



# TAOGLAS®



# Datasheet

**Part No:**  
TGX.08.A.001

**Description**

Wideband 600-6000MHz 5G MIMO 8-in-1 Cross Polarized Antenna  
With Multi-mount Bracket (Wall, Pole and Suction Cup Mounting options)

**Features:**

Highest efficiency for 600-6000MHz wideband applications  
Fully 5G NR Cellular Operational  
Cross Polarized Dipole Antennas  
IP65 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: 338\*171\*60mm  
RoHS & Reach Compliant

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# 1. Introduction



The Taoglas TGX.08 is an 8\*8 5G MIMO cross-polarized omnidirectional dipole antenna with a wide bandwidth covering all worldwide sub 6GHz cellular bands from 600 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 such as wall, pole and suction cup.

Typical applications include:

- Fixed Wireless Access
- In Building Connectivity
- Passenger Rail and Bus

The antenna is tuned for great performance at the recently established 5G NR bands between 3300 - 4200MHz and covers Band 71 (617MHz) at the lower end of the 5G NR frequency spectrum. High Efficiency and good Gain is achievable at each band on all MIMO antennas. The cross polarized antennas' layout also enhances MIMO performance capabilities, thus improving signal quality.

This is achieved by applying polarization diversity with +/- 45-degree polarized 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.08 has been designed for typical applications including gateways, routers and wireless access points that require, high efficiency and unrivalled performance, and itself is a great 8x8 MIMO solution.

The robust TGX.08 enclosure is IP65 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.08 is an omnidirectional antenna, but the mounting bracket allows the user to position the antenna and lock it into place for optimal performance.

The 3m 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. Specification

Electrical									
Band	Frequency (MHz)	Measurement	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
5G NR B71	617-698	5G NR_1	38.9	-4.10	2.01	50 Ω	Cross Polarized Linear	Omni-Directional	10W
		5G NR_2	33.0	-4.82	-0.40				
		5G NR_3	35.6	-4.49	-0.16				
		5G NR_4	37.2	-4.29	1.32				
		5G NR_5	31.1	-5.07	1.04				
		5G NR_6	32.3	-4.90	0.47				
		5G NR_7	29.8	-5.25	-0.48				
		5G NR_8	30.8	-5.11	0.57				
LTE 700	698-806	5G NR_1	42.9	-3.68	2.67	50 Ω	Cross Polarized Linear	Omni-Directional	10W
		5G NR_2	44.6	-3.51	1.46				
		5G NR_3	45.4	-3.43	2.03				
		5G NR_4	45.3	-3.44	1.32				
		5G NR_5	47.3	-3.25	3.87				
		5G NR_6	42.4	-3.73	1.54				
		5G NR_7	40.3	-3.94	0.93				
		5G NR_8	45.3	-3.44	4.38				
LTE 800/900	824-960	5G NR_1	53.9	-2.69	4.06	50 Ω	Cross Polarized Linear	Omni-Directional	10W
		5G NR_2	54.2	-2.66	2.48				
		5G NR_3	54.1	-2.67	2.50				
		5G NR_4	54.7	-2.62	2.38				
		5G NR_5	47.7	-3.21	3.78				
		5G NR_6	39.9	-3.99	2.16				
		5G NR_7	40.7	-3.91	1.71				
		5G NR_8	59.4	-2.26	4.72				
5G NR 1500	1427-1518	5G NR_1	35.1	-4.54	3.23	50 Ω	Cross Polarized Linear	Omni-Directional	10W
		5G NR_2	51.1	-2.91	3.05				
		5G NR_3	48.6	-3.13	4.10				
		5G NR_4	36.6	-4.36	2.80				
		5G NR_5	30.3	-5.19	1.88				
		5G NR_6	29.8	-5.26	3.06				
		5G NR_7	35.9	-4.45	5.24				
		5G NR_8	24.1	-6.19	1.87				
5G NR n66	1710-2200	5G NR_1	42.2	-3.75	3.20	50 Ω	Cross Polarized Linear	Omni-Directional	10W
		5G NR_2	43.8	-3.59	3.22				
		5G NR_3	29.3	-5.33	3.05				
		5G NR_4	41.9	-3.78	3.81				
		5G NR_5	31.9	-4.97	3.87				
		5G NR_6	33.8	-4.71	2.57				
		5G NR_7	41.6	-3.81	2.87				
		5G NR_8	37.9	-4.21	4.15				
LTE 2600	2300-2690	5G NR_1	38.6	-4.14	4.36	50 Ω	Cross Polarized Linear	Omni-Directional	10W
		5G NR_2	39.2	-4.06	3.24				
		5G NR_3	37.4	-4.27	4.27				
		5G NR_4	37.9	-4.21	3.29				
		5G NR_5	36.5	-4.38	5.26				
		5G NR_6	36.5	-4.38	3.88				
		5G NR_7	39.7	-4.01	4.53				
		5G NR_8	40.9	-3.88	5.41				
5G NR n77	3300-4200	5G NR_1	37.9	-4.22	3.78	50 Ω	Cross Polarized Linear	Omni-Directional	10W
		5G NR_2	33.6	-4.73	3.17				
		5G NR_3	37.5	-4.26	5.27				
		5G NR_4	33.2	-4.78	3.32				
		5G NR_5	33.5	-4.75	3.51				
		5G NR_6	29.2	-5.35	2.66				
		5G NR_7	39.4	-4.05	3.20				
		5G NR_8	34.2	-4.66	3.59				

5G NR n78	3300-3800	5G NR_1	37.6	-4.25	3.78					
		5G NR_2	32.8	-4.84	3.17					
		5G NR_3	37.1	-4.30	5.27					
		5G NR_4	33.0	-4.81	3.05					
		5G NR_5	33.0	-4.82	3.51					
		5G NR_6	28.7	-5.42	2.66					
		5G NR_7	39.6	-4.03	3.20					
		5G NR_8	34.1	-4.67	3.59					
5G NR n79	4400-5000	5G NR_1	44.0	-3.57	4.32					
		5G NR_2	42.9	-3.67	4.72					
		5G NR_3	39.6	-4.02	3.96					
		5G NR_4	36.2	-4.41	3.80					
		5G NR_5	39.6	-4.02	3.63					
		5G NR_6	32.7	-4.86	4.03					
		5G NR_7	40.4	-3.93	4.69					
		5G NR_8	38.6	-4.13	4.06					
LTE 5200	5150-5925	5G NR_1	35.5	-4.49	4.73					
		5G NR_2	35.6	-4.48	4.34					
		5G NR_3	32.6	-4.86	3.58					
		5G NR_4	32.2	-4.92	4.52					
		5G NR_5	34.3	-4.65	3.39					
		5G NR_6	32.5	-4.88	3.95					
		5G NR_7	34.2	-4.66	4.42					
		5G NR_8	35.9	-4.45	3.27					

#### Cross Polar Discrimination (dB)\_XPD\*

Frequency		617-698	698-806	824-960	1427-1518	1710-2170	2300-2690	3300-4200	3300-3800	4400-5000	5150-5925
5G NR_1	Azimuth plane	23.3	33.5	27.0	21.3	20.5	18.7	17.6	17.9	13.2	19.8
5G NR_2		26.2	26.6	29.6	26.8	19.5	31.1	19.3	19.2	23.0	19.3
5G NR_3		25.9	25.8	31.5	30.0	18.4	23.9	19.5	19.0	20.3	15.0
5G NR_4		21.8	22.6	30.1	21.8	20.0	26.6	18.2	18.1	19.5	15.3
5G NR_5		20.2	22.0	22.1	24.9	22.9	27.7	20.2	20.3	17.6	22.5
5G NR_6		32.9	26.8	24.7	21.3	29.9	17.5	19.6	19.8	26.1	18.5
5G NR_7		23.6	26.5	25.8	26.5	23.2	12.9	25.5	25.4	27.8	22.1
5G NR_8		14.6	22.0	25.8	20.0	21.5	29.0	16.5	16.6	14.3	16.6

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

#### Mechanical

Impedance	50 Ω
Polarization	Cross Polarized Linear Antennas
Radiation Pattern	Omni-Directional
Max. input power	10W
Impedance	50 Ω
Cable	3m TGC-200
Connector	SMA Male Straight

#### Environmental

Waterproof Rating	IP65
Temperature Range	-40°C~ 85°C
Humidity	Non-condensing 65°C 95% RH

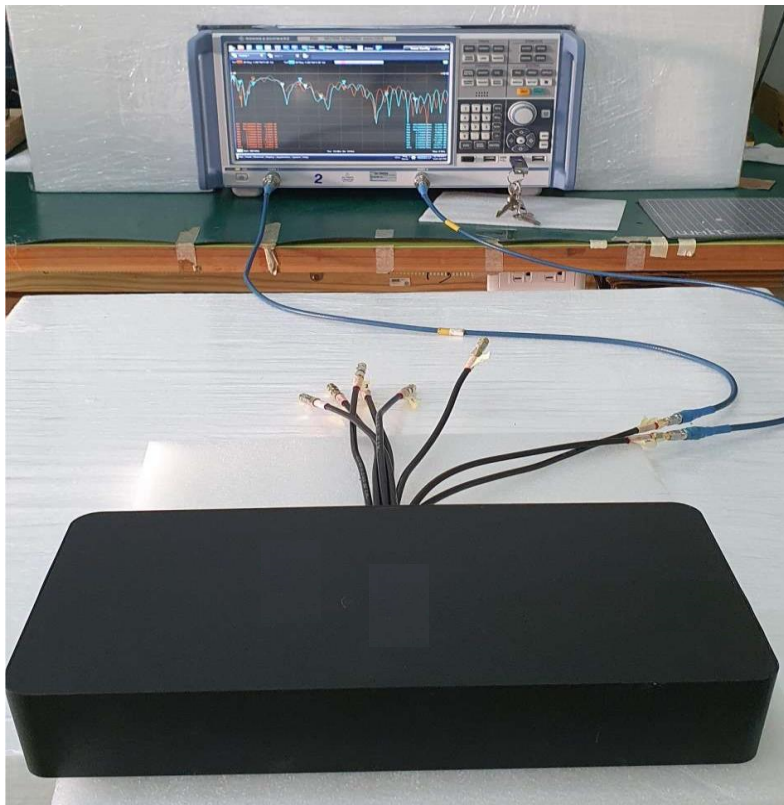
### 3. Antenna Characteristics

#### 3.1 S11 / VSWR / Return Loss

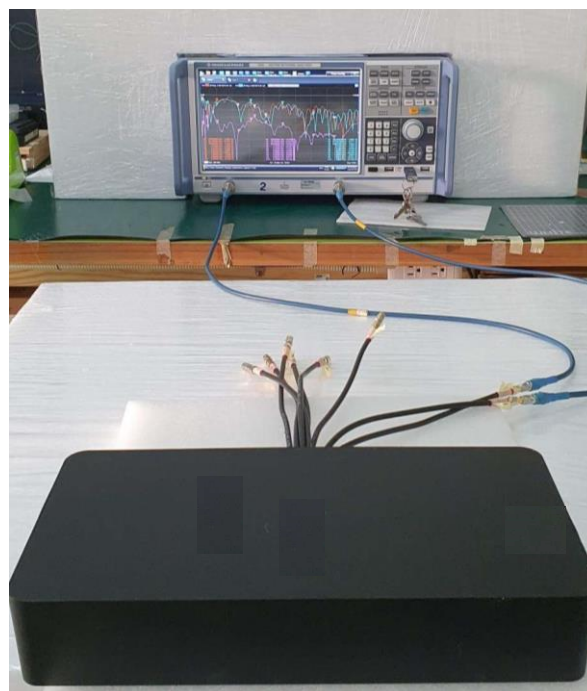
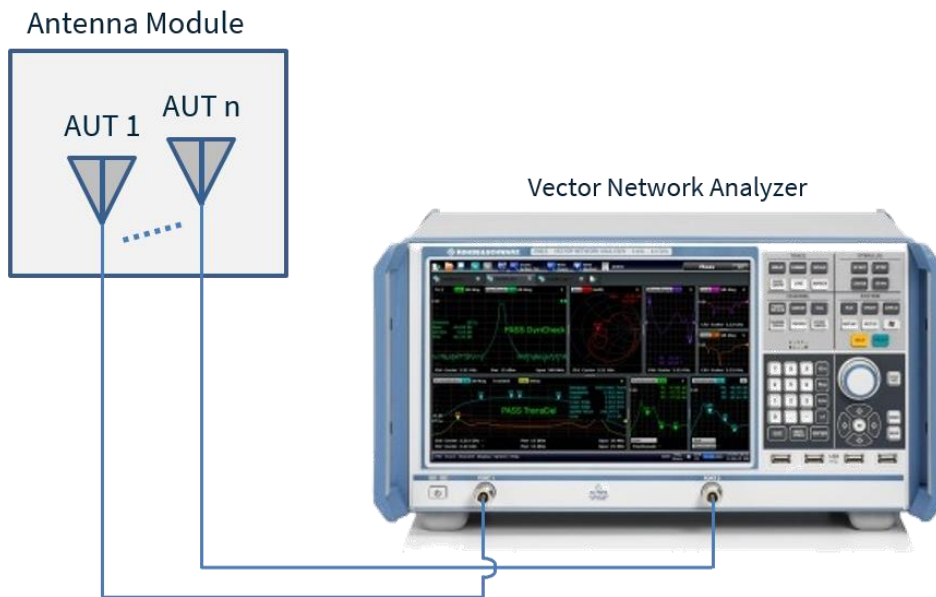
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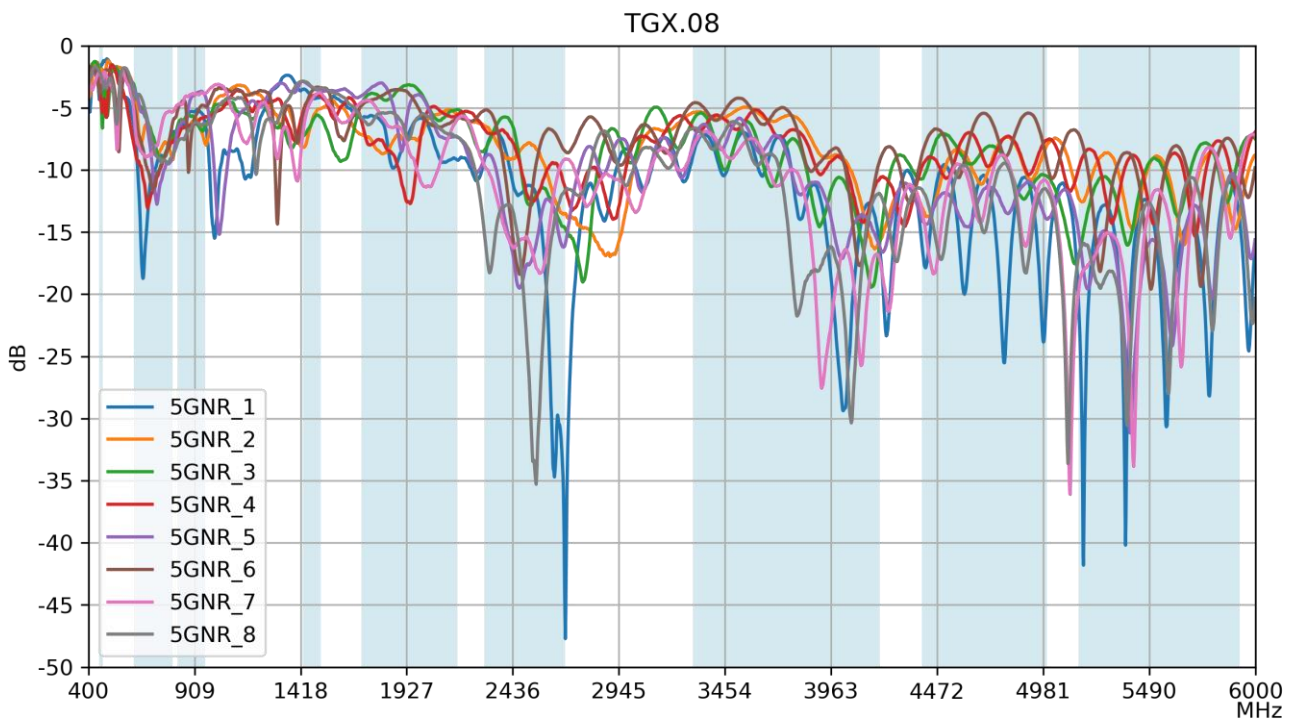
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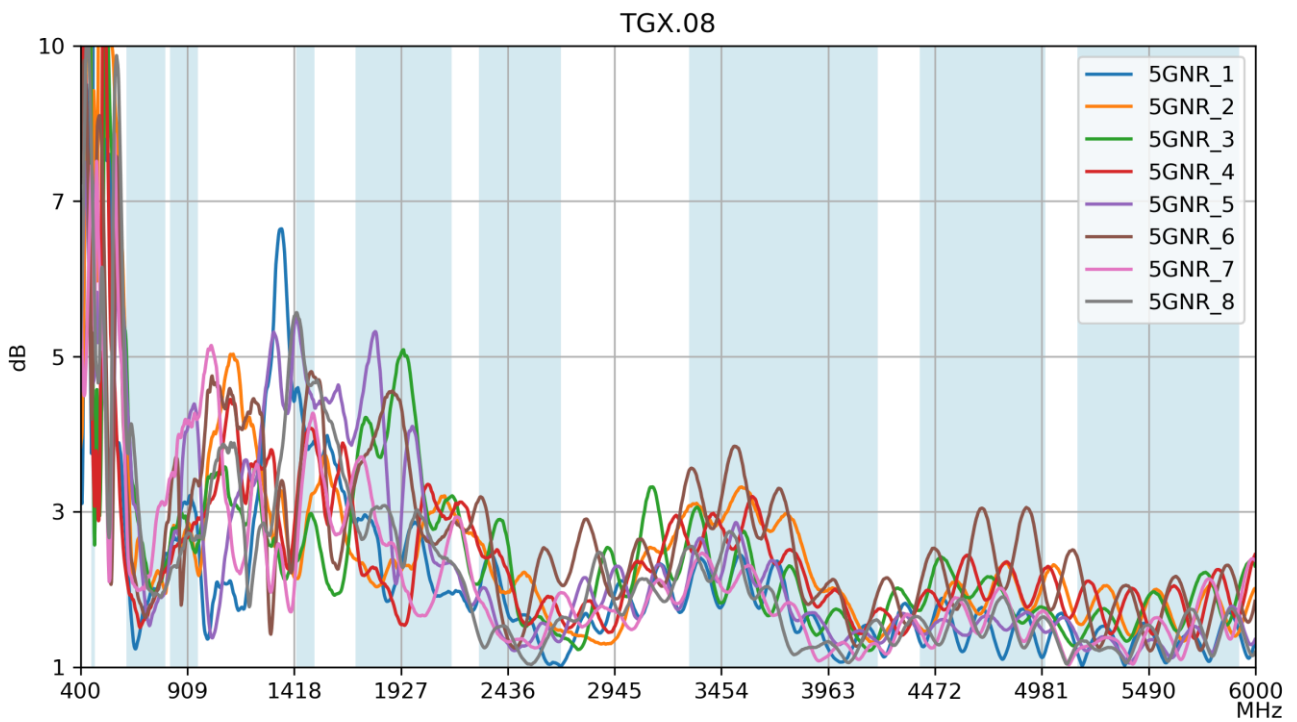
### 3.2 S12 / Isolation



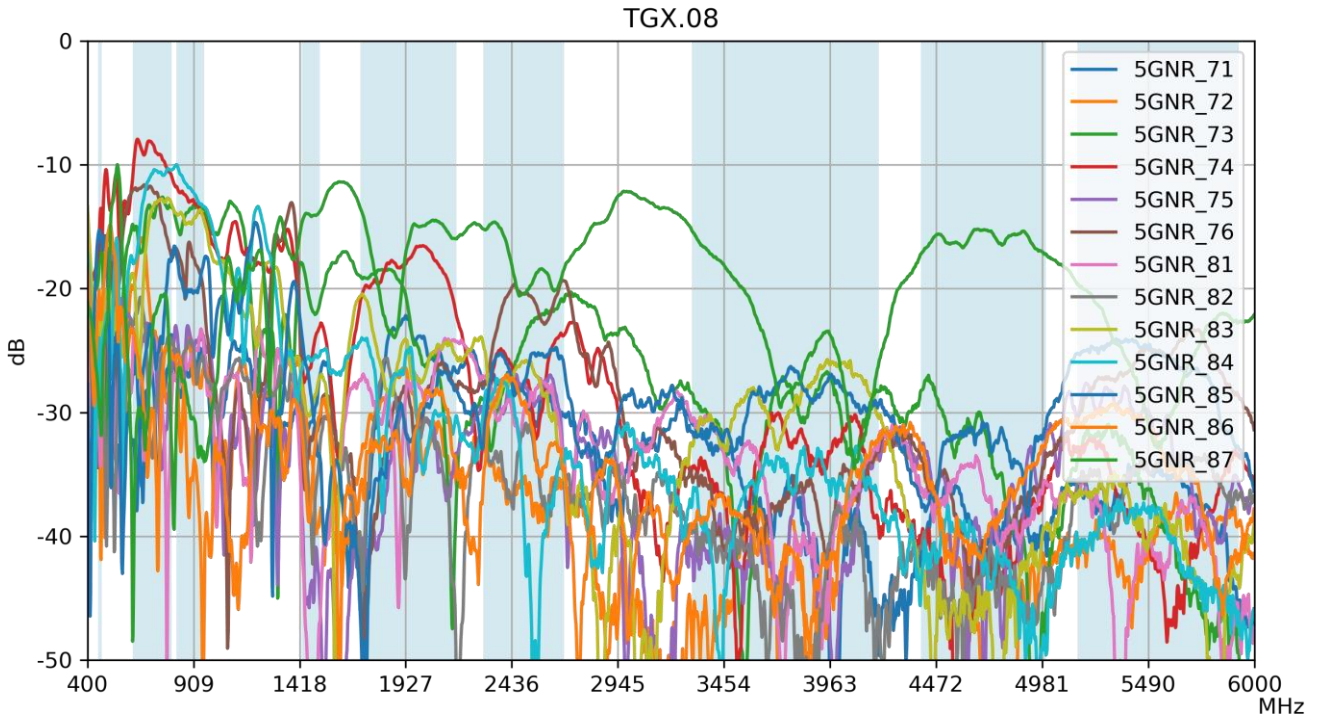
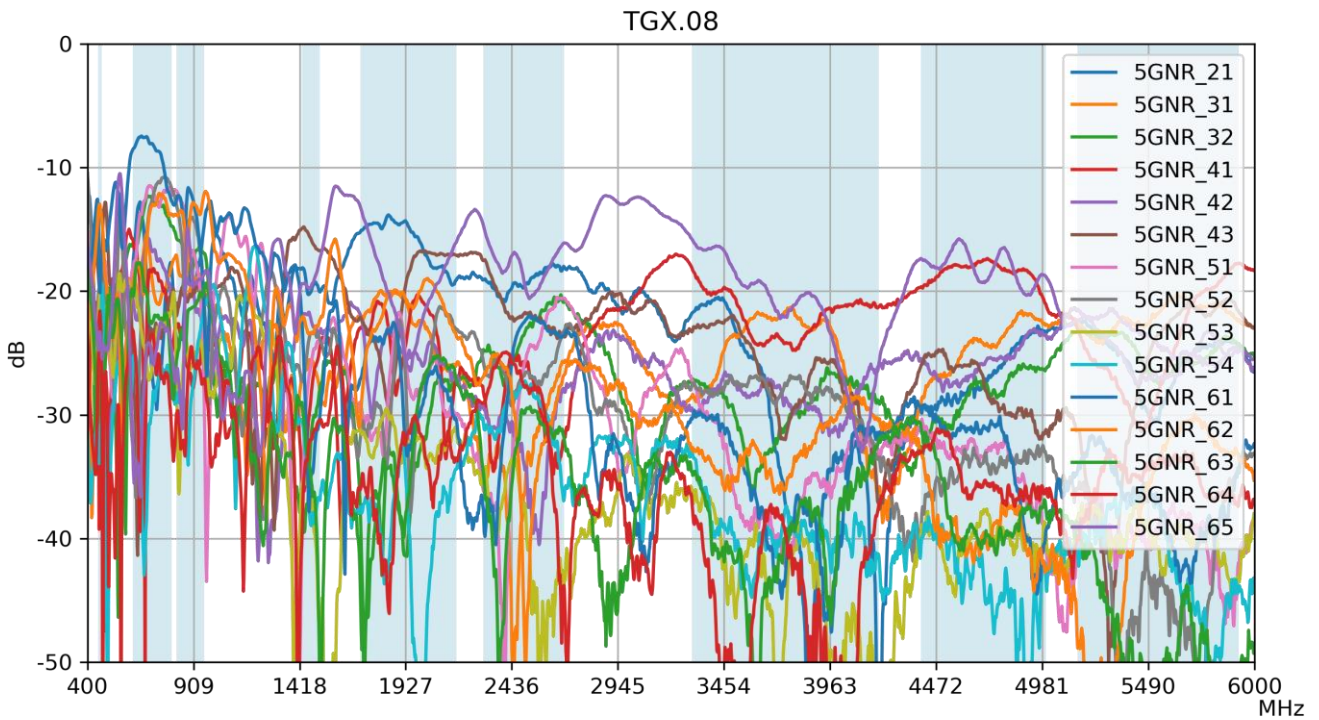
### 3.3 Return Loss



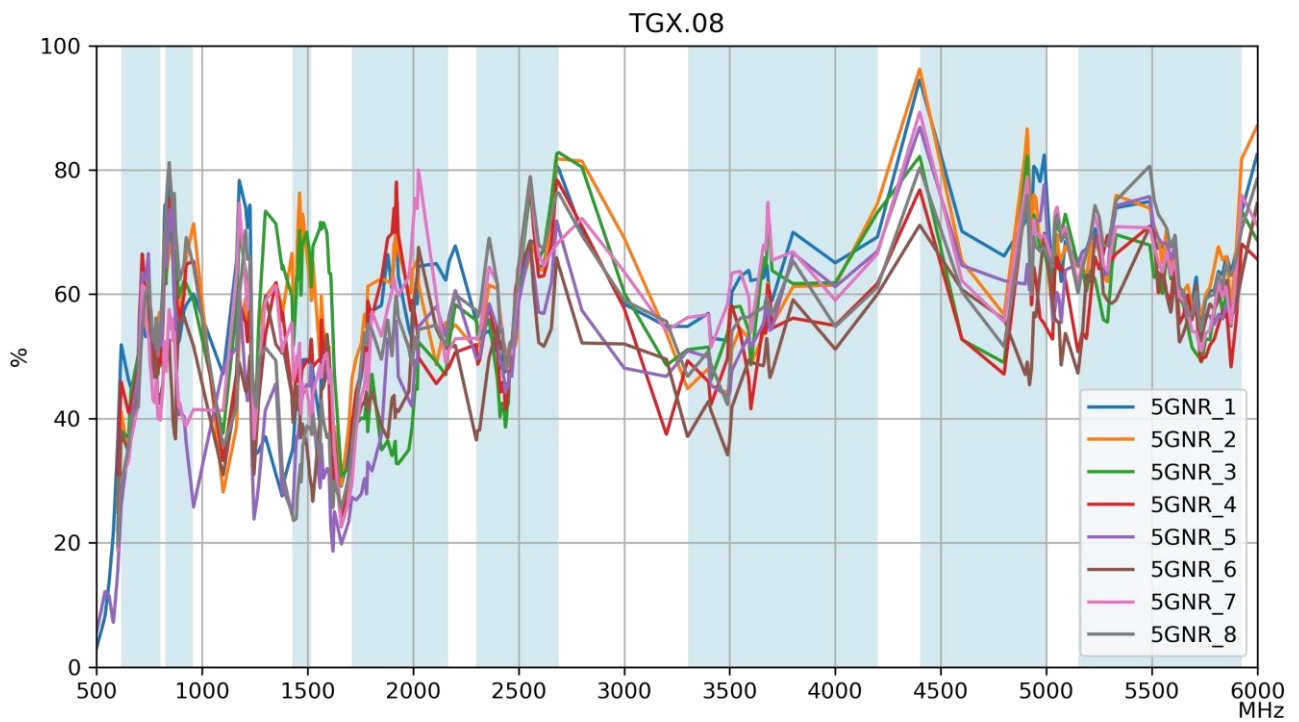
### 3.4 VSWR



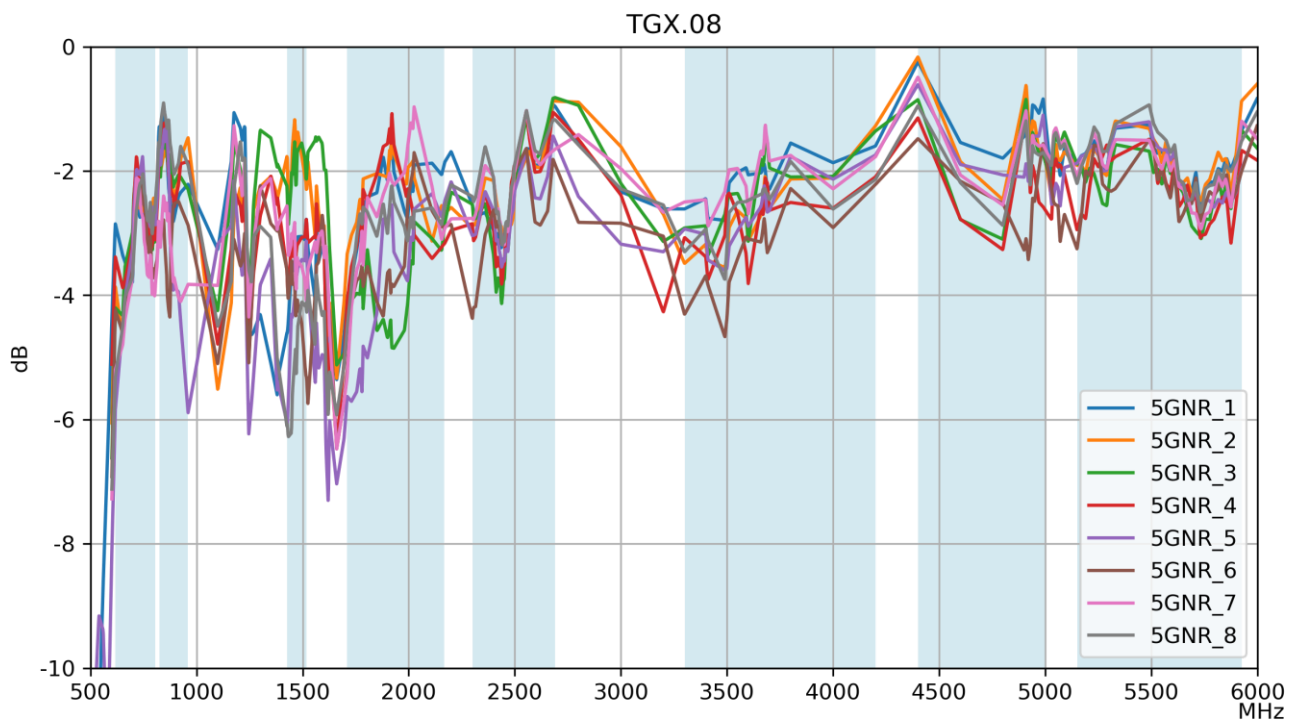
### 3.5 Isolation



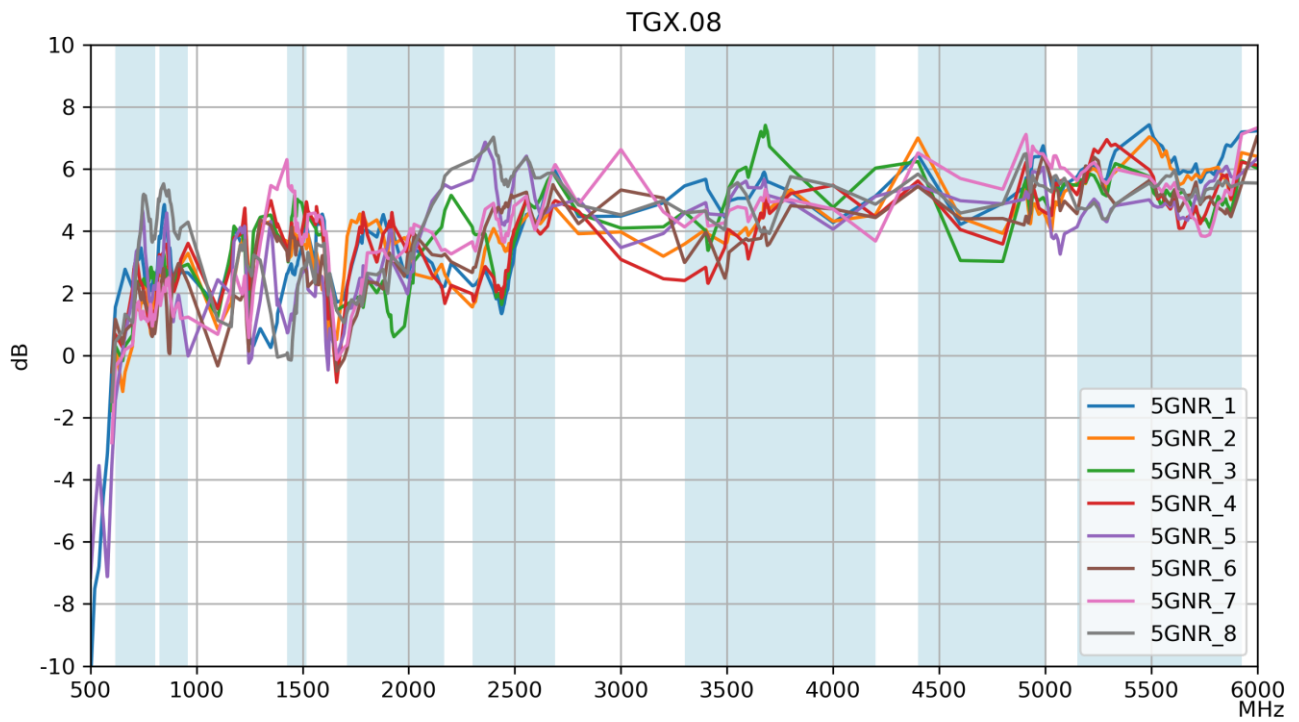
### 3.6 Efficiency



### 3.7 Average Gain

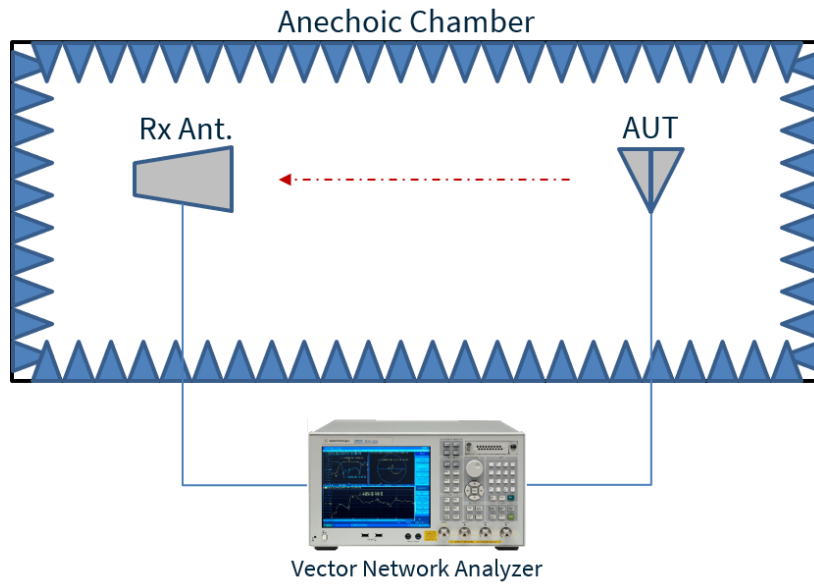


### 3.8 Peak Gain

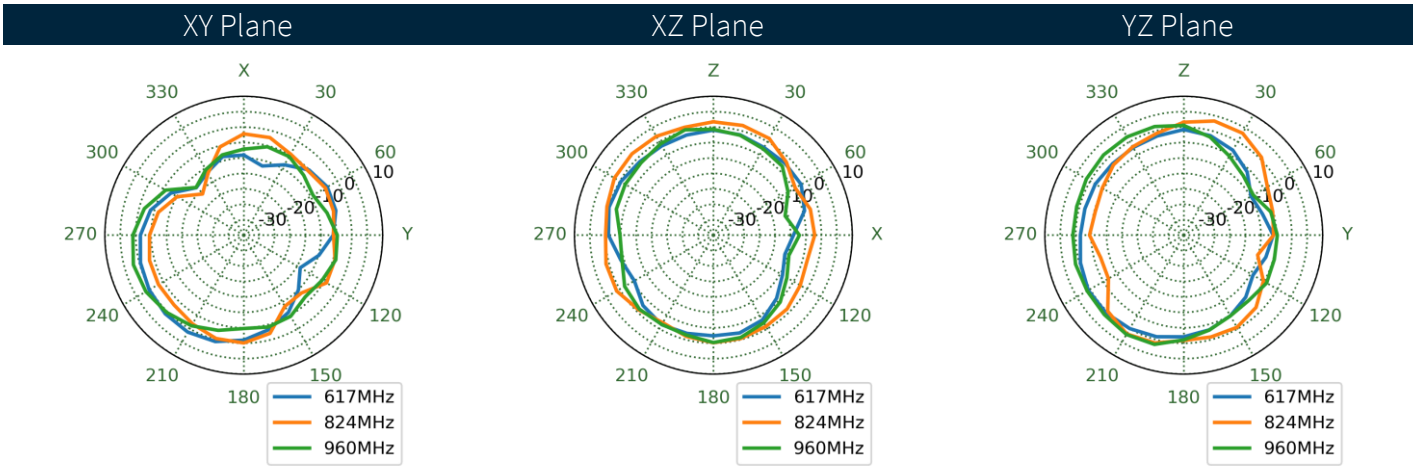
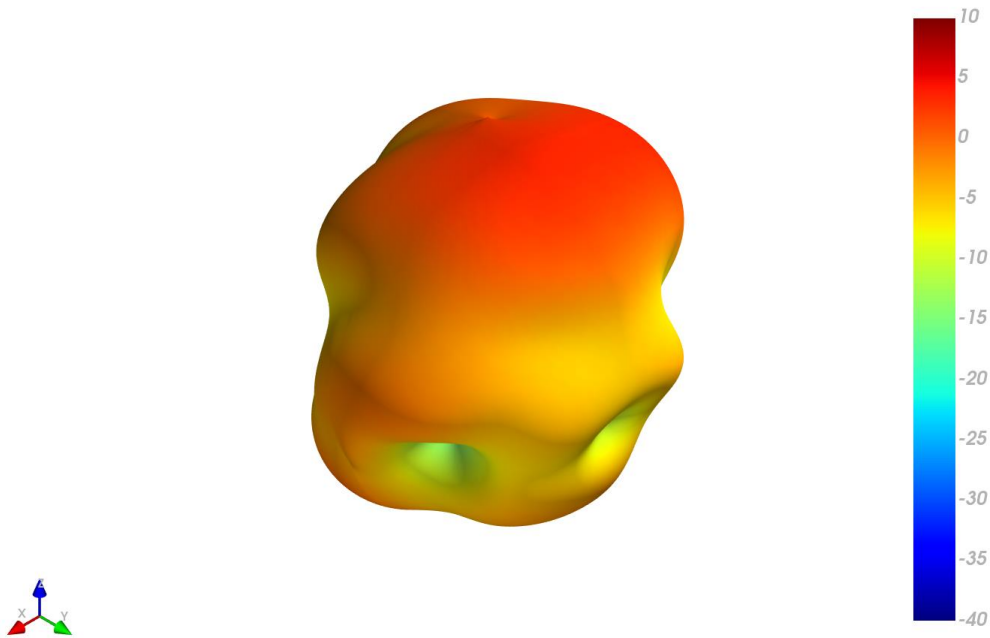


## 4. Radiation Patterns

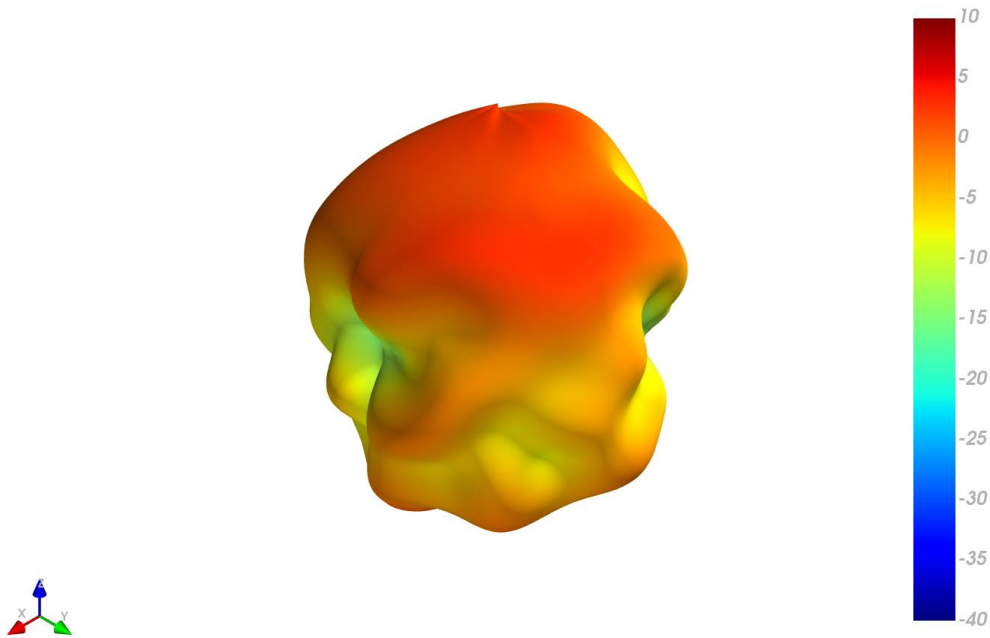
### 4.1 Test Setup



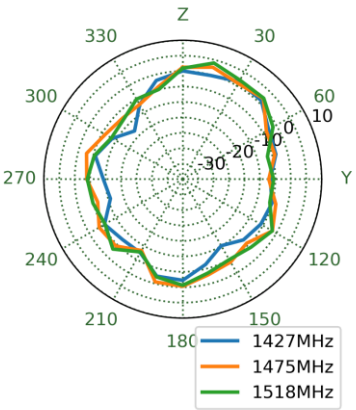
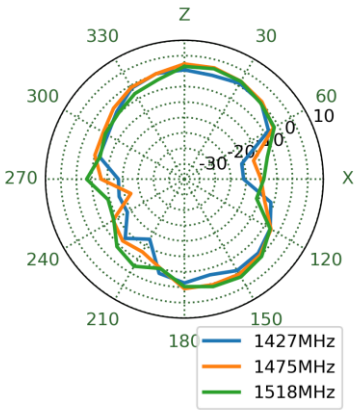
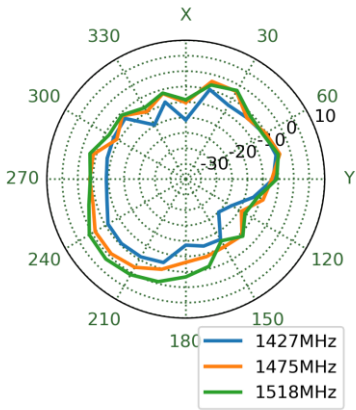
## 4.2 5G NR\_1 - 824MHz Radiation Patterns



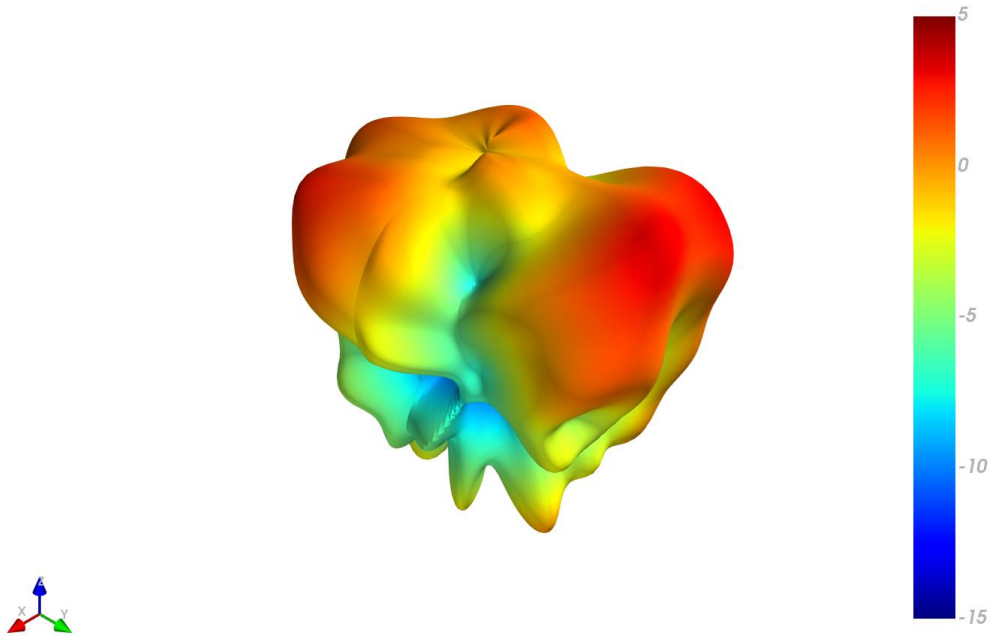
### 4.3 5GNR\_1 - 1475MHz Radiation Patterns



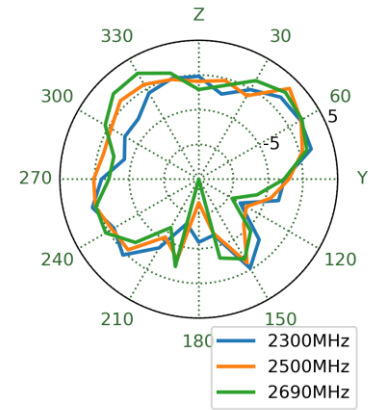
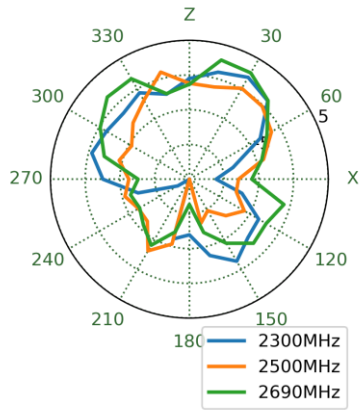
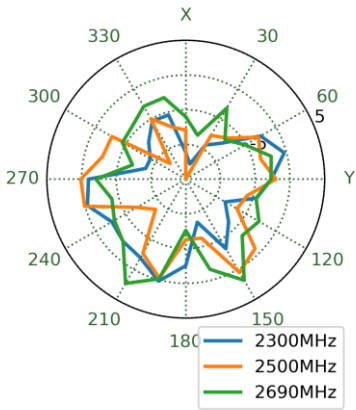
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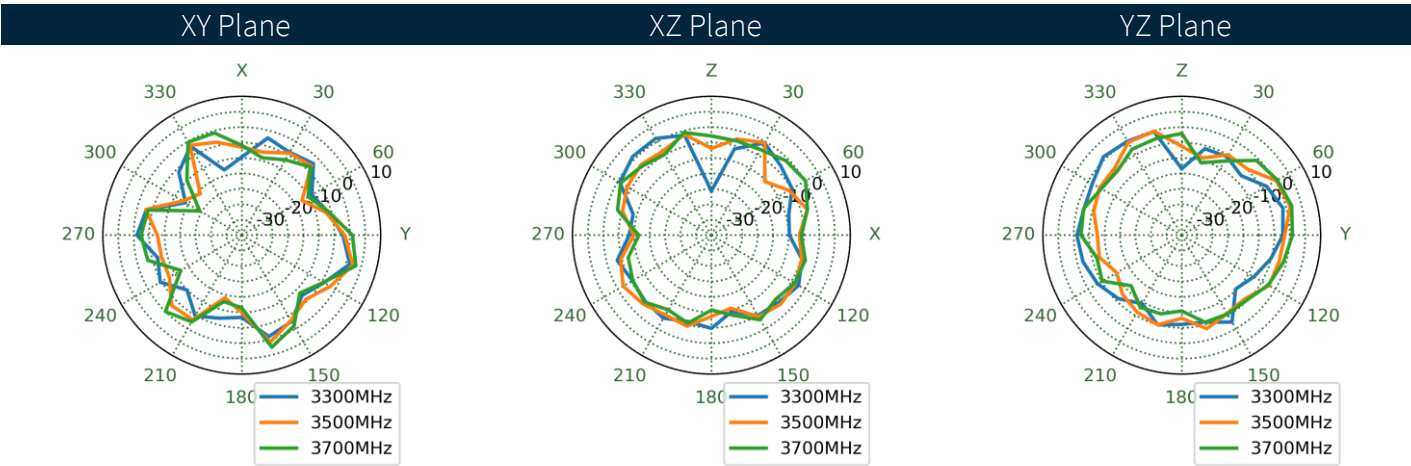
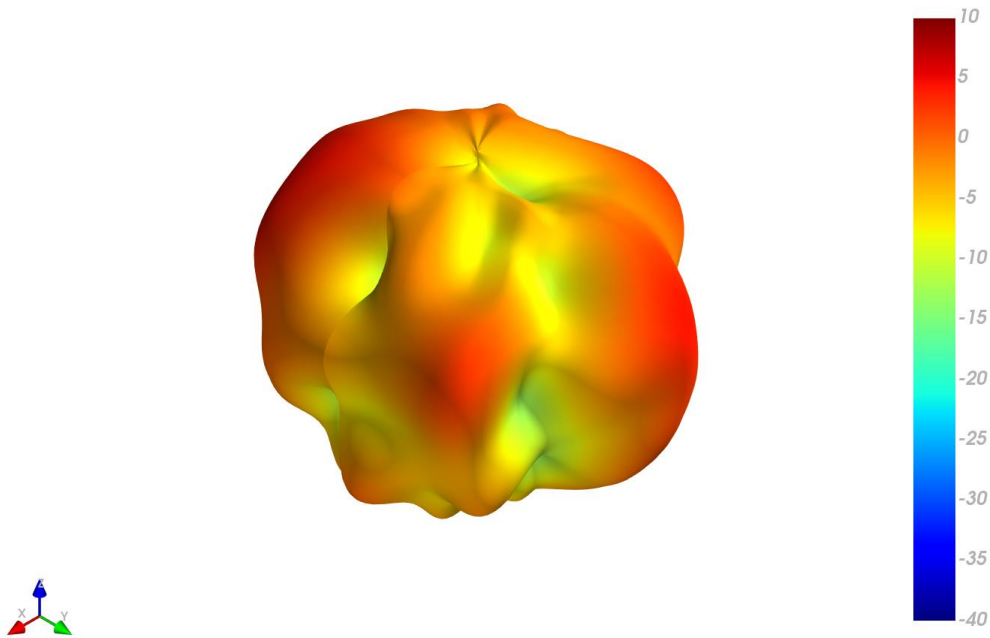
4.4 5G NR\_1 - 2500MHz Radiation Patterns



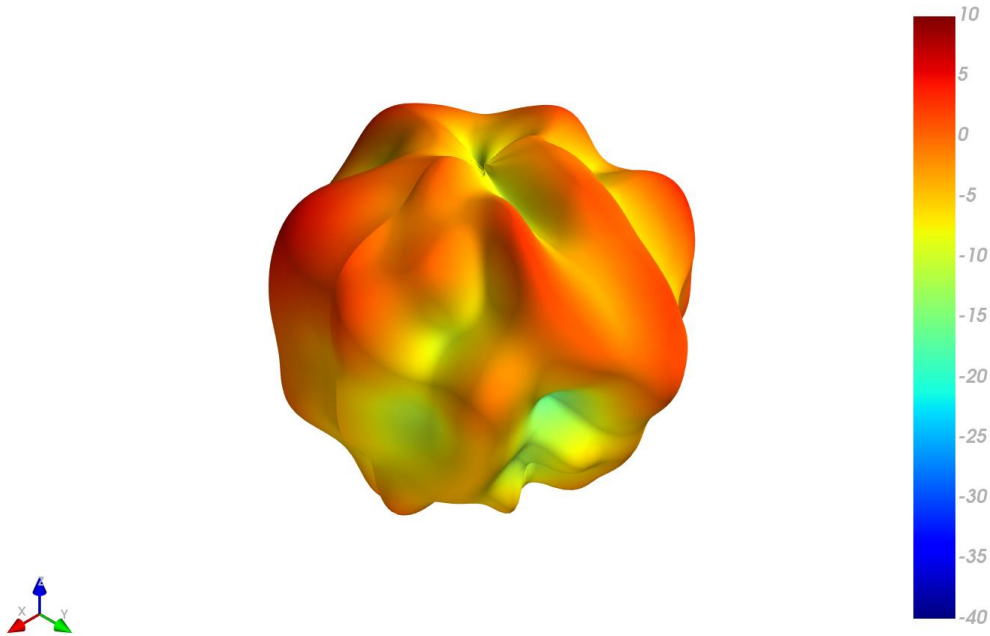
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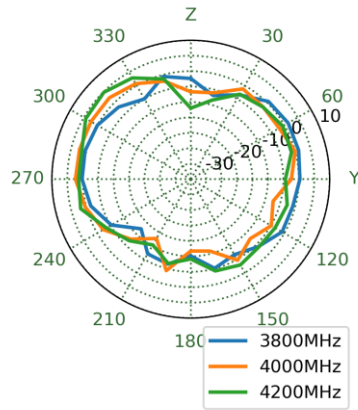
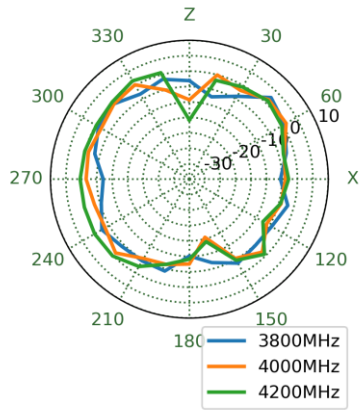
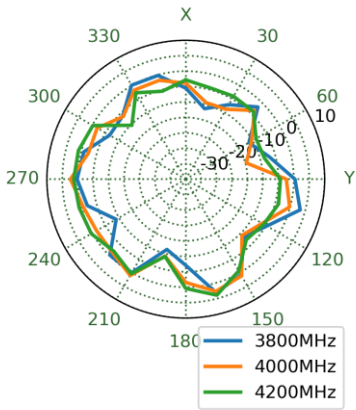
## 4.5 5G NR\_1 - 3500MHz Radiation Patterns



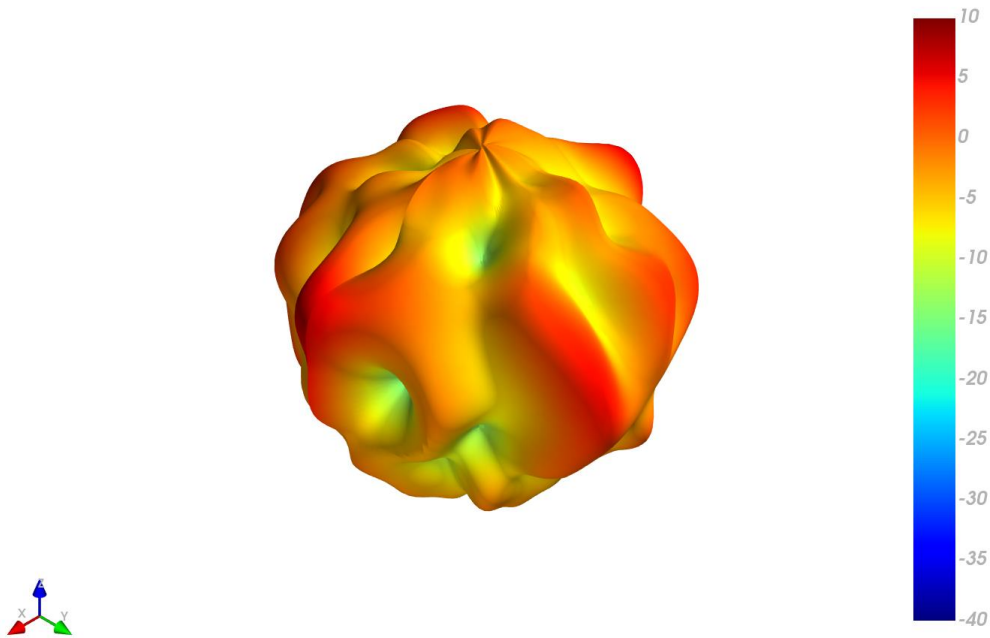
## 4.6 5G NR\_1 - 4000MHz Radiation Patterns



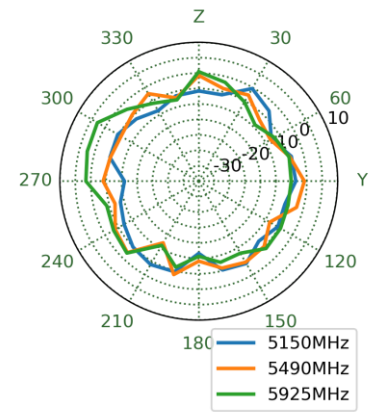
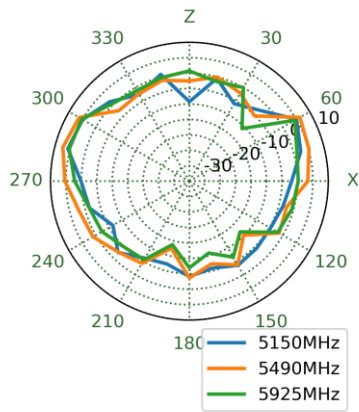
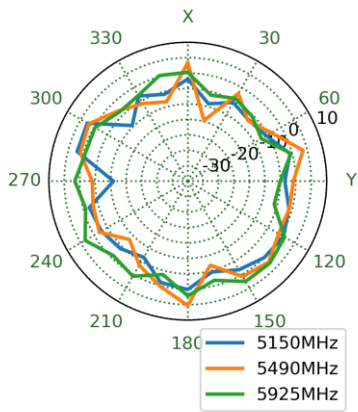
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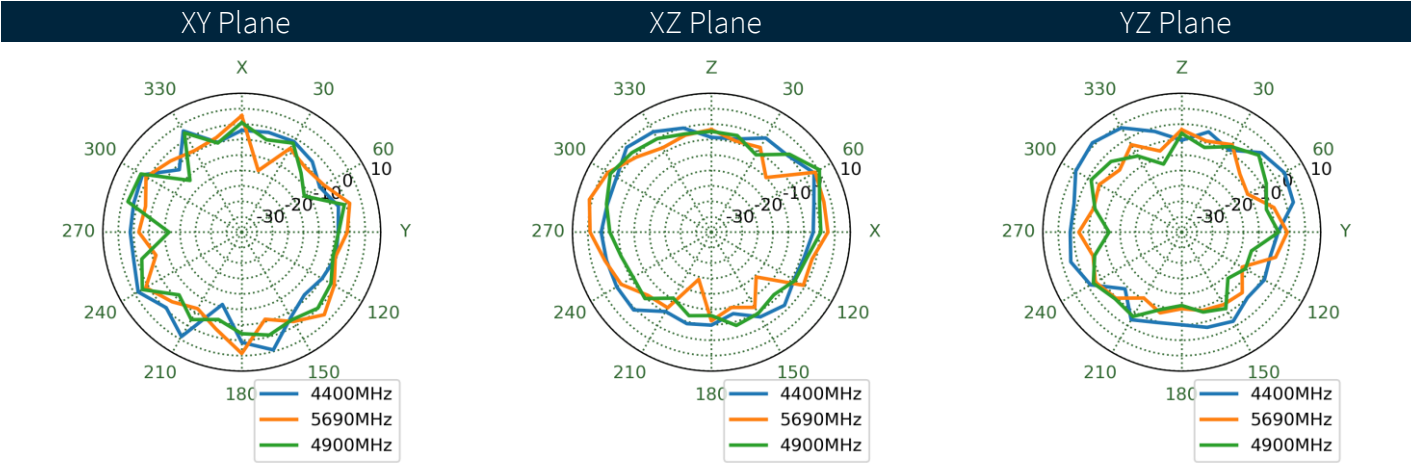
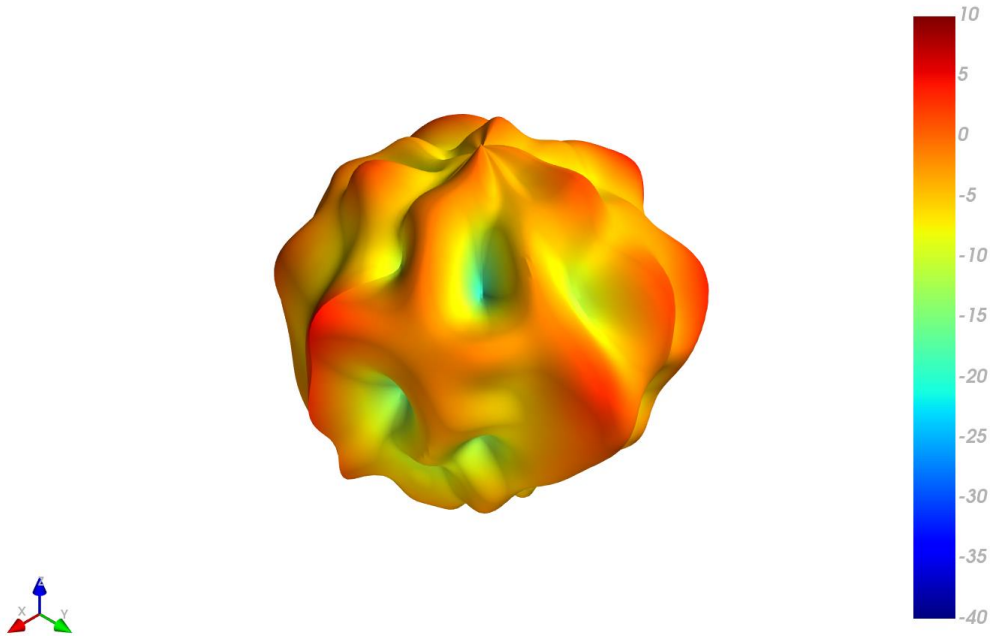
4.7 5GNR\_1 - 5490MHz Radiation Patterns



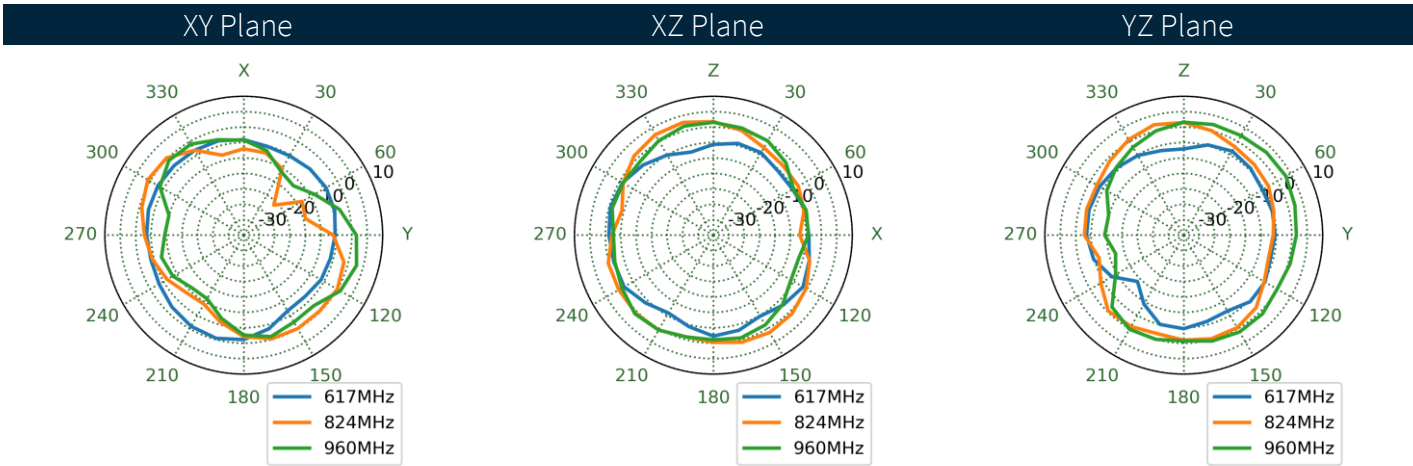
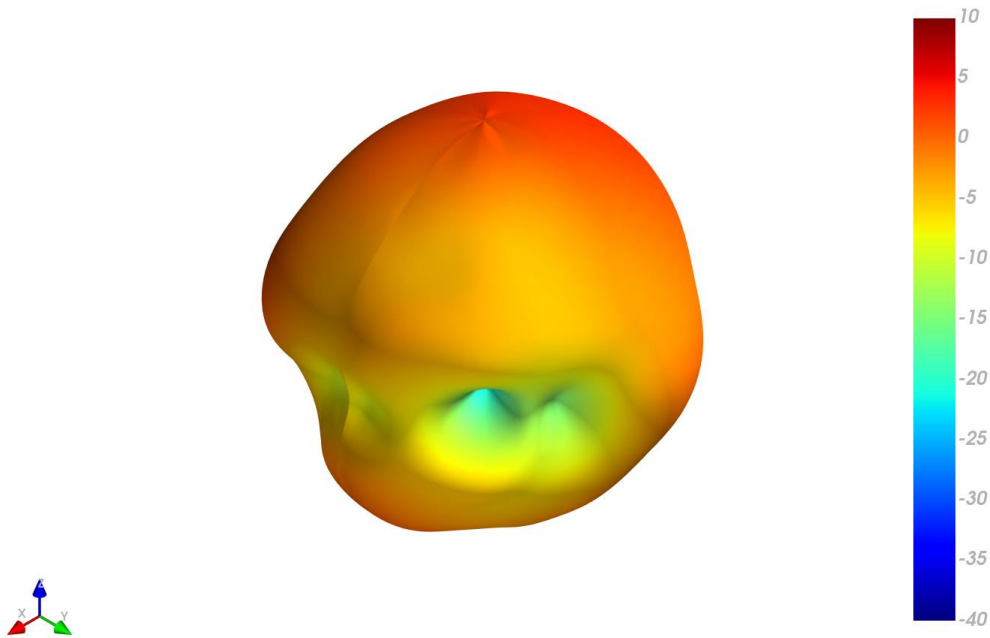
XY Plane XZ Plane YZ Plane



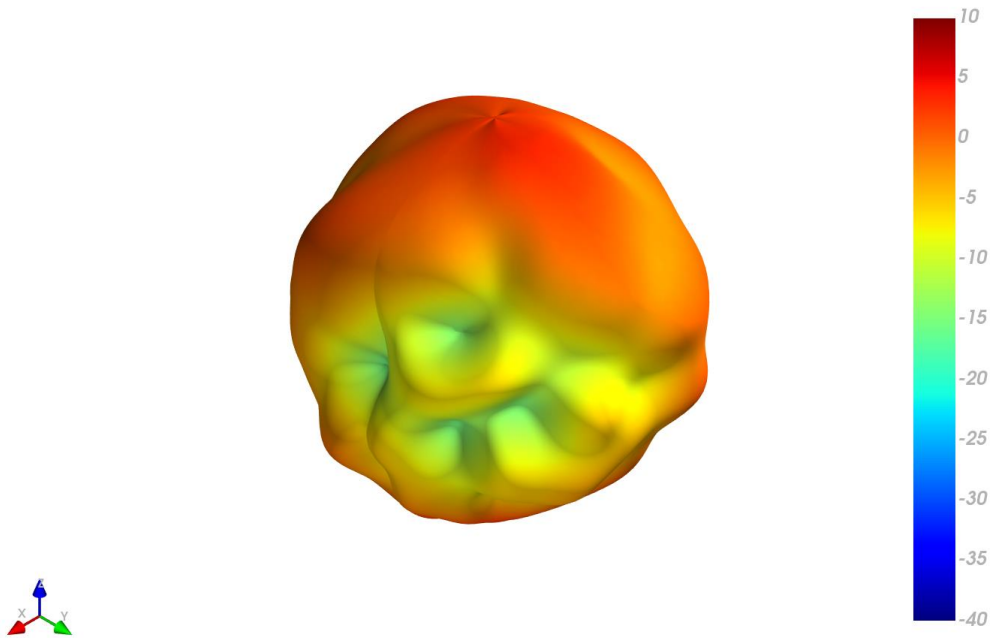
## 4.8 5G NR\_1 - 5690MHz Radiation Patterns



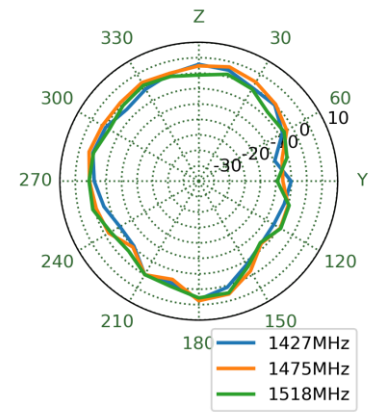
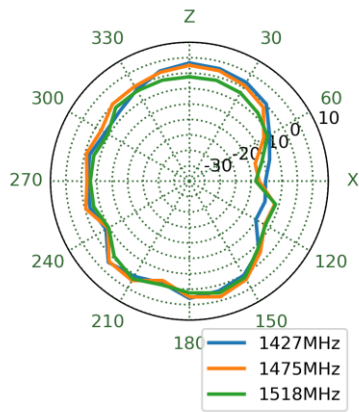
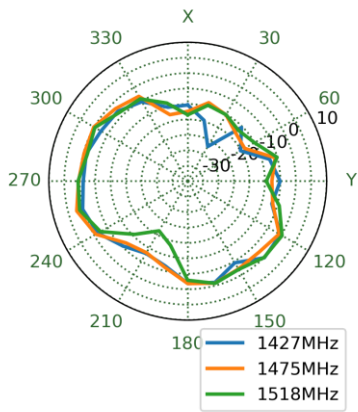
## 4.9 5G NR\_2 - 824MHz Radiation Patterns



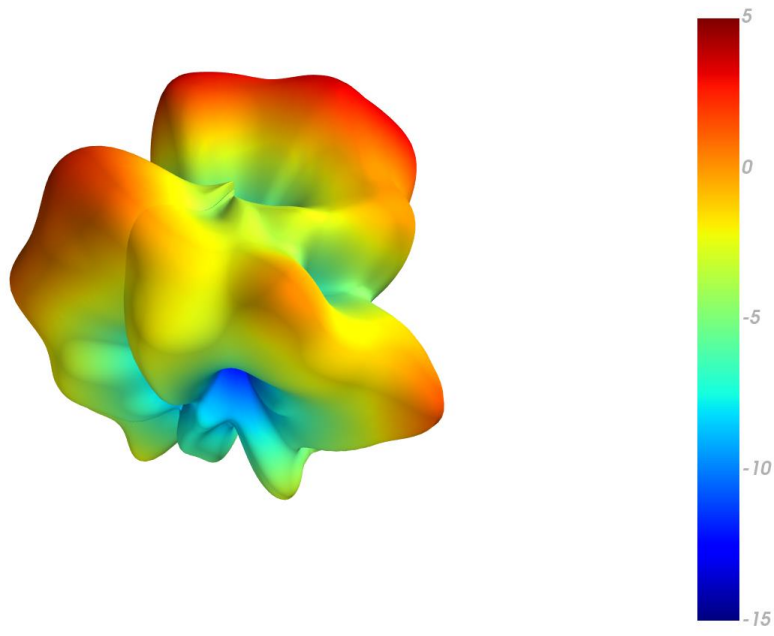
4.10 5GNR\_2 - 1475MHz Radiation Patterns



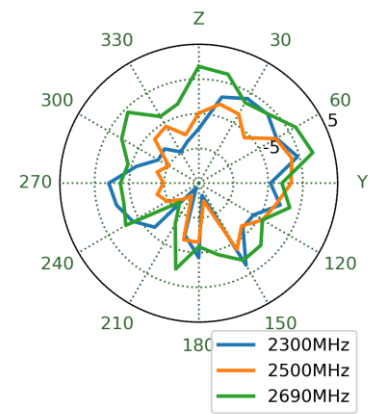
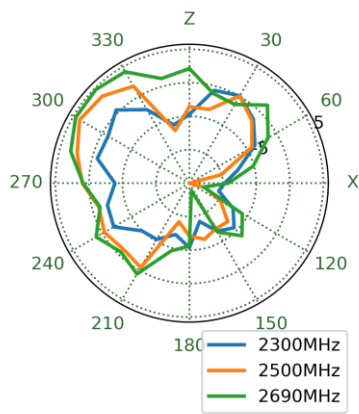
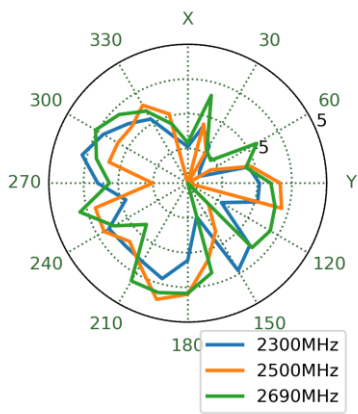
XY Plane XZ Plane YZ Plane



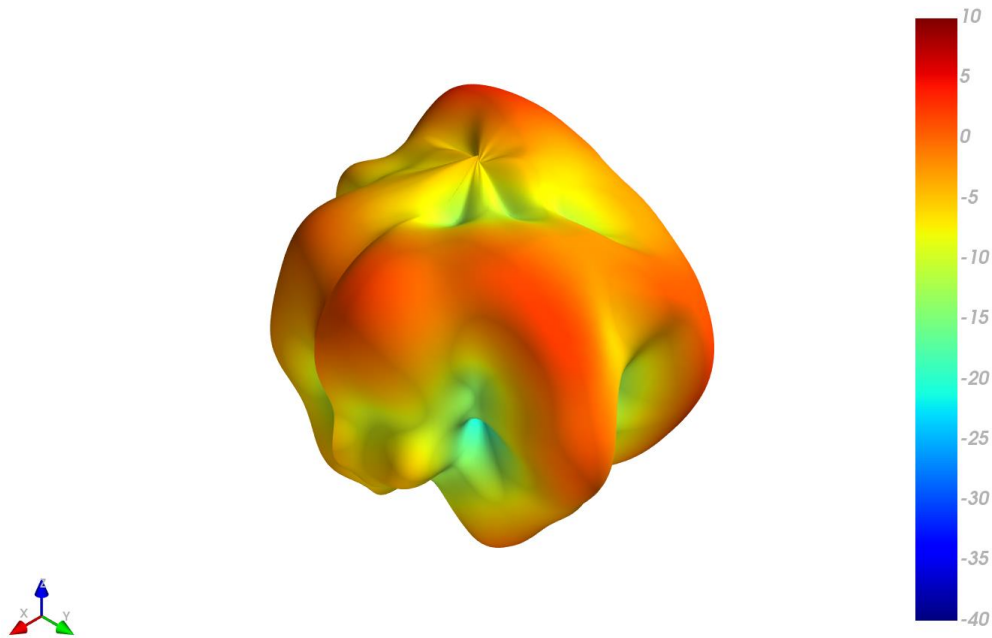
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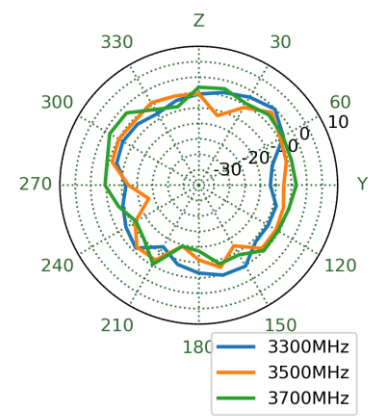
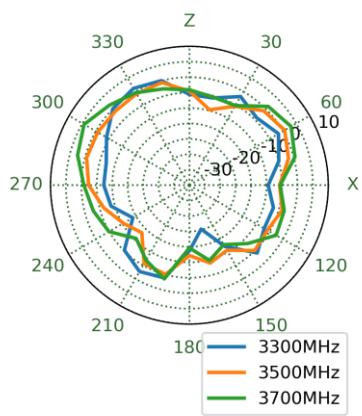
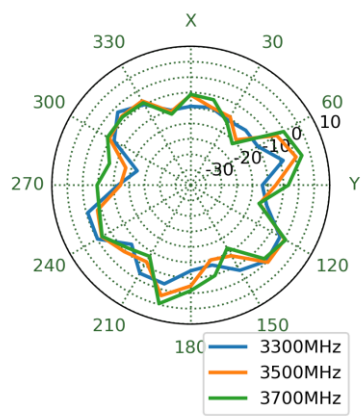
XY Plane                      XZ Plane                      YZ Plane



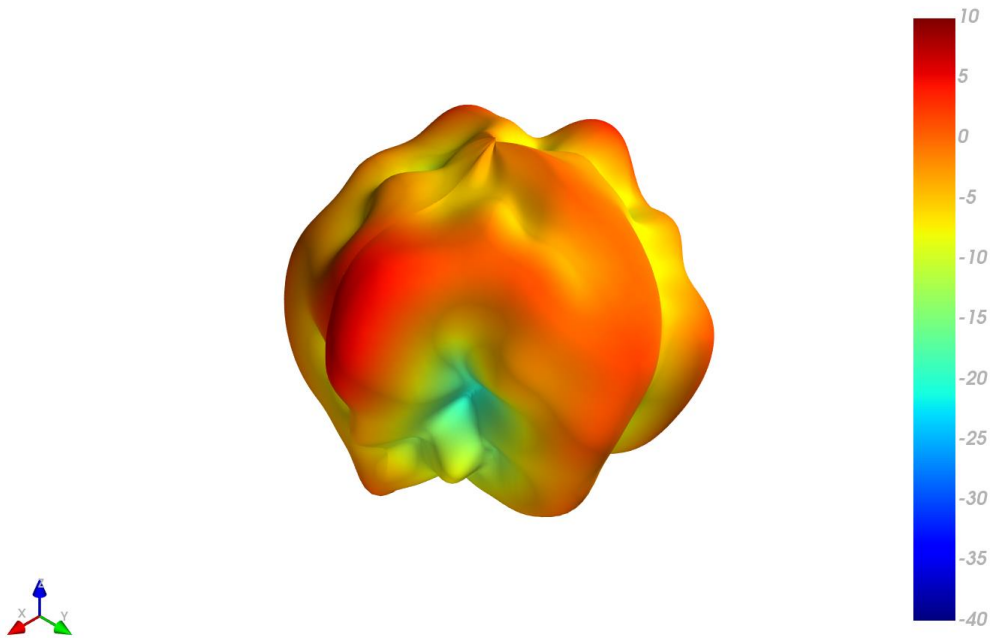
4.12 5G NR\_2 - 3500MHz Radiation Patterns



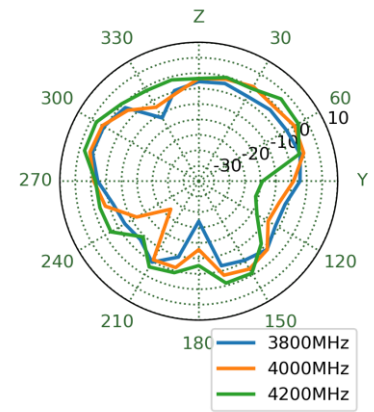
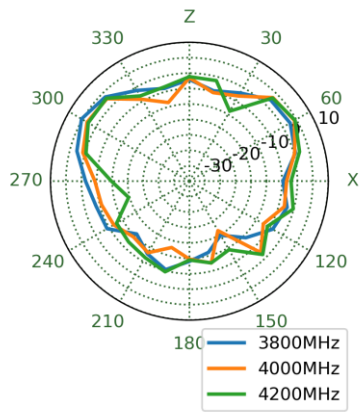
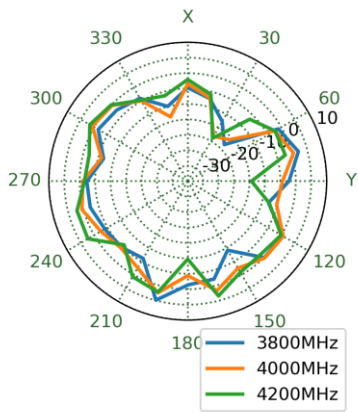
XY Plane XZ Plane YZ Plane



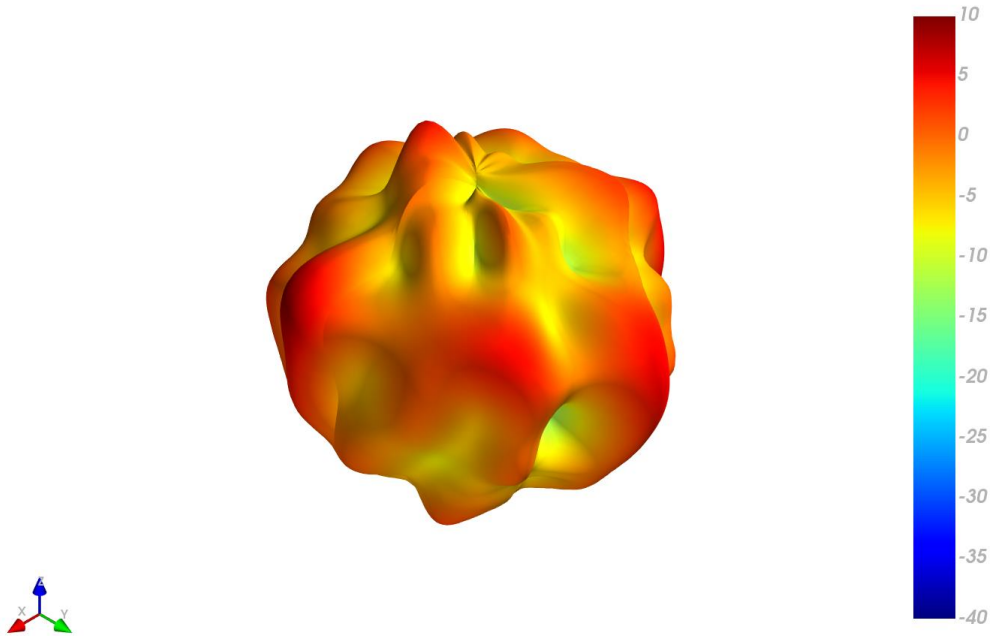
4.13 5GNR\_2 - 4000MHz Radiation Patterns



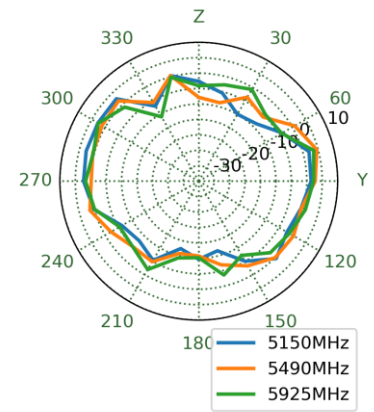
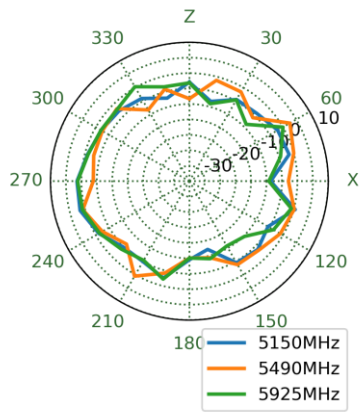
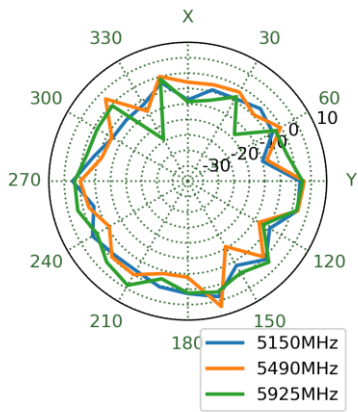
XY Plane XZ Plane YZ Plane



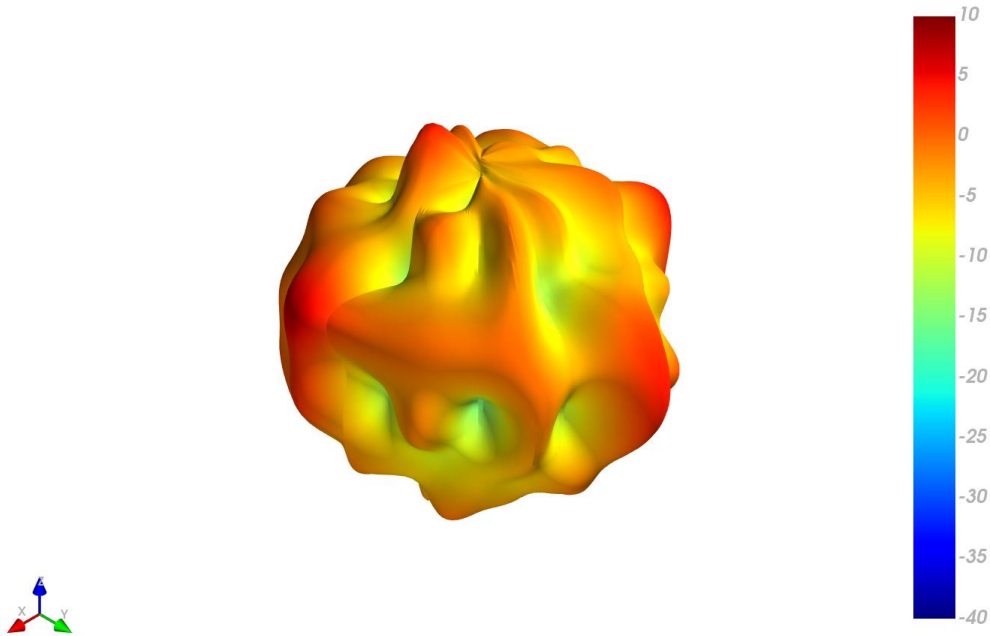
## 4.14 5GNR\_2 - 5490MHz Radiation Patterns



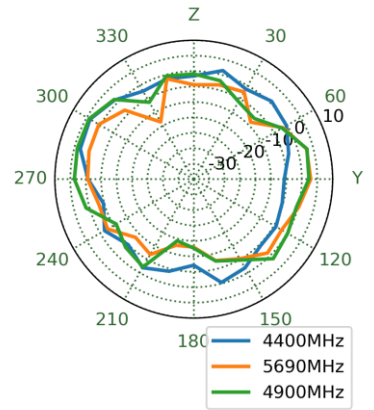
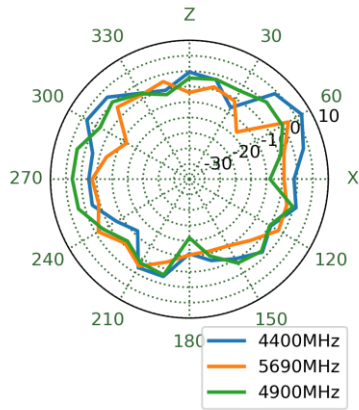
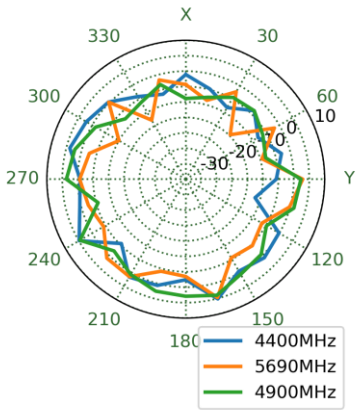
XY Plane                      XZ Plane                      YZ Plane



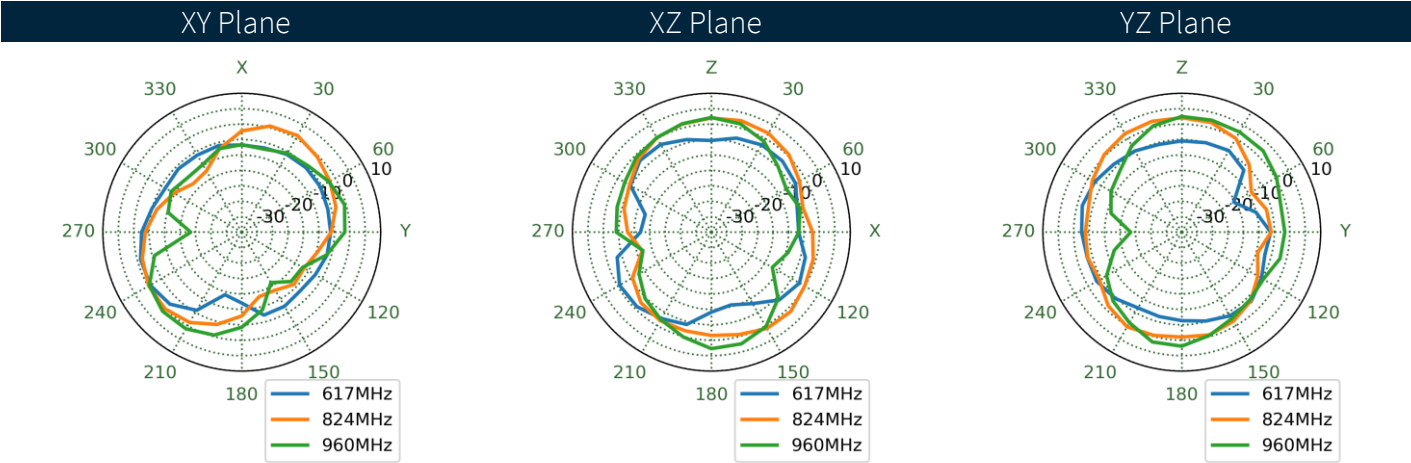
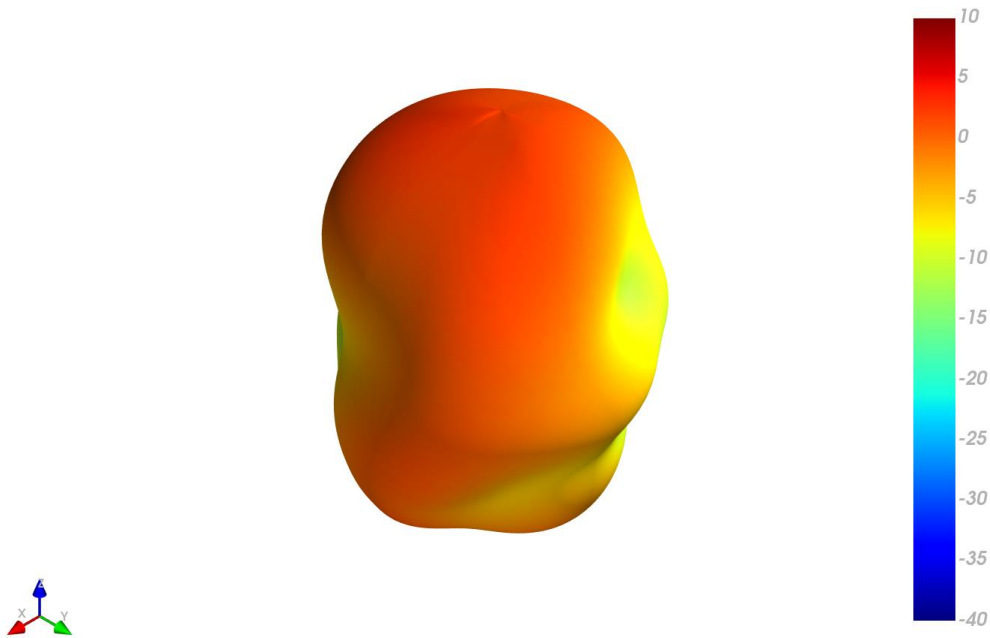
**4.15** 5GNR\_2 - 5690MHz Radiation Patterns



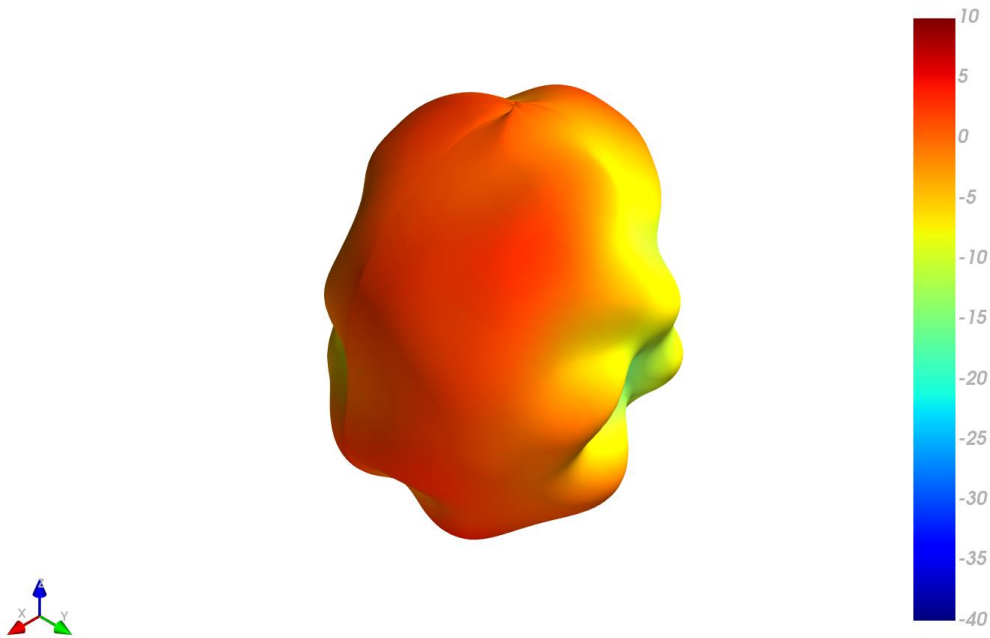
**XY Plane                      XZ Plane                      YZ Plane**



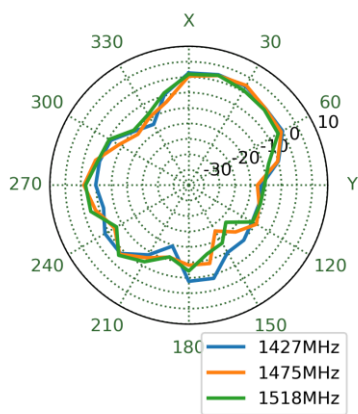
## 4.16 5G NR\_3 - 824MHz Radiation Patterns



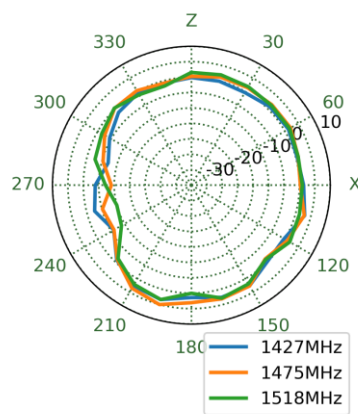
## 4.17 5GNR\_3 - 1475MHz Radiation Patterns



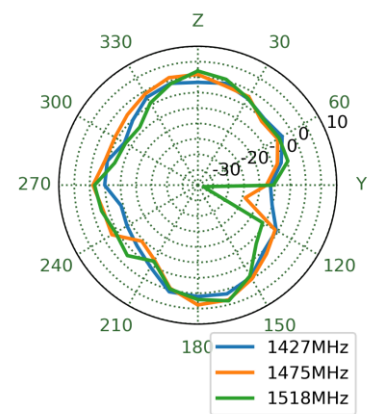
XY Plane



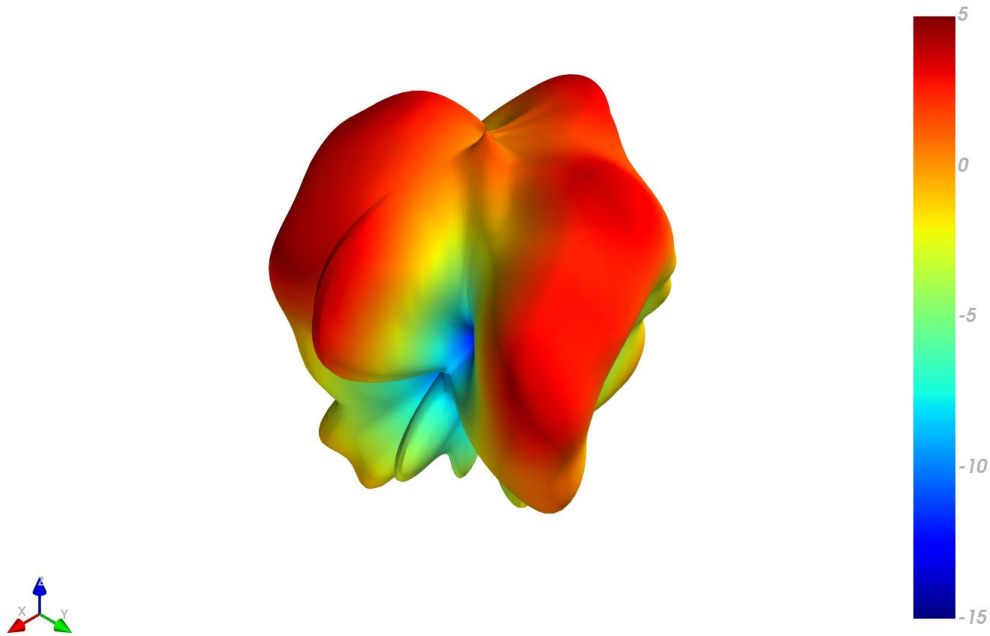
XZ Plane



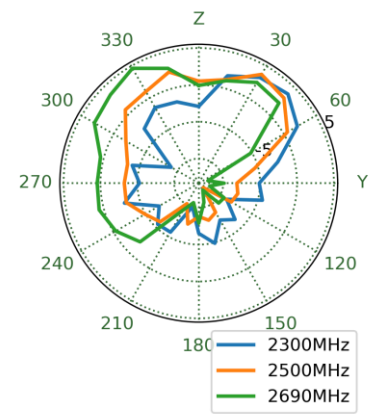
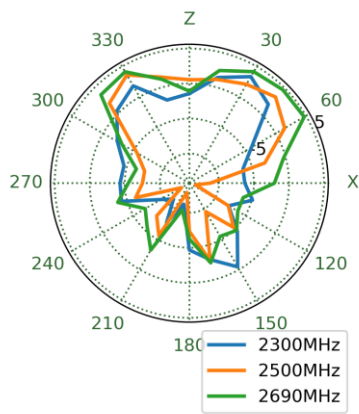
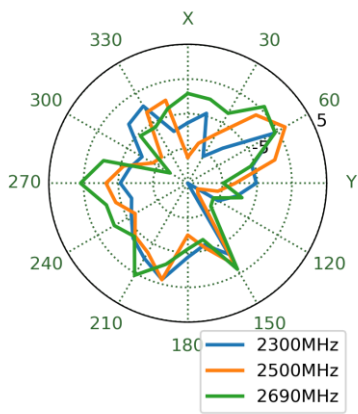
YZ Plane



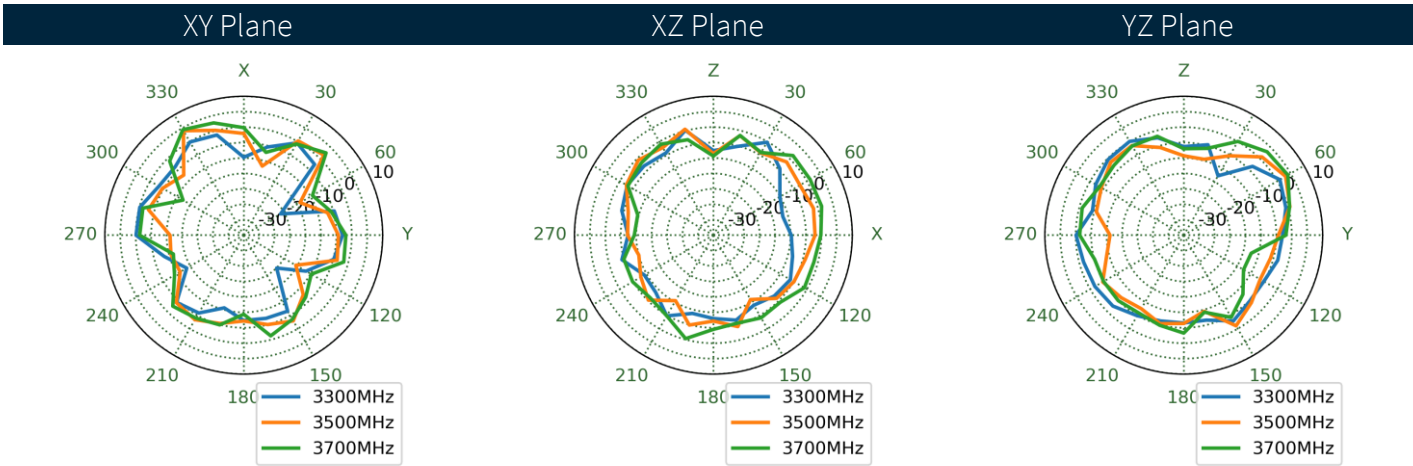
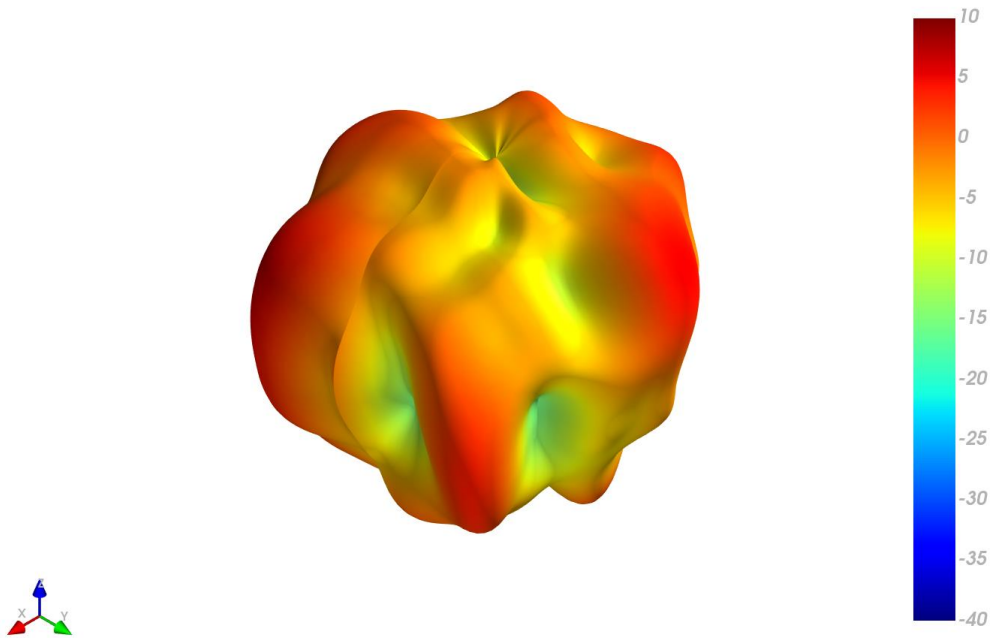
4.18 5G NR\_3 - 2500MHz Radiation Patterns



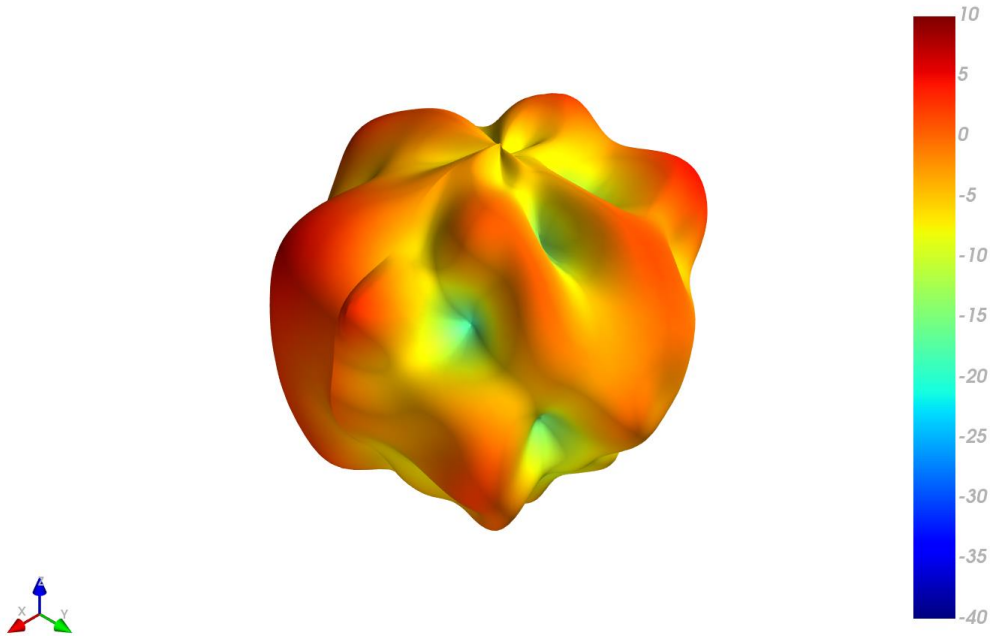
XY Plane XZ Plane YZ Plane



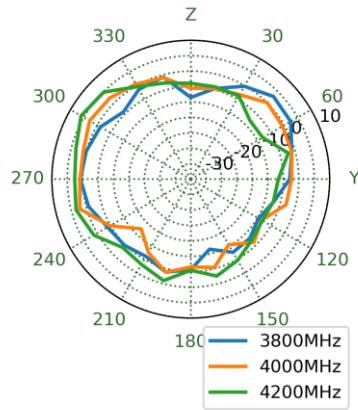
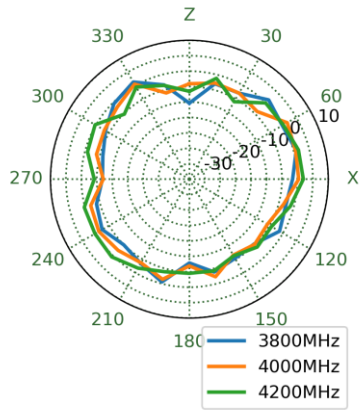
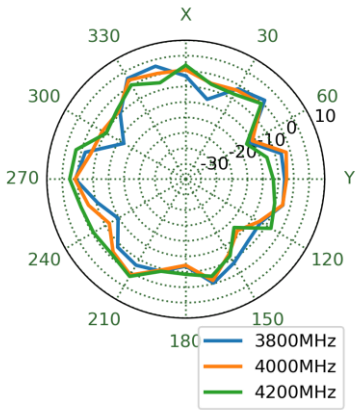
4.19 5GNR\_3 - 3500MHz Radiation Patterns



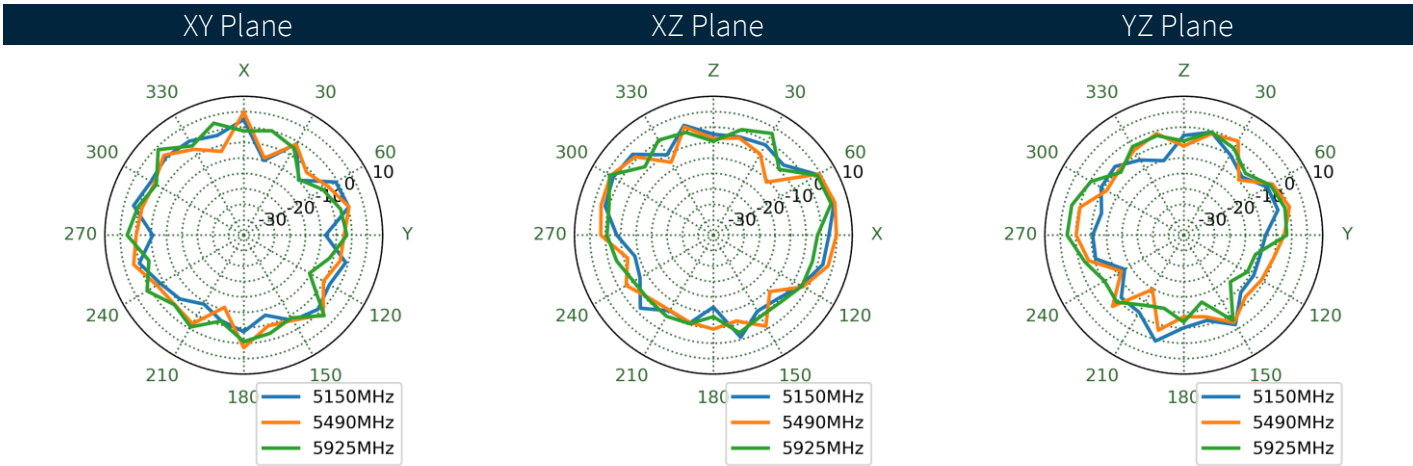
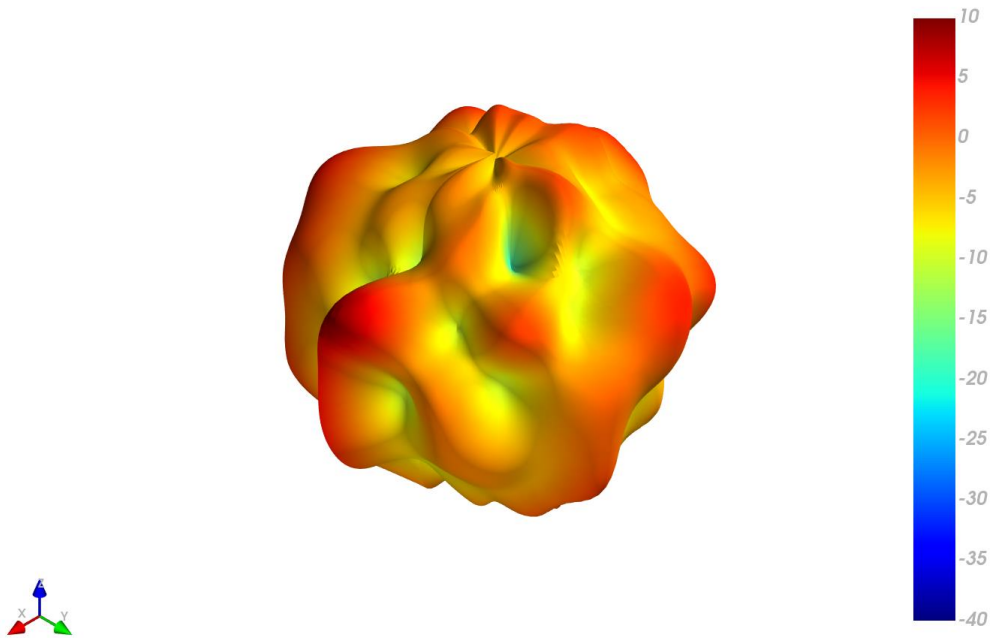
**4.20** 5GNR\_3 - 4000MHz Radiation Patterns



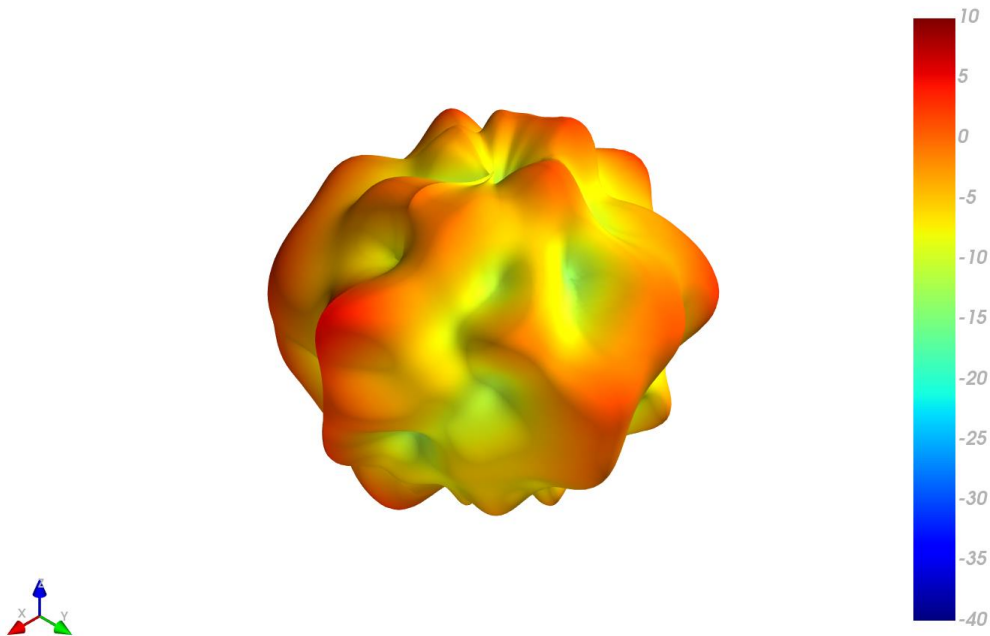
**XY Plane                      XZ Plane                      YZ Plane**



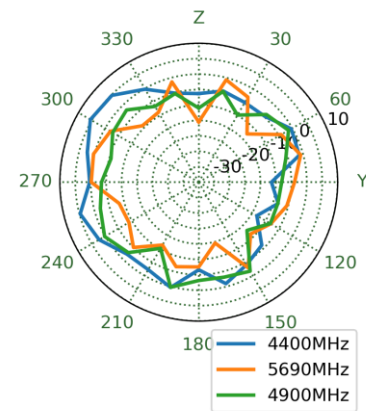
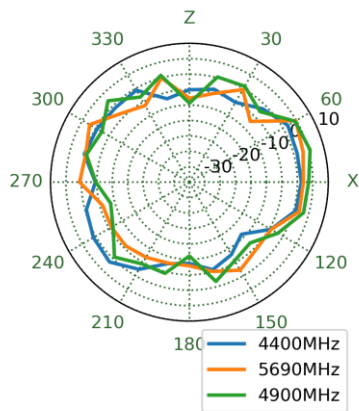
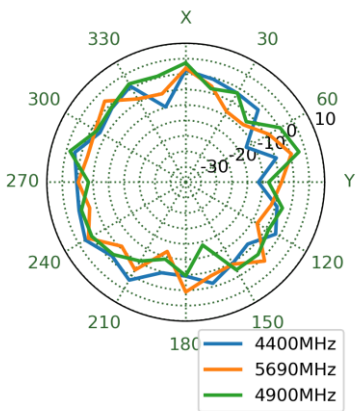
## 4.21 5G NR\_3 - 5490MHz Radiation Patterns



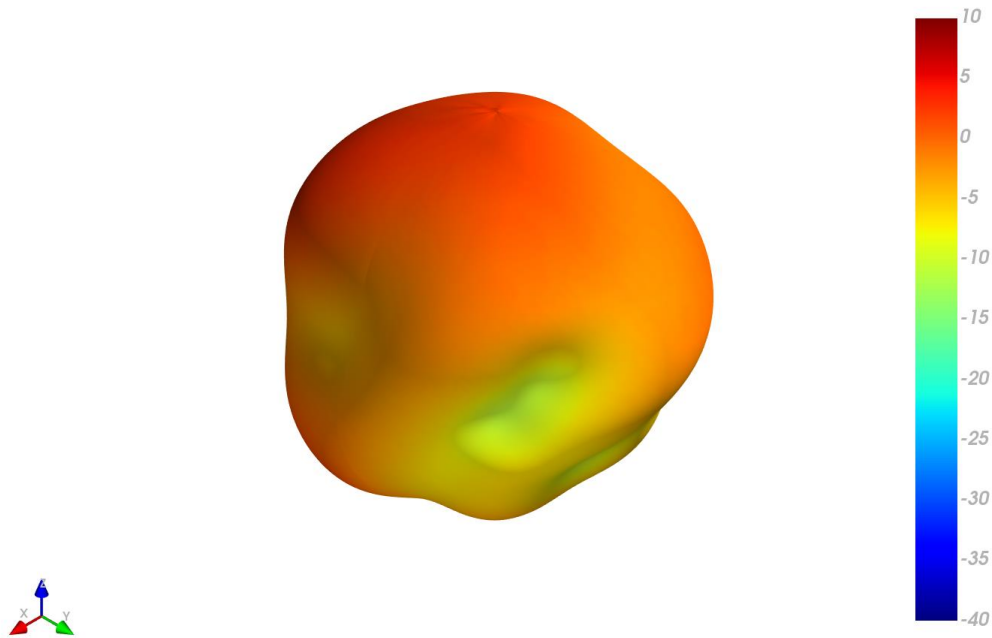
4.22 5GNR\_3 - 5690MHz Radiation Patterns



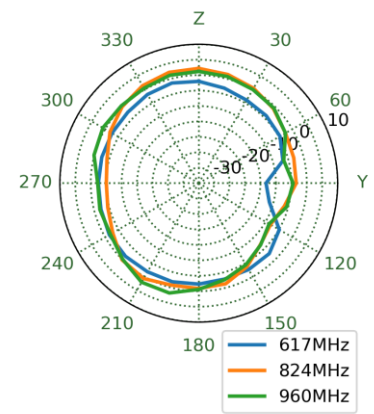
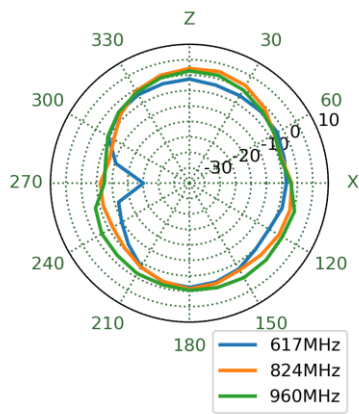
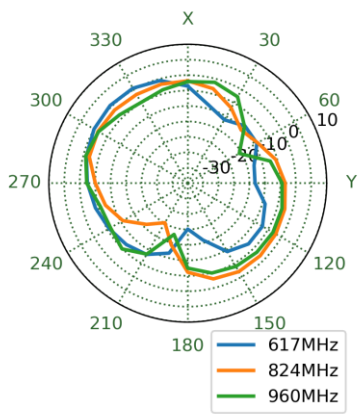
XY Plane XZ Plane YZ Plane



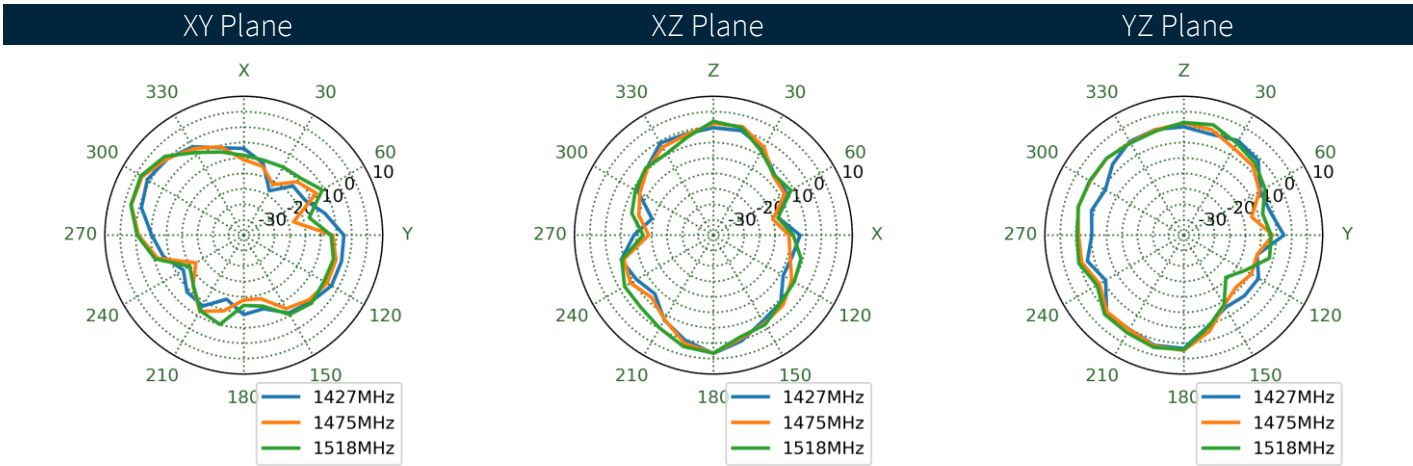
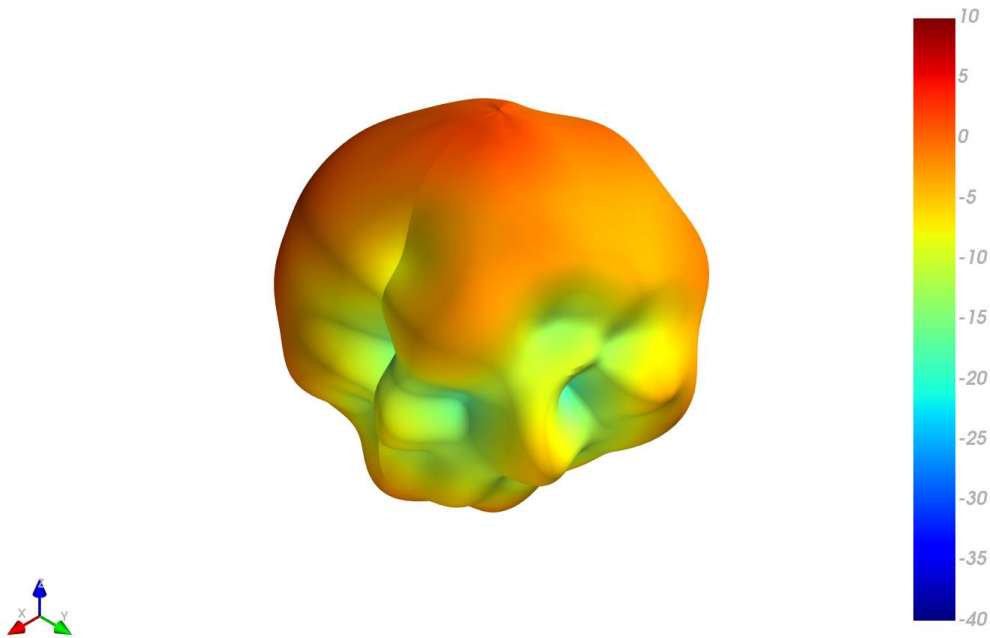
## 4.23 5GNR\_4 - 824MHz Radiation Patterns



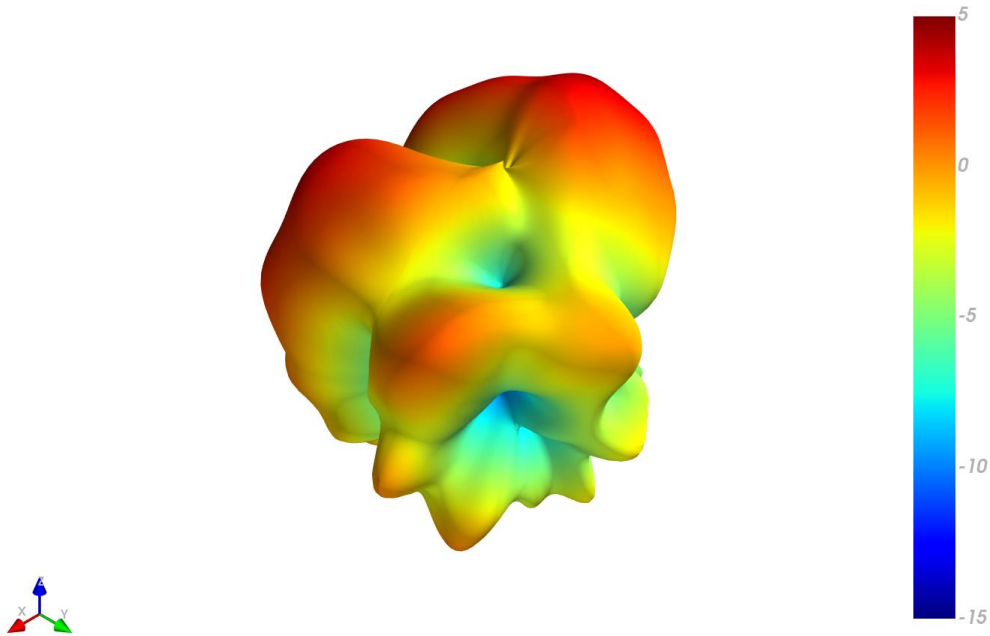
XY Plane                      XZ Plane                      YZ Plane



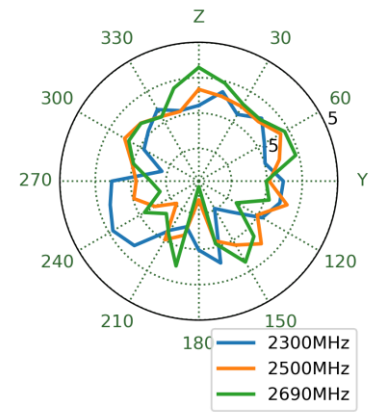
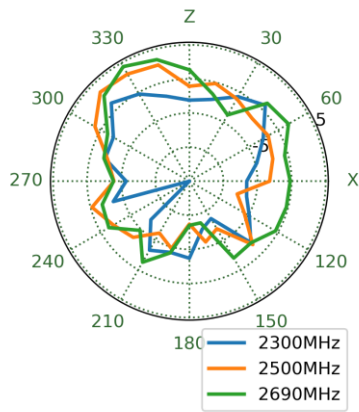
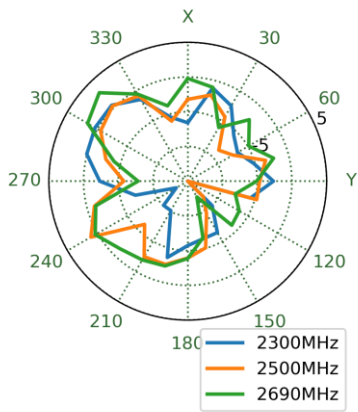
4.24 5GNR\_4 - 1475MHz Radiation Patterns



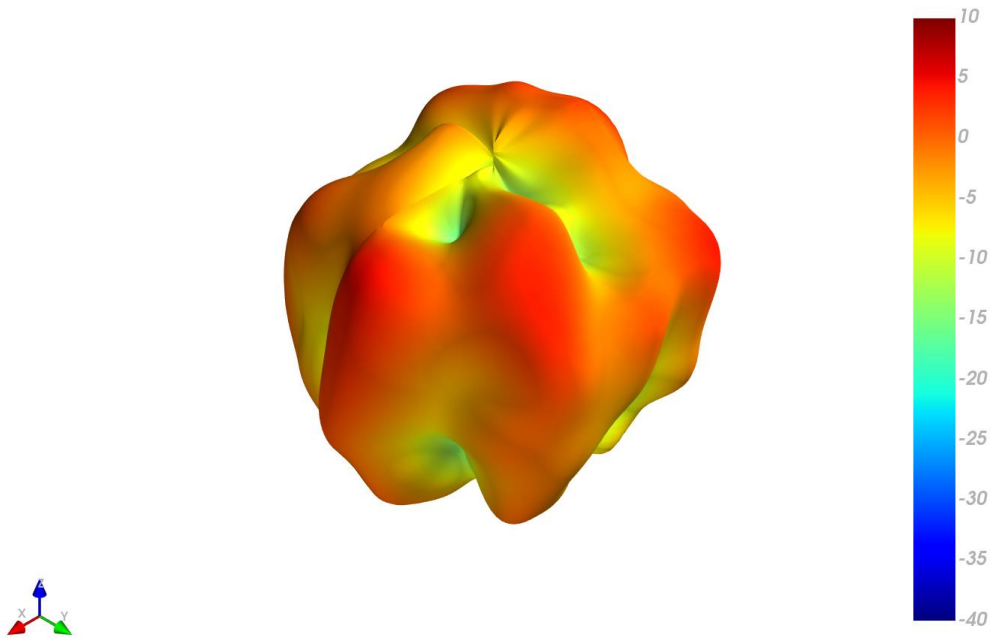
4.25 5GNR\_4 - 2500MHz Radiation Patterns



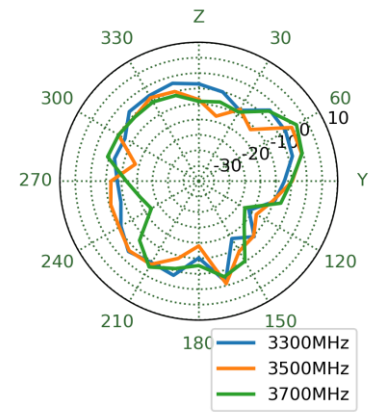
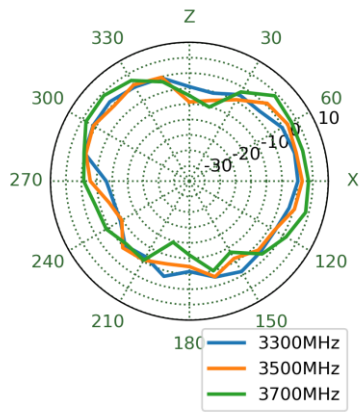
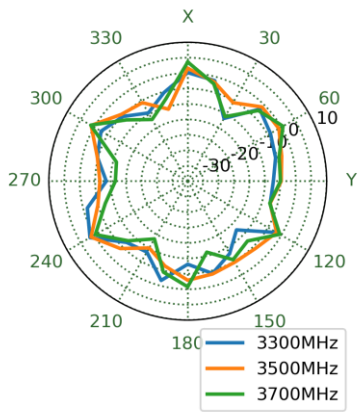
XY Plane XZ Plane YZ Plane



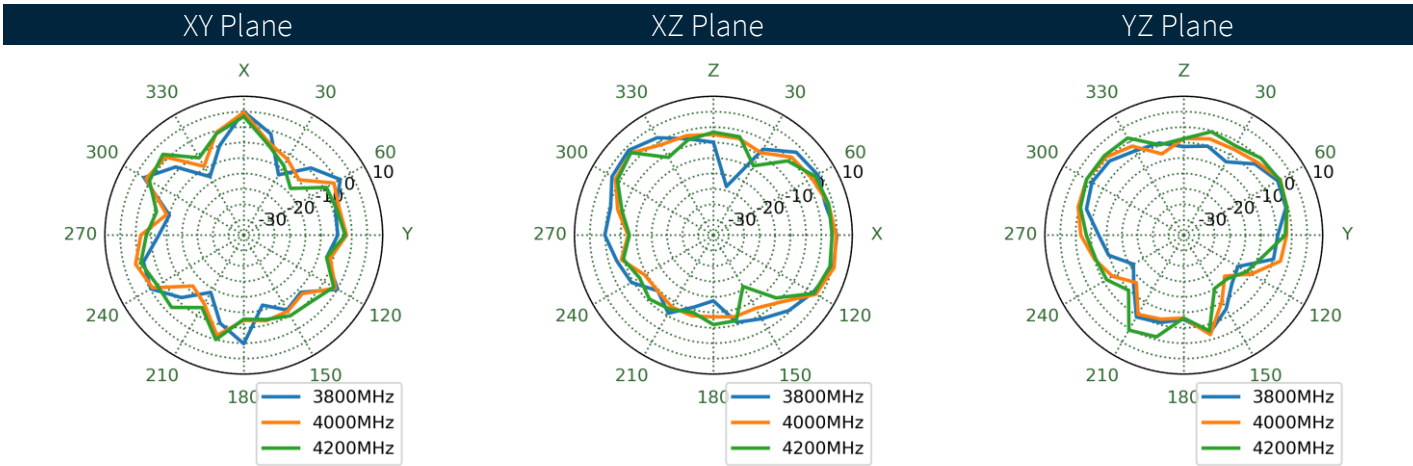
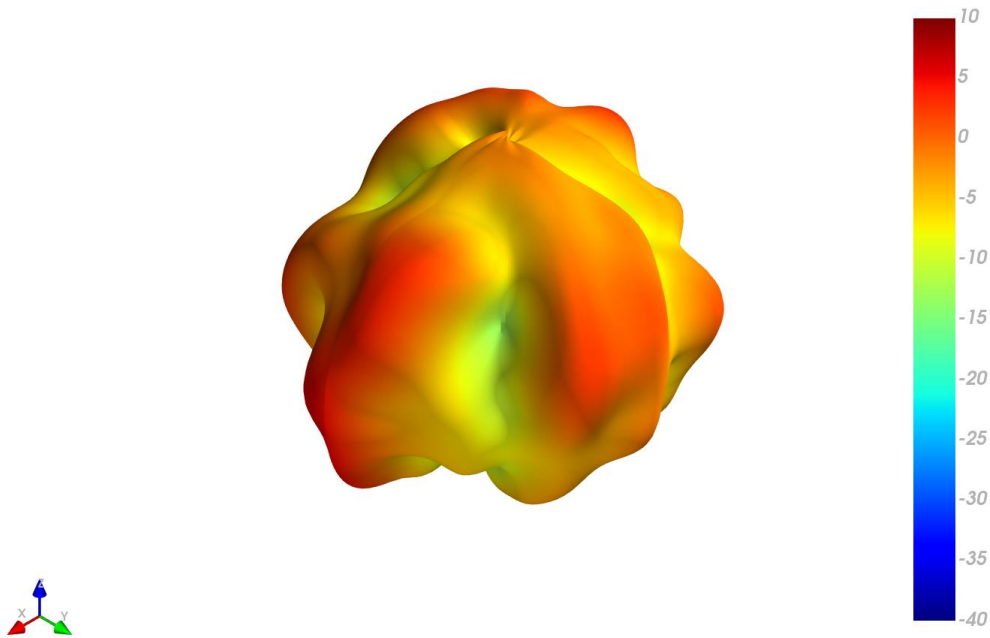
4.26 5GNR\_4 - 3500MHz Radiation Patterns



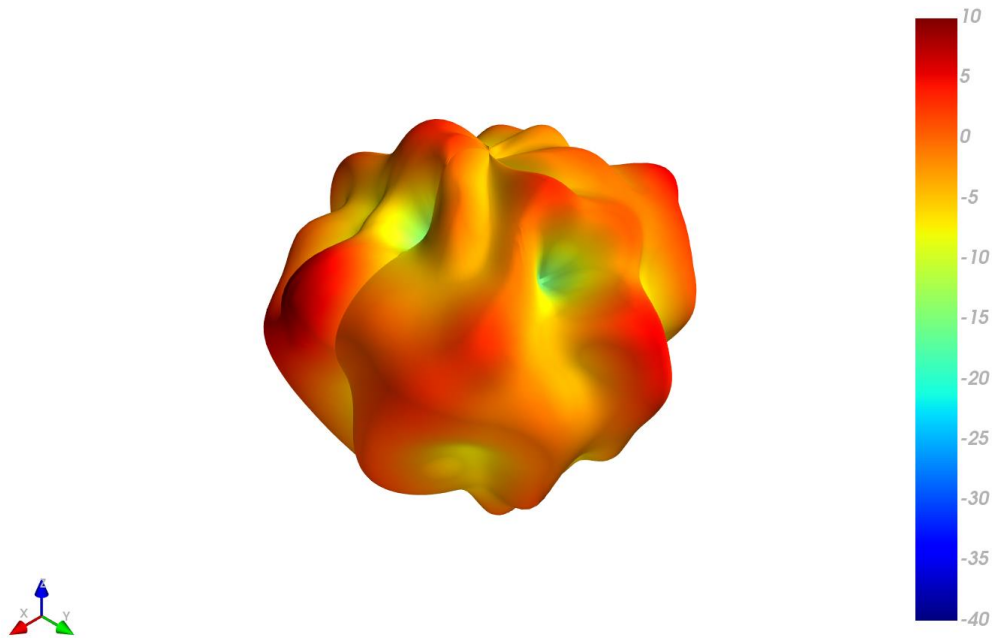
XY Plane XZ Plane YZ Plane



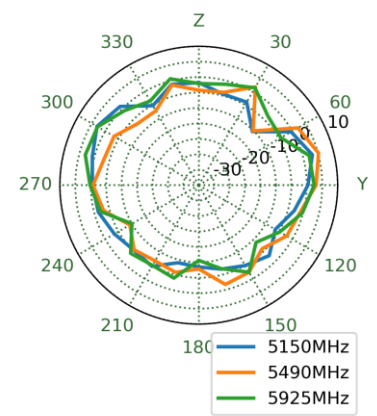
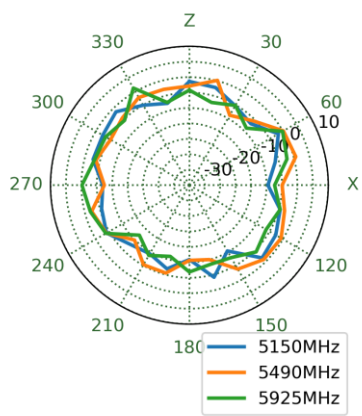
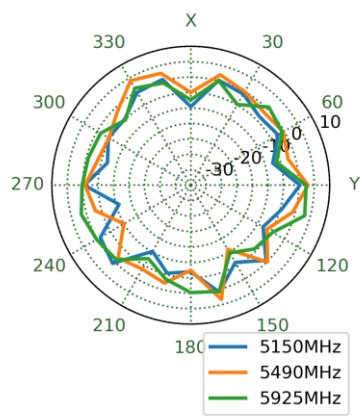
4.27 5GNR\_4 - 4000MHz Radiation Patterns



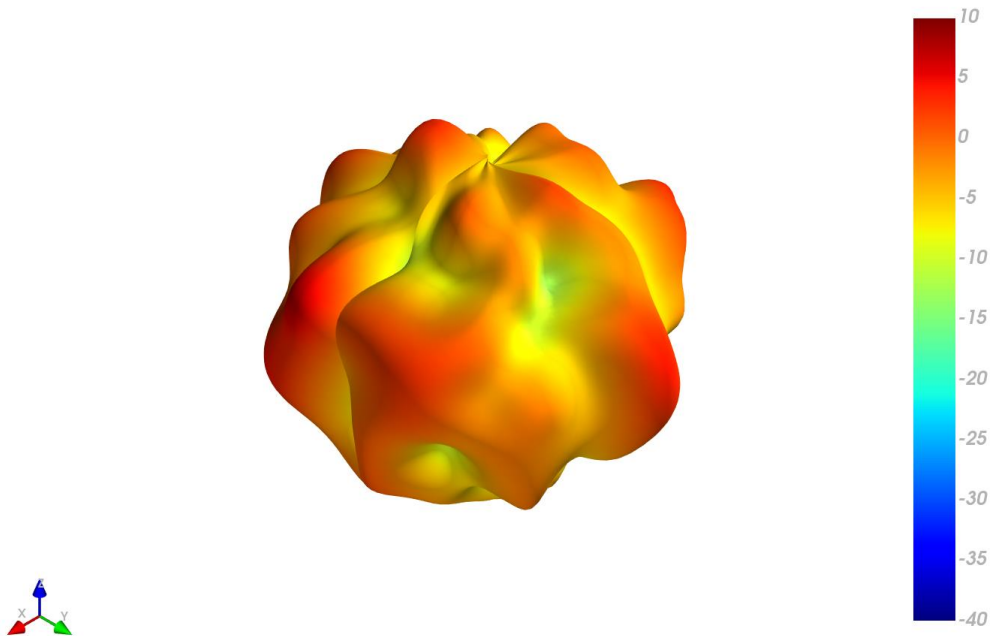
4.28 5GNR\_4 - 5490MHz Radiation Patterns



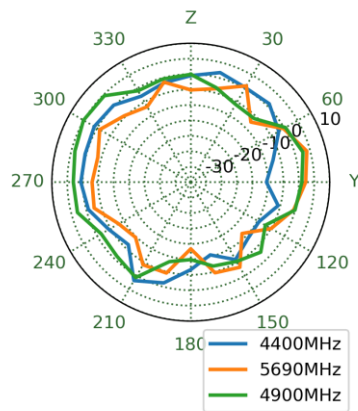
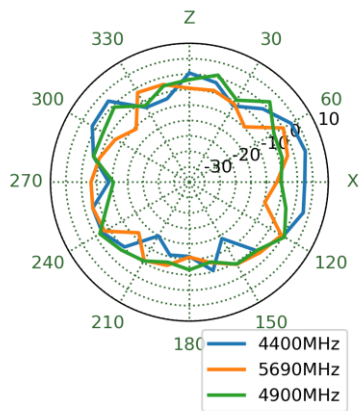
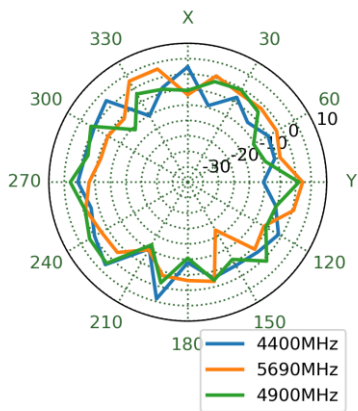
XY Plane XZ Plane YZ Plane



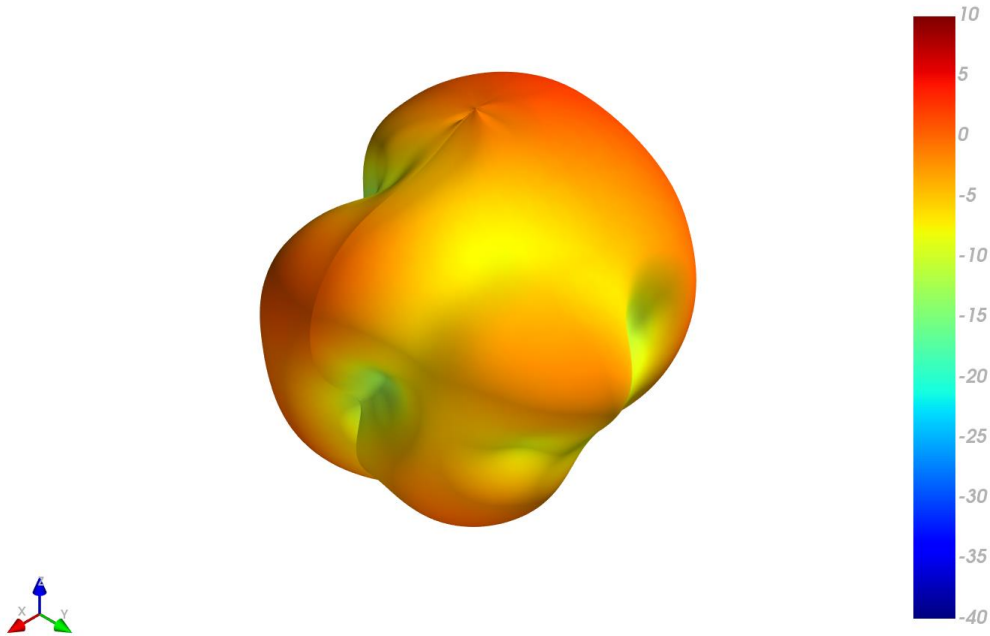
4.29 5GNR\_4 - 5690MHz Radiation Patterns



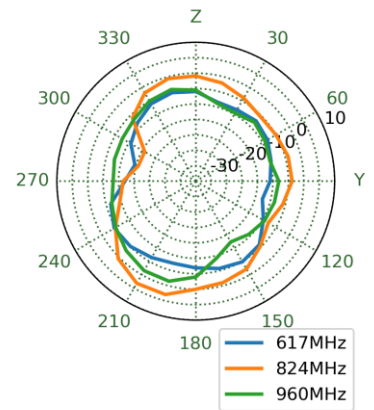
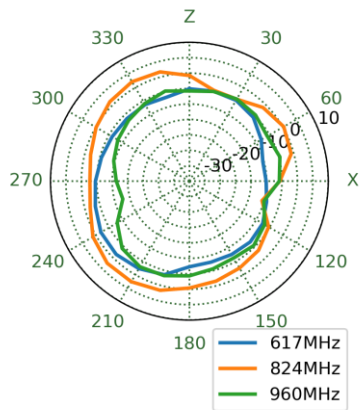
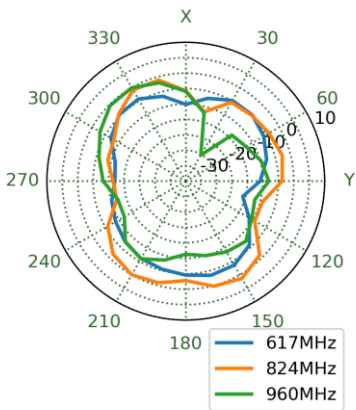
XY Plane XZ Plane YZ Plane



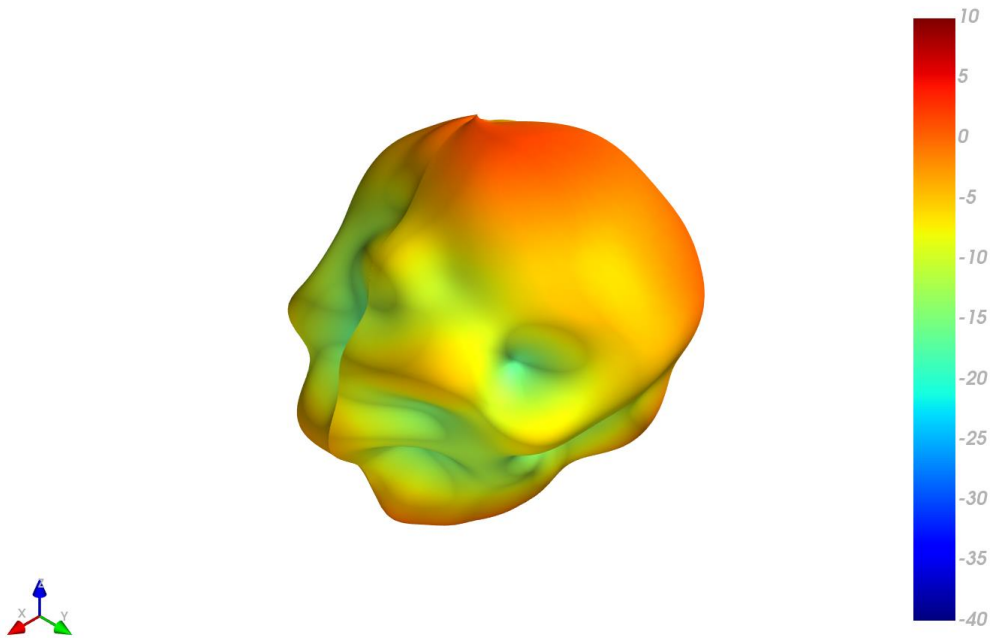
4.30 5GNR\_5 - 824MHz Radiation Patterns



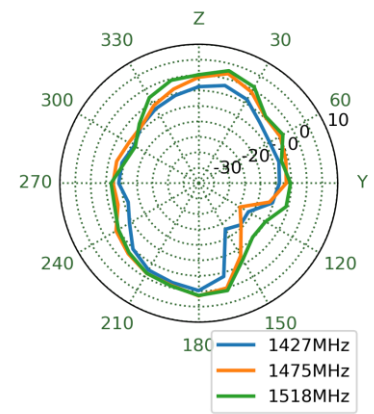
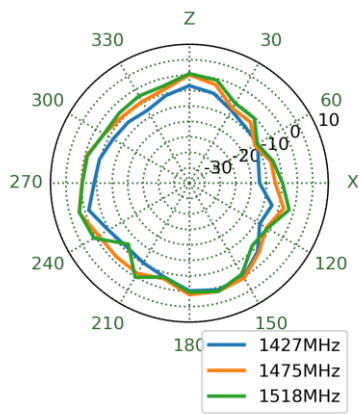
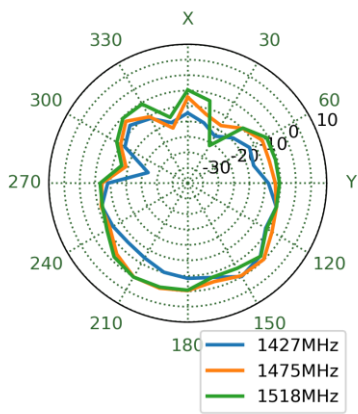
XY Plane XZ Plane YZ Plane



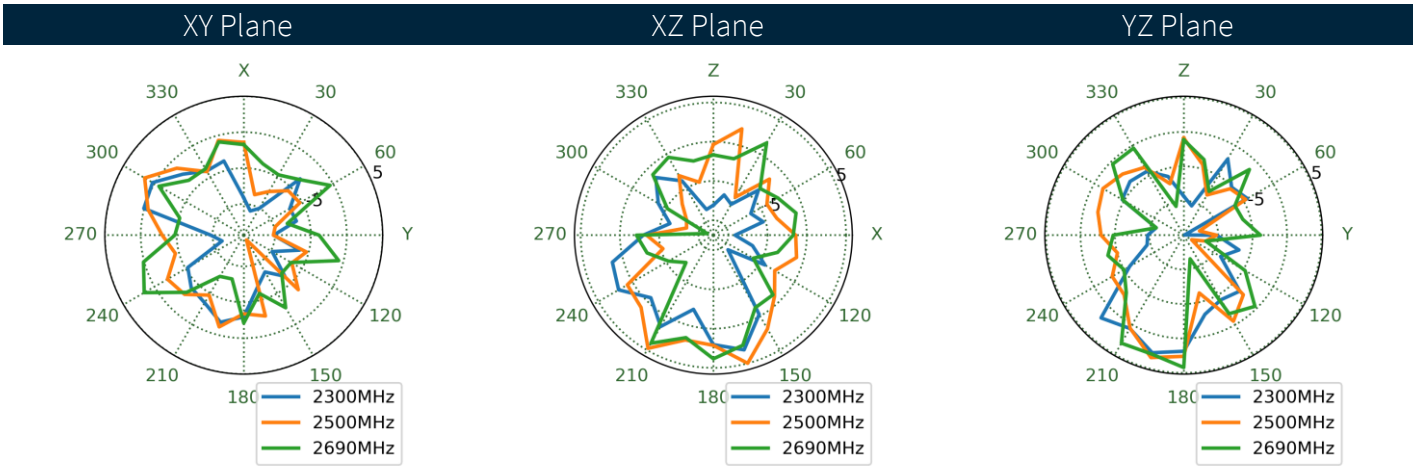
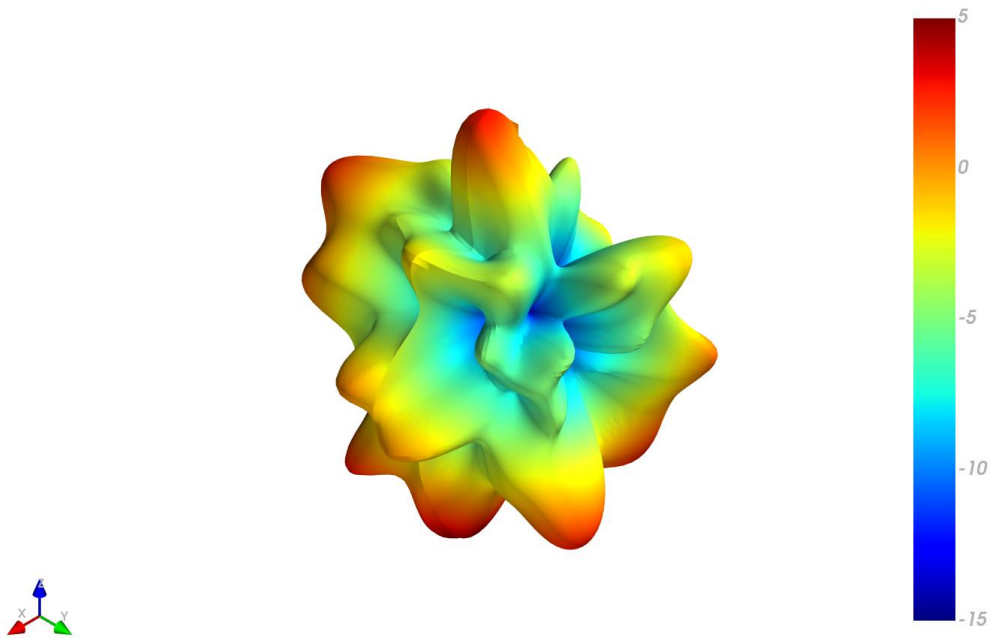
4.31 5GNR\_5 - 1475MHz Radiation Patterns



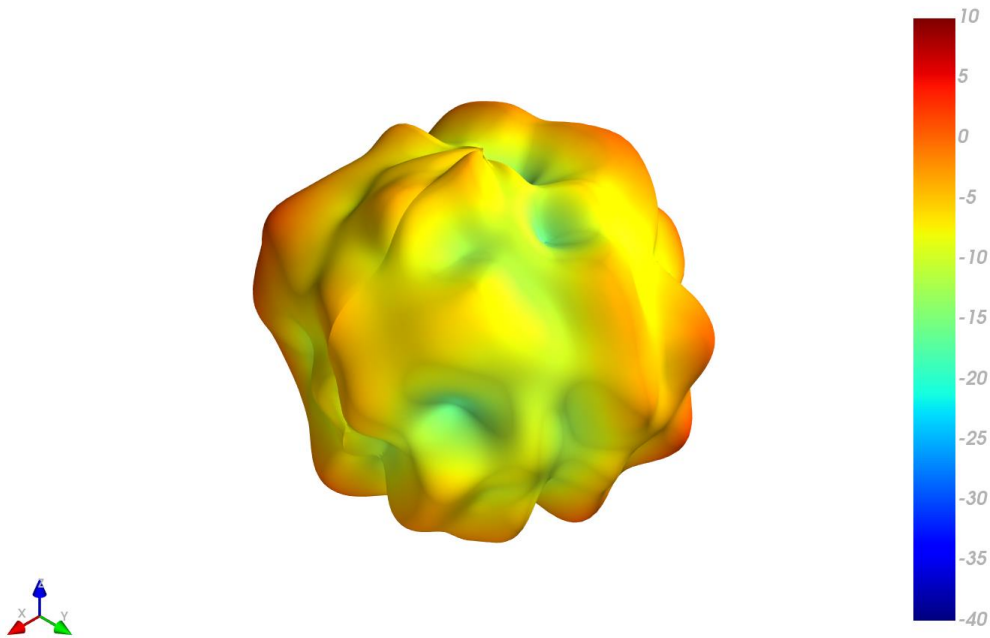
XY Plane XZ Plane YZ Plane



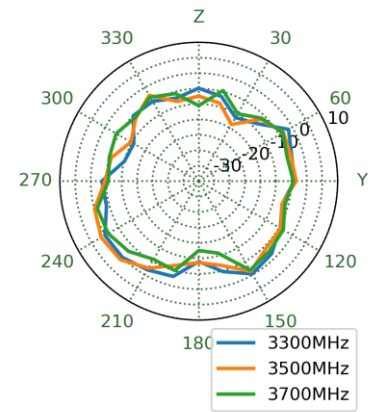
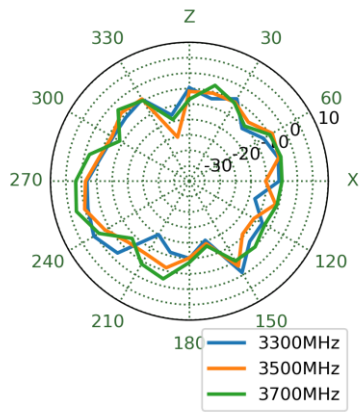
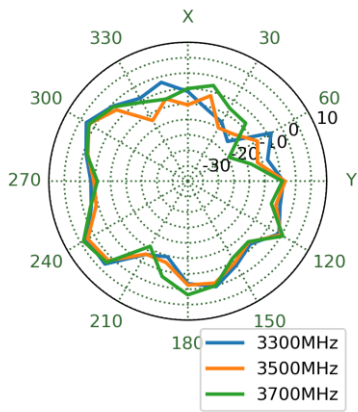
4.32 5G NR\_5 - 2500MHz Radiation Patterns



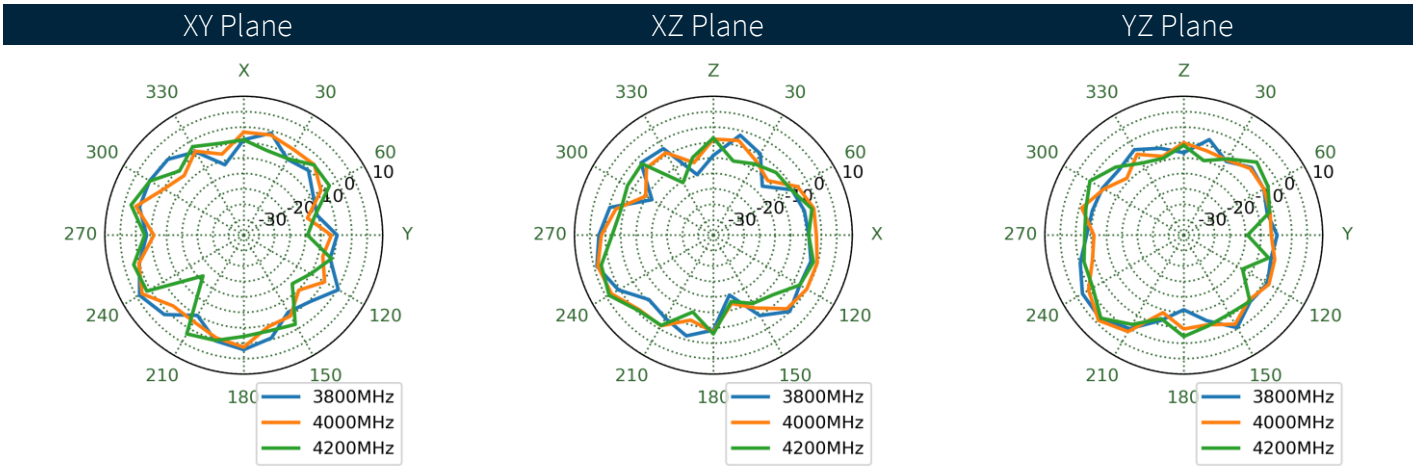
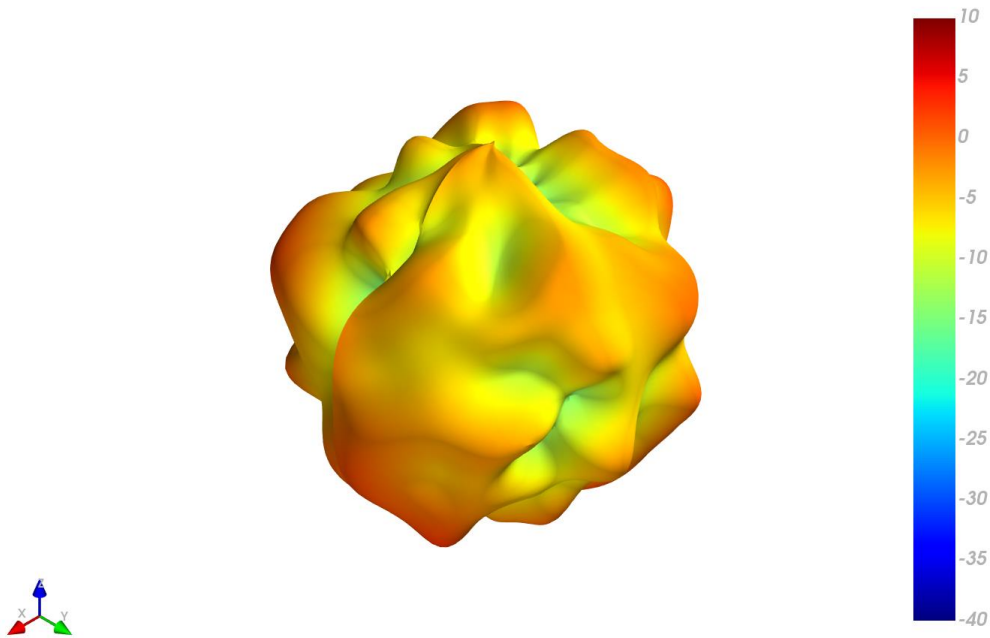
4.33 5GNR\_5 - 3500MHz Radiation Patterns



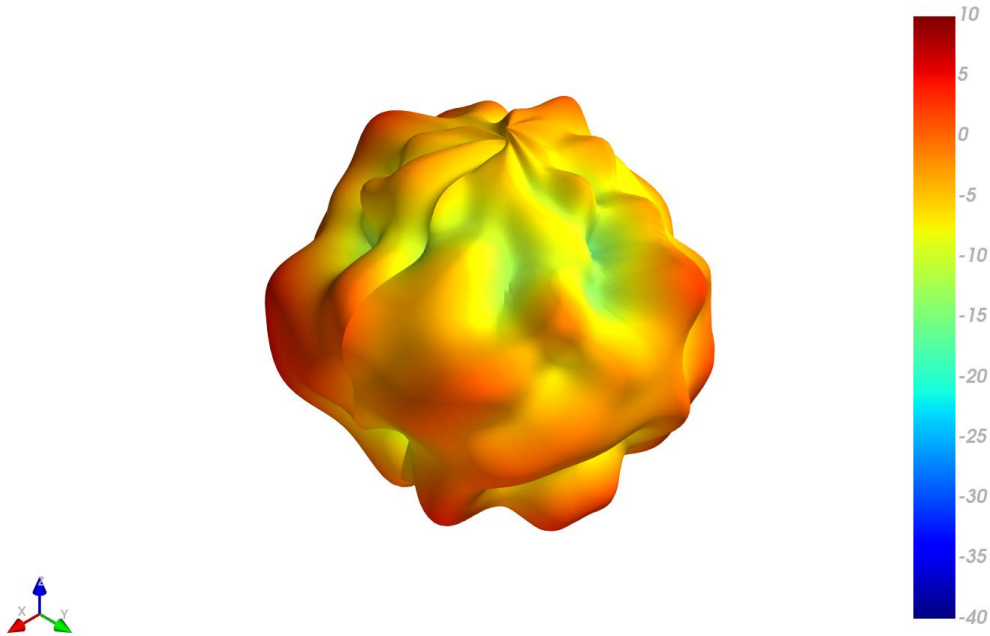
XY Plane XZ Plane YZ Plane



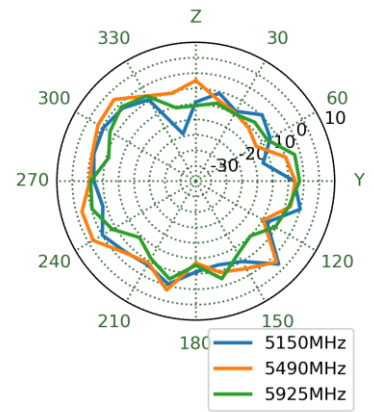
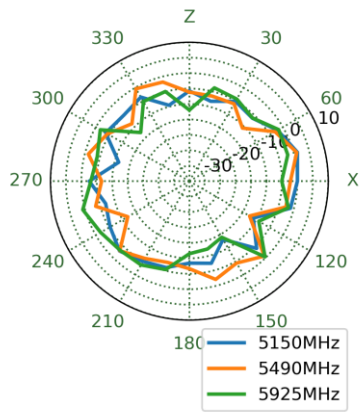
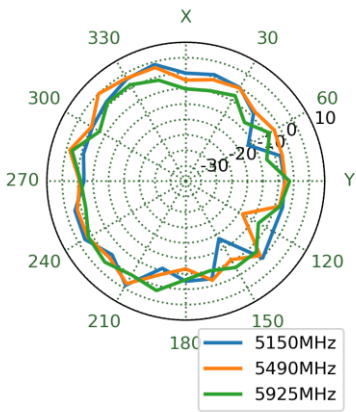
4.34 5GNR\_5 - 4000MHz Radiation Patterns



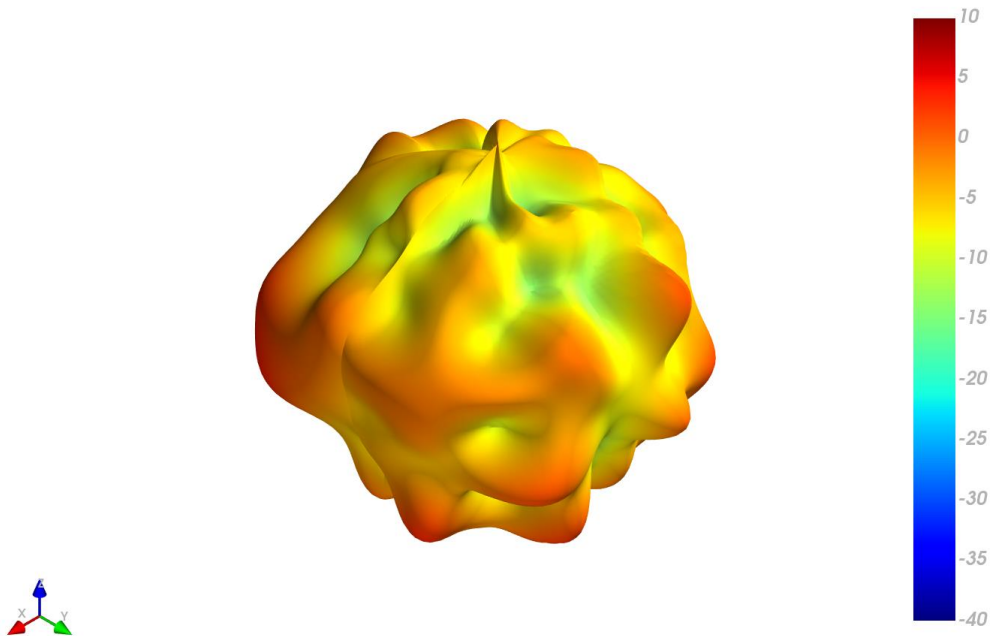
4.35 5G NR\_5 - 5490MHz Radiation Patterns



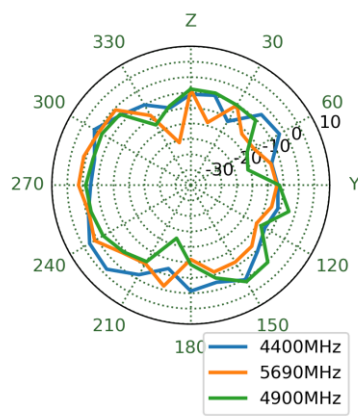
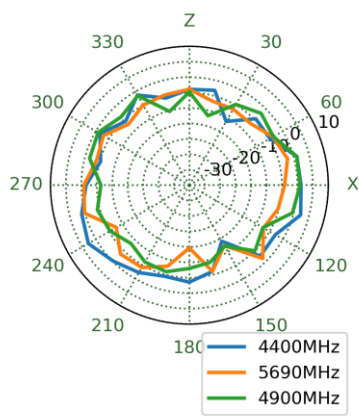
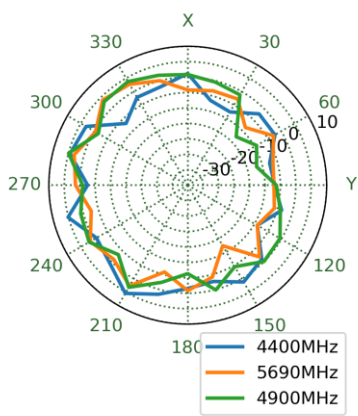
XY Plane XZ Plane YZ Plane



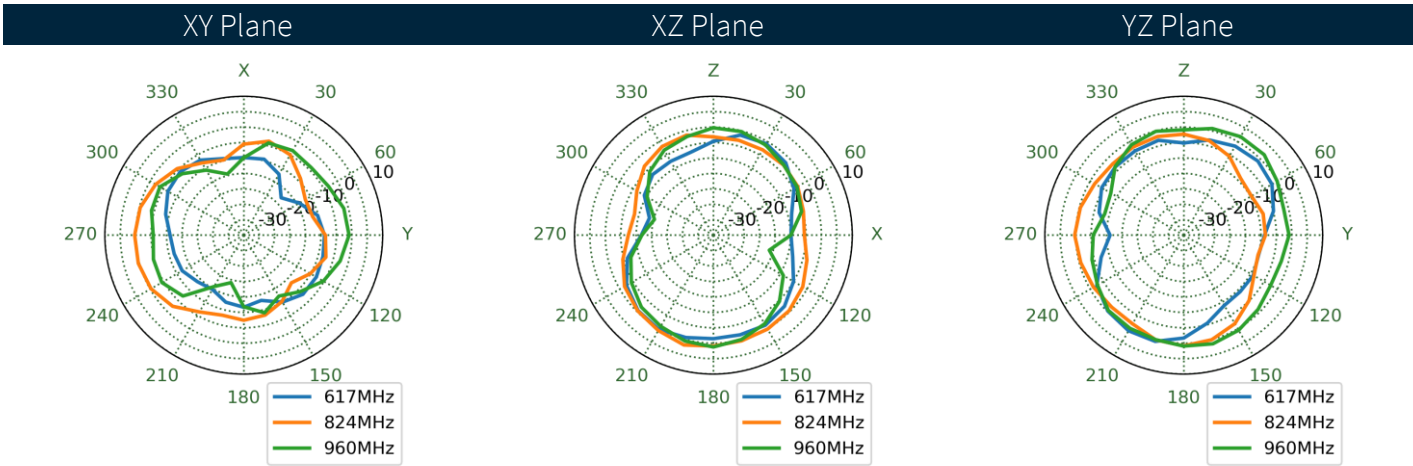
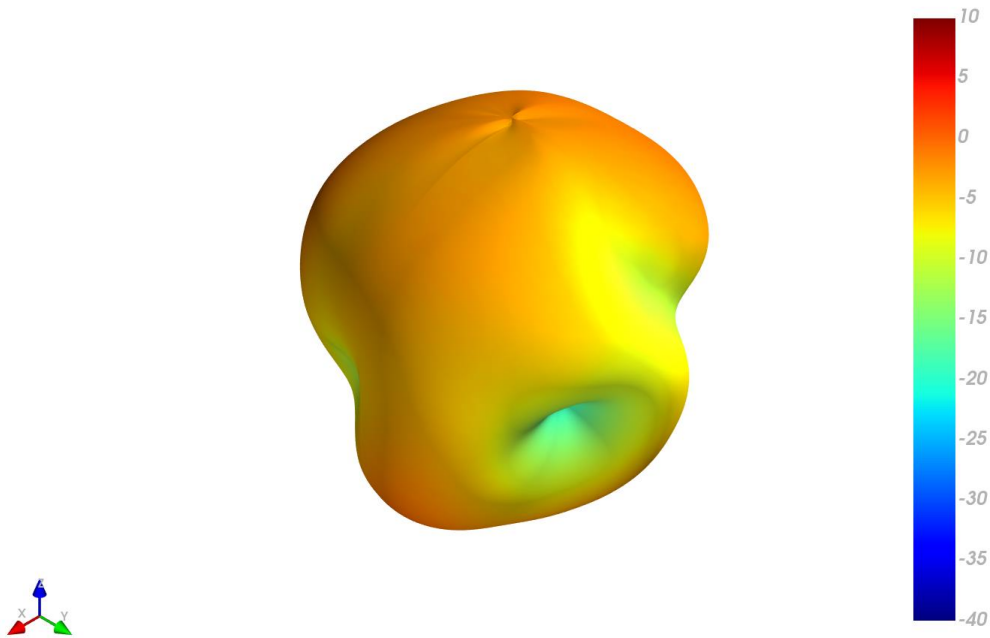
### 4.36 5G NR\_5 - 5690MHz Radiation Patterns



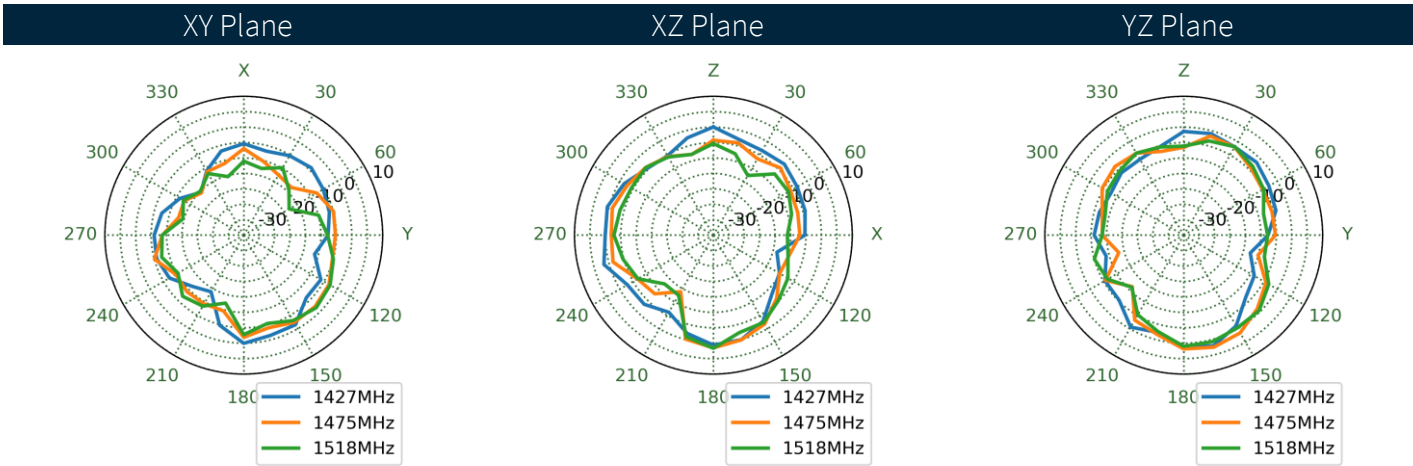
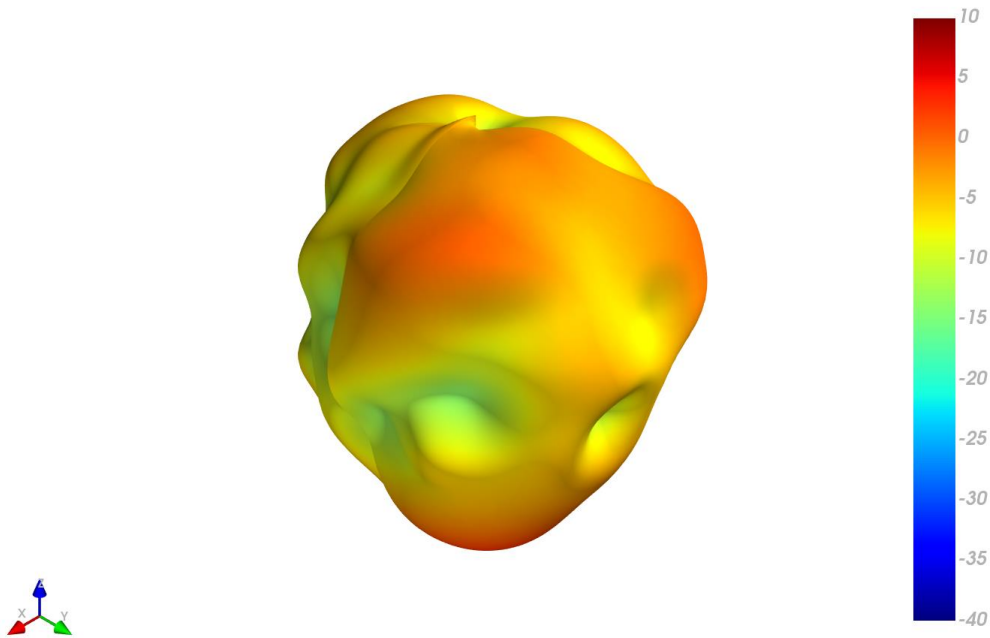
XY Plane                      XZ Plane                      YZ Plane



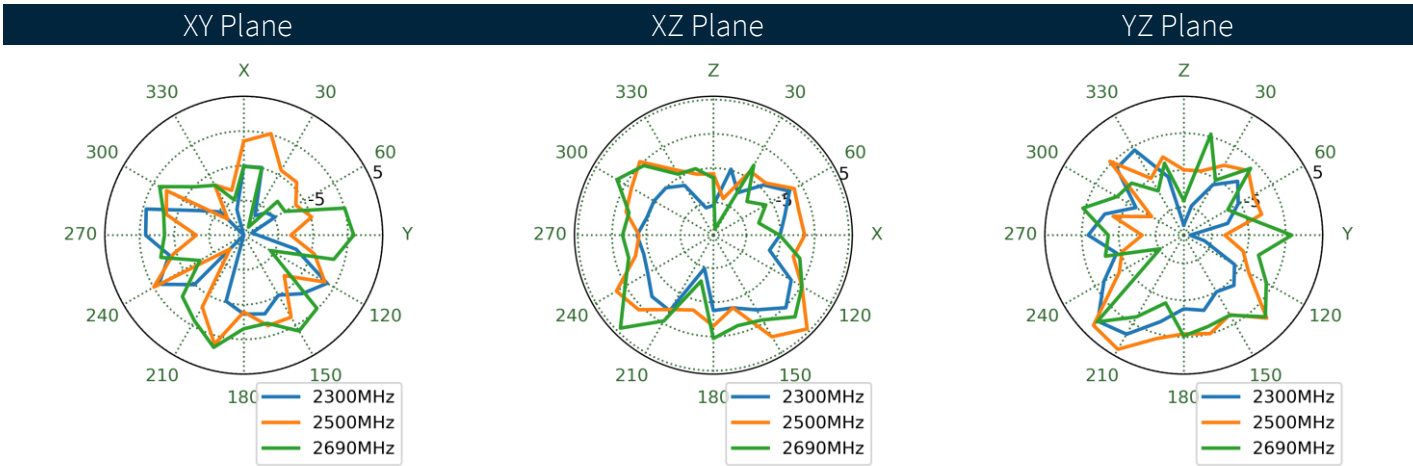
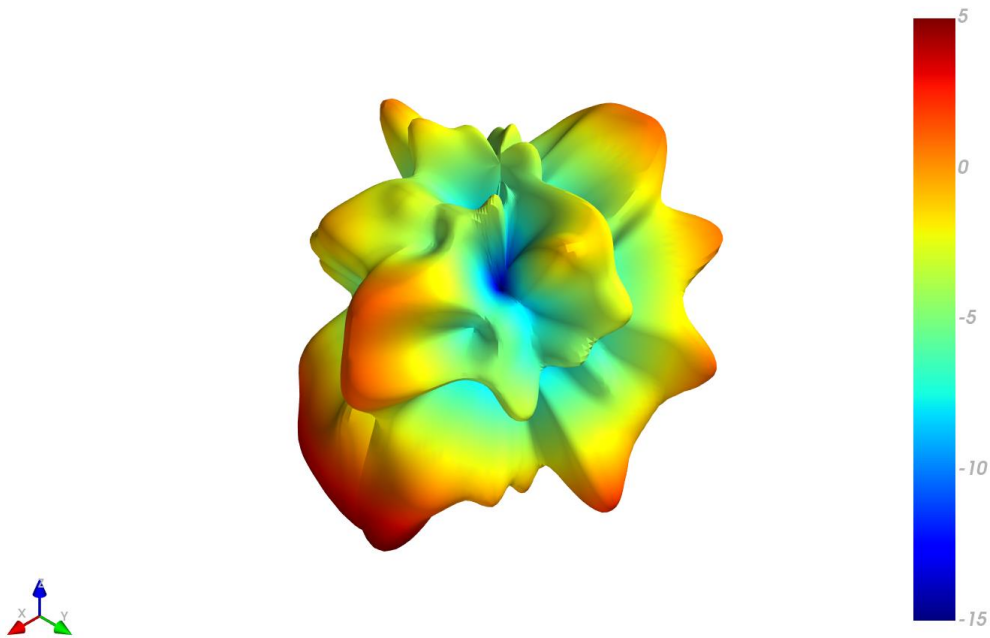
### 4.37 5GNR\_6 - 824MHz Radiation Patterns



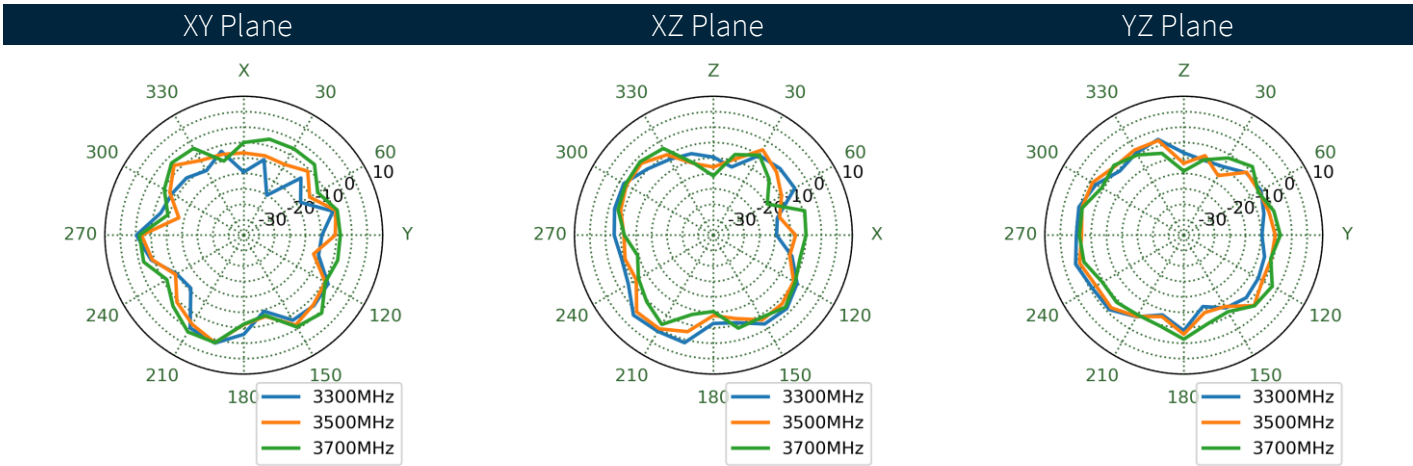
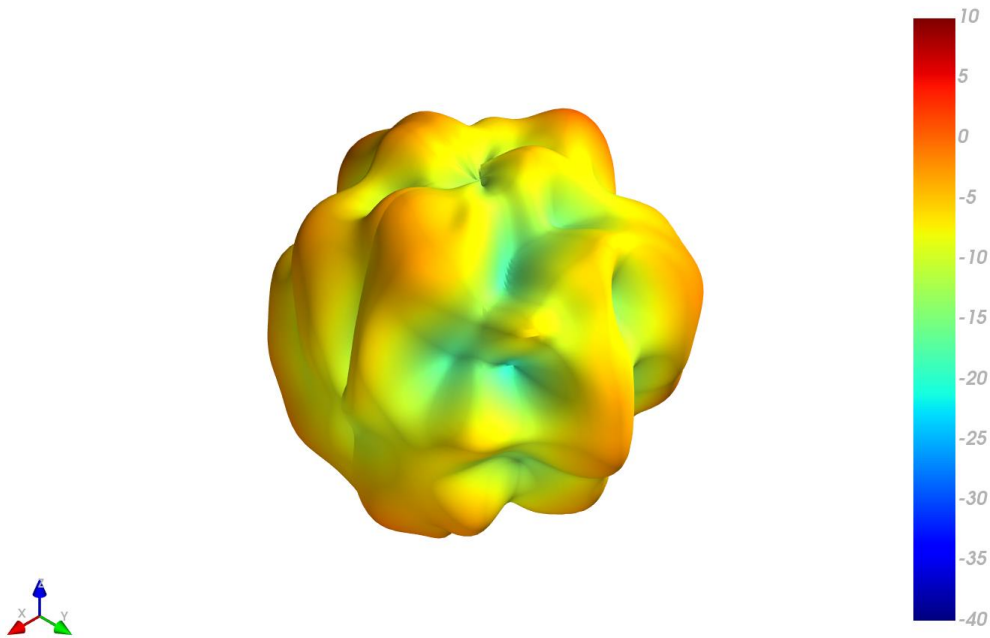
4.38 5GNR\_6 - 1475MHz Radiation Patterns



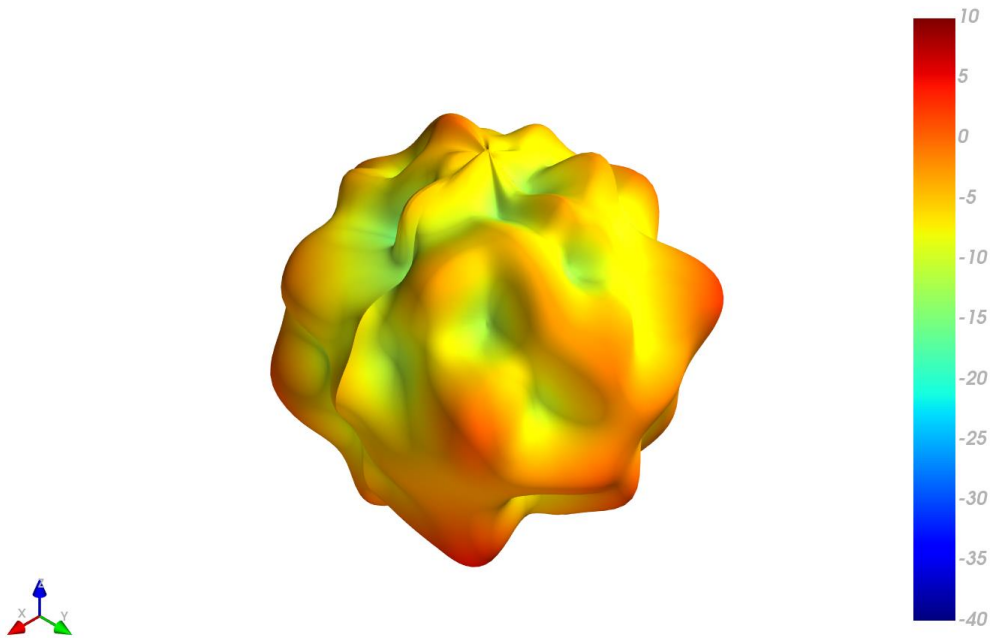
4.39 5GNR\_6 - 2500MHz Radiation Patterns



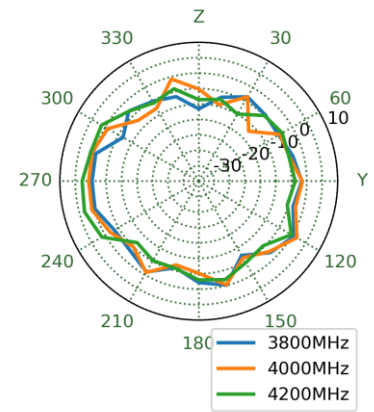
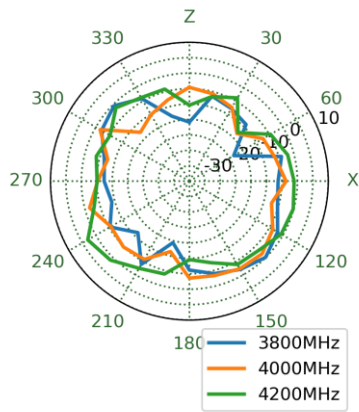
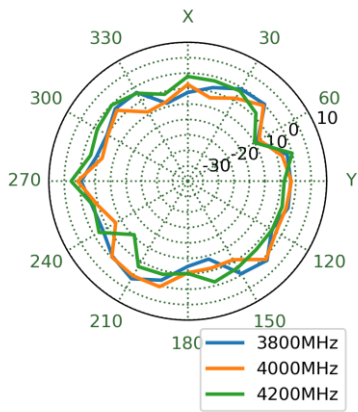
4.40 5GNR\_6 - 3500MHz Radiation Patterns



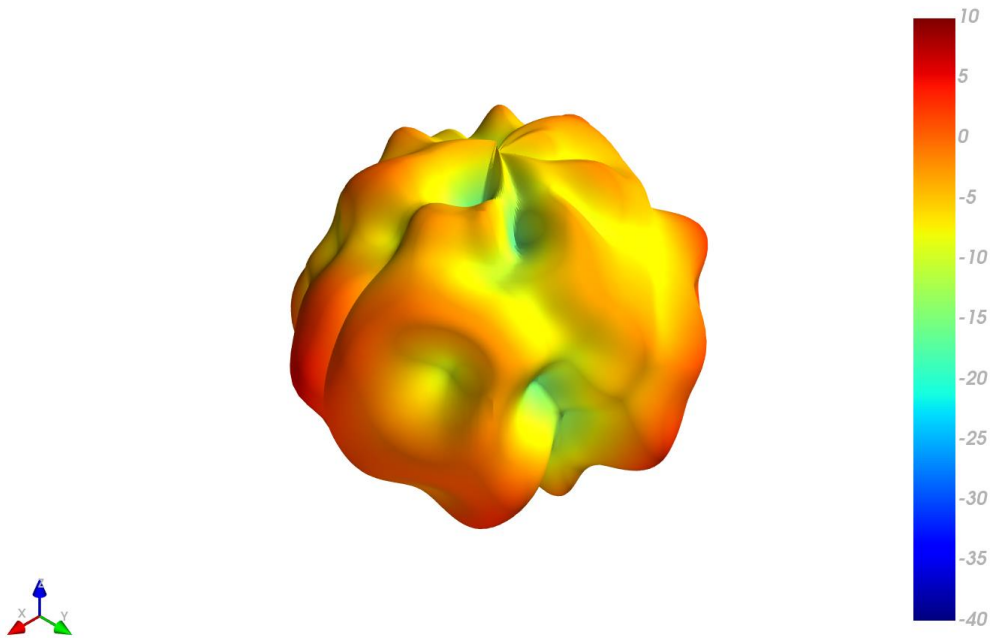
4.41 5GNR\_6 - 4000MHz Radiation Patterns



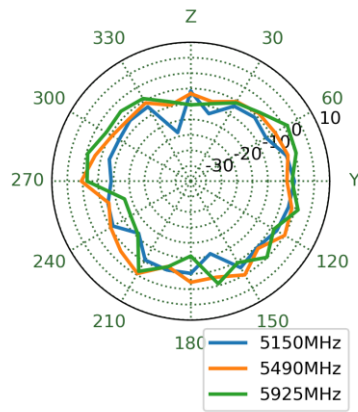
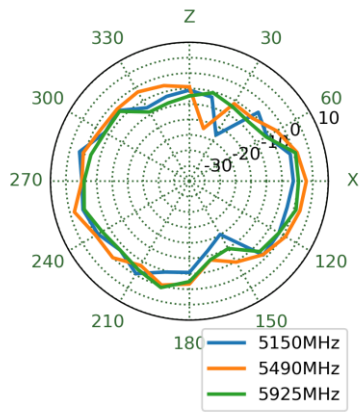
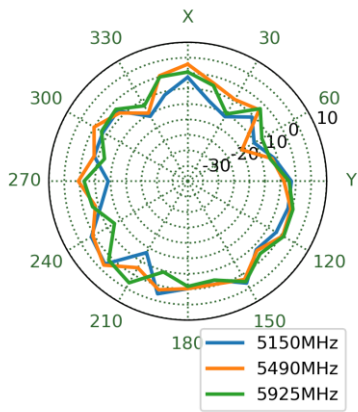
XY Plane XZ Plane YZ Plane



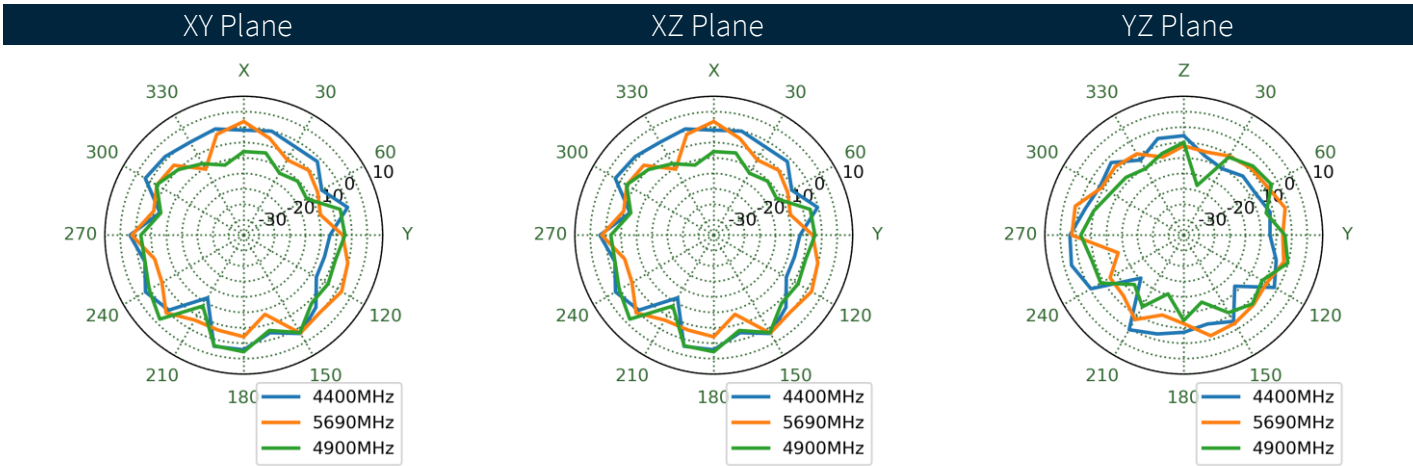
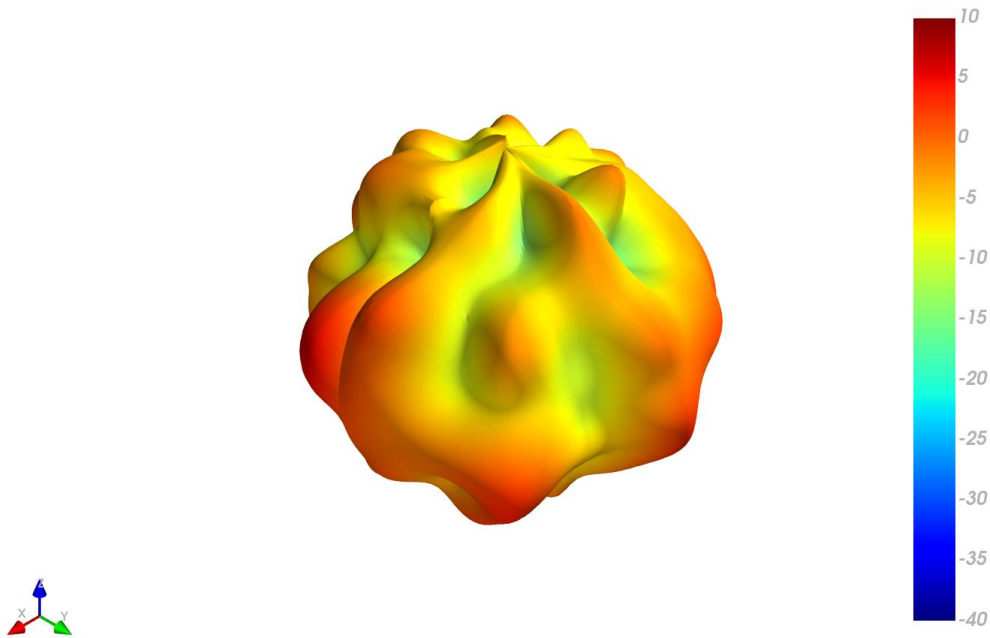
## 4.42 5GNR\_6 - 5490MHz Radiation Patterns



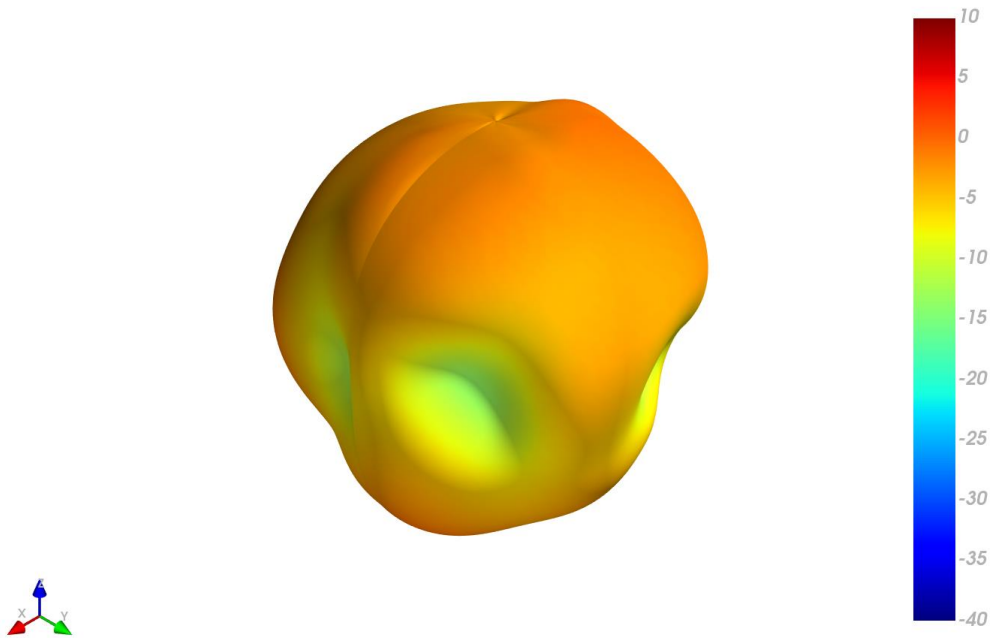
XY Plane                      XZ Plane                      YZ Plane



4.43 5GNR\_6 - 5690MHz Radiation Patterns



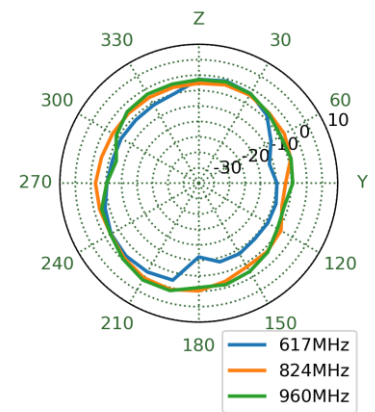
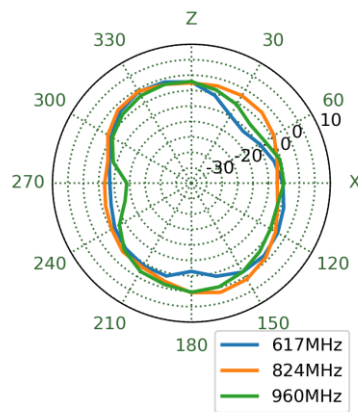
## 4.44 5G NR\_7 - 824MHz Radiation Patterns



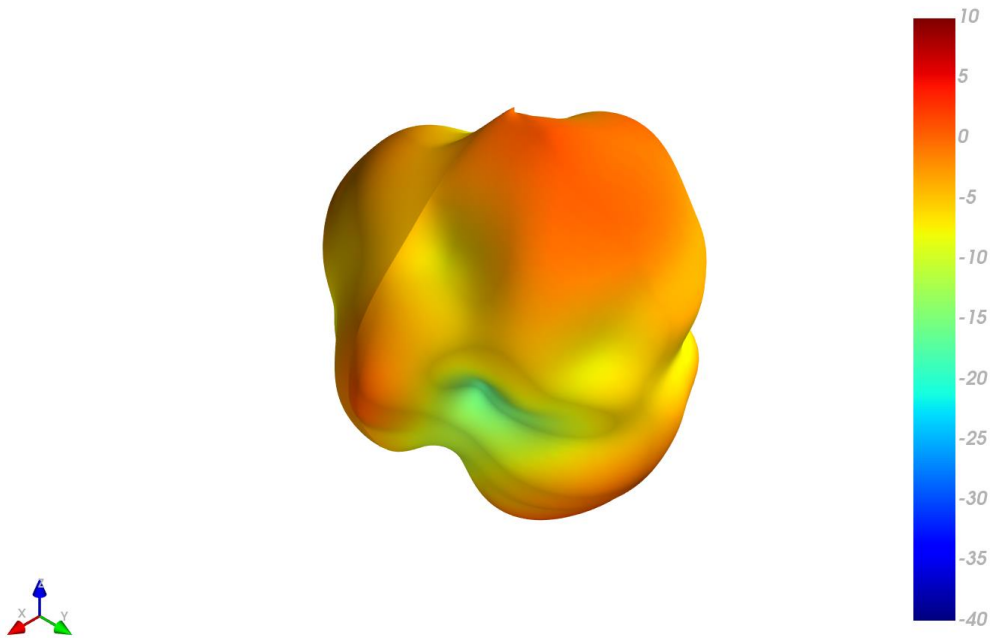
XY Plane

XZ Plane

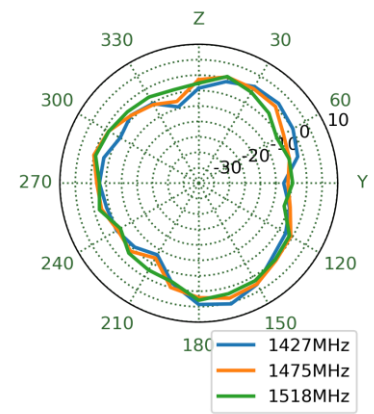
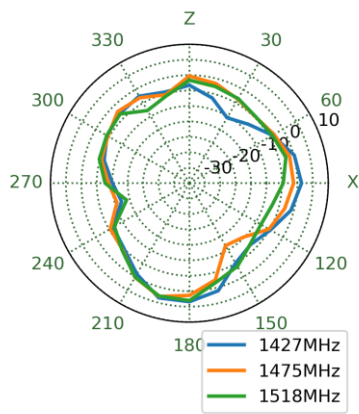
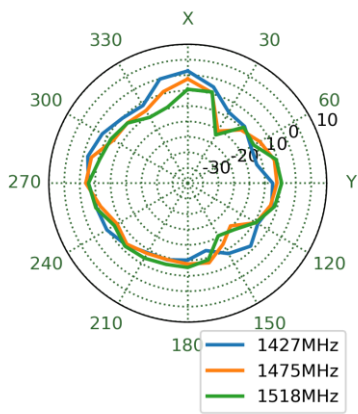
YZ Plane



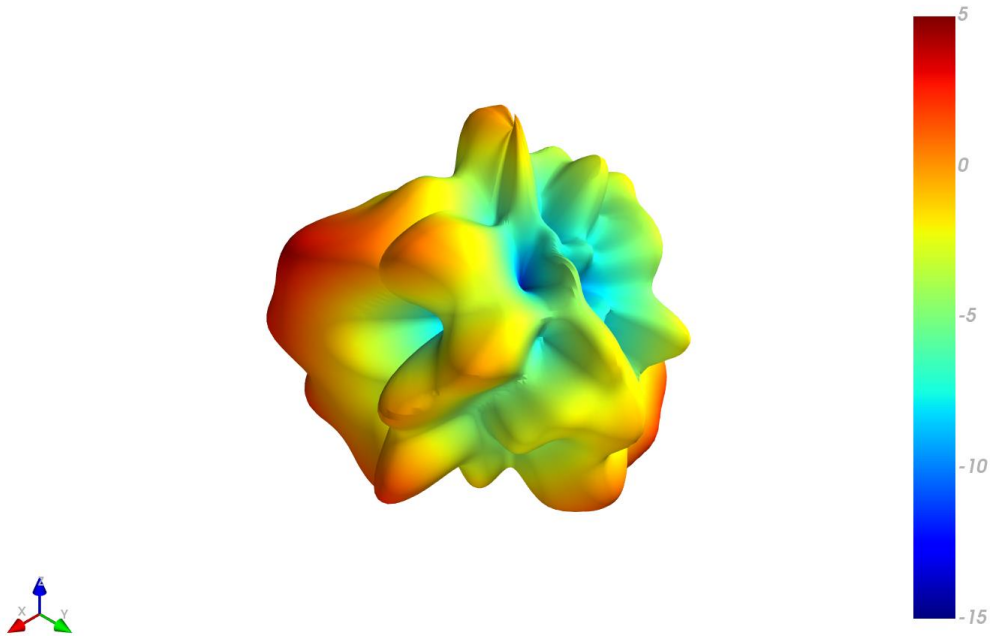
4.45 5GNR\_7 - 1475MHz Radiation Patterns



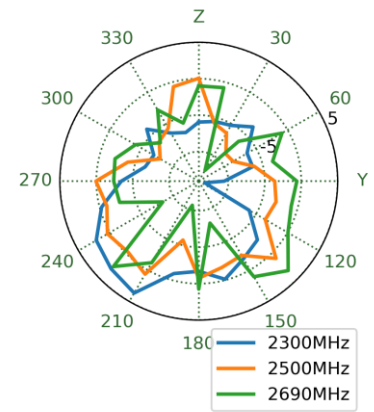
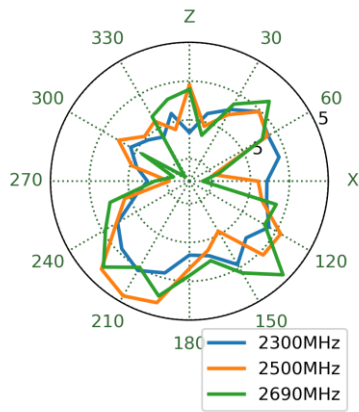
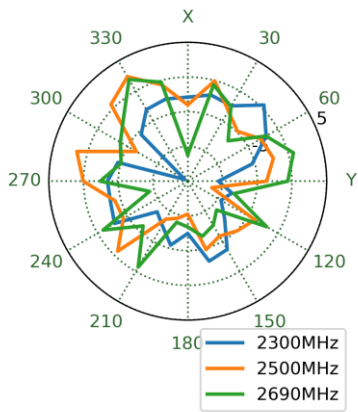
XY Plane XZ Plane YZ Plane



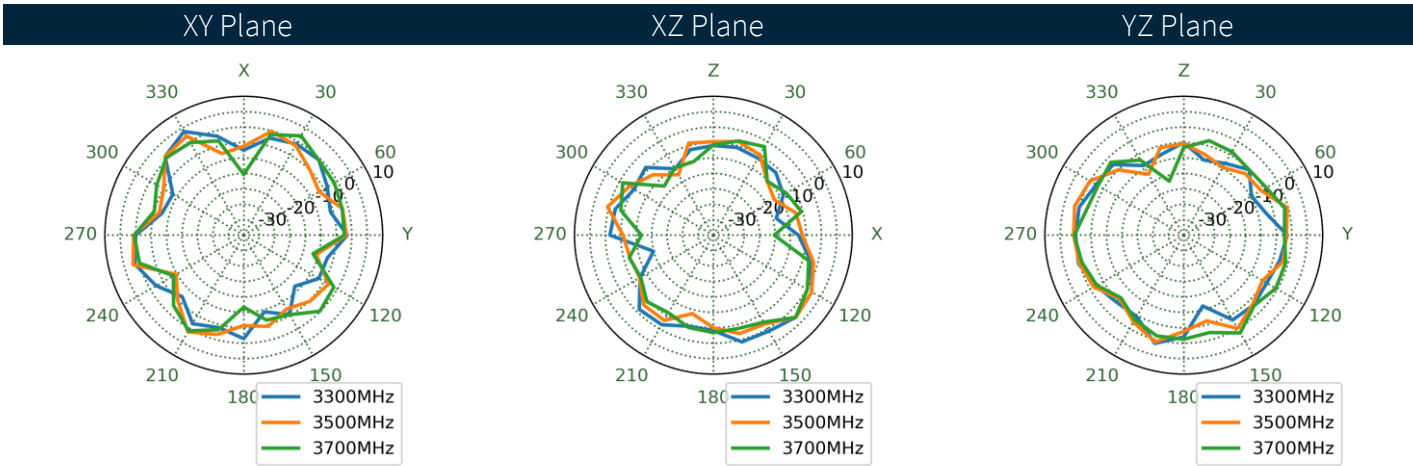
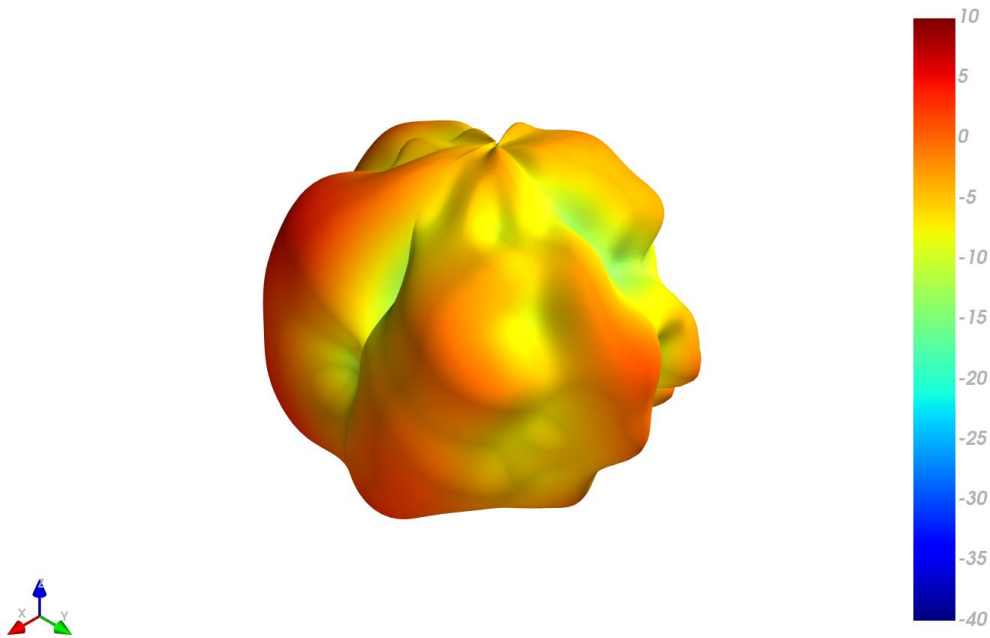
4.46 5GNR\_7 - 2500MHz Radiation Patterns



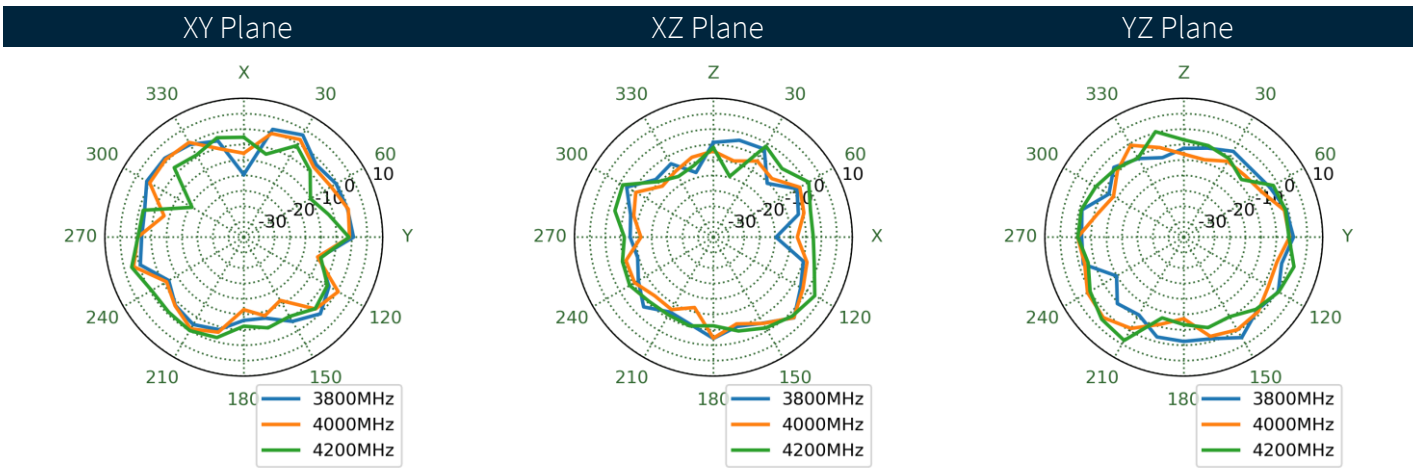
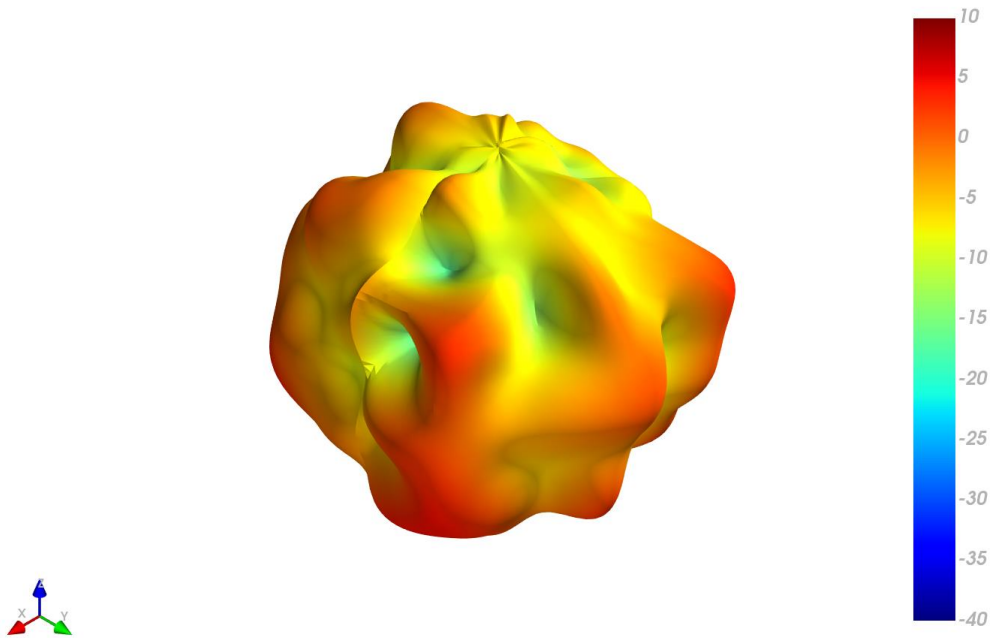
XY Plane XZ Plane YZ Plane



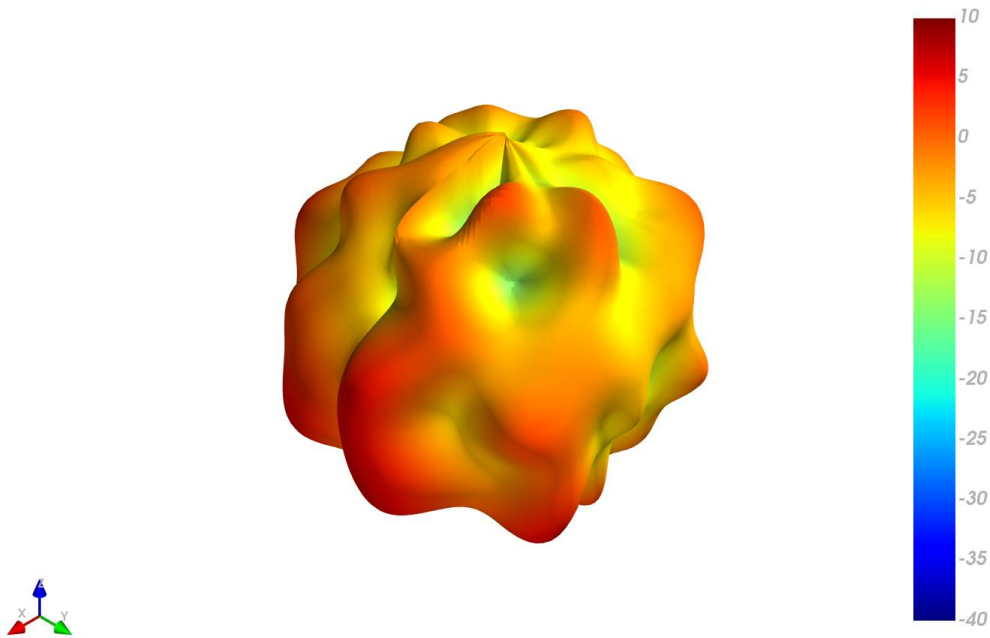
4.47 5GNR\_7 - 3500MHz Radiation Patterns



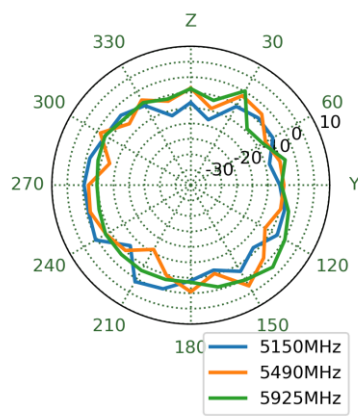
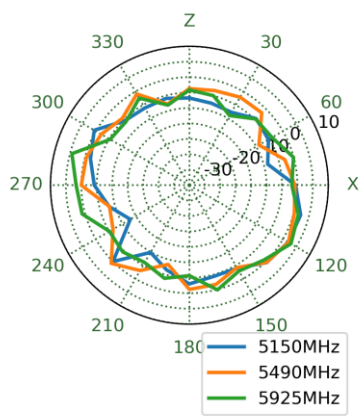
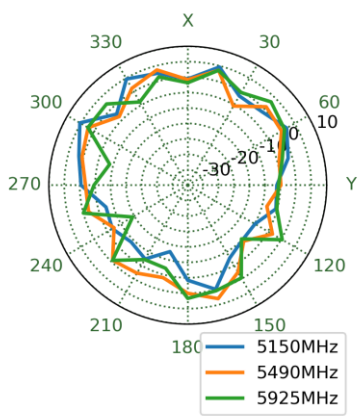
4.48 5GNR\_7 - 4000MHz Radiation Patterns



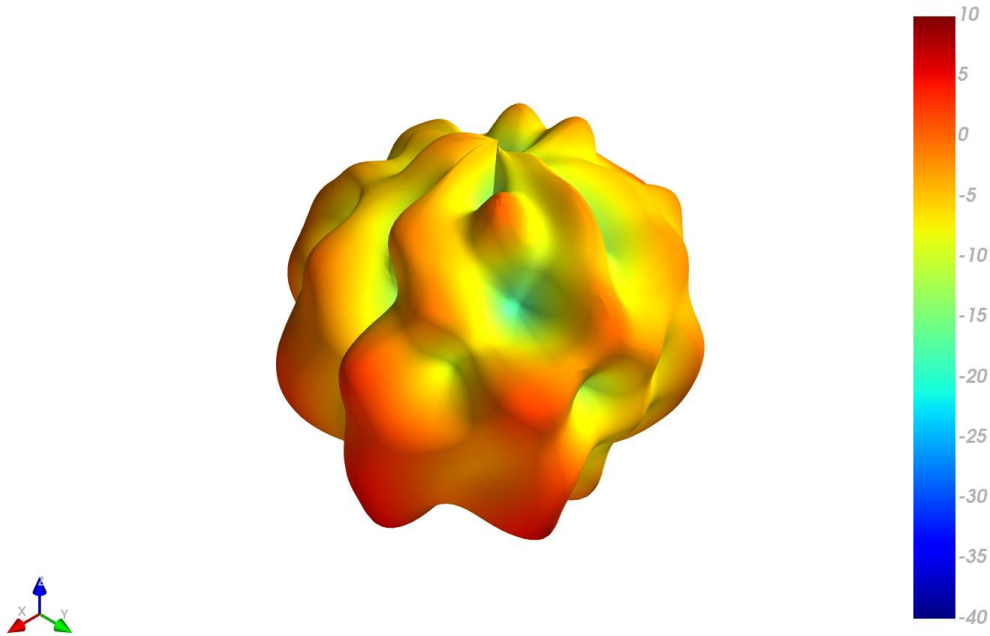
4.49 5GNR\_7 - 5490MHz Radiation Patterns



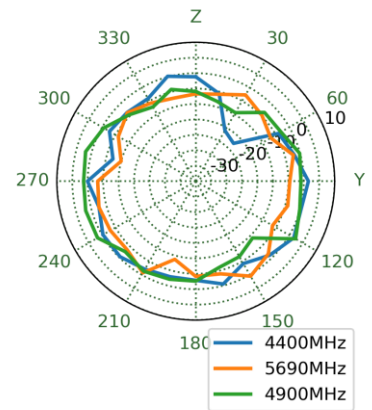
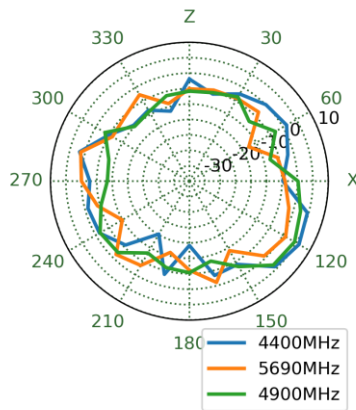
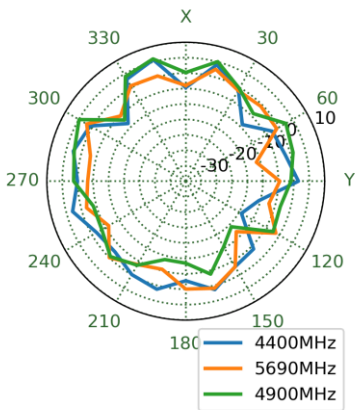
XY Plane XZ Plane YZ Plane



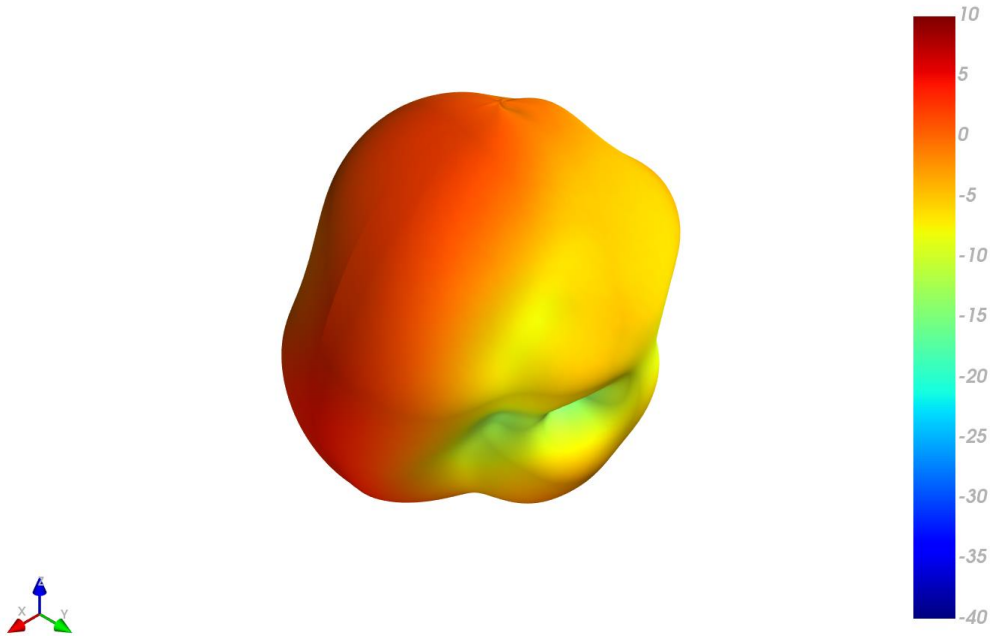
4.50 5G NR\_7 - 5690MHz Radiation Patterns



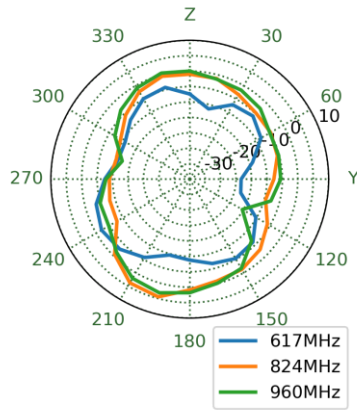
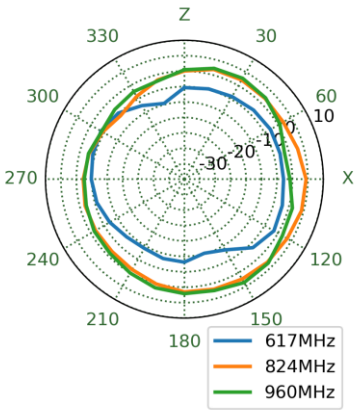
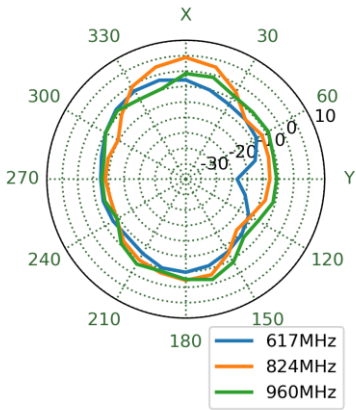
XY Plane XZ Plane YZ Plane



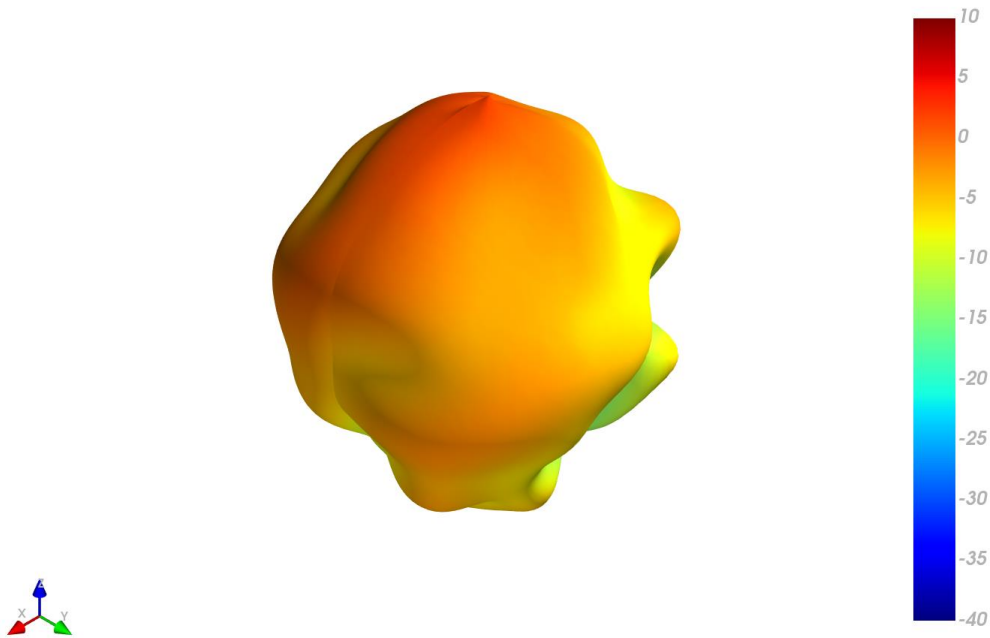
# 4.51 5GNR\_8 - 824MHz Radiation Patterns



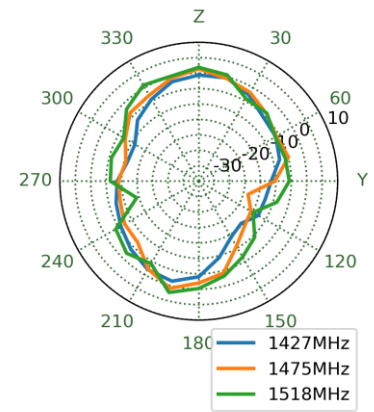
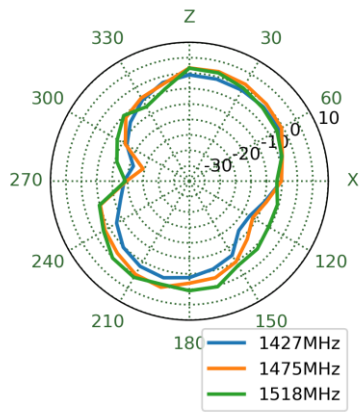
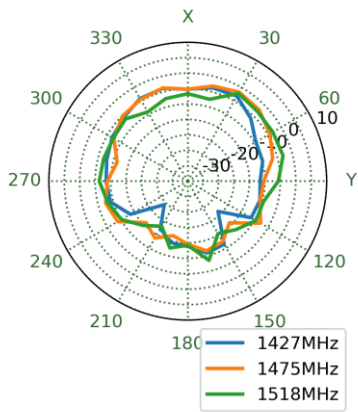
XY Plane                      XZ Plane                      YZ Plane



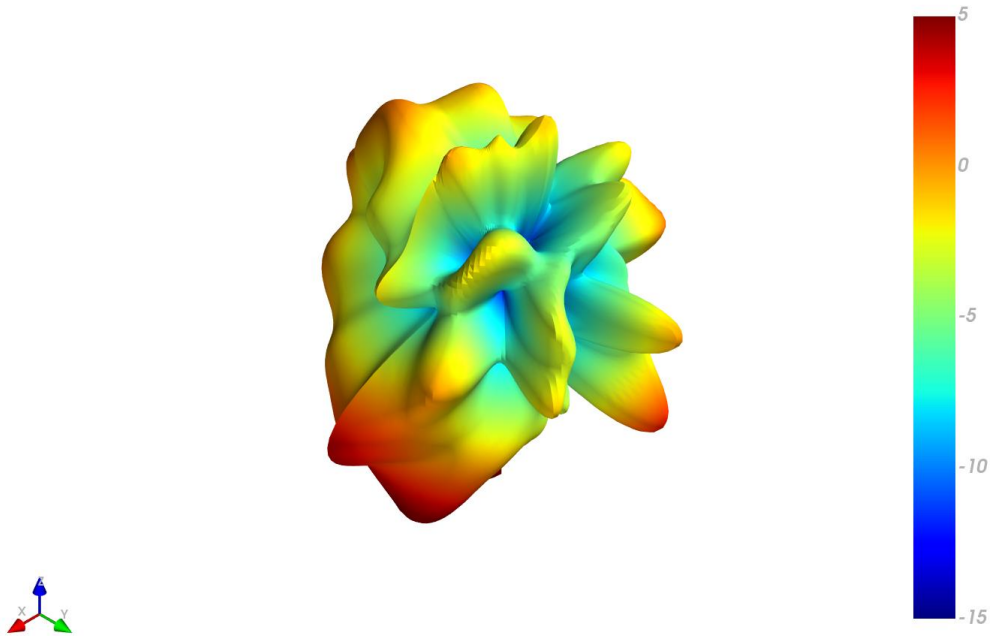
## 4.52 5GNR\_8 - 1475MHz Radiation Patterns



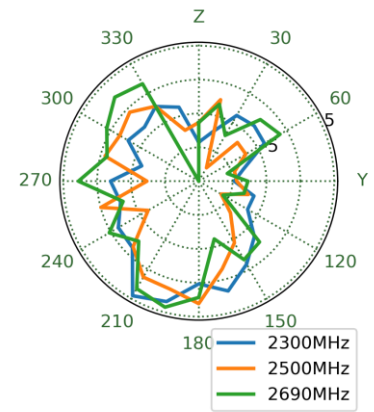
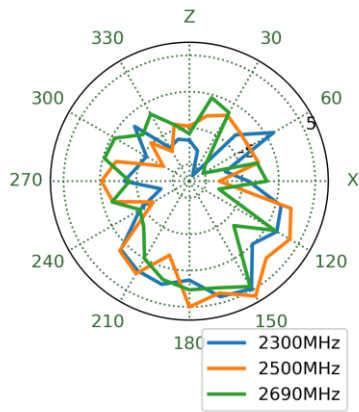
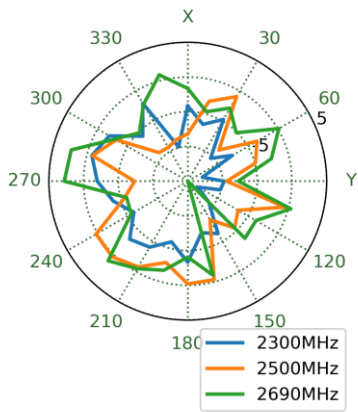
XY Plane                      XZ Plane                      YZ Plane



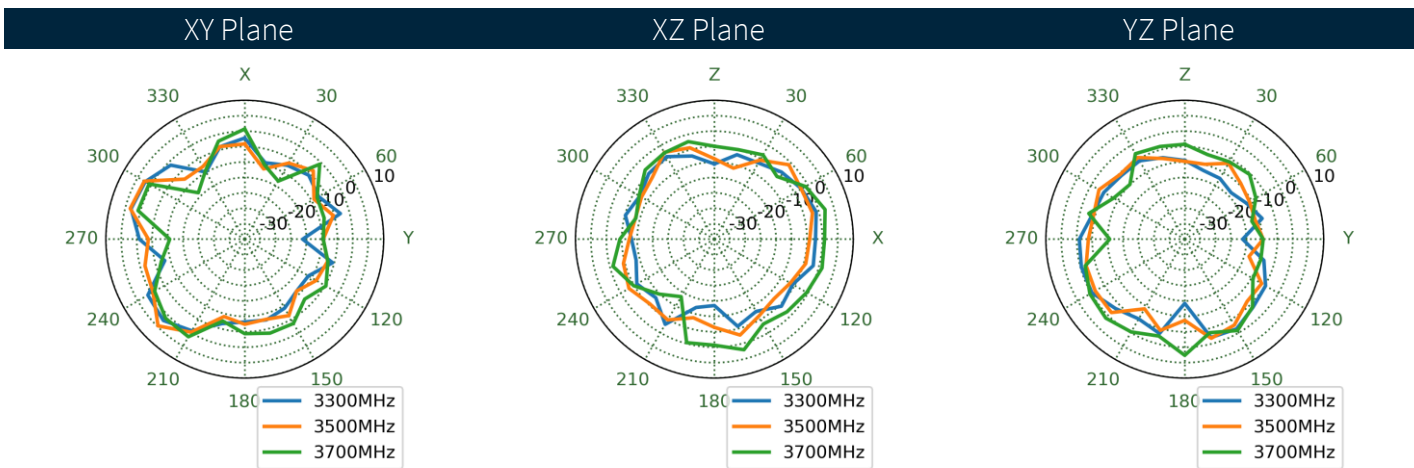
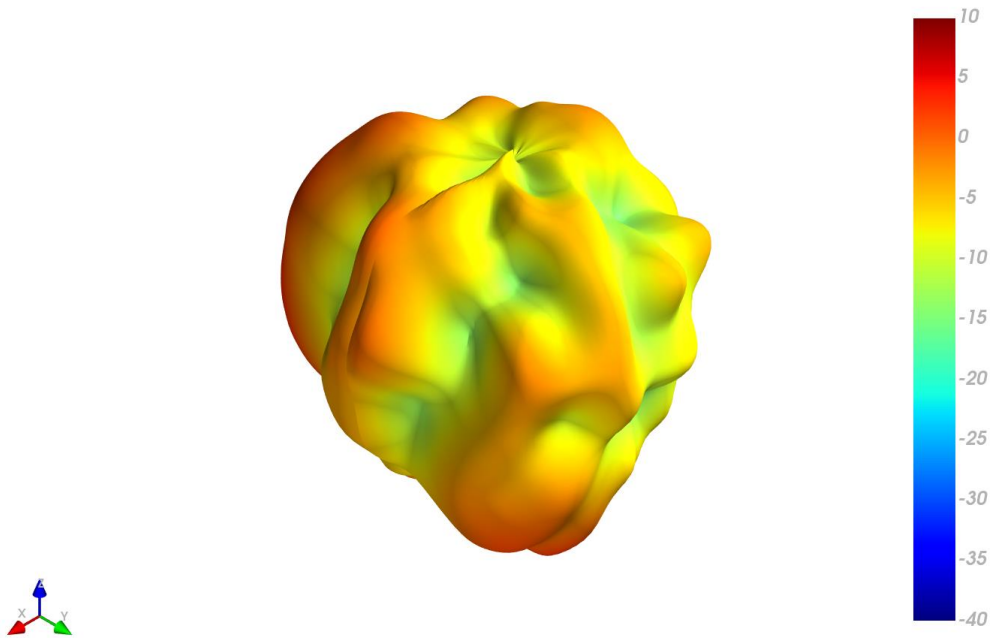
4.53 5GNR\_8 - 2500MHz Radiation Patterns



XY Plane XZ Plane YZ Plane



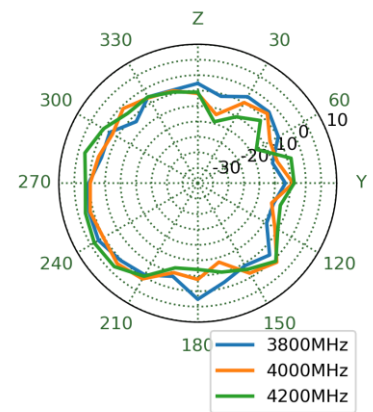
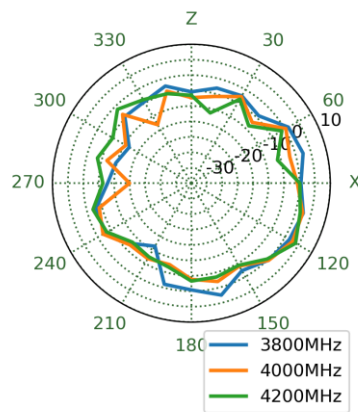
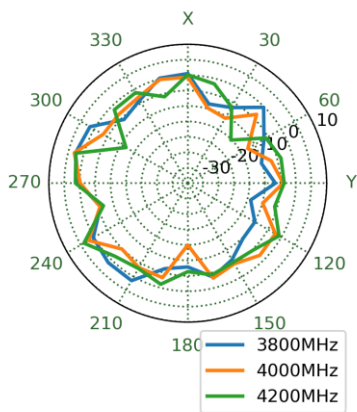
## 4.54 5GNR\_8 - 3500MHz Radiation Patterns



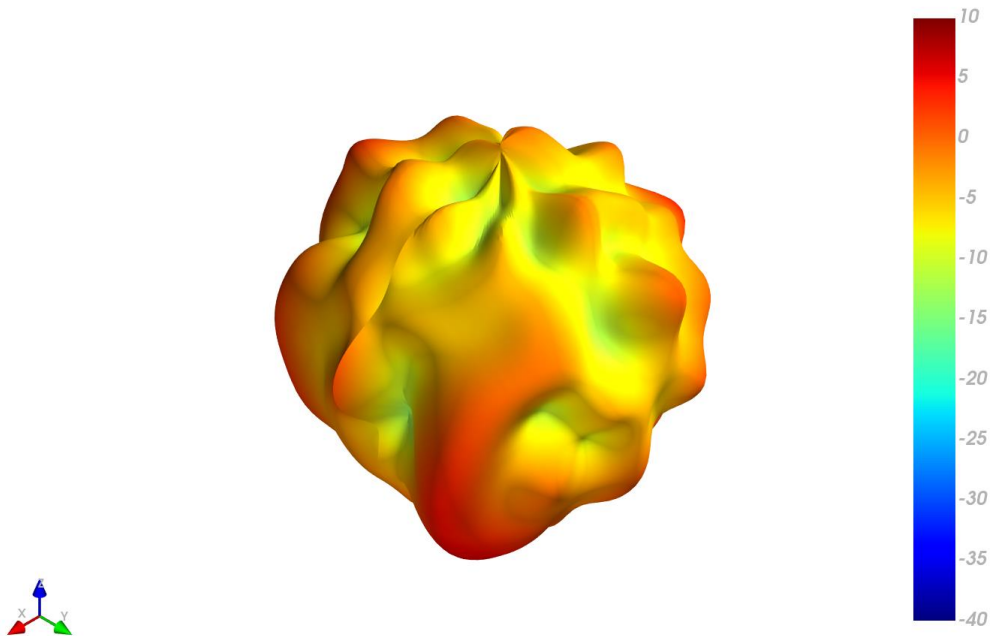
4.55 5GNR\_8 - 4000MHz Radiation Patterns



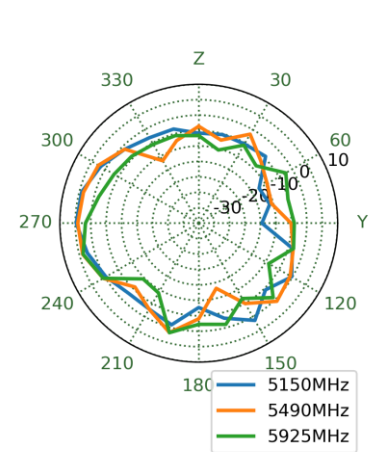
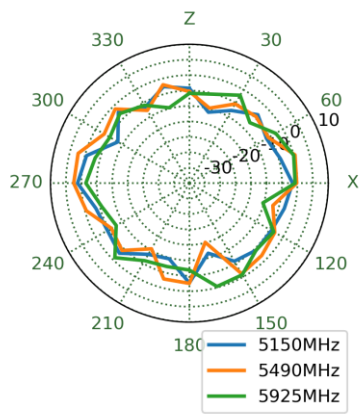
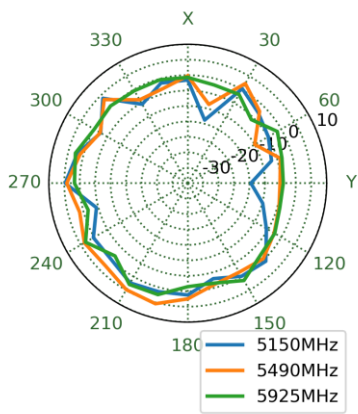
XY Plane XZ Plane YZ Plane



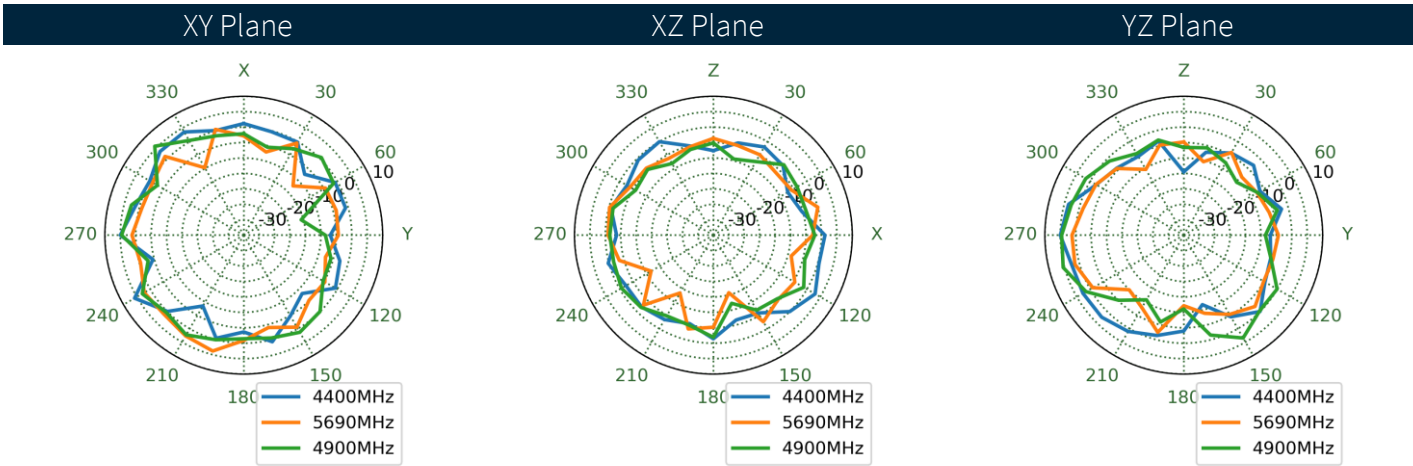
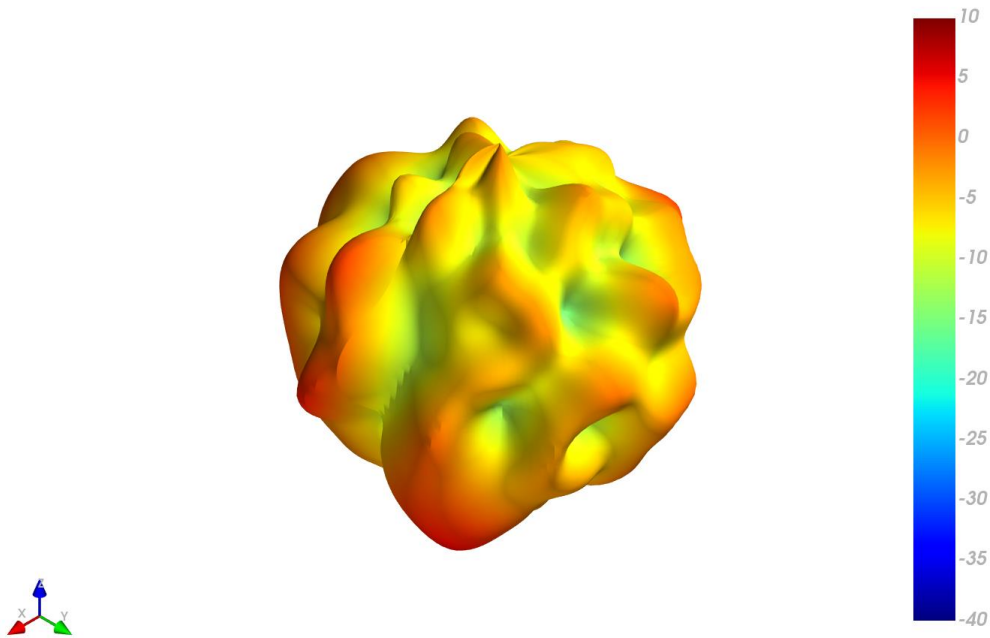
4.56 5G NR\_8 - 5490MHz Radiation Patterns



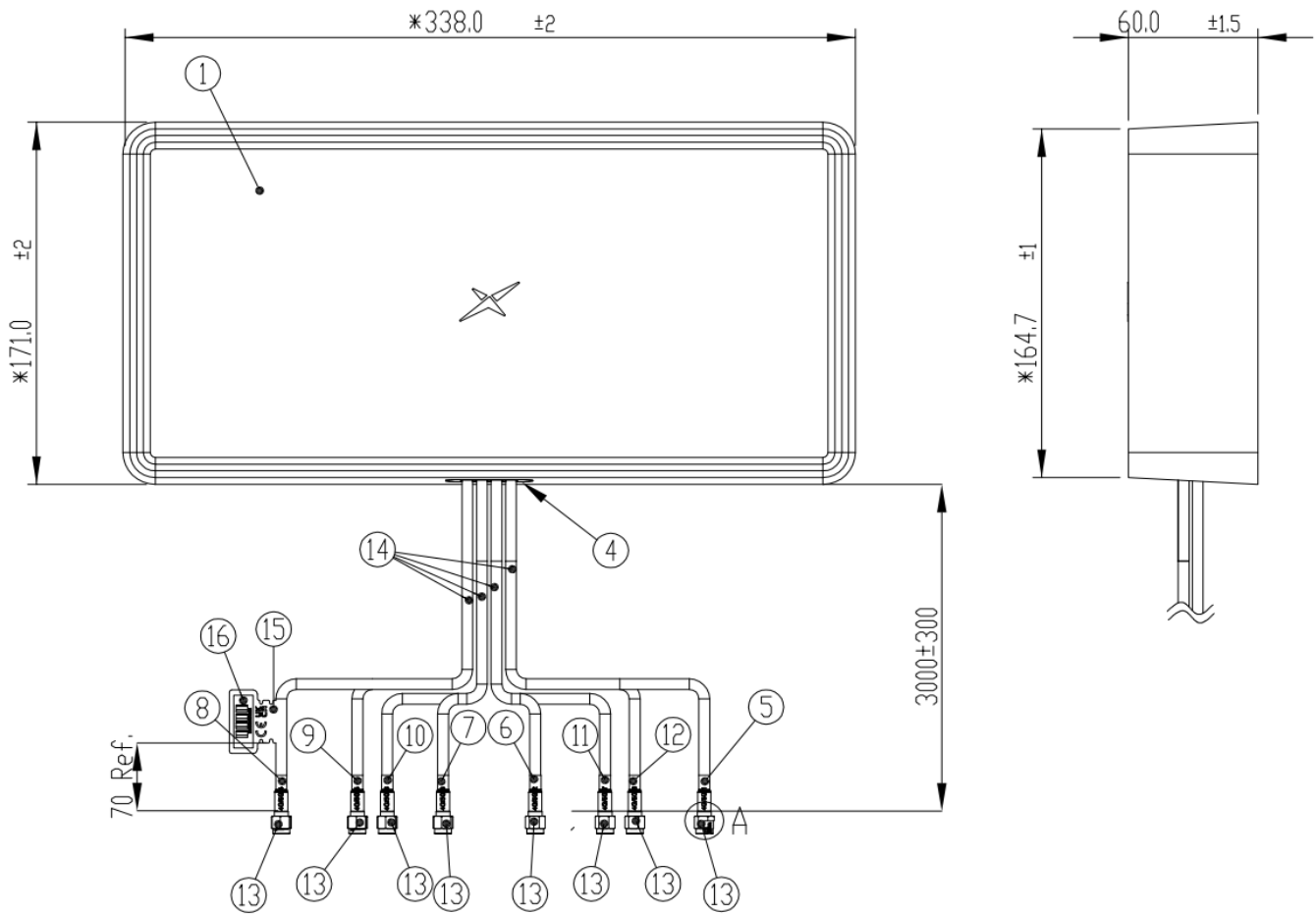
XY Plane XZ Plane YZ Plane



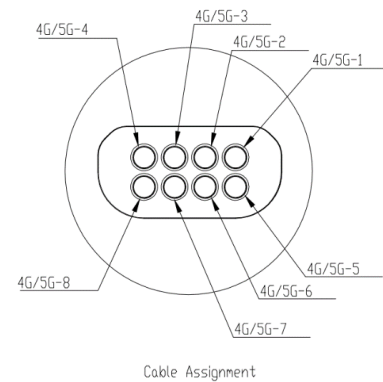
## 4.57 5GNR\_8 - 5690MHz Radiation Patterns



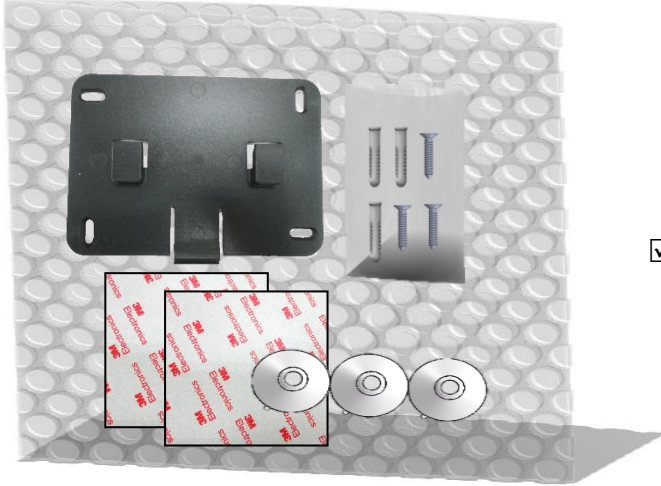
# 5. Mechanical Drawing



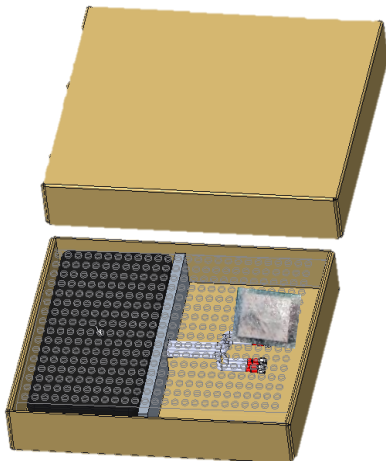
	Name	Material	Finish	Q'ty
1	TGX.08 Top Housing Black	ASA	MT9050	1
2	TGX.08 Bottom Housing Black	ASA	MT9050	1
3	Bracket	ASA	MT9050	1
4	Grommet	Silicone Rubber, HS=60A +/- 5A	Black	1
5	Heat Shrink Tube(4G/5G-1)	PE	Red Tube/White Text	1
6	Heat Shrink Tube(4G/5G-2)	PE	Red Tube/White Text	1
7	Heat Shrink Tube(4G/5G-3)	PE	Red Tube/White Text	1
8	Heat Shrink Tube(4G/5G-4)	PE	Red Tube/White Text	1
9	Heat Shrink Tube(4G/5G-5)	PE	Red Tube/White Text	1
10	Heat Shrink Tube(4G/5G-6)	PE	Red Tube/White Text	1
11	Heat Shrink Tube(4G/5G-7)	PE	Red Tube/White Text	1
12	Heat Shrink Tube(4G/5G-8)	PE	Red Tube/White Text	1
13	SMA(M)ST	Brass	Au Plated	8
14	TGC200 Coaxial Cable	PE	Black	8
15	CE, WEEE and UKCA mark logo Label	PEPA	White/377C	1
16	Date code label	PET	White	1
17	Suction Cup	PVC	Transparent	3
18	Double Adhesive Foam(100x100x3.54t)	CR4305+3M9448HK 3.5t	Black	1
19	Wall Mount Stud 6#24L	Nylon	White	4
20	Tapping Screw_M3.5*25 countersunk flat	SUS304	N/A	4



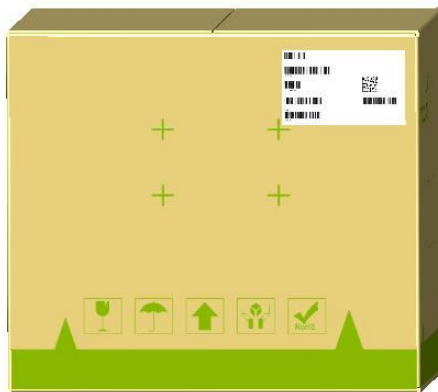
## 6. Packaging



- Small Bubble bag



- 1 PCS / Box
- Bubble bag
- Box(mm): 446x380x75



- 4 PCS / Carton
- 1 PCS / Clapboard
- Carton(mm): 446x380x300
- Carton Label

## 7. Application Note

The TGX.08 antenna performance with different cable lengths.

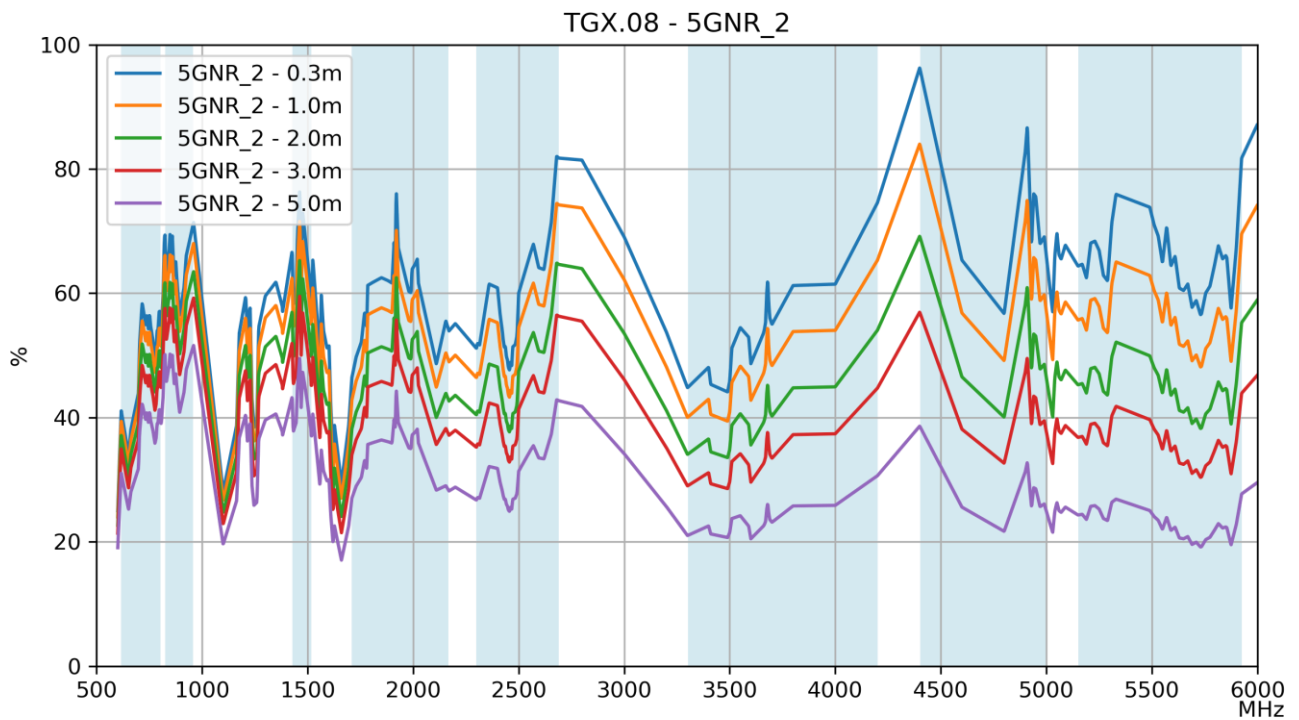
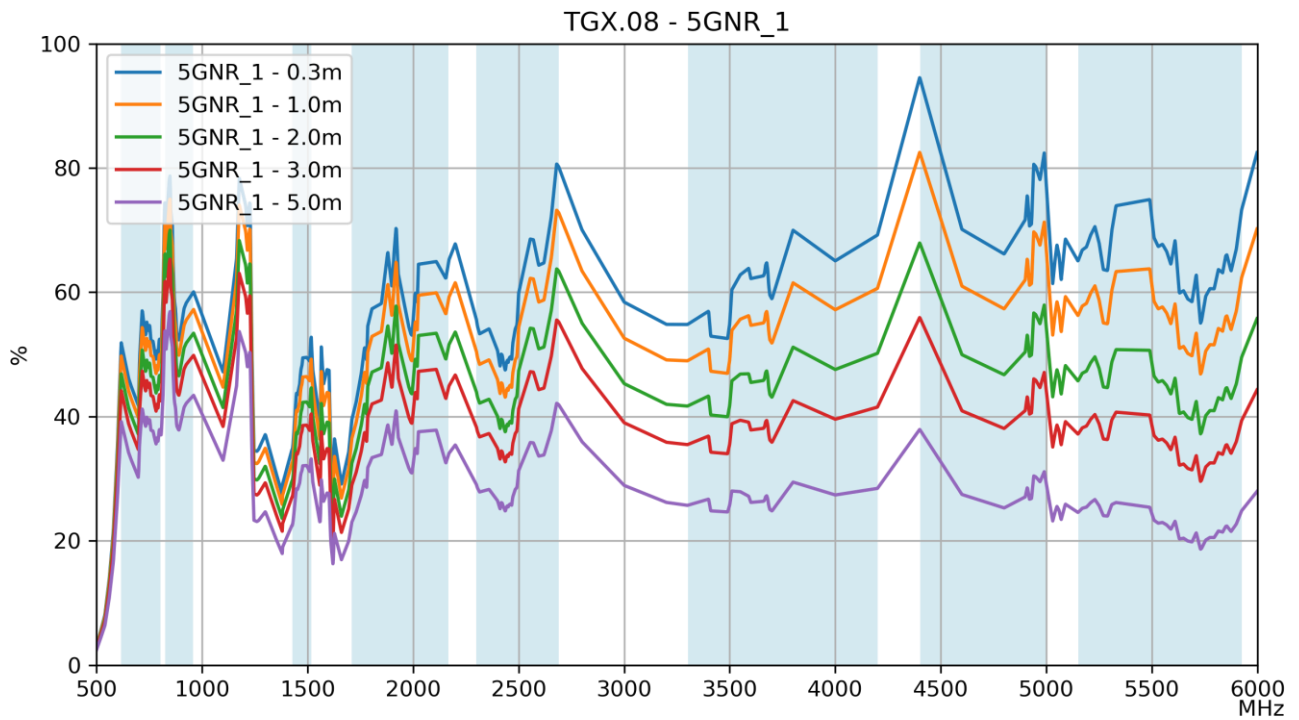
Electrical											
Frequency (MHz)	5GNR B71	LTE 700	LTE 800/900	5GNR 1500	5GNR n66	LTE 2600	5GNR n77	5GNR n78	5GNR n79	LTE 5200	
	617-698	698-806	824-960	1427-1518	1710-2170	2300-2690	3300-4200	3300-3800	4400-5000	5150-5925	
Efficiency (%)											
5GNR_1	0.3m	46.2	51.7	64.9	45.2	57.9	56.0	61.2	60.5	76.5	65.0
	1.0m	44.2	49.3	61.9	42.3	53.3	50.9	54.0	53.5	66.3	55.6
	2.0m	41.4	46.0	57.7	38.6	47.4	44.3	45.2	44.8	54.0	44.4
	3.0m	38.9	42.9	53.9	35.1	42.2	38.6	37.9	37.6	44.0	35.5
	5.0m	34.2	37.4	46.9	29.1	33.4	29.3	26.6	26.4	29.2	22.7
5GNR_2	0.3m	39.2	53.7	65.3	65.7	60.0	57.0	54.4	52.8	74.7	65.2
	1.0m	37.5	51.2	62.2	61.6	55.3	51.7	48.0	46.7	64.7	55.7
	2.0m	35.2	47.7	58.0	56.1	49.2	45.0	40.2	39.1	52.7	44.6
	3.0m	33.0	44.6	54.2	51.1	43.8	39.2	33.6	32.8	42.9	35.6
	5.0m	29.0	38.8	47.2	42.4	34.7	29.8	23.6	23.0	28.5	22.8
5GNR_3	0.3m	42.3	54.7	65.2	62.6	40.2	54.3	60.6	59.9	68.9	59.7
	1.0m	40.5	52.1	62.1	58.6	37.0	49.3	53.5	52.9	59.7	51.1
	2.0m	37.9	48.7	57.9	53.4	32.9	42.9	44.8	44.3	48.6	40.8
	3.0m	35.6	45.4	54.1	48.6	29.3	37.4	37.5	37.1	39.6	32.6
	5.0m	31.2	39.6	47.1	40.4	23.2	28.4	26.3	26.1	26.3	20.9
5GNR_4	0.3m	44.3	54.6	65.9	47.1	57.4	55.1	53.6	53.1	62.9	58.9
	1.0m	42.3	52.0	62.8	44.1	52.9	50.0	47.4	47.0	54.5	50.4
	2.0m	39.7	48.6	58.6	40.2	47.0	43.5	39.7	39.4	44.4	40.3
	3.0m	37.2	45.3	54.7	36.6	41.9	37.9	33.2	33.0	36.2	32.2
	5.0m	32.7	39.5	47.7	30.4	33.1	28.8	23.3	23.2	24.0	20.6
5GNR_5	0.3m	37.1	57.0	57.5	39.0	43.8	53.0	54.2	53.1	68.8	62.7
	1.0m	35.4	54.3	54.8	36.5	40.3	48.1	47.8	46.9	59.6	53.6
	2.0m	33.2	50.7	51.1	33.3	35.8	41.9	40.1	39.3	48.6	42.9
	3.0m	31.1	47.3	47.7	30.3	31.9	36.5	33.5	33.0	39.6	34.3
	5.0m	27.3	41.2	41.6	25.1	25.2	27.7	23.5	23.2	26.3	21.9
5GNR_6	0.3m	38.5	51.1	48.1	38.3	46.4	53.0	47.2	46.3	56.8	59.5
	1.0m	36.8	48.7	45.8	35.9	42.8	48.1	41.7	40.9	49.2	50.9
	2.0m	34.5	45.4	42.8	32.7	38.0	41.9	34.9	34.2	40.1	40.7
	3.0m	32.3	42.4	39.9	29.8	33.8	36.5	29.2	28.7	32.7	32.5
	5.0m	28.4	36.9	34.8	24.7	26.8	27.7	20.4	20.2	21.7	20.8
5GNR_7	0.3m	35.5	48.6	49.0	46.1	57.0	57.7	63.6	63.7	70.3	62.5

	1.0m	34.0	46.3	46.7	43.2	52.6	52.4	56.2	56.3	60.9	53.4
	2.0m	31.8	43.2	43.6	39.4	46.8	45.6	47.0	47.2	49.6	42.7
	3.0m	29.8	40.3	40.7	35.9	41.6	39.7	39.4	39.6	40.4	34.2
	5.0m	26.2	35.1	35.4	29.8	32.9	30.1	27.6	27.8	26.8	21.9
5G NR_8	0.3m	36.7	54.6	71.6	31.0	52.0	59.4	55.3	55.0	67.2	65.7
	1.0m	35.1	52.1	68.2	29.0	47.9	53.9	48.8	48.6	58.2	56.1
	2.0m	32.9	48.6	63.7	26.4	42.6	47.0	40.9	40.7	47.4	44.9
	3.0m	30.8	45.3	59.4	24.1	37.9	40.9	34.2	34.1	38.6	35.9
	5.0m	27.1	39.5	51.7	20.0	30.0	31.0	24.0	24.0	25.6	23.0
<b>Average Gain (dB)</b>											
5G NR_1	0.3m	-3.35	-2.87	-1.88	-3.45	-2.38	-2.52	-2.13	-2.18	-1.16	-1.87
	1.0m	-3.55	-3.08	-2.09	-3.73	-2.73	-2.94	-2.67	-2.72	-1.79	-2.55
	2.0m	-3.82	-3.38	-2.39	-4.14	-3.24	-3.54	-3.44	-3.48	-2.68	-3.52
	3.0m	-4.10	-3.68	-2.69	-4.54	-3.75	-4.14	-4.22	-4.25	-3.57	-4.49
	5.0m	-4.66	-4.28	-3.29	-5.35	-4.77	-5.34	-5.75	-5.78	-5.35	-6.44
5G NR_2	0.3m	-4.06	-2.70	-1.85	-1.82	-2.22	-2.44	-2.65	-2.77	-1.27	-1.86
	1.0m	-4.26	-2.91	-2.06	-2.11	-2.57	-2.86	-3.19	-3.31	-1.89	-2.54
	2.0m	-4.54	-3.21	-2.36	-2.51	-3.08	-3.46	-3.96	-4.07	-2.78	-3.51
	3.0m	-4.82	-3.51	-2.66	-2.91	-3.59	-4.06	-4.73	-4.84	-3.67	-4.48
	5.0m	-5.38	-4.11	-3.26	-3.72	-4.60	-5.26	-6.28	-6.37	-5.45	-6.42
5G NR_3	0.3m	-3.73	-2.62	-1.86	-2.04	-3.96	-2.65	-2.17	-2.23	-1.61	-2.24
	1.0m	-3.93	-2.83	-2.07	-2.32	-4.31	-3.07	-2.72	-2.77	-2.24	-2.92
	2.0m	-4.21	-3.13	-2.37	-2.73	-4.82	-3.67	-3.49	-3.53	-3.13	-3.89
	3.0m	-4.49	-3.43	-2.67	-3.13	-5.33	-4.27	-4.26	-4.30	-4.02	-4.86
	5.0m	-5.05	-4.03	-3.27	-3.94	-6.35	-5.47	-5.80	-5.83	-5.80	-6.80
5G NR_4	0.3m	-3.54	-2.63	-1.81	-3.27	-2.41	-2.59	-2.70	-2.75	-2.01	-2.30
	1.0m	-3.74	-2.84	-2.02	-3.55	-2.77	-3.01	-3.24	-3.28	-2.63	-2.98
	2.0m	-4.02	-3.14	-2.32	-3.96	-3.27	-3.61	-4.01	-4.05	-3.52	-3.95
	3.0m	-4.29	-3.44	-2.62	-4.36	-3.78	-4.21	-4.78	-4.81	-4.41	-4.92
	5.0m	-4.85	-4.04	-3.22	-5.17	-4.80	-5.41	-6.32	-6.34	-6.20	-6.86
5G NR_5	0.3m	-4.31	-2.44	-2.40	-4.09	-3.59	-2.76	-2.66	-2.75	-1.62	-2.03
	1.0m	-4.51	-2.65	-2.61	-4.37	-3.95	-3.18	-3.20	-3.29	-2.25	-2.71
	2.0m	-4.79	-2.95	-2.91	-4.78	-4.46	-3.78	-3.97	-4.05	-3.14	-3.68
	3.0m	-5.07	-3.25	-3.21	-5.19	-4.97	-4.38	-4.75	-4.82	-4.02	-4.65
	5.0m	-5.64	-3.85	-3.81	-6.00	-5.99	-5.58	-6.29	-6.35	-5.80	-6.59
5G NR_6	0.3m	-4.15	-2.92	-3.18	-4.17	-3.33	-2.76	-3.26	-3.35	-2.46	-2.25
	1.0m	-4.34	-3.13	-3.39	-4.45	-3.69	-3.18	-3.80	-3.89	-3.08	-2.93
	2.0m	-4.62	-3.43	-3.69	-4.85	-4.20	-3.78	-4.58	-4.65	-3.97	-3.91
	3.0m	-4.90	-3.73	-3.99	-5.26	-4.71	-4.38	-5.35	-5.42	-4.86	-4.88
	5.0m	-5.46	-4.33	-4.59	-6.07	-5.72	-5.58	-6.89	-6.96	-6.64	-6.82

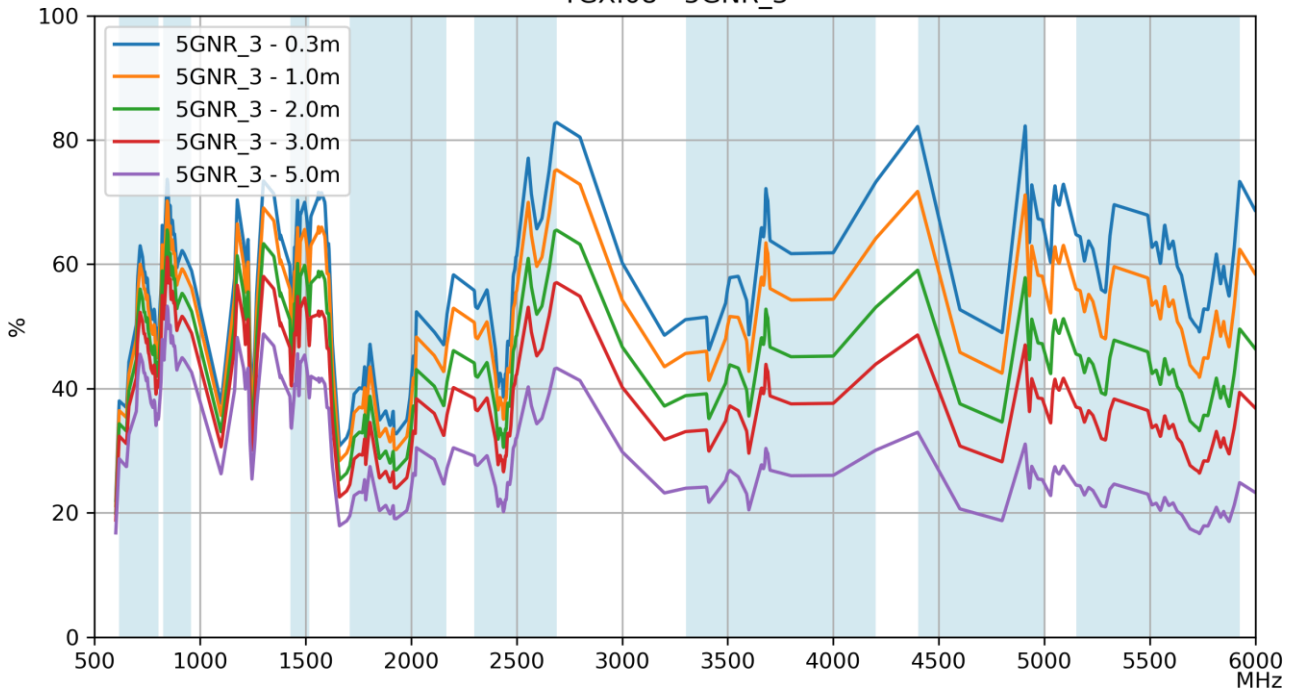
5G NR_7	0.3m	-4.49	-3.13	-3.10	-3.36	-2.44	-2.39	-1.96	-1.96	-1.53	-2.04
	1.0m	-4.69	-3.34	-3.31	-3.64	-2.79	-2.81	-2.50	-2.49	-2.15	-2.72
	2.0m	-4.97	-3.64	-3.61	-4.05	-3.30	-3.41	-3.27	-3.26	-3.04	-3.69
	3.0m	-5.25	-3.94	-3.91	-4.45	-3.81	-4.01	-4.05	-4.03	-3.93	-4.66
	5.0m	-5.82	-4.54	-4.51	-5.26	-4.82	-5.21	-5.58	-5.56	-5.71	-6.60
5G NR_8	0.3m	-4.35	-2.63	-1.45	-5.09	-2.84	-2.26	-2.57	-2.59	-1.73	-1.83
	1.0m	-4.55	-2.84	-1.66	-5.38	-3.20	-2.68	-3.11	-3.13	-2.35	-2.51
	2.0m	-4.83	-3.14	-1.96	-5.78	-3.70	-3.28	-3.88	-3.90	-3.24	-3.48
	3.0m	-5.11	-3.44	-2.26	-6.19	-4.21	-3.88	-4.66	-4.67	-4.13	-4.45
	5.0m	-5.67	-4.04	-2.86	-7.00	-5.23	-5.08	-6.20	-6.20	-5.91	-6.39
<b>Peak Gain (dBi)</b>											
5G NR_1	0.3m	2.78	3.48	4.87	4.39	4.55	5.98	5.90	5.90	6.75	7.43
	1.0m	2.58	3.27	4.66	4.09	4.20	5.56	5.34	5.34	6.12	6.73
	2.0m	2.30	2.97	4.36	3.66	3.70	4.96	4.54	4.54	5.22	5.73
	3.0m	2.01	2.67	4.06	3.23	3.20	4.36	3.78	3.78	4.32	4.73
	5.0m	1.45	2.07	3.46	2.38	2.20	3.16	2.38	2.38	2.52	2.73
5G NR_2	0.3m	0.30	2.27	3.29	4.13	4.57	4.86	5.33	5.33	7.00	7.04
	1.0m	0.12	2.06	3.08	3.85	4.22	4.44	4.77	4.77	6.41	6.34
	2.0m	-0.14	1.76	2.78	3.45	3.72	3.84	3.97	3.97	5.57	5.34
	3.0m	-0.40	1.46	2.48	3.05	3.22	3.24	3.17	3.17	4.72	4.34
	5.0m	-0.91	0.86	1.88	2.25	2.22	2.04	1.57	1.57	3.03	2.34
5G NR_3	0.3m	0.65	2.84	3.31	5.18	4.67	5.89	7.43	7.43	6.24	6.26
	1.0m	0.44	2.63	3.10	4.90	4.25	5.47	6.87	6.87	5.65	5.56
	2.0m	0.14	2.33	2.80	4.50	3.65	4.87	6.07	6.07	4.80	4.56
	3.0m	-0.16	2.03	2.50	4.10	3.05	4.27	5.27	5.27	3.96	3.58
	5.0m	-0.76	1.43	1.90	3.30	1.85	3.07	3.67	3.67	2.27	1.66
5G NR_4	0.3m	2.13	3.19	3.61	4.97	4.64	5.02	5.48	5.21	6.23	6.95
	1.0m	1.92	2.98	3.40	4.67	4.29	4.60	4.92	4.65	5.60	6.32
	2.0m	1.62	2.68	3.10	4.24	3.79	4.00	4.12	3.85	4.70	5.42
	3.0m	1.32	2.38	2.80	3.81	3.29	3.40	3.32	3.05	3.80	4.52
	5.0m	0.72	1.78	2.20	2.95	2.29	2.20	1.72	1.45	2.00	2.72
5G NR_5	0.3m	1.85	4.68	4.59	3.04	5.49	6.88	5.67	5.67	6.06	6.09
	1.0m	1.64	4.47	4.38	2.74	5.07	6.46	5.11	5.11	5.43	5.39
	2.0m	1.34	4.17	4.08	2.31	4.47	5.86	4.31	4.31	4.53	4.39
	3.0m	1.04	3.87	3.78	1.88	3.87	5.26	3.51	3.51	3.63	3.39
	5.0m	0.44	3.27	3.18	1.03	2.67	4.06	1.92	1.92	1.83	1.39
5G NR_6	0.3m	1.17	2.35	2.97	4.14	3.92	5.50	4.82	4.82	6.46	6.38
	1.0m	0.99	2.14	2.76	3.86	3.57	5.08	4.26	4.26	5.83	5.75
	2.0m	0.73	1.84	2.46	3.46	3.07	4.48	3.46	3.46	4.93	4.85
	3.0m	0.47	1.54	2.16	3.06	2.57	3.88	2.66	2.66	4.03	3.95

	5.0m	-0.05	0.94	1.56	2.26	1.57	2.68	1.06	1.06	2.23	2.15
5GNR_7	0.3m	0.33	1.74	2.52	6.32	4.22	6.15	5.36	5.36	7.12	7.12
	1.0m	0.12	1.53	2.31	6.04	3.87	5.73	4.80	4.80	6.49	6.42
	2.0m	-0.18	1.23	2.01	5.64	3.37	5.13	4.00	4.00	5.59	5.42
	3.0m	-0.48	0.93	1.71	5.24	2.87	4.53	3.20	3.20	4.69	4.42
	5.0m	-1.08	0.33	1.11	4.44	1.87	3.33	1.60	1.60	2.89	2.42
5GNR_8	0.3m	1.33	5.19	5.53	3.02	5.77	7.03	5.75	5.75	6.49	5.97
	1.0m	1.13	4.98	5.32	2.72	5.35	6.61	5.19	5.19	5.86	5.27
	2.0m	0.85	4.68	5.02	2.29	4.75	6.01	4.39	4.39	4.96	4.27
	3.0m	0.57	4.38	4.72	1.87	4.15	5.41	3.59	3.59	4.06	3.27
	5.0m	0.00	3.78	4.12	1.01	2.95	4.21	2.04	2.04	2.26	1.27

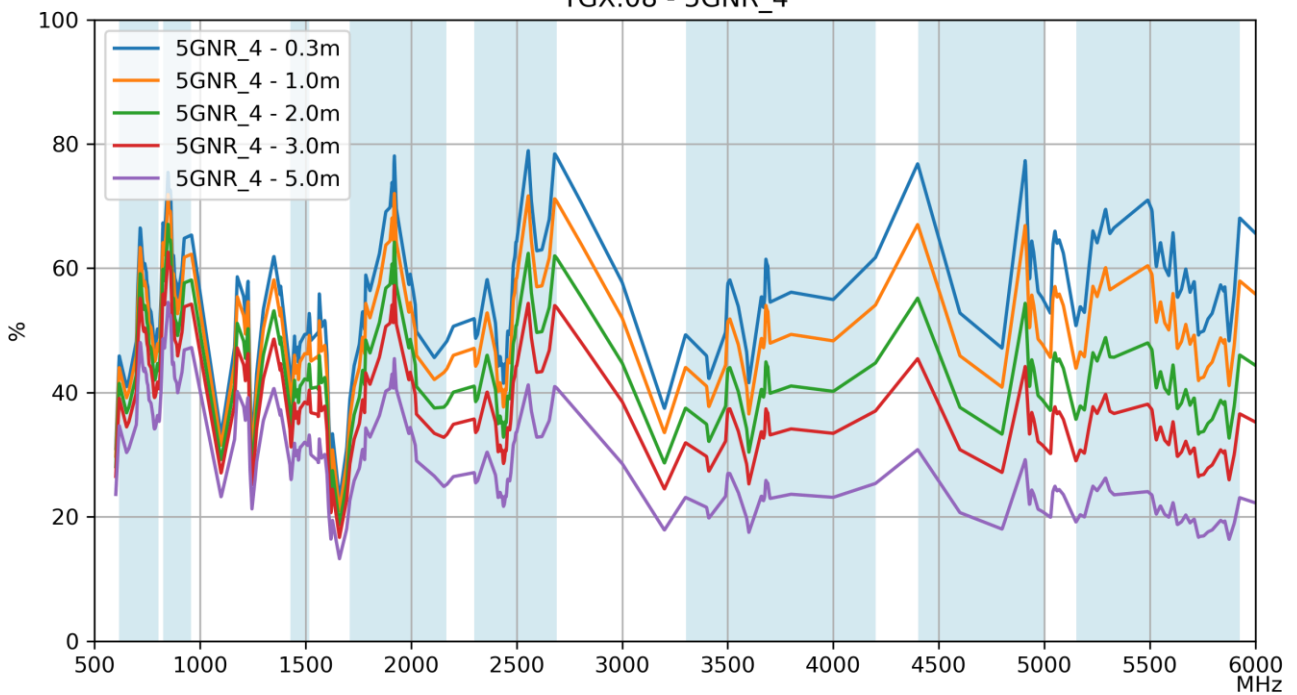
## 7.1 Efficiency

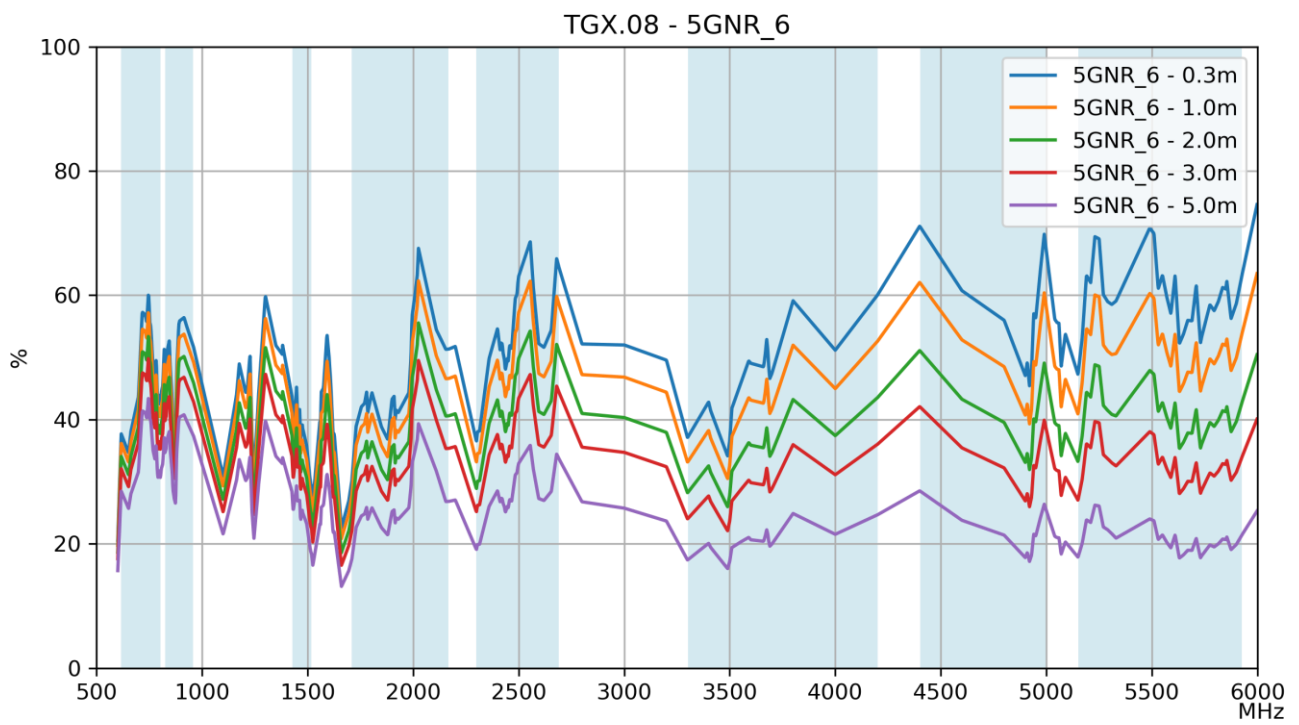
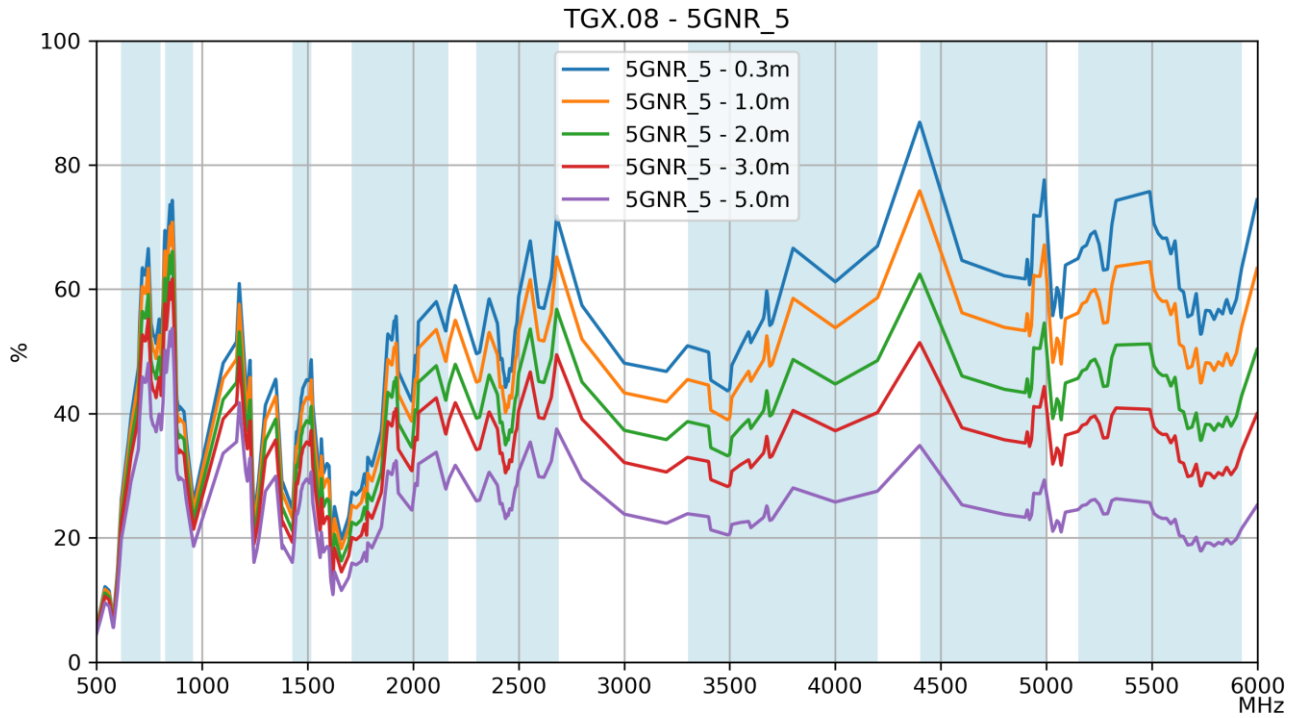


TGX.08 - 5GNR\_3

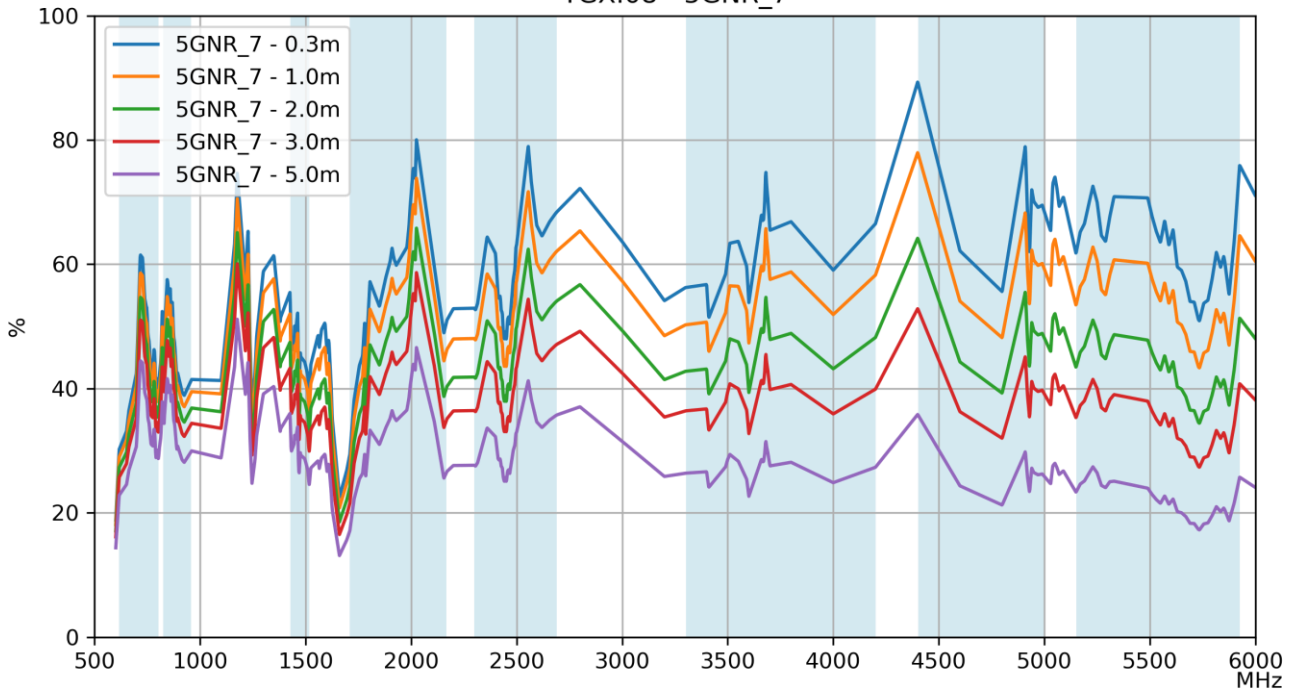


TGX.08 - 5GNR\_4

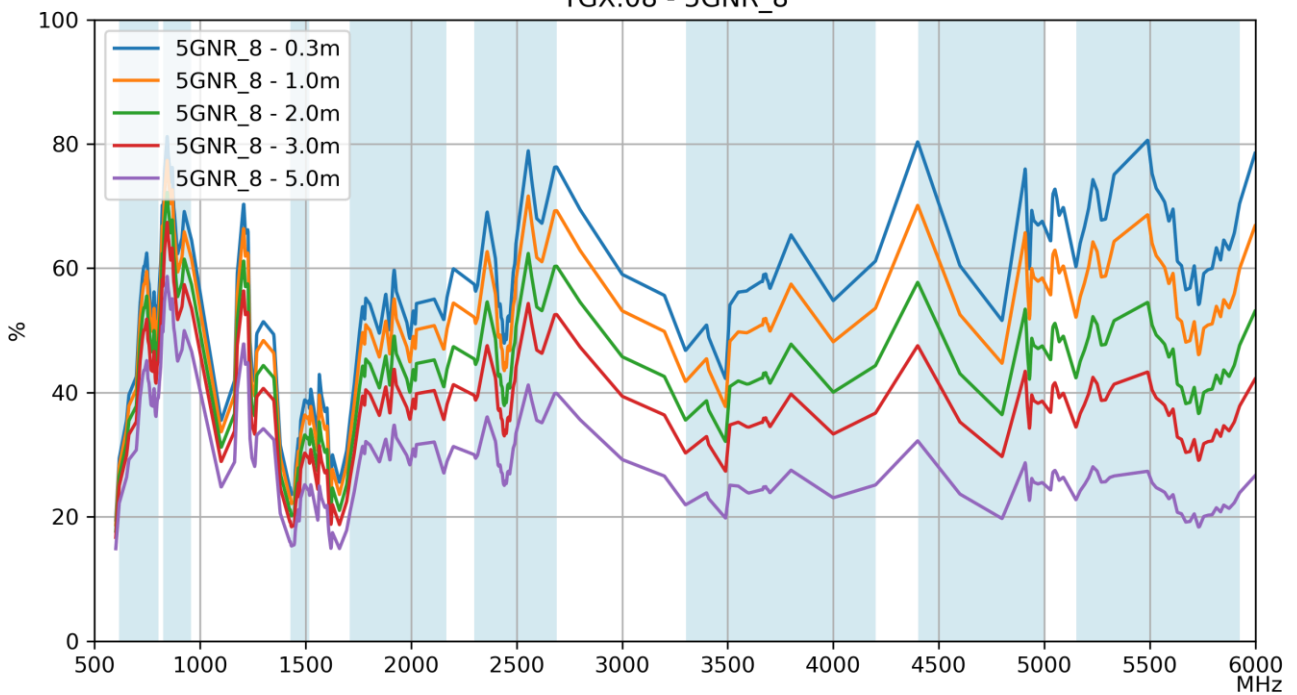




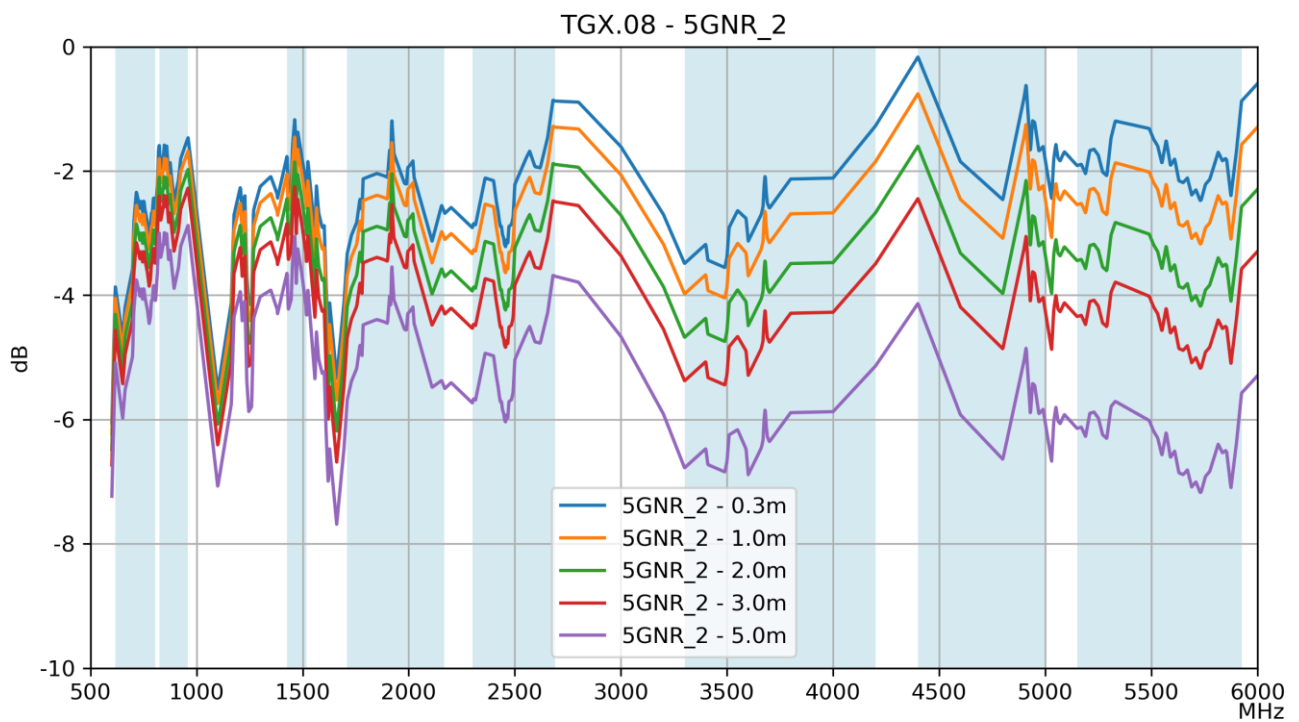
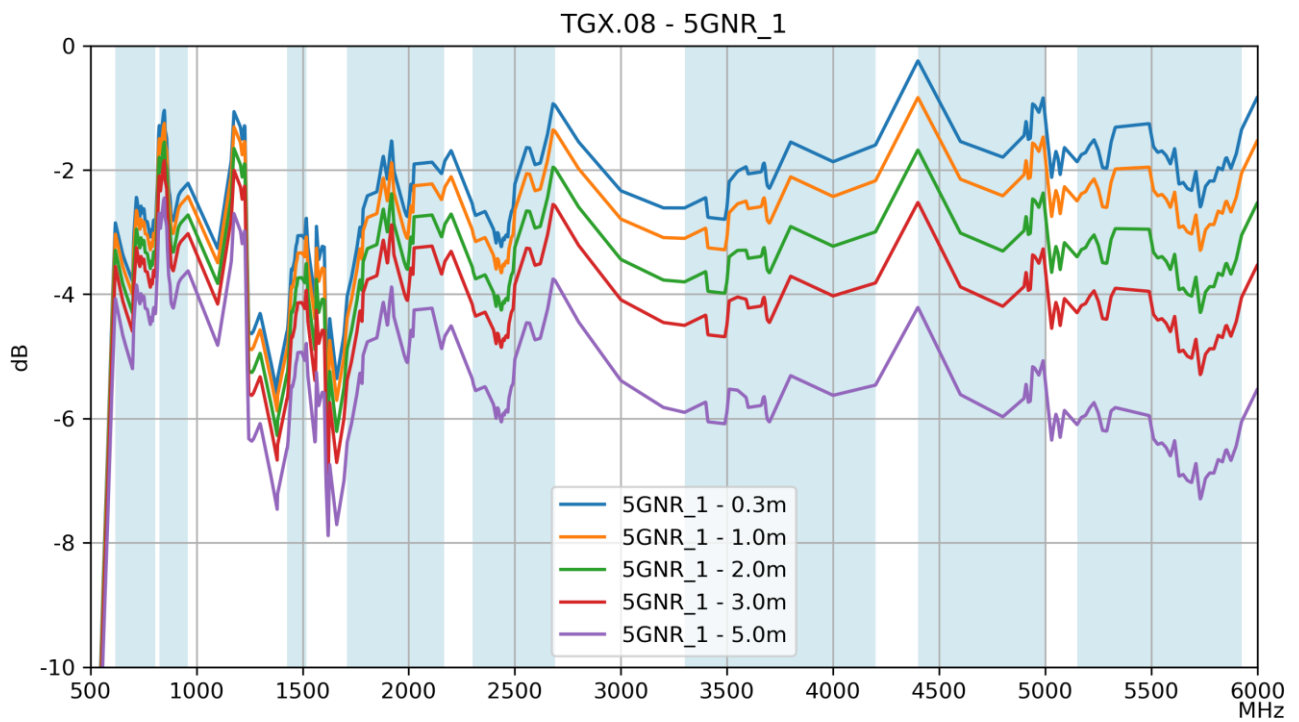
TGX.08 - 5GNR\_7

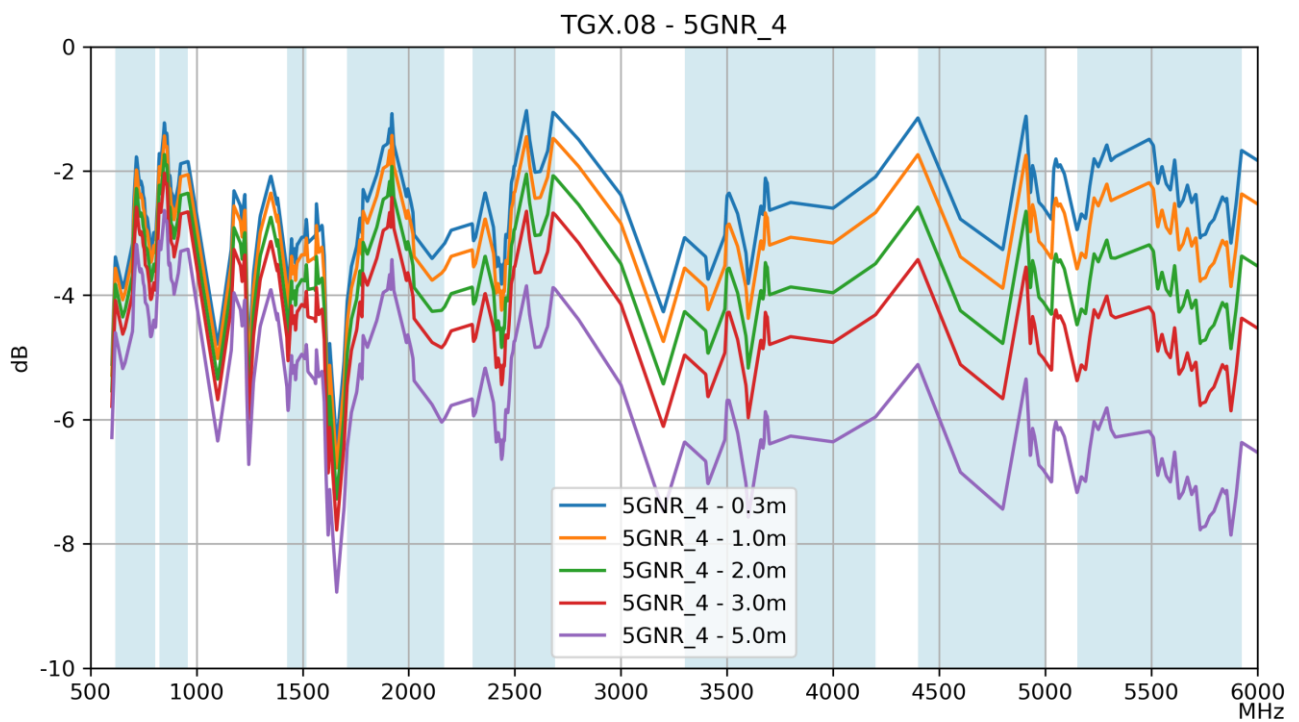
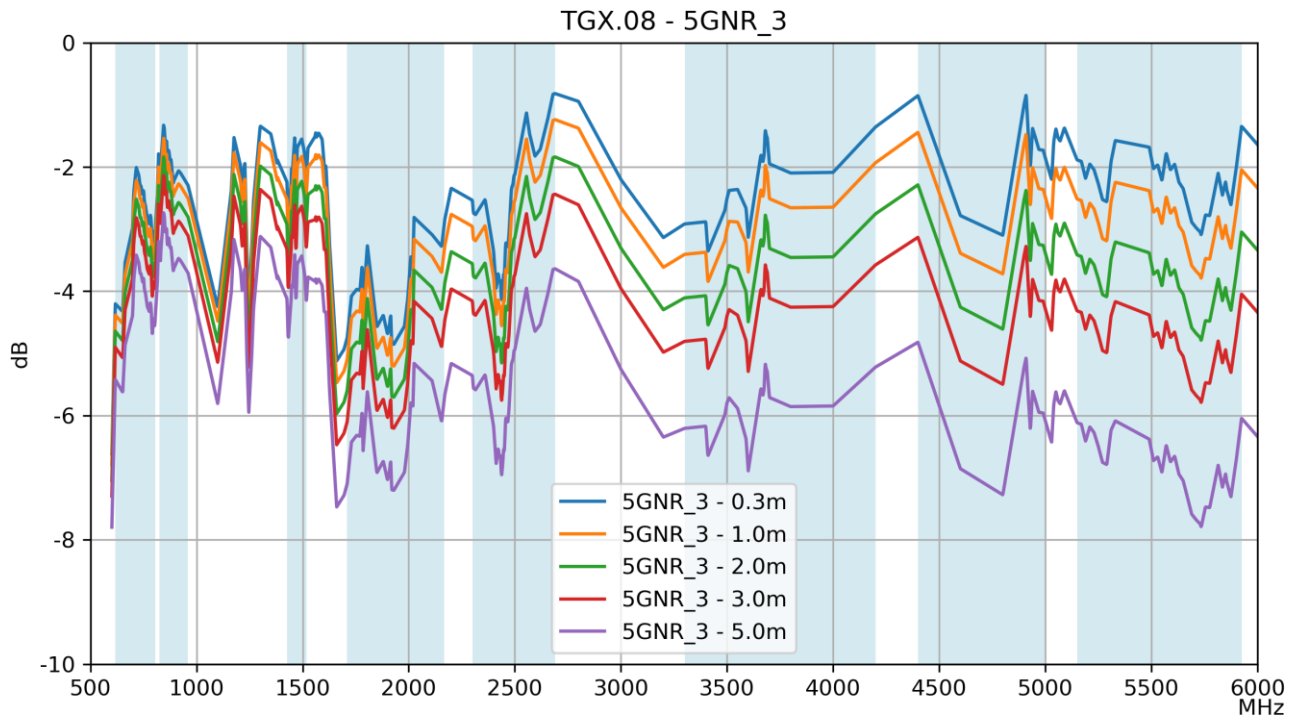


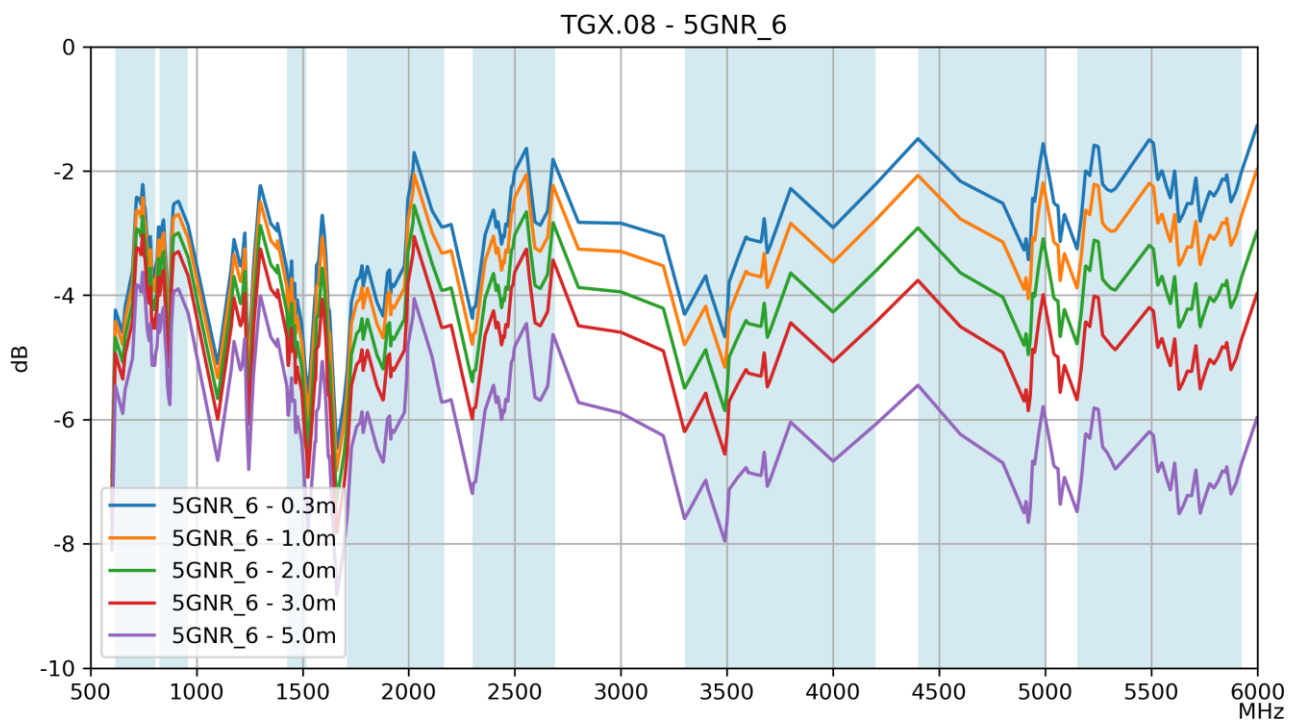
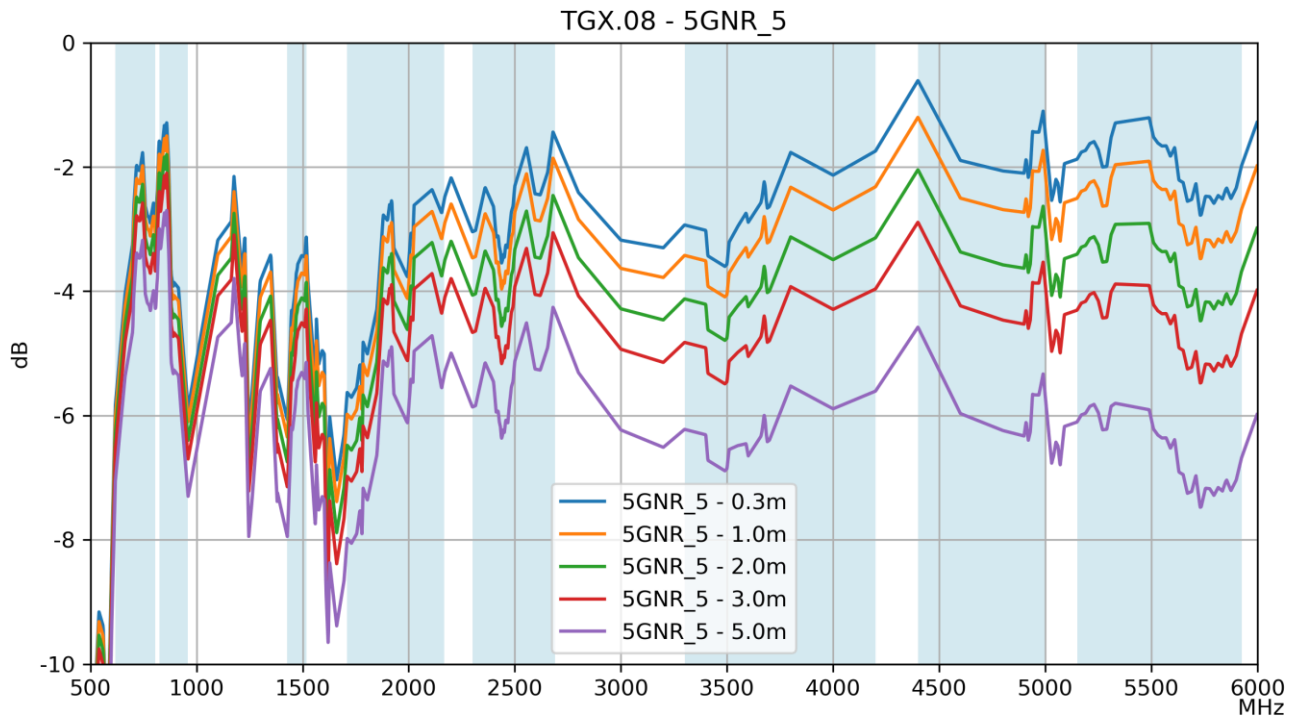
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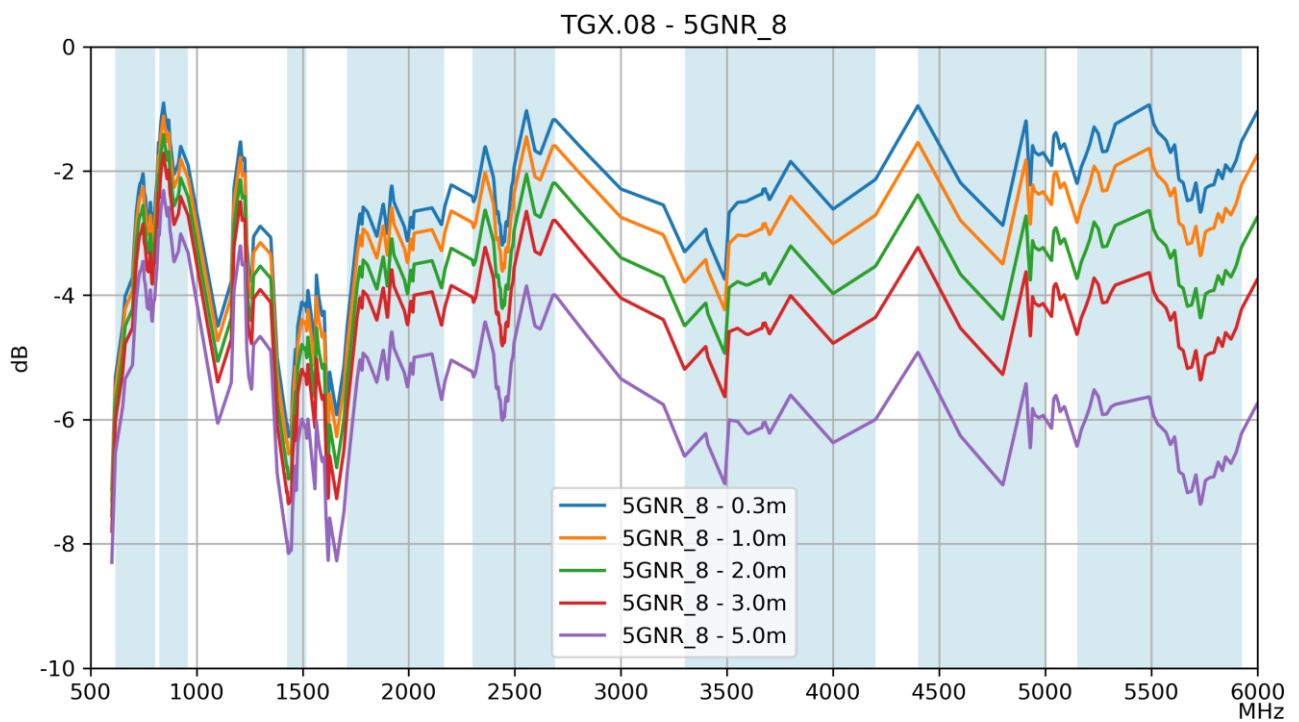
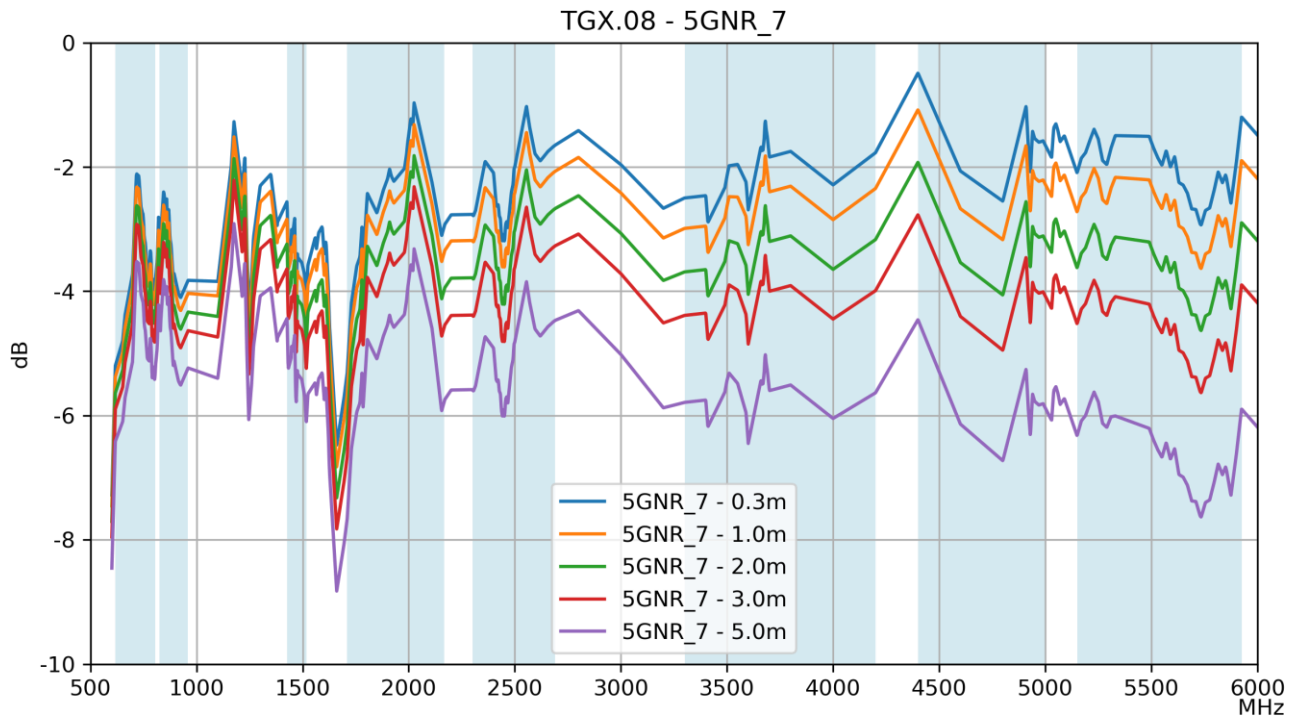


## 7.2 Average Gain

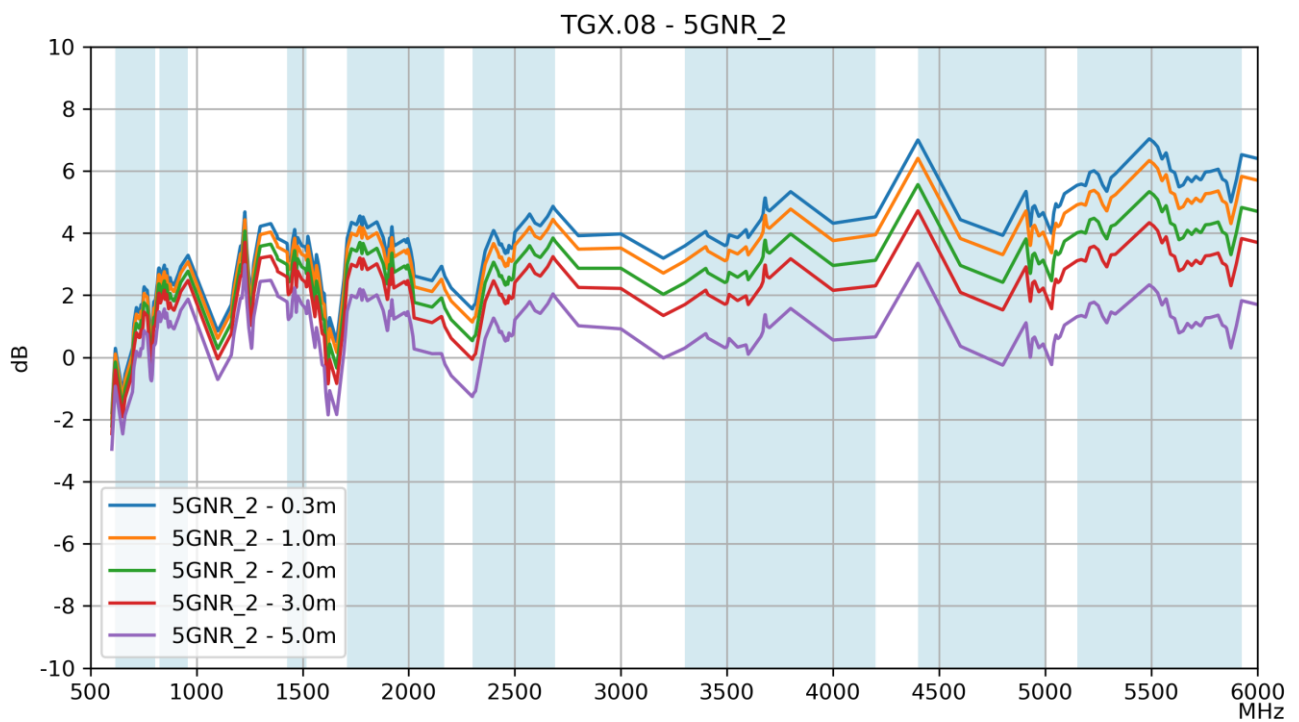
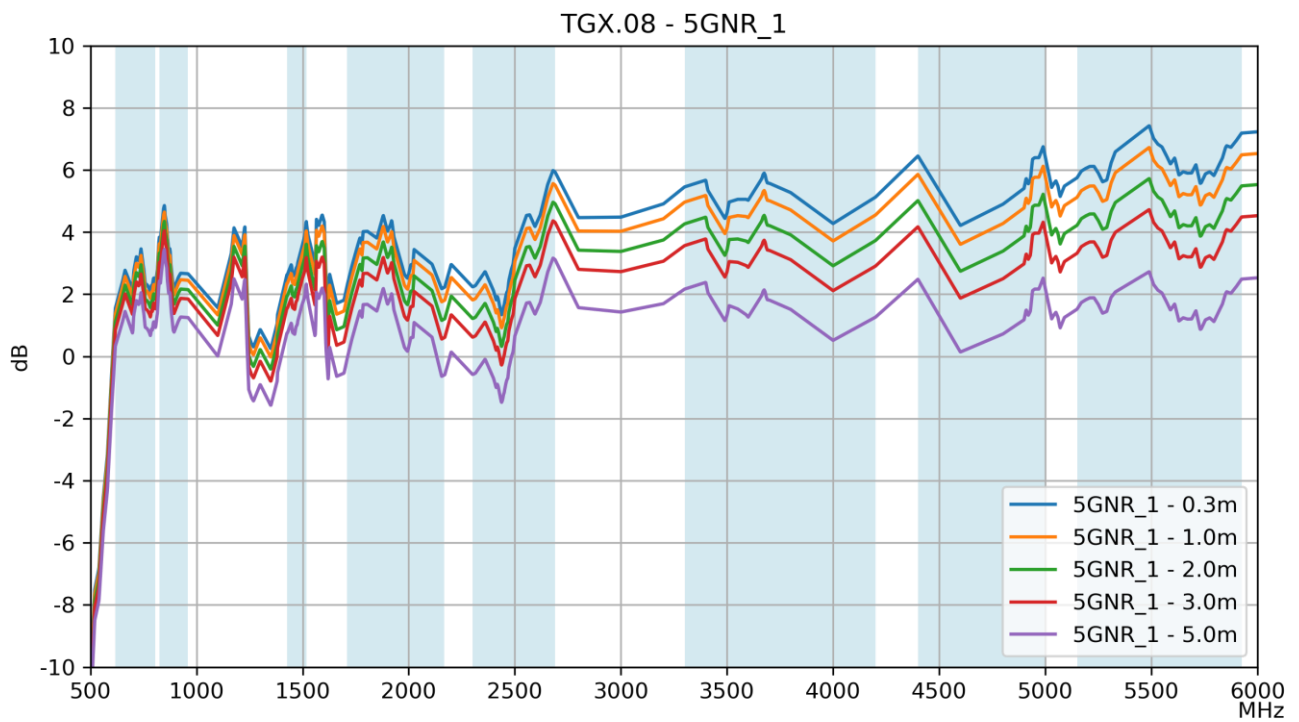




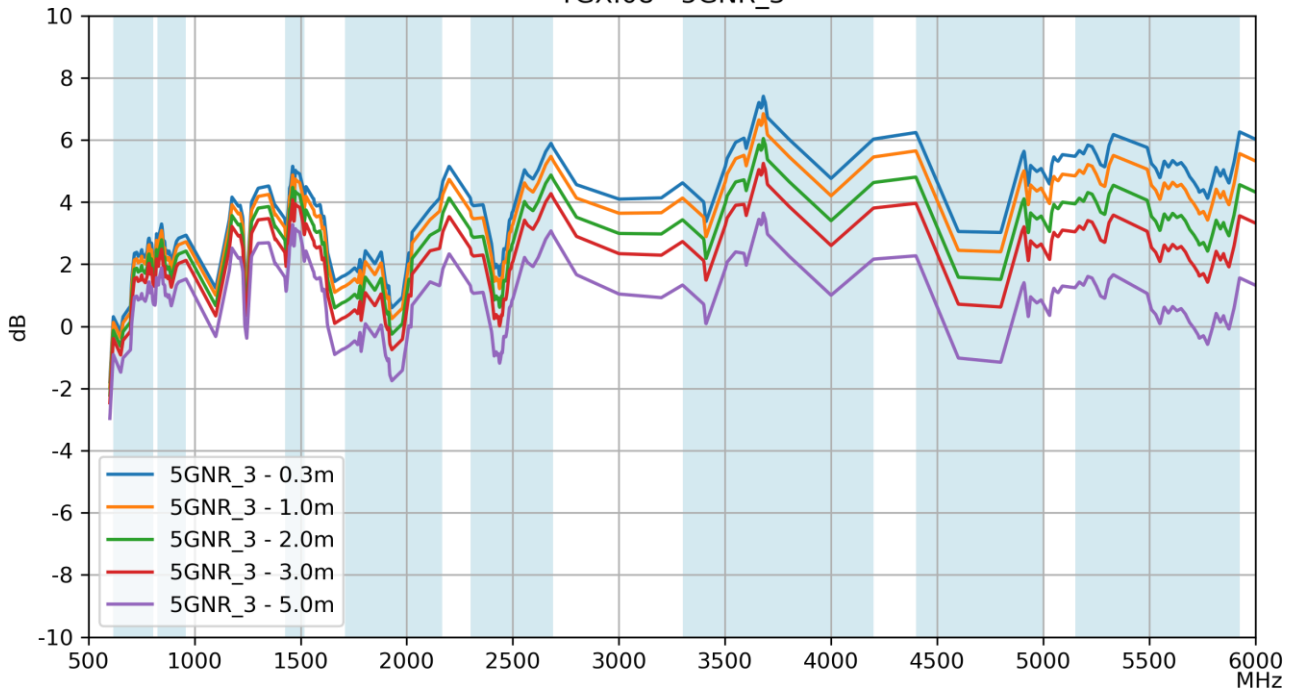




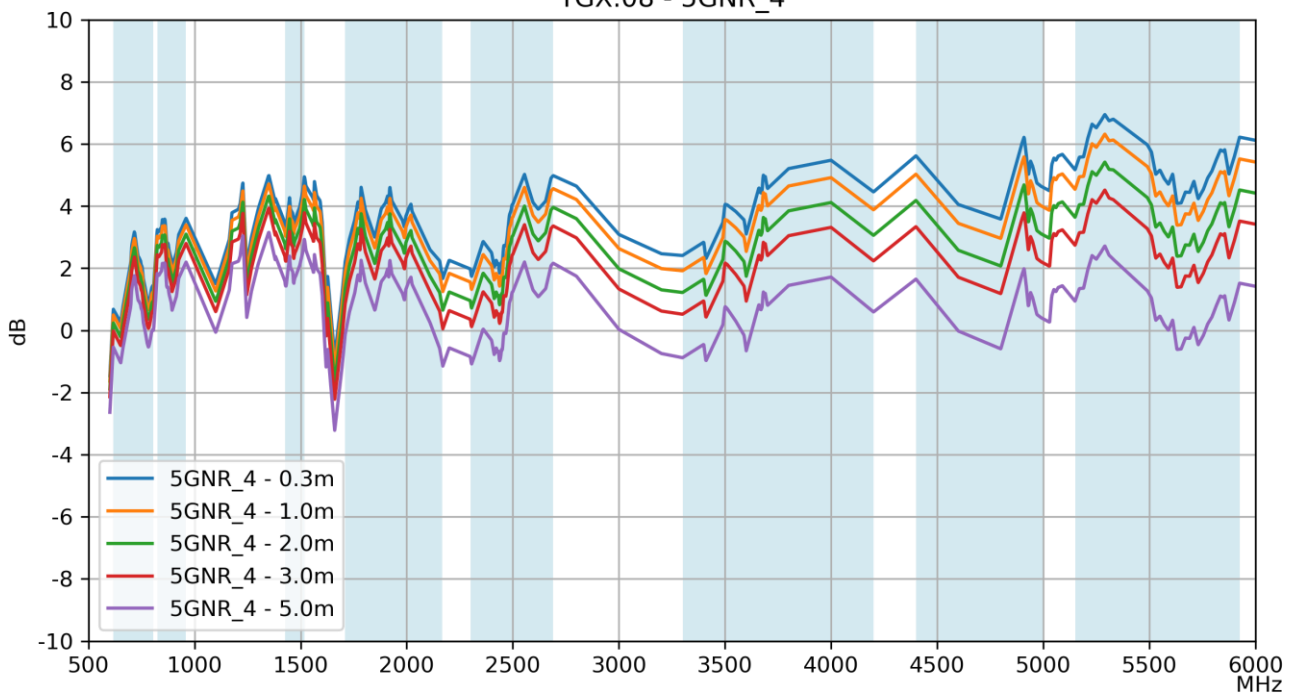
### 7.3 Peak Gain



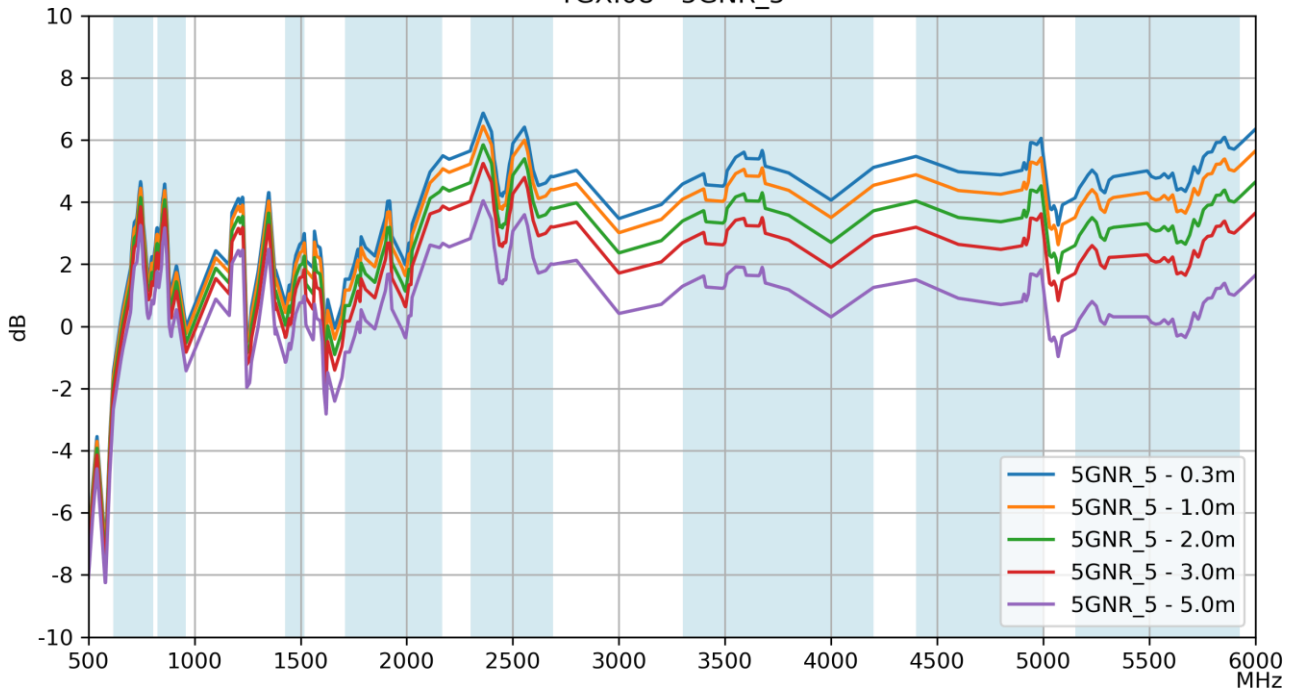
TGX.08 - 5GNR\_3



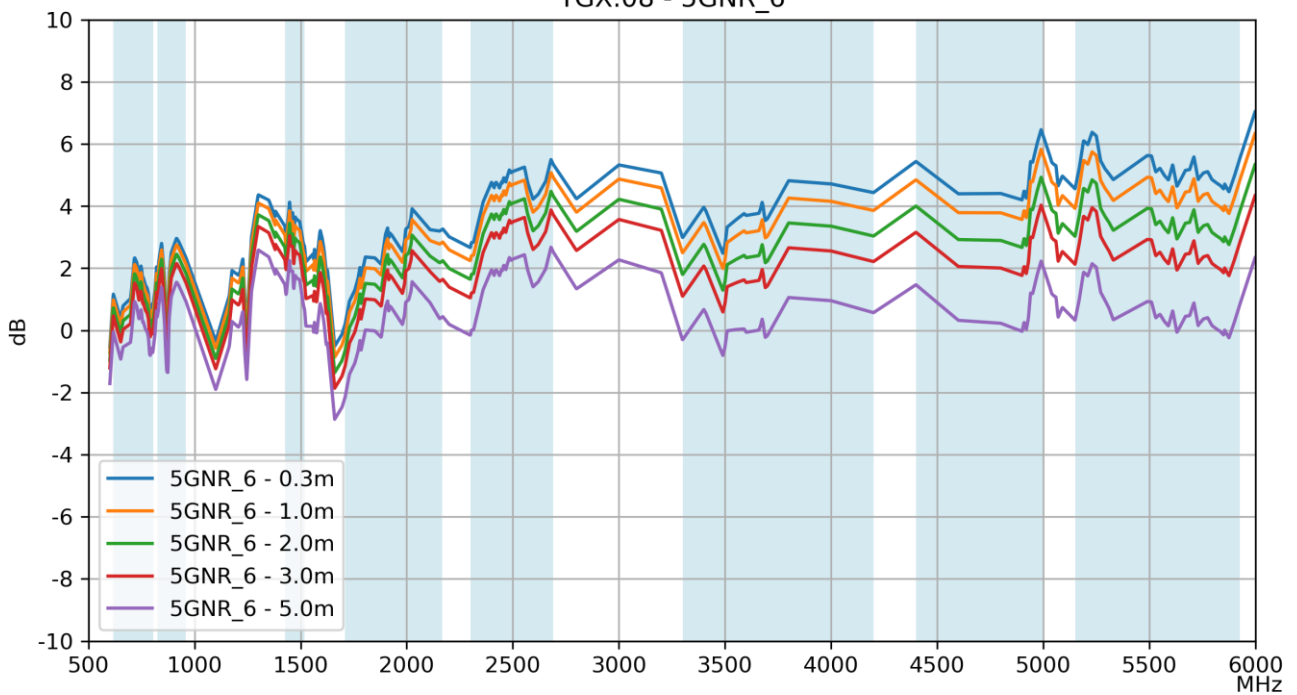
TGX.08 - 5GNR\_4

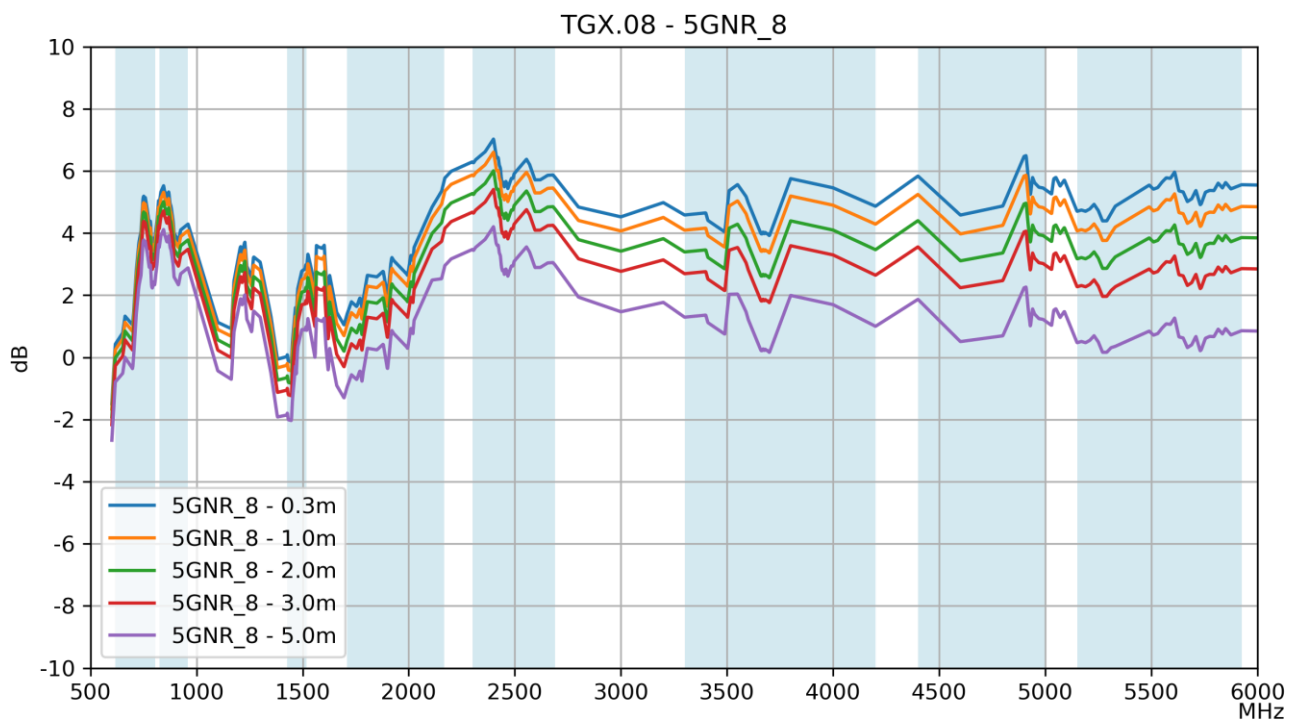
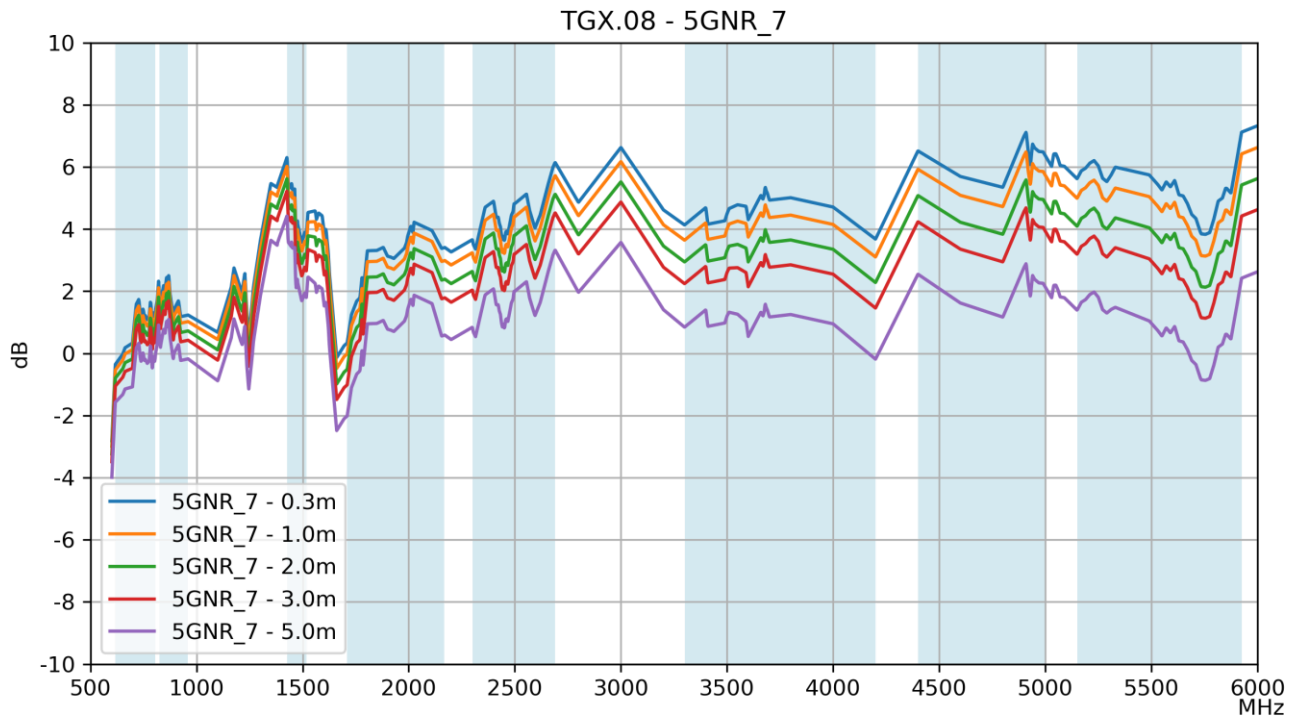


TGX.08 - 5GNR\_5



TGX.08 - 5GNR\_6





Changelog for the datasheet

**SPE-23-8-185 – TGX.08.A.001**

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

Date:	2023-06-20
Notes:	New Datasheet
Author:	Gary West

**Previous Revisions**




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