



**Product Name:** External One Port WiFi Antenna

**Part Number:** EW-18B-AC-W01

**Features:**

- WiFi Dual Bands, 2400-2500MHz, 5150-5850MHz Supporting
- IP67 Waterproof Resistant
- Customizable Cables and Connectors
- RoHS & REACH Compliant

**Applications:**

- Fleet Management & Telematics
- Vehicle Navigation



# External One Port WiFi Antenna

**MODEL: EW-18B-AC-W01**

WI-RD-D-374 V1.0

## I. Specifications:

Category		WiFi						
Frequency (MHz)		2400	2450	2500	5150	5350	5750	5850
<b>Efficiency (%)</b>								
<b>Free Space</b>	<b>30cm</b>	66.07	66.68	64.86	61.24	62.37	52.48	48.31
	<b>1m</b>	52.48	52.97	51.52	43.35	44.16	36.31	33.42
	<b>2m</b>	38.02	38.37	37.33	26.73	27.23	20.89	19.23
	<b>3m</b>	26.92	27.16	26.42	16.48	16.79	12.30	11.32
	<b>5m</b>	14.13	14.26	13.87	6.12	6.24	4.17	3.84
<b>With Ground Plane</b>	<b>30cm</b>	67.30	69.34	68.39	53.46	61.38	47.64	46.34
	<b>1m</b>	53.46	55.08	54.33	37.84	43.45	32.96	32.06
	<b>2m</b>	38.73	39.90	39.36	23.33	26.79	18.97	18.45
	<b>3m</b>	27.42	28.25	27.86	14.39	16.52	11.17	10.86
	<b>5m</b>	14.39	14.83	14.62	5.35	6.14	3.78	3.68
<b>Average Gain (dBi)</b>								
<b>Free Space</b>	<b>30cm</b>	-1.80	-1.76	-1.88	-2.13	-2.05	-2.80	-3.16
	<b>1m</b>	-2.80	-2.76	-2.88	-3.63	-3.55	-4.40	-4.76
	<b>2m</b>	-4.20	-4.16	-4.28	-5.73	-5.65	-6.80	-7.16
	<b>3m</b>	-5.70	-5.66	-5.78	-7.83	-7.75	-9.10	-9.46
	<b>5m</b>	-8.50	-8.46	-8.58	-12.13	-12.05	-13.80	-14.16
<b>With Ground Plane</b>	<b>30cm</b>	-1.72	-1.59	-1.65	-2.72	-2.12	-3.22	-3.34
	<b>1m</b>	-2.72	-2.59	-2.65	-4.22	-3.62	-4.82	-4.94
	<b>2m</b>	-4.12	-3.99	-4.05	-6.32	-5.72	-7.22	-7.34
	<b>3m</b>	-5.62	-5.49	-5.55	-8.42	-7.82	-9.52	-9.64
	<b>5m</b>	-8.42	-8.29	-8.35	-12.72	-12.12	-14.22	-14.34

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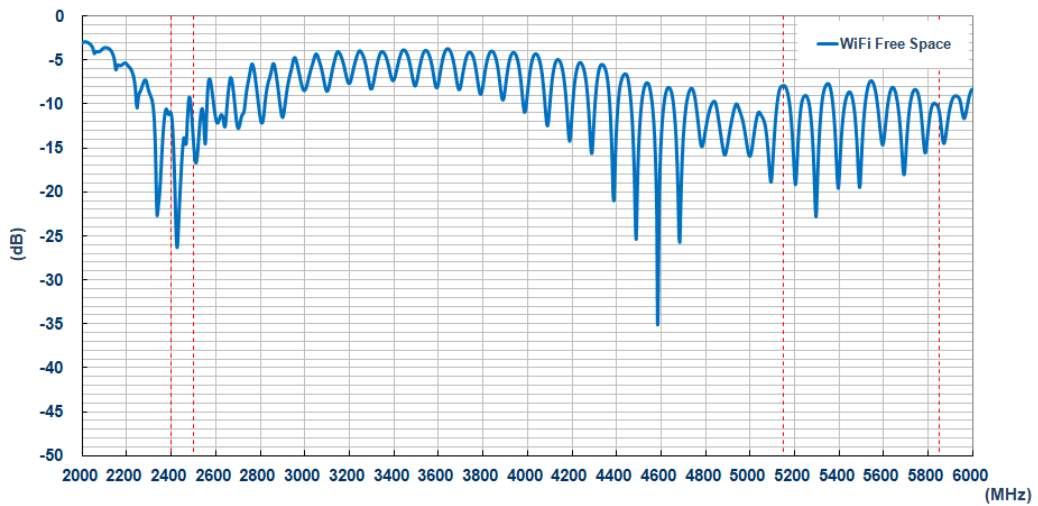
Peak Gain (dBi)								
Free Space	30cm	3.18	3.39	3.15	2.63	2.74	1.33	0.82
	1m	2.18	2.39	2.15	1.13	1.24	-0.27	-0.78
	2m	0.78	0.99	0.75	-0.97	-0.86	-2.67	-3.18
	3m	-0.72	-0.51	-0.75	-3.07	-2.96	-4.97	-5.48
	5m	-3.52	-3.31	-3.55	-7.37	-7.26	-9.67	-10.18
With Ground Plane	30cm	3.12	3.21	3.27	3.08	3.59	2.43	1.87
	1m	2.12	2.21	2.27	1.58	2.09	0.83	0.27
	2m	0.72	0.81	0.87	-0.52	-0.01	-1.57	-2.13
	3m	-0.78	-0.69	-0.63	-2.62	-2.11	-3.87	-4.43
	5m	-3.58	-3.49	-3.43	-6.92	-6.41	-8.57	-9.13
V.S.W.R								
Free Space	< 2							
With Ground Plane	< 2							
Return Loss (dB)								
Free Space	< -10							
With Ground Plane	< -10							
Impedance ( $\Omega$ )	50							
Polarization	Linear							
Cable	H-100, 3 meters							
Connector	RSMA (Male)							
Mechanical								
Dimension (mm)	$\phi$ 42.00(Dia.) x 80.80(H)							
Casing	ABS							
Base and Thread	Zinc Alloy							
Weigh (g) (including cable)	141							
Waterproof Resistant	IP67							
Maximum Assembly Torque	40 N-m							



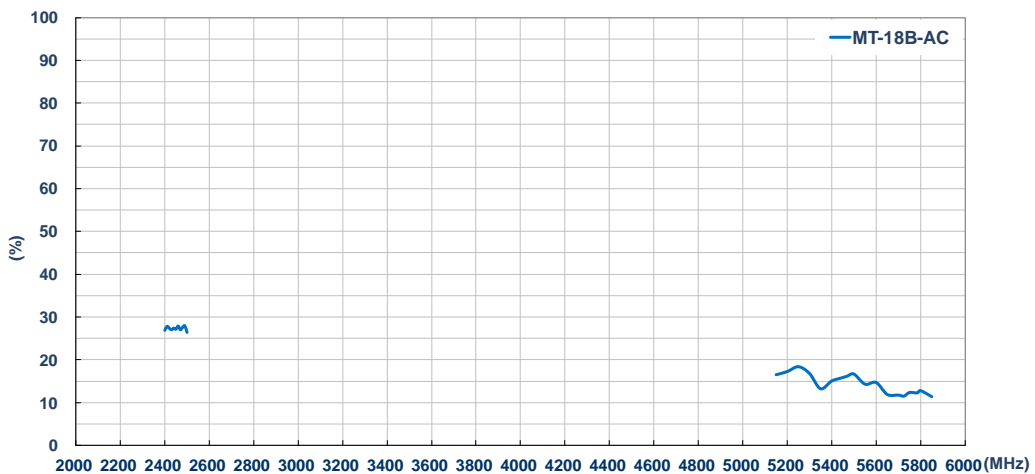
Environmental Conditions	
Operation Temperature (°C)	-40 ~ +85
Storage Temperature (°C)	-40 ~ +85
Humidity	Non-condensing 65 °C 95% RH

## II. Antenna Technical Parameters:

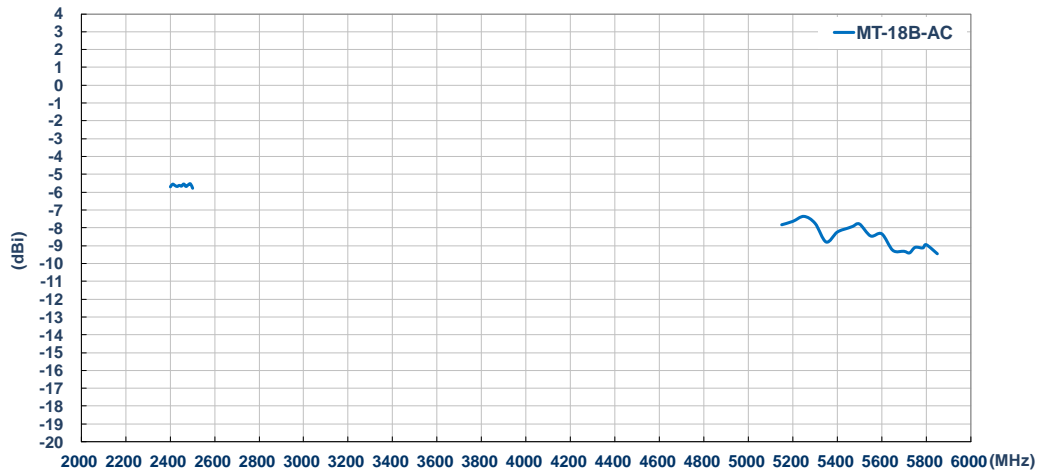
Free Space  
S11 (dB) – WiFi



Efficiency (%) –WiFi

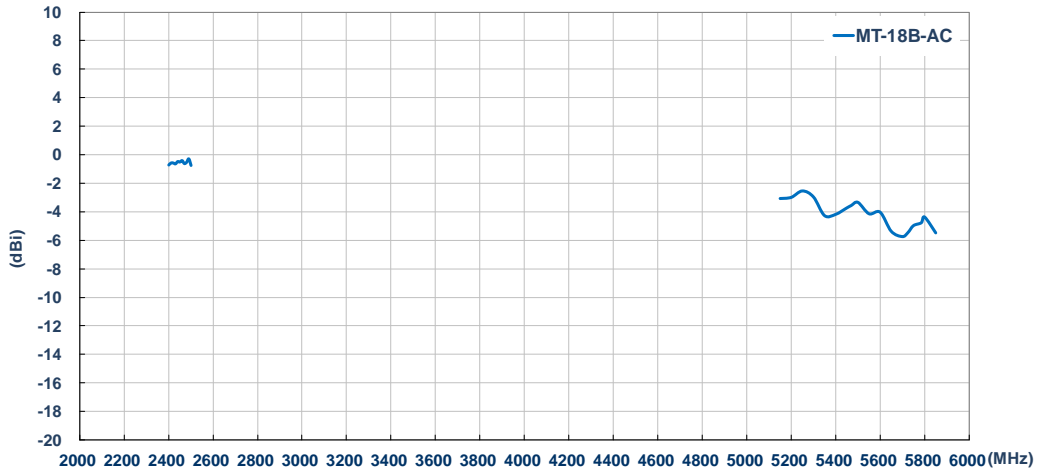


Average Gain (dBi) – WiFi

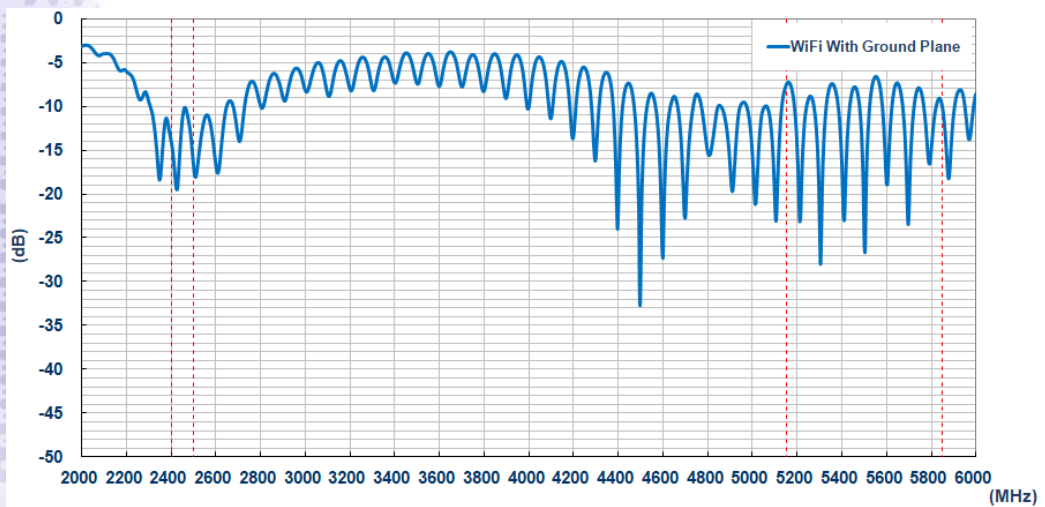


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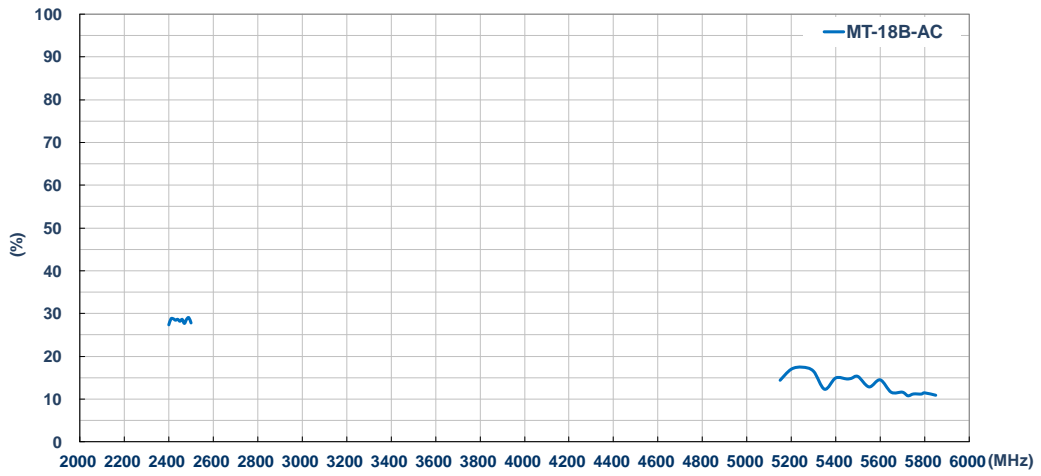
Peak Gain (dBi) – WiFi



With Ground Plane  
S11 (dB) –WiFi

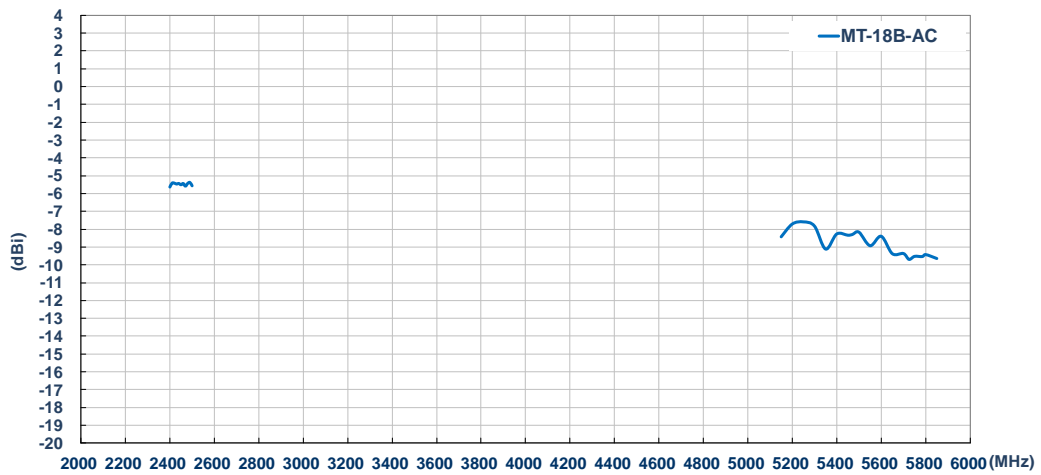


Efficiency (%) -WiFi

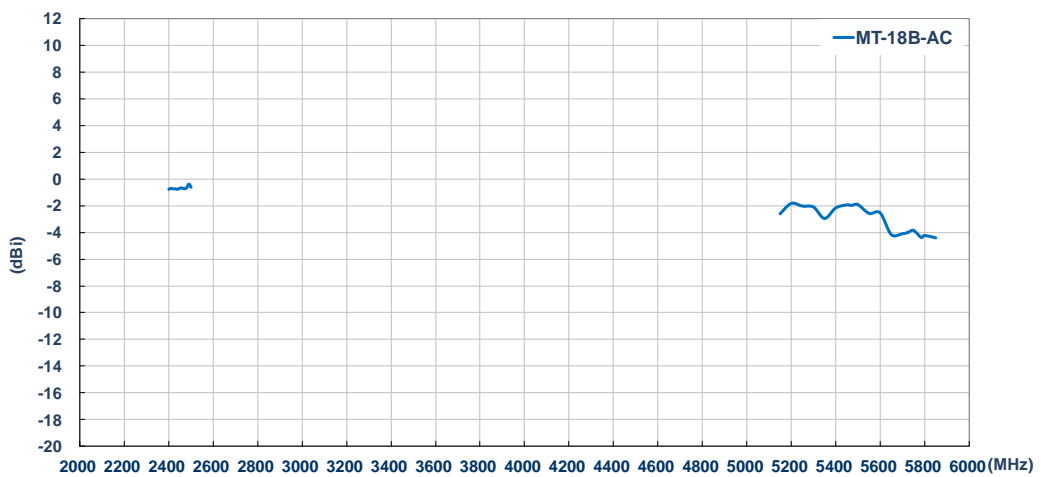


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Average Gain (dBi) - WiFi



Peak Gain (dBi) - WiFi



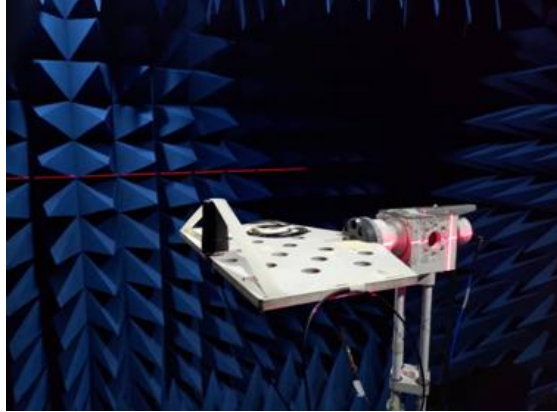
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### III. Antenna Radiation Pattern Measurement:

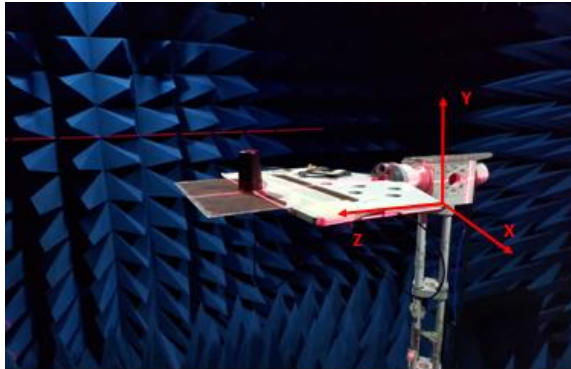
The antenna radiation patterns were measured in Anechoic Chamber.

The measurement setup as below,

Free Space



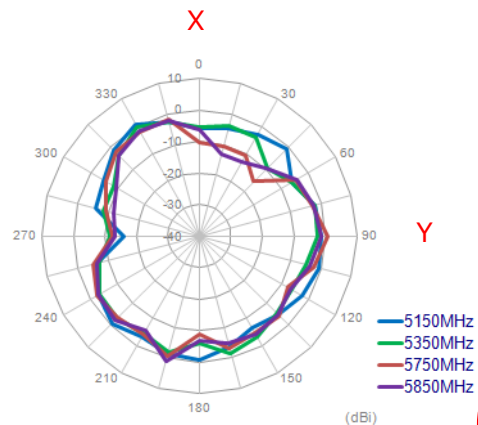
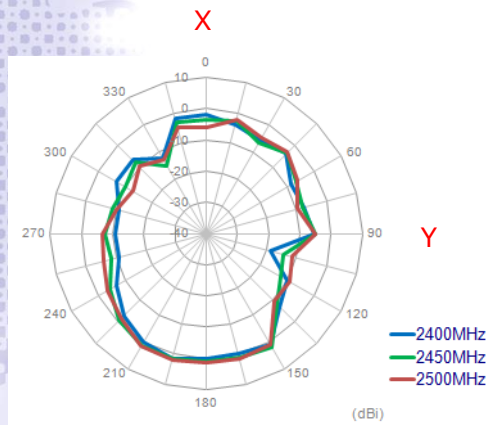
With Ground Plane



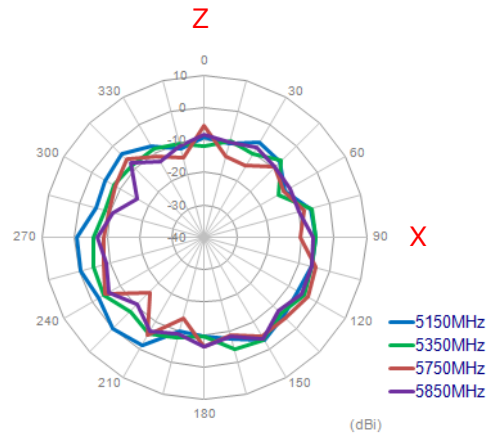
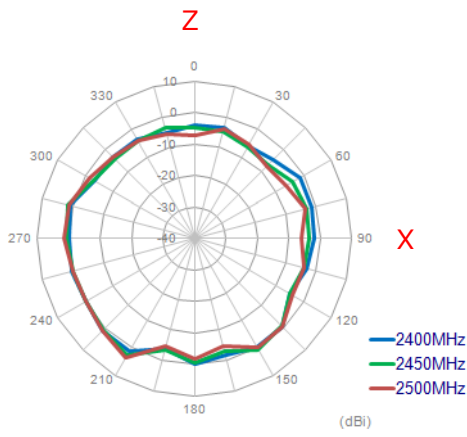
### IV. 2D Radiation Pattern:

Free Space - WiFi

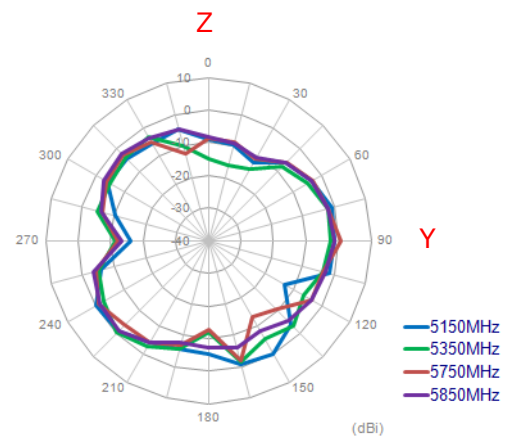
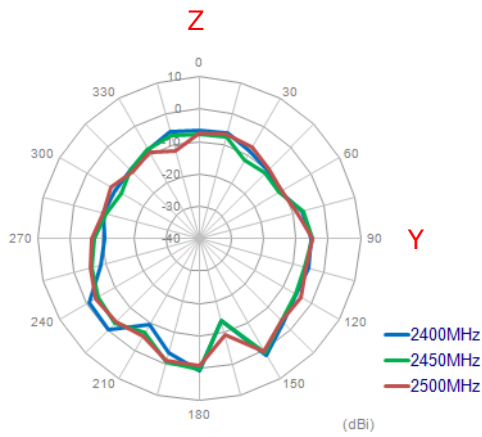
X-Y Plane



### X-Z Plane

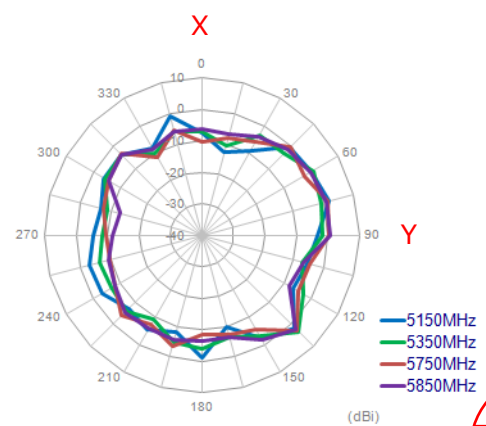
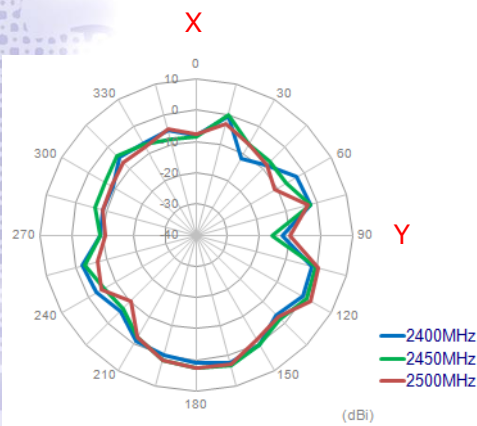


### Y-Z Plane



### With Ground Plane – WiFi

#### X-Y Plane

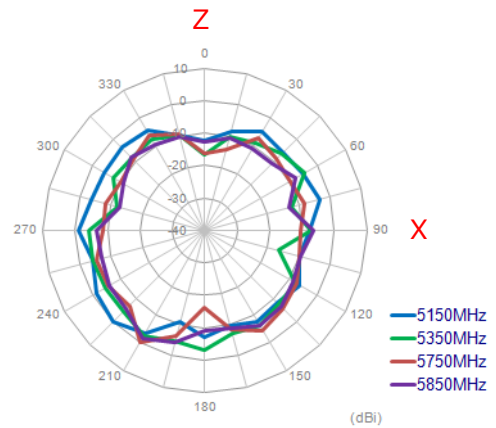
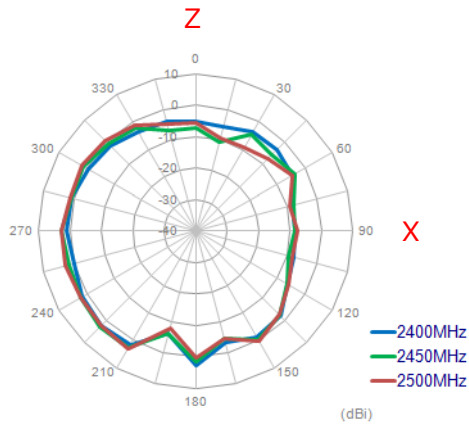


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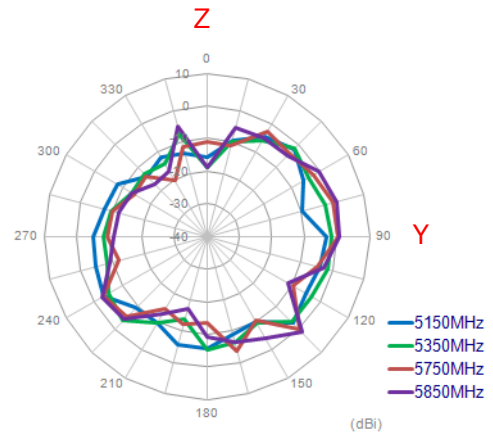
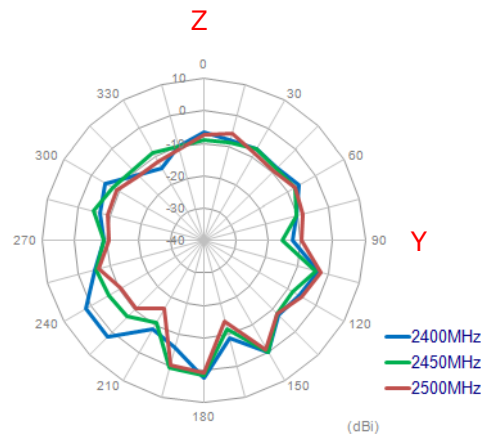
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### X-Z Plane



### Y-Z Plane

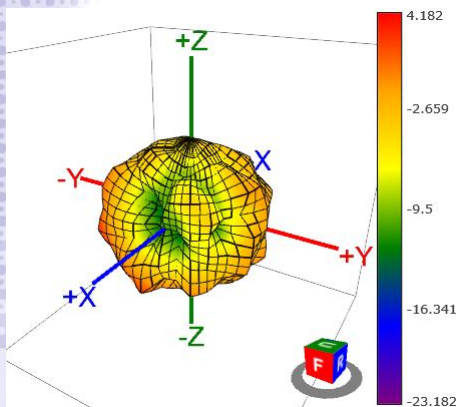


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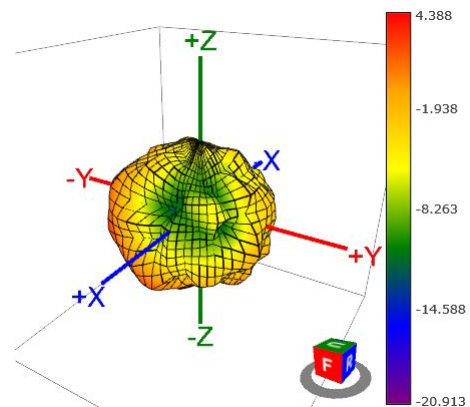
## V. 3D Radiation Pattern:

Free Space - WiFi

2400MHz

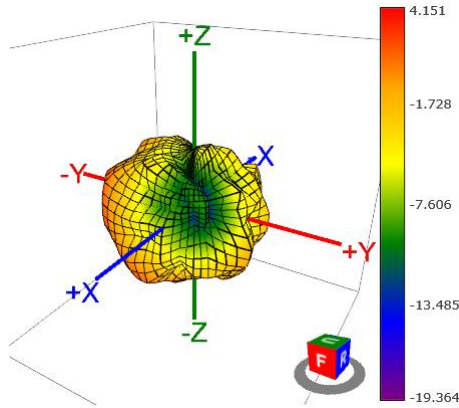


2450MHz

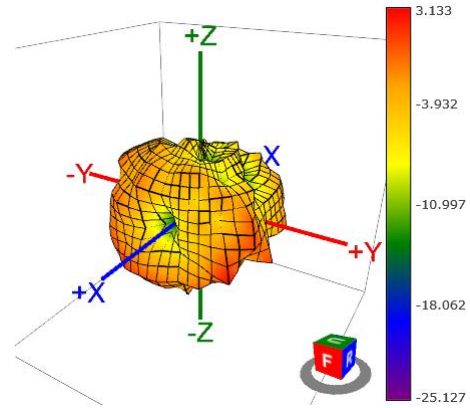


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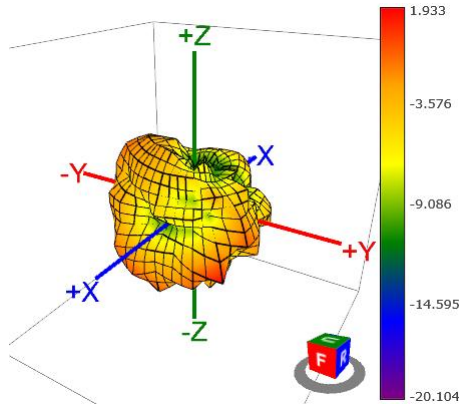
2500MHz



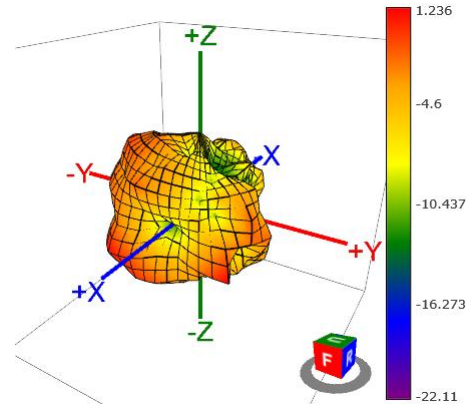
5150MHz



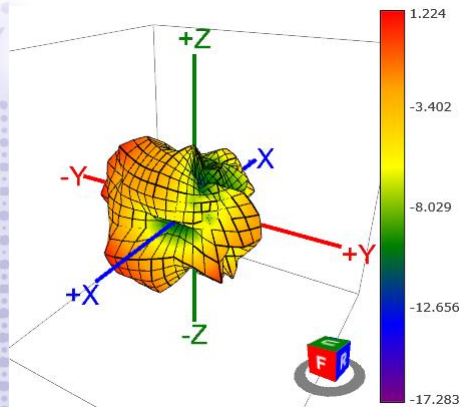
5350MHz



5750MHz



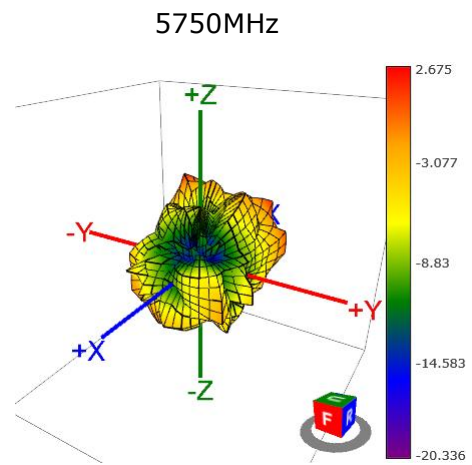
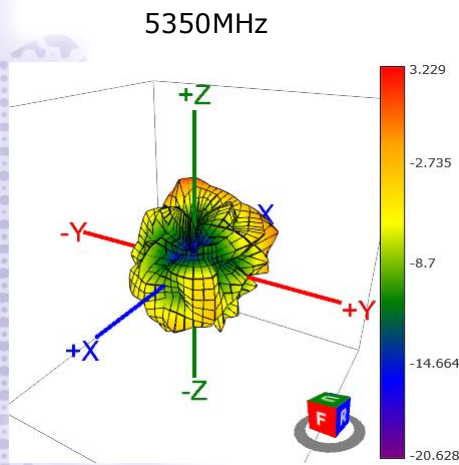
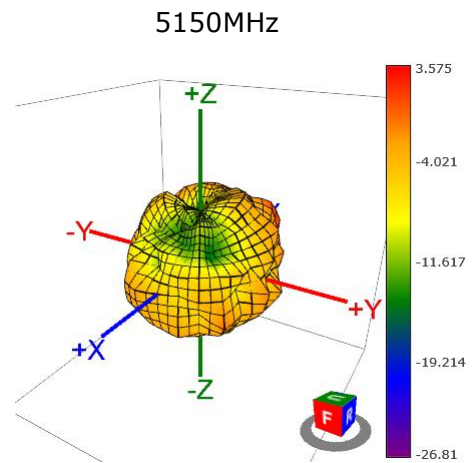
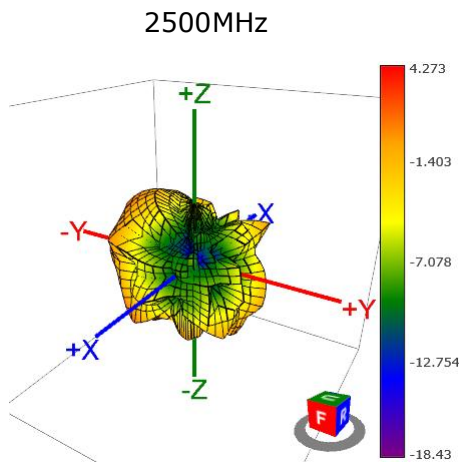
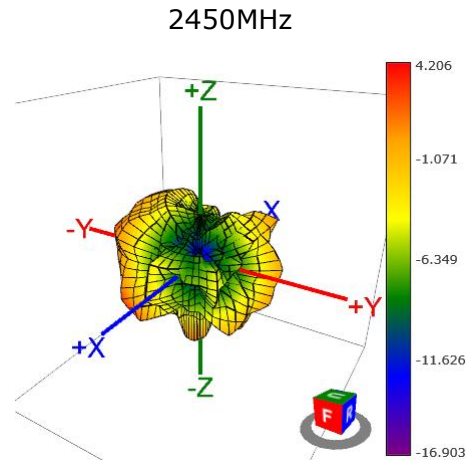
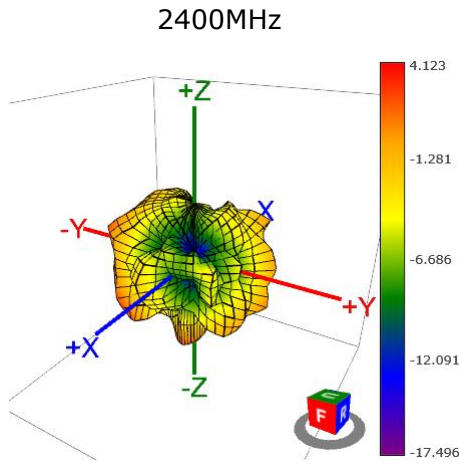
5850MHz



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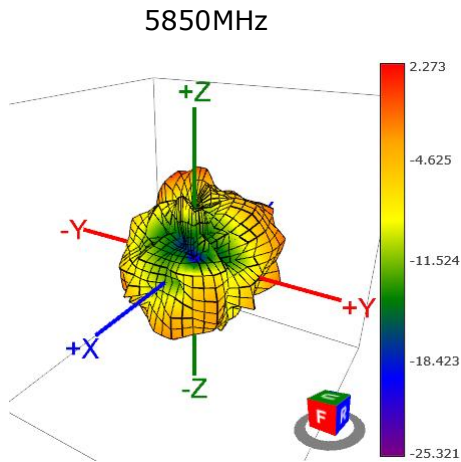
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With Ground Plane – WiFi

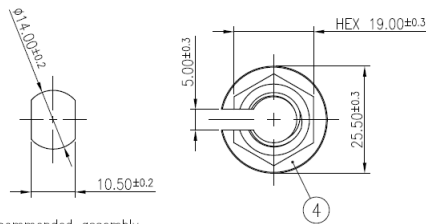
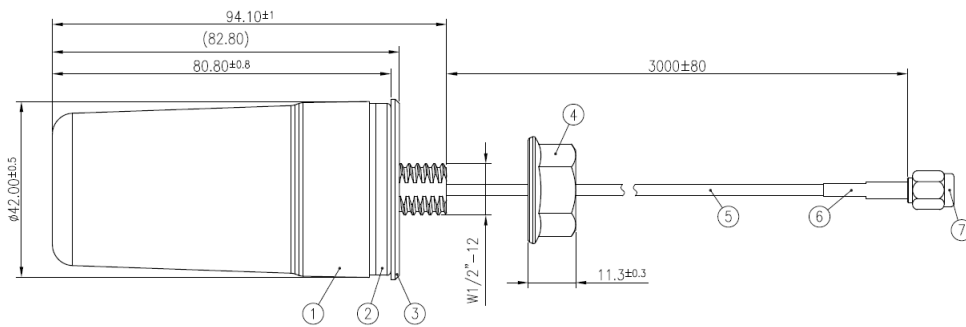


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## VI. Mechanical Drawing (Unit:mm):



Recommended assembly hole dimensions

Notes:

- All material must be RoHS compliant.
- IP Code : IP67.

7	RSMA(M) Connector	Brass	Au Plated	1
6	Heat Shrink Tube	EVA	Black	1
5	Cable H100	PVC	Black	1
4	Nut	Steel	Cr3+Zinc Black	1
3	Gasket	EPDM	Black	1
2	Bottom Base	Zinc Alloy	Ni Plated	1
1	Top Housing	ABS	Black	1
No	NAME	MATERIAL	FINISH	QTY

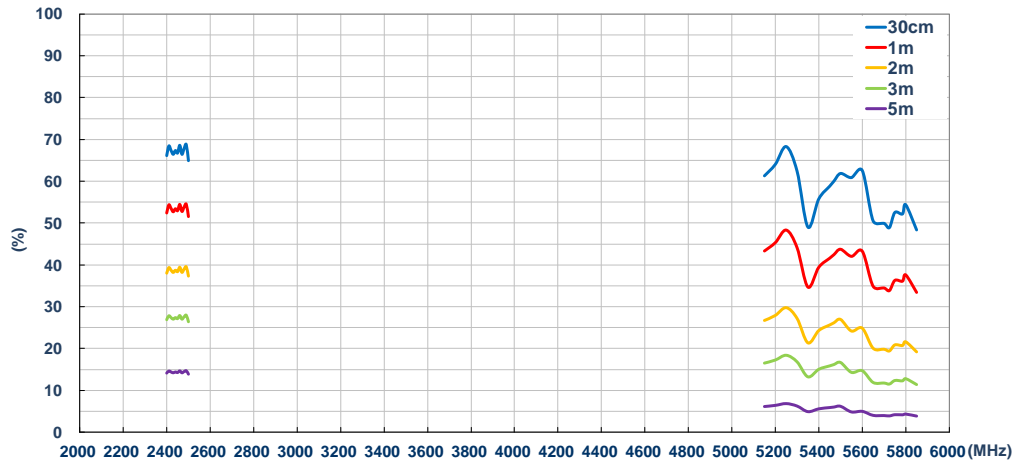


## VII. Applications Note:

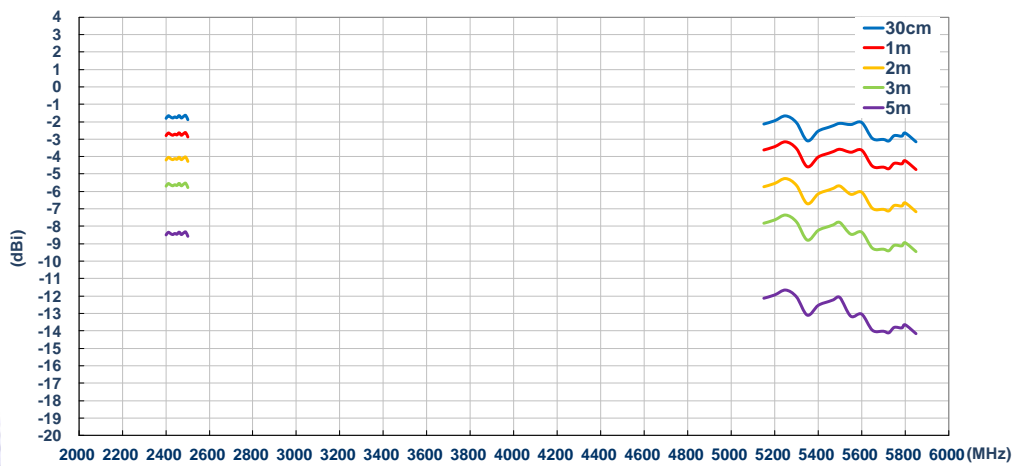
The antenna performance with different cable lengths is shown below.

Free Space – WiFi

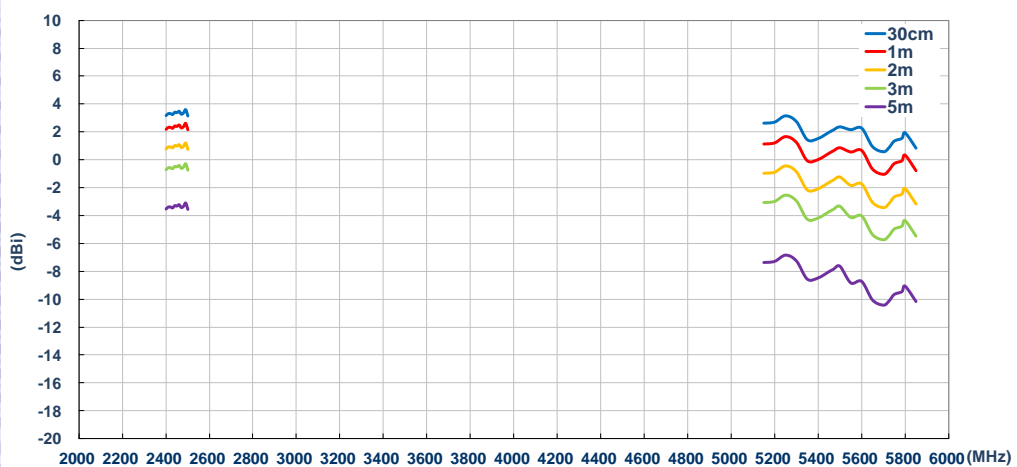
Efficiency (%)



Average Gain (dBi)



Peak Gain (dBi)

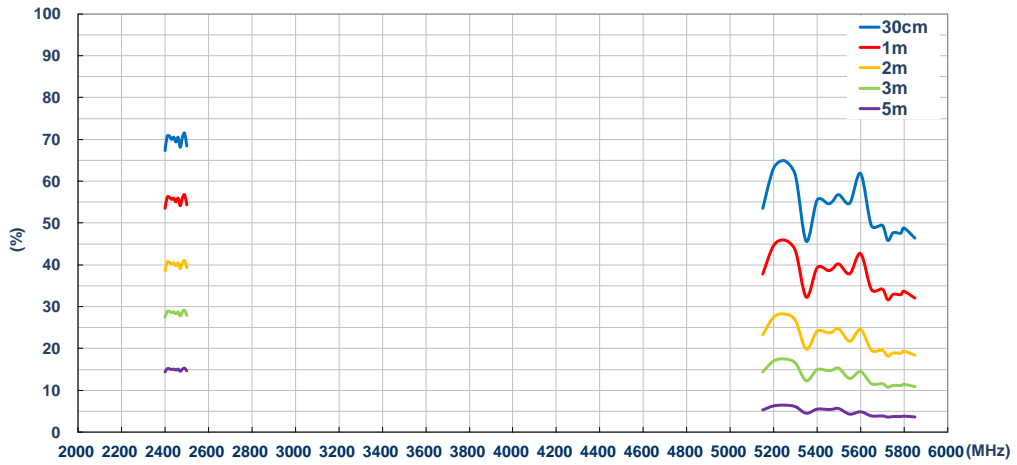


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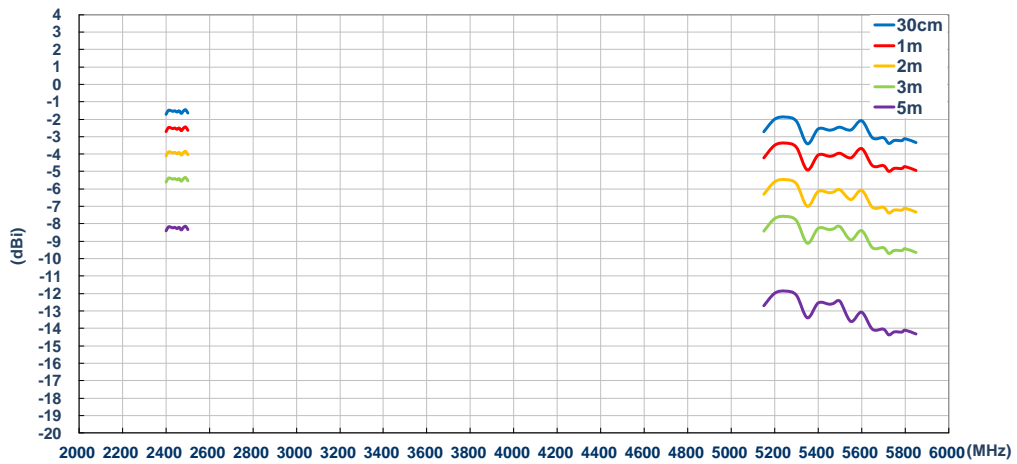
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With Ground Plane – WiFi

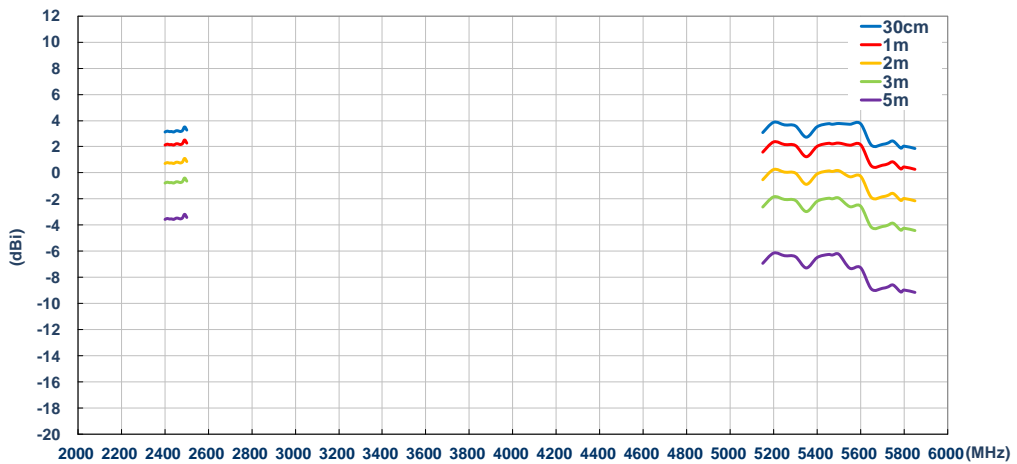
Efficiency (%)



Average Gain (dBi)



Peak Gain (dBi)



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