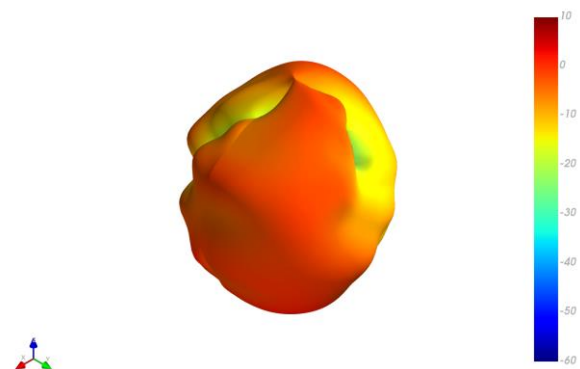
XZ Plane



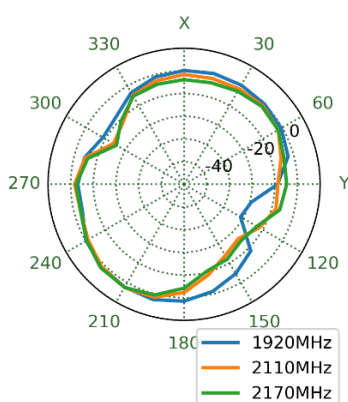
YZ Plane



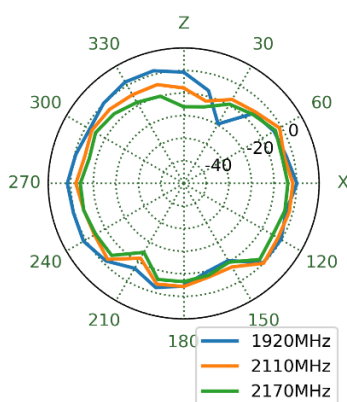
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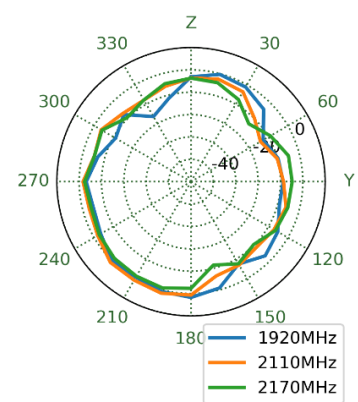
XY Plane



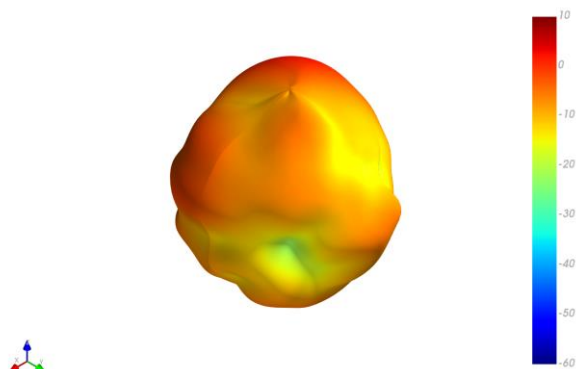
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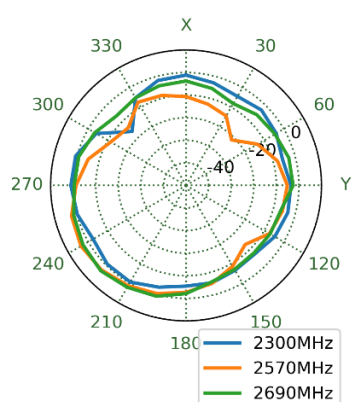
YZ Plane



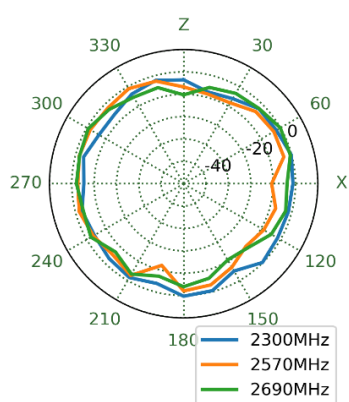
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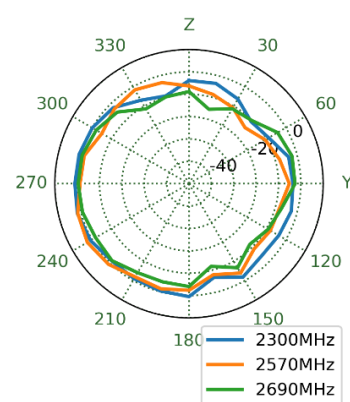
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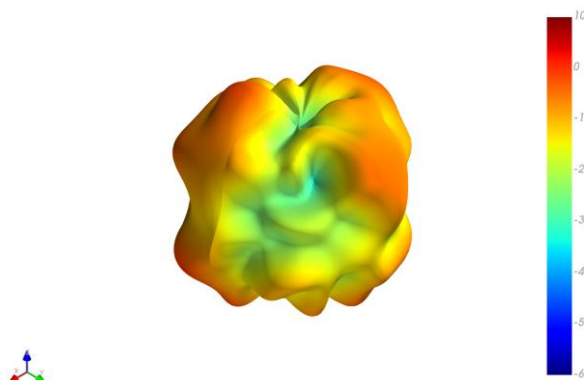
XZ Plane



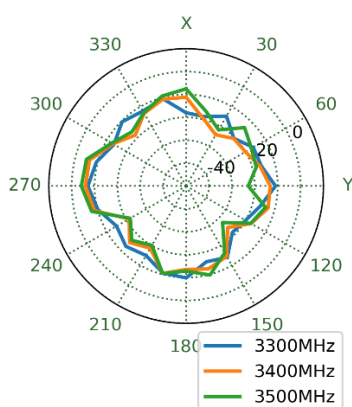
YZ Plane



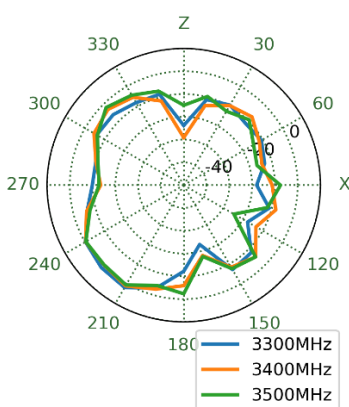
3400MHz



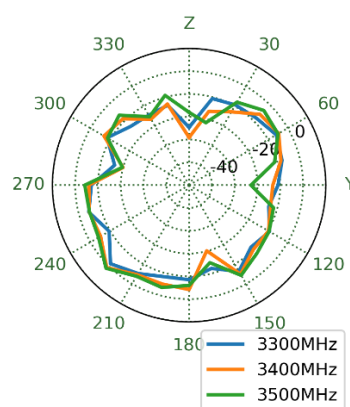
XY Plane



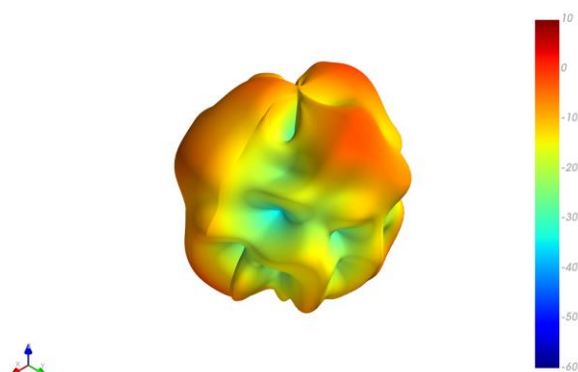
XZ Plane



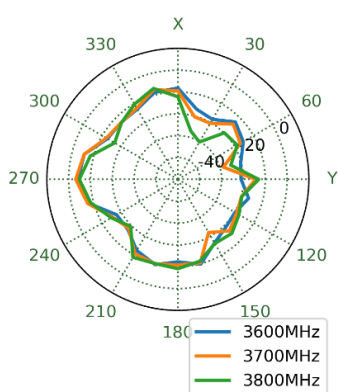
YZ Plane



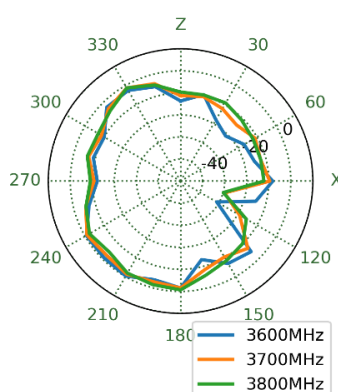
3700MHz



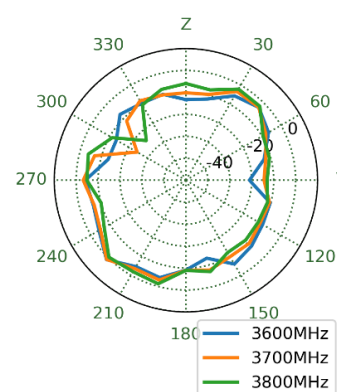
XY Plane



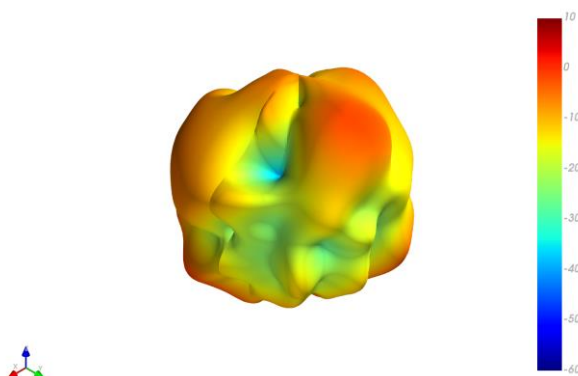
XZ Plane



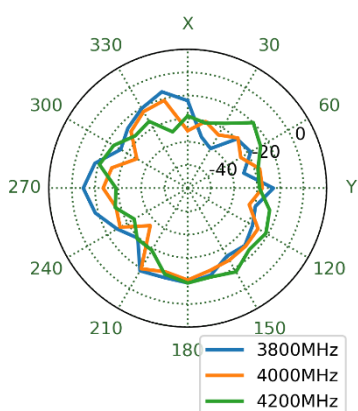
YZ Plane



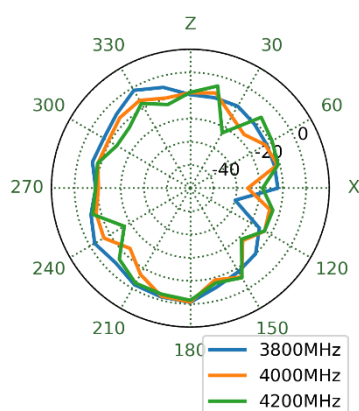
4000MHz



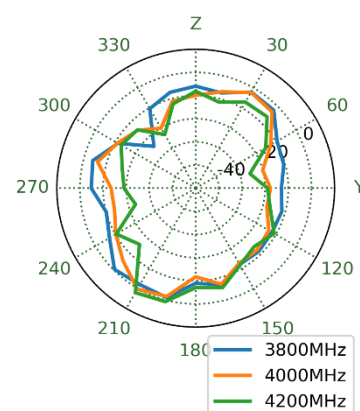
XY Plane



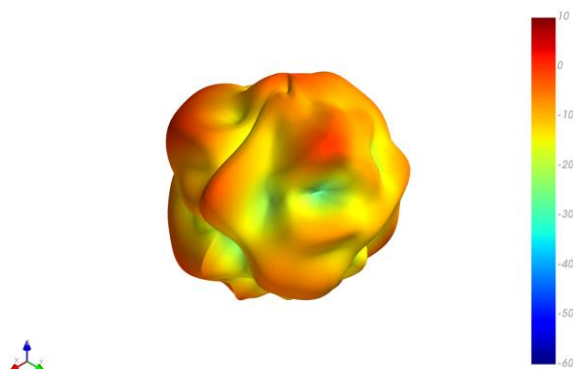
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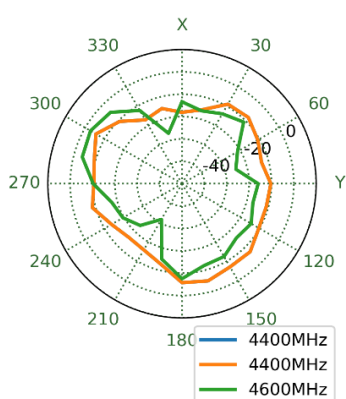
YZ Plane



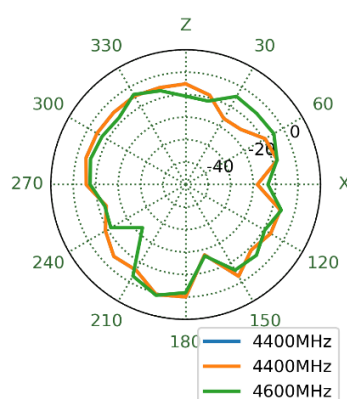
4400MHz



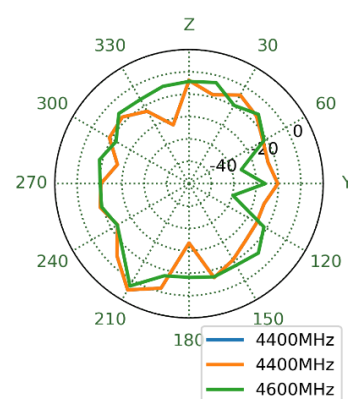
XY Plane



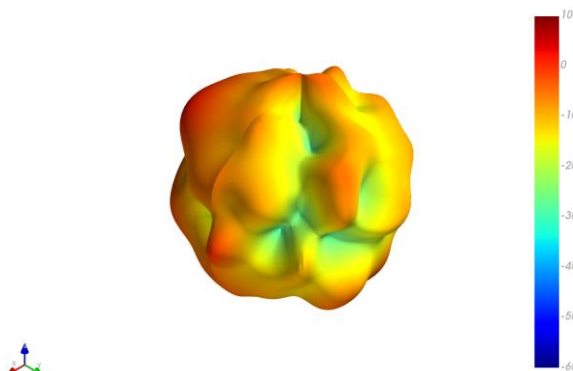
XZ Plane



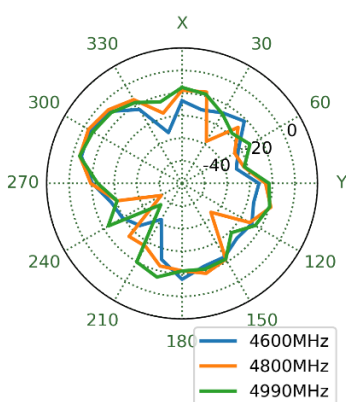
YZ Plane



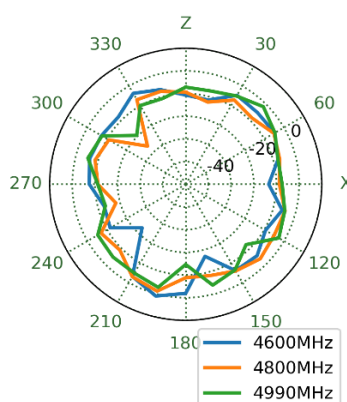
4800MHz



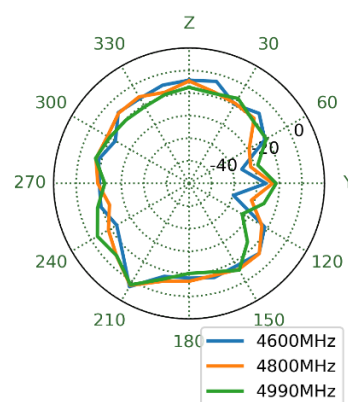
XY Plane



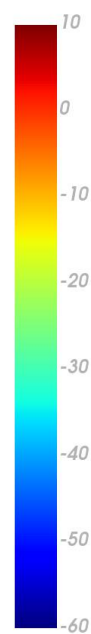
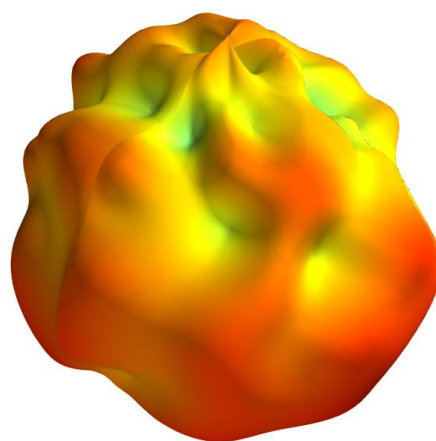
XZ Plane



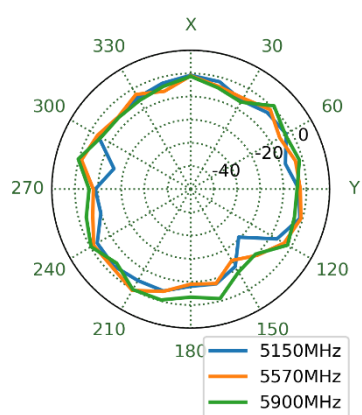
YZ Plane



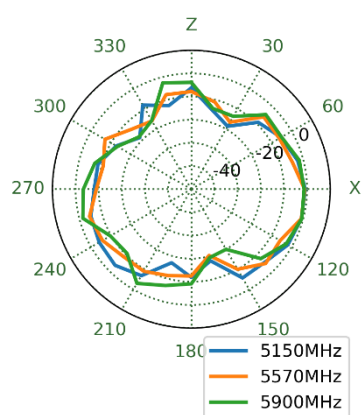
5570MHz



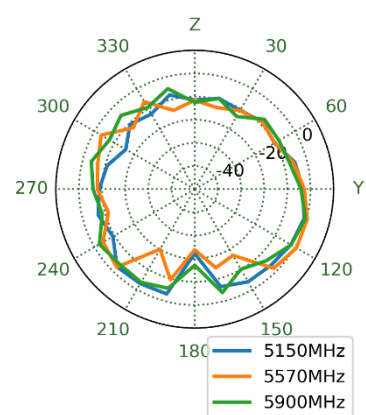
XY Plane



XZ Plane

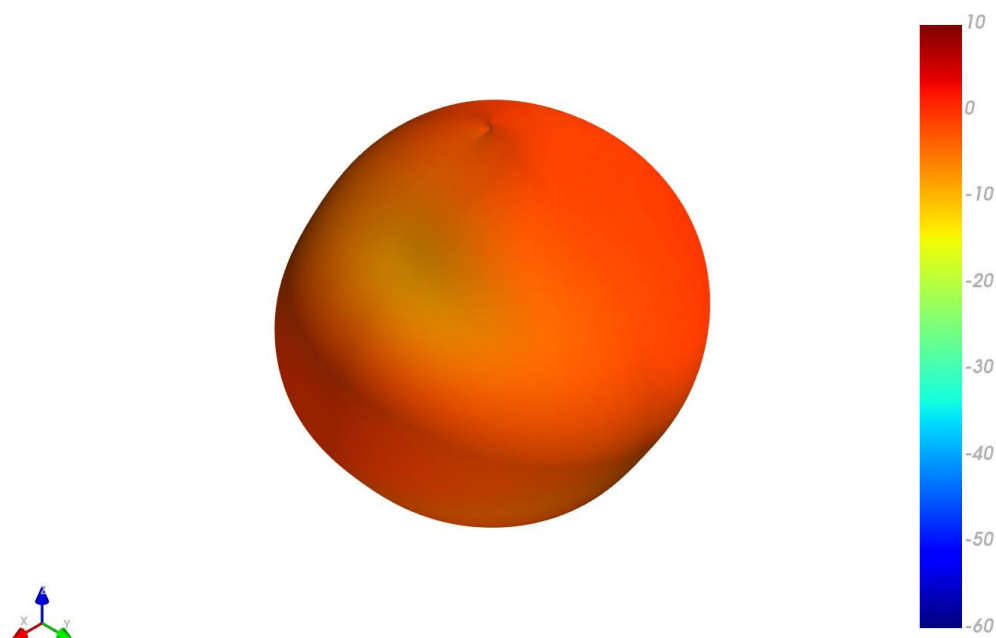


YZ Plane

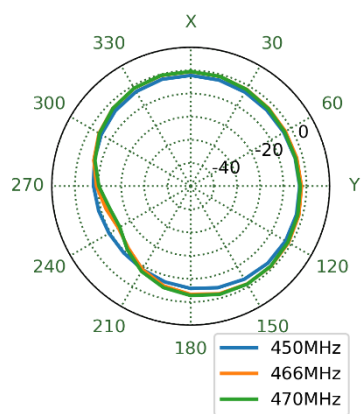


4.3 3D and 2D Radiation Patterns – MIMO 2

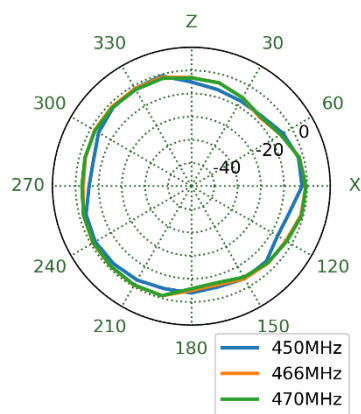
466MHz



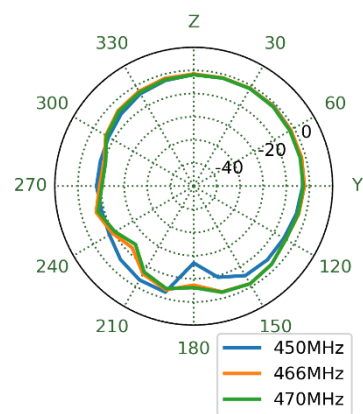
XY Plane



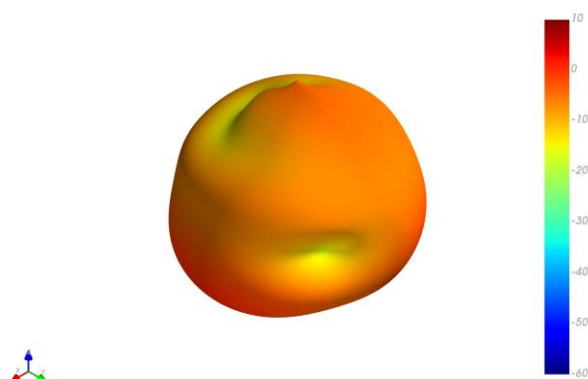
XZ Plane



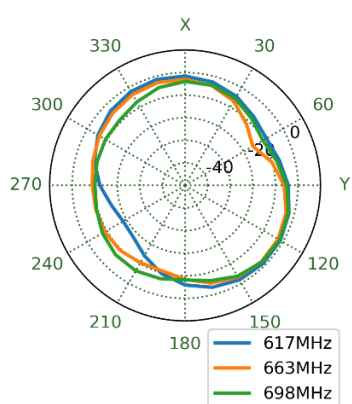
YZ Plane



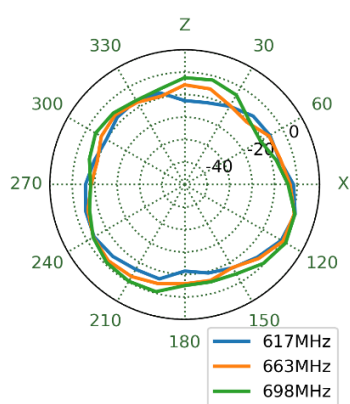
663MHz



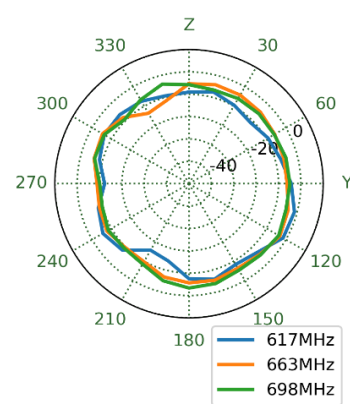
XY Plane



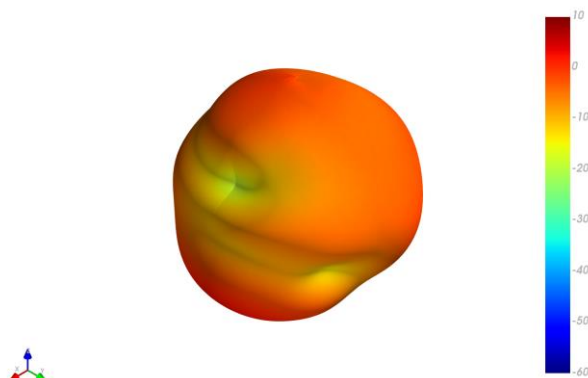
XZ Plane



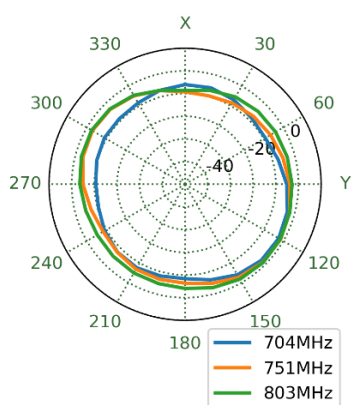
YZ Plane



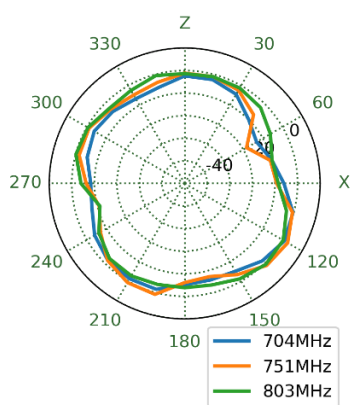
751MHz



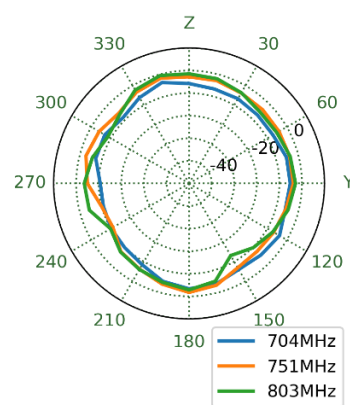
XY Plane



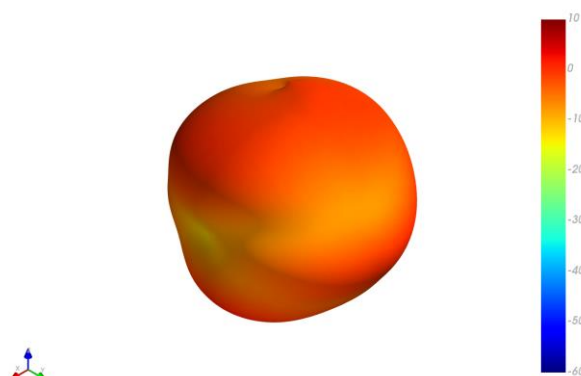
XZ Plane



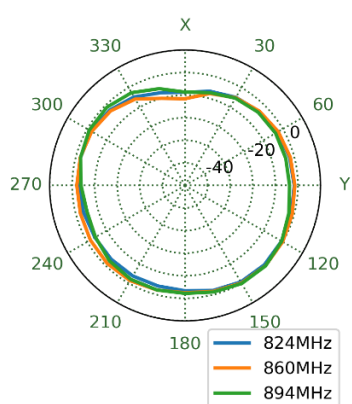
YZ Plane



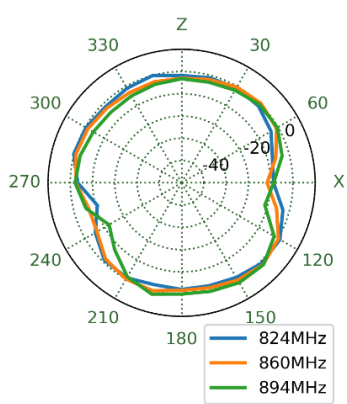
860MHz



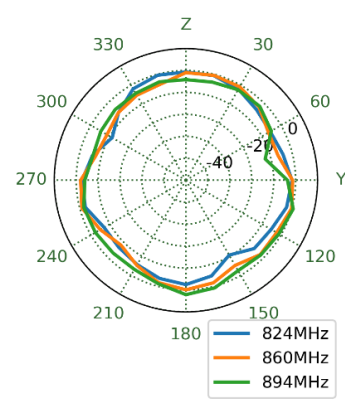
XY Plane



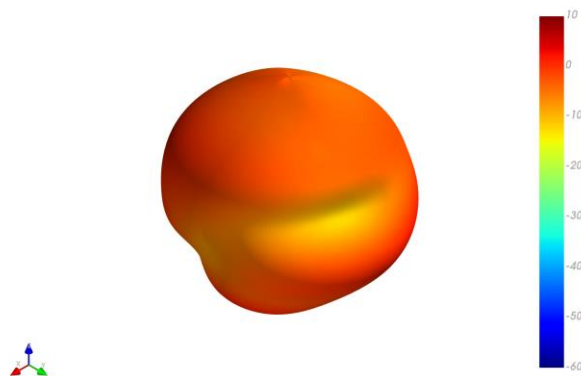
XZ Plane



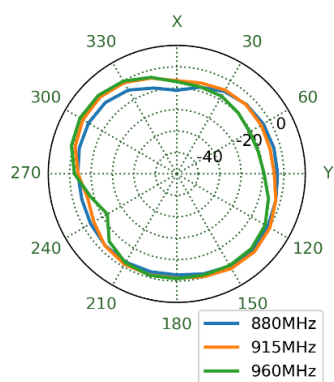
YZ Plane



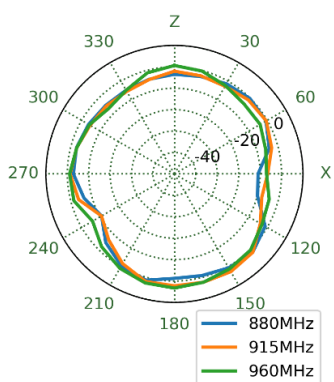
915MHz



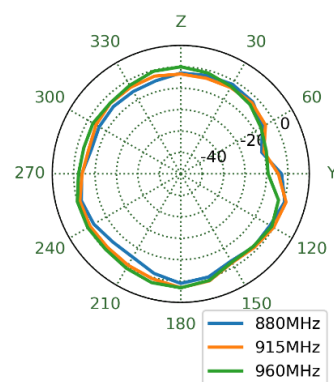
XY Plane



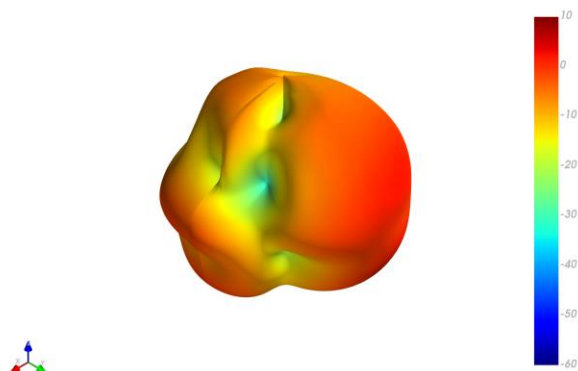
XZ Plane



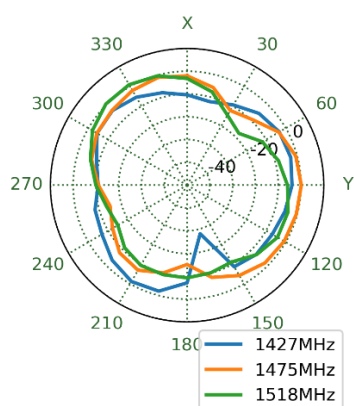
YZ Plane



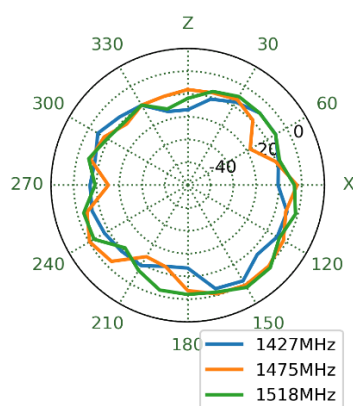
1475MHz



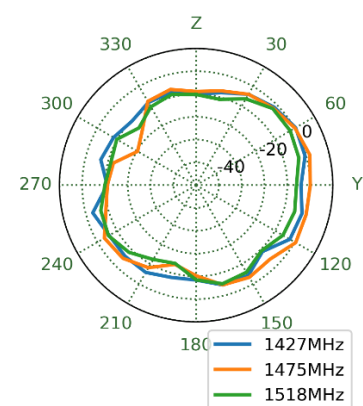
XY Plane



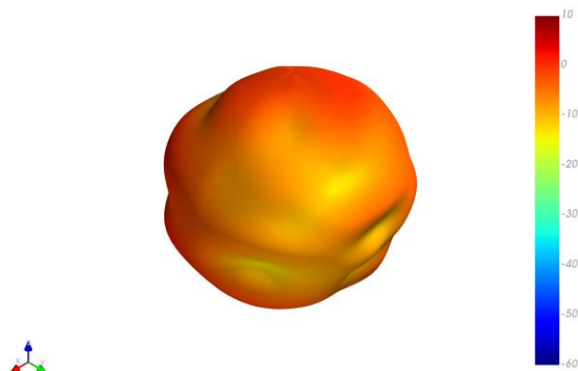
XZ Plane



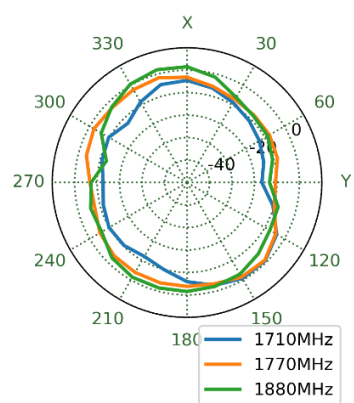
YZ Plane



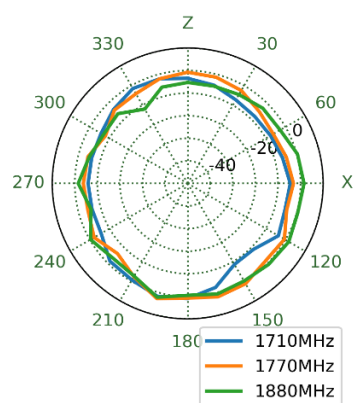
1770MHz



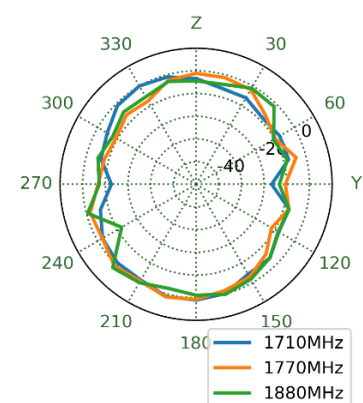
XY Plane



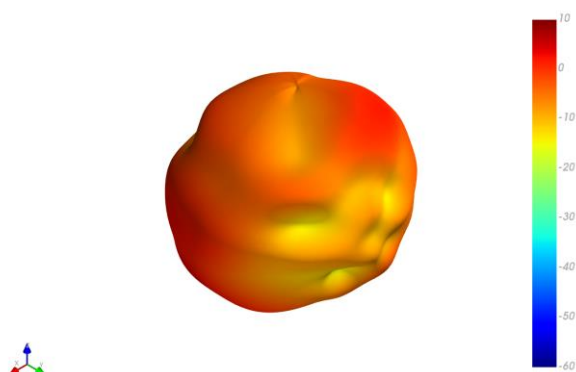
XZ Plane



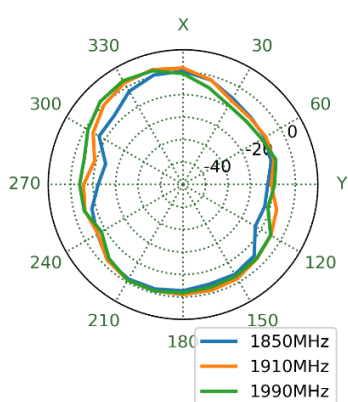
YZ Plane



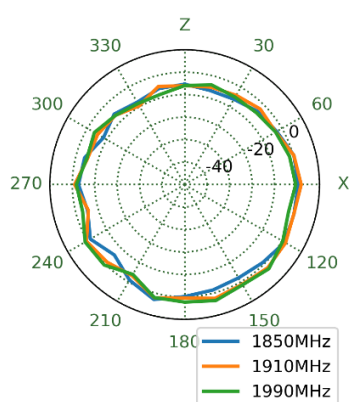
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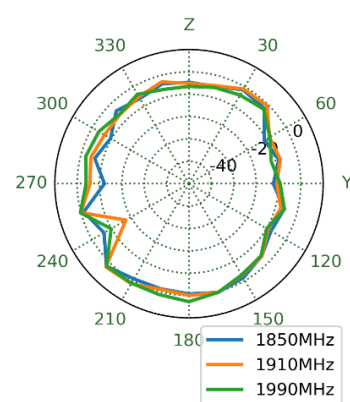
XY Plane



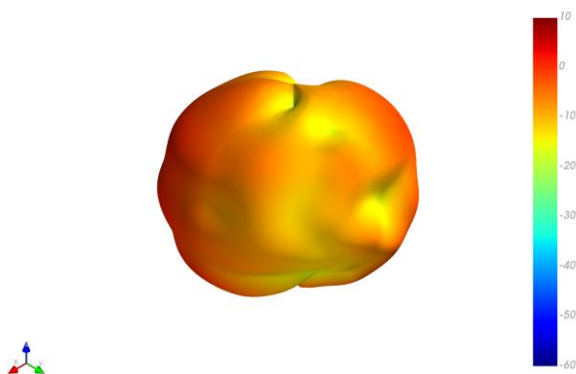
XZ Plane



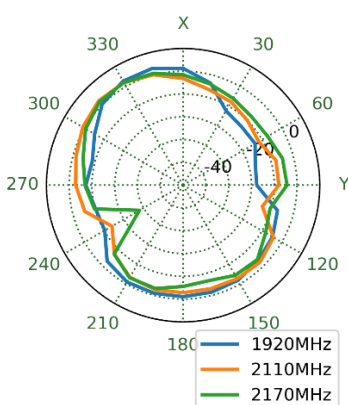
YZ Plane



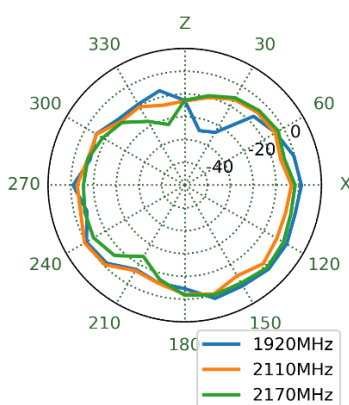
2110MHz



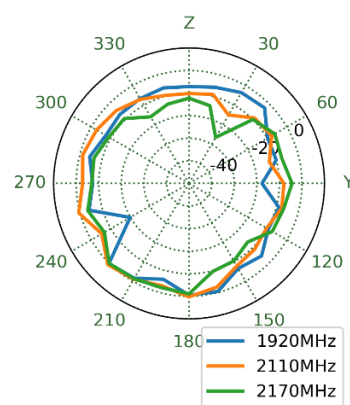
XY Plane



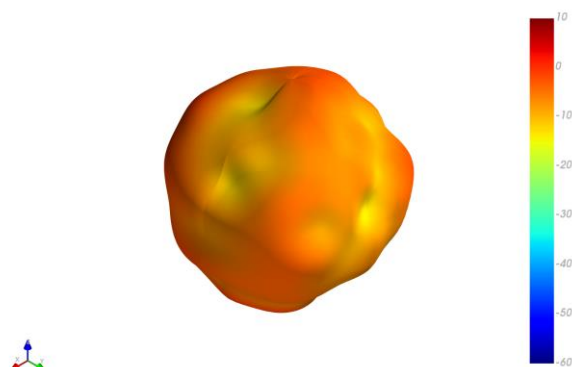
XZ Plane



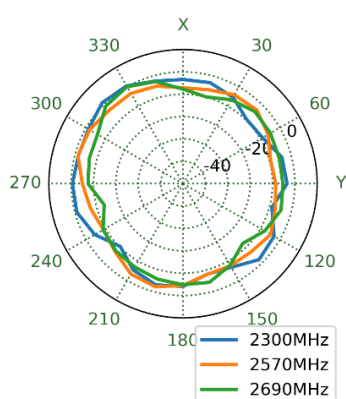
YZ Plane



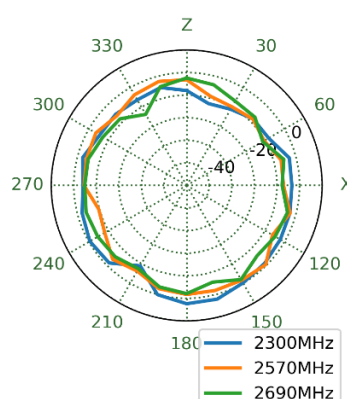
2570MHz



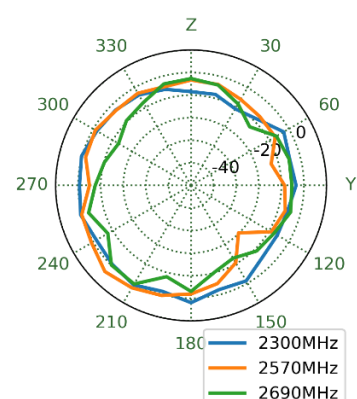
XY Plane



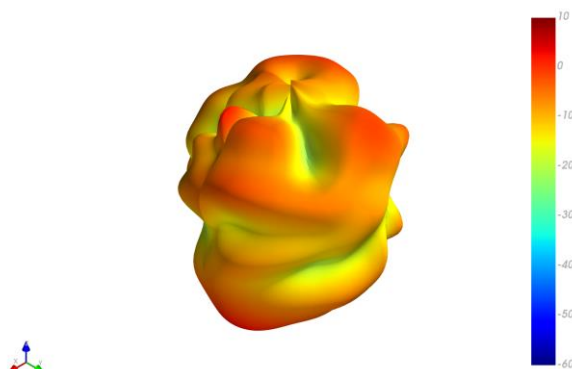
XZ Plane



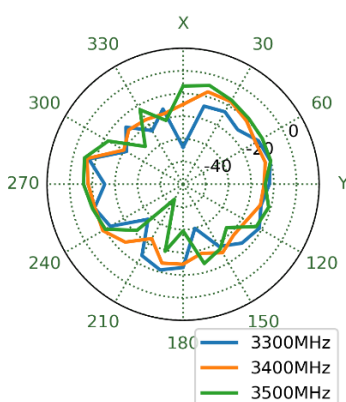
YZ Plane



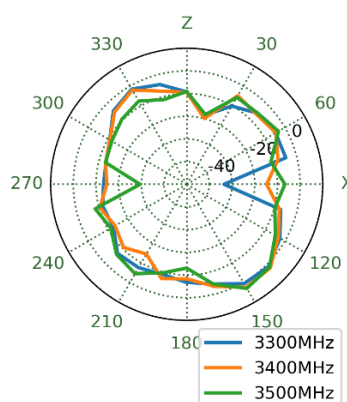
3400MHz



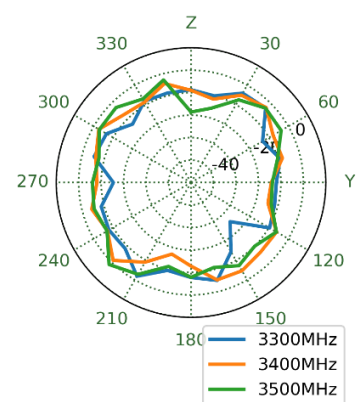
XY Plane



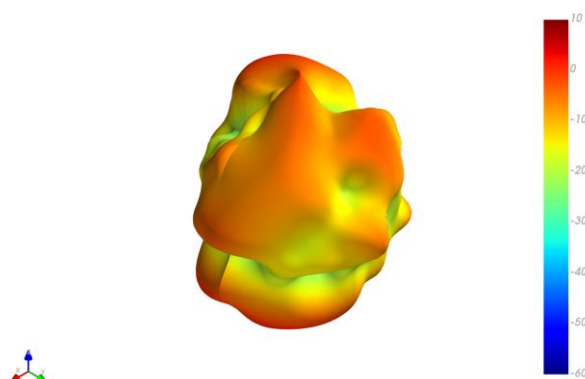
XZ Plane



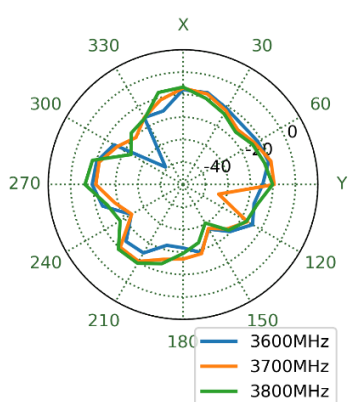
YZ Plane



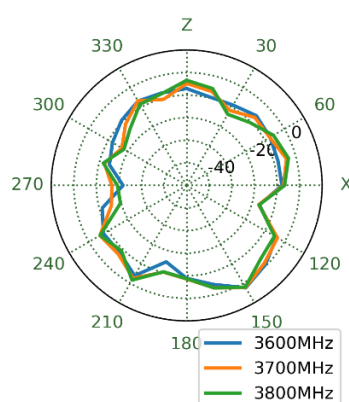
3700MHz



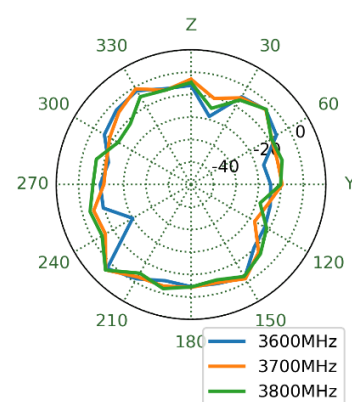
XY Plane



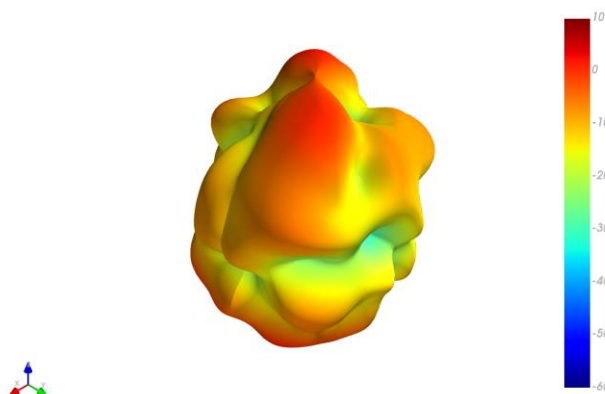
XZ Plane



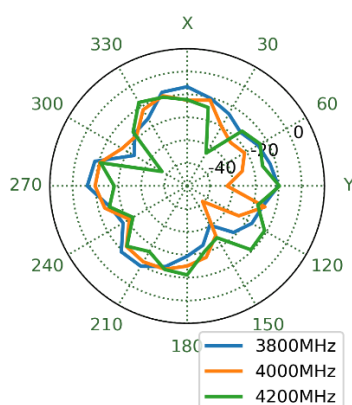
YZ Plane



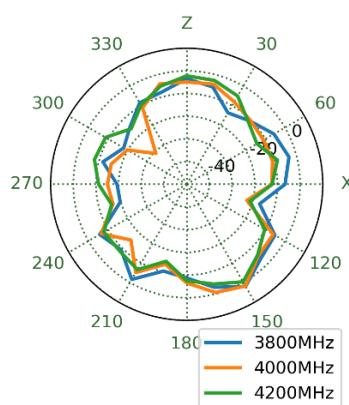
4000MHz



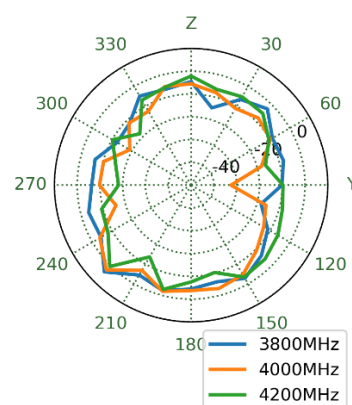
XY Plane



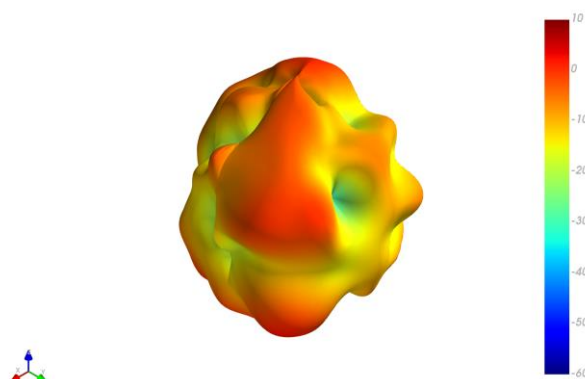
XZ Plane



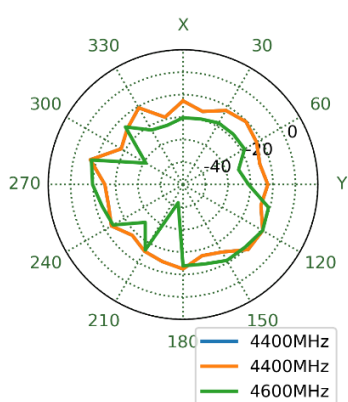
YZ Plane



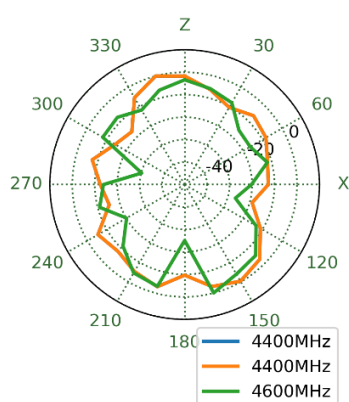
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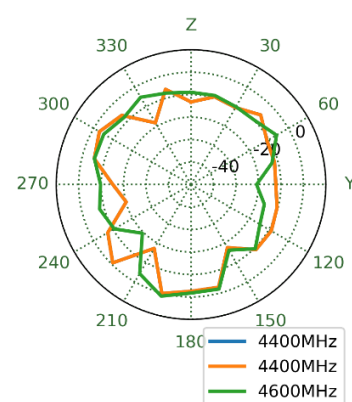
XY Plane



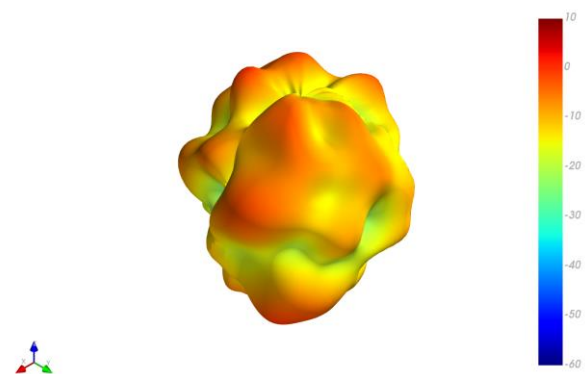
XZ Plane



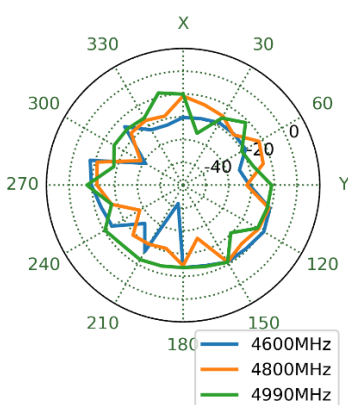
YZ Plane



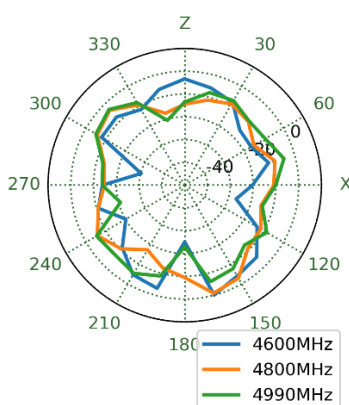
4800MHz



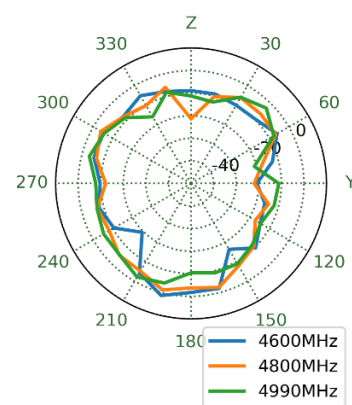
XY Plane



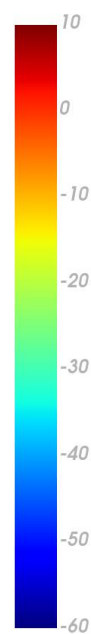
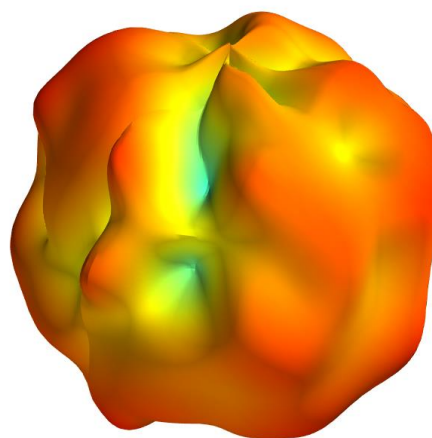
XZ Plane



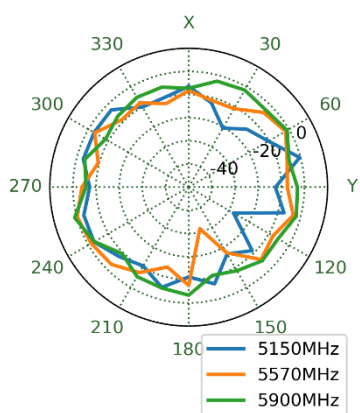
YZ Plane



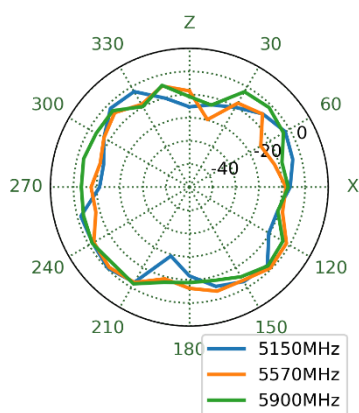
5570MHz



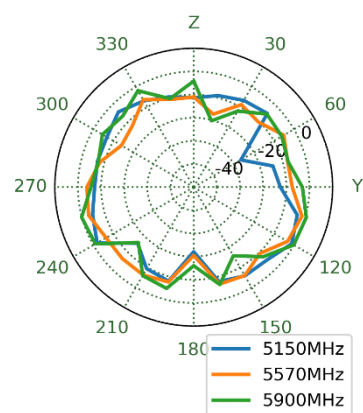
XY Plane



XZ Plane

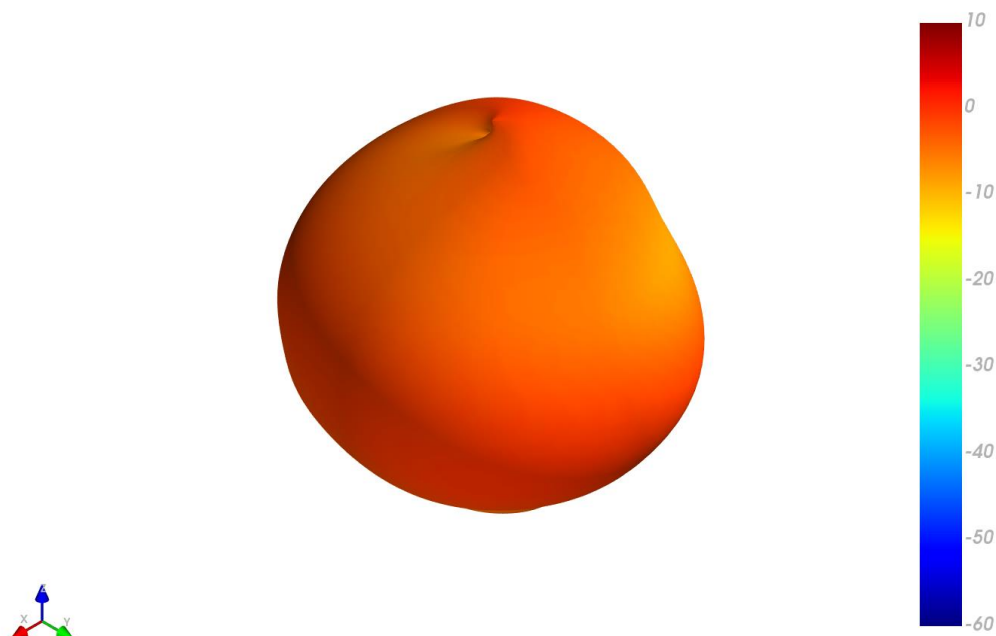


YZ Plane

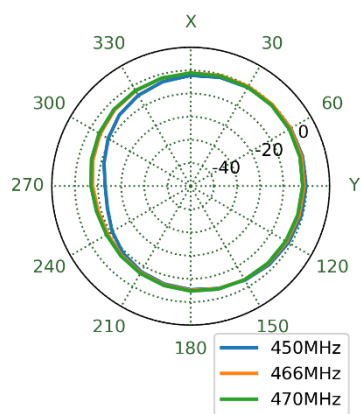


4.4 3D and 2D Radiation Patterns – MIMO 3

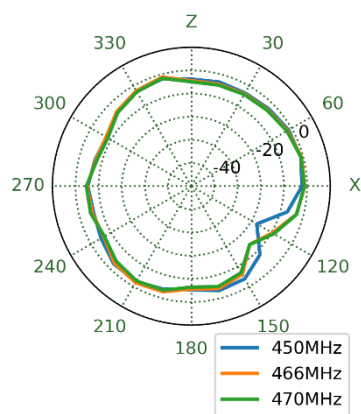
466MHz



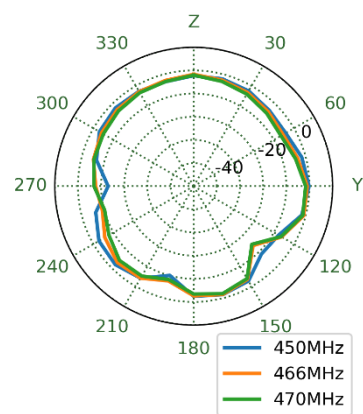
XY Plane



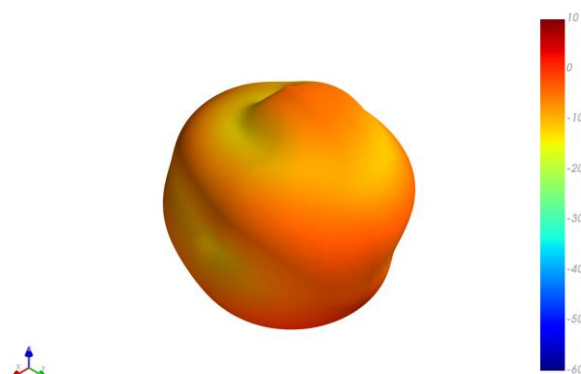
XZ Plane



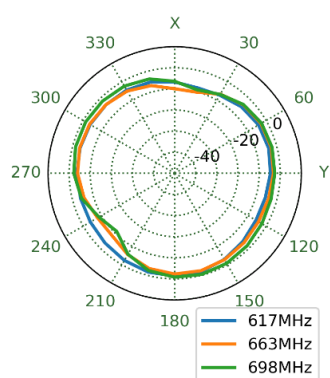
YZ Plane



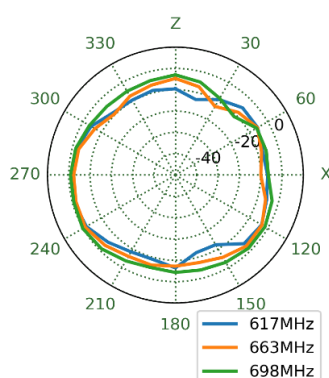
663MHz



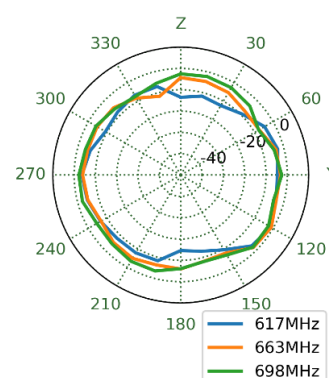
XY Plane



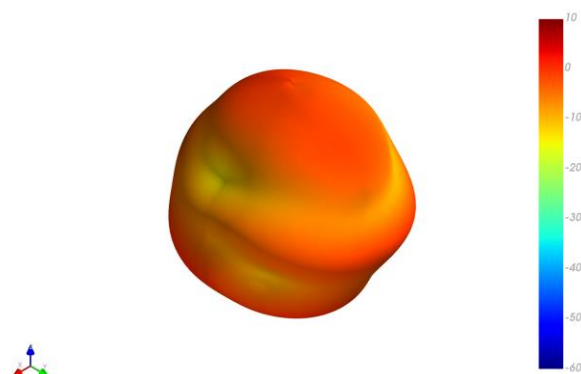
XZ Plane



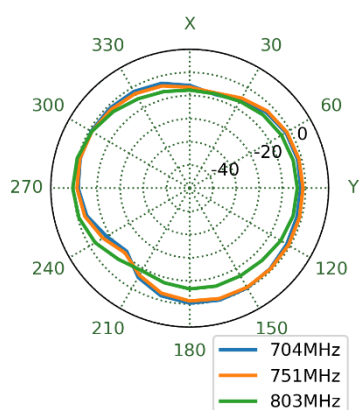
YZ Plane



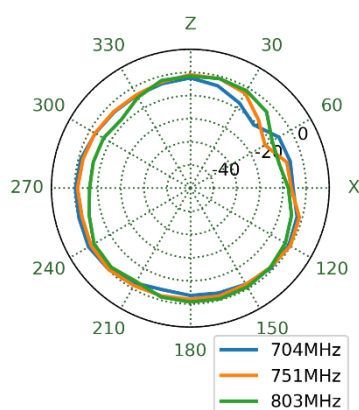
751MHz



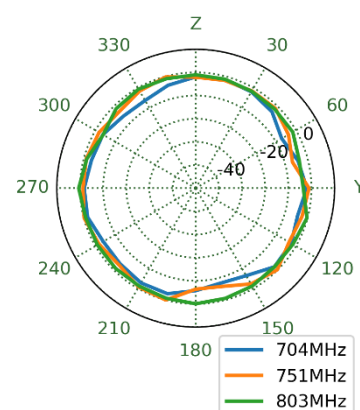
XY Plane



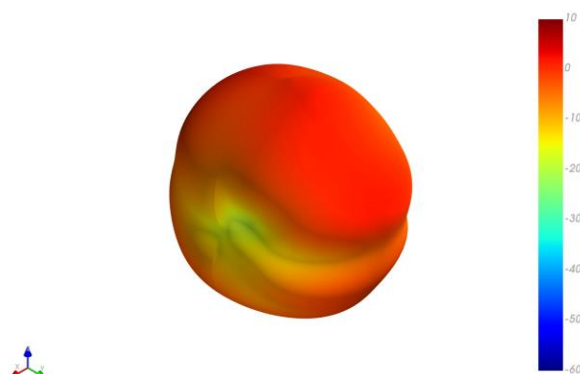
XZ Plane



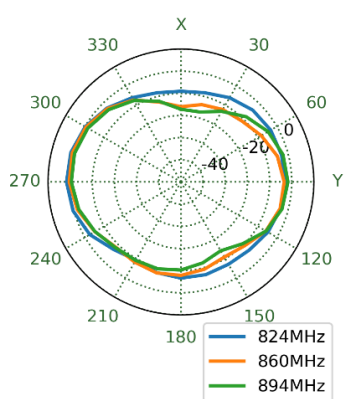
YZ Plane



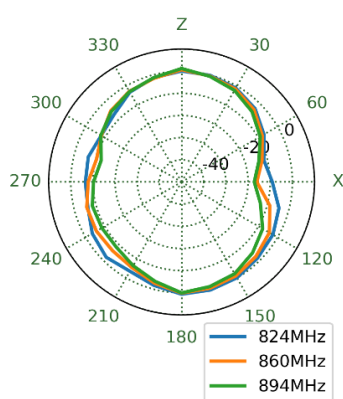
860MHz



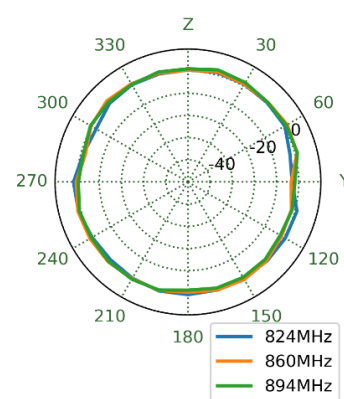
XY Plane



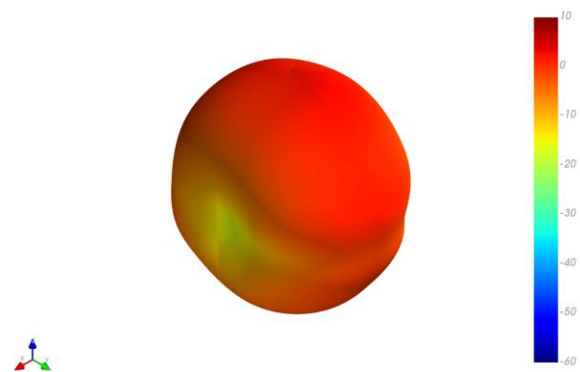
XZ Plane



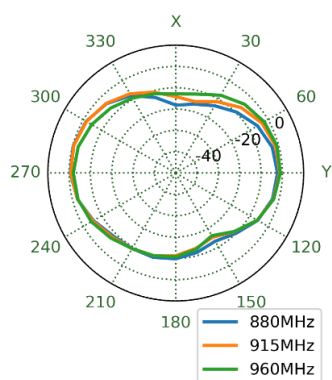
YZ Plane



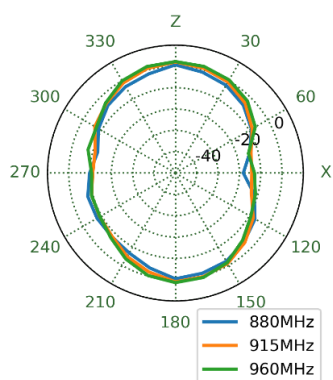
915MHz



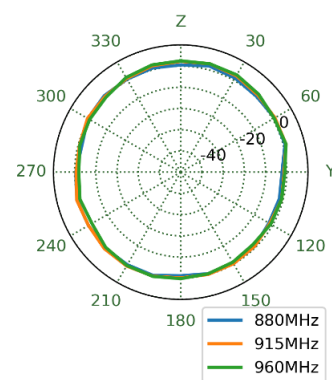
XY Plane



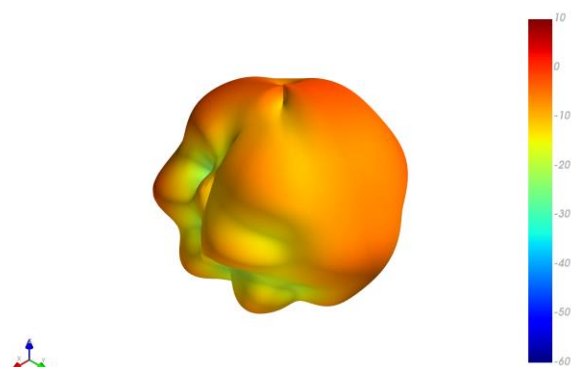
XZ Plane



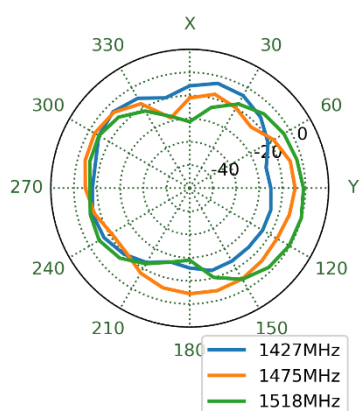
YZ Plane



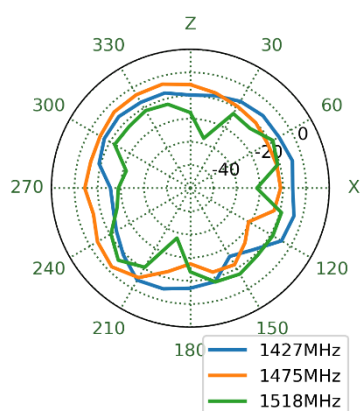
1475MHz



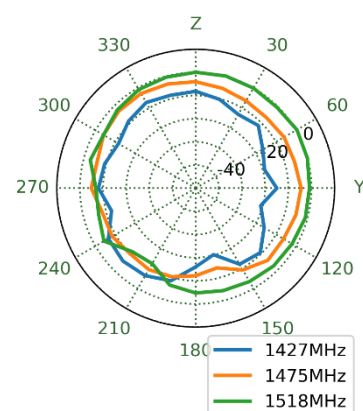
XY Plane



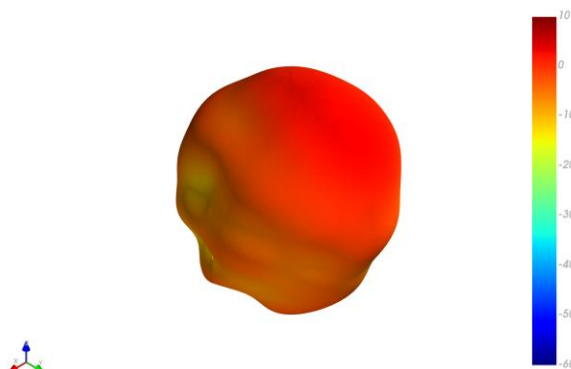
XZ Plane



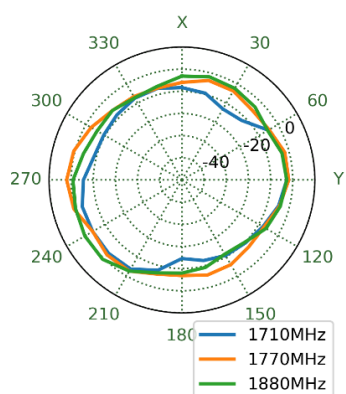
YZ Plane



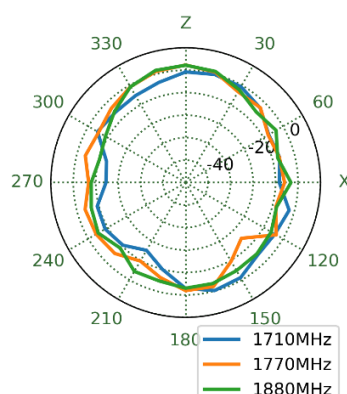
1770MHz



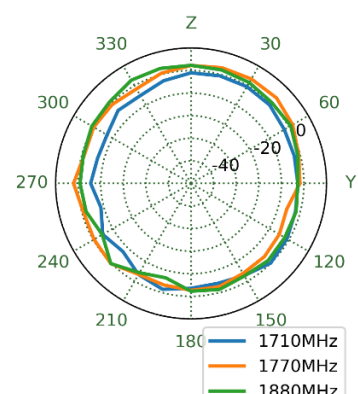
XY Plane



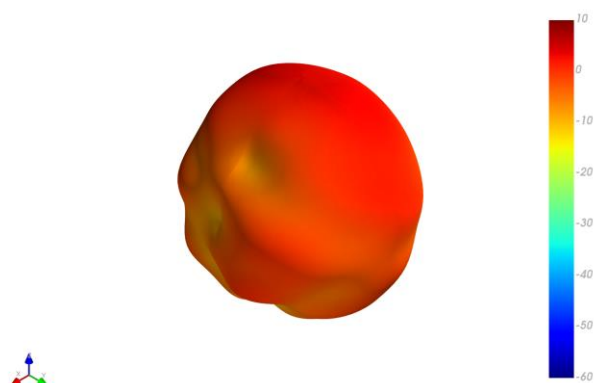
XZ Plane



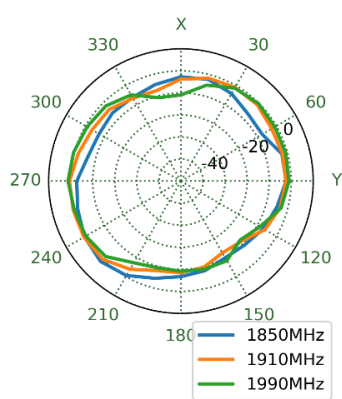
YZ Plane



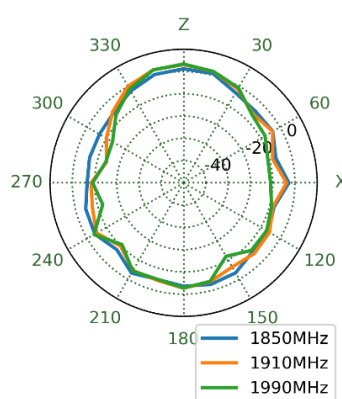
1910MHz



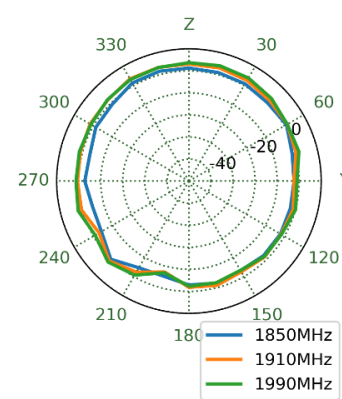
XY Plane



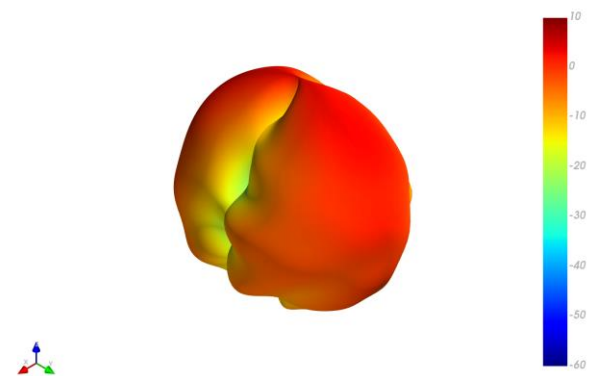
XZ Plane



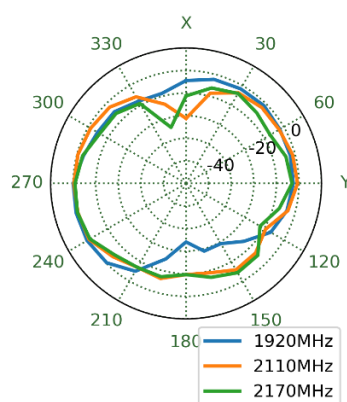
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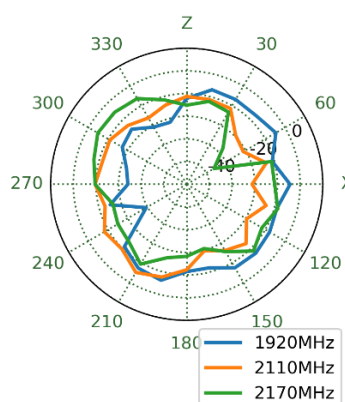
2110MHz



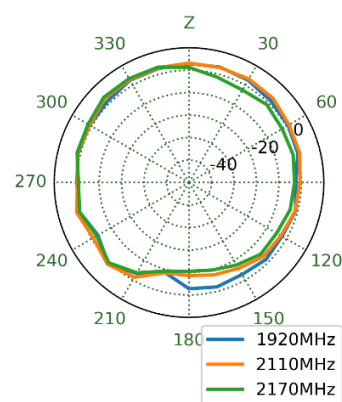
XY Plane



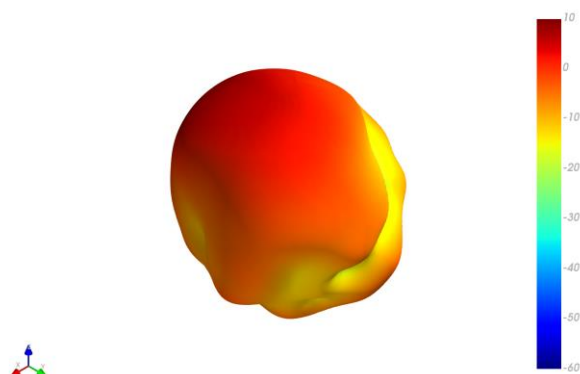
XZ Plane



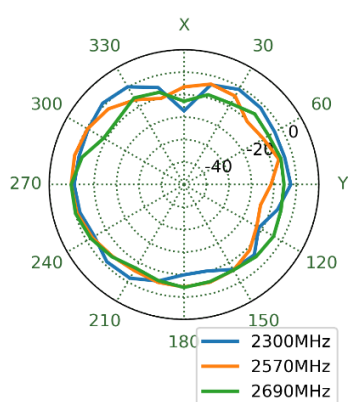
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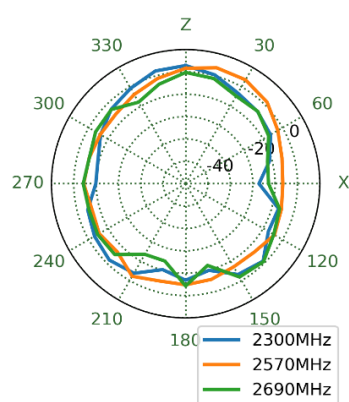
2570MHz



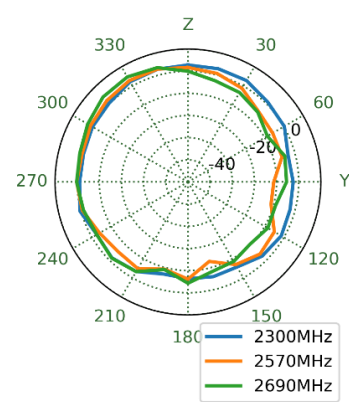
XY Plane



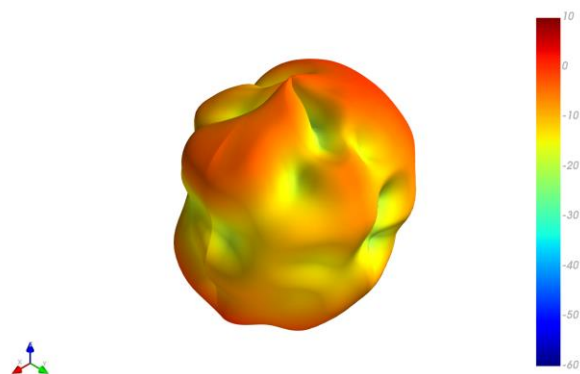
XZ Plane



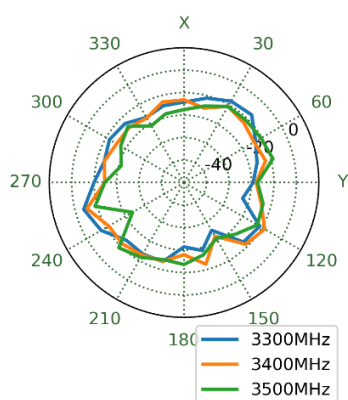
YZ Plane



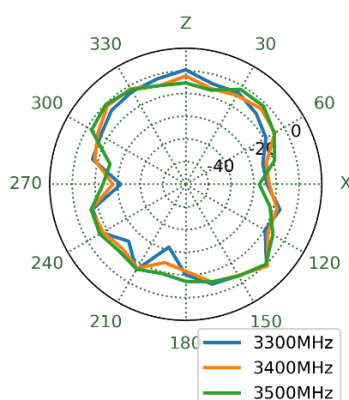
3400MHz



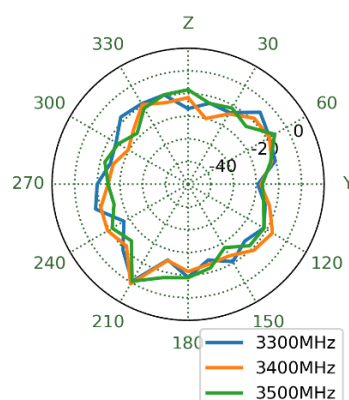
XY Plane



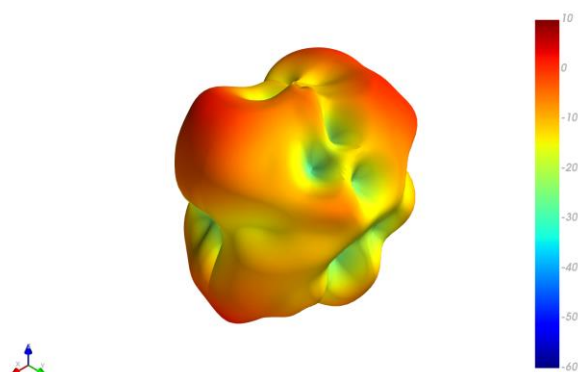
XZ Plane



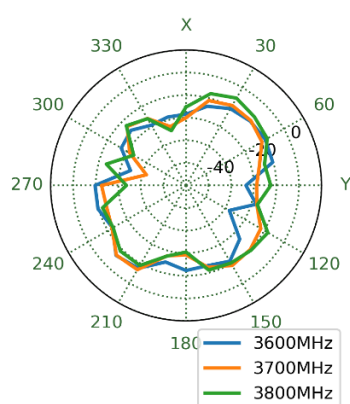
YZ Plane



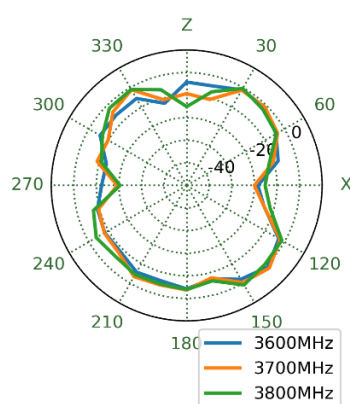
3700MHz



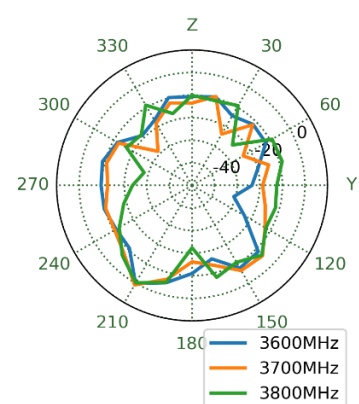
XY Plane



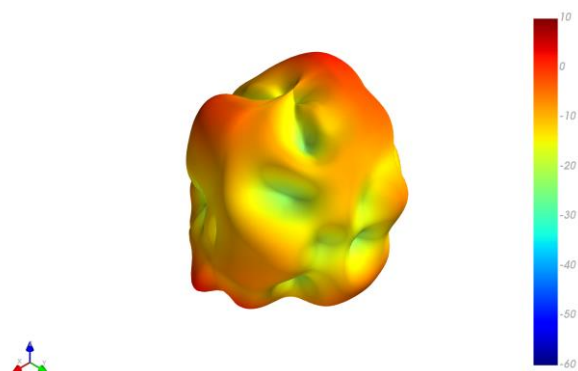
XZ Plane



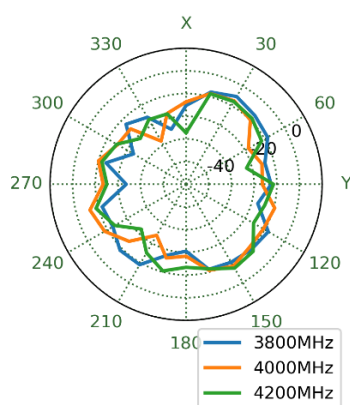
YZ Plane



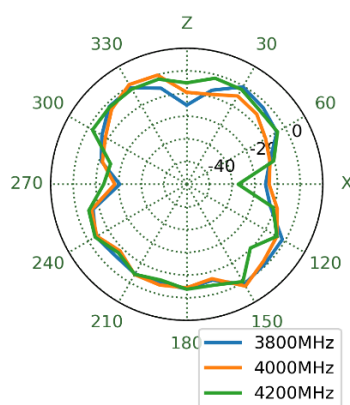
4000MHz



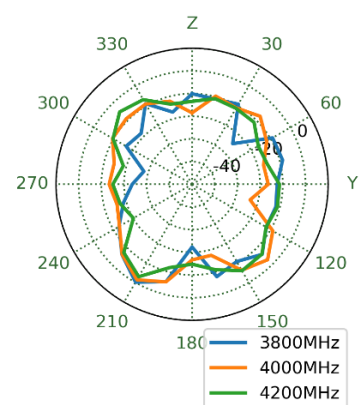
XY Plane



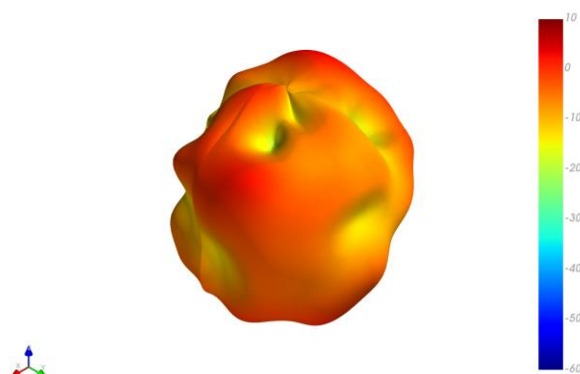
XZ Plane



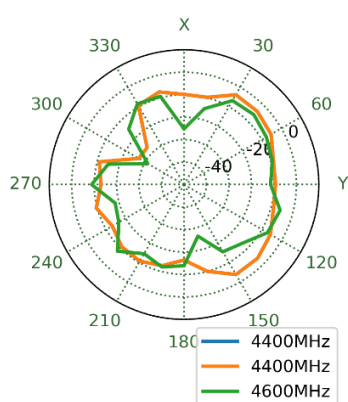
YZ Plane



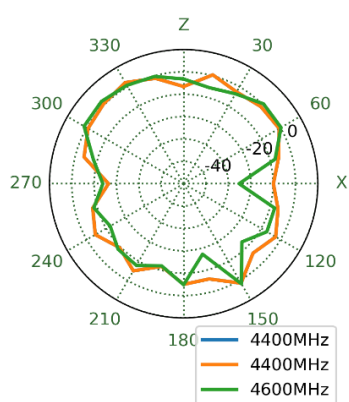
4400MHz



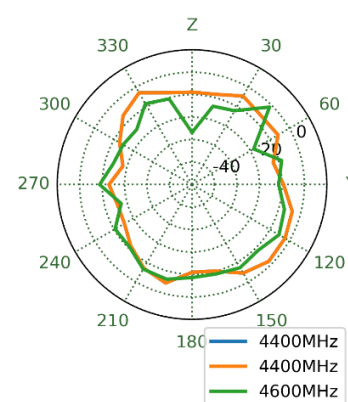
XY Plane



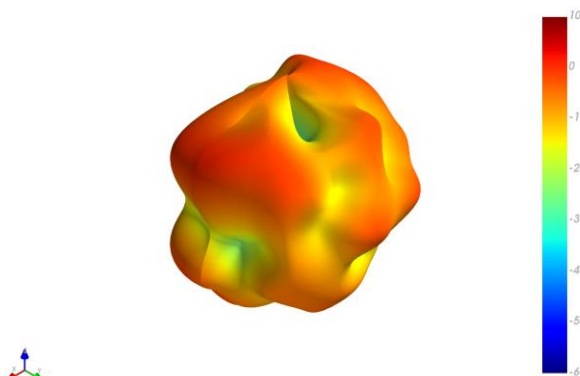
XZ Plane



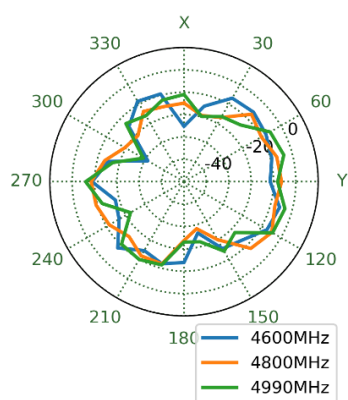
YZ Plane



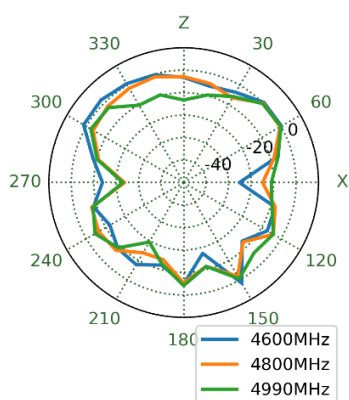
4800MHz



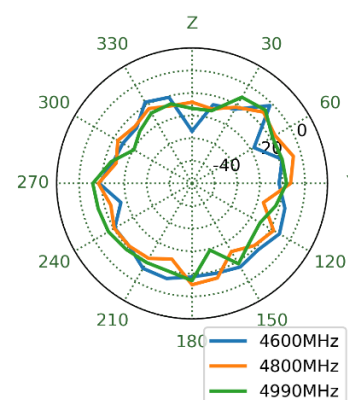
XY Plane



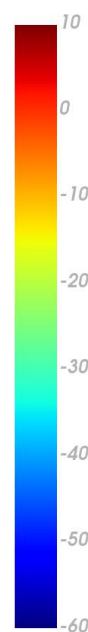
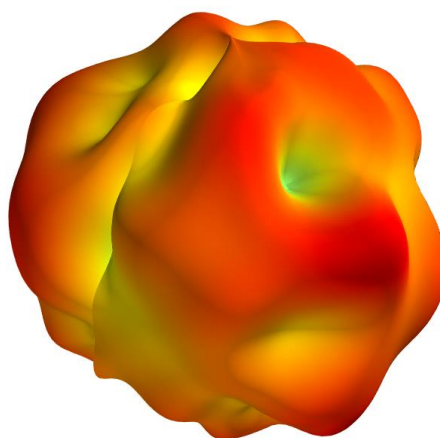
XZ Plane



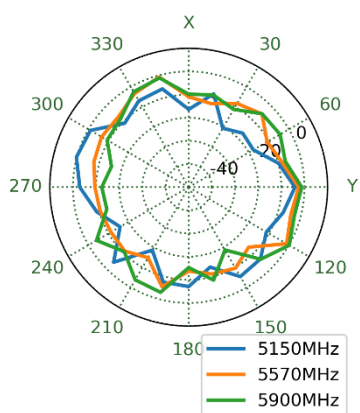
YZ Plane



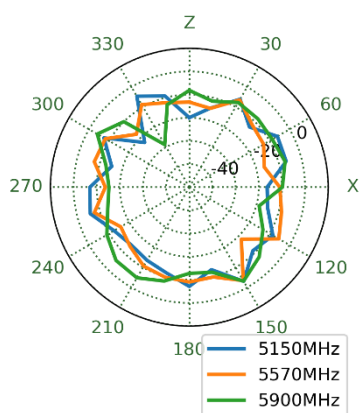
5570MHz



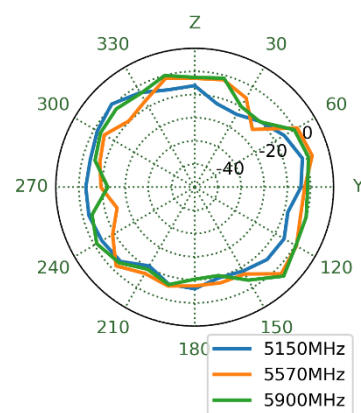
XY Plane



XZ Plane

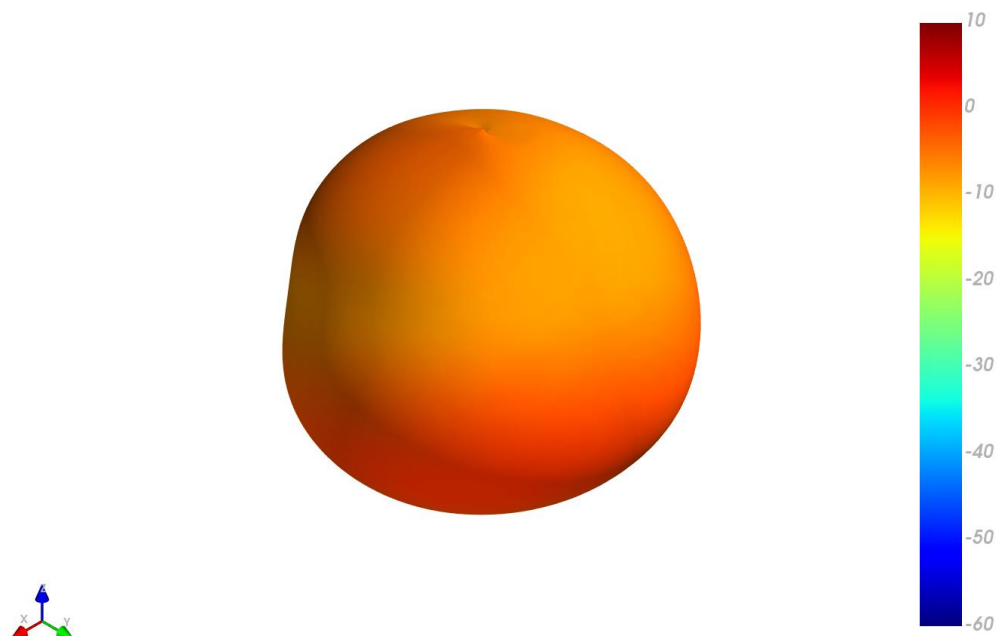


YZ Plane

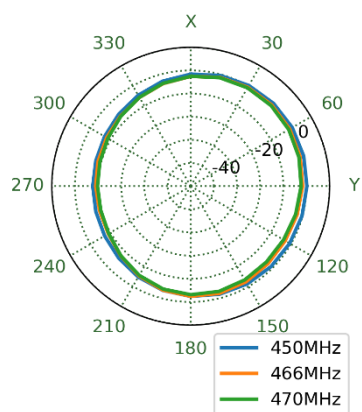


4.5 3D and 2D Radiation Patterns – MIMO 4

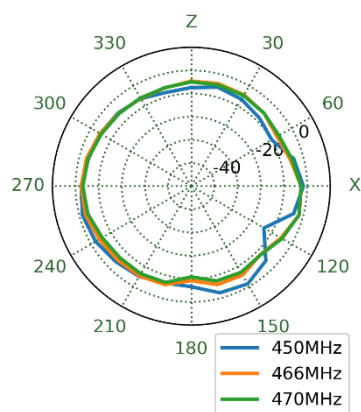
466MHz



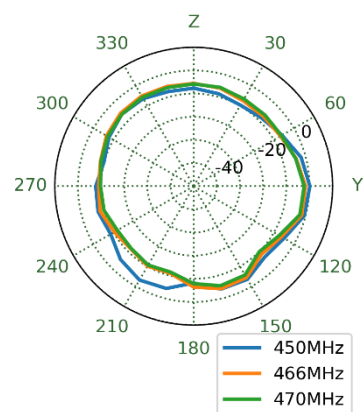
XY Plane



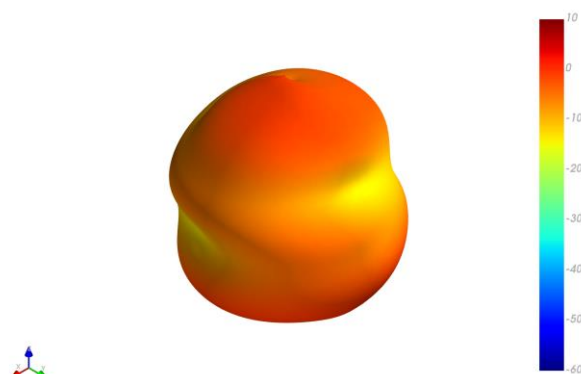
XZ Plane



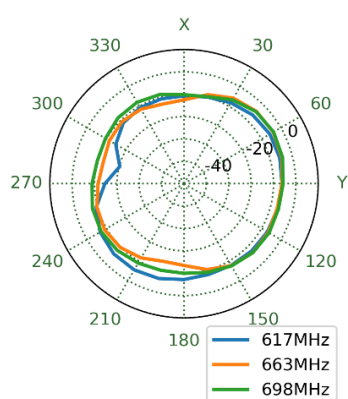
YZ Plane



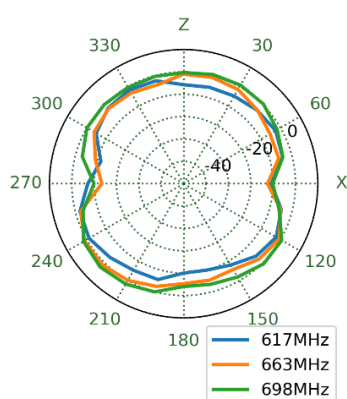
663MHz



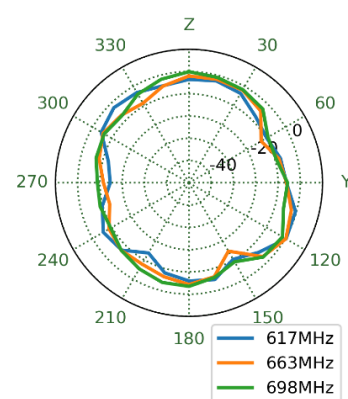
XY Plane



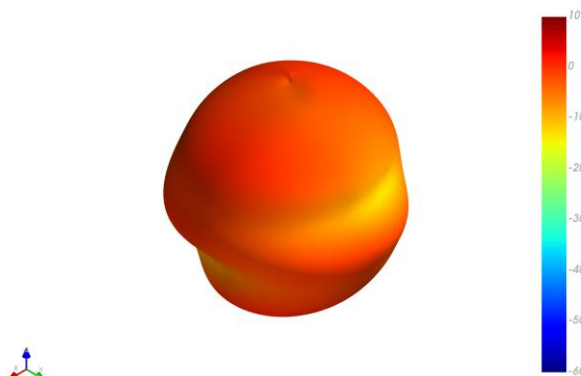
XZ Plane



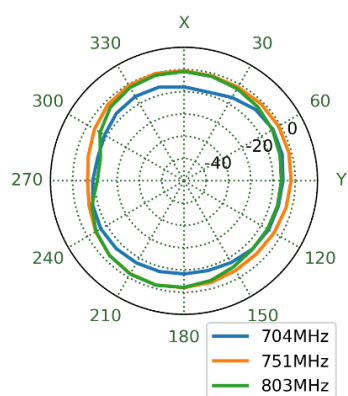
YZ Plane



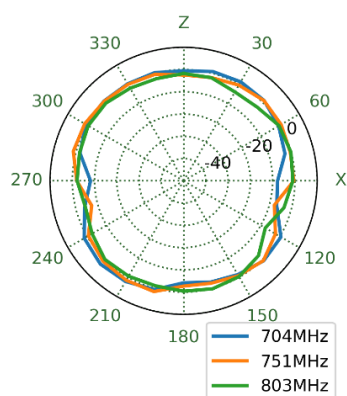
751MHz



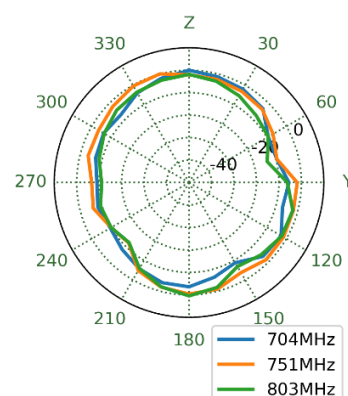
XY Plane



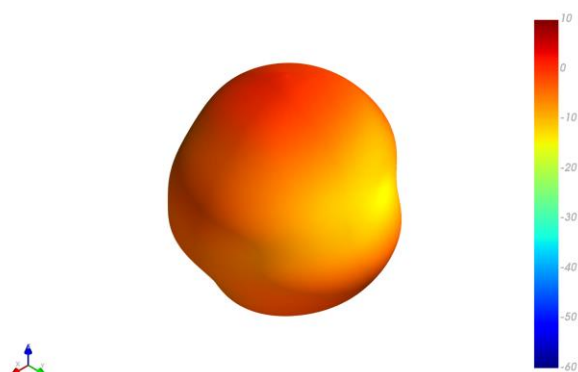
XZ Plane



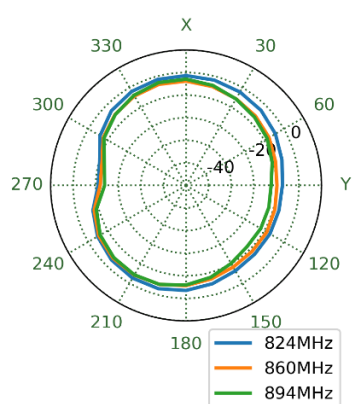
YZ Plane



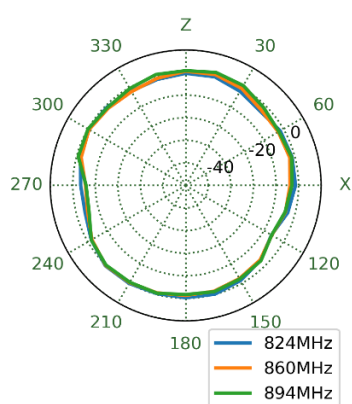
860MHz



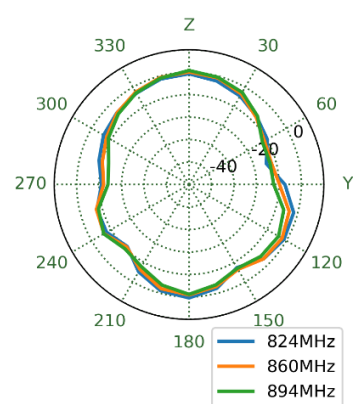
XY Plane



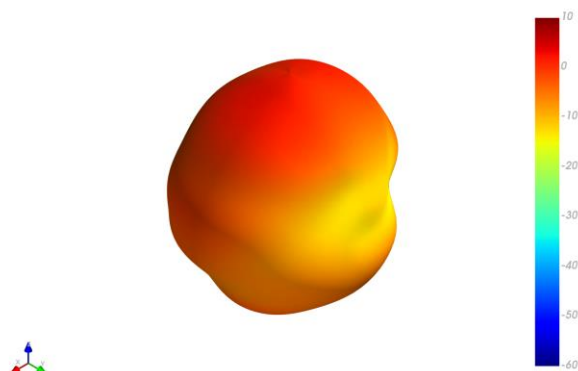
XZ Plane



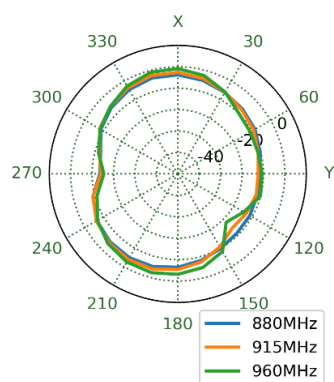
YZ Plane



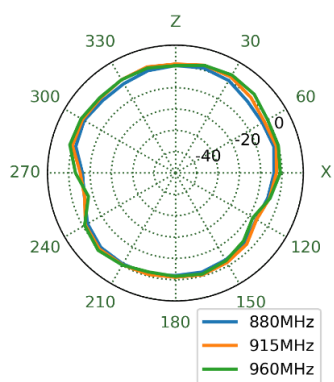
915MHz



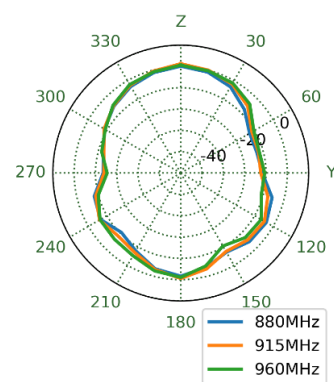
XY Plane



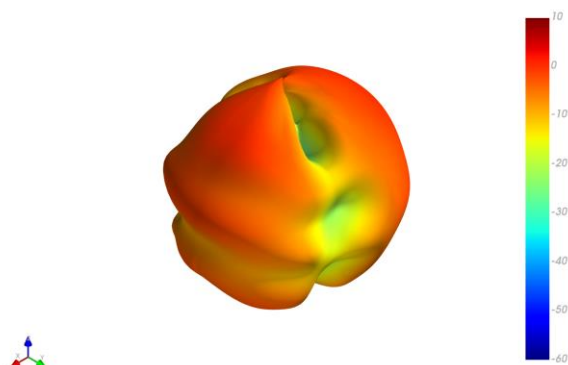
XZ Plane



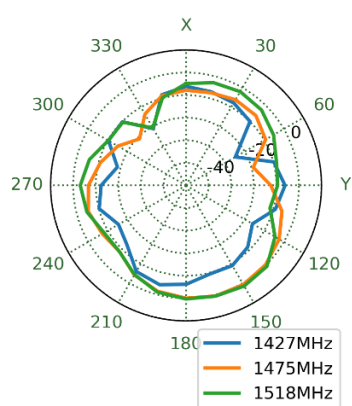
YZ Plane



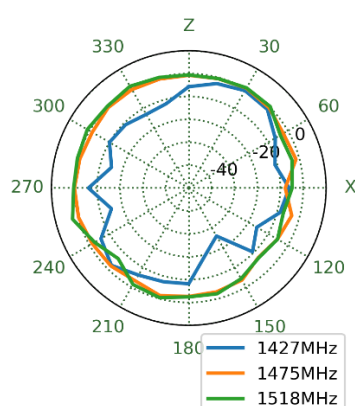
1475MHz



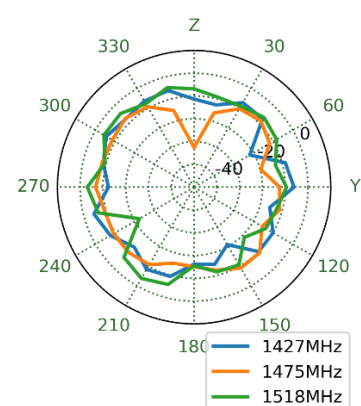
XY Plane



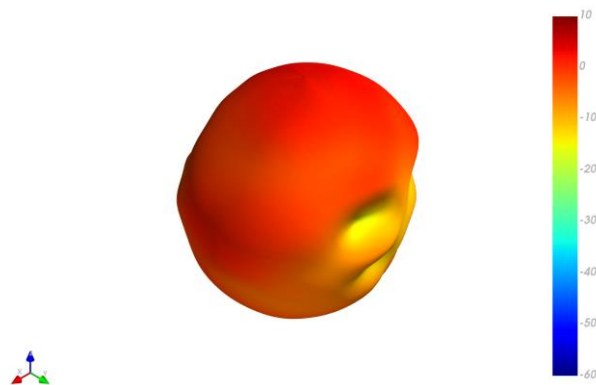
XZ Plane



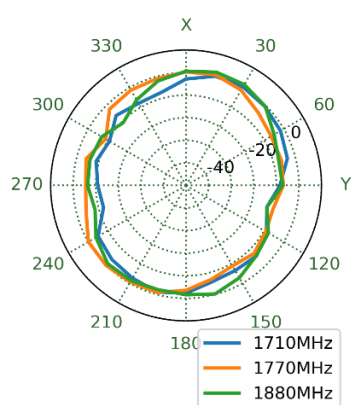
YZ Plane



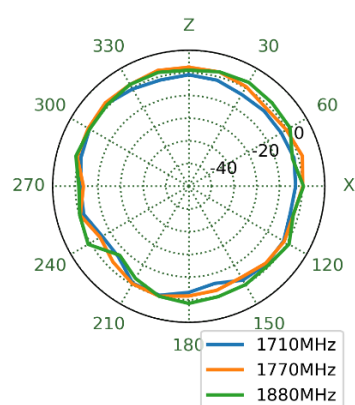
1770MHz



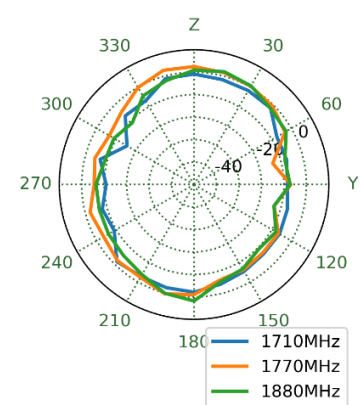
XY Plane



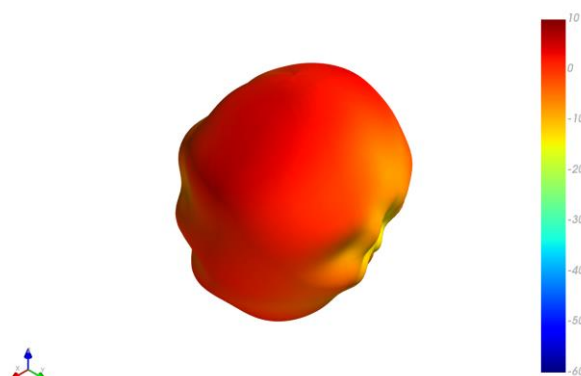
XZ Plane



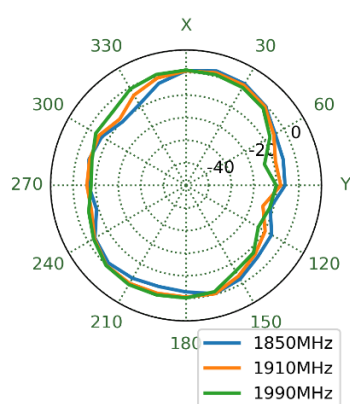
YZ Plane



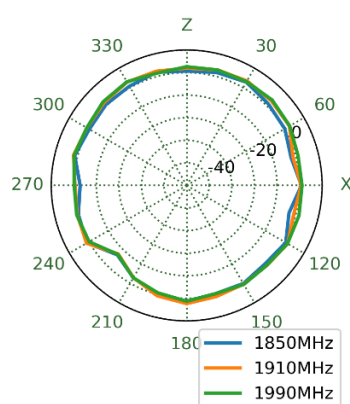
1910MHz



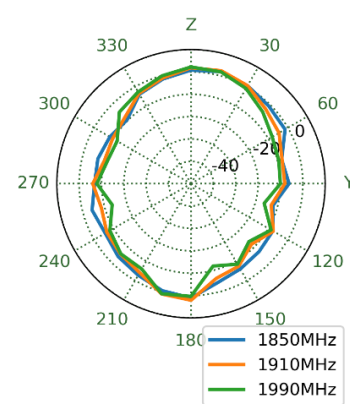
XY Plane



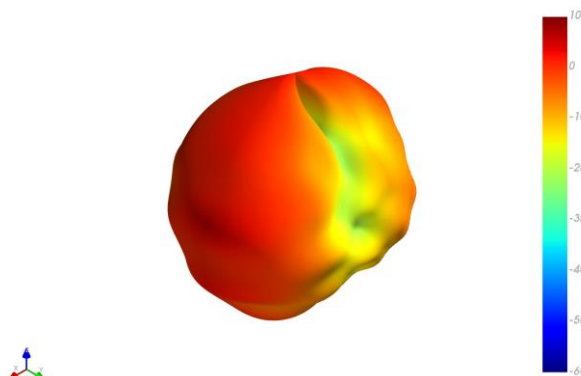
XZ Plane



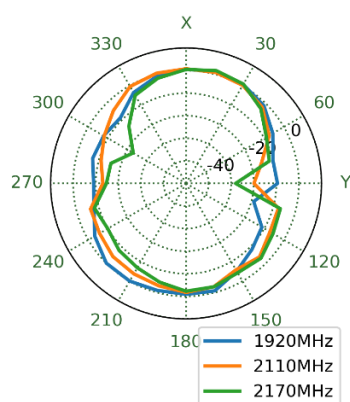
YZ Plane



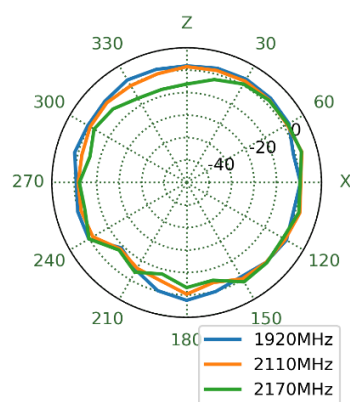
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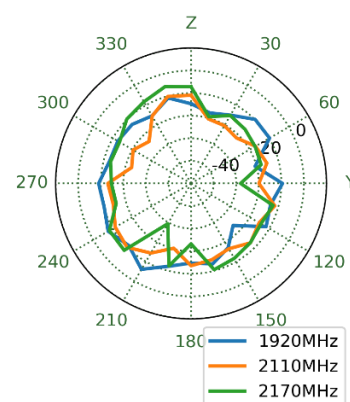
XY Plane



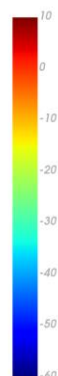
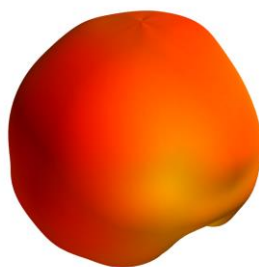
XZ Plane



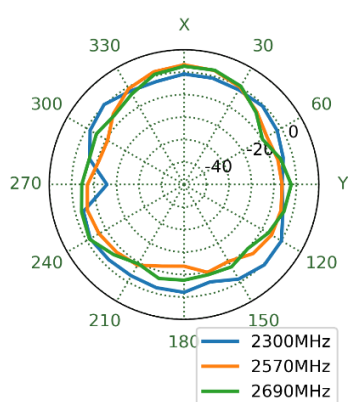
YZ Plane



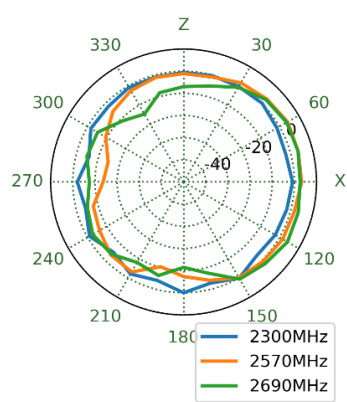
2570MHz



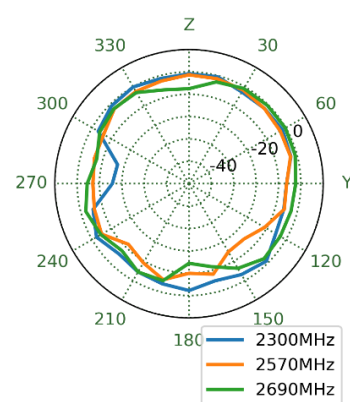
XY Plane



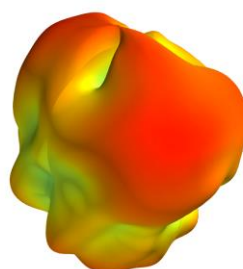
XZ Plane



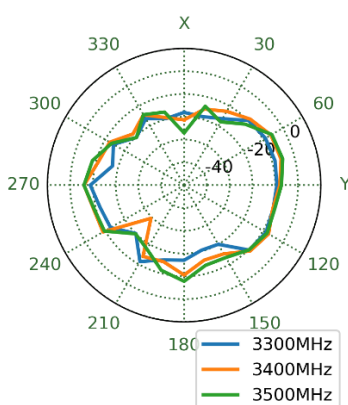
YZ Plane



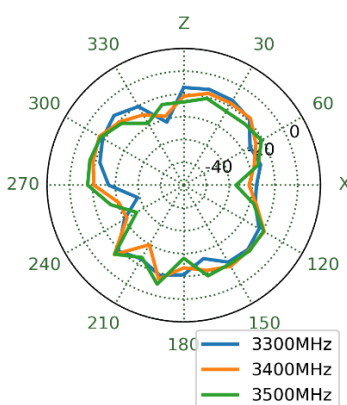
3400MHz



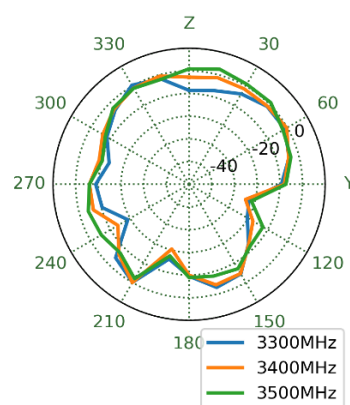
XY Plane



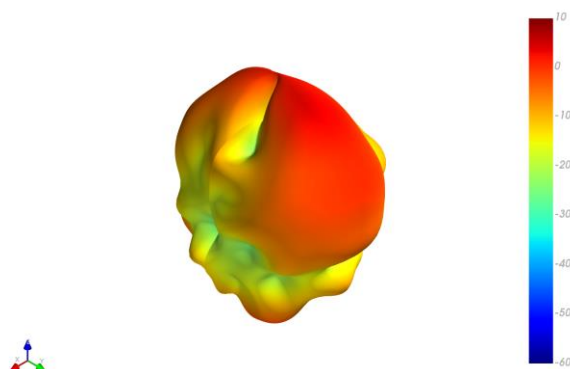
XZ Plane



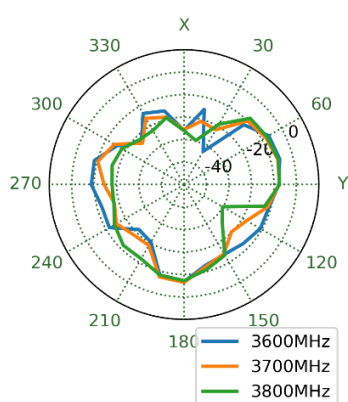
YZ Plane



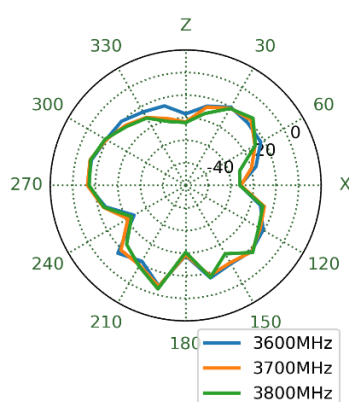
3700MHz



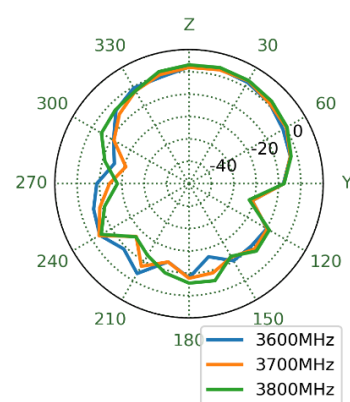
XY Plane



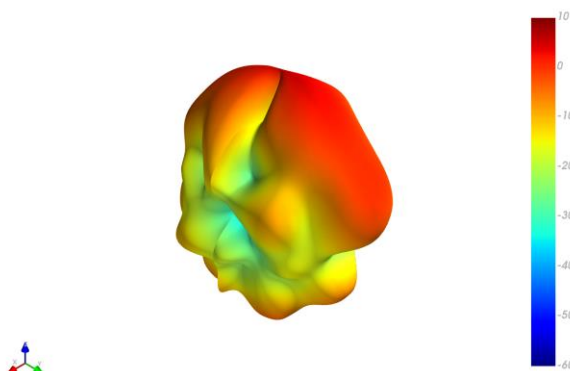
XZ Plane



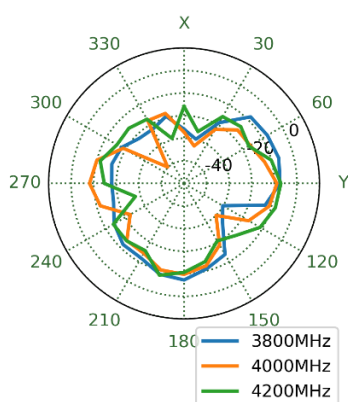
YZ Plane



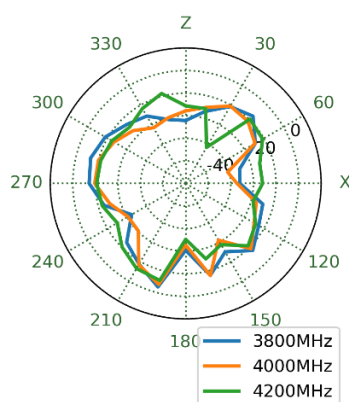
4000MHz



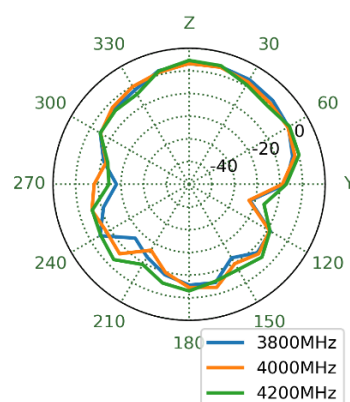
XY Plane



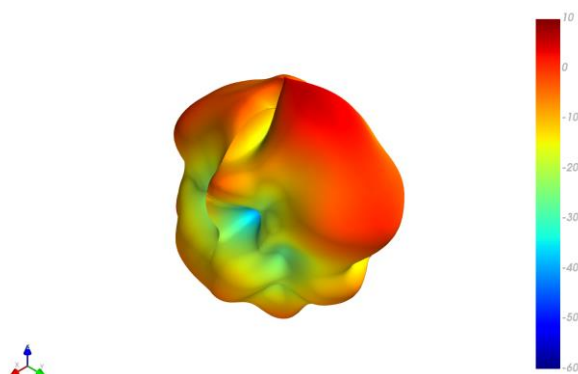
XZ Plane



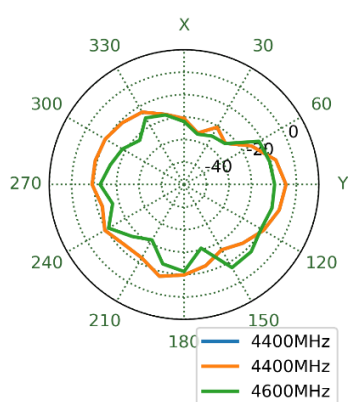
YZ Plane



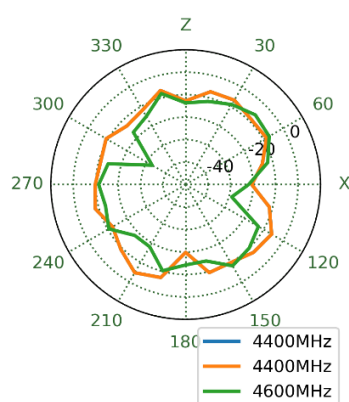
4400MHz



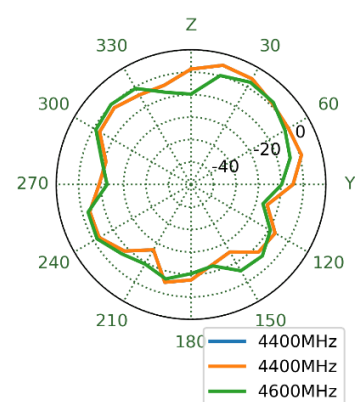
XY Plane



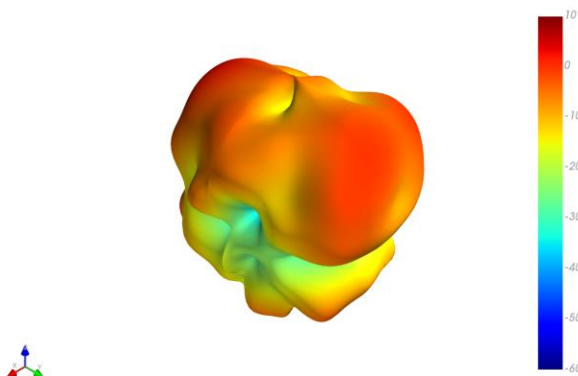
XZ Plane



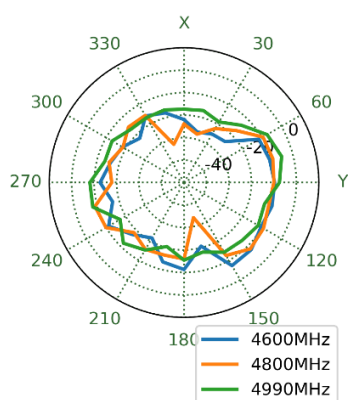
YZ Plane



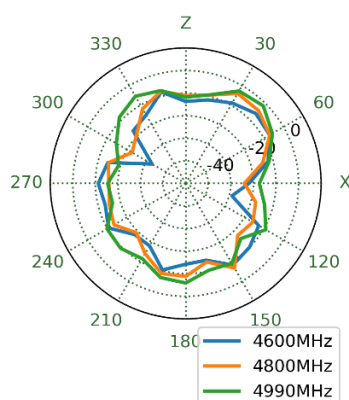
4800MHz



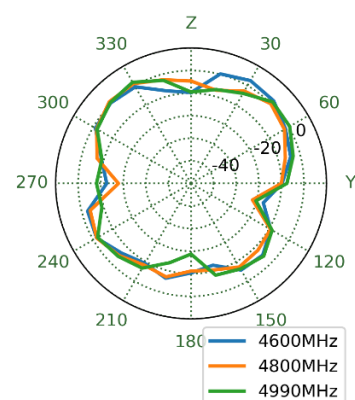
XY Plane



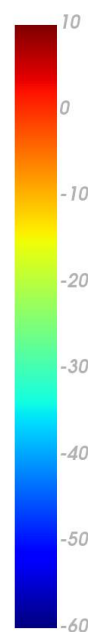
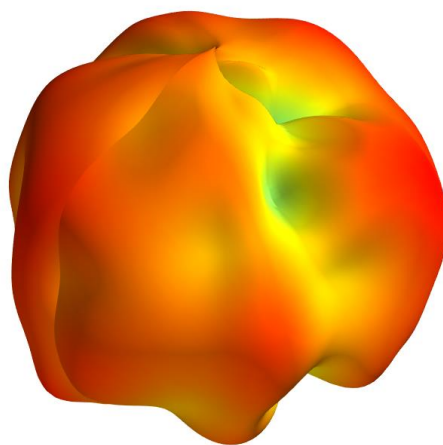
XZ Plane



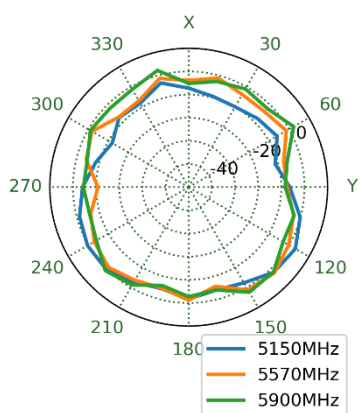
YZ Plane



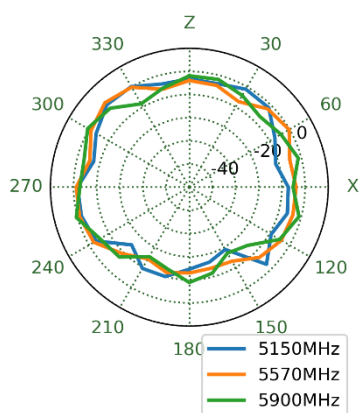
5570MHz



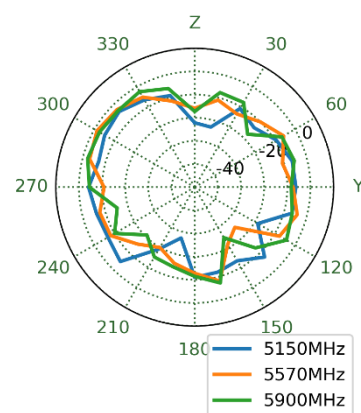
XY Plane



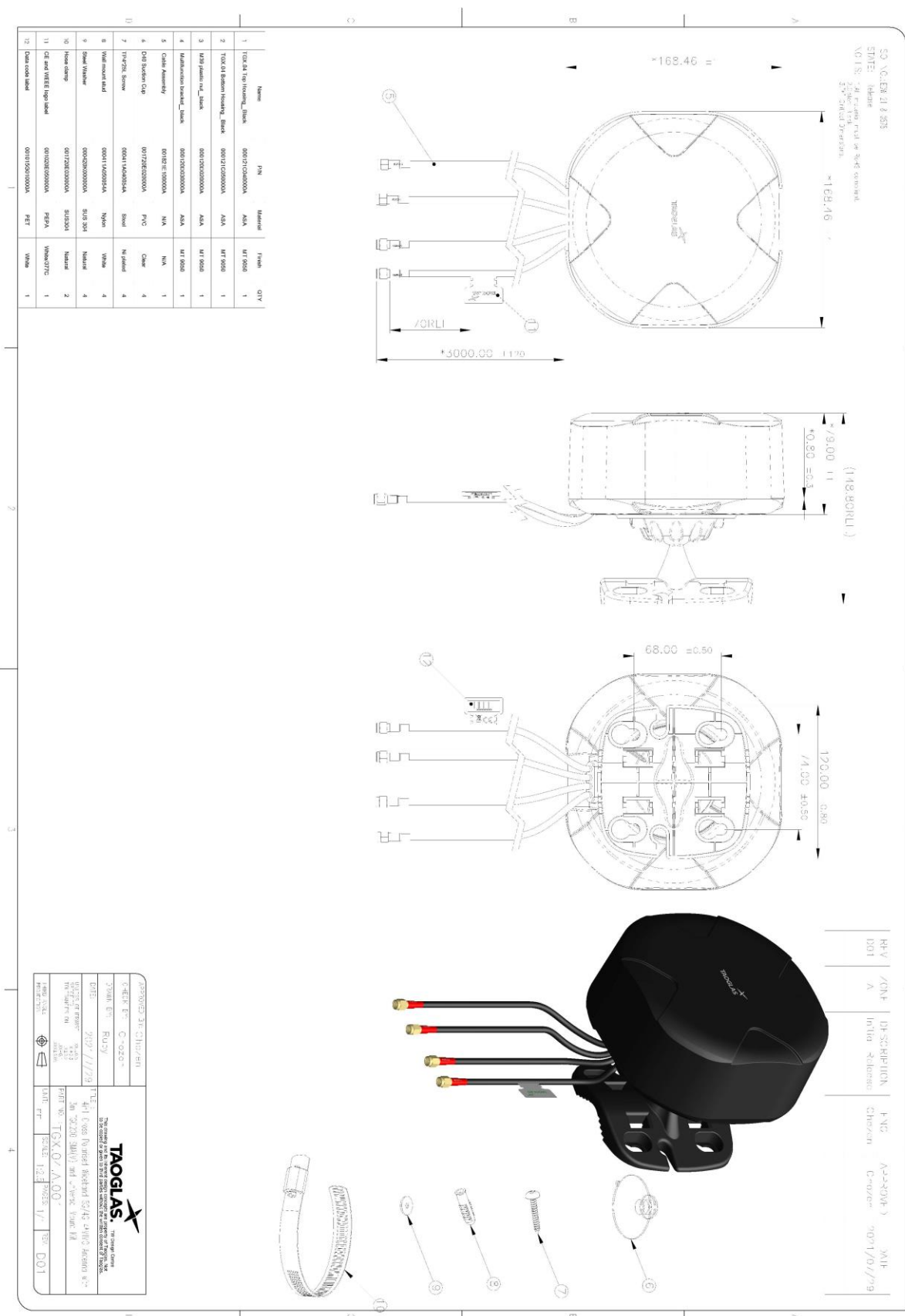
XZ Plane



YZ Plane



5. Mechanical Drawing (Units: mm)



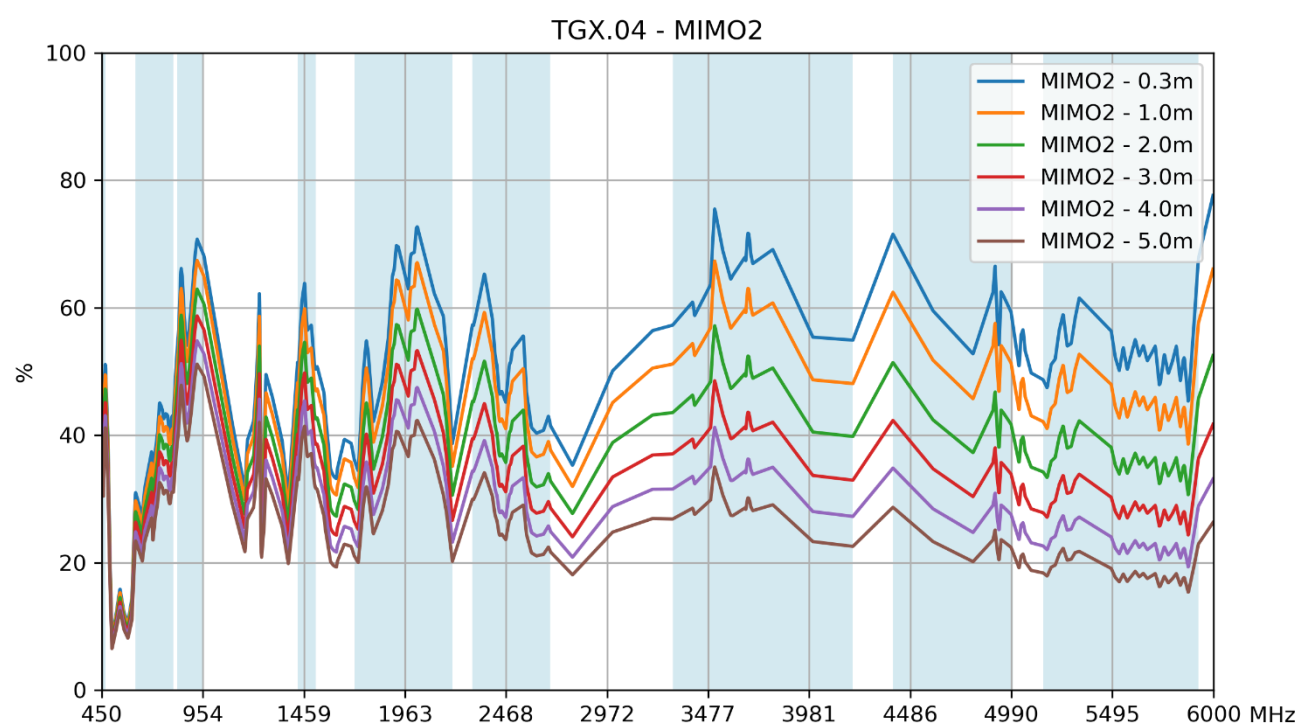
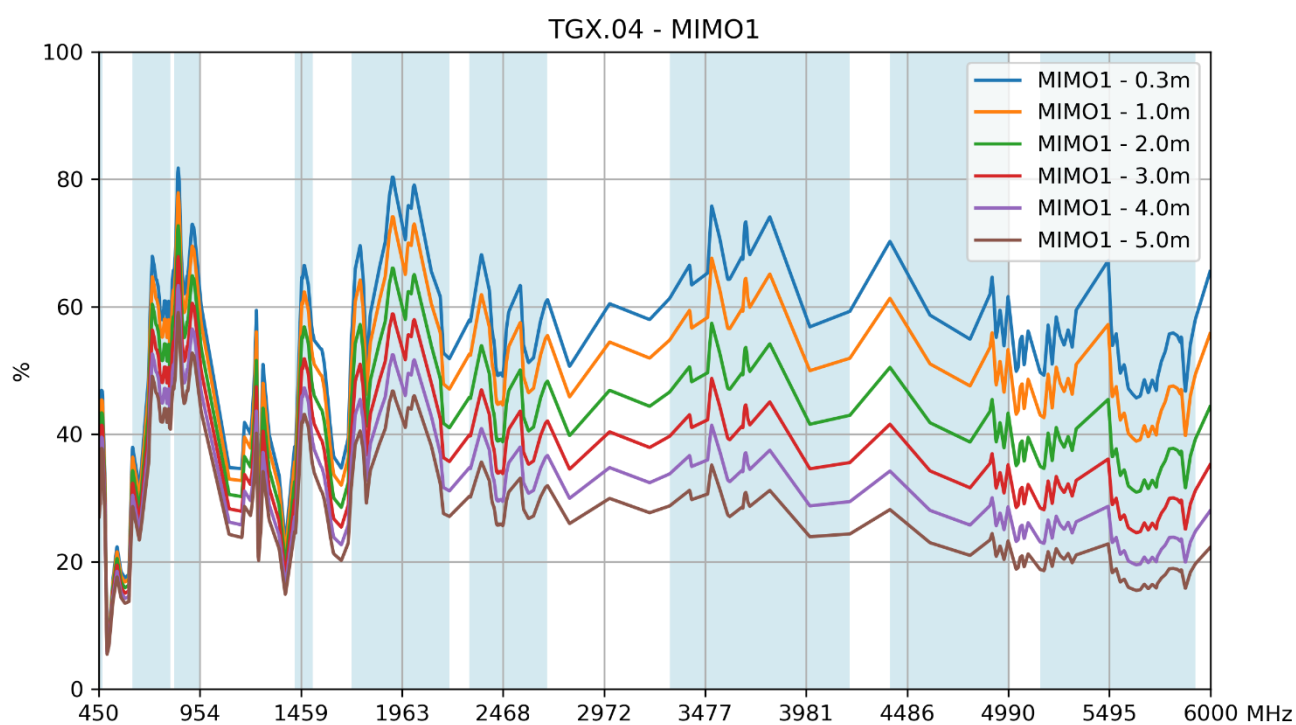
6. Packaging

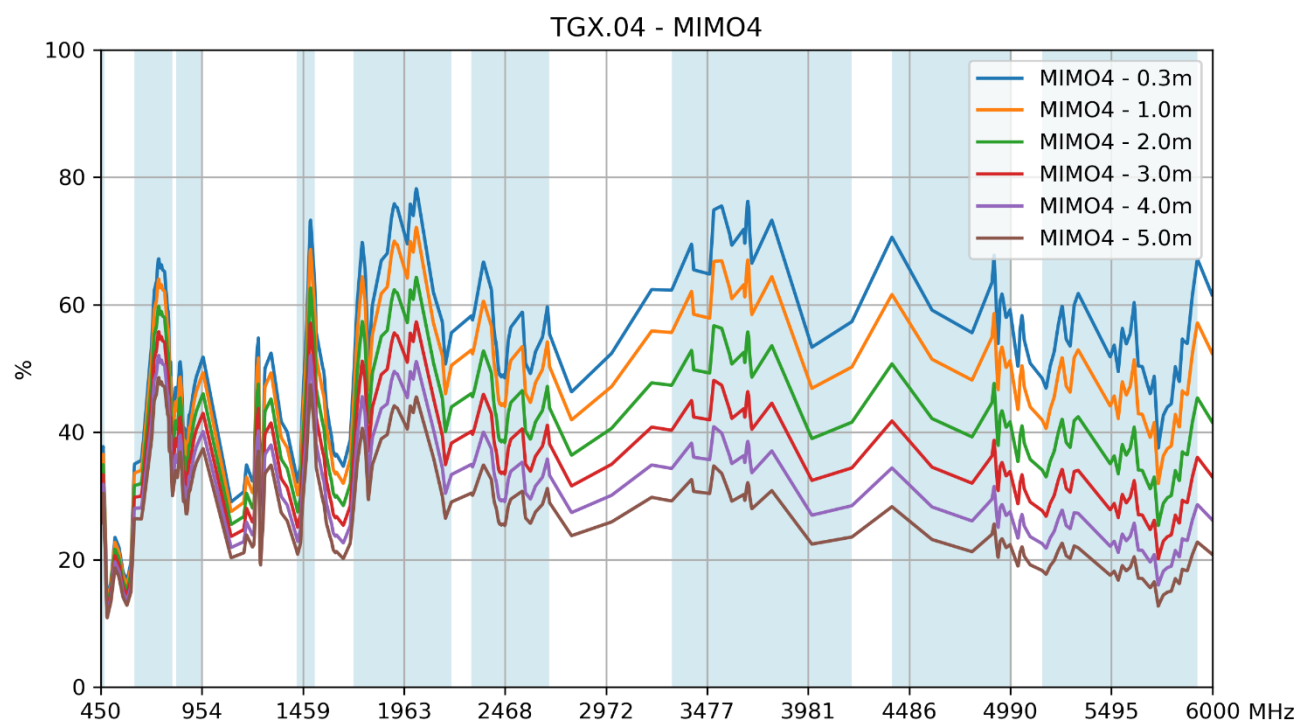
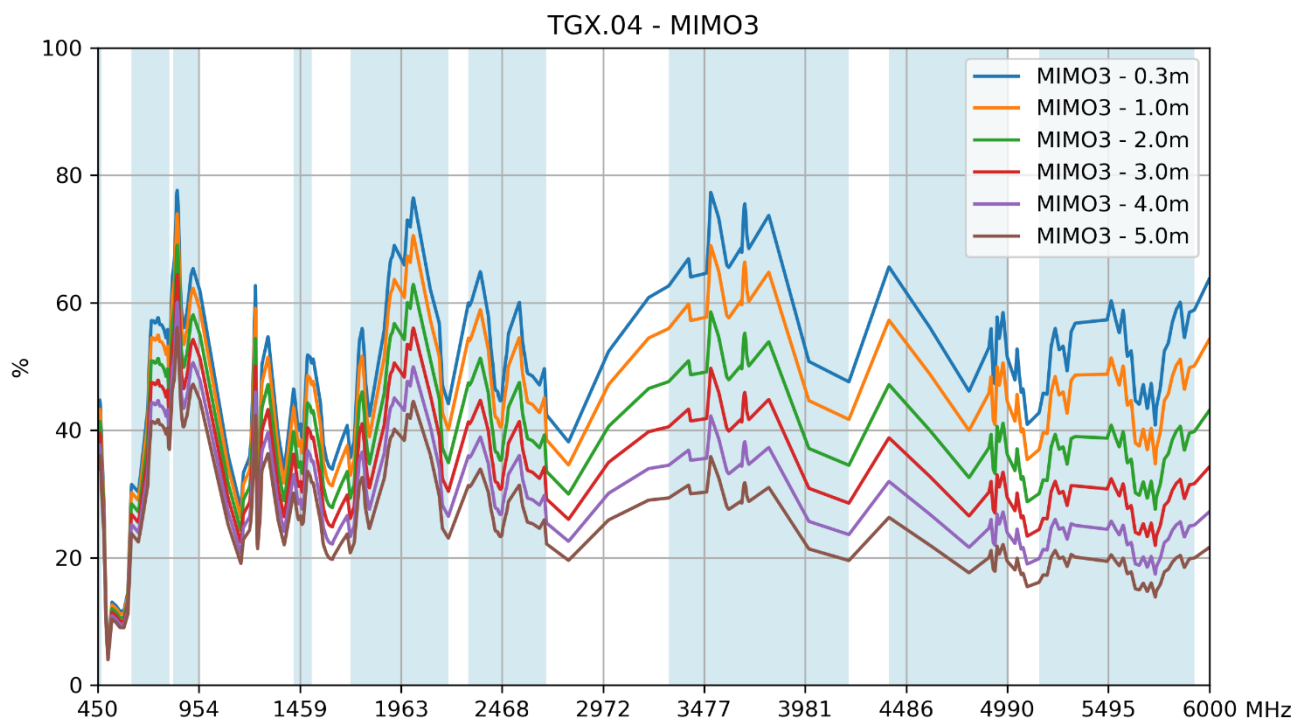
TBD

7. Application Note

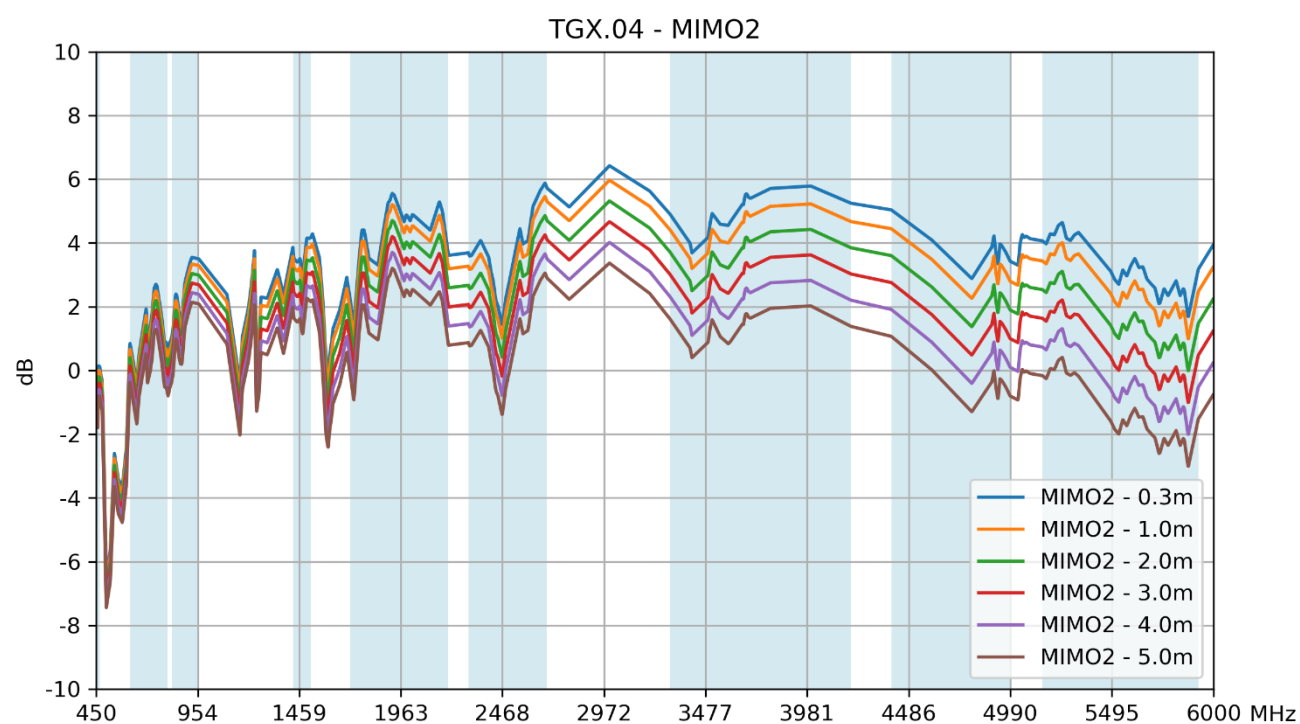
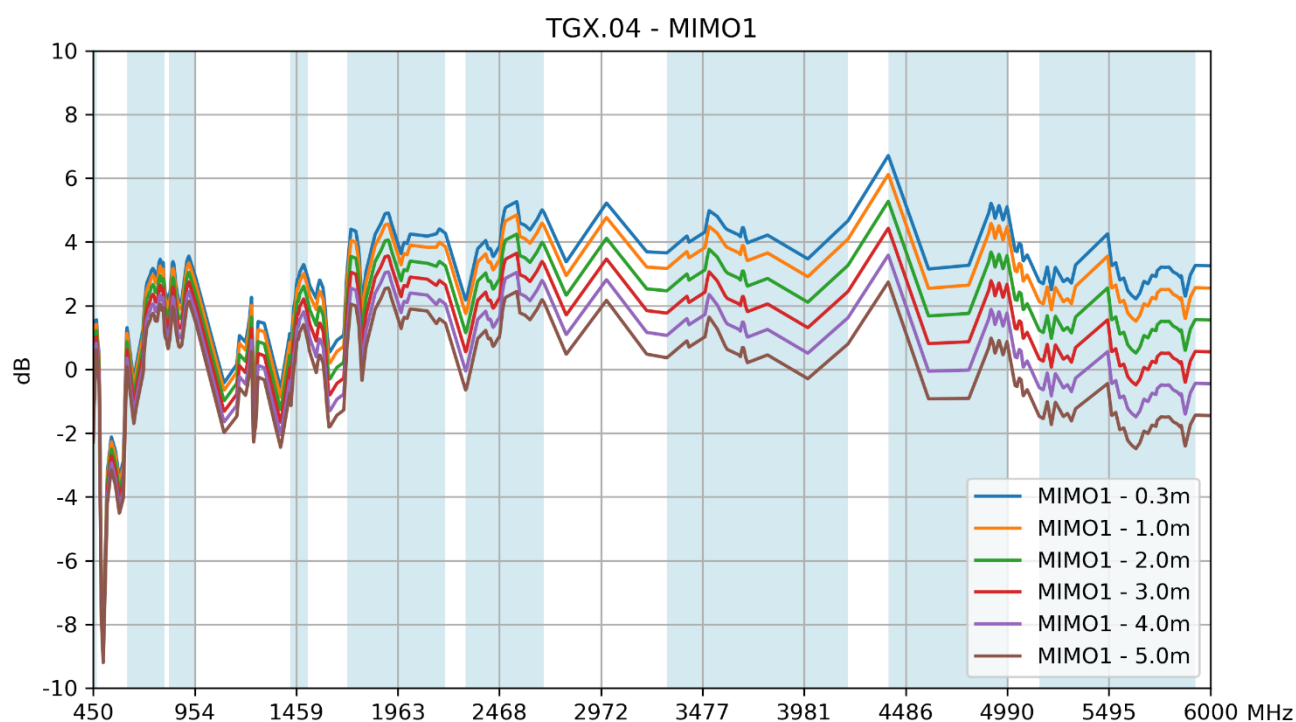
The TGX.04's performance varies based on cable length due to loss values, as demonstrated in the following section.

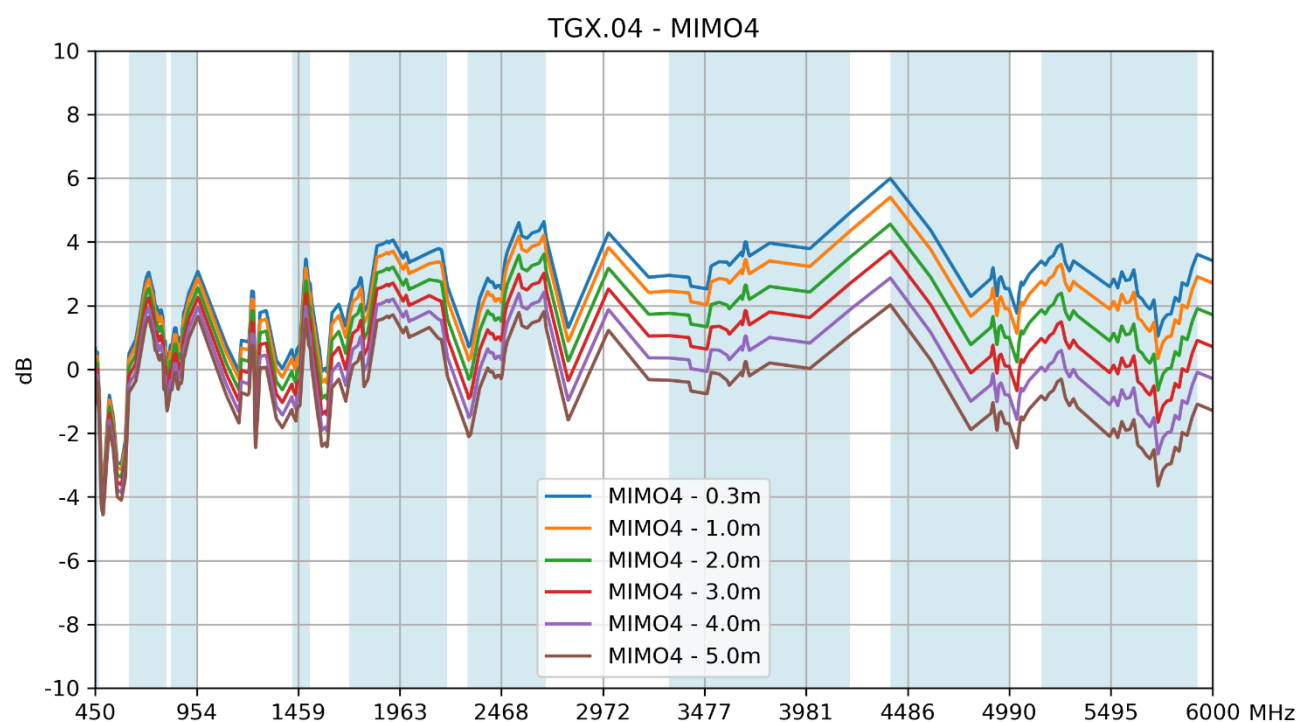
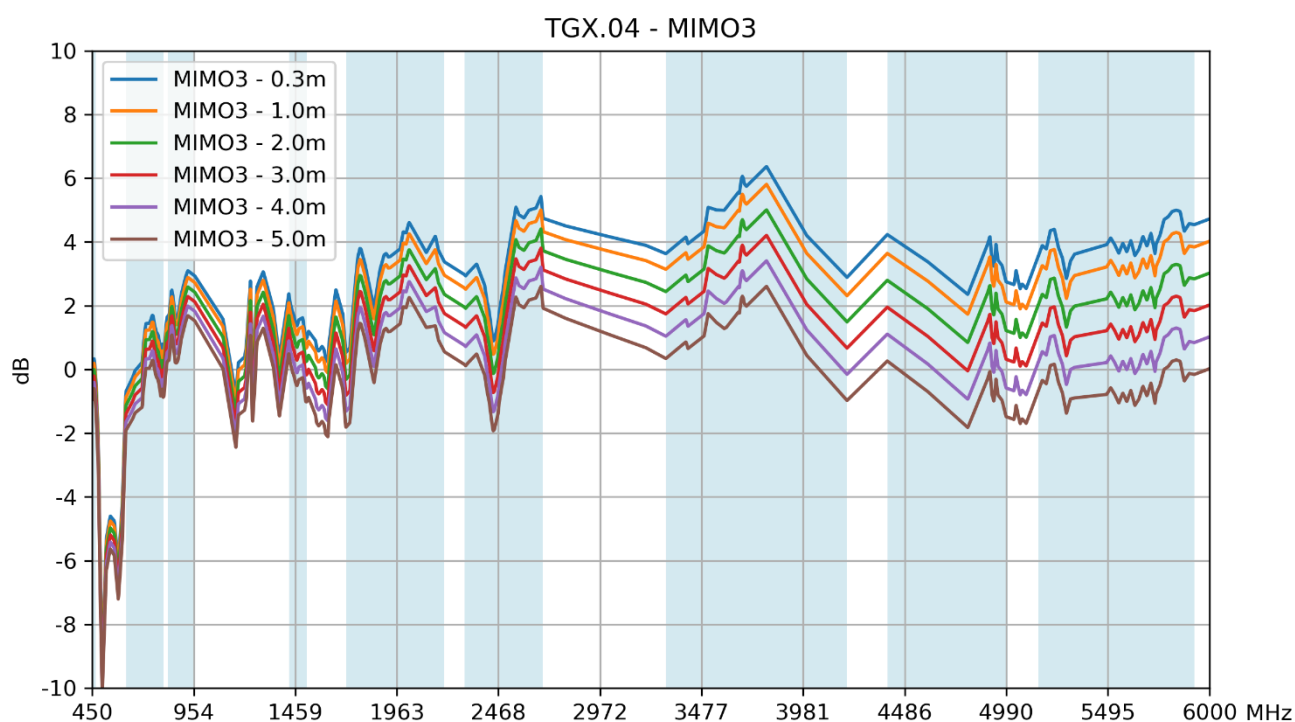
7.1 Efficiency



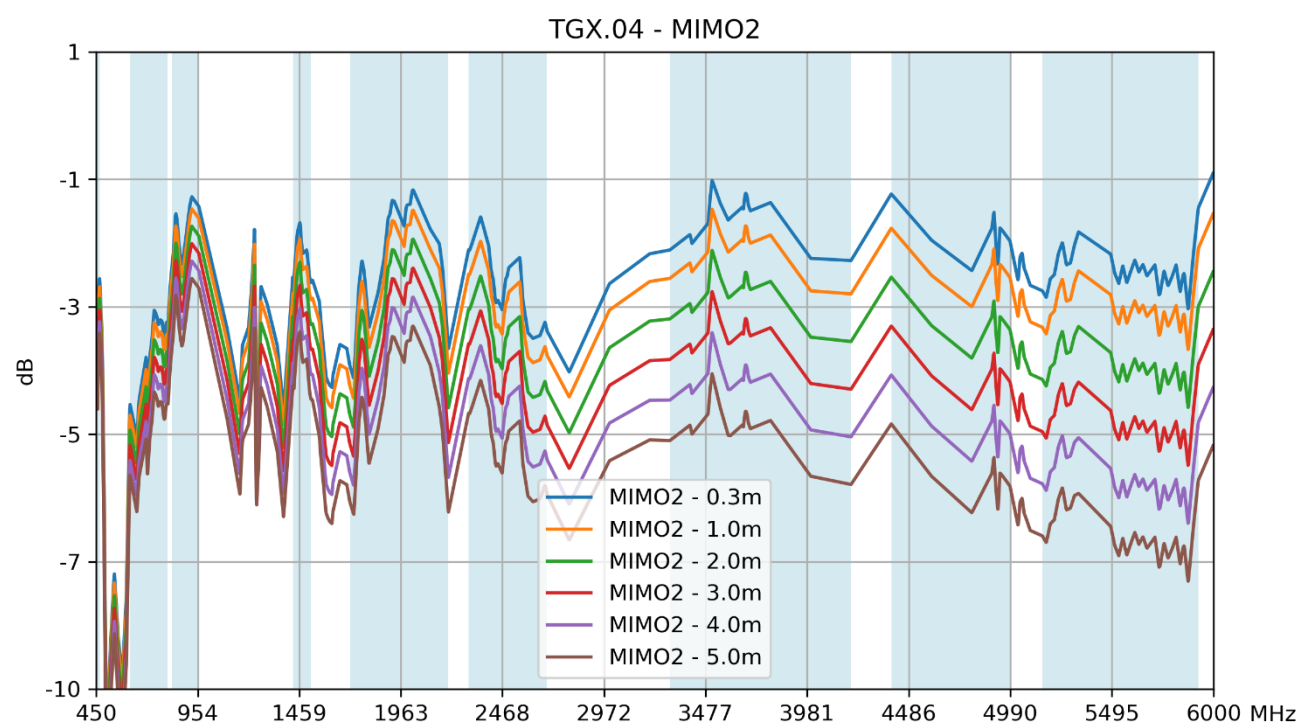
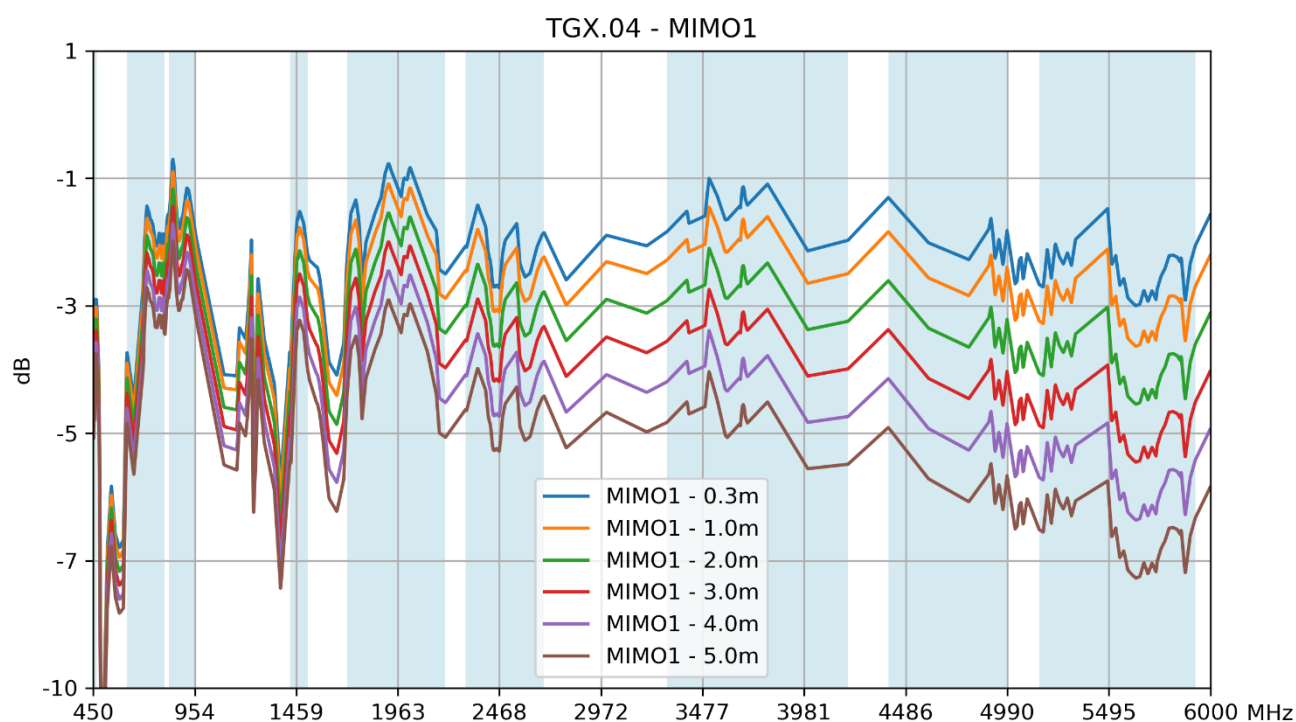


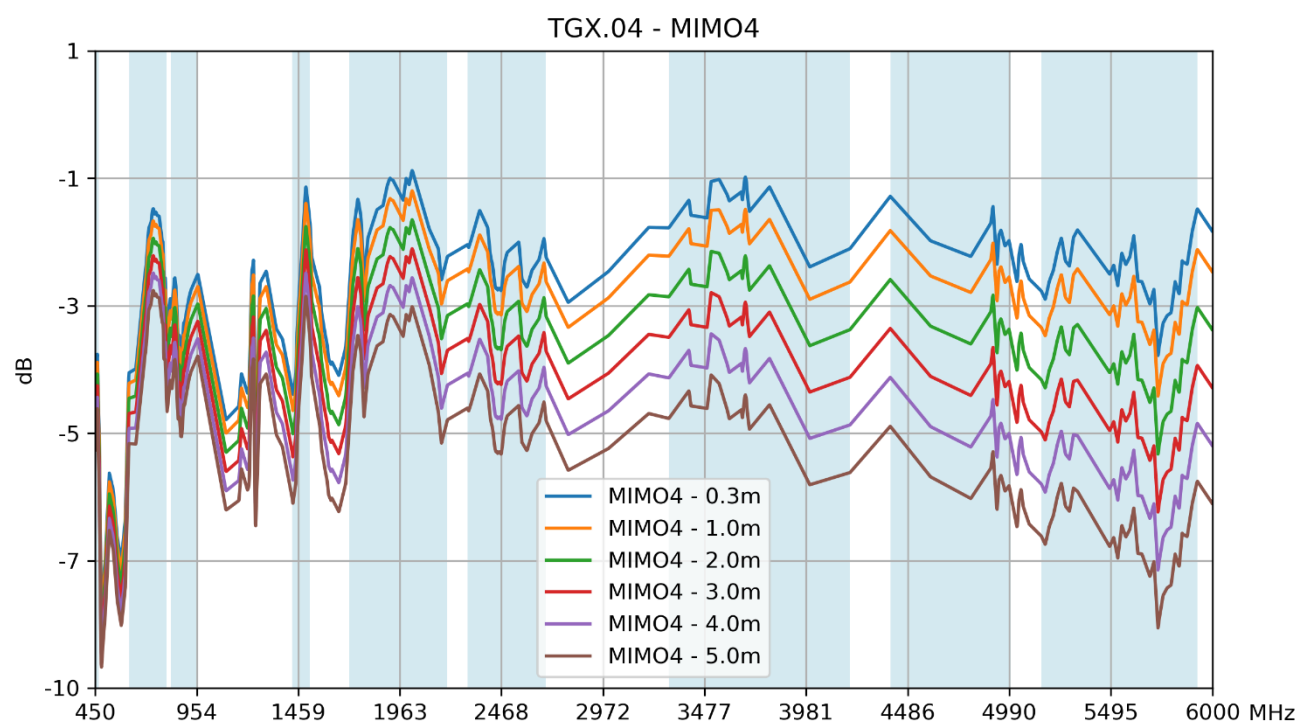
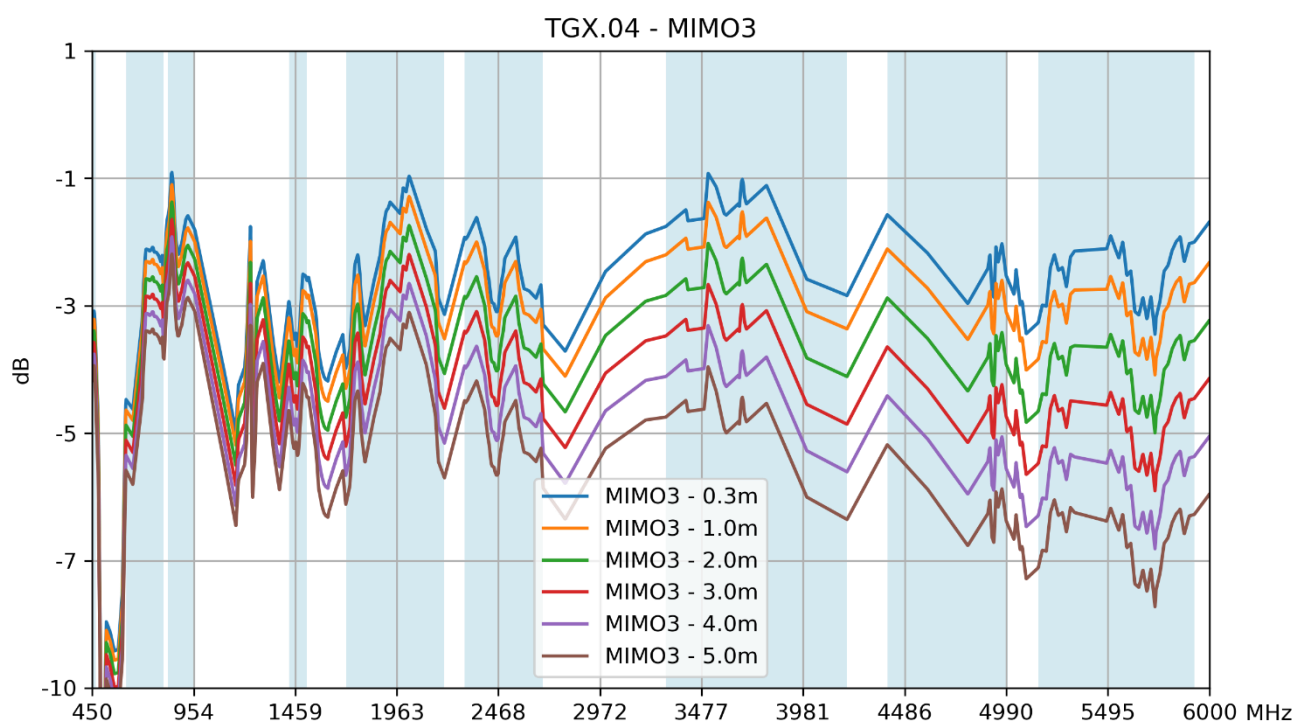
7.2 Peak Gain





7.3 Average Gain





7.4 Comparison Table

Frequency (MHz)		LTE 450	5GNR B71	LTE 700	LTE 800/900	5GNR 1500	5GNR n66	LTE 2600	5GNR n77	5GNR n78	5GNR n79	LTE 5200
		450-470	610-698	698-806	824-960	1427-1518	1710-2200	2300-2690	3300-4200	3300-3800	4400-5000	5150-5925
Efficiency (%)												
MIMO1	0.3m	41.2	38.4	60.2	69.0	55.3	68.2	55.2	67.7	68.8	59.8	52.5
	1.0m	39.9	36.7	57.4	65.7	51.8	62.8	50.1	59.8	60.8	51.9	44.9
	2.0m	38.1	34.4	53.5	61.3	47.2	55.8	43.6	50.1	51.0	42.2	35.9
	3.0m	36.4	32.3	50.0	57.2	43.0	49.7	38.0	42.0	42.8	34.4	28.7
	4.0m	34.8	30.3	46.6	53.4	39.2	44.2	33.1	35.2	35.9	28.0	23.0
	5.0m	33.2	28.4	43.5	49.9	35.7	39.3	28.8	29.5	30.1	22.8	18.4
MIMO2	0.3m	44.7	31.8	41.3	60.3	56.1	57.9	49.4	65.9	67.1	60.9	53.0
	1.0m	43.3	30.4	39.3	57.5	52.6	53.3	44.9	58.2	59.3	52.7	45.3
	2.0m	41.3	28.5	36.7	53.7	47.9	47.4	39.1	48.8	49.7	43.0	36.2
	3.0m	39.5	26.7	34.3	50.1	43.7	42.1	34.0	40.9	41.7	35.0	29.0
	4.0m	37.7	25.1	32.0	46.7	39.8	37.5	29.7	34.3	35.0	28.5	23.2
	5.0m	36.0	23.5	29.8	43.6	36.2	33.3	25.8	28.7	29.4	23.2	18.5
MIMO3	0.3m	42.0	34.5	54.7	64.4	44.2	58.7	50.8	67.7	69.7	54.1	52.2
	1.0m	40.6	33.0	52.1	61.4	41.4	54.1	46.2	59.8	61.6	46.8	44.6
	2.0m	38.8	30.9	48.6	57.3	37.7	48.1	40.2	50.1	51.7	38.2	35.7
	3.0m	37.1	29.0	45.4	53.5	34.3	42.7	35.0	42.0	43.3	31.1	28.5
	4.0m	35.4	27.1	42.4	49.9	31.3	38.0	30.5	35.2	36.4	25.3	22.8
	5.0m	33.8	25.4	39.5	46.6	28.5	33.8	26.6	29.5	30.5	20.6	18.2
MIMO4	0.3m	33.4	40.4	60.3	44.7	49.2	66.4	54.0	69.1	70.7	60.9	51.9
	1.0m	32.4	38.6	57.5	42.6	46.0	61.1	49.0	61.1	62.5	52.8	44.4
	2.0m	30.9	36.2	53.6	39.8	41.9	54.4	42.7	51.2	52.4	43.0	35.5
	3.0m	29.5	33.9	50.1	37.1	38.2	48.3	37.2	42.9	43.9	35.0	28.4
	4.0m	28.2	31.8	46.7	34.6	34.8	43.0	32.4	35.9	36.9	28.5	22.7
	5.0m	26.9	29.8	43.6	32.3	31.7	38.2	28.2	30.1	30.9	23.2	18.2
Average Gain (dB)												
MIMO1	0.3m	-3.85	-4.15	-2.20	-1.61	-2.57	-1.66	-2.58	-1.69	-1.62	-2.23	-2.80
	1.0m	-3.99	-4.35	-2.41	-1.82	-2.86	-2.02	-3.00	-2.23	-2.16	-2.85	-3.48
	2.0m	-4.19	-4.63	-2.71	-2.12	-3.26	-2.53	-3.60	-3.00	-2.92	-3.74	-4.45
	3.0m	-4.39	-4.91	-3.01	-2.42	-3.67	-3.04	-4.20	-3.77	-3.69	-4.63	-5.42
	4.0m	-4.59	-5.19	-3.31	-2.72	-4.07	-3.55	-4.80	-4.53	-4.45	-5.52	-6.39
	5.0m	-4.79	-5.47	-3.61	-3.02	-4.48	-4.06	-5.40	-5.30	-5.21	-6.41	-7.36
MIMO2	0.3m	-3.50	-4.97	-3.84	-2.19	-2.51	-2.38	-3.06	-1.81	-1.73	-2.16	-2.75
	1.0m	-3.64	-5.17	-4.05	-2.40	-2.79	-2.73	-3.48	-2.35	-2.27	-2.78	-3.44
	2.0m	-3.84	-5.45	-4.35	-2.70	-3.20	-3.24	-4.08	-3.12	-3.03	-3.67	-4.41
	3.0m	-4.04	-5.73	-4.65	-3.00	-3.60	-3.76	-4.68	-3.89	-3.80	-4.56	-5.38

	4.0m	-4.24	-6.01	-4.95	-3.30	-4.00	-4.27	-5.28	-4.65	-4.56	-5.45	-6.35
	5.0m	-4.44	-6.29	-5.25	-3.60	-4.41	-4.78	-5.88	-5.42	-5.32	-6.34	-7.32
MIMO3	0.3m	-3.77	-4.62	-2.62	-1.91	-3.55	-2.31	-2.94	-1.70	-1.57	-2.67	-2.82
	1.0m	-3.91	-4.82	-2.83	-2.12	-3.83	-2.67	-3.36	-2.23	-2.10	-3.29	-3.50
	2.0m	-4.11	-5.10	-3.13	-2.42	-4.24	-3.18	-3.96	-3.00	-2.87	-4.18	-4.48
	3.0m	-4.31	-5.38	-3.43	-2.72	-4.65	-3.69	-4.56	-3.77	-3.63	-5.07	-5.45
	4.0m	-4.51	-5.66	-3.73	-3.02	-5.05	-4.20	-5.16	-4.54	-4.39	-5.96	-6.42
	5.0m	-4.71	-5.95	-4.03	-3.32	-5.46	-4.71	-5.76	-5.30	-5.16	-6.85	-7.39
MIMO4	0.3m	-4.76	-3.94	-2.19	-3.49	-3.08	-1.78	-2.68	-1.60	-1.51	-2.15	-2.85
	1.0m	-4.90	-4.13	-2.40	-3.70	-3.37	-2.14	-3.10	-2.14	-2.04	-2.78	-3.53
	2.0m	-5.10	-4.42	-2.70	-4.00	-3.77	-2.65	-3.70	-2.91	-2.81	-3.67	-4.50
	3.0m	-5.30	-4.70	-3.00	-4.30	-4.18	-3.16	-4.30	-3.68	-3.57	-4.56	-5.47
	4.0m	-5.50	-4.98	-3.30	-4.60	-4.59	-3.67	-4.90	-4.44	-4.33	-5.45	-6.44
	5.0m	-5.70	-5.26	-3.60	-4.90	-4.99	-4.18	-5.50	-5.21	-5.10	-6.34	-7.41
Peak Gain (dBi)												
MIMO1	0.3m	1.57	1.38	3.46	3.56	3.30	4.91	5.27	4.98	4.98	6.71	4.26
	1.0m	1.43	1.20	3.25	3.35	3.02	4.56	4.85	4.48	4.48	6.12	3.56
	2.0m	1.23	0.94	2.95	3.05	2.62	4.06	4.25	3.77	3.77	5.28	2.56
	3.0m	1.03	0.68	2.65	2.75	2.22	3.56	3.65	3.06	3.06	4.43	1.56
	4.0m	0.83	0.42	2.35	2.45	1.82	3.06	3.05	2.35	2.35	3.59	0.56
	5.0m	0.63	0.16	2.05	2.15	1.42	2.56	2.45	1.64	1.64	2.74	-0.44
MIMO2	0.3m	0.18	1.93	2.70	3.55	4.20	5.56	5.88	5.78	5.71	5.04	4.64
	1.0m	0.04	1.72	2.49	3.34	3.90	5.21	5.46	5.22	5.15	4.45	4.01
	2.0m	-0.16	1.42	2.19	3.04	3.47	4.71	4.86	4.42	4.35	3.60	3.11
	3.0m	-0.36	1.12	1.89	2.74	3.07	4.21	4.26	3.62	3.55	2.76	2.21
	4.0m	-0.56	0.82	1.59	2.44	2.67	3.71	3.66	2.82	2.75	1.91	1.31
	5.0m	-0.76	0.52	1.29	2.14	2.27	3.21	3.06	2.02	1.95	1.07	0.41
MIMO3	0.3m	0.34	0.22	1.70	3.10	2.38	4.61	5.44	6.37	6.37	4.23	5.00
	1.0m	0.20	0.01	1.49	2.89	2.10	4.26	5.02	5.81	5.81	3.64	4.30
	2.0m	-0.00	-0.29	1.19	2.59	1.70	3.76	4.42	5.01	5.01	2.80	3.30
	3.0m	-0.20	-0.59	0.89	2.29	1.30	3.26	3.82	4.21	4.21	1.95	2.30
	4.0m	-0.40	-0.89	0.59	1.99	0.90	2.76	3.22	3.41	3.41	1.11	1.30
	5.0m	-0.60	-1.19	0.29	1.69	0.50	2.26	2.62	2.61	2.61	0.26	0.30
MIMO4	0.3m	0.76	2.73	3.06	3.08	3.52	4.06	4.65	4.92	4.01	5.99	3.93
	1.0m	0.62	2.52	2.85	2.87	3.24	3.71	4.23	4.34	3.45	5.40	3.30
	2.0m	0.42	2.22	2.55	2.57	2.84	3.21	3.63	3.52	2.65	4.56	2.40
	3.0m	0.22	1.92	2.25	2.27	2.44	2.71	3.03	2.70	1.85	3.71	1.50
	4.0m	0.02	1.62	1.95	1.97	2.04	2.21	2.43	1.88	1.05	2.87	0.60
	5.0m	-0.18	1.32	1.65	1.67	1.64	1.71	1.83	1.05	0.25	2.03	-0.30

Changelog for the datasheet

SPE-21-8-049 – TGX.04.A.01

Revision: A (Original First Release)	
Date:	2021-07-19
Notes:	
Author:	Jack Conroy

Previous Revisions



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