



Product Name: 5-in-1 5G NR/ 4G LTE/ WiFi/ GNSS

Combination Antenna **Part Number:** ADA-10-WXYZ

Features:

- 1*GNSS, 2*LTE, 2*WIFI Antenna Combination
- GPS L1 / GLONASS L1 / BEIDOU L1 Bands Supporting
- LTE 698-960MHz, 1710-2690MHz, 3300-3800MHz Supporting
- WiFi Dual Bands, 2400-2500MHz, 5150-5850MHz Supporting
- Excellent Out of Band Suppression, Up to 55dB
- 27dBi Active Peak Gain
- Customizable Cables and Connectors
- RoHS & REACH Compliant, E-mark & R118-03 Certified

Applications:

- Fleet Management & Telematics
- Vehicle Navigation

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

MODEL: ADA-10-WXYZ

WI-RD-D-394 V1.0

I. Specifications:

Category	GNSS		
Passive Antenna Performance			
Application Band	BeiDou	GPS	GLONASS
Frequency (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 band	BeiDou	GPS	GLONASS
Frequency (MHz)	1561 ± 2.046	1575.42 ± 1.023	1602 ± 5
Gain (dB)	27	27	27
Noise Figure (dB)	0.98	0.98	0.92
Current Consumption	9.0mA (typical)		
Operation Voltage (V)	3.3 ~ 5		
Output Impedance (Ω)	50		
GNSS _Out of Band Rejection			
Frequency (MHz)	600 ~ 1300	1300 ~ 1530	1650 ~ 3000
Gain (dB)	55	30	30
ESD Protection	+/- 8 KV (direct discharge) +/- 15KV (air discharge)		
Cable / Length	H-100 / 1 meter		

All specifications subject to change without notice.

Connector	SMA (Male)
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Category		LTE 1						
Application Band		LTE 700	GSM 850/900	DCS 1710 ~ 1880	PCS 1850 ~ 1990	UMTS1 1920 ~ 2170	LTE2600 2300 ~ 2690	5G NR Band 3300 ~ 3800
Frequency (MHz)		698 ~ 824	824 ~ 960	1710 ~ 1880	1850 ~ 1990	1920 ~ 2170	2300 ~ 2690	3300 ~ 3800
Efficiency (%)								
Free Space	30cm	51.10	36.95	63.55	63.70	56.71	60.72	54.39
	1m	44.92	32.48	52.37	51.93	45.68	47.68	40.69
	2m	37.36	27.02	39.73	38.80	33.54	33.76	26.88
	3m	31.08	22.47	30.14	28.98	24.63	23.90	17.76
	5m	21.50	15.55	17.34	16.17	13.28	11.98	7.75
With 30*30cm Ground Plane	30cm	46.43	44.67	59.95	67.01	58.79	59.20	55.59
	1m	40.82	39.26	49.41	54.63	47.36	46.86	43.38
	2m	33.95	32.66	37.48	40.81	34.77	32.91	27.48
	3m	28.24	27.16	28.43	30.49	25.53	23.30	18.16
	5m	19.54	18.79	16.36	17.01	13.76	11.68	7.93
Average Gain (dBi)								
Free Space	30cm	-2.92	-4.32	-1.97	-1.96	-2.46	-2.17	-2.65
	1m	-3.48	-4.88	-2.81	-2.85	-3.40	-3.22	-3.91
	2m	-4.28	-5.68	-4.01	-4.11	-4.74	-4.72	-5.71
	3m	-5.08	-6.48	-5.21	-5.38	-6.09	-6.22	-7.51
	5m	-6.68	-8.08	-7.61	-7.91	-8.77	-9.22	-11.11
With 30*30cm Ground Plane	30cm	-3.33	-3.50	-2.22	-1.74	-2.31	-2.28	-2.55
	1m	-3.89	-4.06	-3.06	-2.63	-3.25	-3.29	-3.63
	2m	-4.69	-4.86	-4.26	-3.89	-4.59	-4.83	-5.61
	3m	-5.49	-5.66	-5.46	-5.16	-5.93	-6.33	-7.41
	5m	-7.09	-7.26	-7.86	-7.69	-8.61	-9.33	-11.01

All specifications subject to change without notice.

Peak Gain (dBi)								
Free Space	30cm	2.42	1.49	3.95	3.95	2.96	4.29	3.09
	1m	1.86	0.93	3.11	3.11	2.05	3.24	1.83
	2m	1.06	0.13	1.91	1.91	0.75	1.74	0.03
	3m	0.26	-0.67	0.71	0.71	-0.55	0.24	-1.77
	5m	-1.34	-2.27	-1.69	-1.69	-3.15	-2.76	-5.37
With 30*30cm Ground Plane	30cm	5.11	3.48	6.85	6.59	6.59	6.01	6.67
	1m	4.55	2.92	6.01	5.68	5.68	4.96	5.41
	2m	3.75	2.12	4.81	4.38	4.38	3.46	3.61
	3m	2.95	1.32	3.61	3.08	3.08	1.96	1.81
	5m	1.35	-0.28	1.21	0.48	0.48	-1.04	-1.79
V.S.W.R								
Free Space		< 3						
With 30*30cm Ground Plane		< 3						
Return Loss (dB)								
Free Space		< -6						
With 30*30cm Ground Plane		< -6						
Impedance (Ω)		50						
Polarization		Linear						
Cable / Length		SNC-200 / 1 meter						
Connector		SMA (Male)						

All specifications subject to change without notice.

Category		LTE 2						
Application Band		LTE 700	GSM 850/900	DCS	PCS	UMTS1	LTE2600	5G NR Band
Frequency (MHz)		698 ~ 824	824 ~ 960	1710 ~ 1880	1850 ~ 1990	1920 ~ 2170	2300 ~ 2690	3300 ~ 3800
Efficiency (%)								
Free Space	30cm	44.62	45.00	64.70	68.02	62.54	61.89	55.11
	1m	39.22	39.56	53.32	55.46	50.38	48.60	44.53
	2m	32.62	32.90	40.45	41.43	36.99	34.41	27.24
	3m	27.13	27.37	30.68	30.95	27.16	24.36	18.00
	5m	18.77	18.93	17.66	17.27	14.64	12.21	7.86
With 30*30cm Ground Plane	30cm	40.31	43.60	59.54	65.97	60.41	59.58	51.82
	1m	35.44	38.33	49.07	53.79	48.66	47.17	39.51
	2m	29.47	31.88	37.22	40.18	35.73	33.12	25.62
	3m	24.52	26.52	28.23	30.01	26.23	23.45	16.92
	5m	16.96	18.34	16.25	16.75	14.14	11.75	7.39
Average Gain (dBi)								
Free Space	30cm	-3.51	-3.47	-1.89	-1.67	-2.04	-2.08	-2.59
	1m	-4.07	-4.03	-2.73	-2.56	-2.98	-3.13	-3.51
	2m	-4.87	-4.83	-3.93	-3.83	-4.32	-4.63	-5.65
	3m	-5.67	-5.63	-5.13	-5.09	-5.66	-6.13	-7.45
	5m	-7.27	-7.23	-7.53	-7.63	-8.34	-9.13	-11.05
With 30*30cm Ground Plane	30cm	-3.95	-3.61	-2.25	-1.81	-2.19	-2.25	-2.86
	1m	-4.51	-4.17	-3.09	-2.69	-3.13	-3.26	-4.03
	2m	-5.31	-4.97	-4.29	-3.96	-4.47	-4.80	-5.92
	3m	-6.11	-5.77	-5.49	-5.23	-5.81	-6.30	-7.72
	5m	-7.71	-7.37	-7.89	-7.76	-8.50	-9.30	-11.32

All specifications subject to change without notice.

Peak Gain (dBi)								
Free Space	30cm	5.32	4.66	5.82	4.92	4.92	4.29	3.52
	1m	4.76	4.10	4.98	4.01	4.01	3.24	4.01
	2m	3.96	3.30	3.78	2.71	2.71	1.74	0.46
	3m	3.16	2.50	2.58	1.41	1.41	0.24	-1.34
	5m	1.56	0.90	0.18	-1.19	-1.19	-2.76	-4.94
With 30*30cm Ground Plane	30cm	3.70	4.66	6.29	5.30	5.30	6.35	6.13
	1m	3.14	4.10	5.45	4.39	4.39	5.30	4.87
	2m	2.34	3.30	4.25	3.09	3.09	3.80	3.07
	3m	1.54	2.50	3.05	1.86	1.79	2.30	1.27
	5m	-0.06	0.90	0.65	-0.54	-0.81	-0.70	-2.33
V.S.W.R								
Free Space		< 3						
With Ground Plane		< 3						
Return Loss (dB)								
Free Space		< -6						
With 30*30cm Ground Plane		< -6						
Impedance (Ω)		50						
Polarization		Linear						
Cable / Length		SNC-200 / 1 meter						
Connector		SMA (Male)						

All specifications subject to change without notice.

Category		WiFi 1						
Frequency (MHz)		2400	2450	2500	5150	5350	5750	5850
Efficiency (%)								
Free Space	30cm	70.47	70.63	78.70	65.31	56.23	50.93	50.23
	1m	55.34	55.46	61.80	45.08	38.82	34.59	34.12
	2m	39.17	39.26	43.75	26.55	22.86	19.91	19.63
	3m	27.73	27.80	30.97	15.63	13.46	11.46	11.30
	5m	13.90	13.93	15.52	5.42	4.67	3.79	3.74
With 30*30cm Ground Plane	30cm	60.67	63.68	65.77	69.18	57.28	51.64	49.43
	1m	47.64	52.12	51.64	44.87	40.64	34.99	30.62
	2m	33.73	35.40	36.56	28.12	23.28	20.18	19.32
	3m	23.88	25.06	25.88	16.56	13.71	11.61	11.12
	5m	11.97	12.56	12.97	5.74	4.75	3.85	3.68
Average Gain (dBi)								
Free Space	30cm	-1.52	-1.51	-1.04	-1.85	-2.50	-2.93	-2.99
	1m	-2.57	-2.56	-2.09	-3.46	-4.11	-4.61	-4.67
	2m	-4.07	-4.06	-3.59	-5.76	-6.41	-7.01	-7.07
	3m	-5.57	-5.56	-5.09	-8.06	-8.71	-9.41	-9.47
	5m	-8.57	-8.56	-8.09	-12.66	-13.31	-14.21	-14.27
With 30*30cm Ground Plane	30cm	-2.17	-1.96	-1.82	-1.60	-2.42	-2.87	-3.06
	1m	-3.22	-2.83	-2.87	-3.48	-3.91	-4.56	-5.14
	2m	-4.72	-4.51	-4.37	-5.51	-6.33	-6.95	-7.14
	3m	-6.22	-6.01	-5.87	-7.81	-8.63	-9.35	-9.54
	5m	-9.22	-9.01	-8.87	-12.41	-13.23	-14.15	-14.34

All specifications subject to change without notice.

Peak Gain (dBi)								
Free Space	30cm	3.70	3.58	4.55	4.59	5.84	2.65	3.53
	1m	2.65	2.53	3.50	2.98	4.59	0.97	1.85
	2m	1.15	1.03	2.00	0.68	1.93	-1.43	-0.55
	3m	-0.35	-0.47	0.50	-1.62	-0.37	-3.83	-2.95
	5m	-3.35	-3.47	-2.50	-6.22	-4.97	-8.63	-7.75
With 30*30cm Ground Plane	30cm	6.56	6.21	6.19	7.26	6.81	7.09	6.33
	1m	5.51	5.20	5.14	5.38	4.92	5.06	4.64
	2m	4.01	3.66	3.64	3.35	2.90	3.01	2.25
	3m	2.51	2.16	2.14	1.05	0.60	0.61	-0.15
	5m	-0.49	-0.84	-0.86	-3.55	-4.00	-4.19	-4.95
V.S.W.R								
Free Space		< 2						
With 30*30cm Ground Plane		< 2			< 2.32			
Return Loss (dB)								
Free Space		< -10						
With 30*30cm Ground Plane		< -10			< -8			
Impedance (Ω)		50						
Polarization		Linear						
Cable / Length		SNC-200 / 1 meter						
Connector		SMA (Female)						

All specifications subject to change without notice.

Category		WiFi 2						
Frequency (MHz)		2400	2450	2500	5150	5350	5750	5850
Efficiency (%)								
Free Space	30cm	57.54	60.81	71.29	66.07	56.23	58.88	51.17
	1m	45.19	47.75	55.98	45.60	38.82	39.99	34.75
	2m	31.99	33.81	39.63	26.85	22.86	23.01	20.00
	3m	22.65	23.93	28.05	15.81	13.46	13.24	11.51
	5m	11.35	11.99	14.06	5.48	4.67	4.39	3.81
With 30*30cm Ground Plane	30cm	57.81	62.95	65.77	66.83	56.36	57.94	56.62
	1m	45.39	49.43	51.64	43.75	39.08	39.45	33.57
	2m	32.14	34.99	36.56	27.16	22.91	22.65	22.13
	3m	22.75	24.77	25.88	16.00	13.49	13.03	12.74
	5m	11.40	12.42	12.97	5.55	4.68	4.32	4.22
Average Gain (dBi)								
Free Space	30cm	-2.40	-2.16	-1.47	-1.80	-2.50	-2.30	-2.91
	1m	-3.45	-3.21	-2.52	-3.41	-4.11	-3.98	-4.59
	2m	-4.95	-4.71	-4.02	-5.71	-6.41	-6.38	-6.99
	3m	-6.45	-6.21	-5.52	-8.01	-8.71	-8.78	-9.39
	5m	-9.45	-9.21	-8.52	-12.61	-13.31	-13.58	-14.19
With 30*30cm Ground Plane	30cm	-2.38	-2.01	-1.82	-1.75	-2.49	-2.37	-2.47
	1m	-3.43	-3.06	-2.87	-3.59	-4.08	-4.04	-4.74
	2m	-4.93	-4.56	-4.37	-5.66	-6.40	-6.45	-6.55
	3m	-6.43	-6.06	-5.87	-7.96	-8.70	-8.85	-8.95
	5m	-9.43	-9.06	-8.87	-12.56	-13.30	-13.65	-13.75

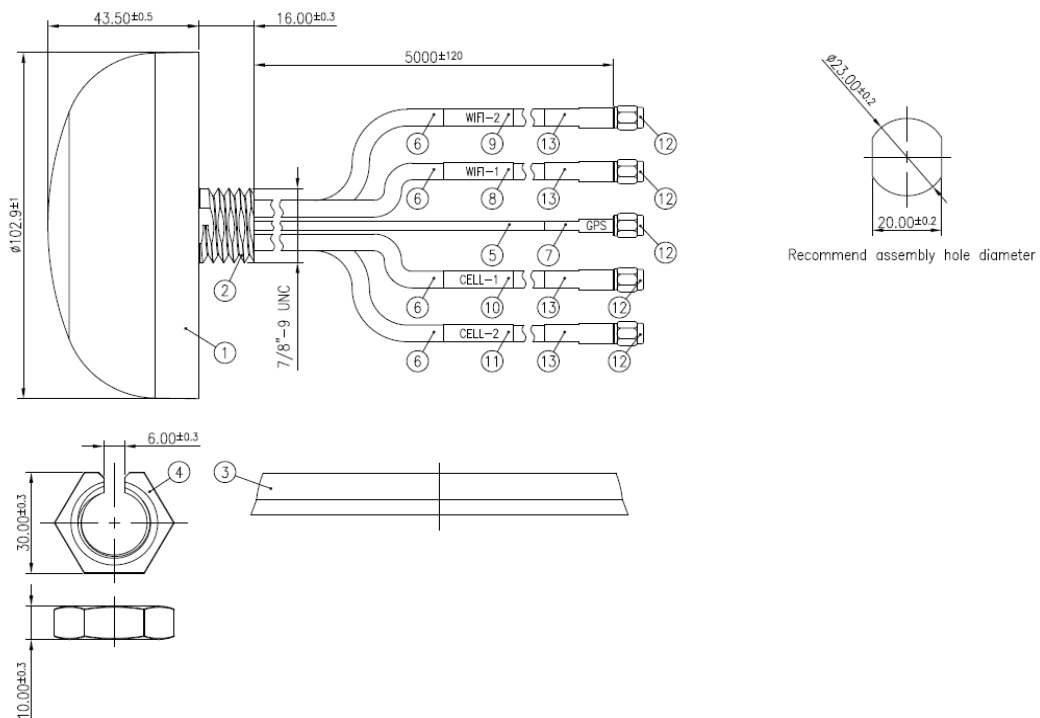
All specifications subject to change without notice.

Peak Gain (dBi)								
Free Space	30cm	3.40	4.03	4.45	3.12	3.48	4.02	3.25
	1m	2.35	2.98	3.40	1.51	2.33	2.34	1.57
	2m	0.85	1.48	1.90	-0.79	-0.43	-0.06	-0.83
	3m	-0.65	-0.02	0.40	-3.09	-2.73	-2.46	-3.23
	5m	-3.65	-3.02	-2.60	-7.69	-7.33	-7.26	-8.03
With 30*30cm Ground Plane	30cm	3.48	4.12	4.68	6.33	4.82	4.93	5.26
	1m	2.43	3.01	3.63	4.49	3.55	3.51	3.44
	2m	0.93	1.57	2.13	2.42	0.91	0.85	1.18
	3m	-0.57	0.07	0.63	0.12	-1.39	-1.55	-1.22
	5m	-3.57	-2.93	-2.37	-4.48	-5.99	-6.35	-6.02
V.S.W.R								
Free Space		< 2						
With 30*30cm Ground Plane		< 2			< 2.32			
Return Loss (dB)								
Free Space		< -10						
With 30*30cm Ground Plane		< -10			< -8			
Impedance (Ω)		50						
Polarization		Linear						
Cable / Length		SNC-200 / 1 meter						
Connector		SMA (Female)						
Mechanical								
Dimension (mm)		φ 102.9(D) x 43.5(H)						
Casing		PC + PBT						
Waterproof Resistant		IP67						
Environmental Conditions								
Operation Temperature (°C)		-40 ~ +85						
Storage Temperature (°C)		-40 ~ +85						
Humidity		95% Non-condensing						

All specifications subject to change without notice.

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V. Mechanical Drawing (Unit:mm):



Ordering Codes:

ADA-10-WXYZ

W = 0 (Nothing)
W = 1 (GPS)
W = 2 (GPS/GLONASS)
W = 3 (Full GNSS)

X = 0 (Nothing)
X = 1 (5G/LTE)
X = 2 (5G/LTE x 2)

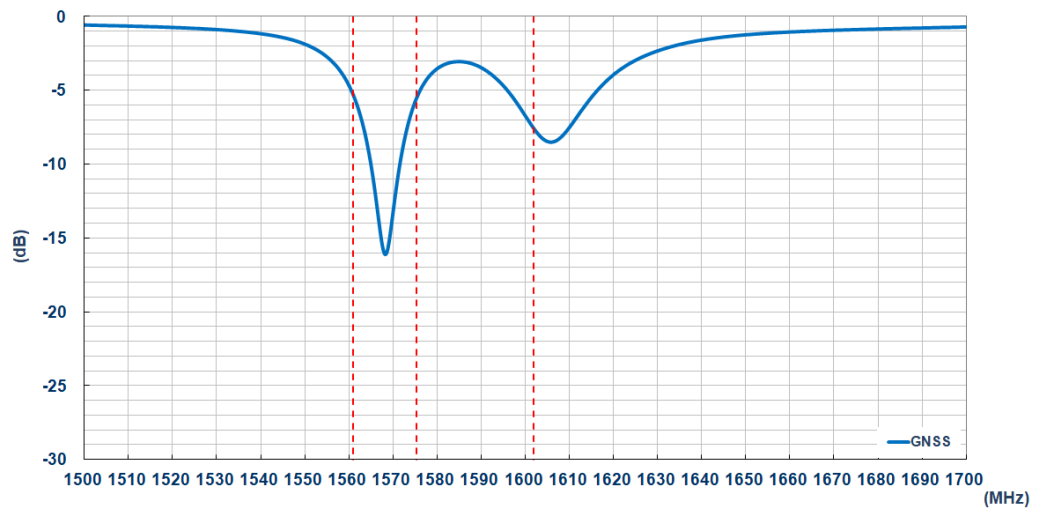
**Example: ADA-10-0210 has the
configuration 5G/LTE x 2 + WIFI x 1**

Y = 0 (Nothing)
Y = 1 (WIFI 2.4/5-5.8)
Y = 2 (WIFI 2.4/5-5.8 x 2)

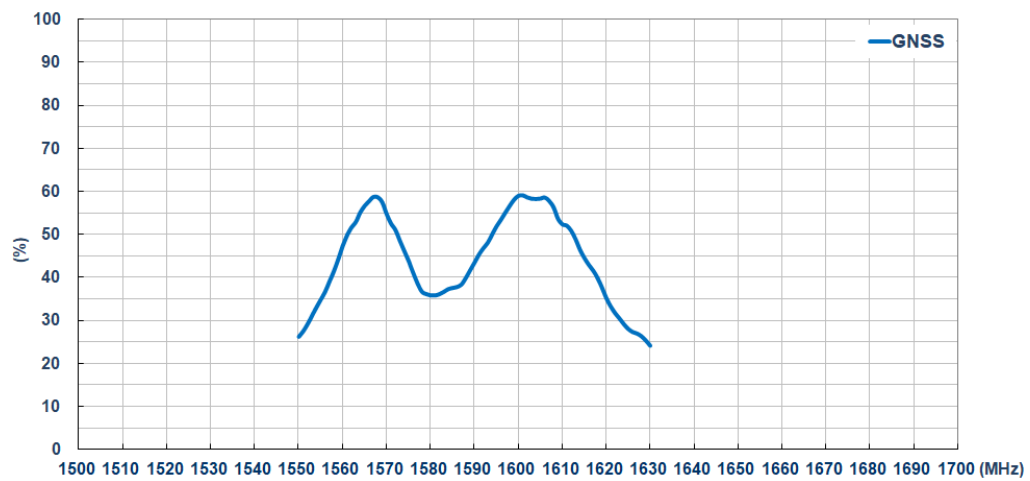
Z = 0 (Nothing)
Z = 1 (DSRC)
Z = 2 (430-450/TETRA)

II. Antenna Technical Parameters:

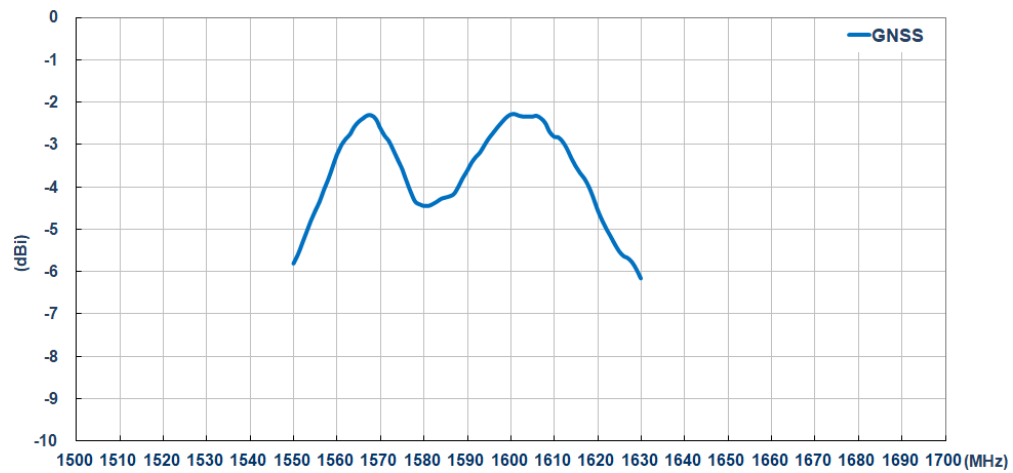
S11 (dB) – GNSS



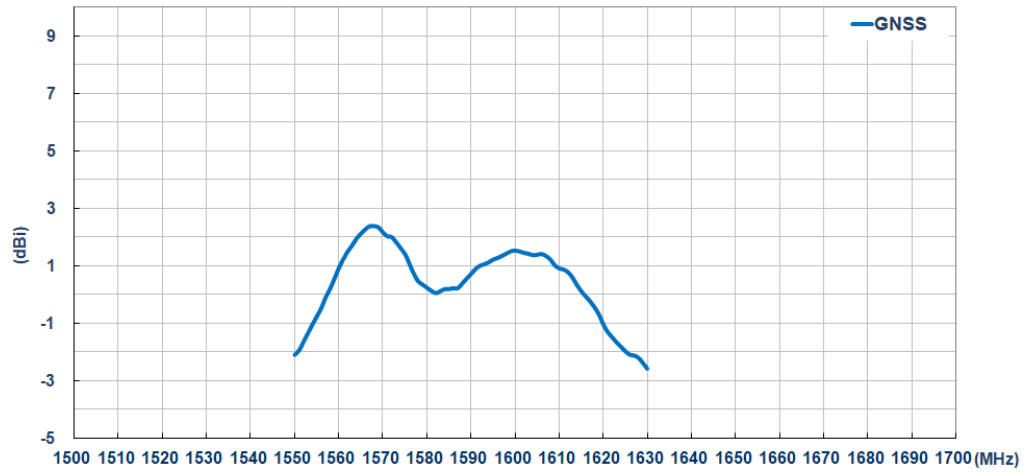
Efficiency (%) - GNSS



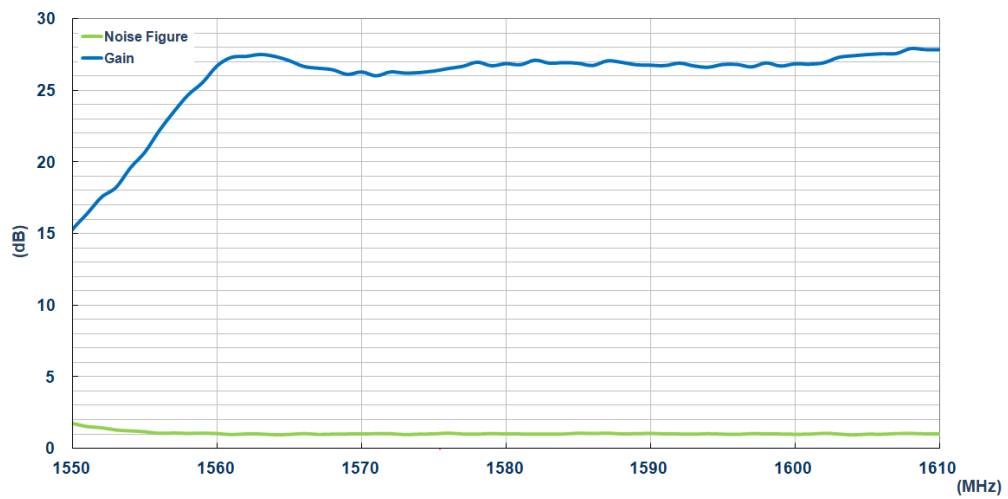
Average Gain (dBi) - GNSS



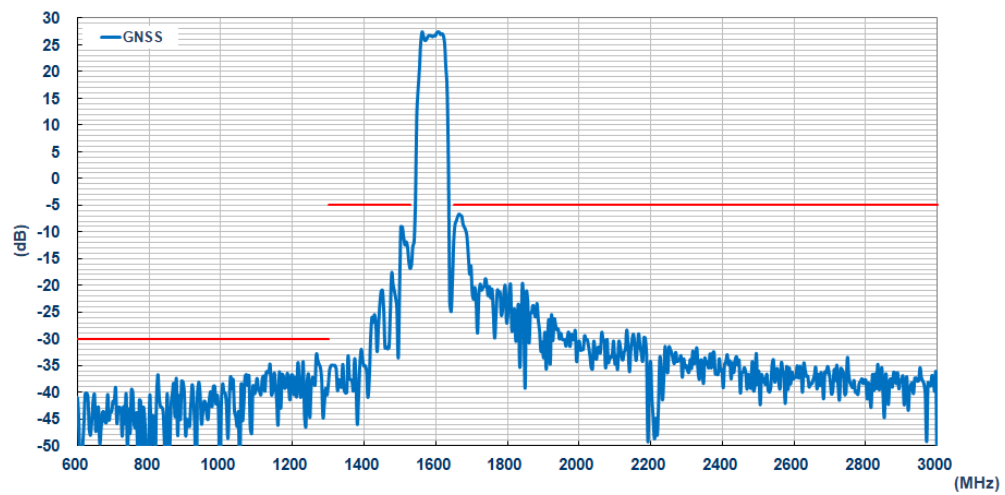
Peak Gain (dBi) - GNSS



Noise Figure & Gain (dB) - GNSS

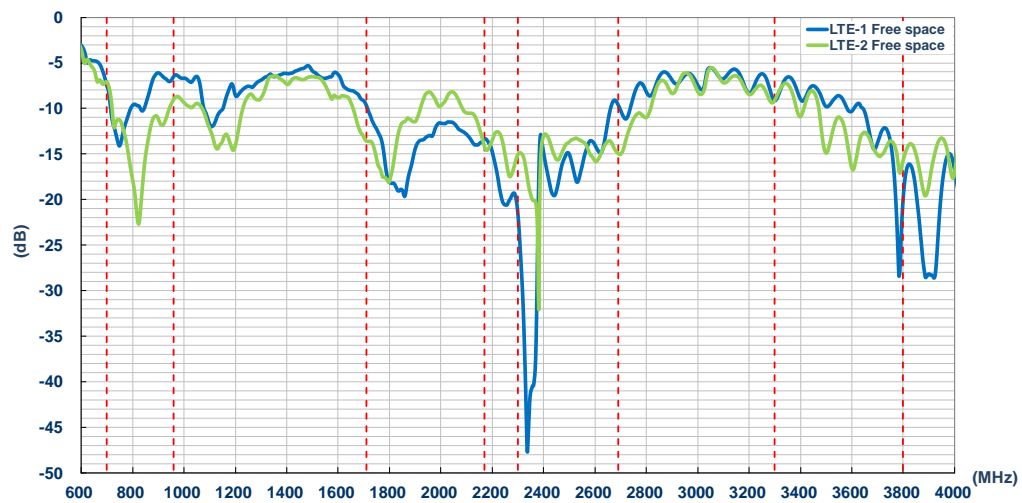


Out of Band Rejection (dB) - GNSS

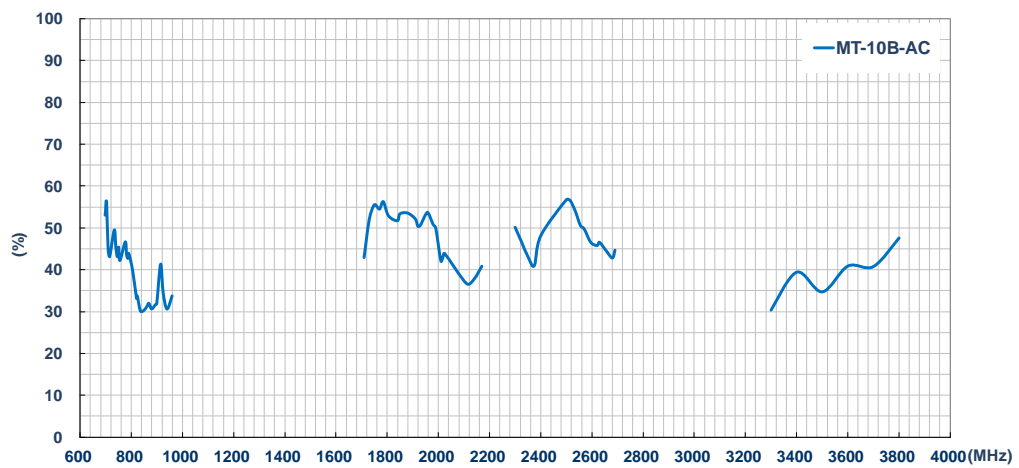


Free Space

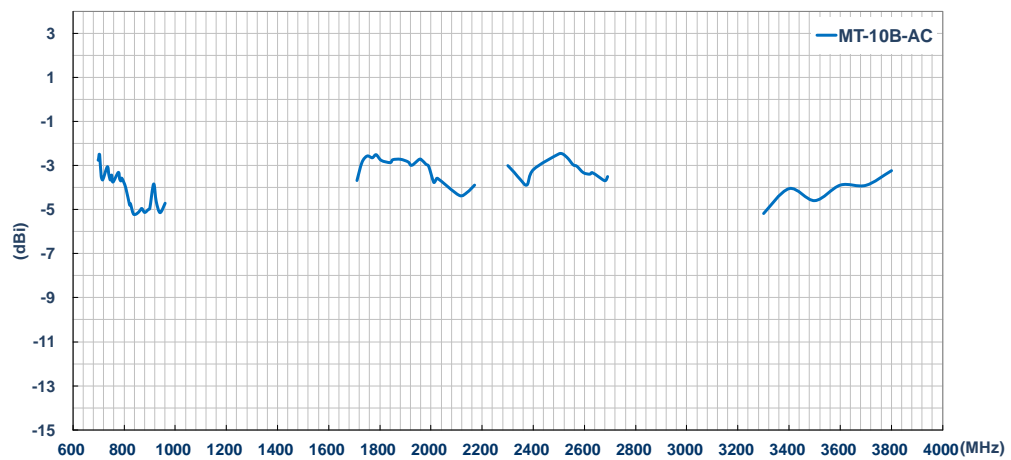
S11 (dB) – LTE 1 & LTE 2



Efficiency (%) – LTE 1

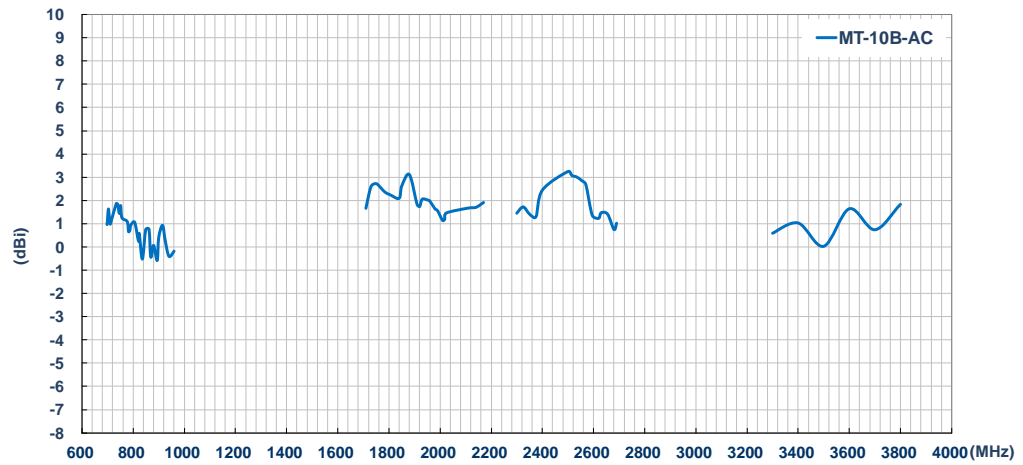


Average Gain (dBi) – LTE 1

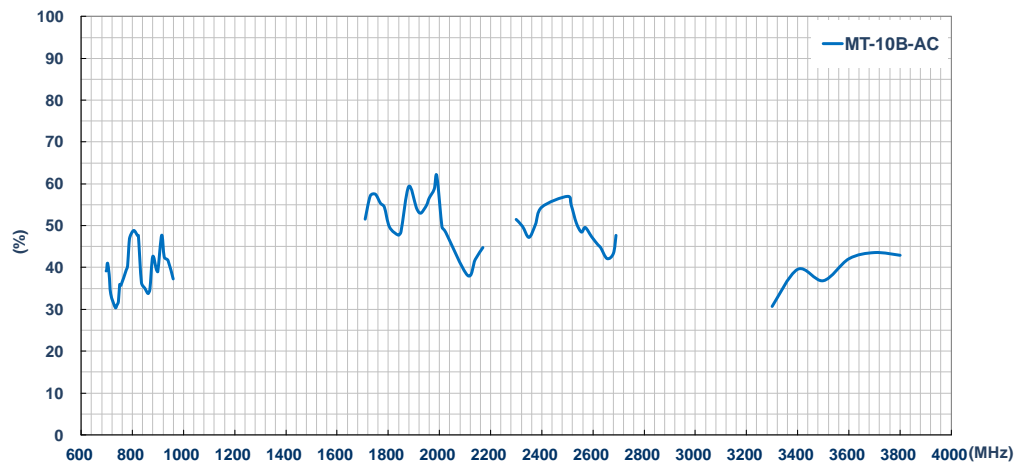


All specifications subject to change without notice.

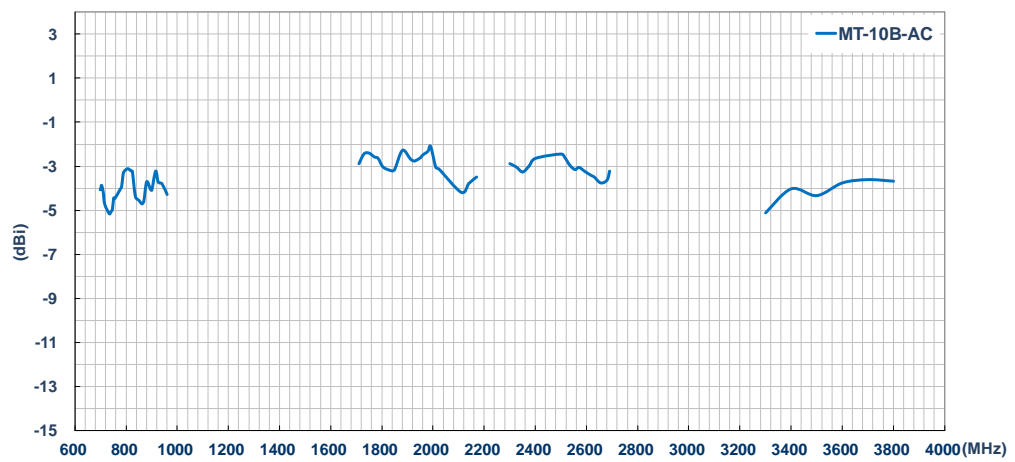
Peak Gain (dBi) – LTE 1



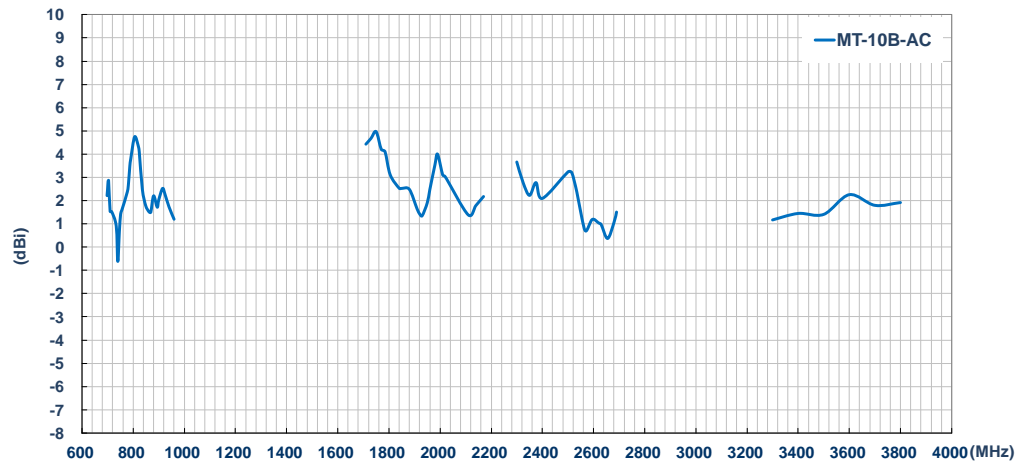
Efficiency (%) – LTE 2



Average Gain (dBi) – LTE 2

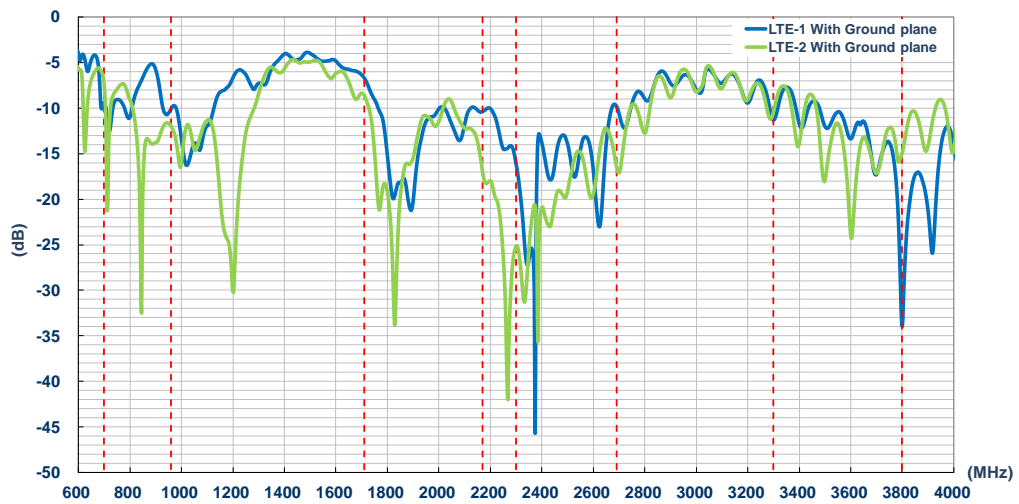


Peak Gain (dBi) – LTE 2

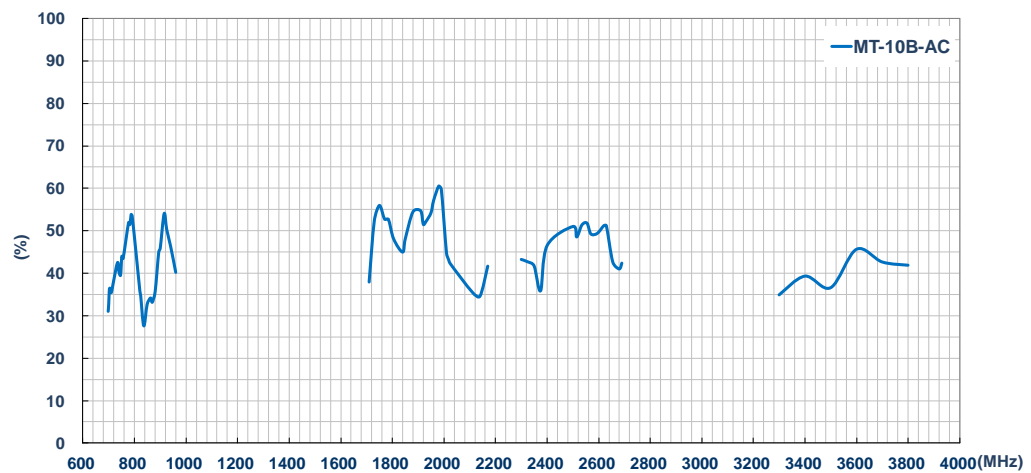


With Ground Plane

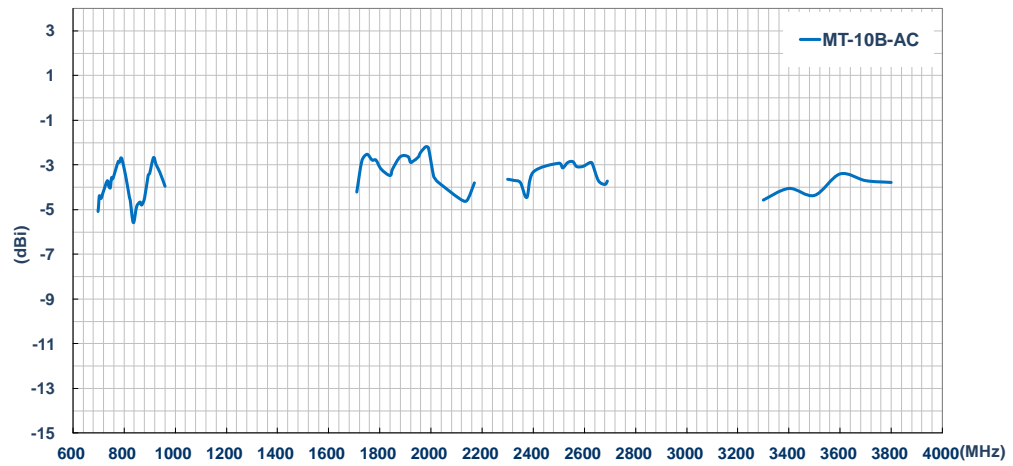
S11 (dB) – LTE 1 & LTE 2



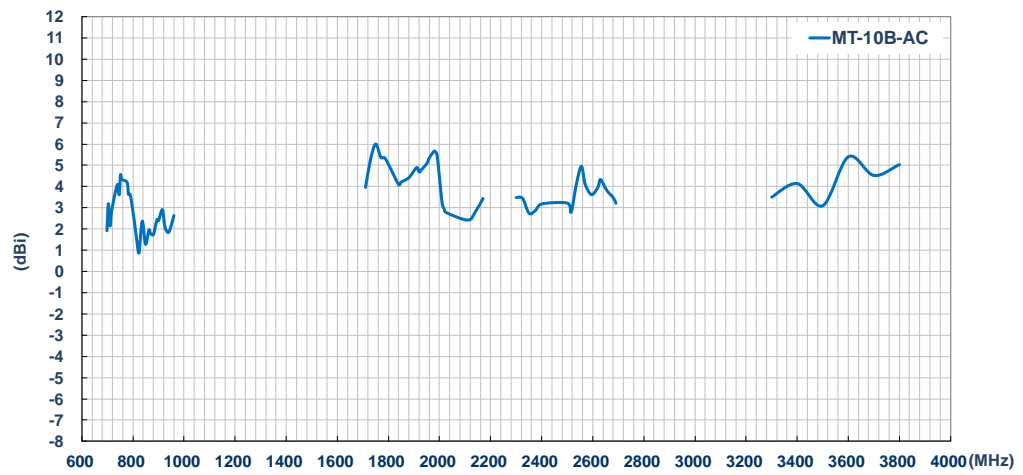
Efficiency (%) – LTE 1



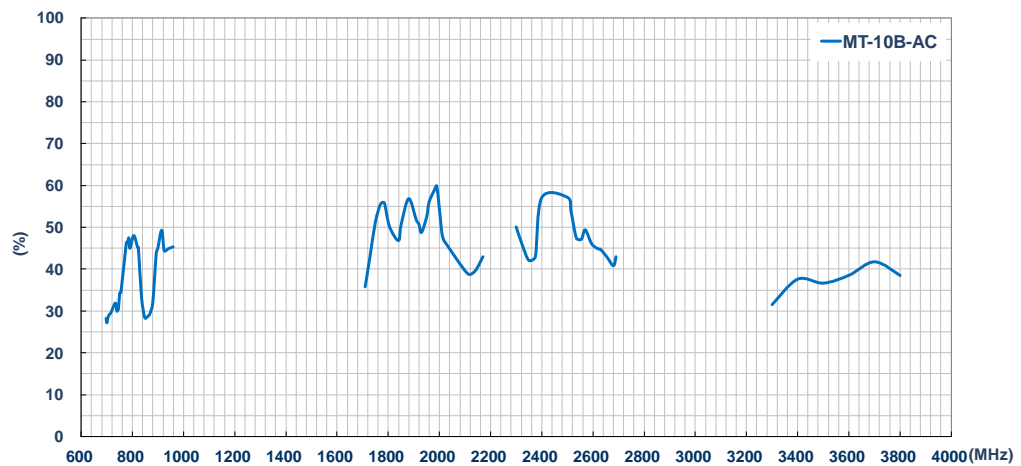
Average Gain (dBi) – LTE 1



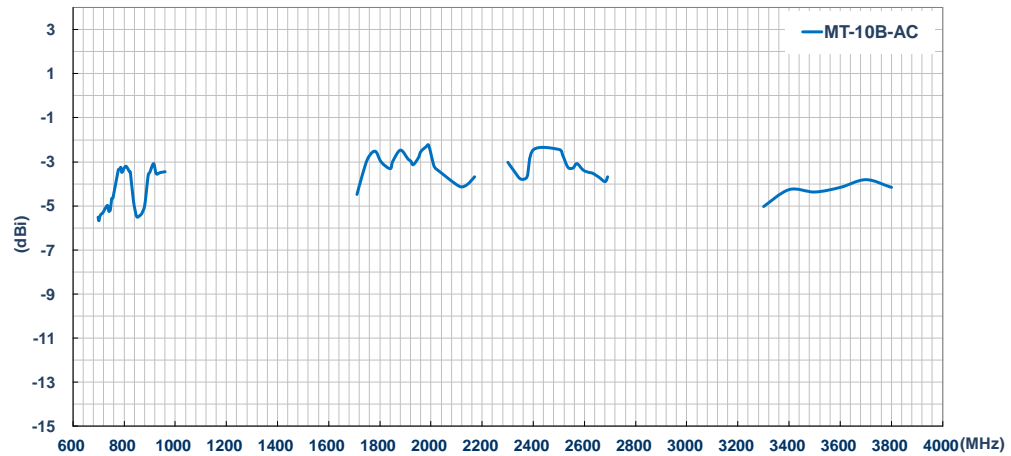
Peak Gain (dBi) – LTE 1



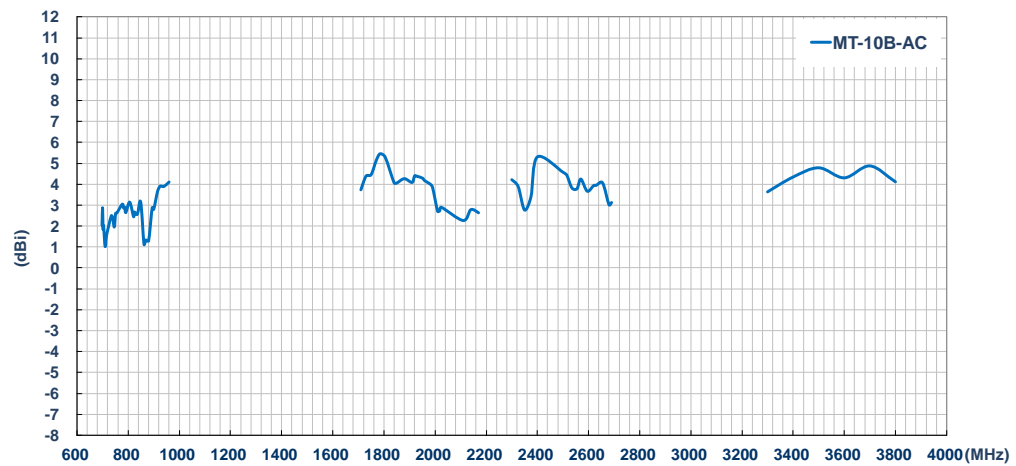
Efficiency (%) – LTE 2



Average Gain (dBi) – LTE 2

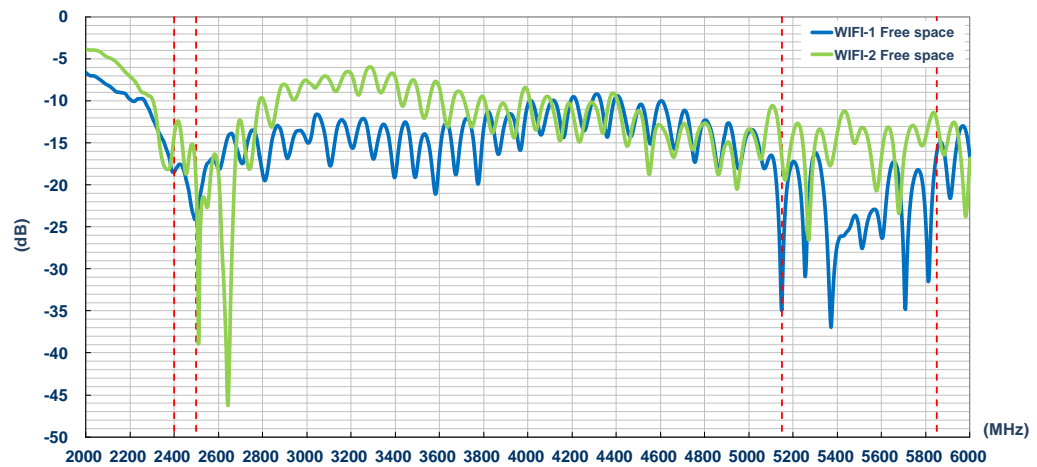


Peak Gain (dBi) – LTE 2

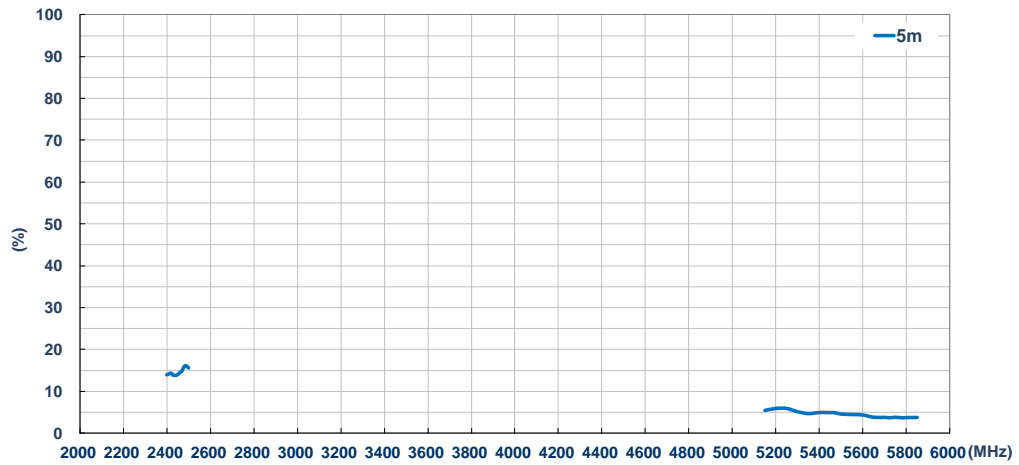


Free Space

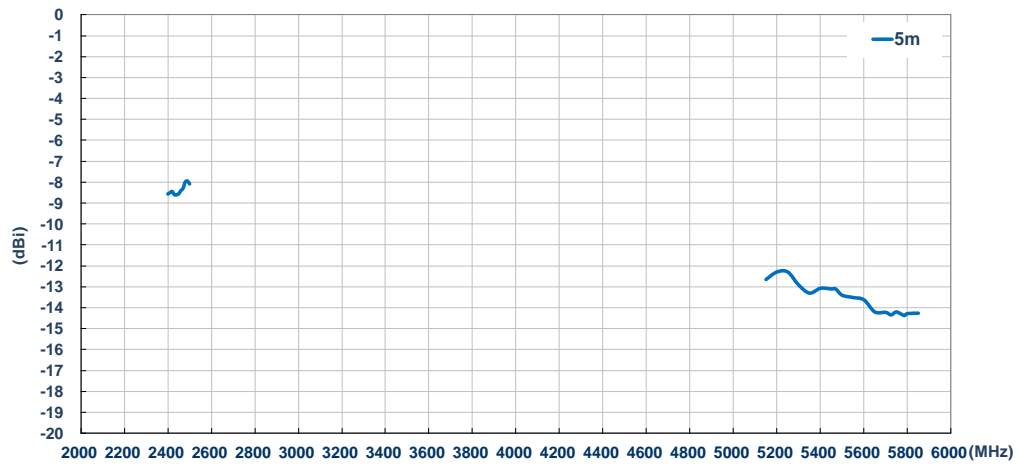
S11 (dB)- WiFi 1 & WiFi 2



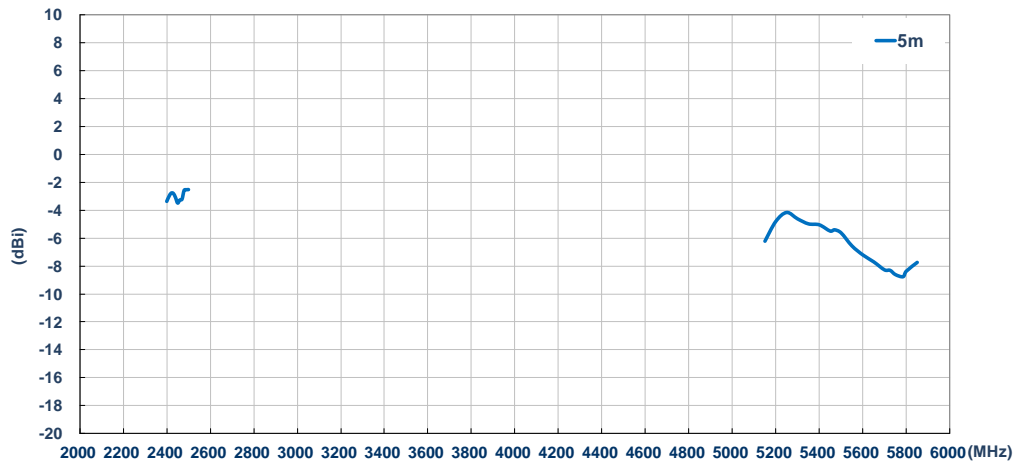
Efficiency (%) – WiFi 1



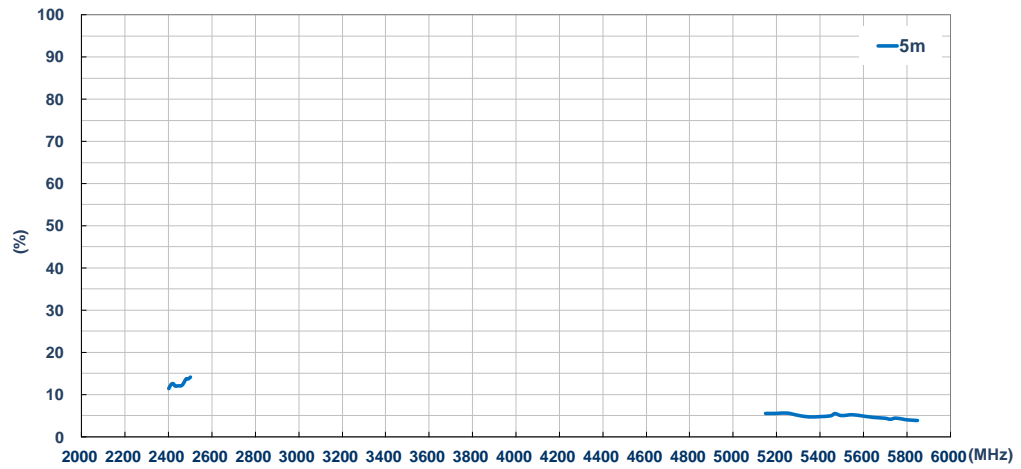
Average Gain (dBi) – WiFi 1



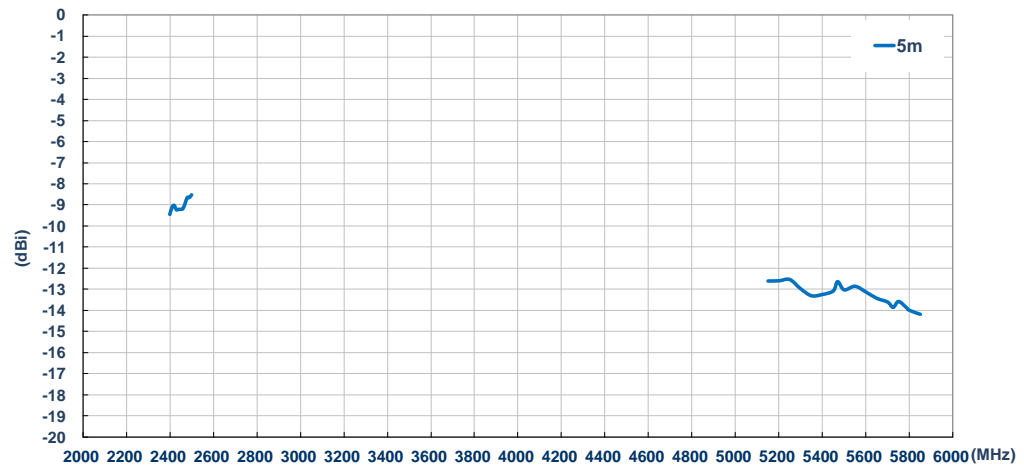
Peak Gain (dBi) – WiFi 1



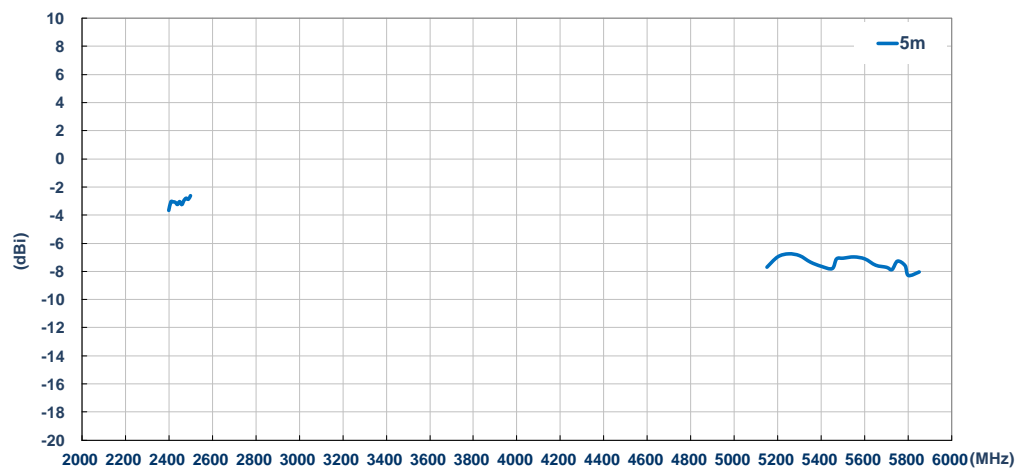
Efficiency (%) – WiFi 2



Average Gain (dBi) – WiFi 2

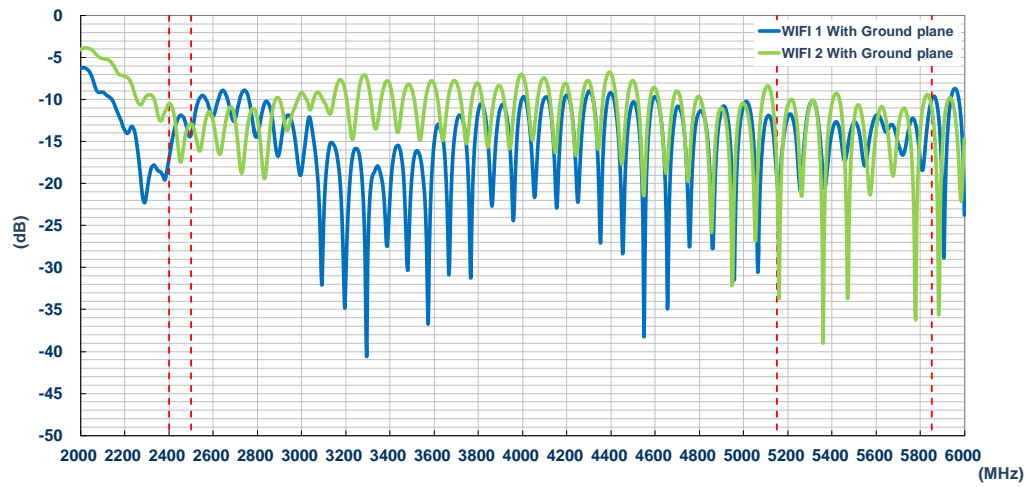


Peak Gain (dBi) – WiFi 2

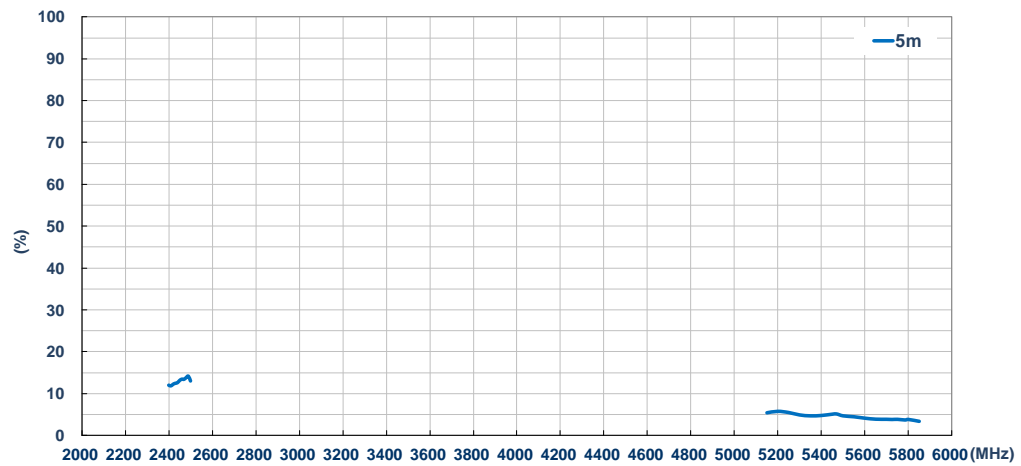


With Ground Plane

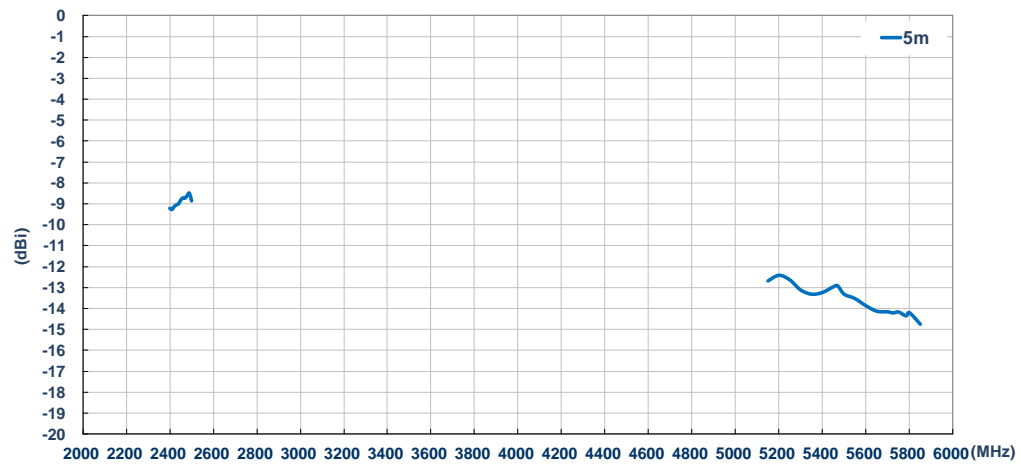
S11 (dB) - WiFi 1 & WiFi 2



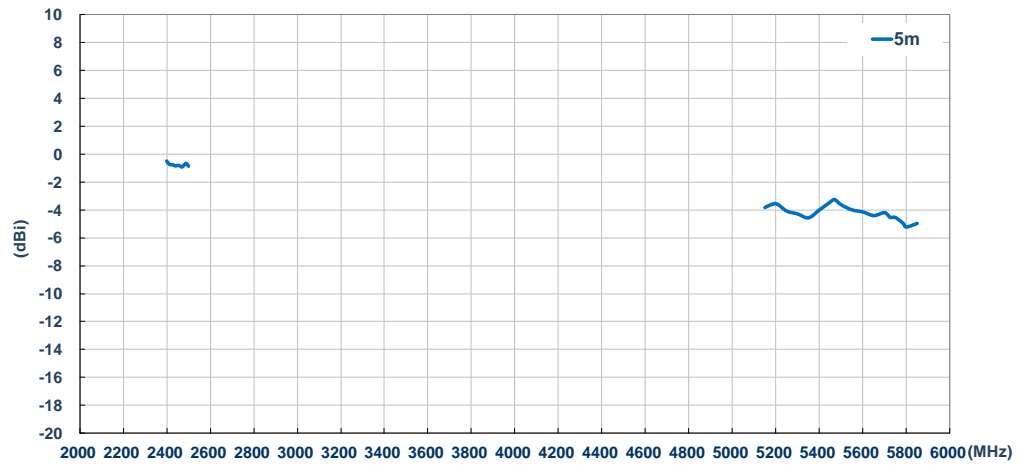
Efficiency (%) - WiFi 1



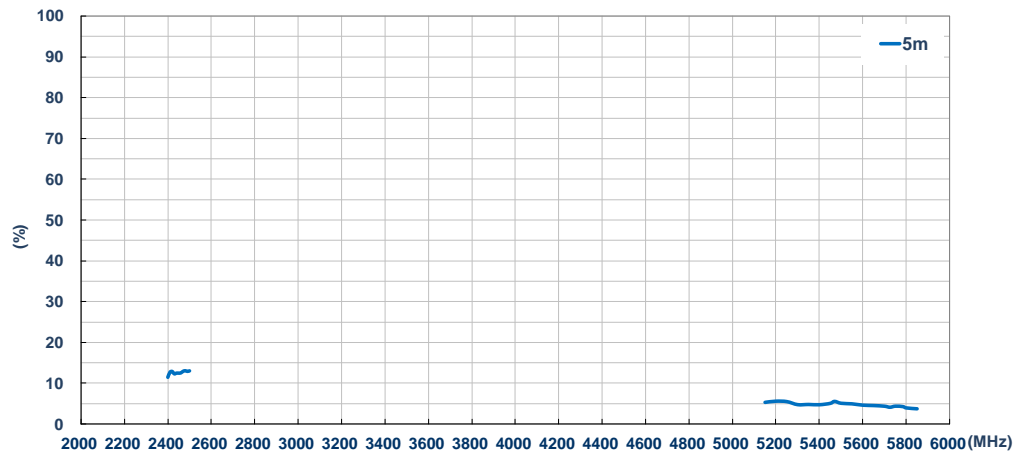
Average Gain (dBi) - WiFi 1



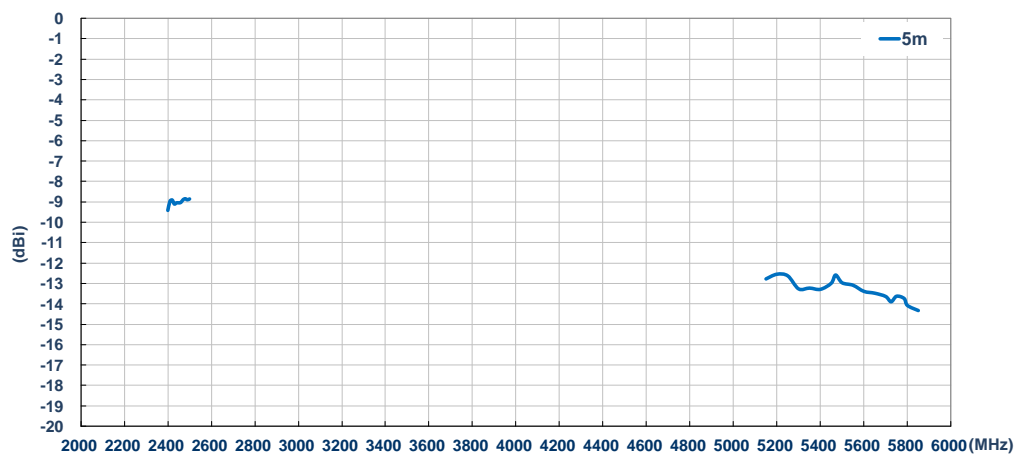
Peak Gain (dBi) - WiFi 1

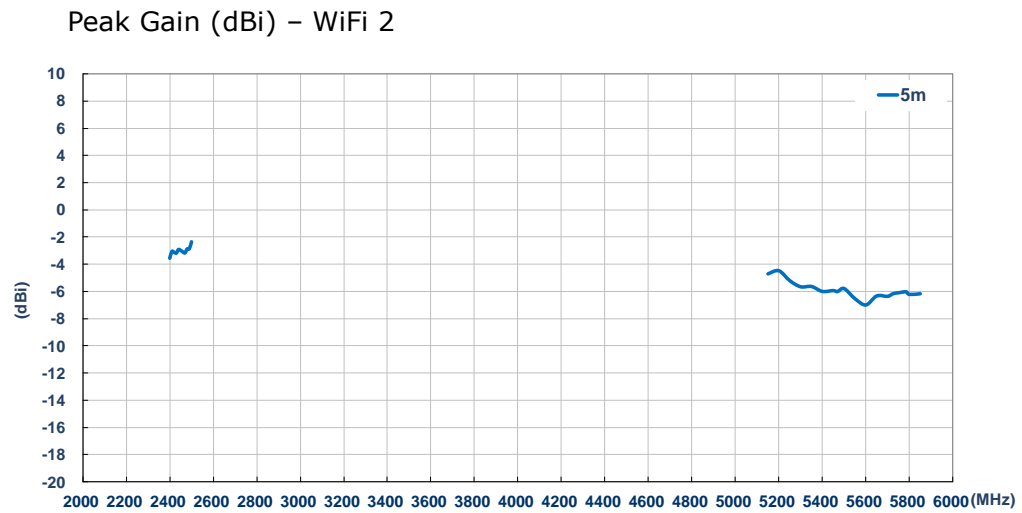


Efficiency (%) - WiFi 2



Average Gain (dBi) - WiFi 2



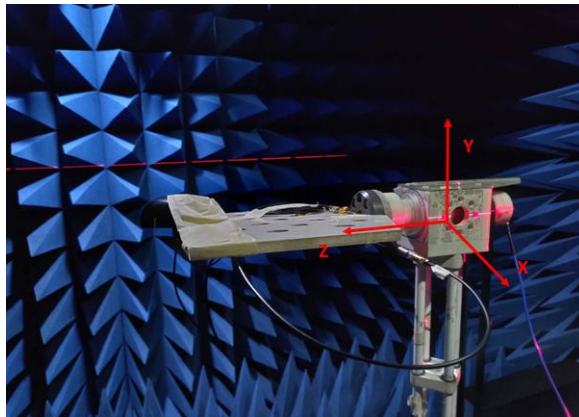


III. Antenna Radiation Pattern Measurement:

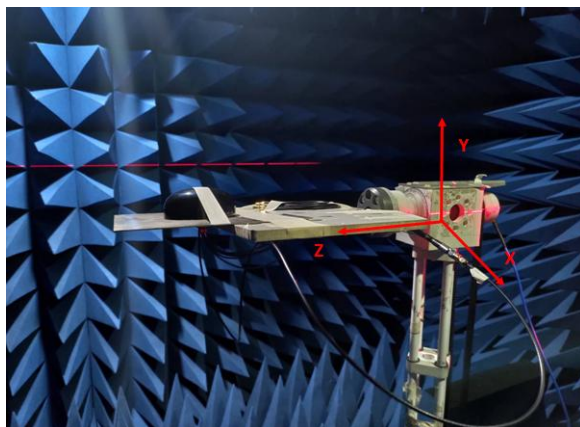
The antenna radiation patterns were measured in Anechoic Chamber.

The measurement setup as below,

Free Space

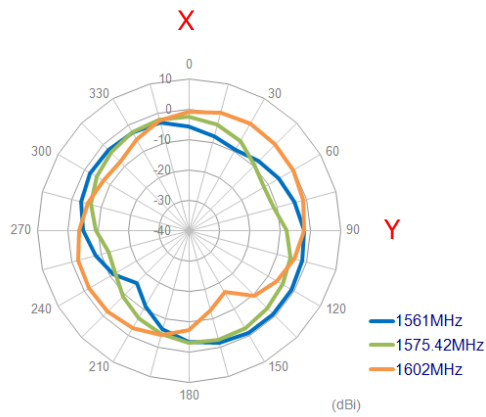


With 30*30cm Ground Plane

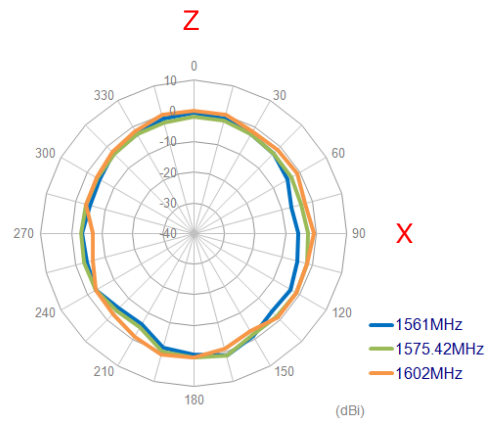


IV. 2D Radiation Pattern:

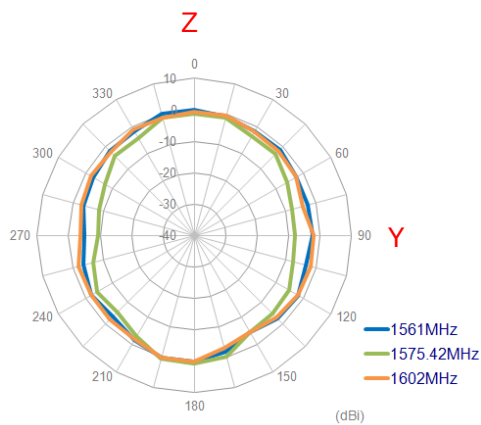
GNSS X-Y Plane



GNSS X-Z Plane

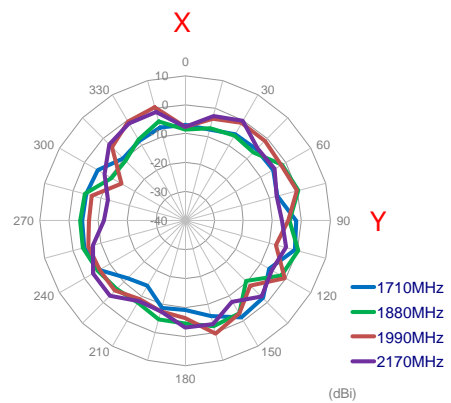
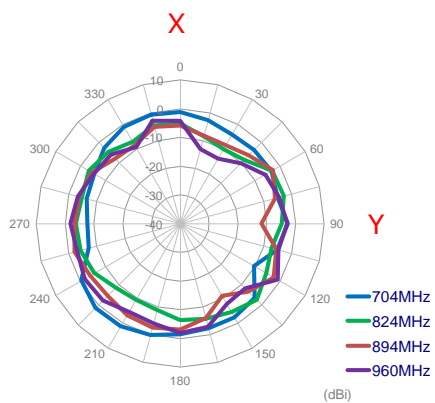


GNSS Y-Z Plane

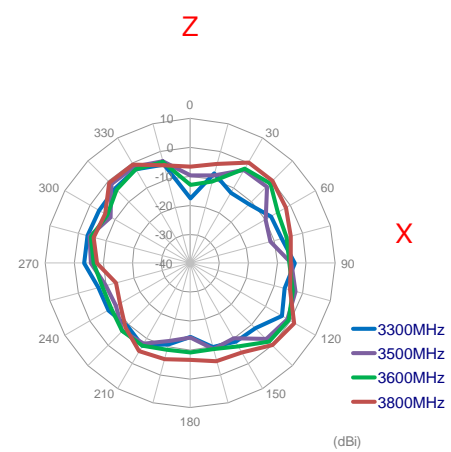
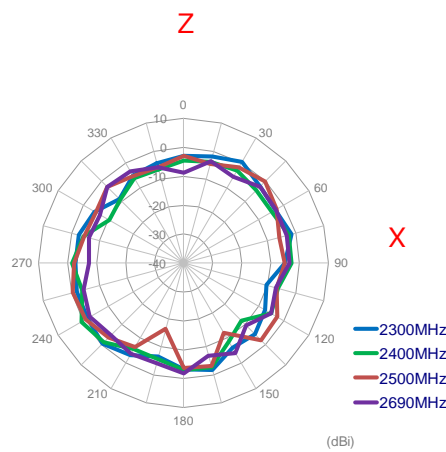
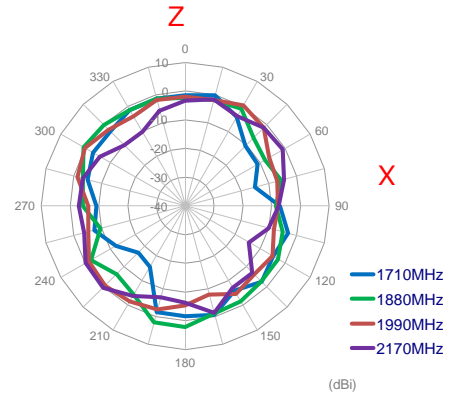
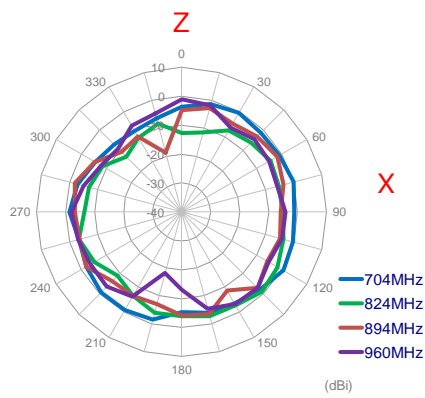
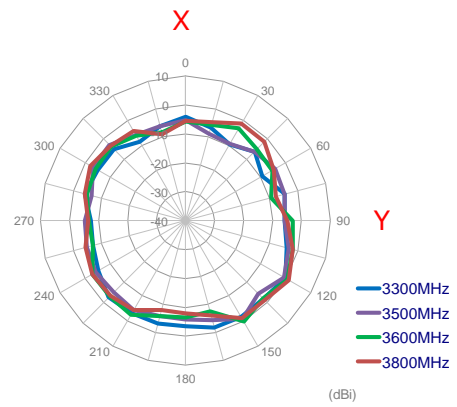
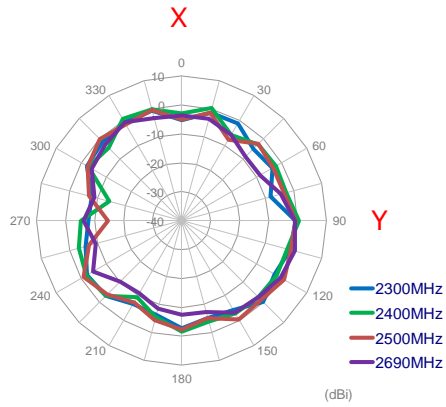


Free Space - LTE 1

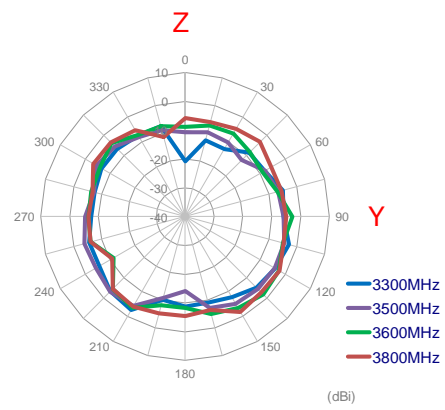
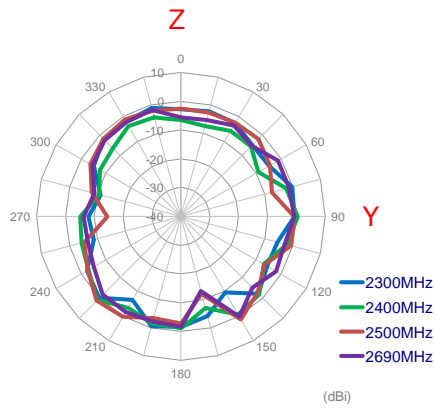
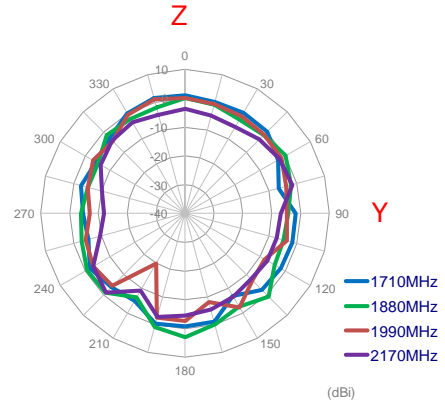
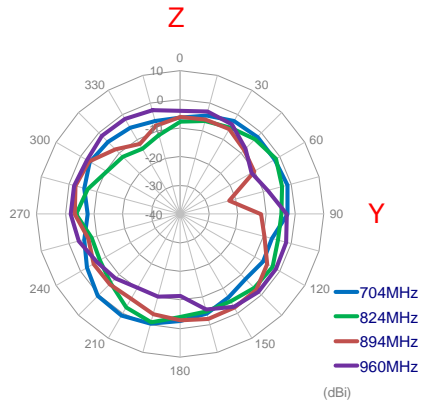
X-Y Plane



All specifications subject to change without notice.

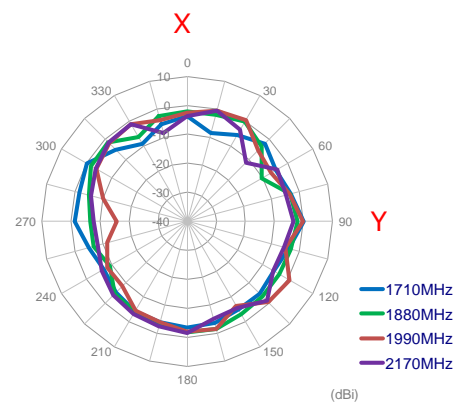
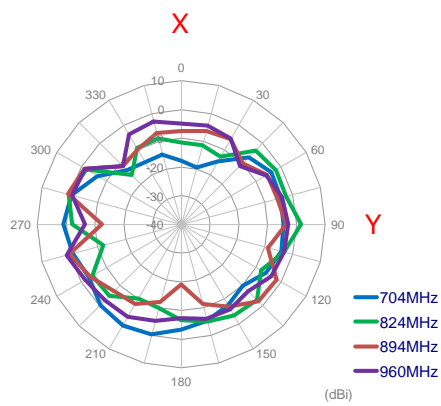


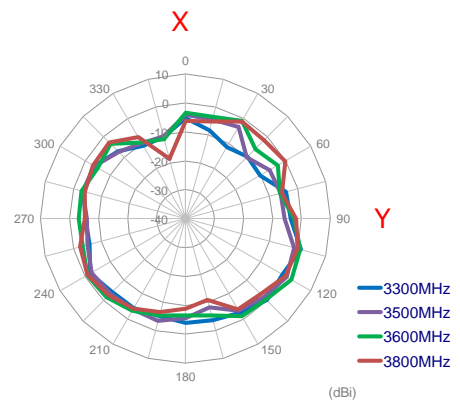
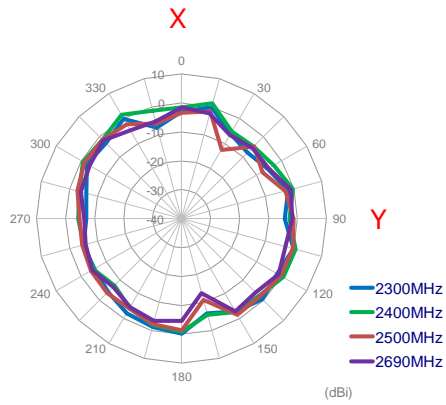
Y-Z Plane



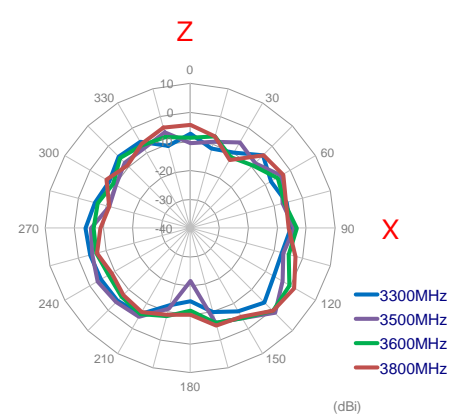
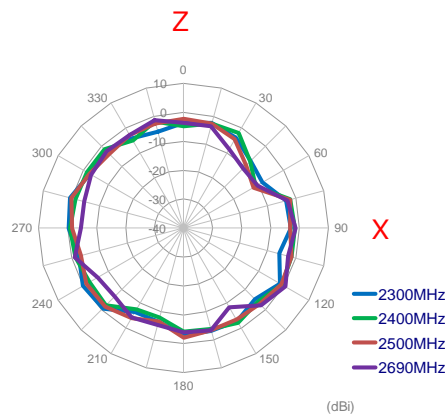
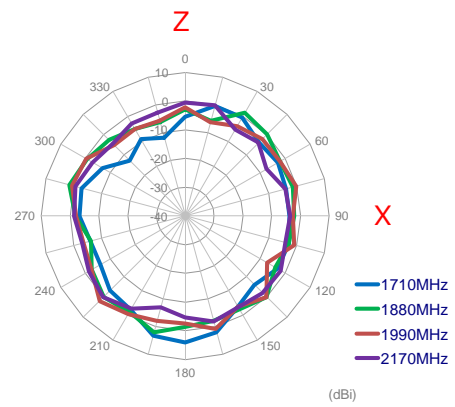
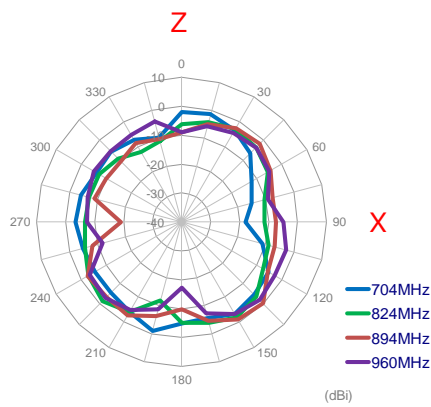
Free Space - LTE 2

X-Y Plane

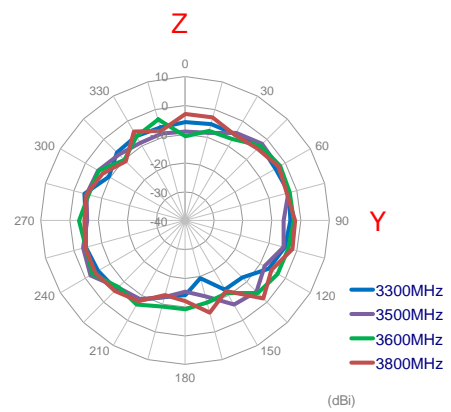
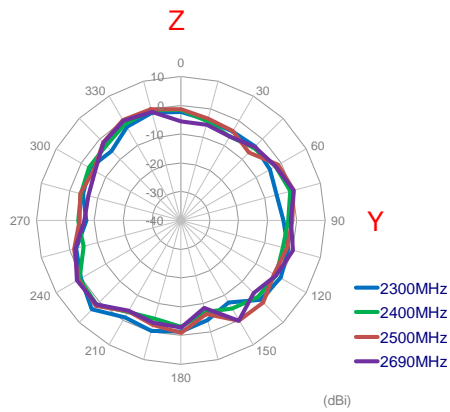
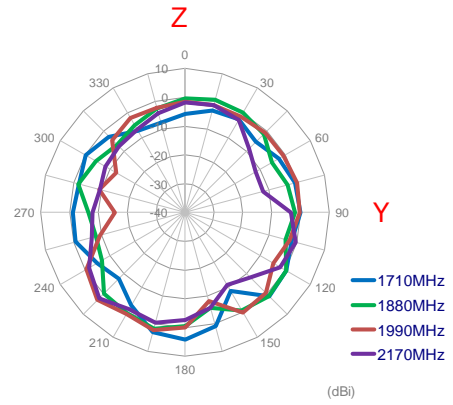
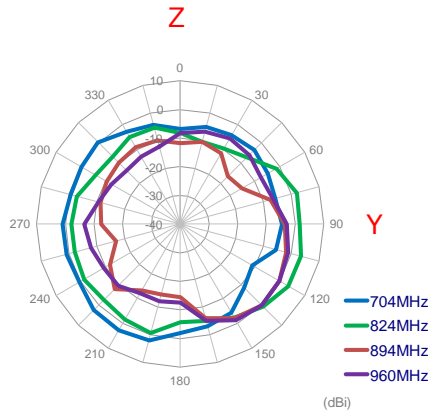




X-Z Plane

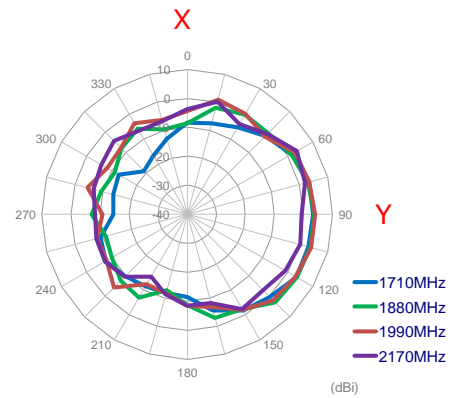
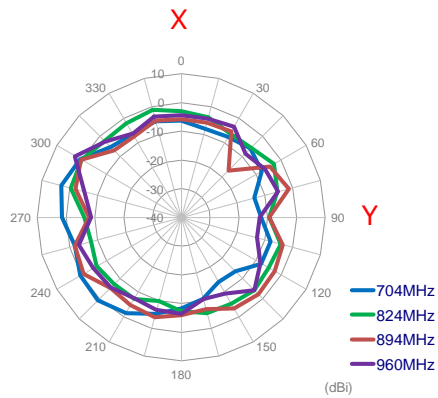


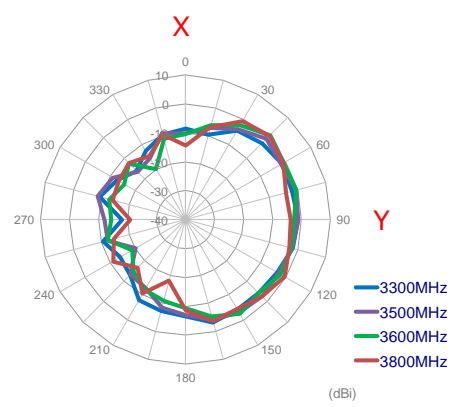
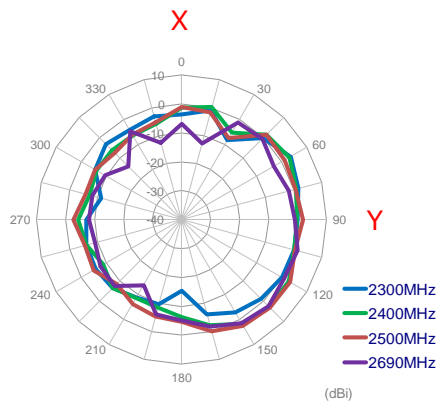
Y-Z Plane



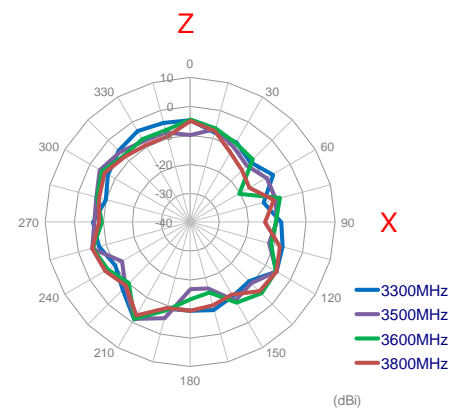
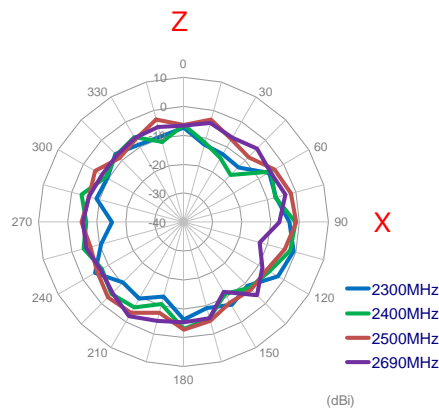
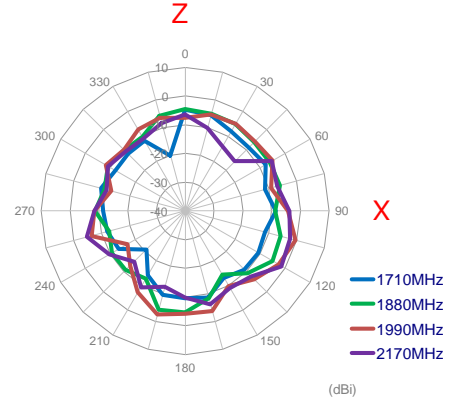
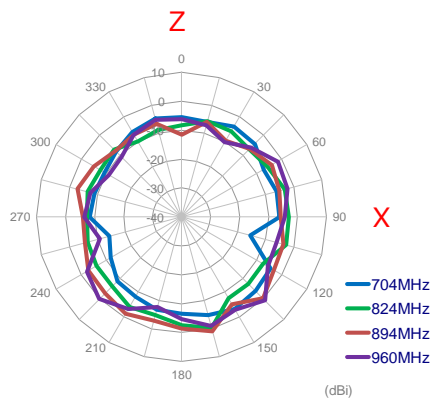
With Ground Plane - LTE 1

X-Y Plane

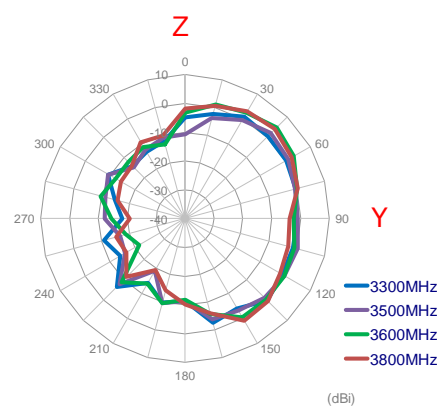
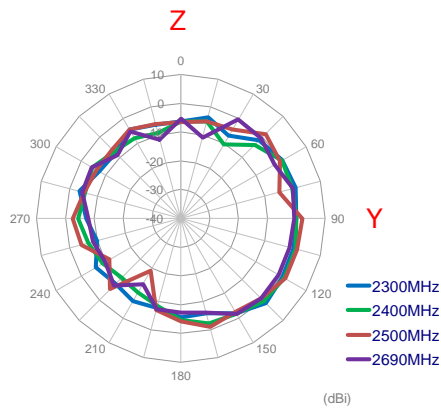
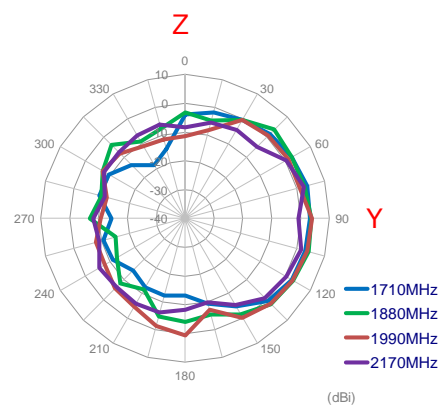
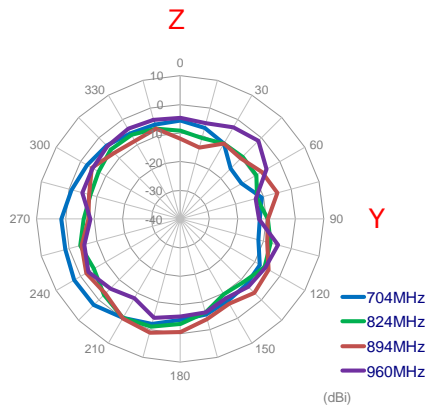




X-Z Plane

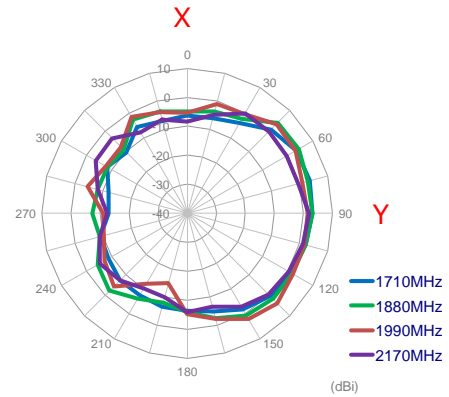
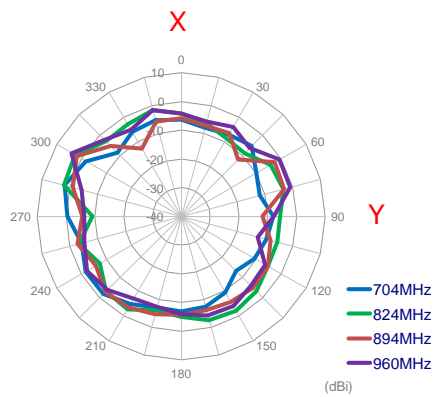


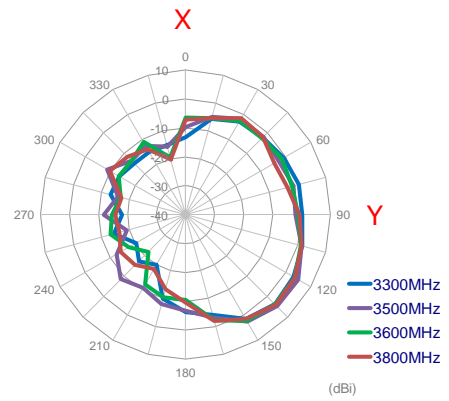
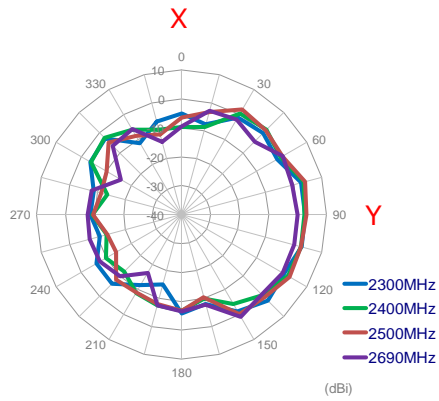
Y-Z Plane



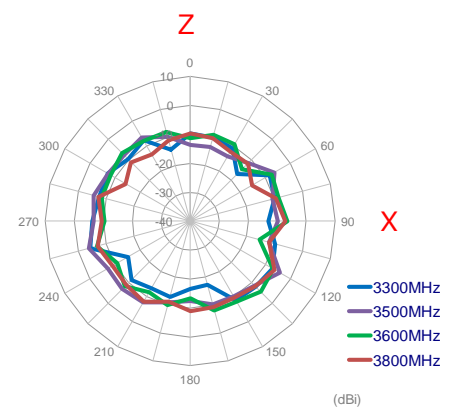
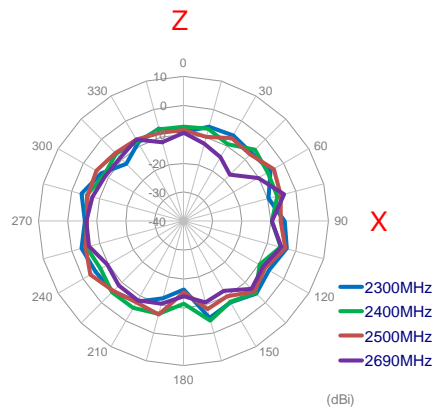
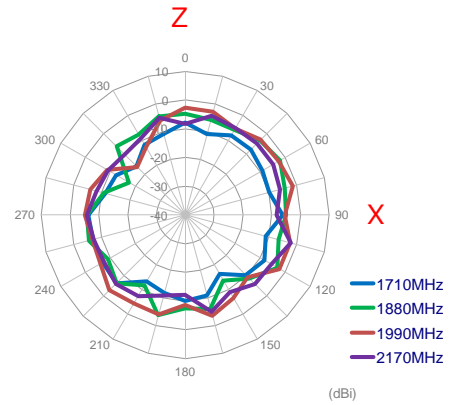
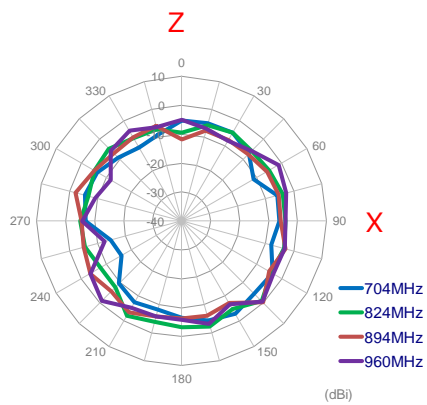
With Ground Plane - LTE 2

X-Y Plane

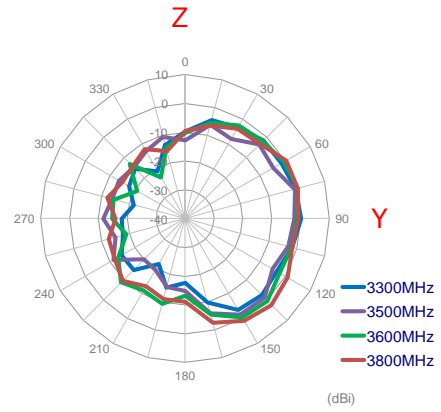
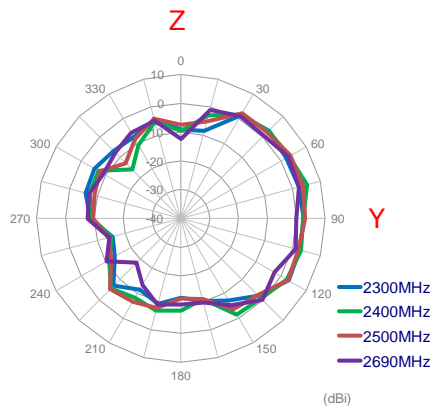
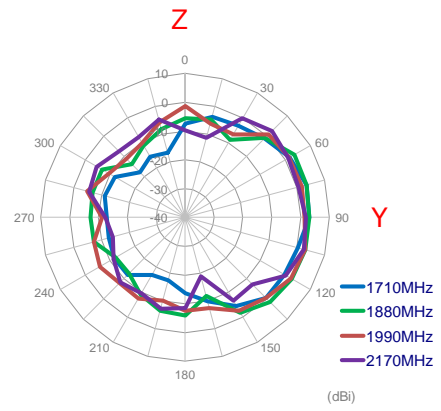
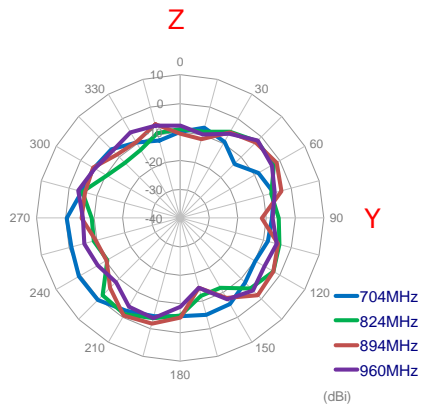




X-Z Plane

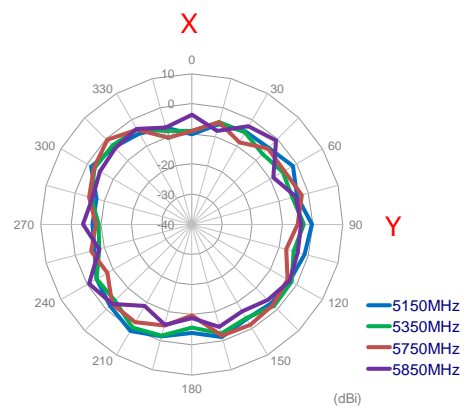
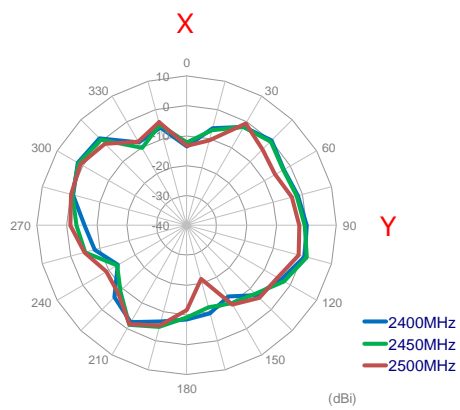


Y-Z Plane

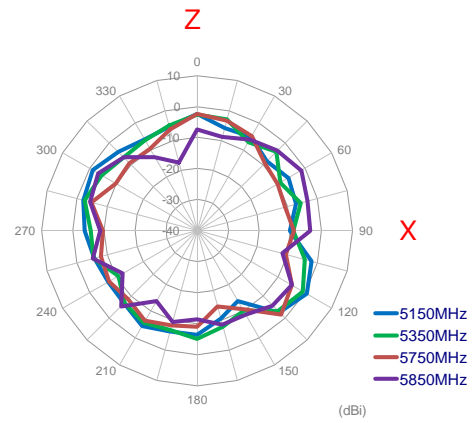
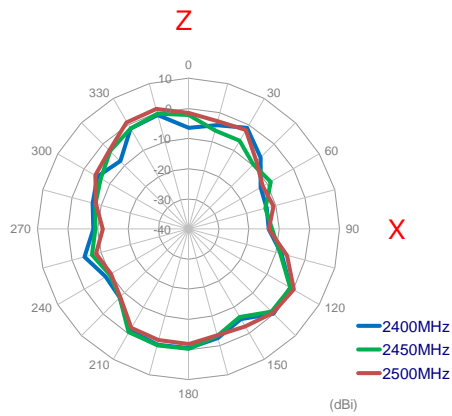


Free Space – WiFi 1

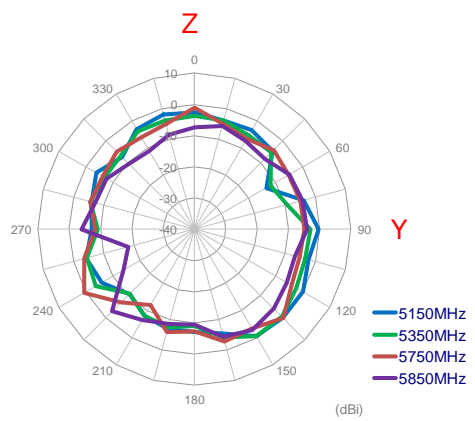
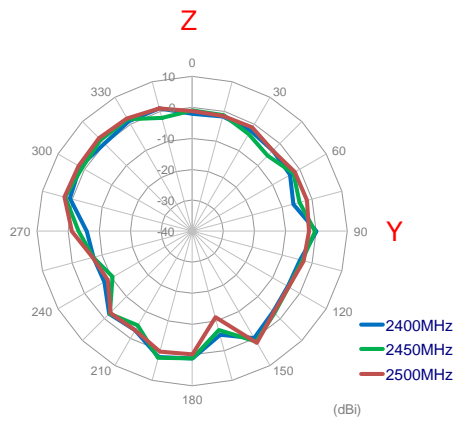
X-Y Plane



X-Z Plane

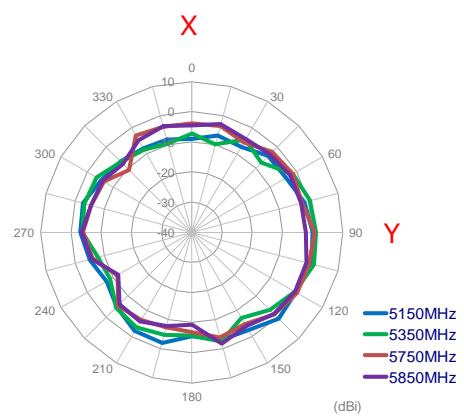
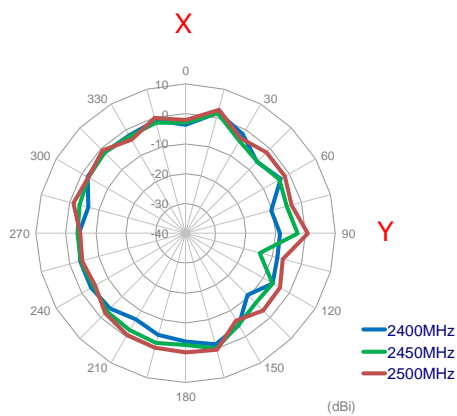


Y-Z Plane

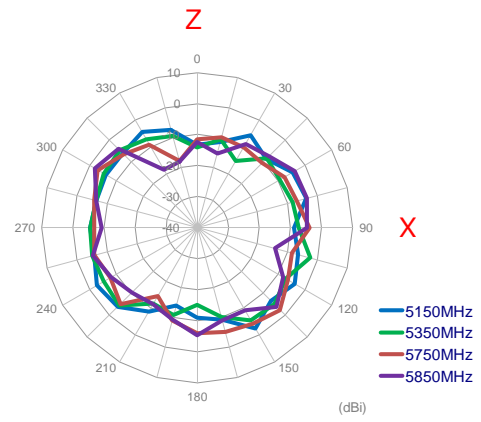
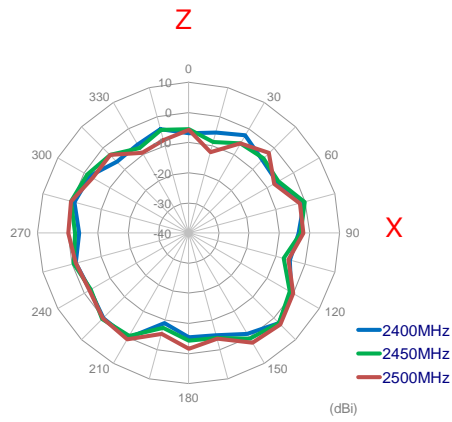


Free Space – WiFi 2

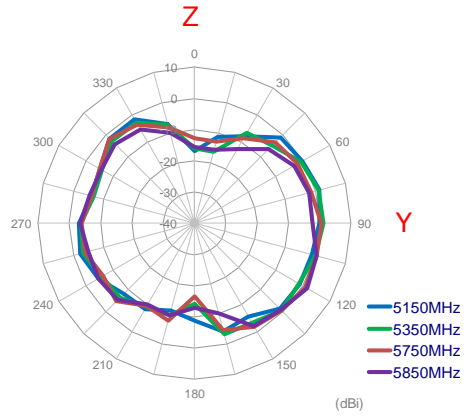
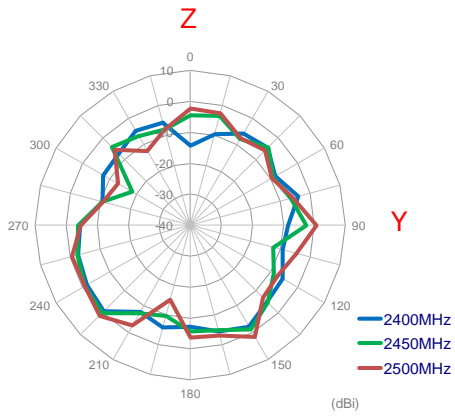
X-Y Plane



X-Z Plane

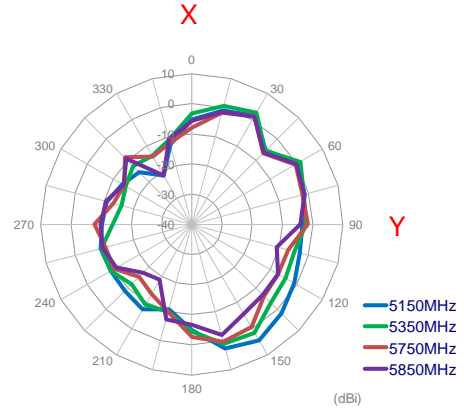
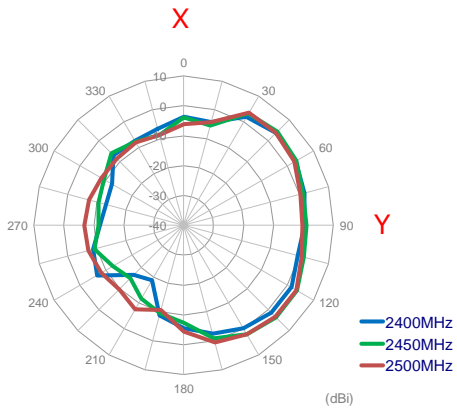


Y-Z Plane

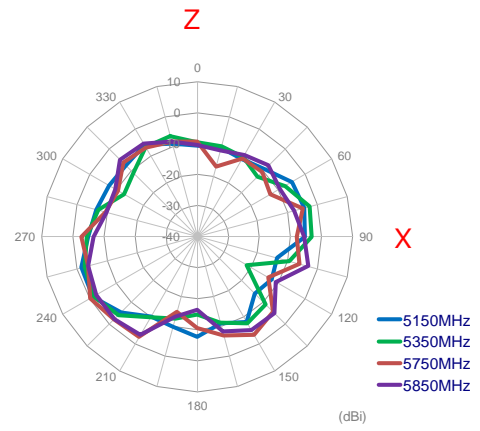
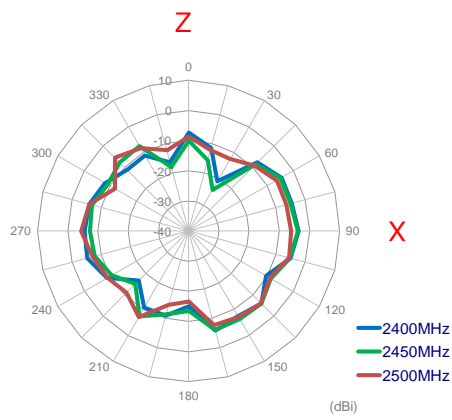


With Ground Plane – WiFi 1

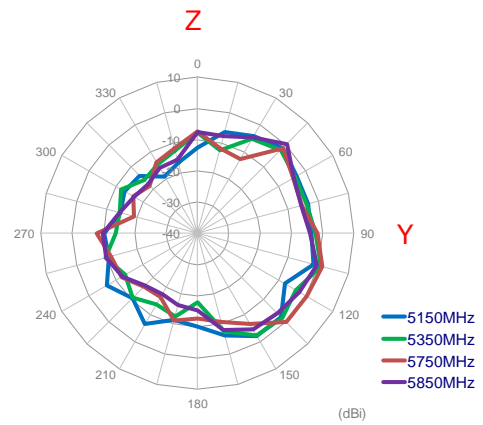
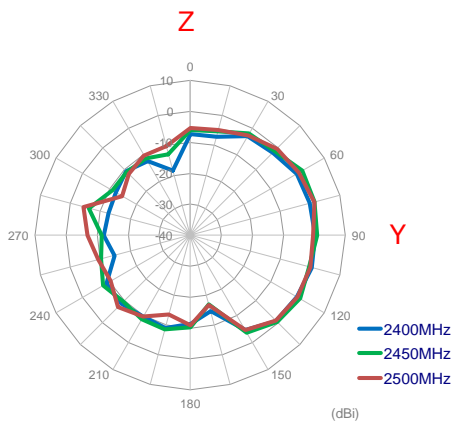
X-Y Plane



X-Z Plane

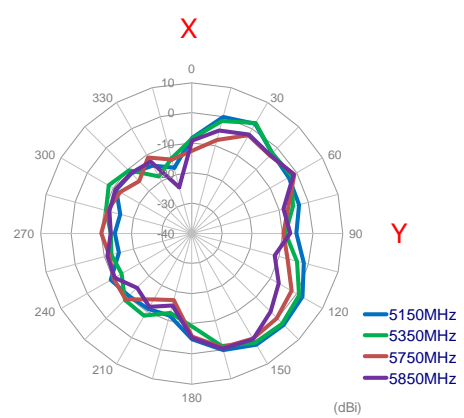
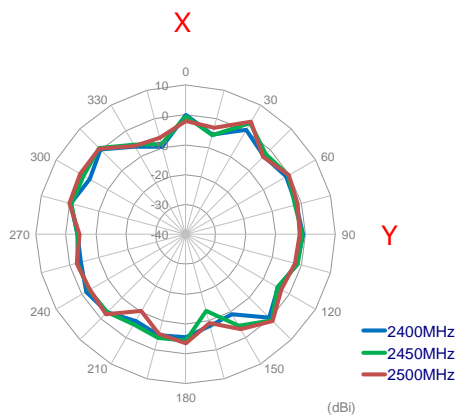


Y-Z Plane

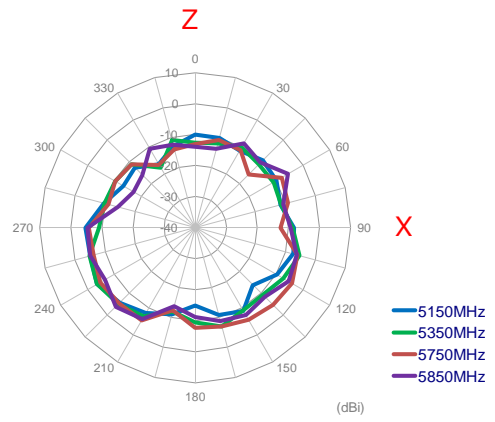
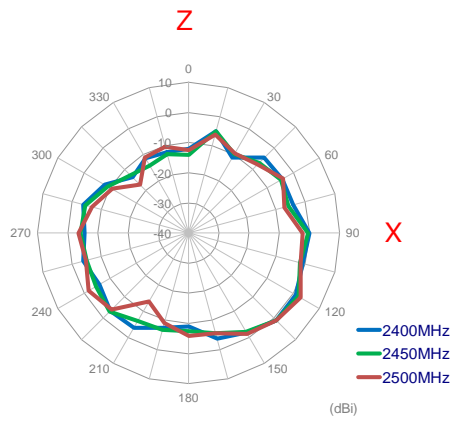


With Ground Plane – WiFi 2

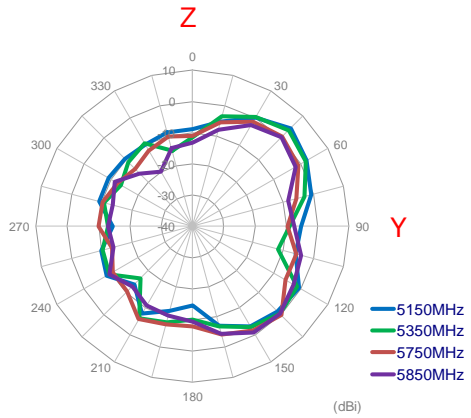
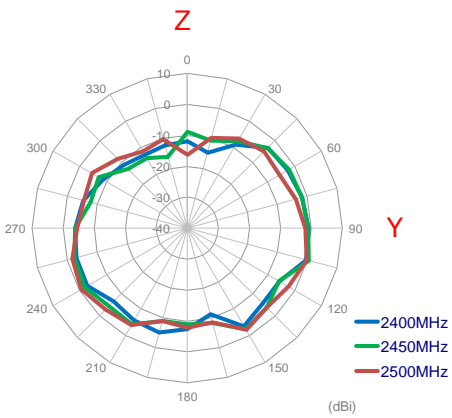
X-Y Plane



X-Z Plane



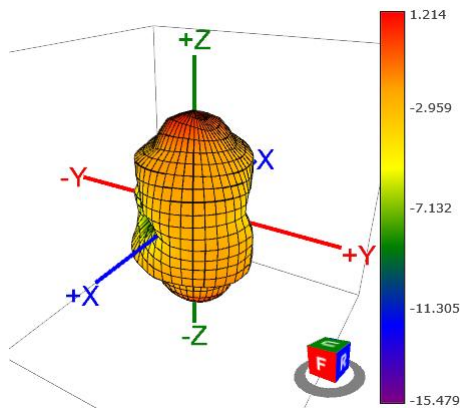
Y-Z Plane



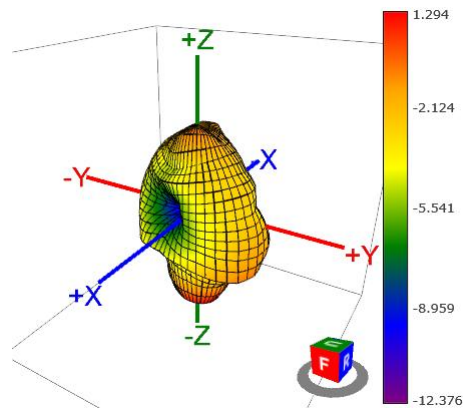
V. 3D Radiation Pattern:

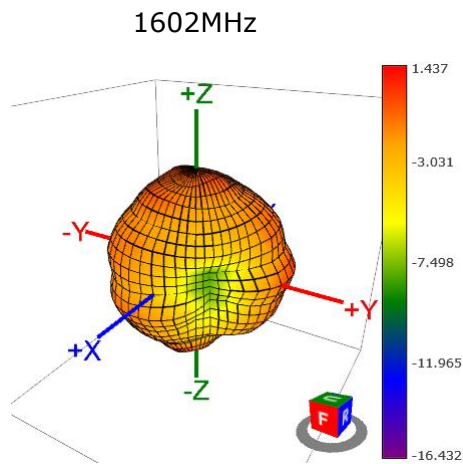
GNSS

1561MHz

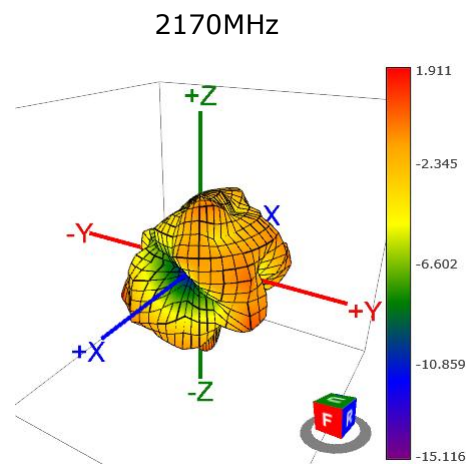
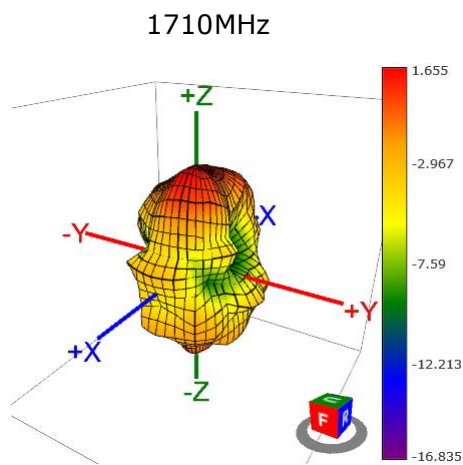
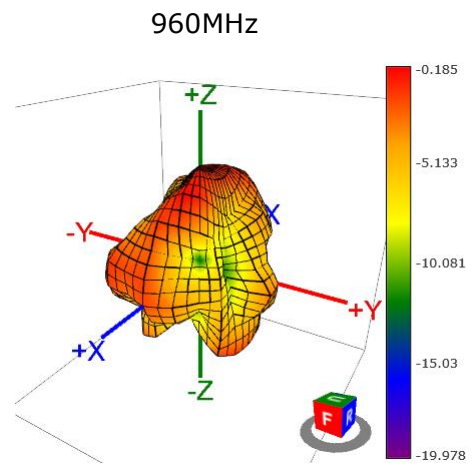
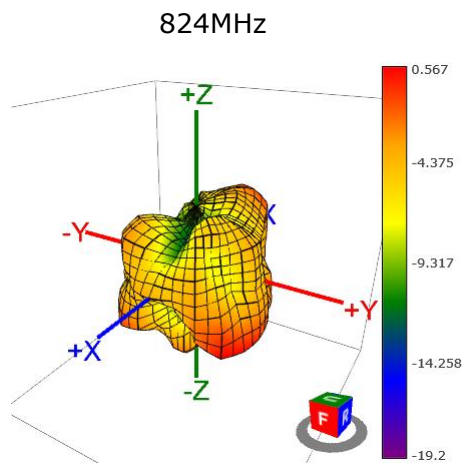


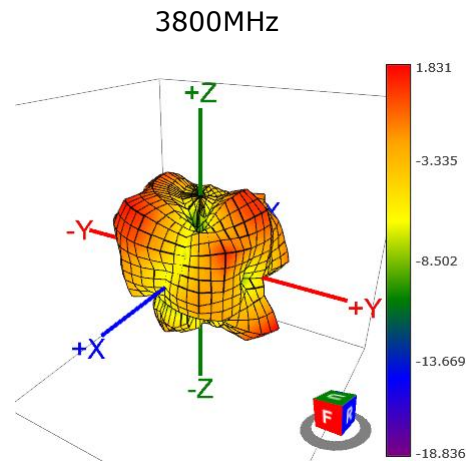
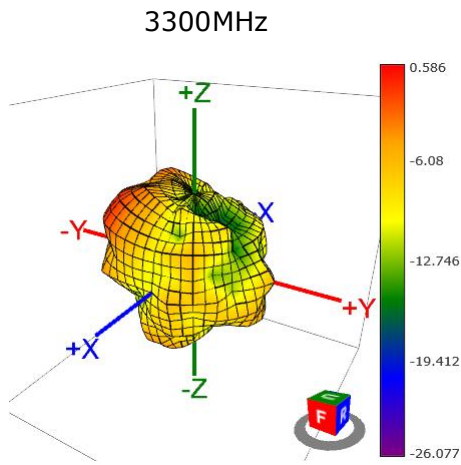
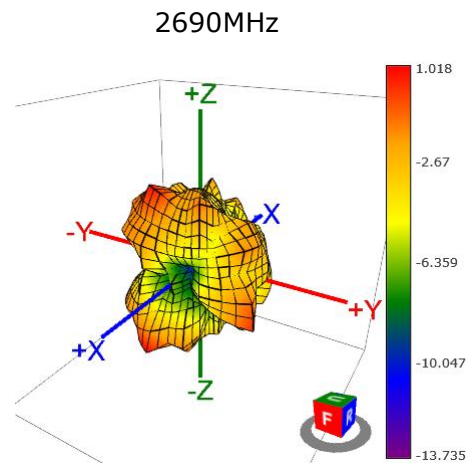
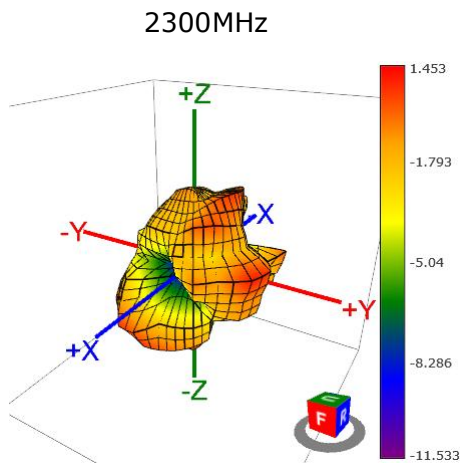
1575.42MHz



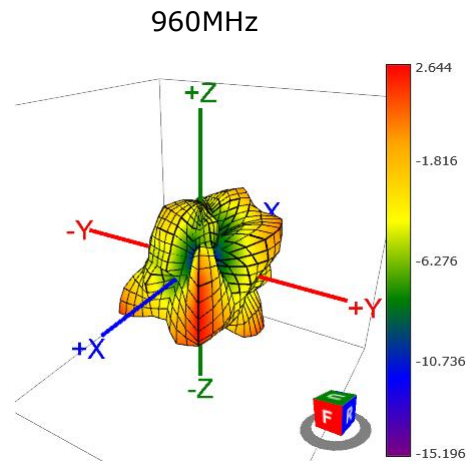
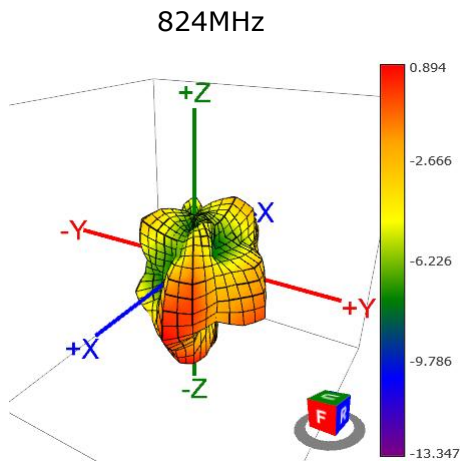


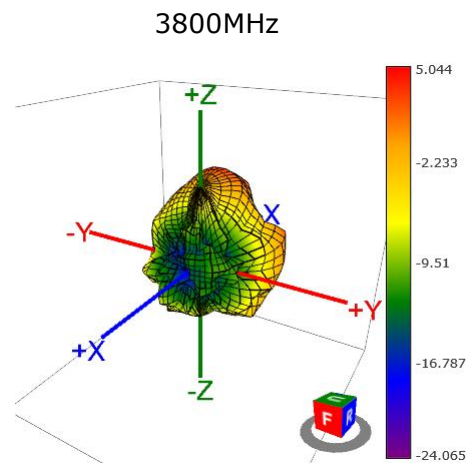
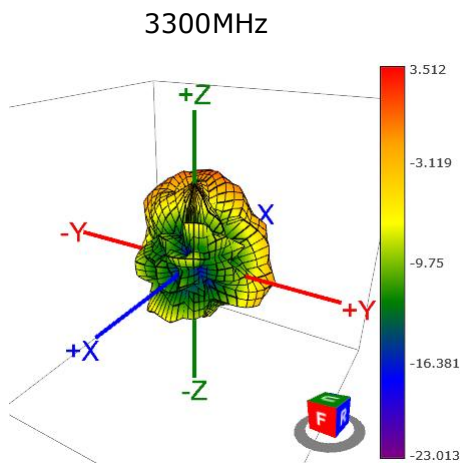
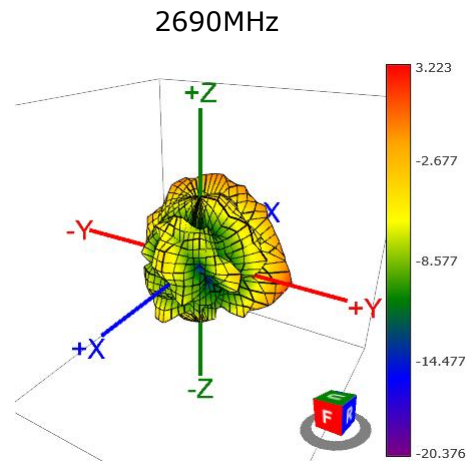
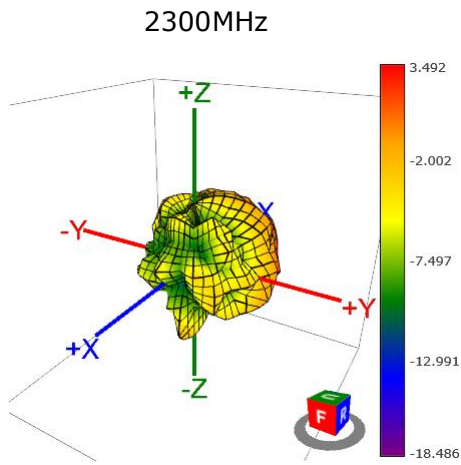
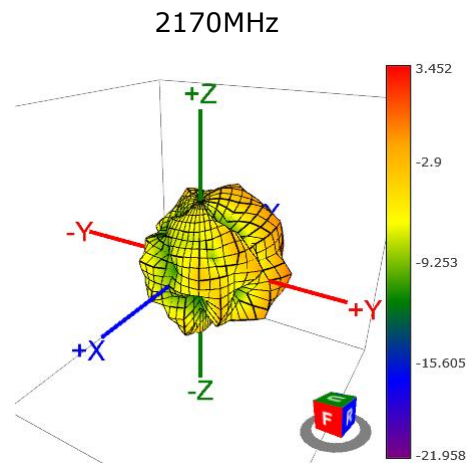
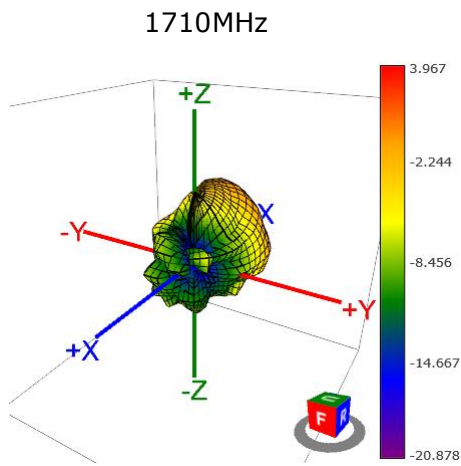
Free Space - LTE 1





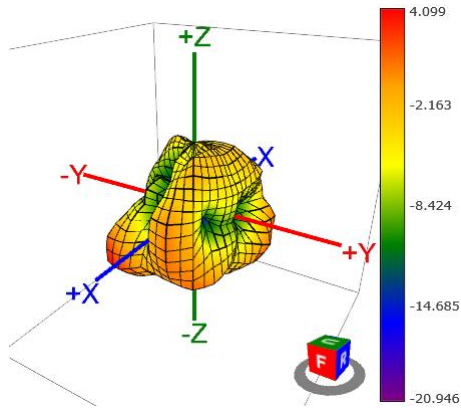
With Ground Plane - LTE 1



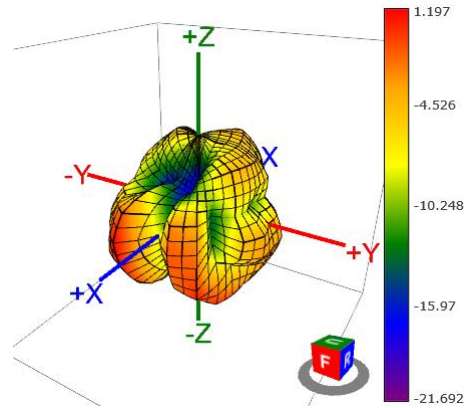


Free Space - LTE 2

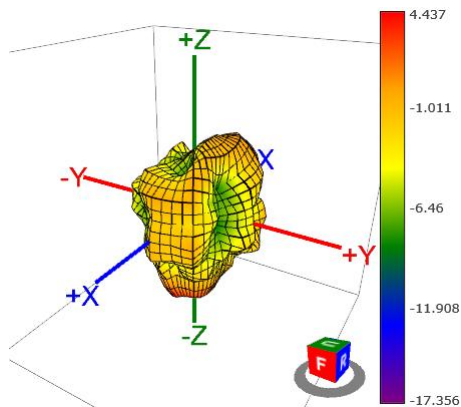
824MHz



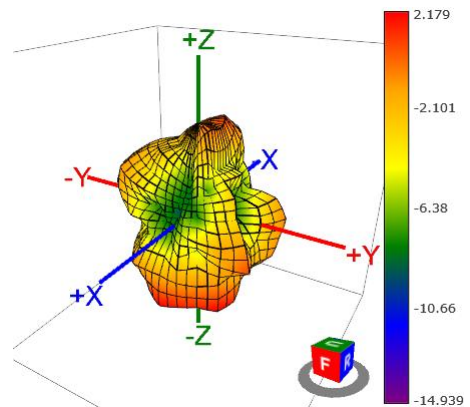
960MHz



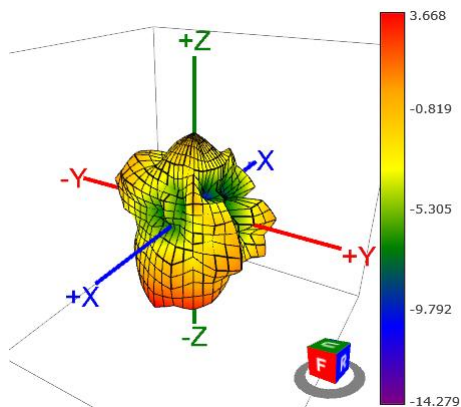
1710MHz



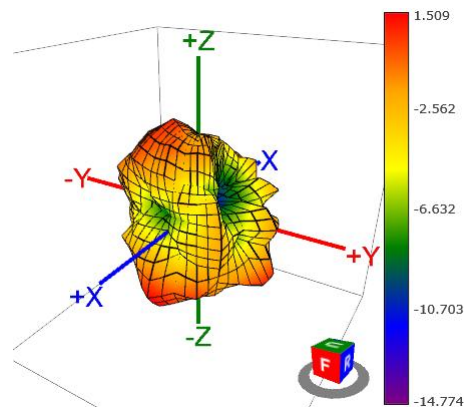
2170MHz



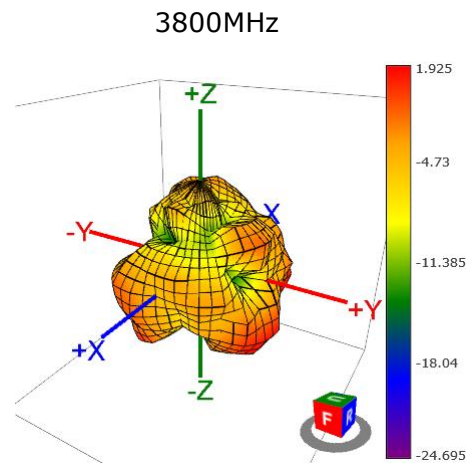
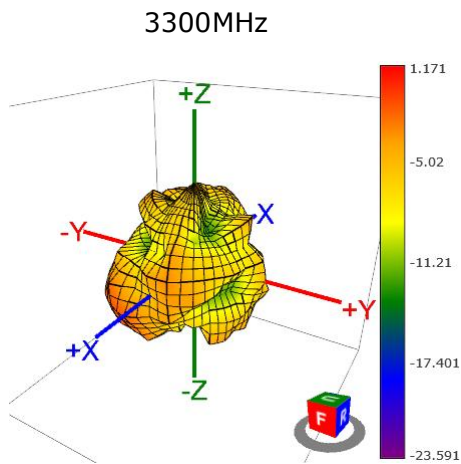
2300MHz



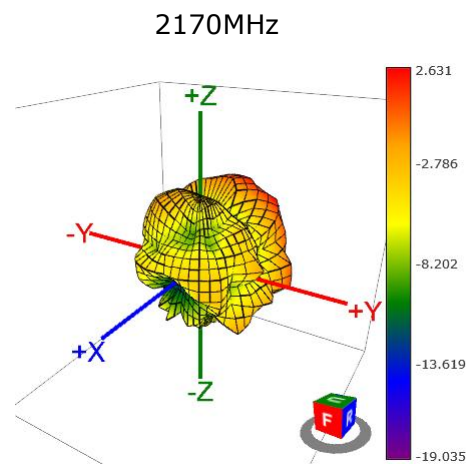
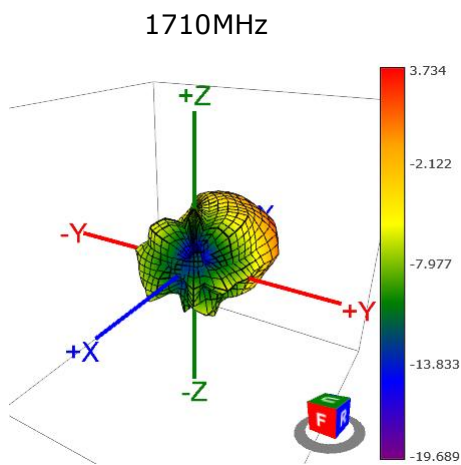
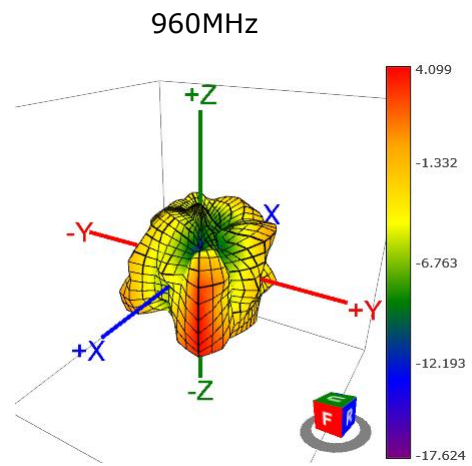
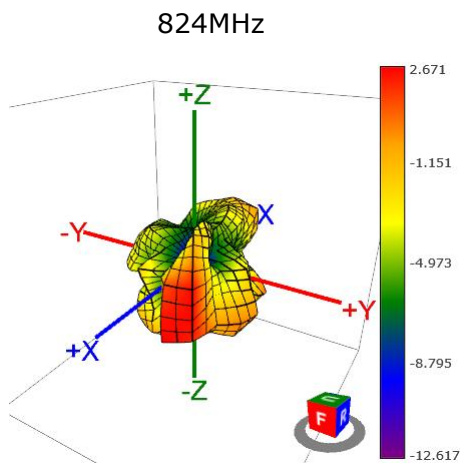
2690MHz

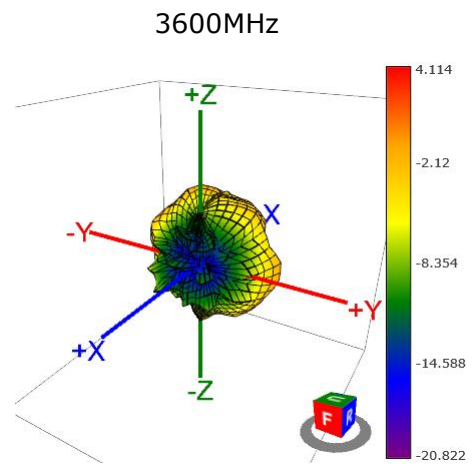
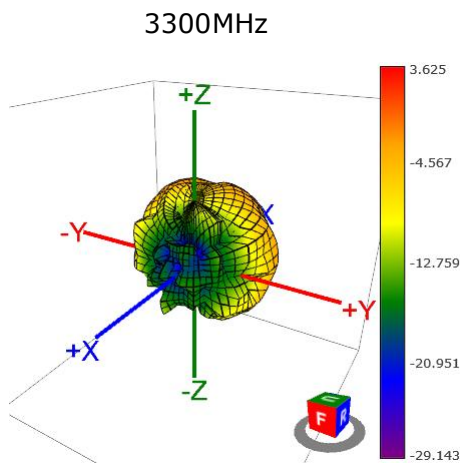
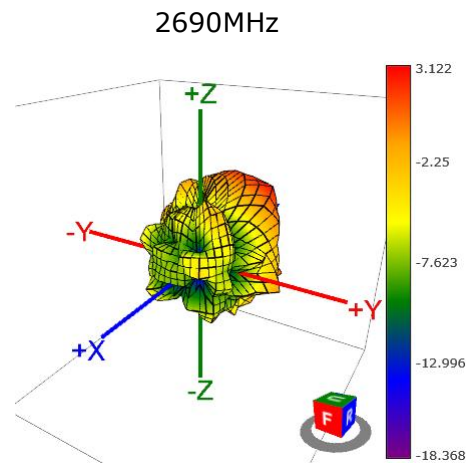
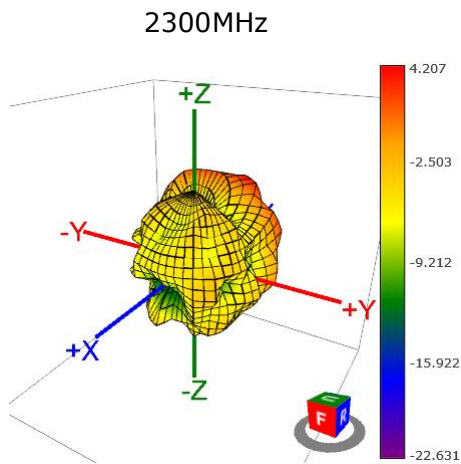


All specifications subject to change without notice.

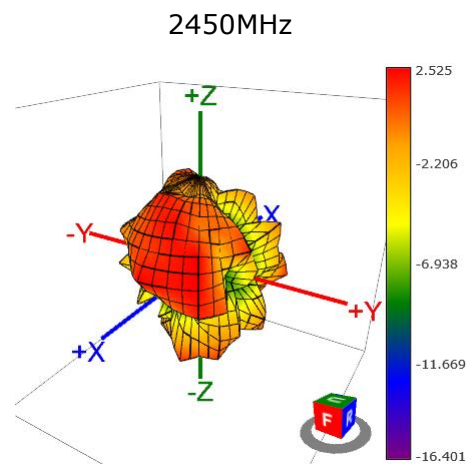
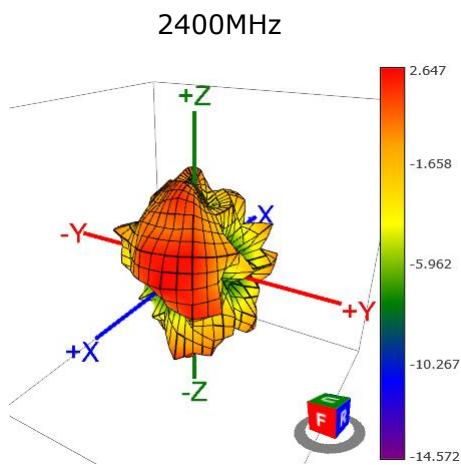


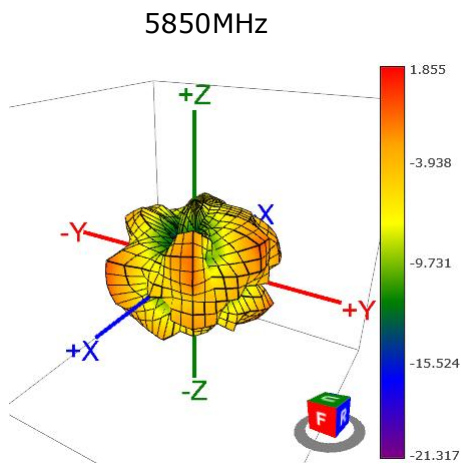
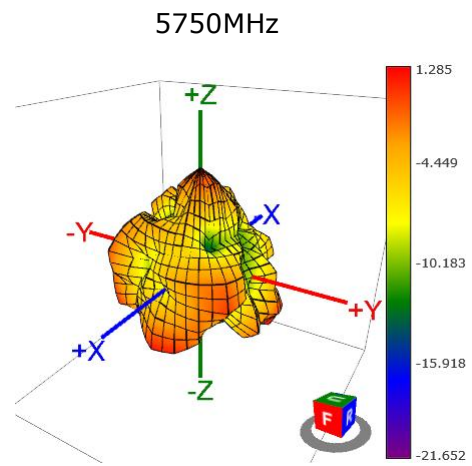
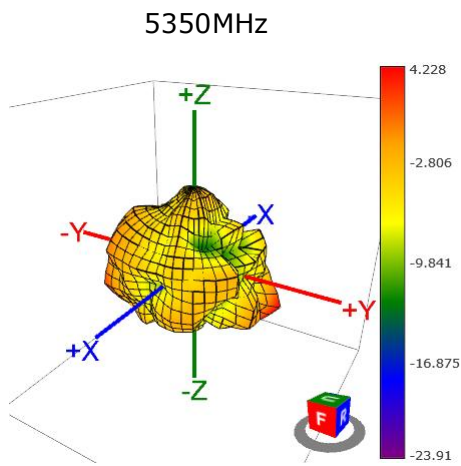
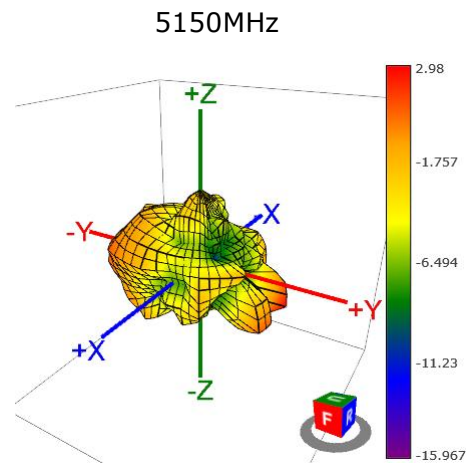
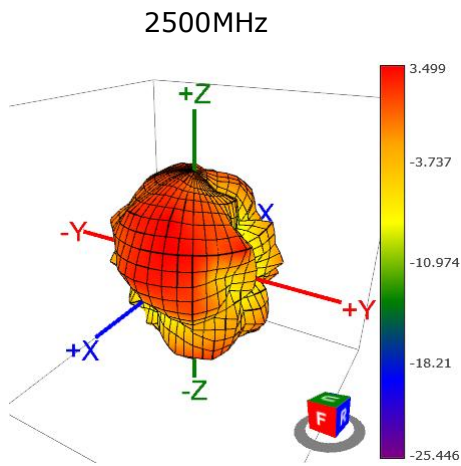
With Ground Plane - LTE 2





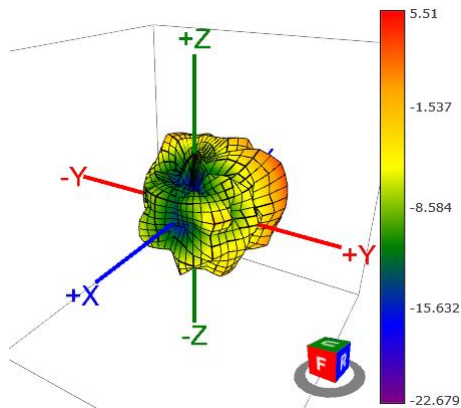
Free Space - WiFi 1



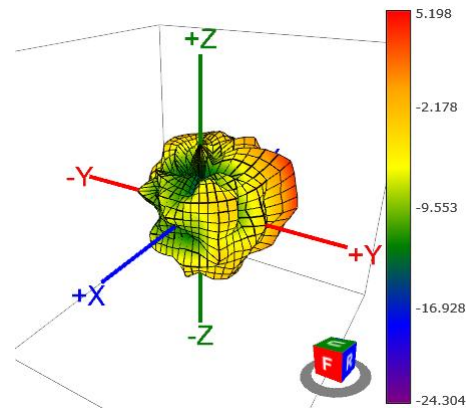


With Ground Plane – WiFi 1

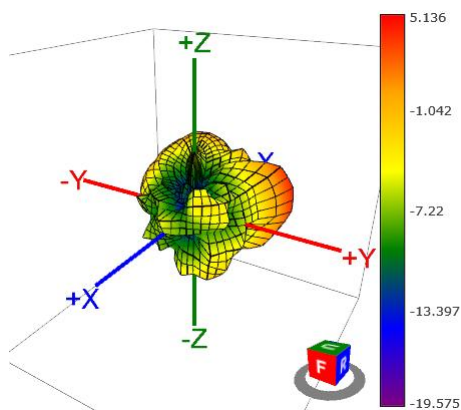
2400MHz



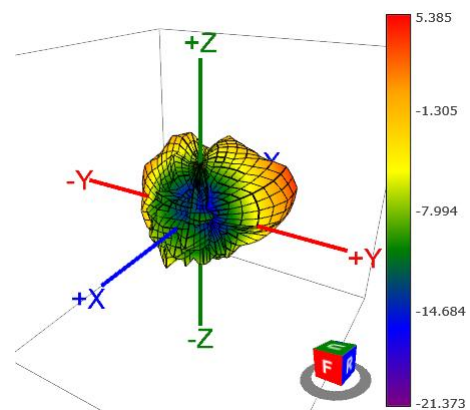
2450MHz



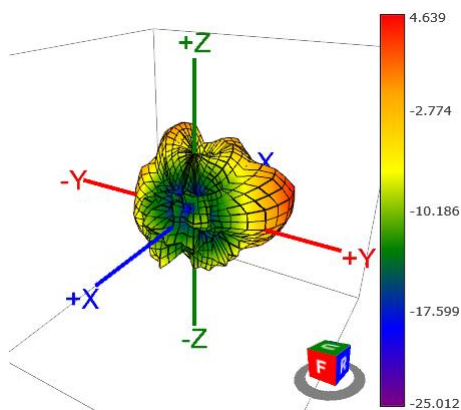
2500MHz



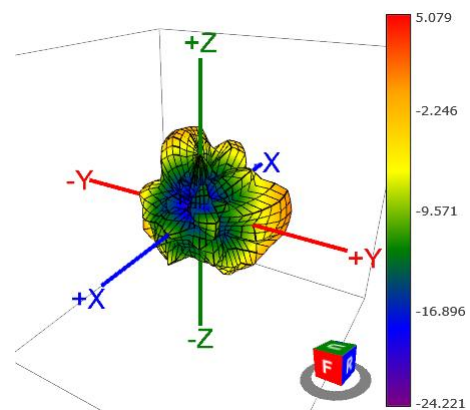
5150MHz



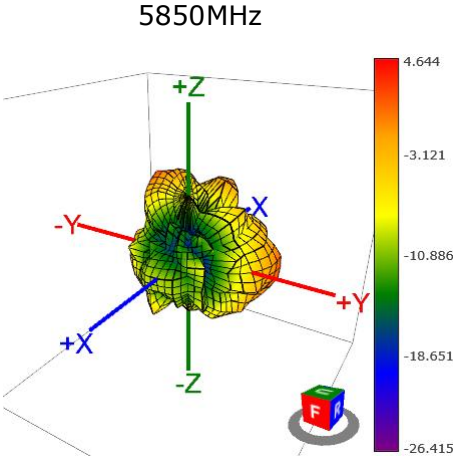
5350MHz



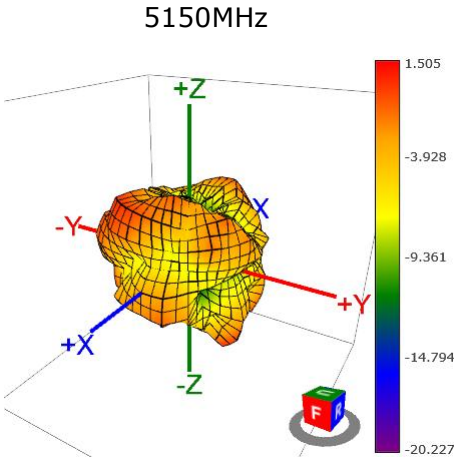
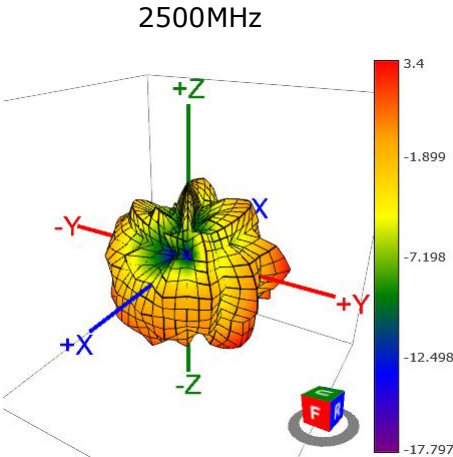
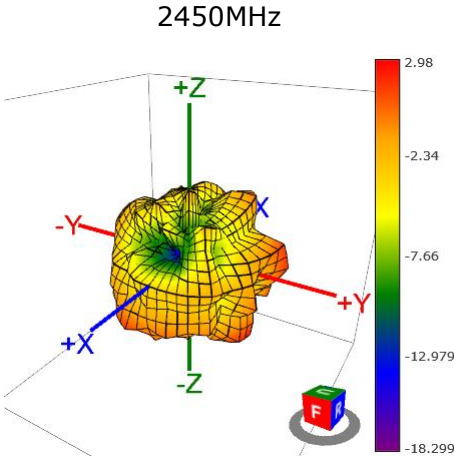
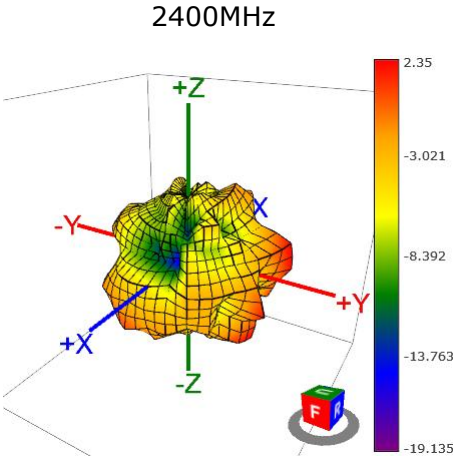
5750MHz

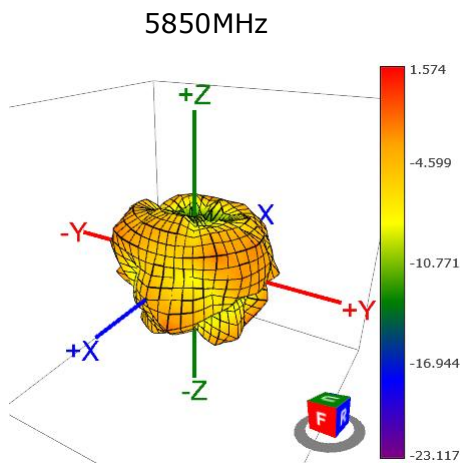
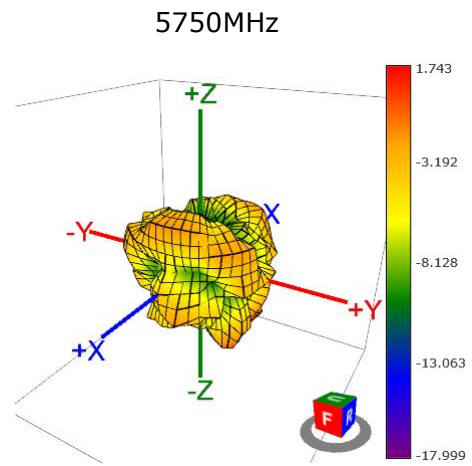
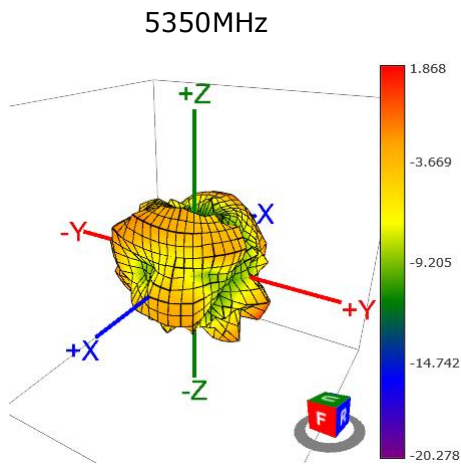


All specifications subject to change without notice.

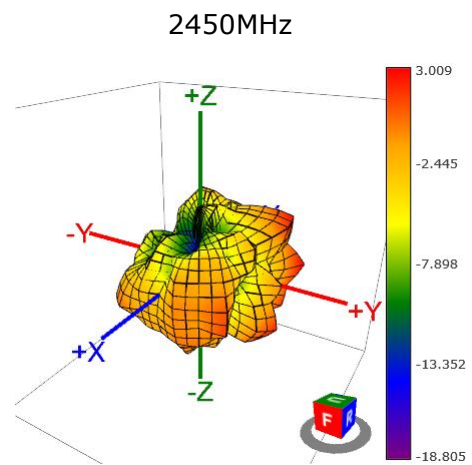
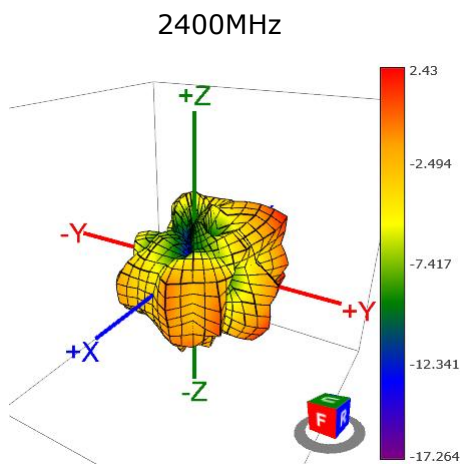


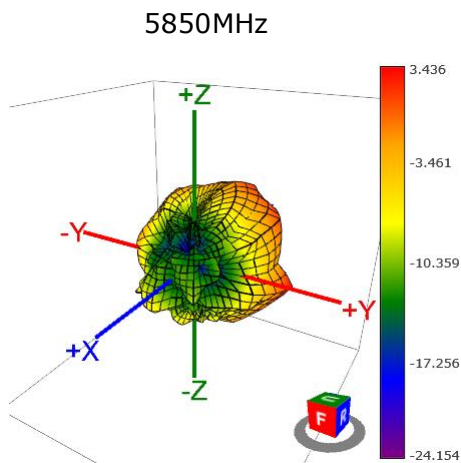
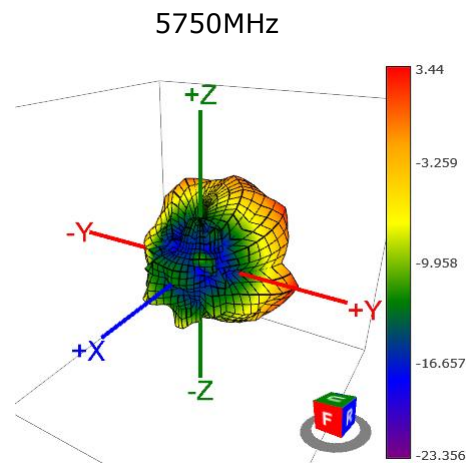
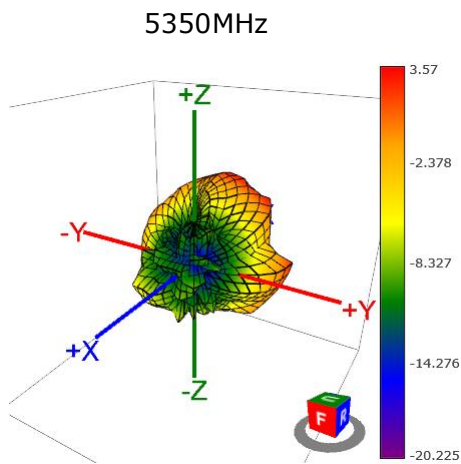
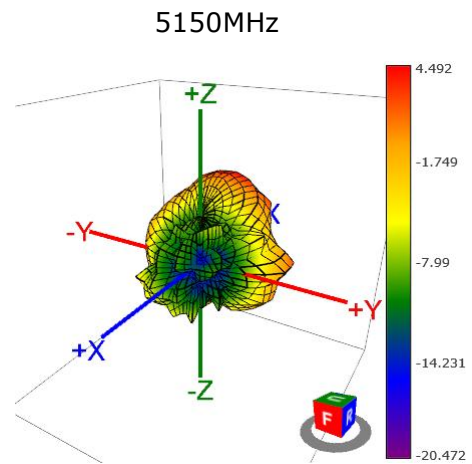
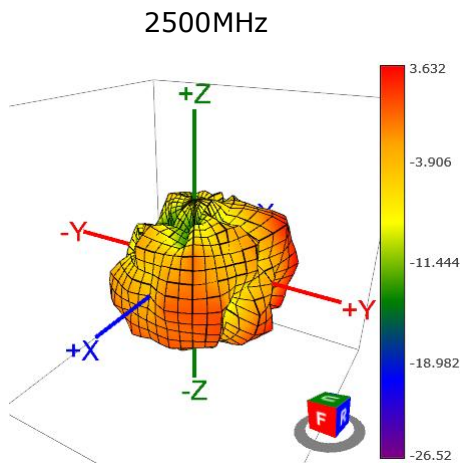
Free Space – WiFi 2





With Ground Plane – WiFi 2



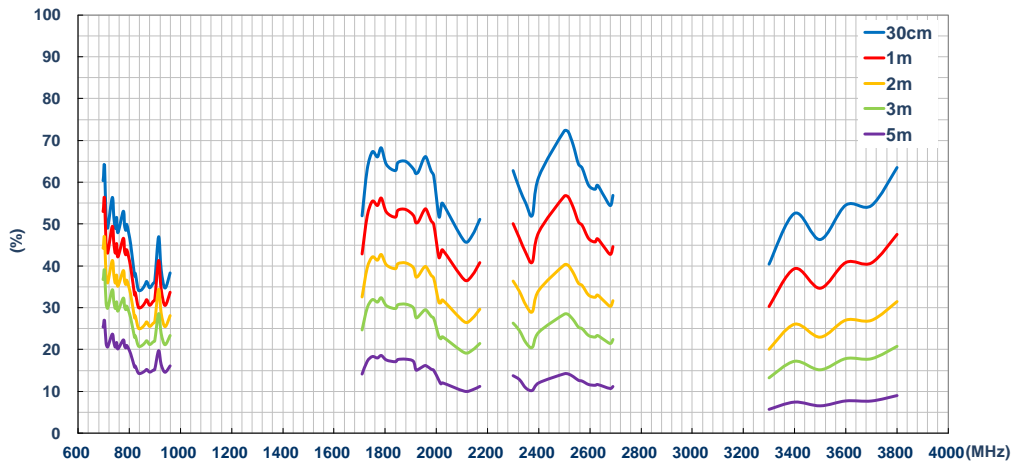


VII. Applications Note:

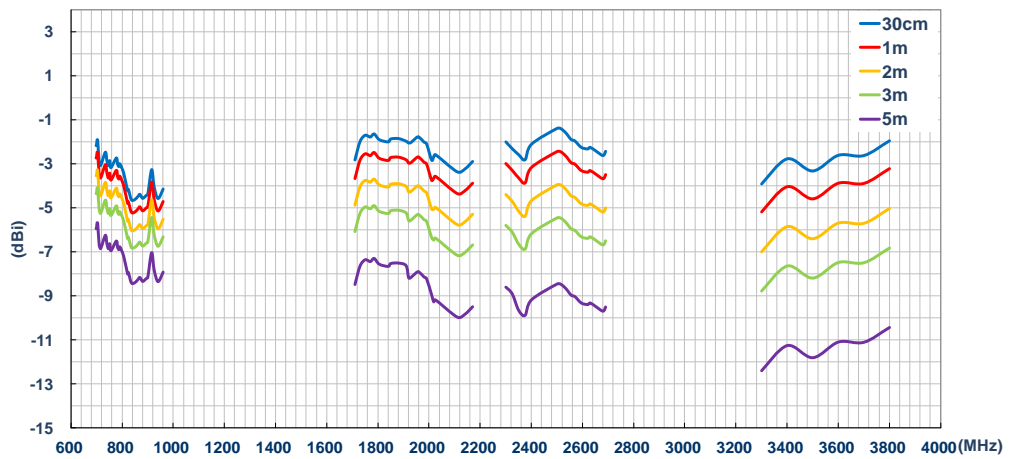
The antenna performance with different cable lengths is shown below.

Free Space – LTE 1

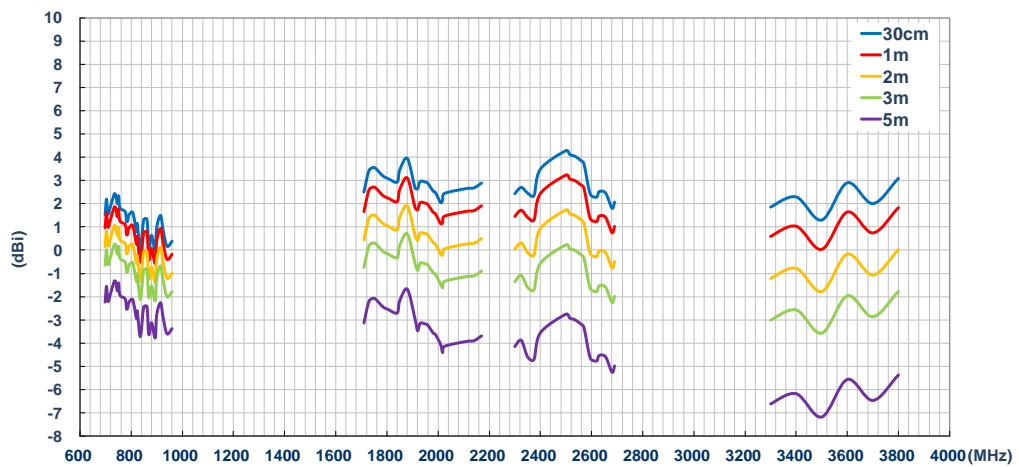
Efficiency (%)



Average Gain (dBi)



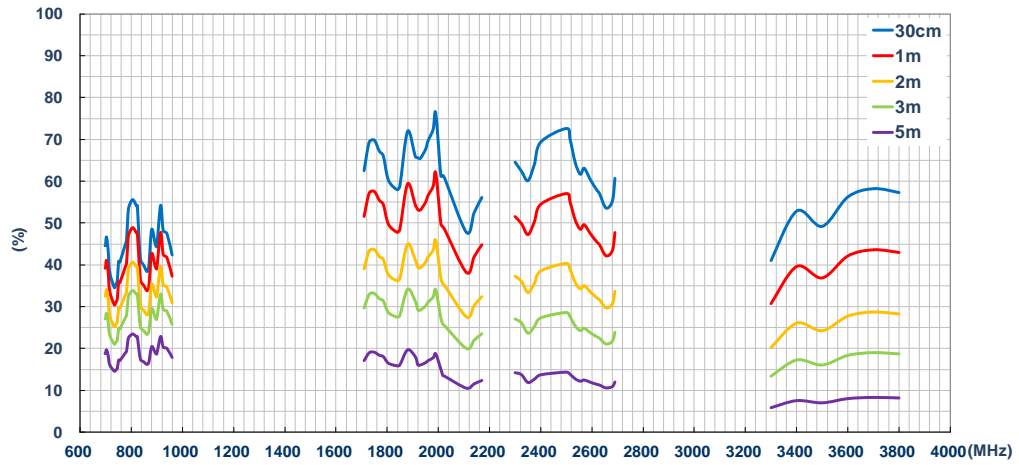
Peak Gain (dBi)



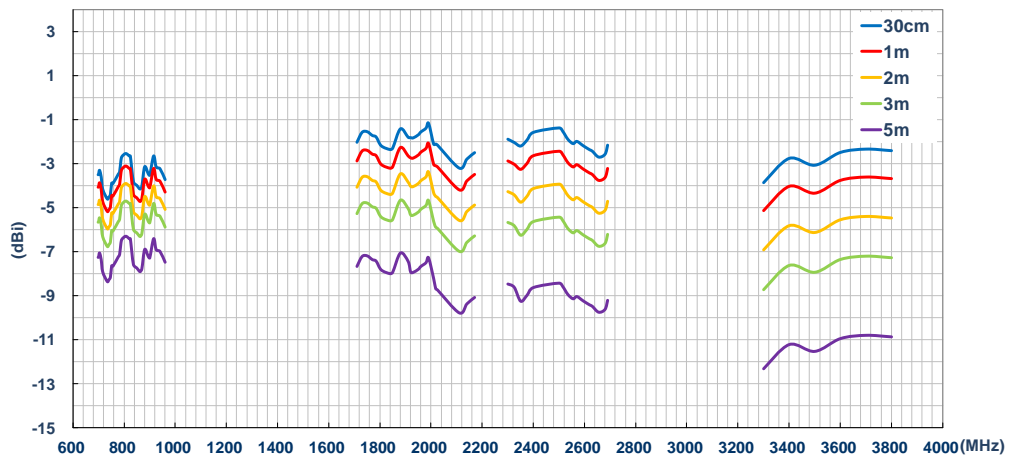
All specifications subject to change without notice.

Free Space – LTE 2

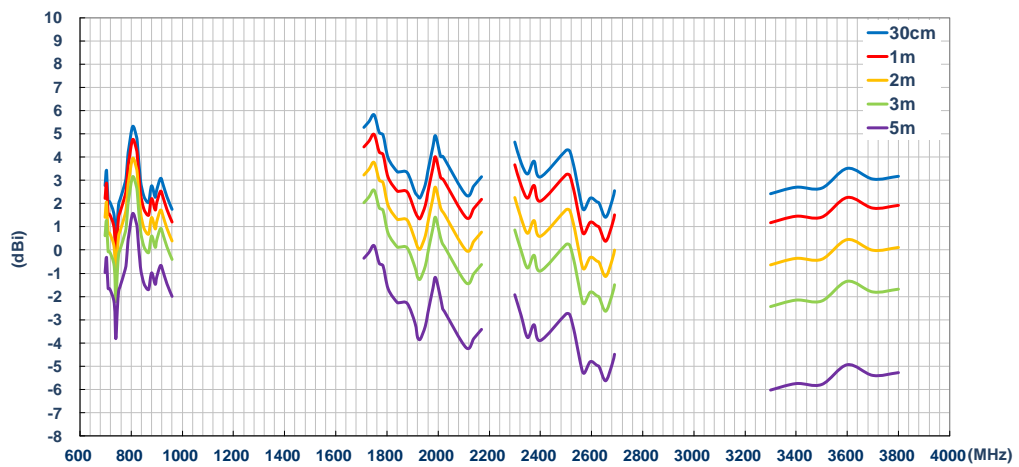
Efficiency (%)



Average Gain (dBi)



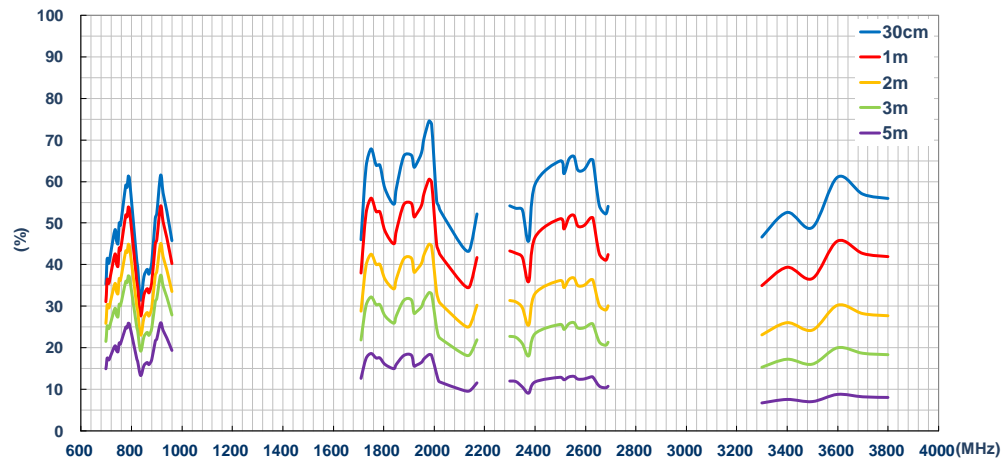
Peak Gain (dBi)



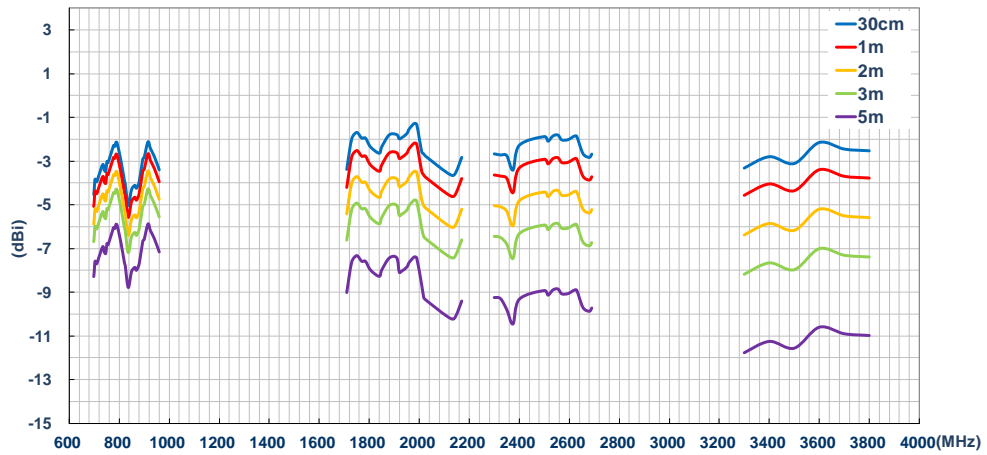
All specifications subject to change without notice.

With Ground Plane – LTE 1

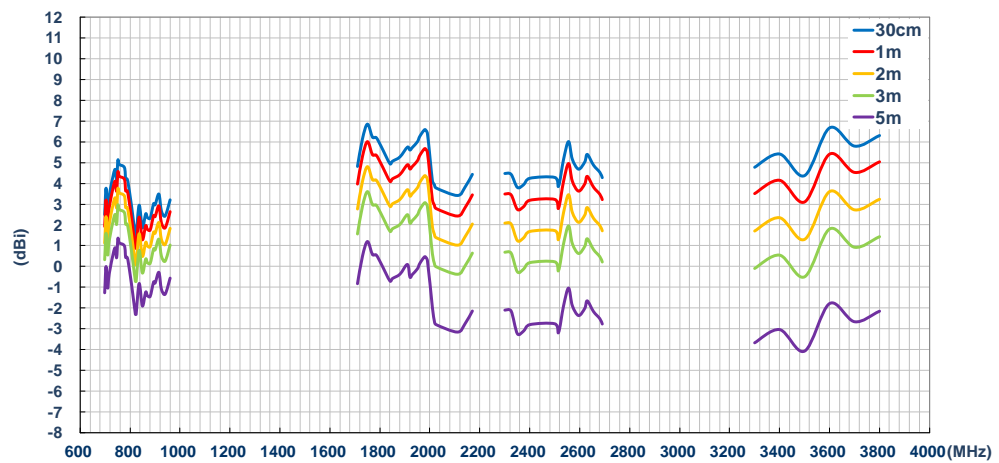
Efficiency (%)



Average Gain (dBi)



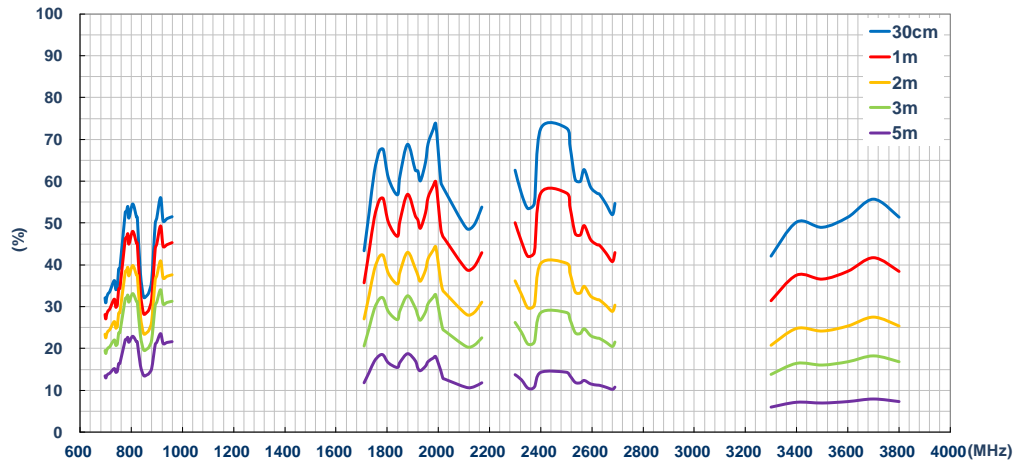
Peak Gain (dBi)



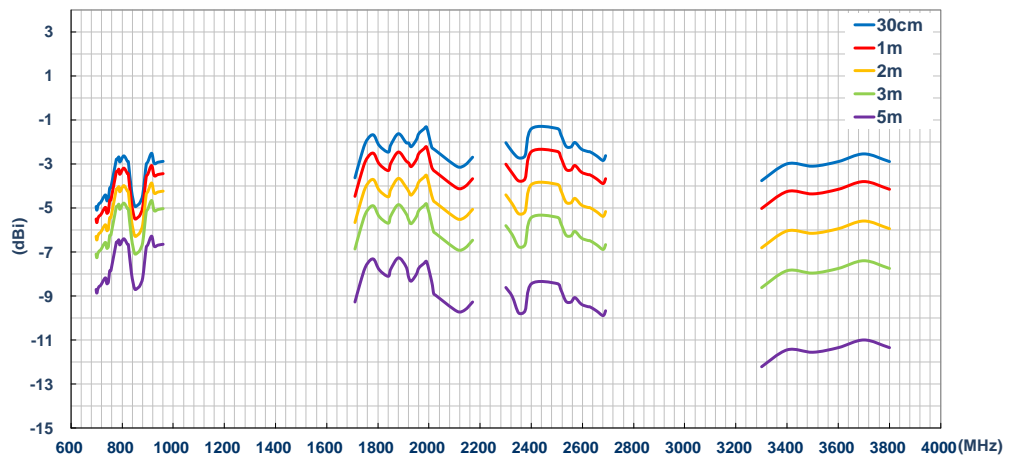
All specifications subject to change without notice.

With Ground Plane – LTE 2

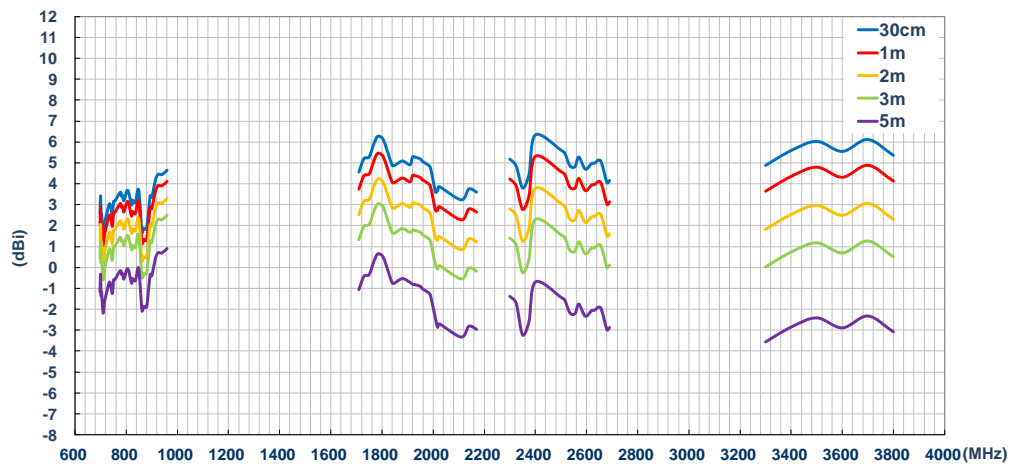
Efficiency (%)



Average Gain (dBi)



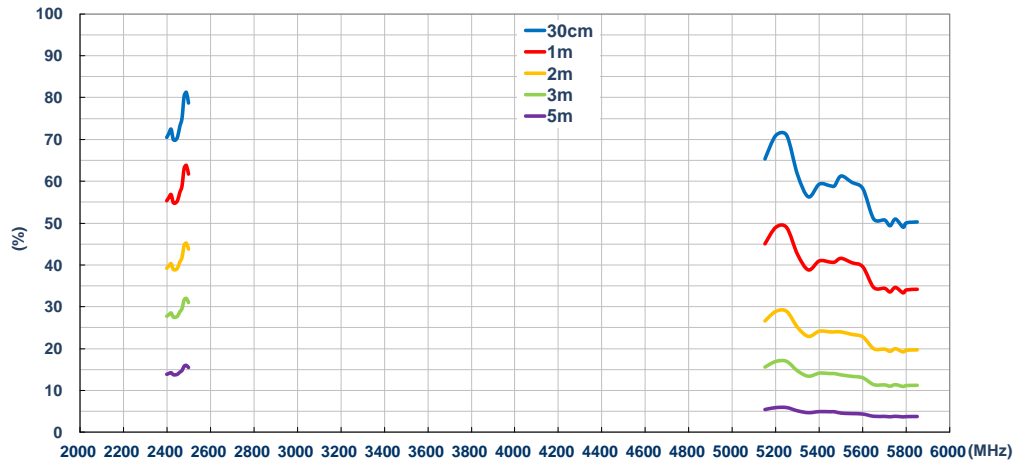
Peak Gain (dBi)



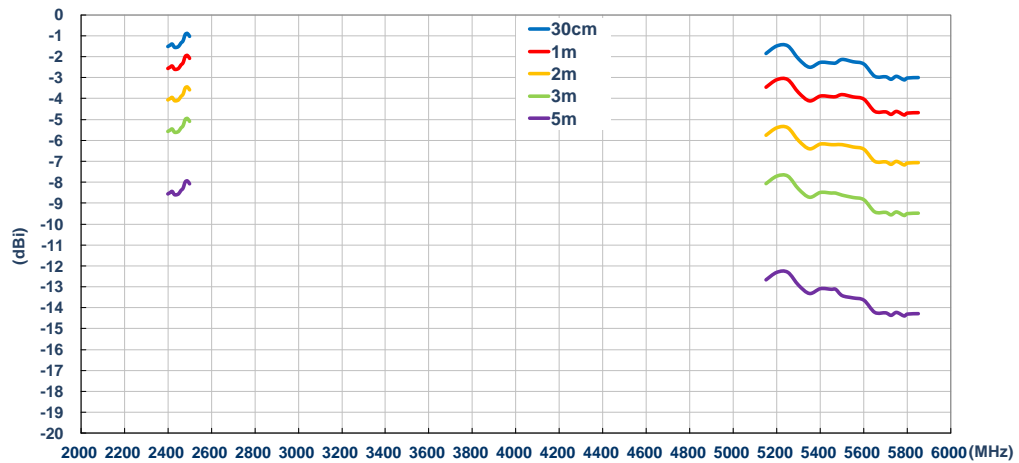
All specifications subject to change without notice.

Free Space – WiFi 1

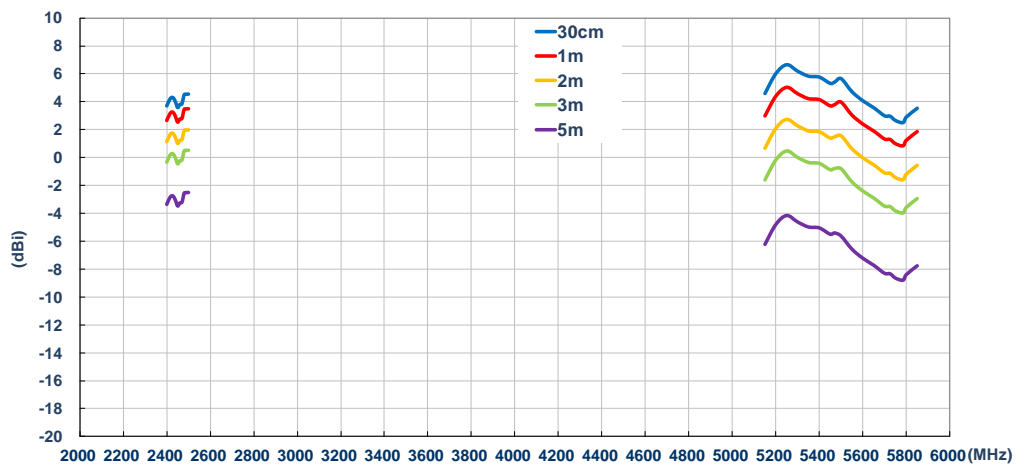
Efficiency (%)



Average Gain (dBi)



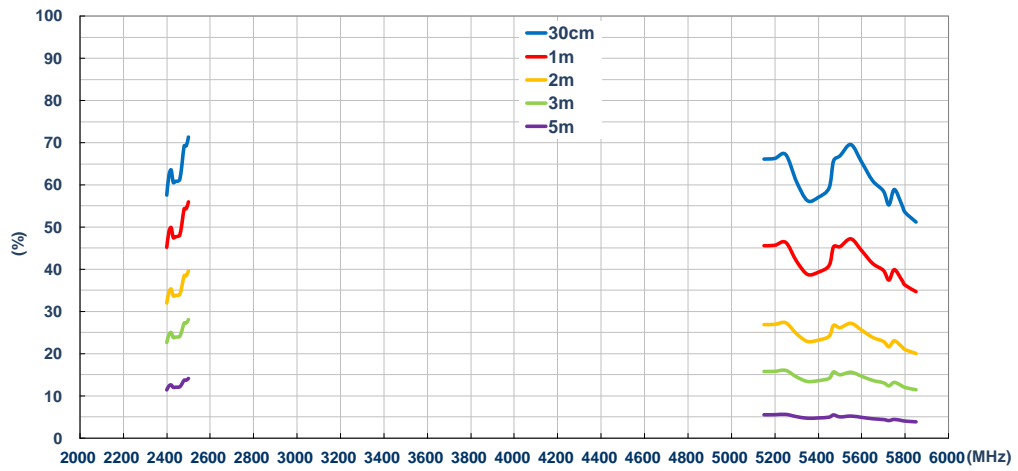
Peak Gain (dBi)



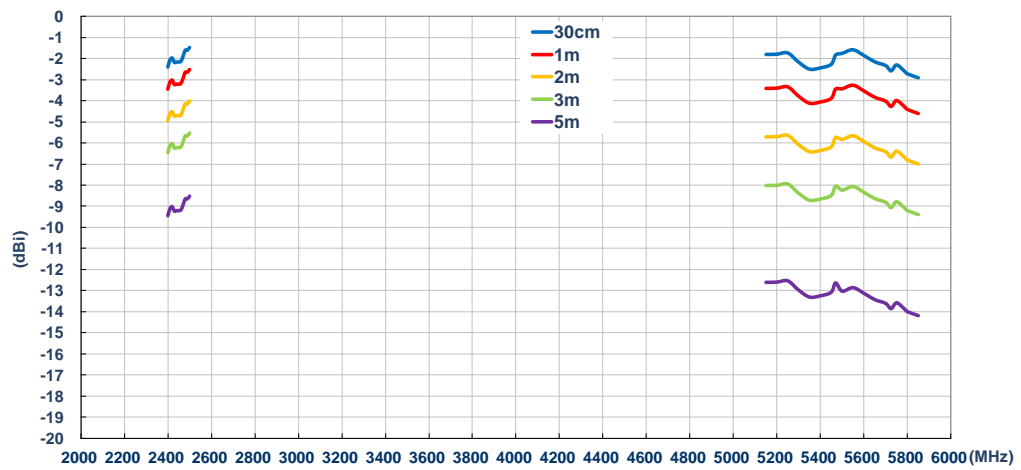
All specifications subject to change without notice.

Free Space – WiFi 2

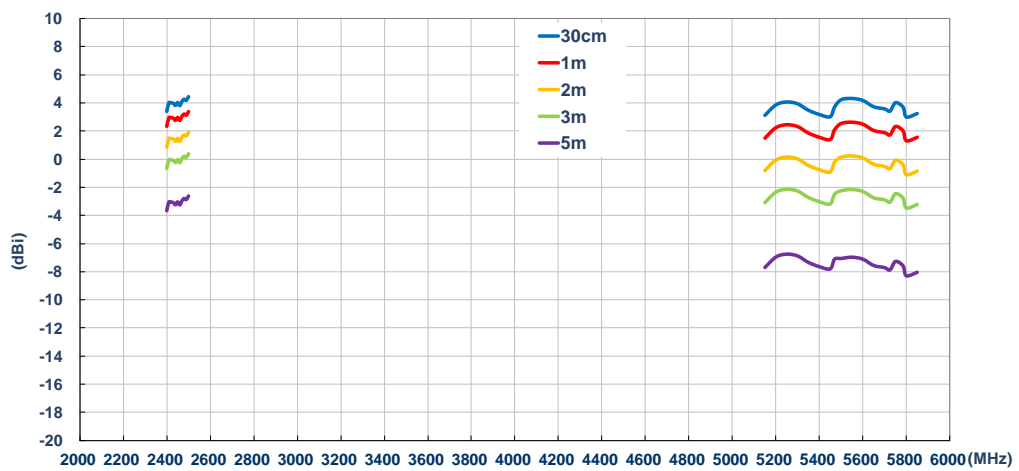
Efficiency (%)



Average Gain (dBi)



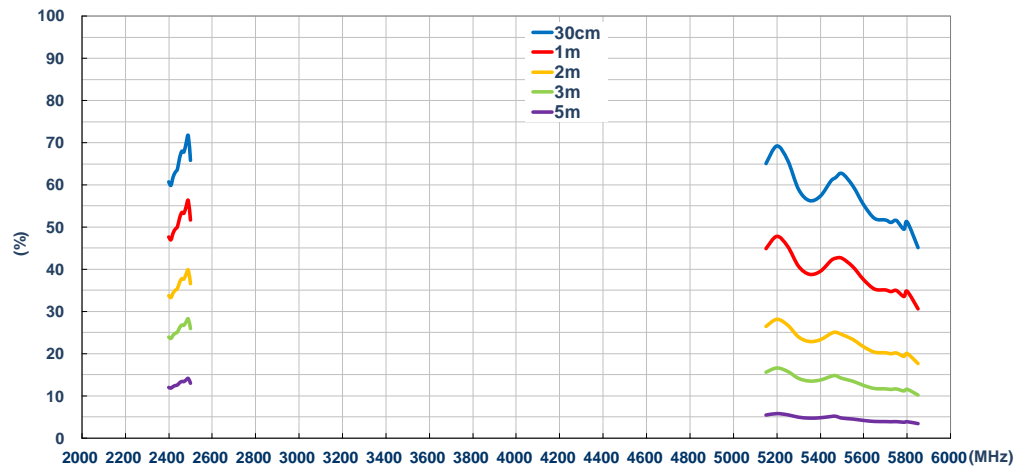
Peak Gain (dBi)



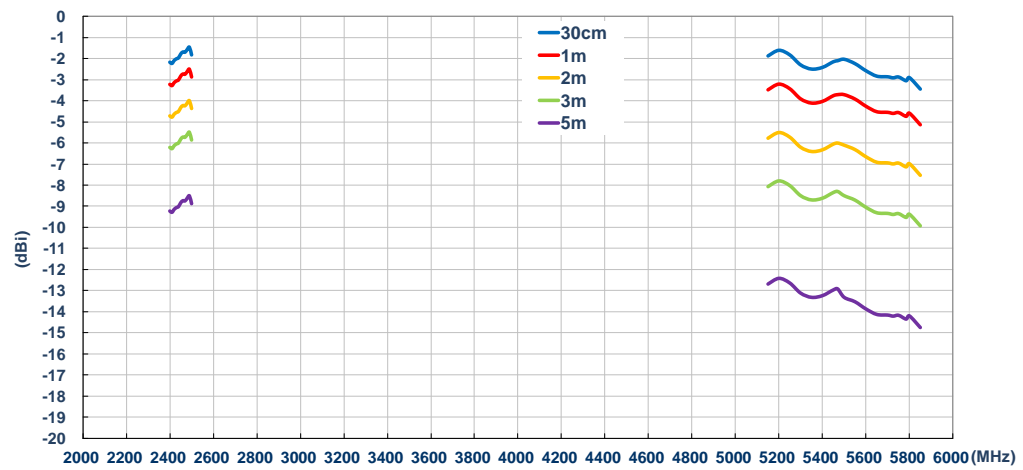
All specifications subject to change without notice.

With Ground Plane – WiFi 1

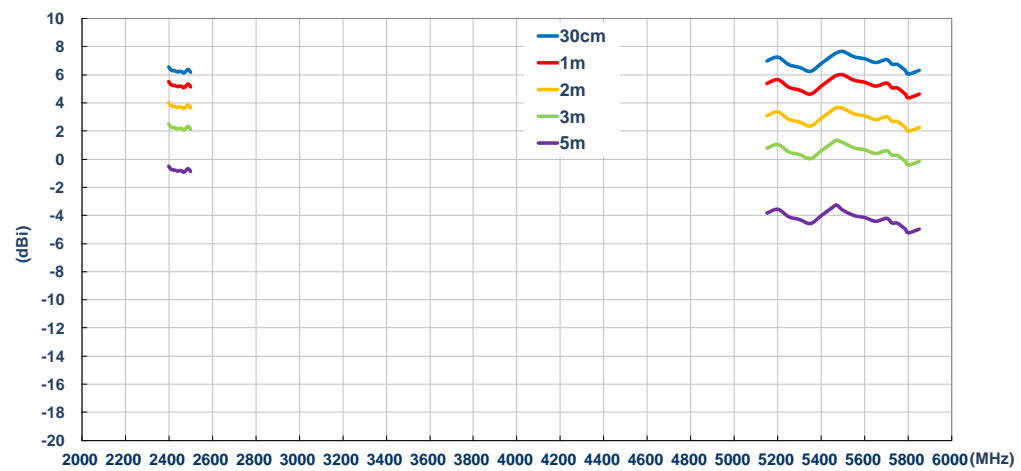
Efficiency (%)



Average Gain (dBi)



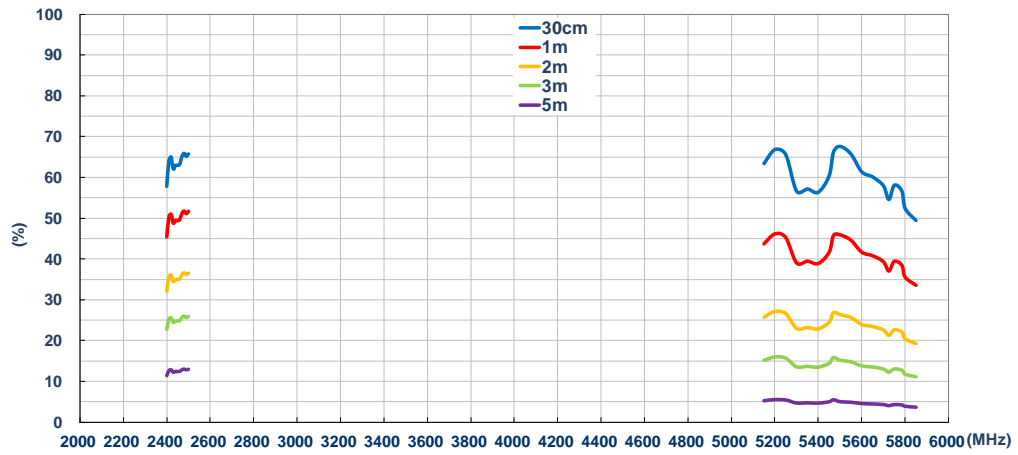
Peak Gain (dBi)



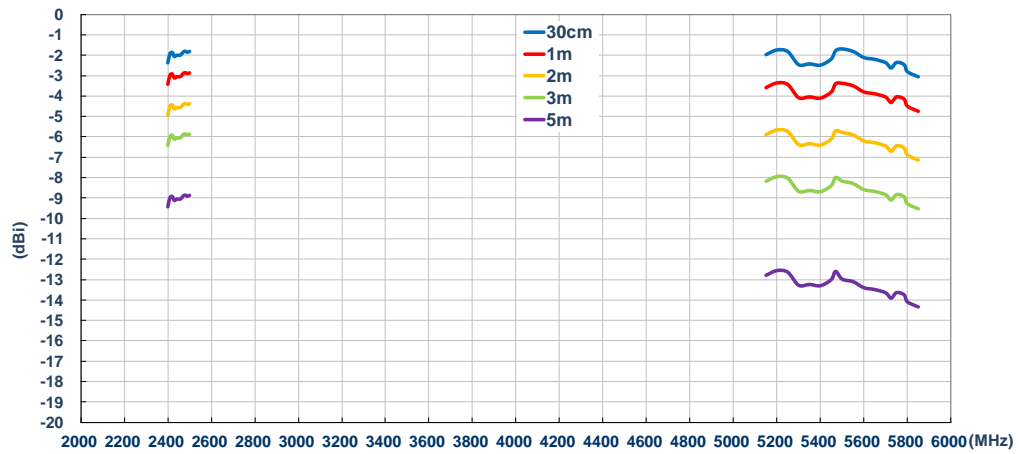
All specifications subject to change without notice.

With Ground Plane – WiFi 2

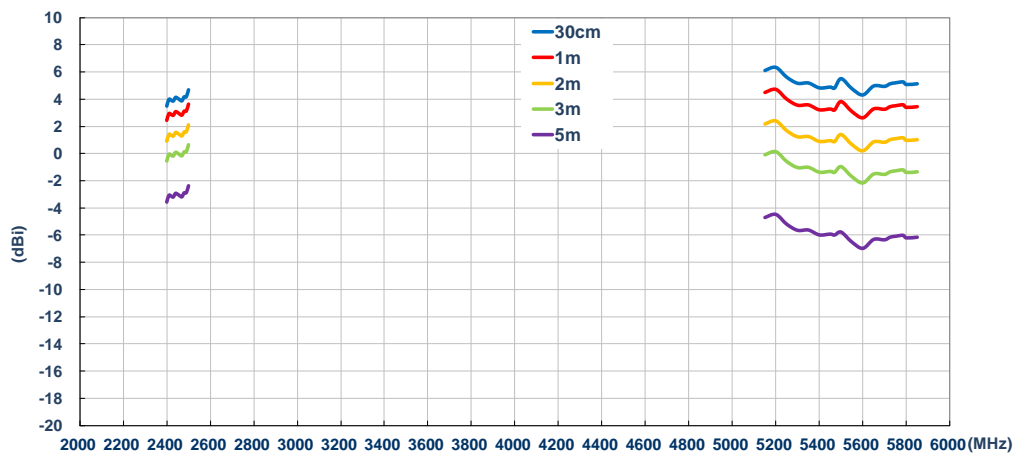
Efficiency (%)



Average Gain (dBi)



Peak Gain (dBi)



All specifications subject to change without notice.