



Product Name: 2-in-1 5G NR/ 4G LTE Combination Antenna

Part Number: MT-25B-AS-2L01

Features:

- 2*LTE Antenna Combination
- Support 5G NR/ 4G LTE Full Frequency Bands, 617-960MHz, 1710-2690MHz, 3300-3800MHz, 5150-5850MHz
- Customizable Cables and Connectors
- RoHS & REACH Compliant

Applications:

- Fleet Management & Telematics
- Vehicle Navigation

2-in-1 5G NR/ 4G LTE Combination Antenna

MODEL: MT-25B-AS-2L01

Rev.A

I. Specifications:

Items		LTE 1 Specifications								
Application Bands		5G NR Band 71	LTE 700	GSM 850/900	DCS	PCS	UMTS1	LTE 2600	5G NR Band	Wi-Fi 5800
Frequencies (MHz)		617	698	824	1710	1850	1920	2300	3300	5150
		~	~	~	~	~	~	~	~	~
		698	824	960	1880	1990	2170	2690	3800	5850
Efficiency (%)	30cm	48.49	46.52	47.43	64.70	76.76	74.03	64.23	44.14	48.07
	1m	45.90	43.62	44.47	58.73	69.56	66.58	57.38	38.49	40.91
	2m	42.35	39.78	40.56	51.16	60.43	57.21	48.84	31.65	33.25
	3m	39.14	36.28	36.99	44.55	52.49	49.17	41.57	26.02	27.03
	5m	33.38	30.18	30.77	33.80	39.62	36.31	30.11	17.59	17.45
Average Gain (dBi)	30cm	-3.14	-3.32	-3.24	-1.89	-1.15	-1.31	-1.92	-3.55	-3.18
	1m	-3.38	-3.60	-3.52	-2.31	-1.58	-1.77	-2.41	-4.15	-3.88
	2m	-3.73	-4.00	-3.92	-2.91	-2.19	-2.43	-3.11	-5.00	-4.78
	3m	-4.07	-4.40	-4.32	-3.51	-2.80	-3.08	-3.81	-5.85	-5.68
	5m	-4.77	-5.20	-5.12	-4.71	-4.02	-4.40	-5.21	-7.55	-7.58
Peak Gain (dBi)	30cm	3.80	3.22	3.45	5.07	5.31	5.31	3.50	2.21	3.26
	1m	3.70	3.10	3.33	4.89	5.10	5.10	3.29	1.97	2.86
	2m	3.36	2.70	2.93	4.29	4.40	4.40	2.59	1.17	1.96
	3m	3.03	2.30	2.53	3.69	3.71	3.71	1.89	0.37	1.06
	5m	2.36	1.50	1.73	2.49	2.51	2.51	0.49	-1.23	-0.84
V.S.W.R		< 5.85			< 3					
Return Loss (dB)		< -3			< -6					
Test Condition		Free Space								

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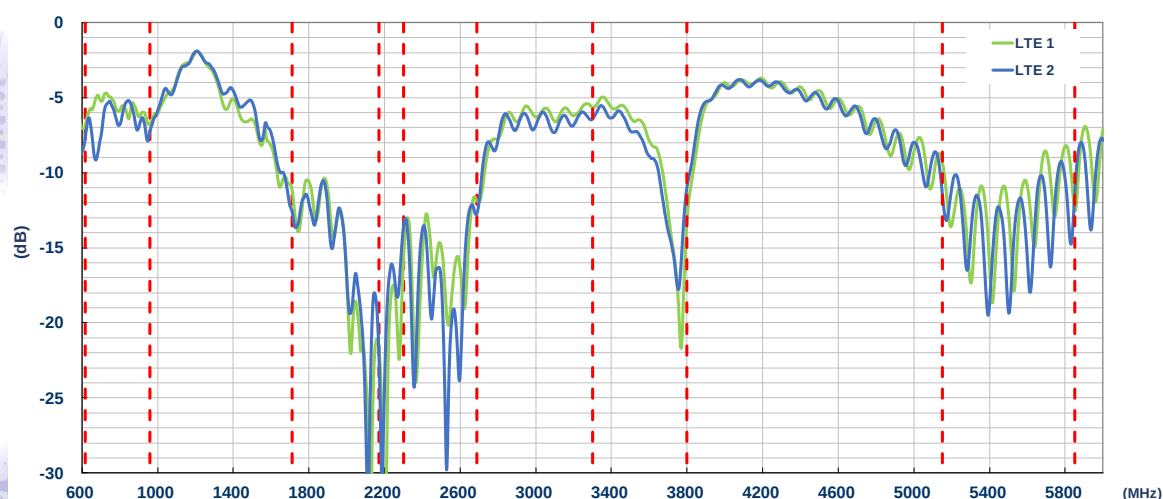
Impedance (Ω)	50
Polarization	Linear
Cable	SNC-200, 1 meter
Connector	SMA (Male)

Items		LTE 2 Specifications								
Application Bands		5G NR Band 71	LTE 700	GSM 850/900	DCS	PCS	UMTS1	LTE 2600	5G NR Band	Wi-Fi 5800
Frequencies (MHz)		617	698	824	1710	1850	1920	2300	3300	5150
		~	~	~	~	~	~	~	~	~
		698	824	960	1880	1990	2170	2690	3800	5850
Efficiency (%)	30cm	49.09	57.49	47.82	64.45	73.70	71.48	64.94	48.72	50.14
	1m	46.47	53.90	44.83	58.51	66.78	64.28	58.01	42.48	42.68
	2m	42.87	49.16	40.89	50.96	58.02	55.24	49.37	34.93	34.69
	3m	39.63	44.83	37.29	44.38	50.40	47.47	42.02	28.72	28.20
	5m	33.79	37.29	31.02	33.67	38.04	35.06	30.44	19.42	18.21
Average Gain (dBi)	30cm	-3.09	-2.40	-3.20	-1.91	-1.33	-1.46	-1.88	-3.12	-3.00
	1m	-3.33	-2.68	-3.48	-2.33	-1.75	-1.92	-2.37	-3.72	-3.70
	2m	-3.68	-3.08	-3.88	-2.93	-2.36	-2.58	-3.07	-4.57	-4.60
	3m	-4.02	-3.48	-4.28	-3.53	-2.98	-3.24	-3.77	-5.42	-5.50
	5m	-4.71	-4.28	-5.08	-4.73	-4.20	-4.55	-5.17	-7.12	-7.40
Peak Gain (dBi)	30cm	3.53	3.31	3.33	4.37	6.16	6.16	3.56	2.51	3.52
	1m	3.43	3.19	3.21	4.19	5.98	5.98	3.35	2.27	3.12
	2m	3.09	2.79	2.81	3.59	5.38	5.38	2.65	1.47	2.22
	3m	2.76	2.39	2.41	2.99	4.78	4.78	1.95	0.67	1.32
	5m	2.09	1.59	1.61	1.79	3.58	3.58	0.55	-0.93	-0.58
V.S.W.R		< 5.85			< 3					
Return Loss (dB)		< -3			< -6					
Test Condition		Free Space								
Impedance (Ω)		50								
Polarization		Linear								
Cable		SNC-200, 1 meter								
Connector		SMA (Male)								

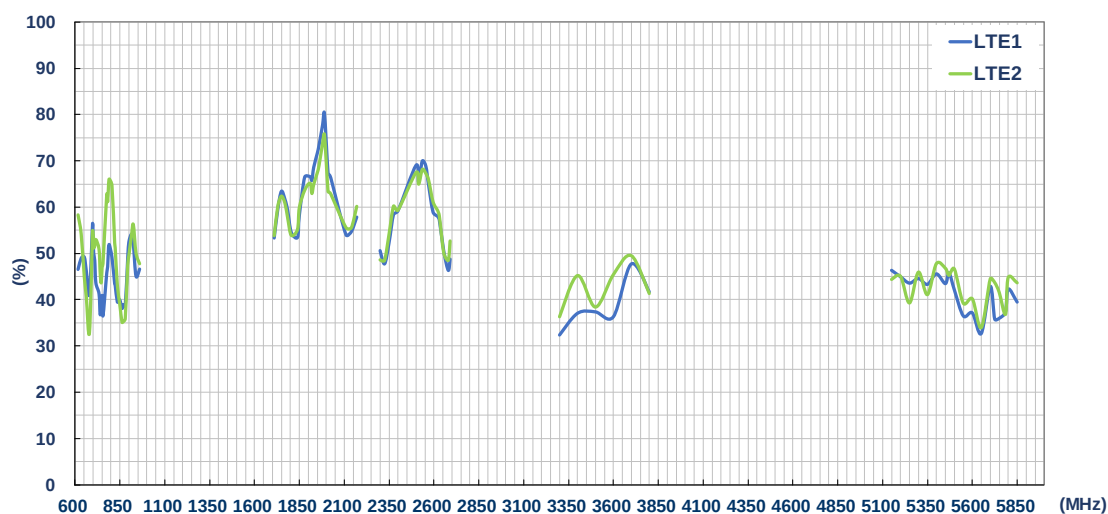
Mechanical	
Dimension (mm)	136.47(L) x 135.95(W) x 29.89(H)
Casing	ABS + PC
Base and Thread	Zinc Alloy
Weigh (g) (including cable)	1622
Waterproof Resistant	IP69
Maximum Assembly Torque	40 N-m
Environmental Conditions	
Operation Temperature (°C)	-40 ~ +85
Storage Temperature (°C)	-40 ~ +85
Humidity	Non-condensing 65 °C 95% RH

II. Antenna Electrical Properties:

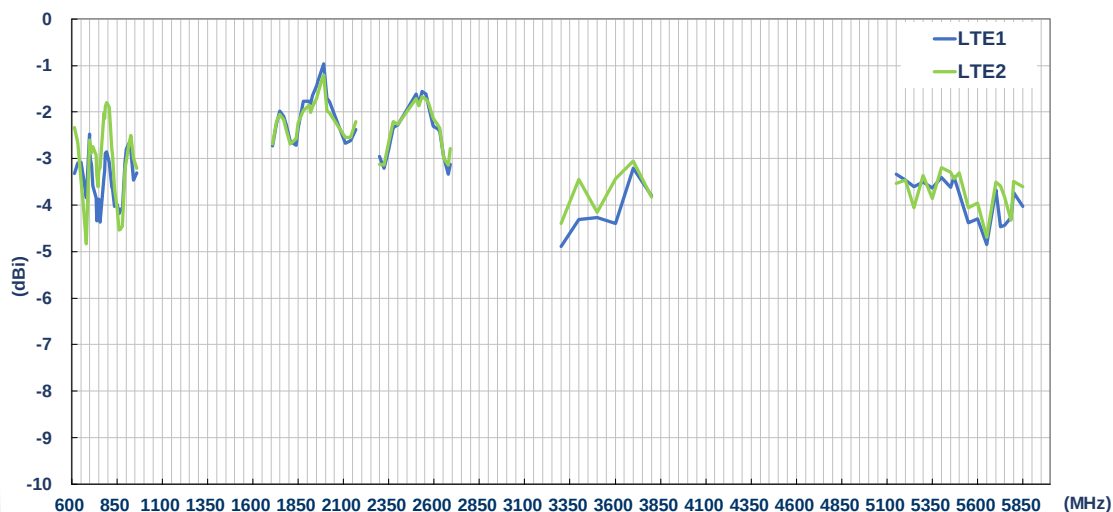
S11 (dB) – LTE 1 & LTE 2



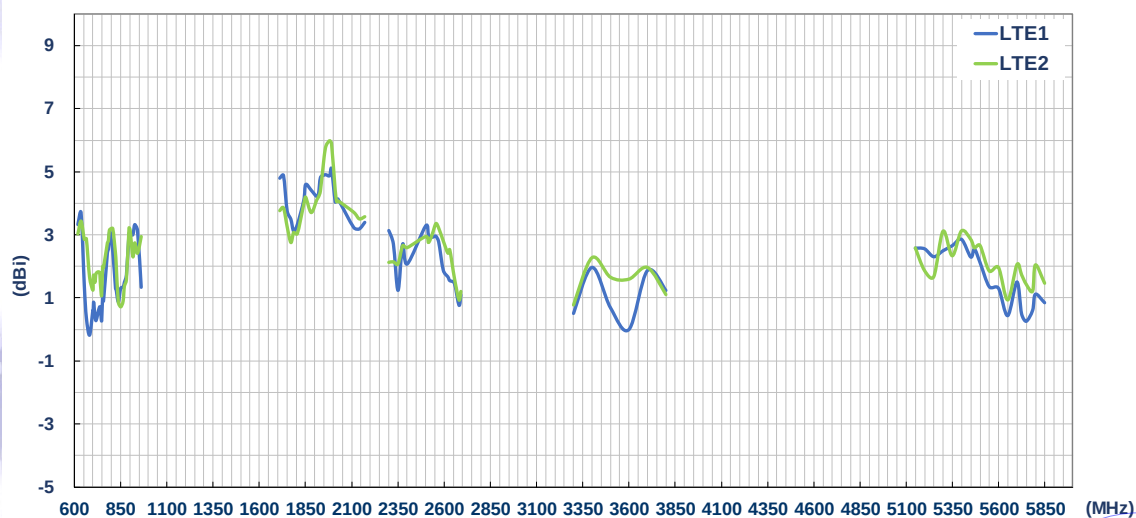
Efficiency (%) - LTE 1 & LTE 2



Average Gain (dBi) - LTE 1 & LTE 2



Peak Gain (dBi) - LTE 1 & LTE 2

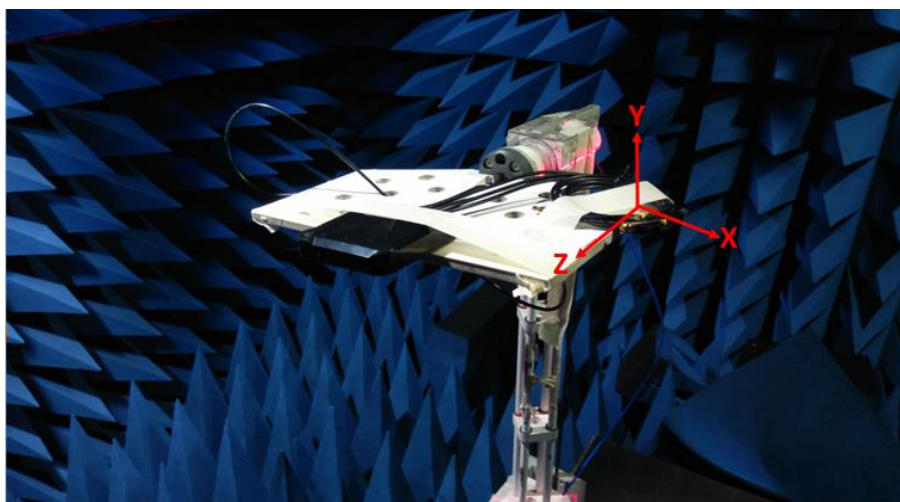


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III. Antenna Radiation Pattern Measurement:

The antenna radiation patterns are measured in 3D Anechoic Chamber.
The measurement setup is as show below,

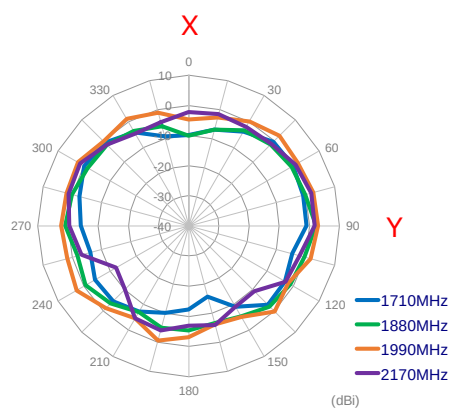
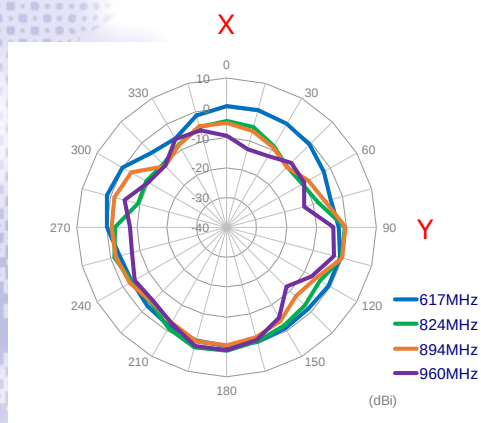
Free Space

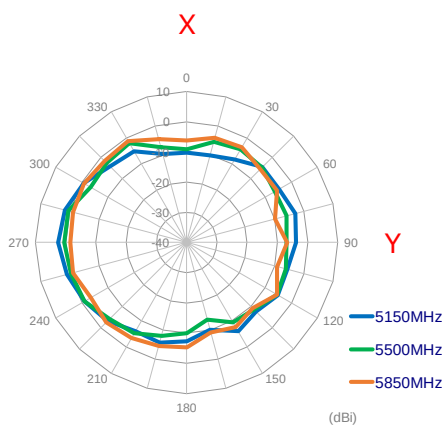
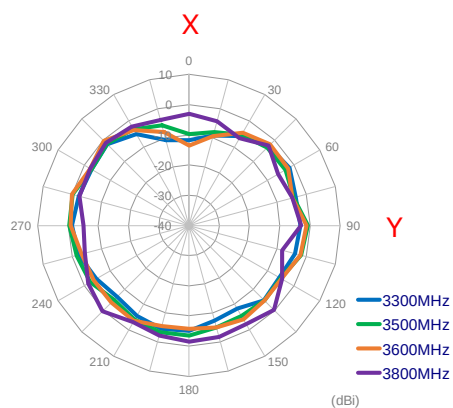
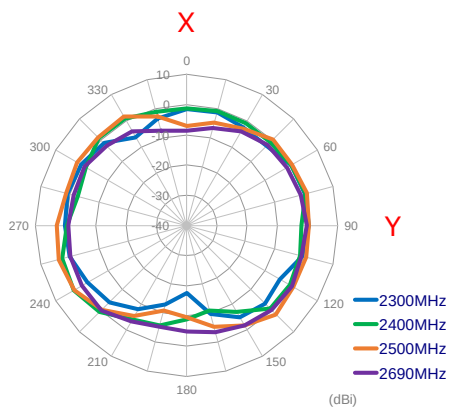


IV. 2D Radiation Pattern:

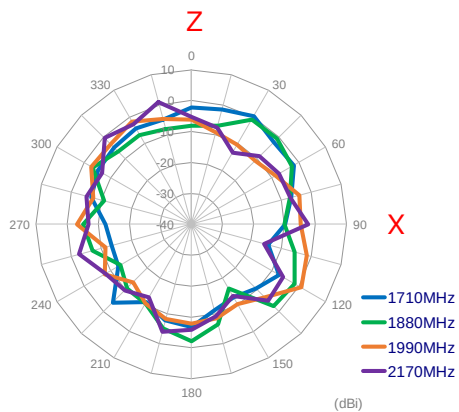
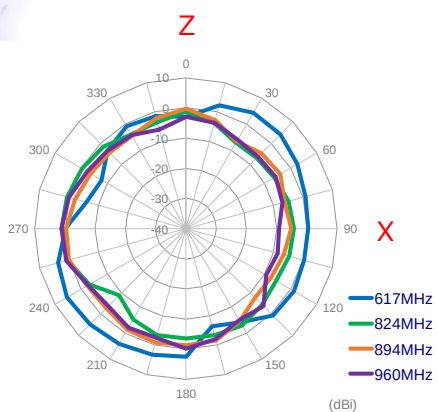
Free Space – LTE 1

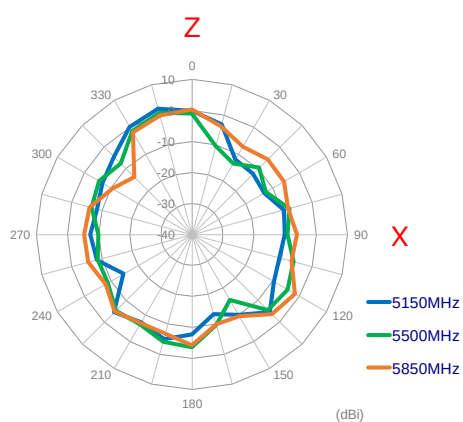
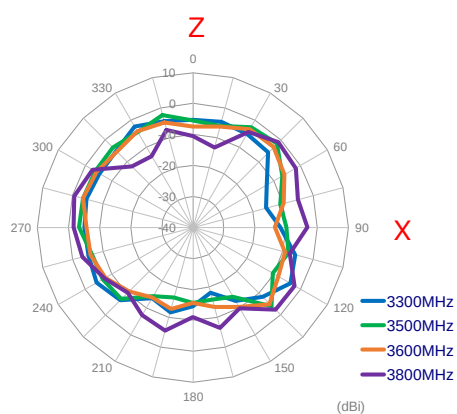
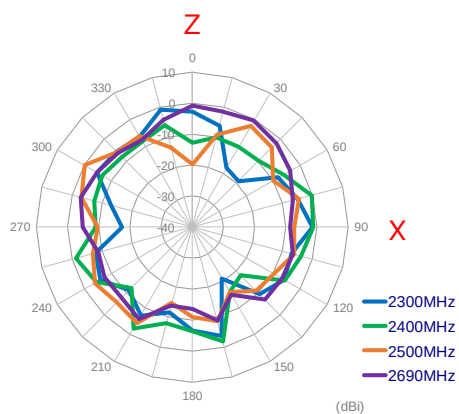
X-Y Plane



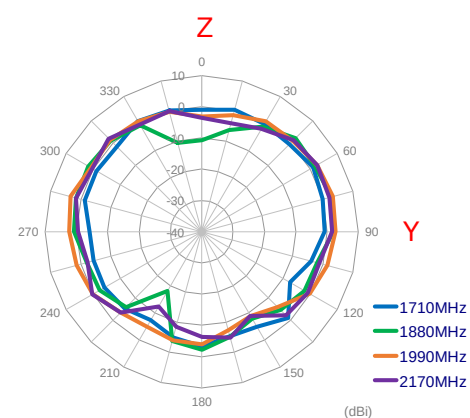
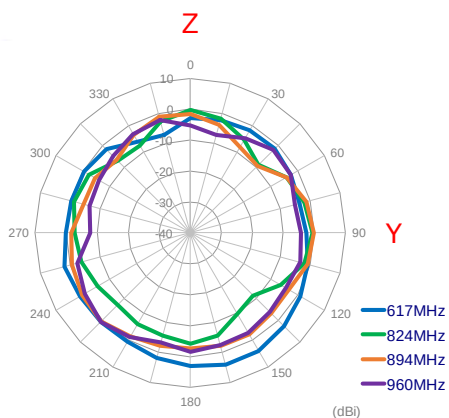


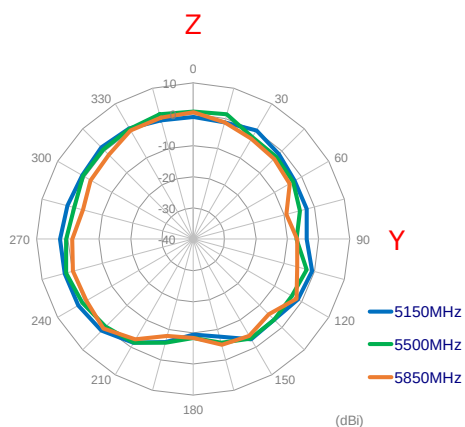
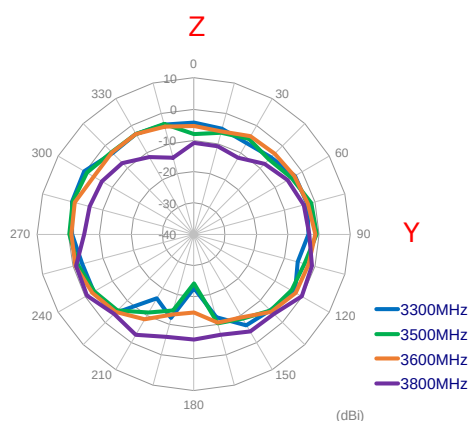
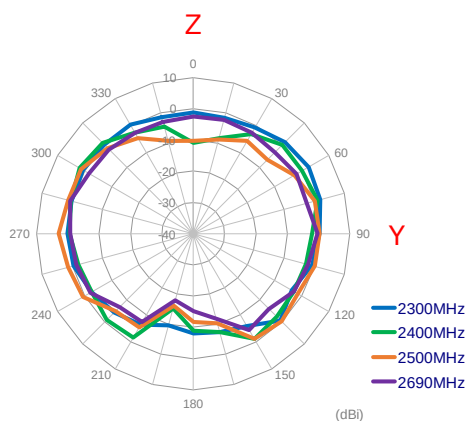
X-Z Plane





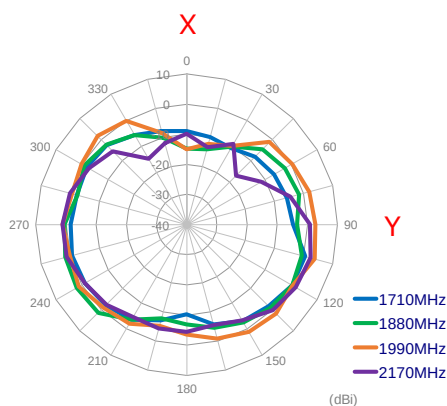
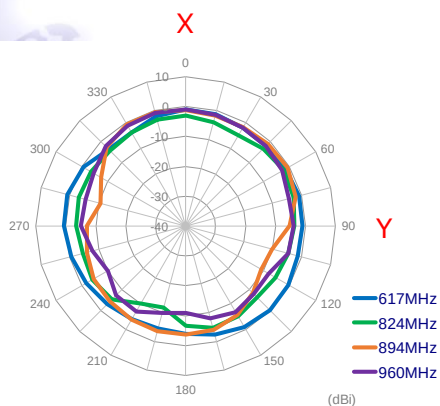
Y-Z Plane

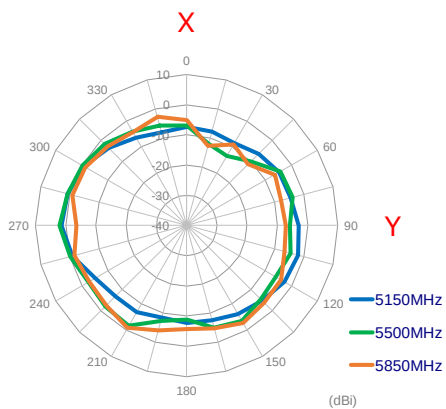
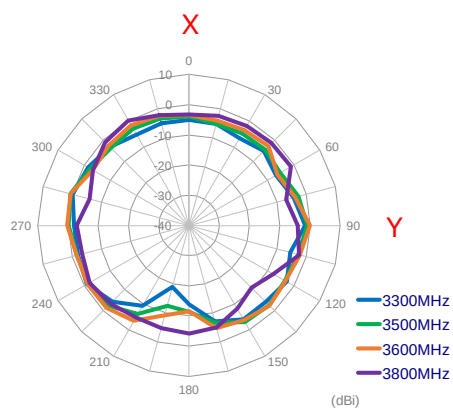
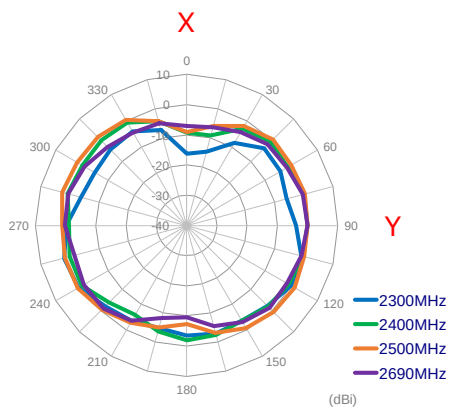




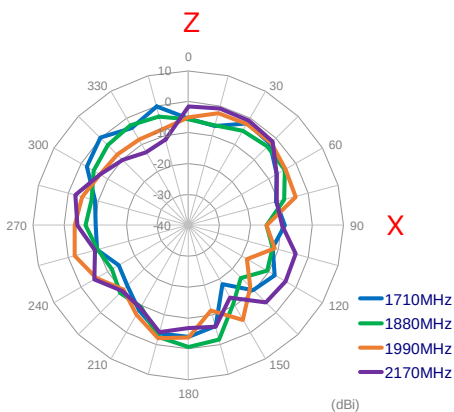
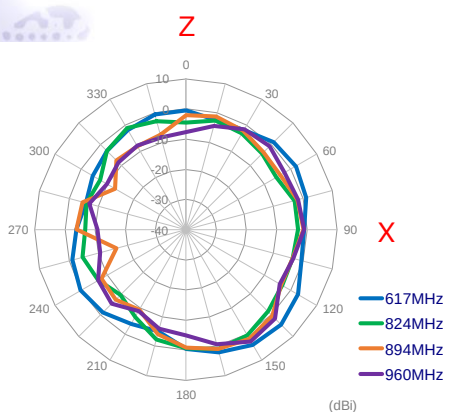
Free Space – LTE 2

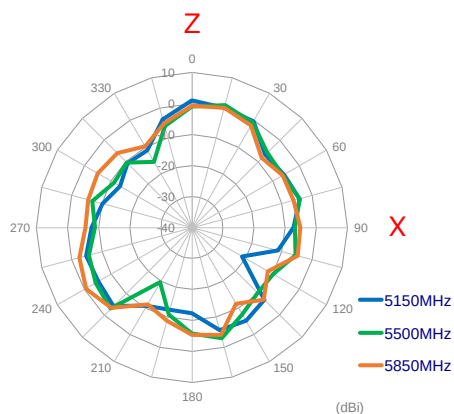
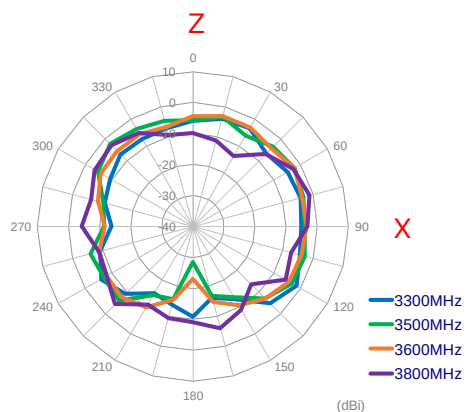
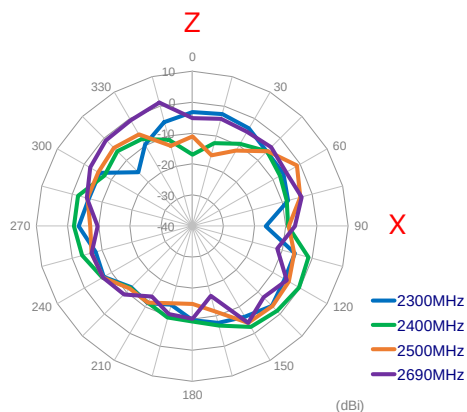
X-Y Plane



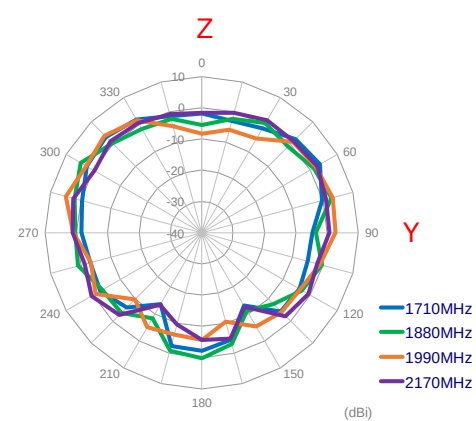
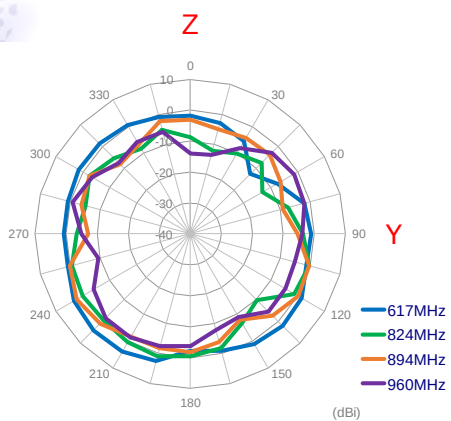


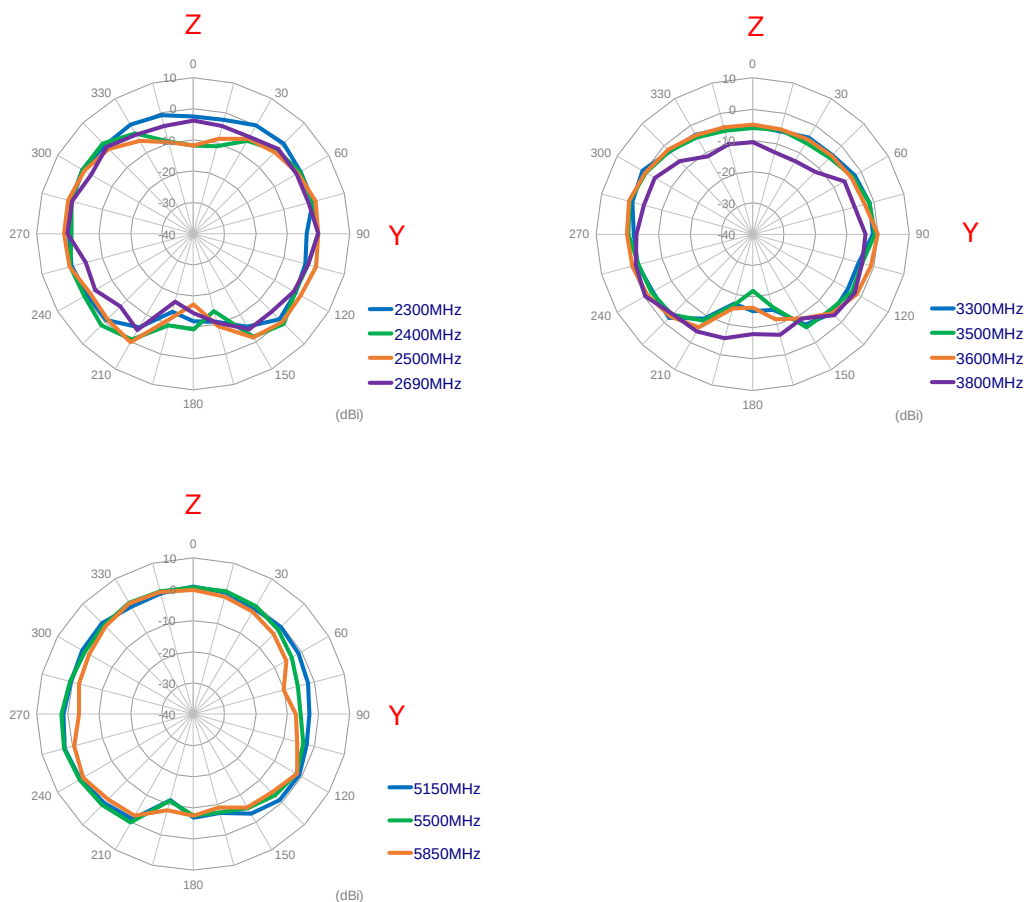
X-Z Plane





Y-Z Plane

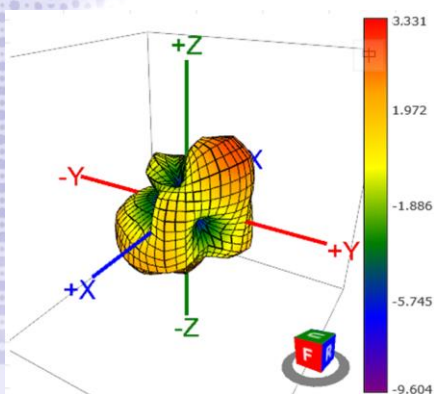




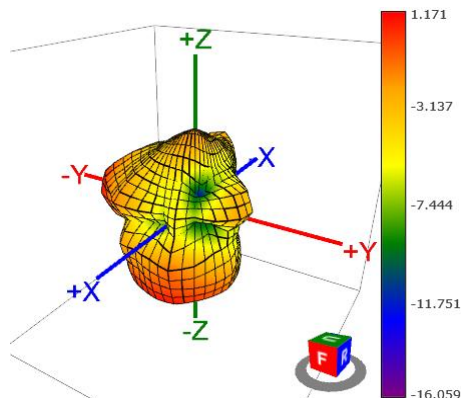
V. 3D Radiation Pattern:

Free Space – LTE 1

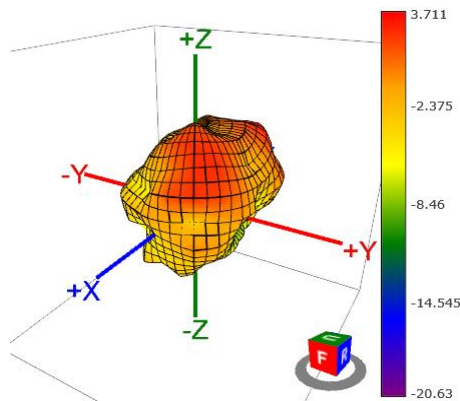
617MHz



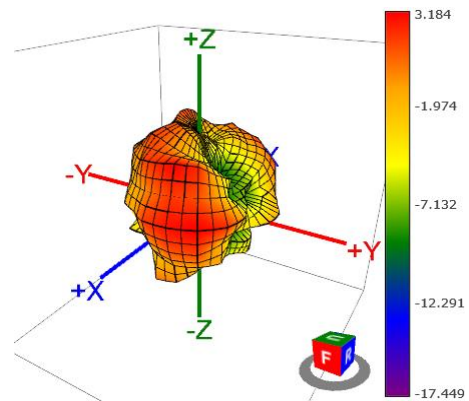
960MHz



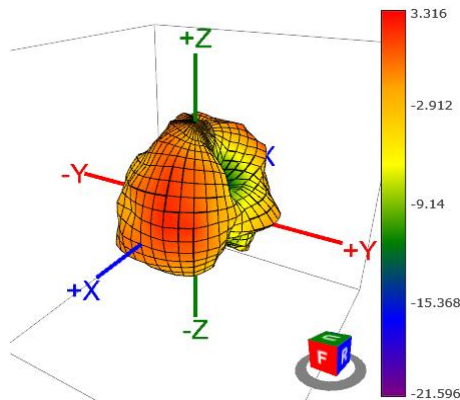
1710MHz



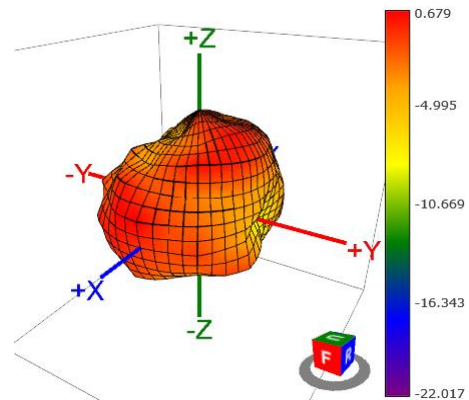
2170MHz



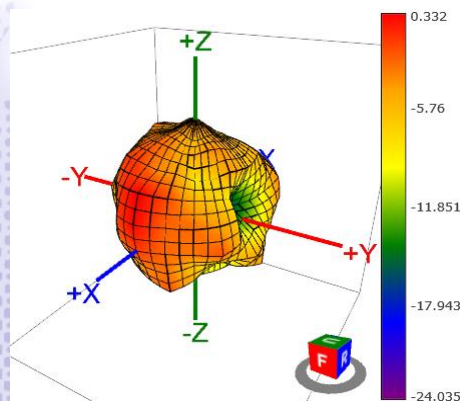
2300MHz



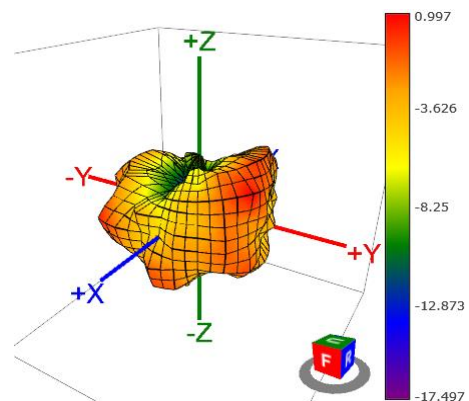
2690MHz



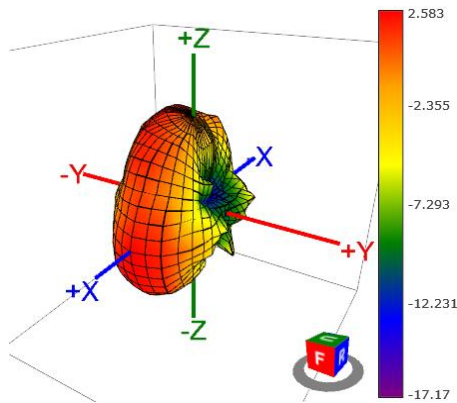
3300MHz



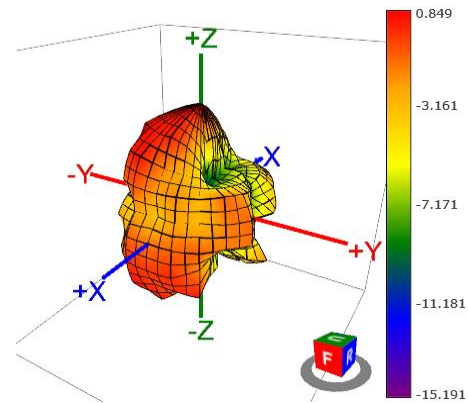
3800MHz



5150MHz

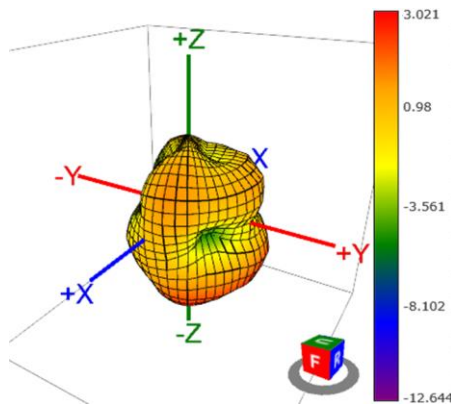


5850MHz

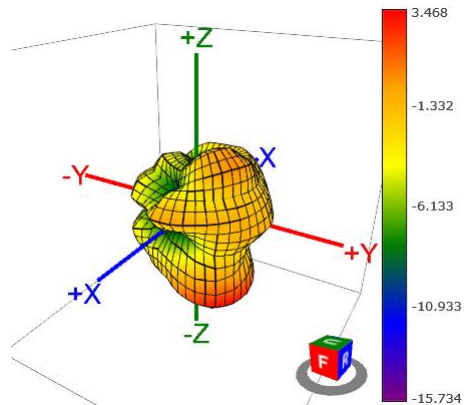


Free Space - LTE 2

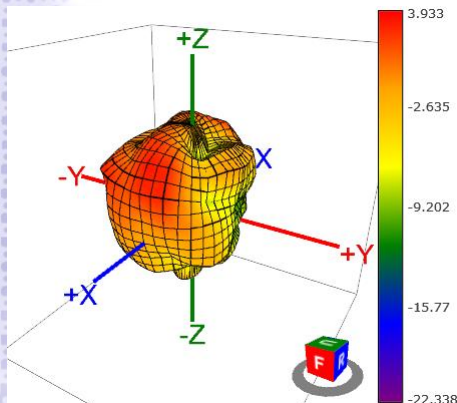
617MHz



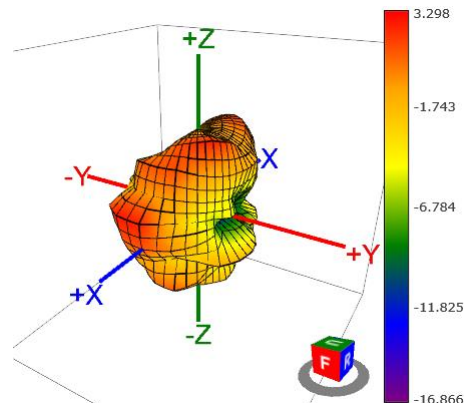
960MHz



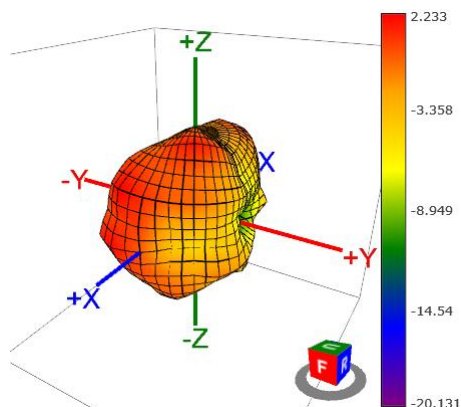
1710MHz



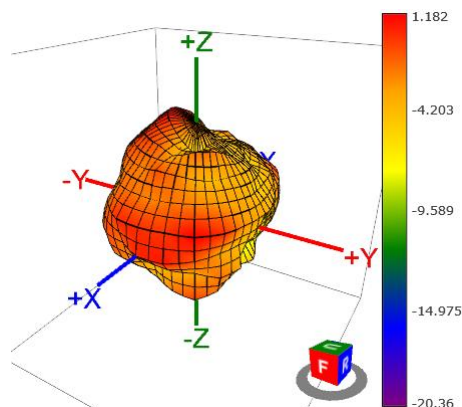
2170MHz



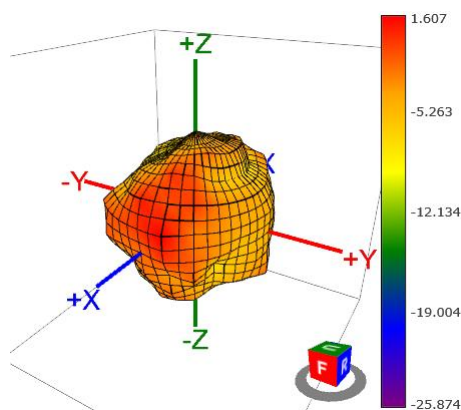
2300MHz



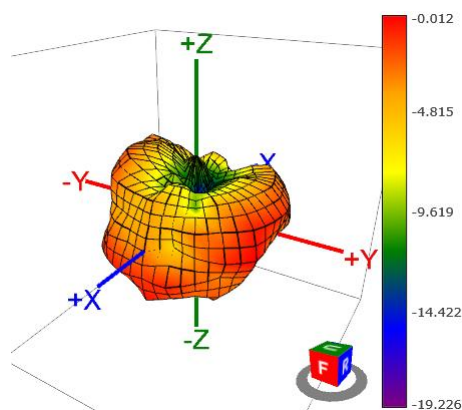
2690MHz



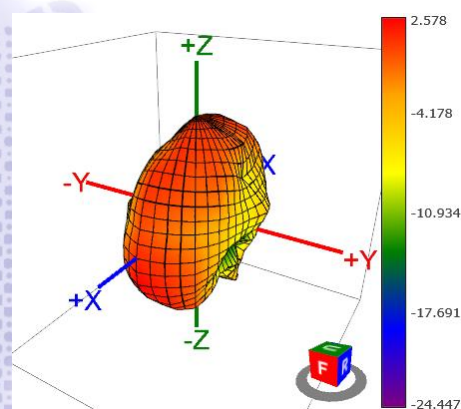
3300MHz



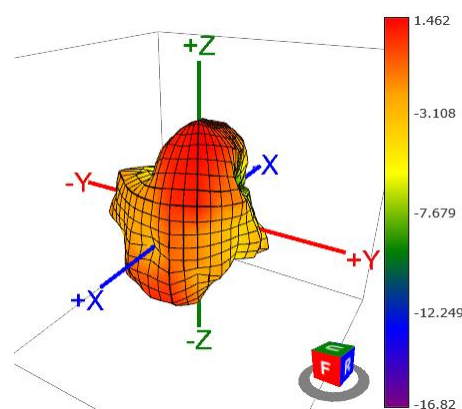
3800MHz



5150MHz

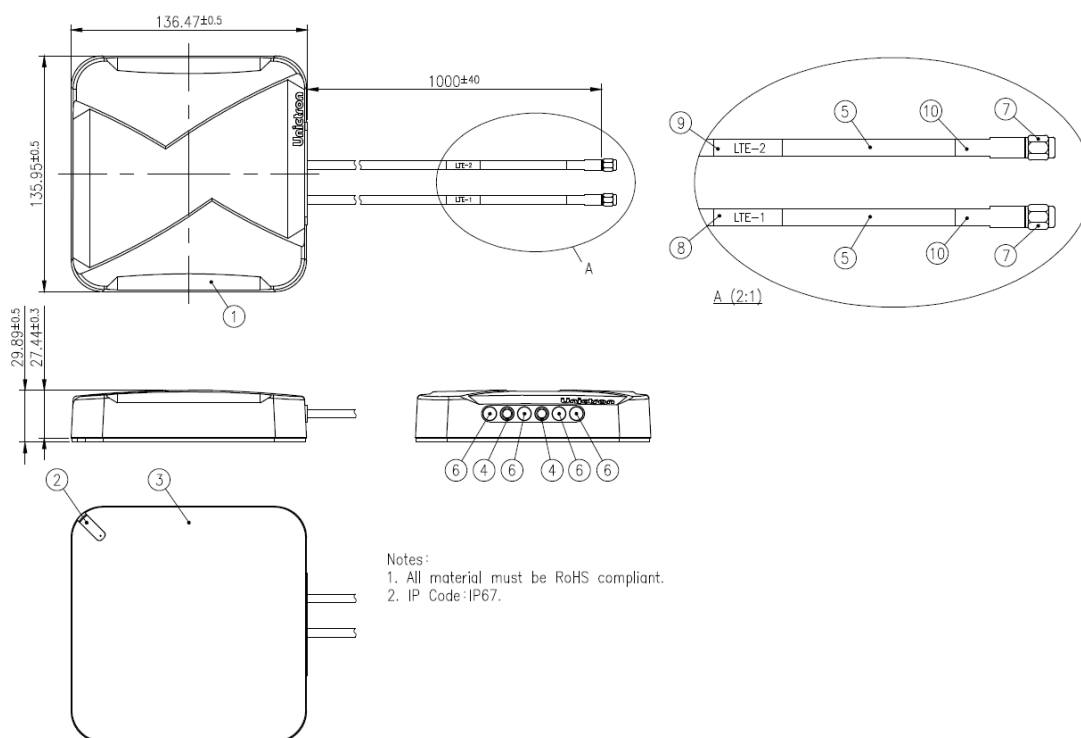


5850MHz



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VI. Mechanical Drawing (Unit:mm):



10	Heat Shrink Tube	EVA	Black	2
9	LTE-2 Heat Shrink Tube	CTMS	White	1
8	LTE-1 Heat Shrink Tube	CTMS	White	1
7	SMA(SP) Connector	Brass	Au Plated	2
6	Rubber Stopper	Silicone	Black	4
5	Cable SNC-200	PVC	Black	2
4	Cable Rubber	Silicone	Black	2
3	Double Adhesive Foam	EVA	White Liner	1
2	Bottom Housing	PC+ABS	Black	1
1	Top Housing	PC+ABS	Black	1
No	NAME	MATERIAL	FINISH	Q'TY

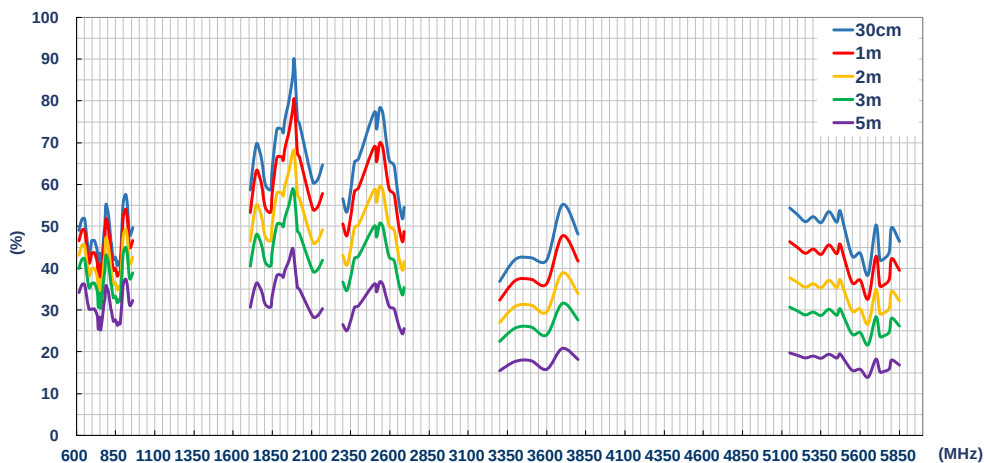
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VII. Applications Note:

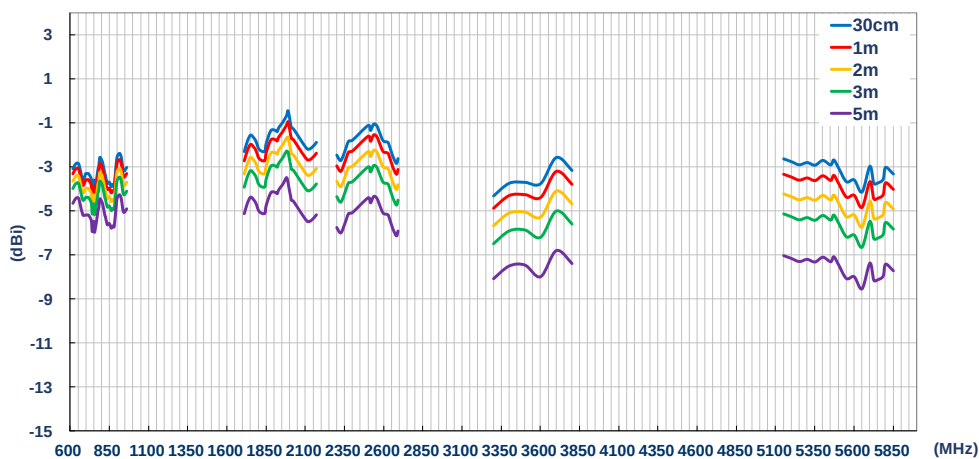
The antenna performance with different cable lengths is shown below.

Free Space – LTE 1

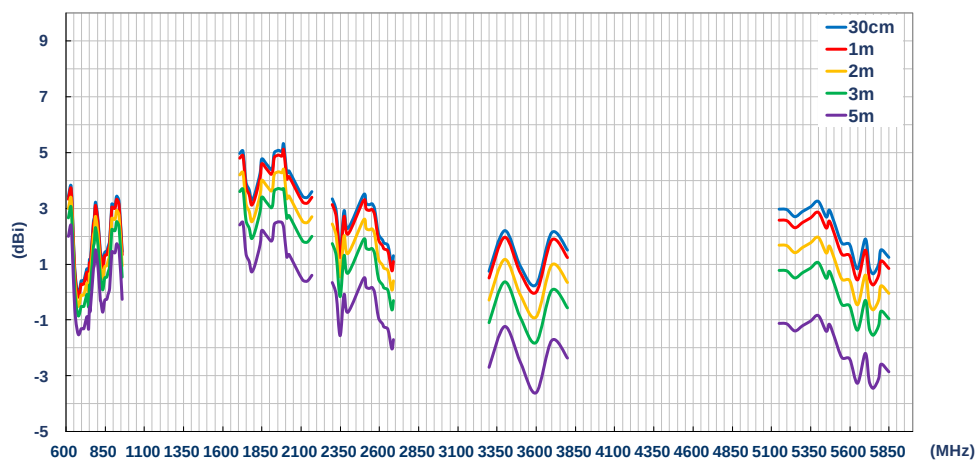
Efficiency (%)



Average Gain (dBi)



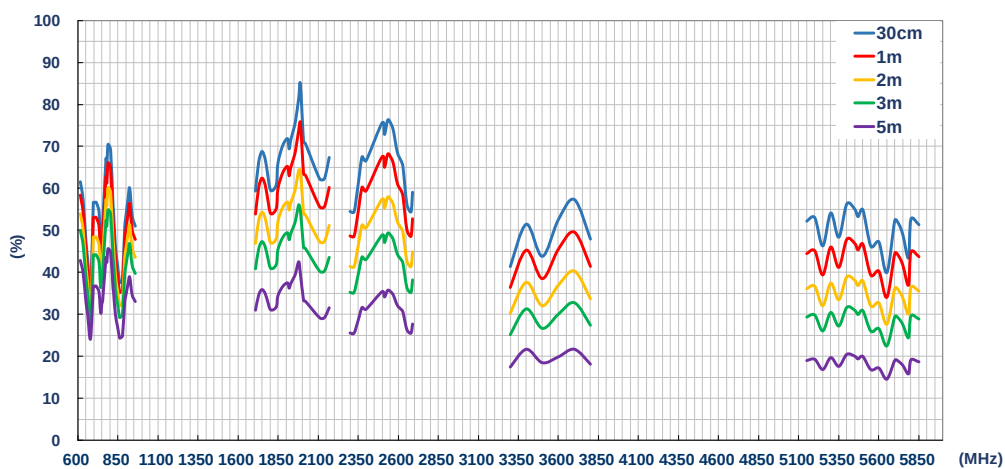
Peak Gain (dBi)



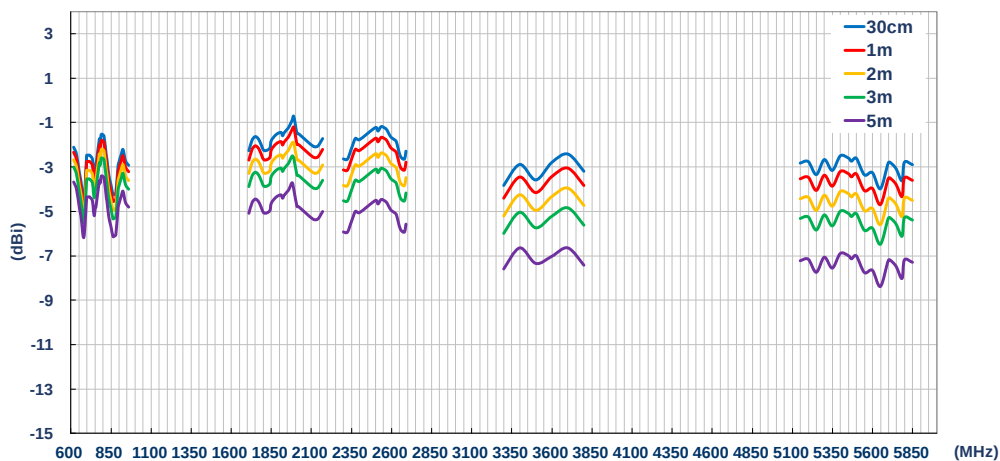
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Free Space – LTE 2

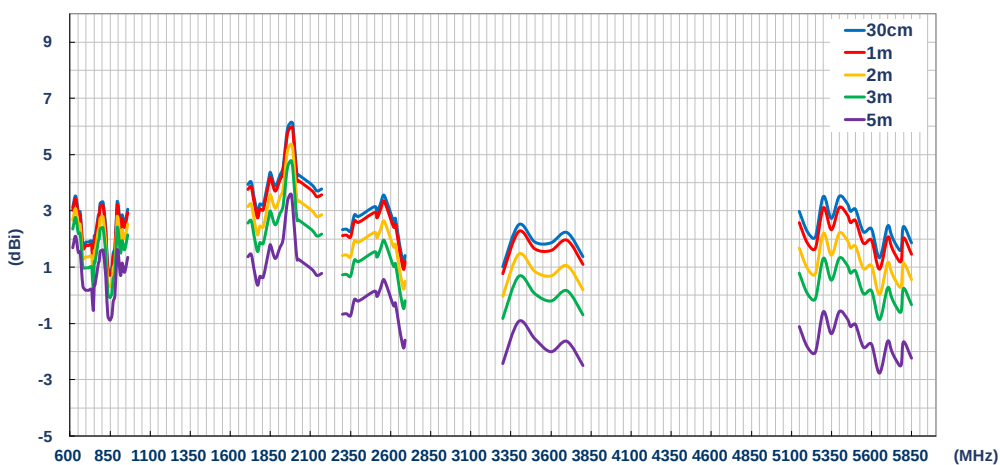
Efficiency (%)



Average Gain (dBi)



Peak Gain (dBi)



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