



Product Name: 2-in-1 GNSS/ 5G NR/ 4G LTE Combination Antenna,
Magnetic Mount

Part Number: MT-4B-AS-BL07

Features:

- 1*LTE, 1*GNSS Antenna Combination
- Support 5G NR / 4G LTE 698-960MHz, 1710-2690MHz, 3300-3800MHz
- Support GPS / GLONASS / BEIDOU L1 Bands
- Excellent Out of Band Suppression, Up to 55dB
- 27dB Active Peak Gain
- Customizable Cables and Connectors
- RoHS & REACH Compliant

Applications:

- Fleet Management & Telematics
- Vehicle Navigation

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

MODEL: MT-4B-AS-BL07

Rev.A

I. Specifications:

Items	GNSS Specifications		
Passive Antenna Performance			
Application Bands	BeiDou	GPS	GLONASS
Frequencies (MHz)	1561	1575.42	1602
Efficiency (%)	49.89	42.76	58.61
Average Gain (dBi)	-3.02	-3.69	-2.32
Peak Gain (dBi)	1.21	1.21	1.44
V.S.W.R	< 3		
Return loss (dB)	< -6		
Impedance (Ω)	50		
Polarization	R.H.C.P. (Right Handed Circular Polarization)		
Active Antenna Performance			
Application Bands	BeiDou	GPS	GLONASS
Frequencies (MHz)	1561 ± 2.046	1575.42 ± 1.023	1602 ± 5
Gain (dB)	27	27	27
Noise Figure (dB)	0.98	0.98	0.92
Operation Voltage (V)	3.3 ~ 5.0		
Current Consumption	9.0mA (typical)		
Output Impedance (Ω)	50		

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Out of Band Rejection			
Frequency (MHz)	600 ~ 1300	1300 ~ 1530	1650 ~ 3000
Out of Band Rejection (dB)	55	30	30
ESD Protection	+/- 8 KV (direct discharge) +/- 15KV (air discharge)		
Cable / Length	H-100 / 5 meters		
Connector	FAKRA (C)		

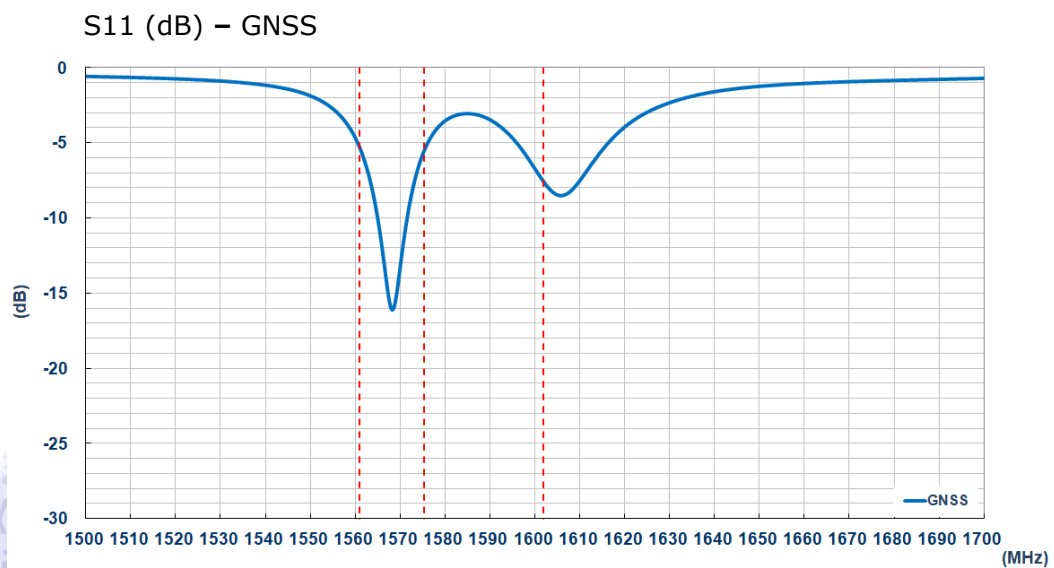
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Items		LTE Specifications						
Application Bands		LTE 700	GSM 850/900	DCS	PCS	UMTS1	LTE2600	5G NR Band
Frequencies (MHz)		698 ~ 824	824 ~ 960	1710 ~ 1880	1850 ~ 1990	1920 ~ 2170	2300 ~ 2690	3300 ~ 3800
Efficiency (%)	30cm	63.52	79.37	78.72	85.38	75.89	67.20	61.94
	1m	55.84	69.86	64.88	69.61	61.13	52.77	46.34
	2m	46.45	58.22	49.22	52.00	44.88	37.36	30.62
	3m	38.63	48.52	37.33	38.84	32.95	26.45	20.23
	5m	26.73	33.70	21.48	21.68	17.77	13.26	8.83
Average Gain (dBi)	30cm	-1.97	-1.00	-1.04	-0.69	-1.20	-1.73	-2.08
	1m	-2.53	-1.56	-1.88	-1.57	-2.14	-2.78	-3.34
	2m	-3.33	-2.35	-3.08	-2.84	-3.48	-4.28	-5.14
	3m	-4.13	-3.14	-4.28	-4.11	-4.82	-5.78	-6.94
	5m	-5.73	-4.72	-6.68	-6.64	-7.50	-8.78	-10.54
Peak Gain (dBi)	30cm	5.04	6.00	5.89	6.27	6.27	5.18	4.53
	1m	4.48	5.48	5.05	5.36	5.36	4.13	3.27
	2m	3.68	4.78	3.85	4.06	4.06	2.63	1.47
	3m	2.88	4.08	2.65	2.76	2.76	1.13	-0.33
	5m	1.28	2.68	0.25	0.18	0.16	-1.87	-3.93
V.S.W.R		< 3						
Return Loss (dB)		< -6						
Test Conditions		Free Space						
Impedance (Ω)		50						
Polarization		Linear						

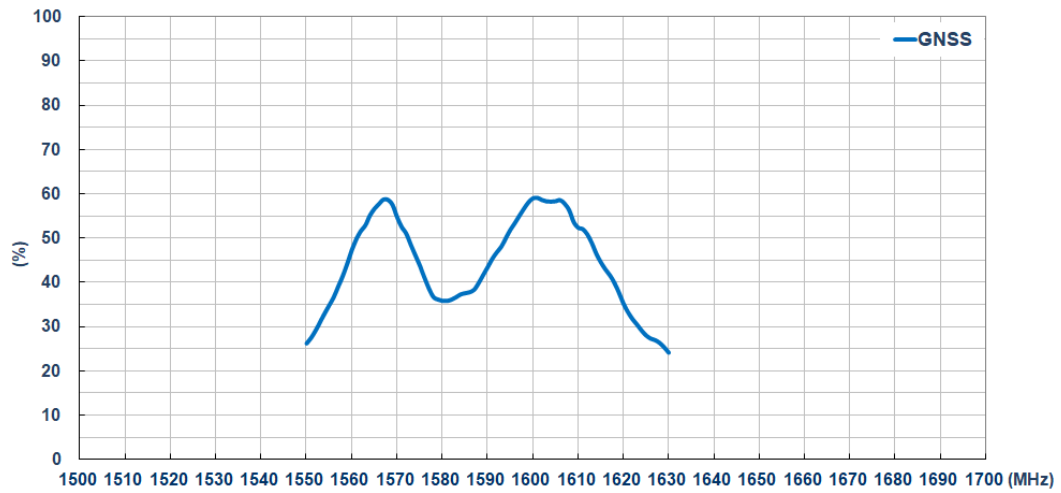
Cable / Length	H-100 / 5 meters
Connector	FAKRA (D)
Mechanical	
Dimension (mm)	ϕ 65.0(D) x 15.8(H)
Casing	PC + TPE
Waterproof Resistant	IP67 / IP69K
Environmental Conditions	
Operation Temperature	-40 ~ +85 °C
Storage Temperature	-40 ~ +85 °C
Humidity	Non-condensing 65 °C 95% RH

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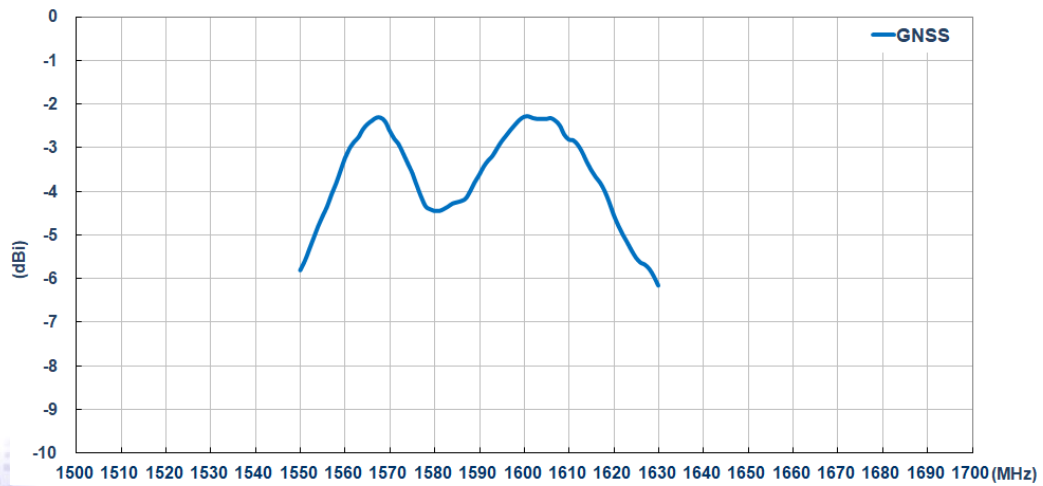
II. Antenna Technical Parameters:



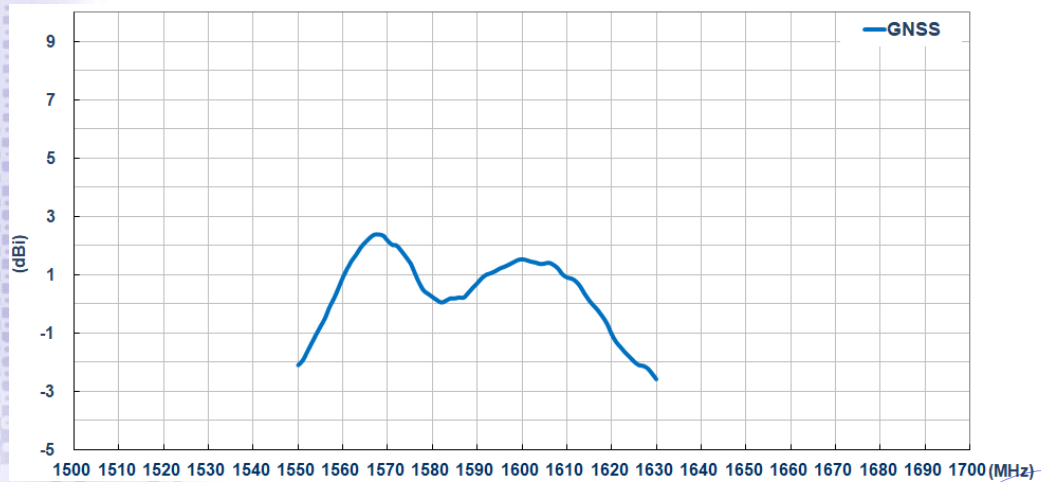
Efficiency (%) - GNSS



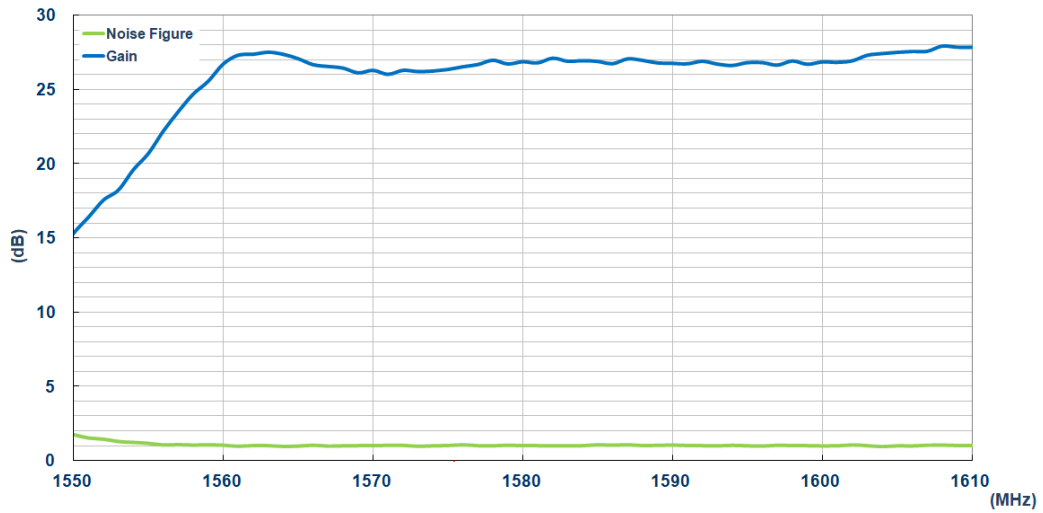
Average Gain (dBi) - GNSS



Peak Gain (dBi) - GNSS

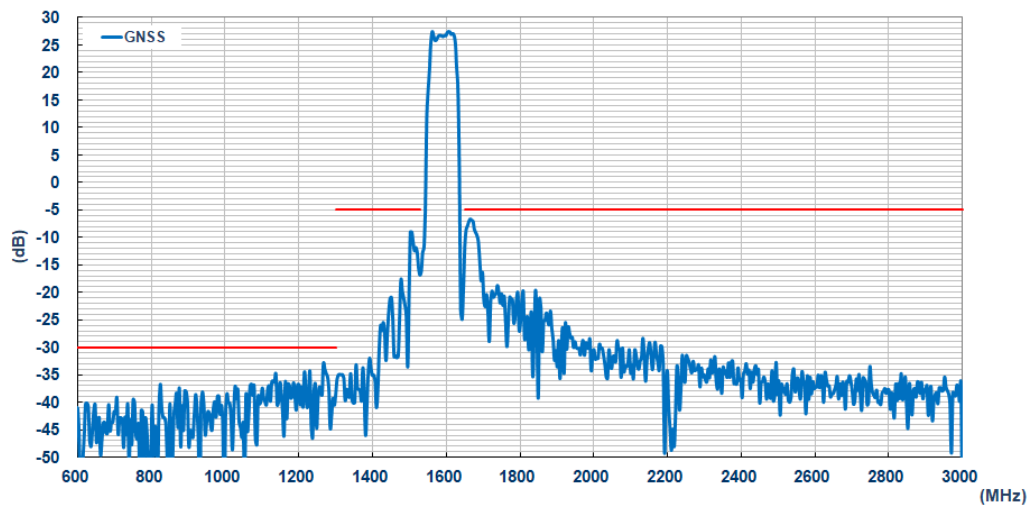


Noise Figure & Gain (dB) - GNSS



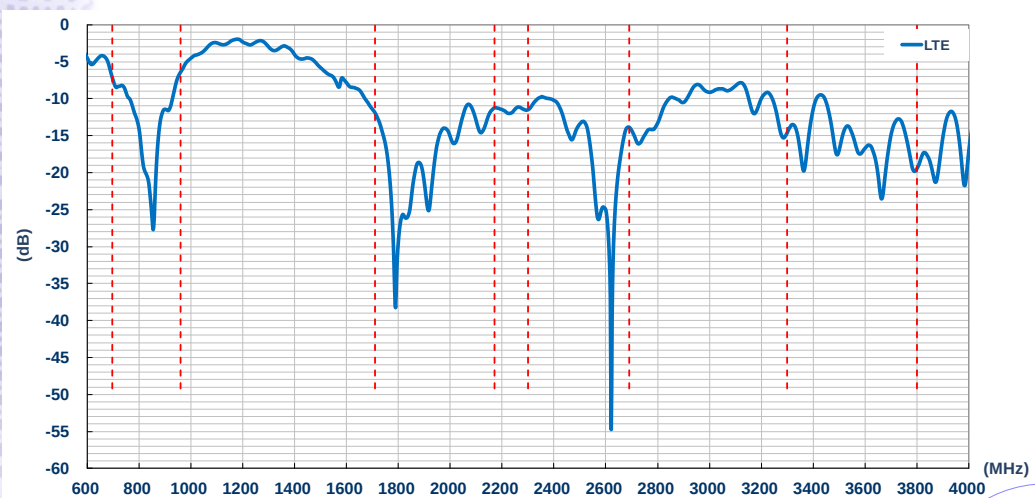
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Out of Band Rejection (dB) - GNSS

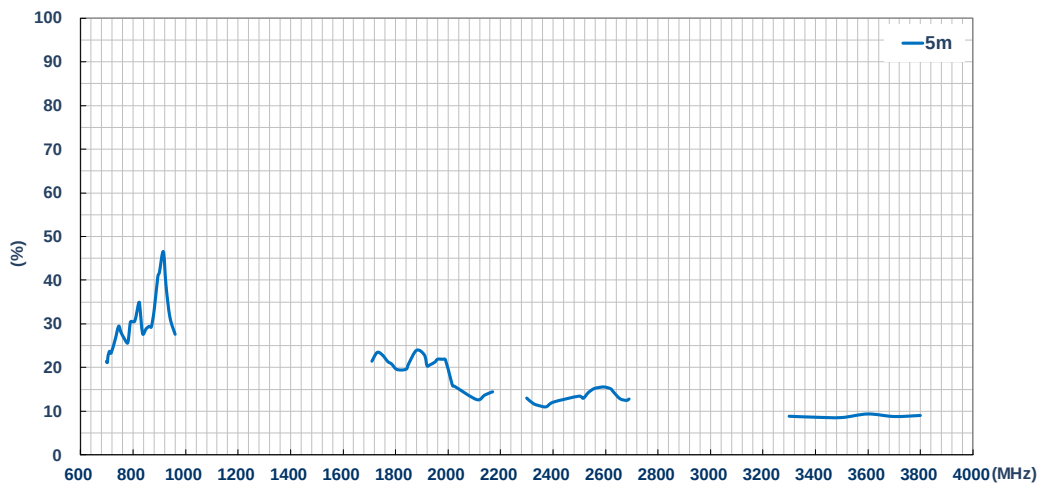


Free Space - LTE

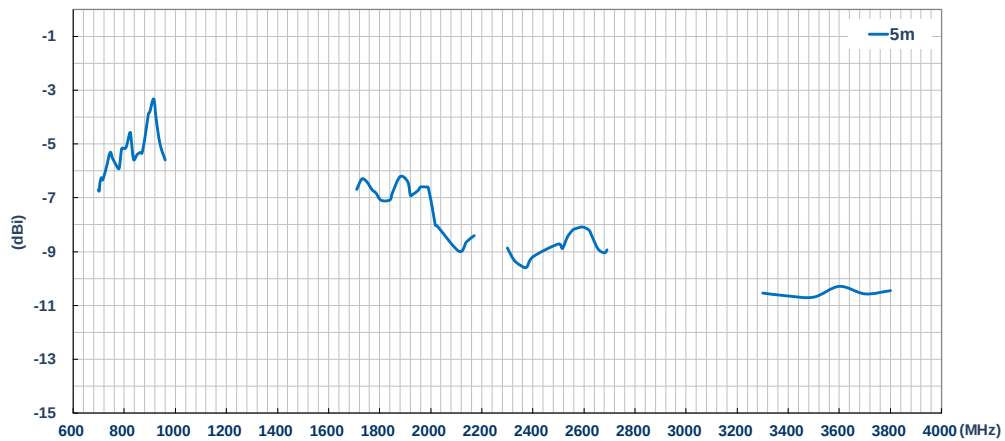
S11 (dB)



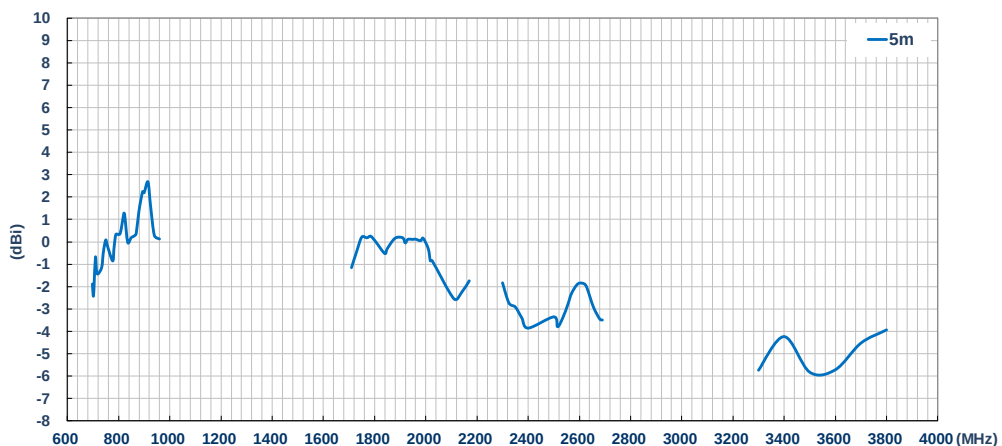
Efficiency (%)



Average Gain (dBi)



Peak Gain (dBi)



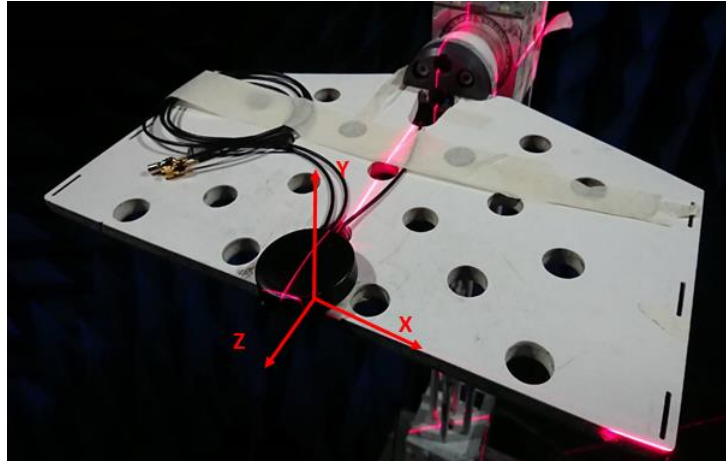
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III. Antenna Radiation Pattern Measurement:

The antenna radiation patterns are measured in 3D Anechoic Chamber.

The measurement setup is as show below,

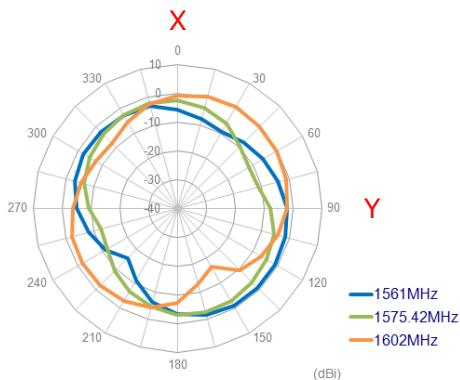
Free Space



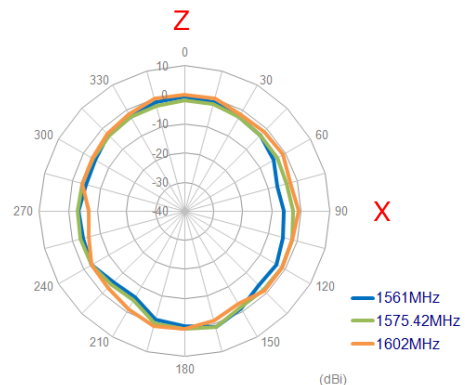
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IV. 2D Radiation Pattern:

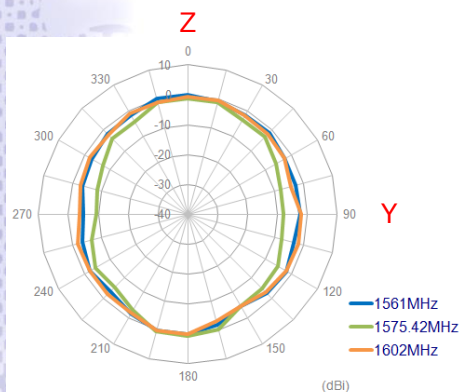
GNSS X-Y Plane



GNSS X-Z Plane

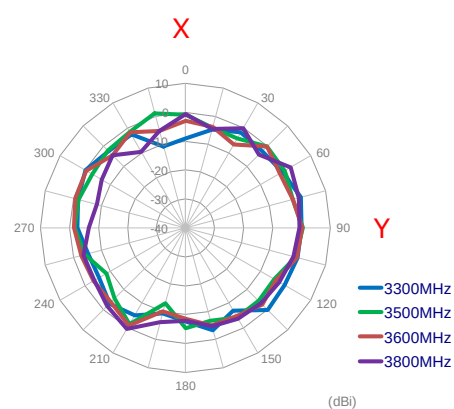
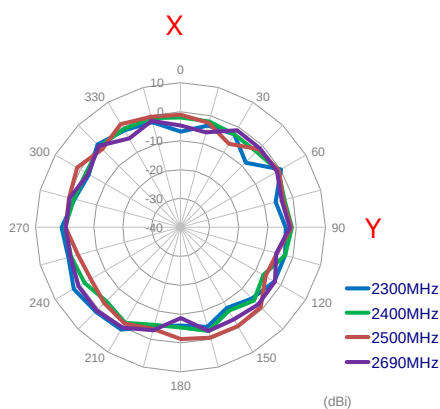
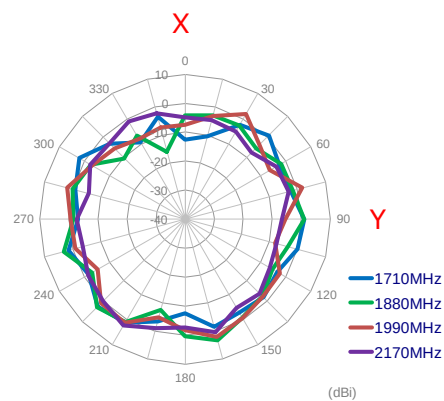
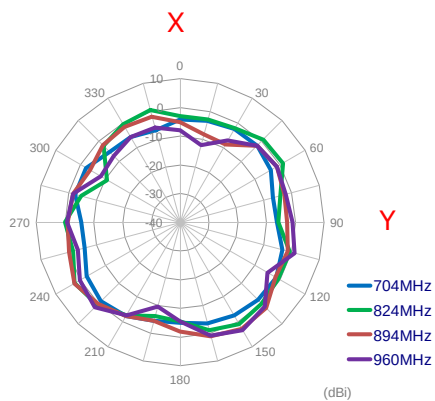


GNSS Y-Z Plane

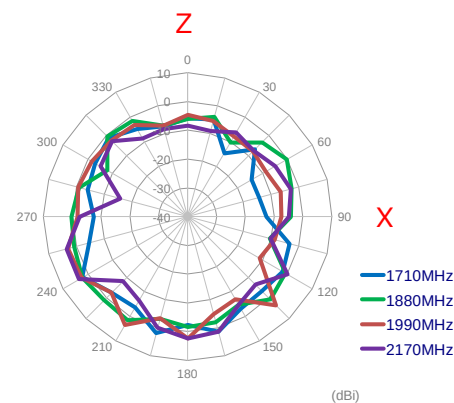
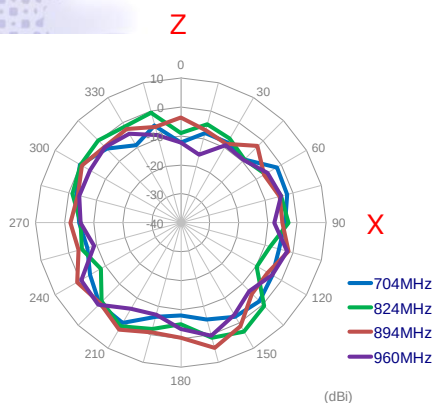


Free Space - LTE

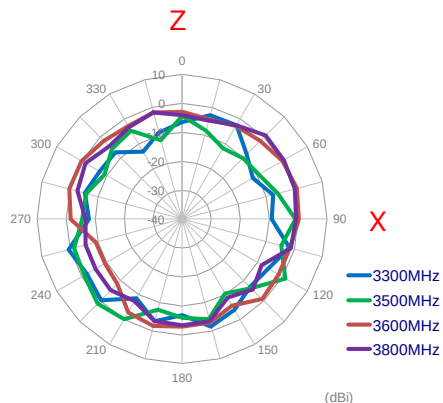
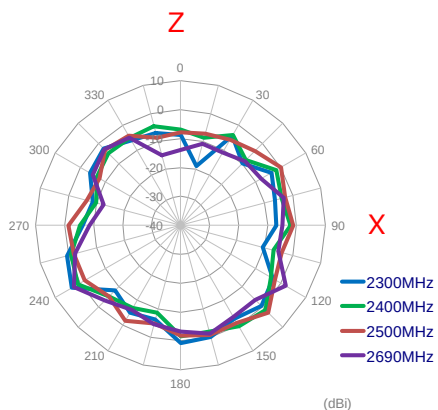
X-Y Plane



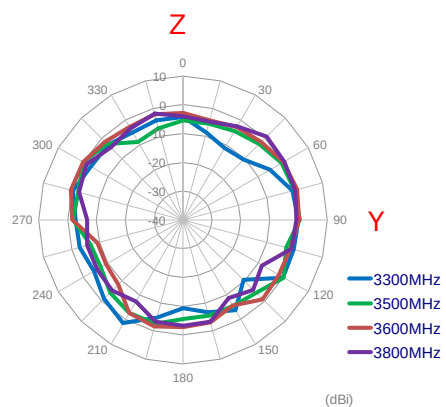
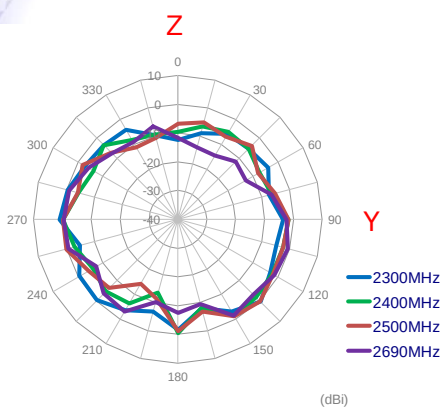
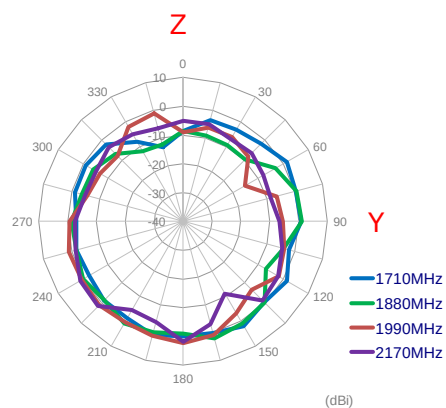
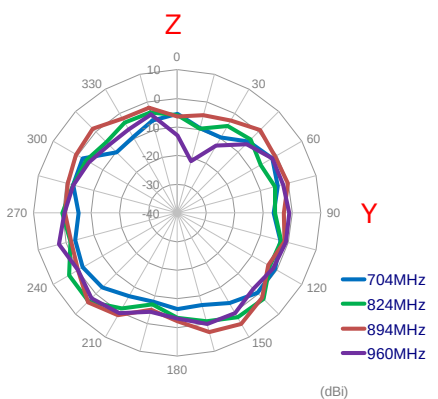
X-Z Plane



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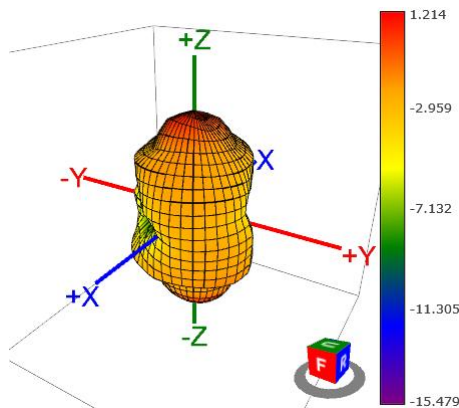
Y-Z Plane



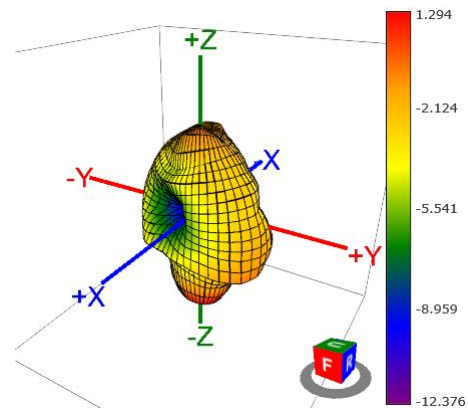
V. 3D Radiation Pattern:

GNSS

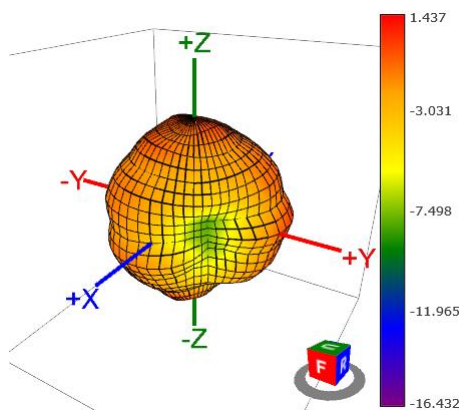
1561MHz



1575.42MHz

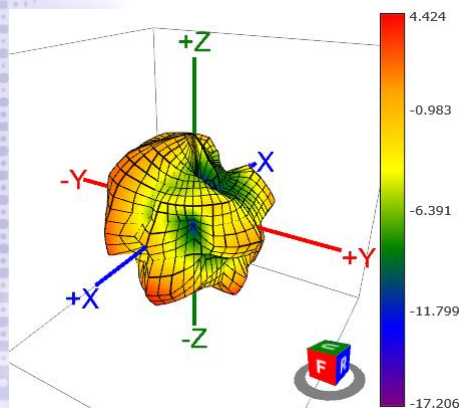


1602MHz

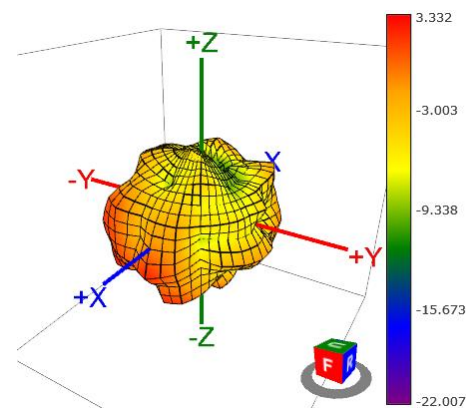


Free Space - LTE

824MHz

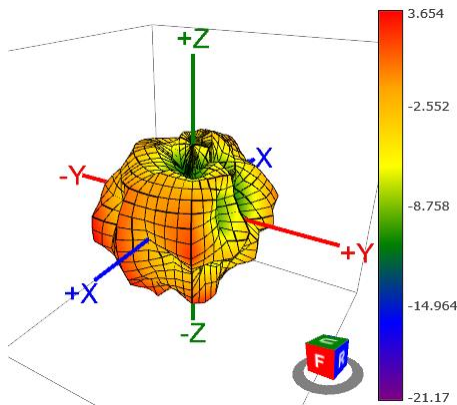


960MHz

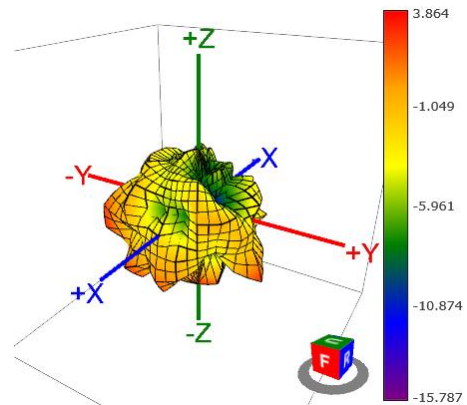


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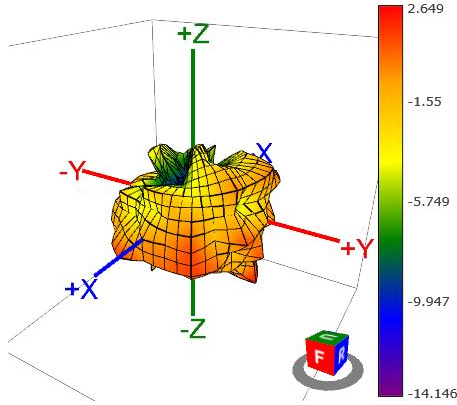
1710MHz



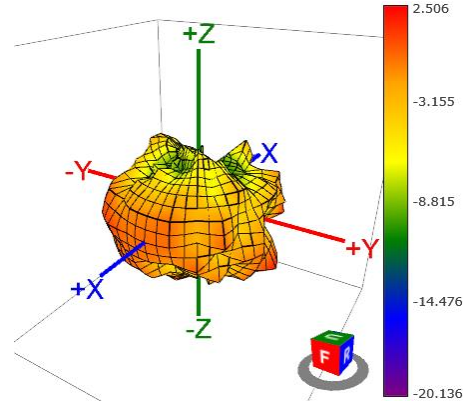
2170MHz



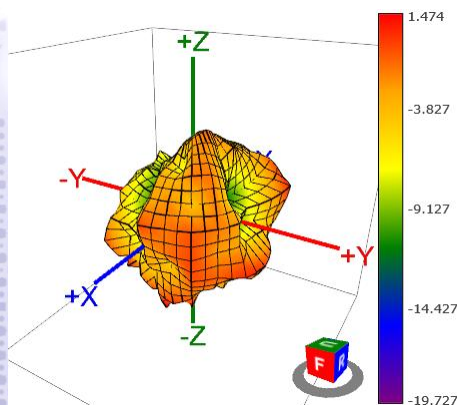
2300MHz



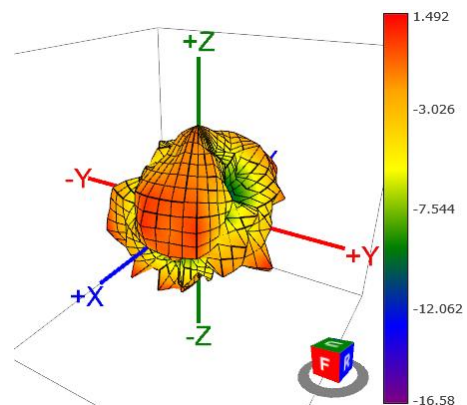
2690MHz



3300MHz

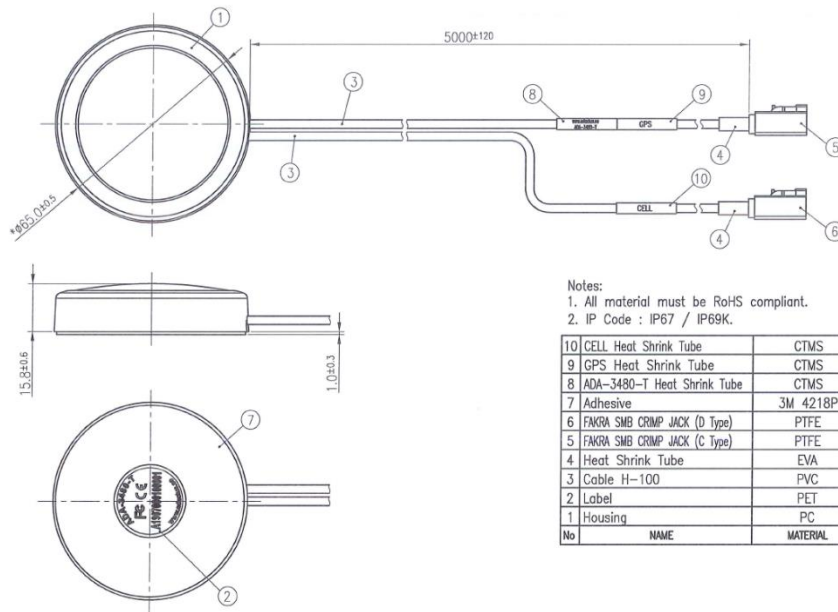


3600MHz



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VI. Mechanical Drawing (Unit:mm):



Notes:

1. All material must be RoHS compliant.
2. IP Code : IP67 / IP69K.

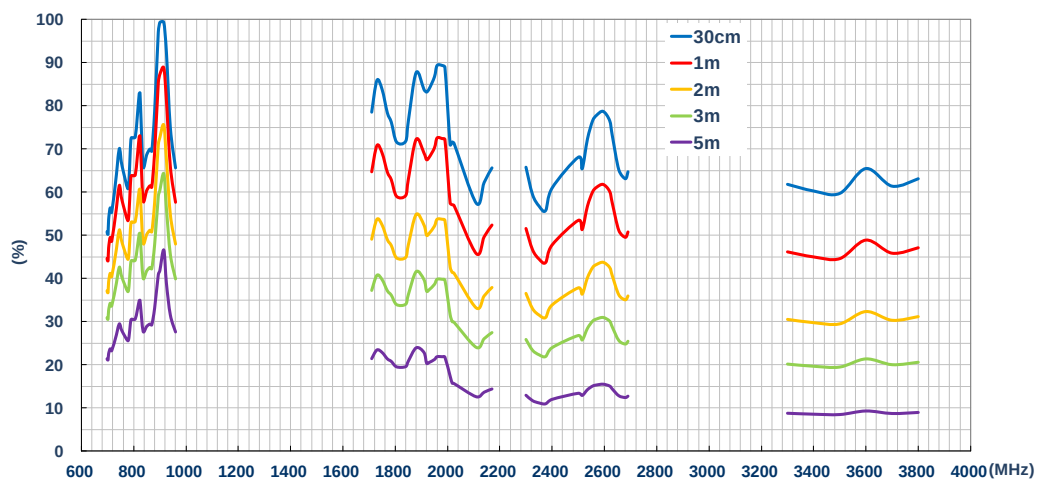
10	CELL Heat Shrink Tube	CTMS	White	1
9	GPS Heat Shrink Tube	CTMS	Blue	1
8	ADA-3480-T Heat Shrink Tube	CTMS	White	1
7	Adhesive	3M 4218P	Red Liner	1
6	FAKRA SMB CRIMP JACK (D Type)	PTFE	Bordeaux	1
5	FAKRA SMB CRIMP JACK (C Type)	PTFE	Blue	1
4	Heat Shrink Tube	EVA	Black	2
3	Cable H-100	PVC	Black	2
2	Label	PET	Silver	1
1	Housing	PC	Black	1
No	NAME	MATERIAL	FINISH	QTY

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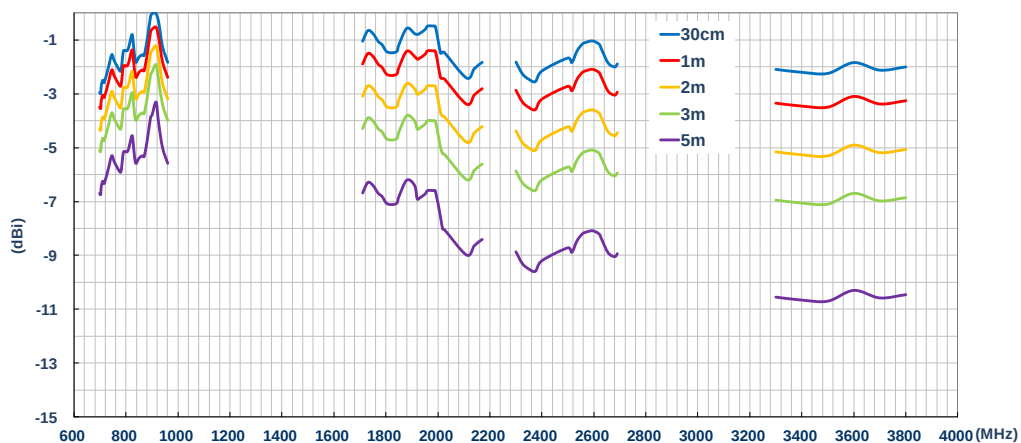
VII. Applications Note:

The antenna performance with different cable lengths is shown below.

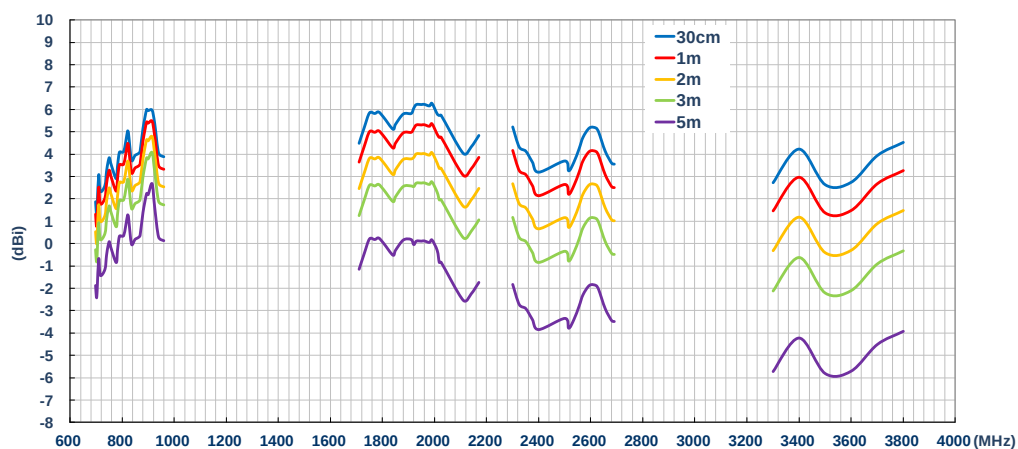
Free Space - Efficiency (%)



Free Space - Average Gain (dBi)



Free Space - Peak Gain (dBi)



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