

# **RF Antenna**

# **Performance Parameter**

# **Testing Report**

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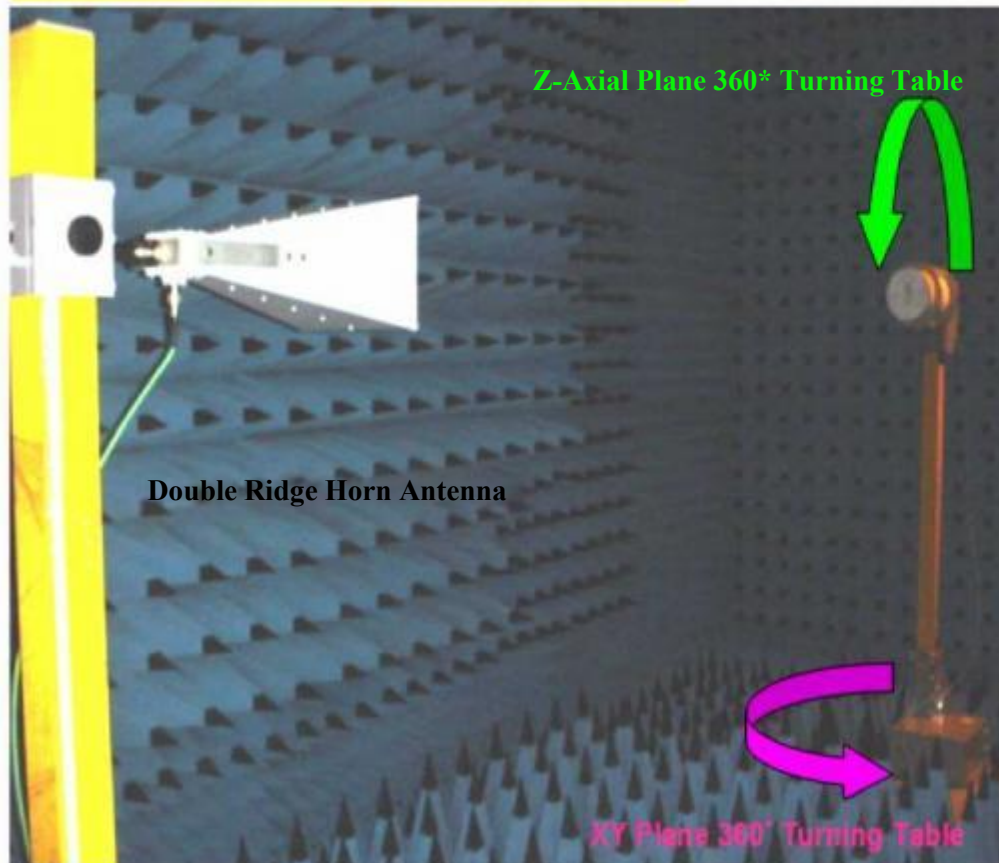
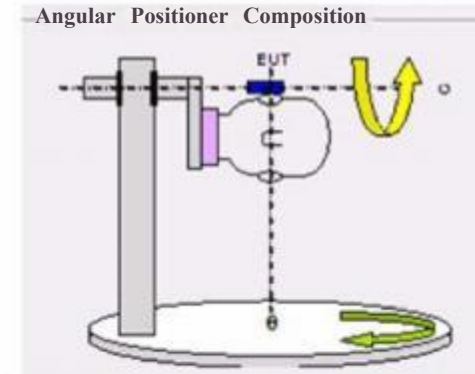
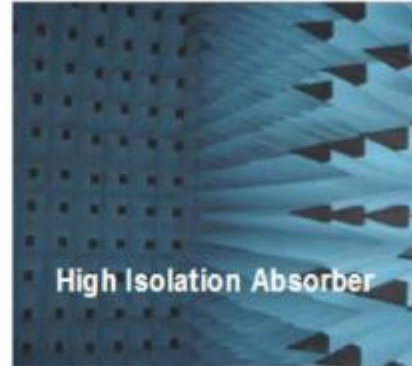
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***Date: 2022-11-10***

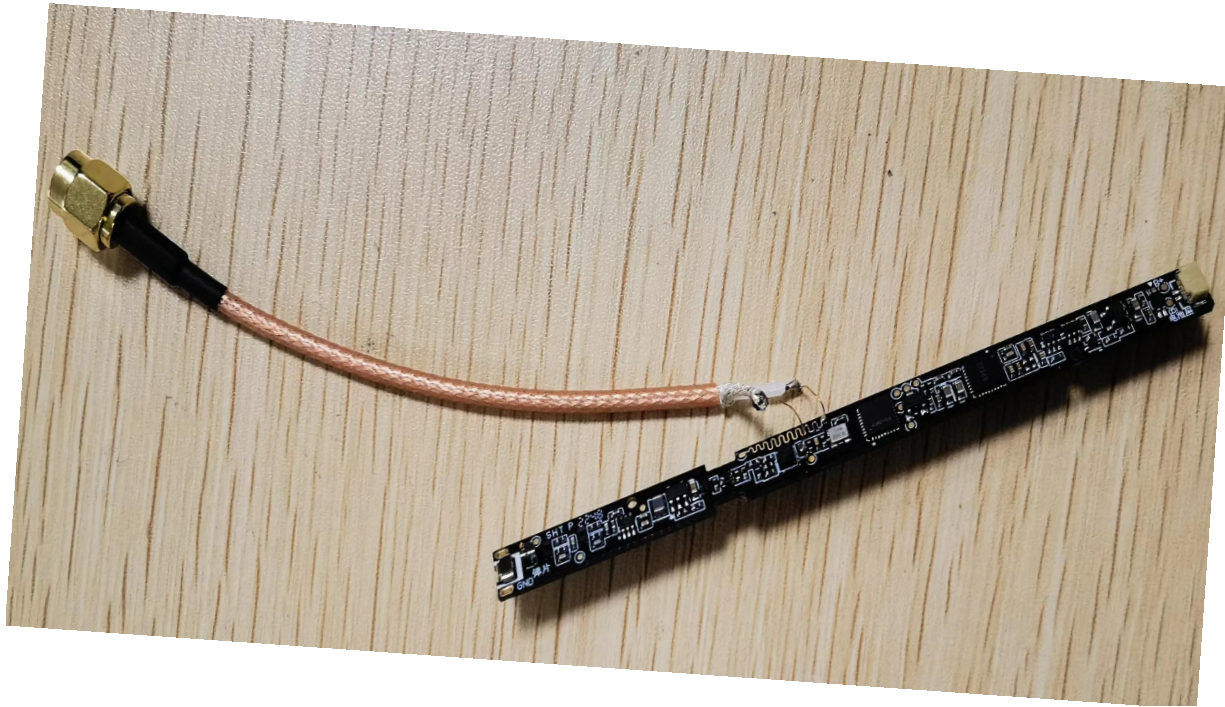
***Tester: M A R K***

# 1. Testing Item & Equipments

.Chamber Size: 8 x4 x4 m<sup>3</sup>  
.Freq. Range: 0.7 ~ 6.0 GHz .Double Ridge  
Horn Antenna x 2  
.VNA: Agilent 5071B  
.GSM Tester: R&S CMU200 / Agilent 8960 .3D  
Turning Table and Positioner  
.ADT Solution 3D Testing Software .CTIA 3D  
EIRP /3D TRP / 3D TIS Testing



## 2. Antenna Structure



## 3. Gain Test

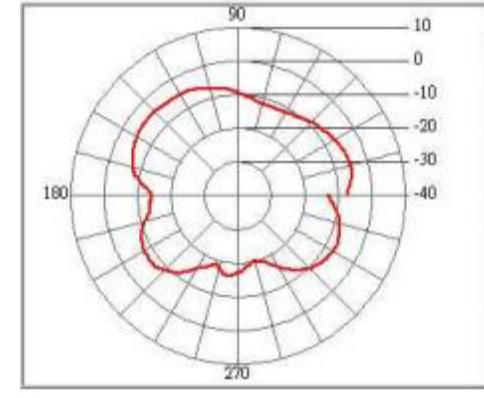
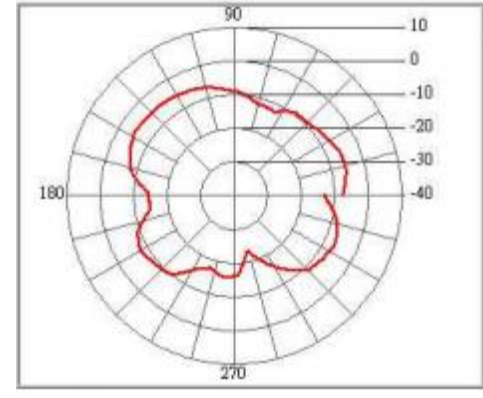
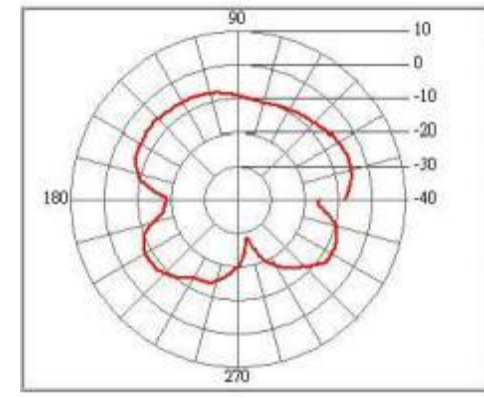
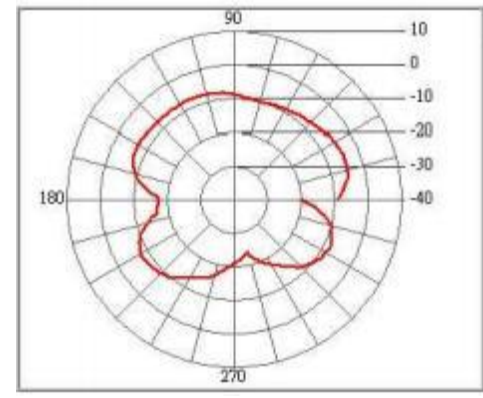
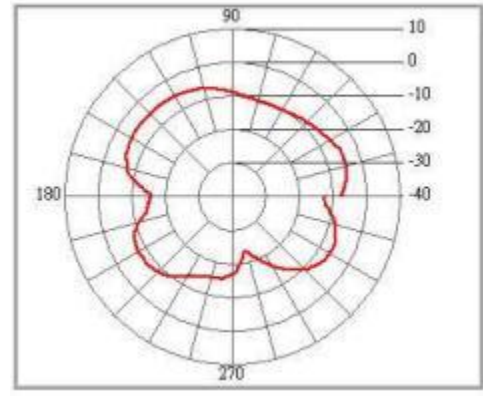
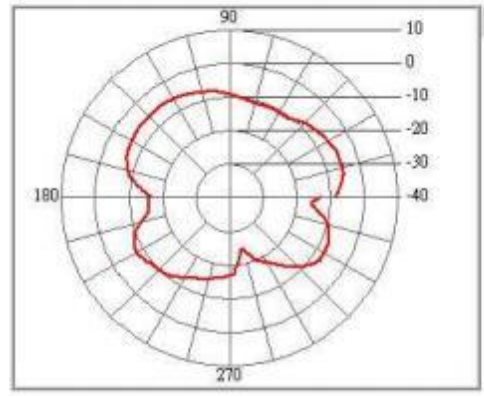
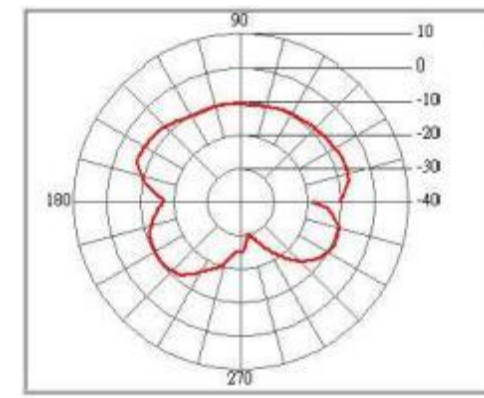
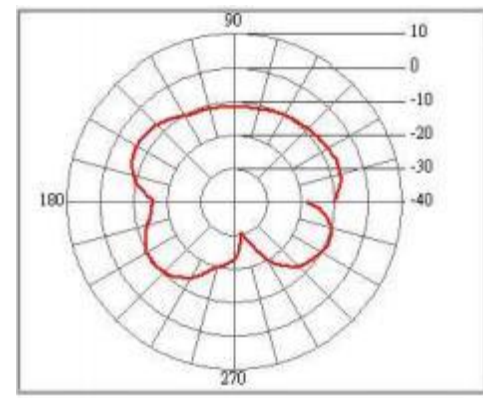
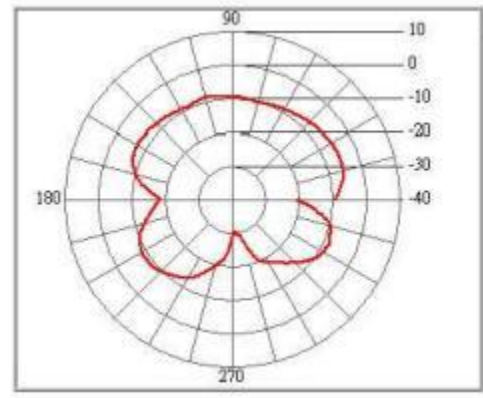
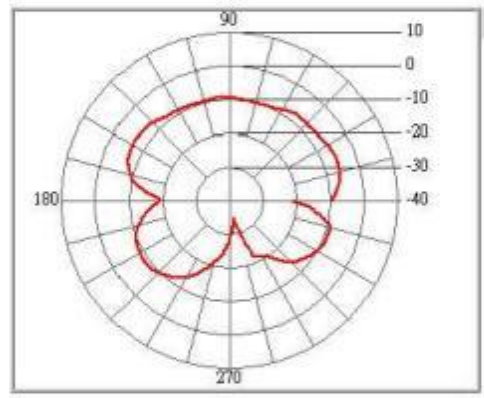
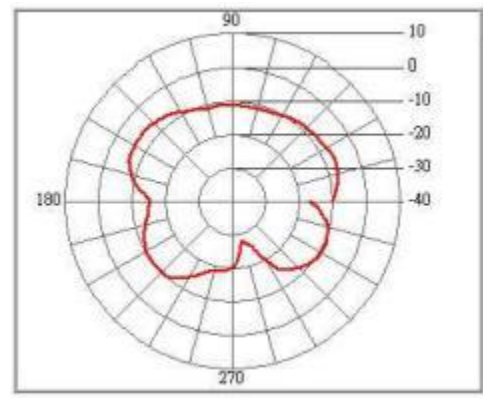
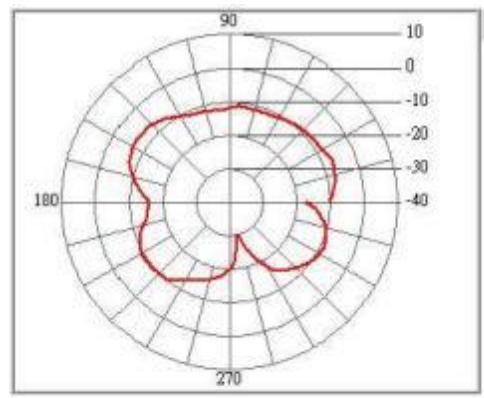


Location: Chamber  
 Temperatur (七) : 25.00

Date: 2022/11/10  
 Humidity (%): 65.00

Time: 下午 4:37:18  
 Approved by:

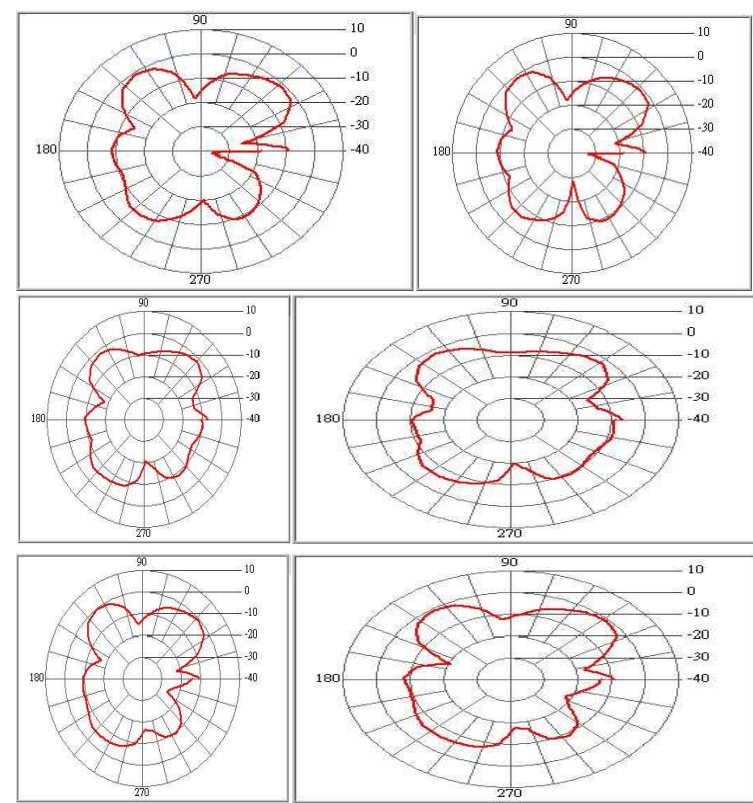
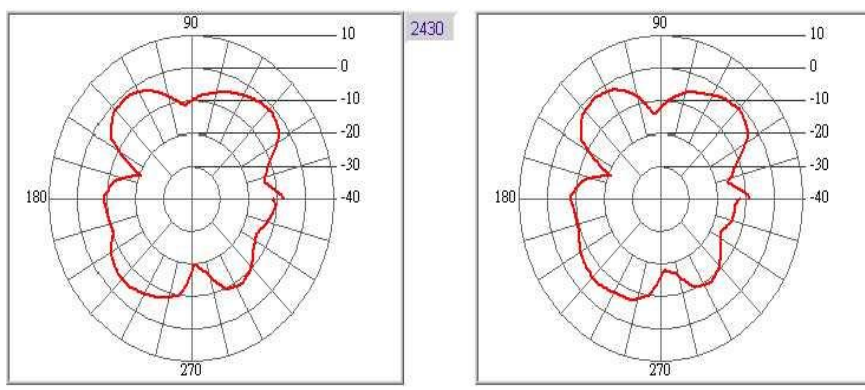
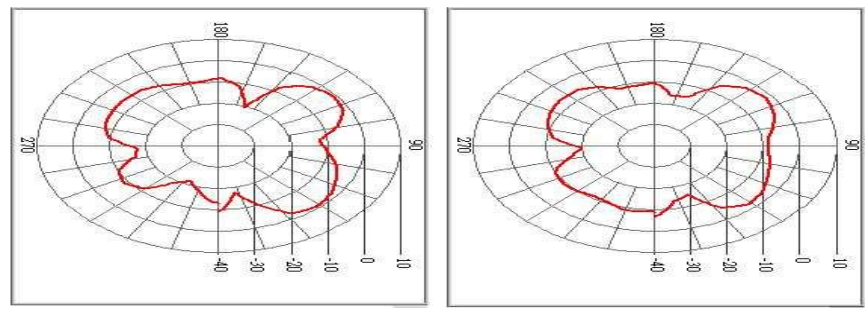
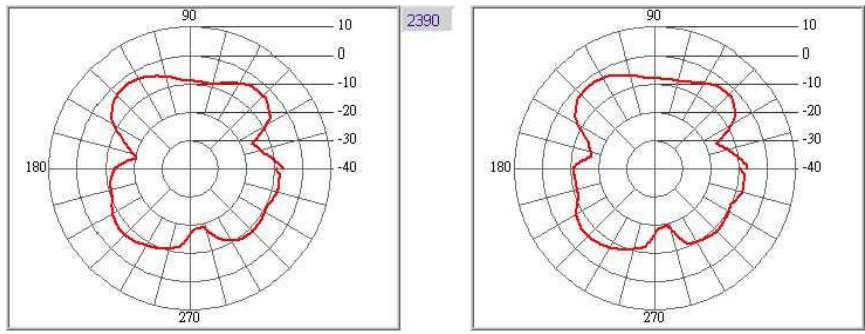
Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	-6.47	-6.21	-6.36	-6.58	-5.69	-5.41	-4.71	-4.6	-5.22	-4.74	-4.9	-4.69
Peak Degree	147	147	147	158	22	22	22	22	13	22	147	137
AV Gain (dBi)	-10.64	-10.4	-10.61	-10.67	-9.95	-9.86	-9.36	-9.05	-9.06	-8.42	-8.81	-8.65



Antenna : 2400MHz Antenna//XZ Remark :  
 H-Plane//H-Pol rested by : Antenna 3D Lab

Location: Chamber Date: 2022/7/20 Time:下午  
 Temperatur (七): 25.00 Humidity (%): 65.00 02:34:46

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	-6.47	-6.21	-6.36	-6.58	-5.69	-5.41	-4.71	-4.6	-5.22	-4.74	-4.9	-4.69
Peak Degree	147	147	147	156	22	22	22	22	13	22	147	137
AV Gain (dBi)	-10.64	-10.4	-10.61	-10.67	-9.95	-9.86	-9.36	-9.05	-9.06	-8.42	-8.81	-8.65





Antenna : 2400MHz Antenna//XZ

Remark : H-Plane//V-Pol

Tested by : Antenna 3D Lab

Location: Chamber

Date: 2022/11/10

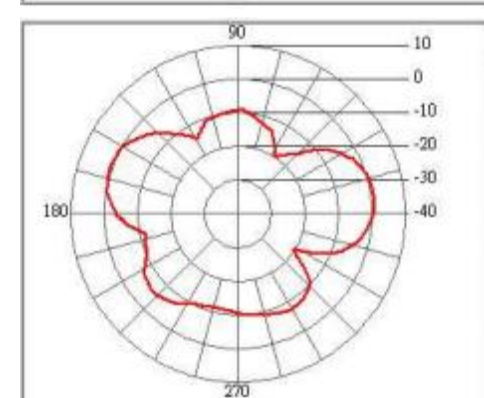
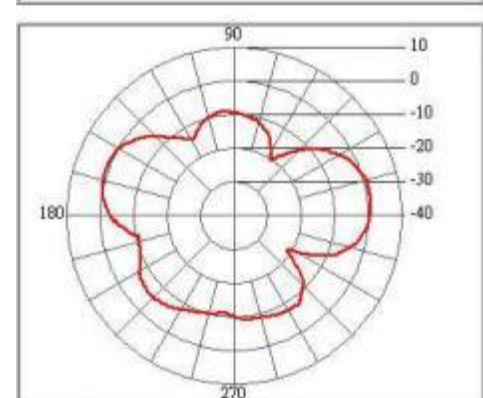
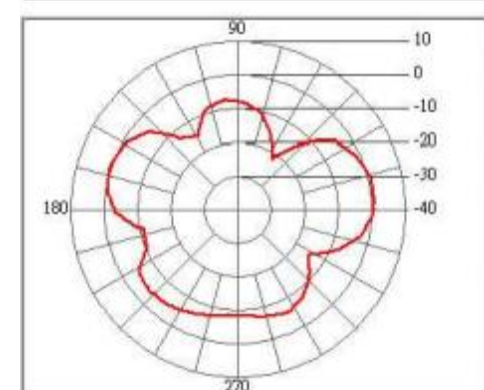
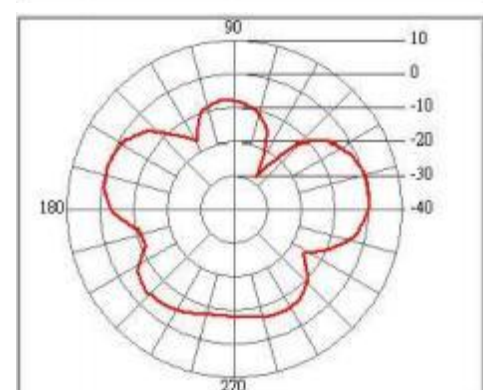
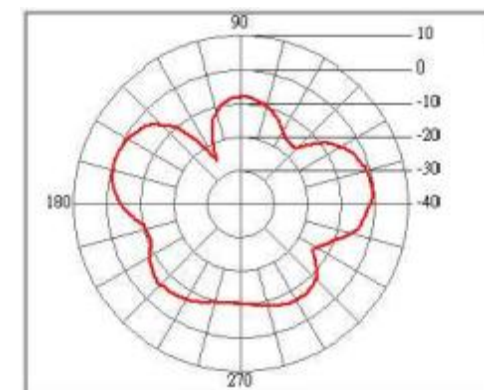
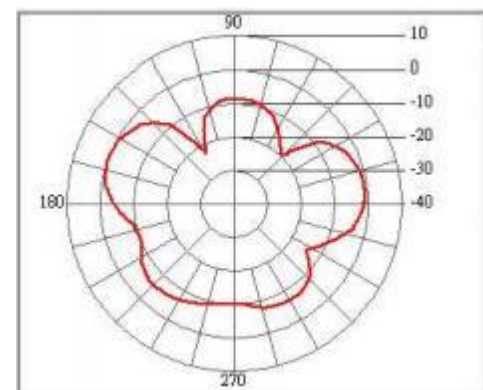
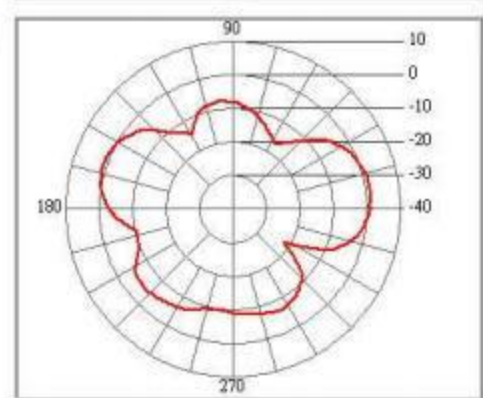
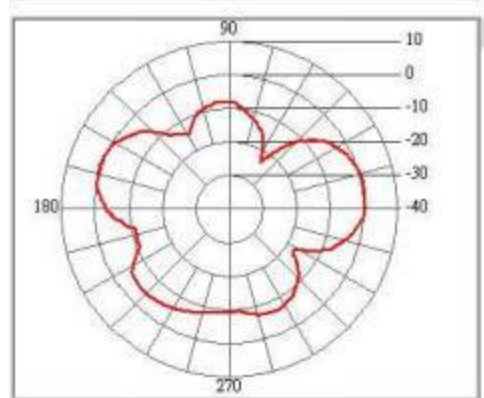
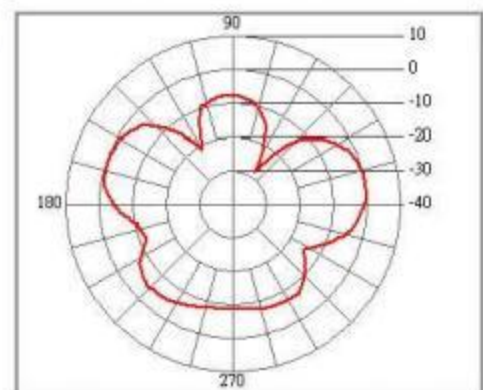
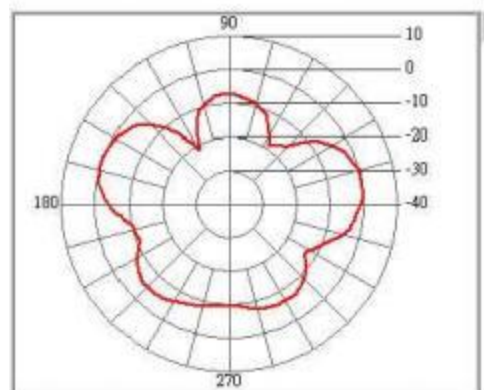
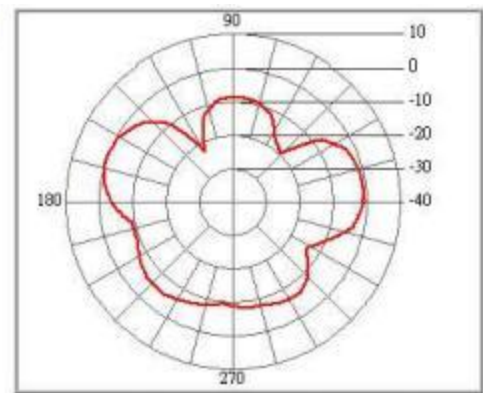
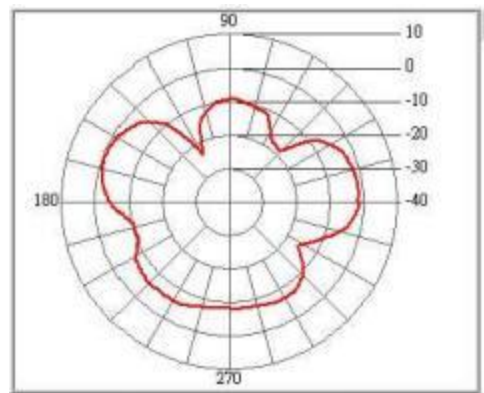
Time:下午 04:37:18

Temperatur (℃) : 25.00

Humidity (%): 65.00

Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	-0.7	0.09	-0.09	-0.15	0.09	0.14	0.61	0.88	0.72	1.4	1.04	1.01
Peak Degree	160	161	160	161	14	4	4	14	14	4	14	4
AV Gain (dBi)	-6.05	-5.6	-5.75	-5.89	-5.43	-5.54	-5.07	-4.88	-5.01	-4.6	-5.04	-5.31



Antenna : 2400MHz Antenna//XY  
 Remark : H-Plane//H-Pol Tested  
 by : Antenna 3D Lab

Location: Chamber

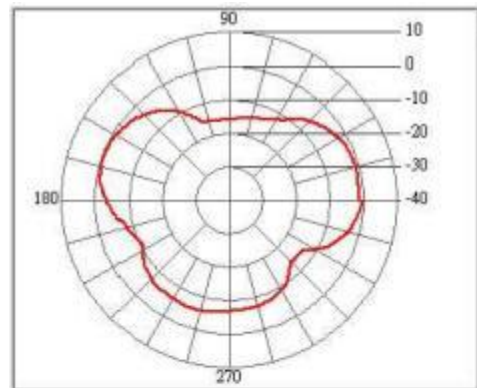
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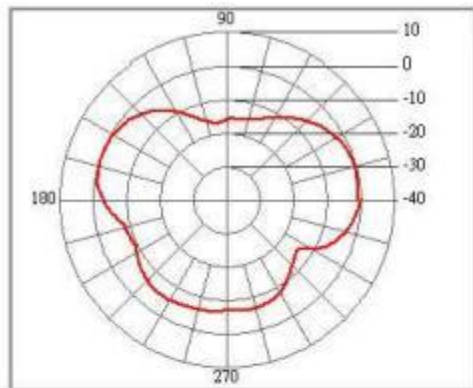
Temperatuer (七) : 25.00

Humidity (%): 65.00

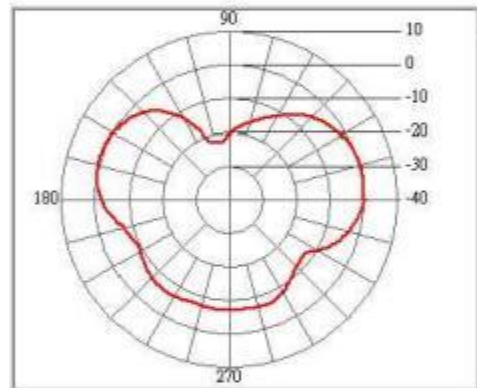
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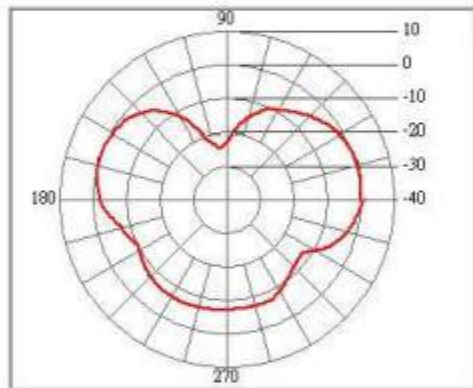
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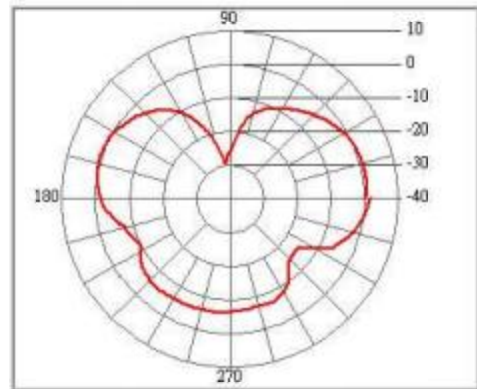
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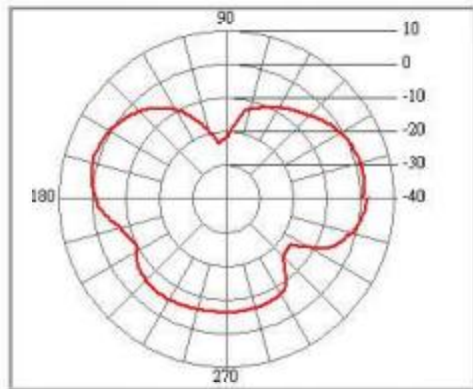
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2420

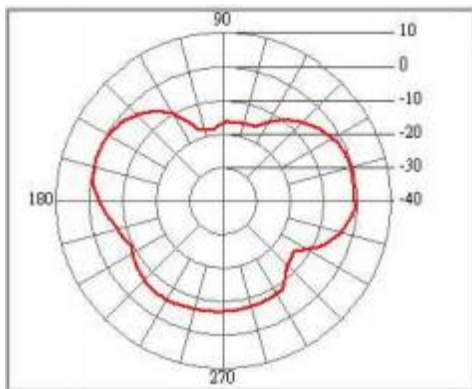


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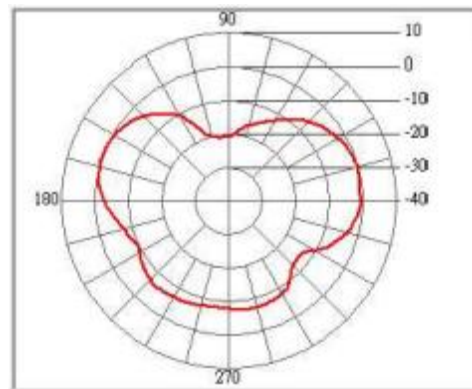


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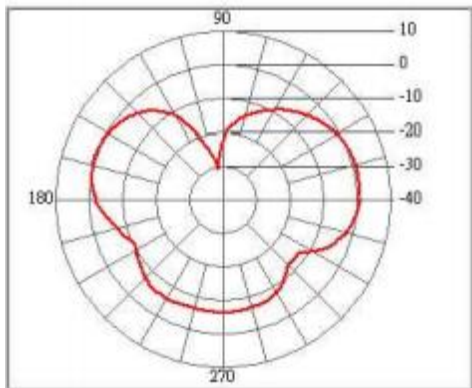
Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	-0.28	-0.07	-0.1	0.11	0.59	0.65	1.06	1.81	1.81	2.16	1.81	1.58
Peak Degree	360	360	162	162	14	15	14	360	360	360	360	360
AV Gain (dBi)	-5.21	-4.91	-4.98	-5	-4.53	-4.53	-4.17	-3.94	-4.07	-3.57	-4.01	-4.17



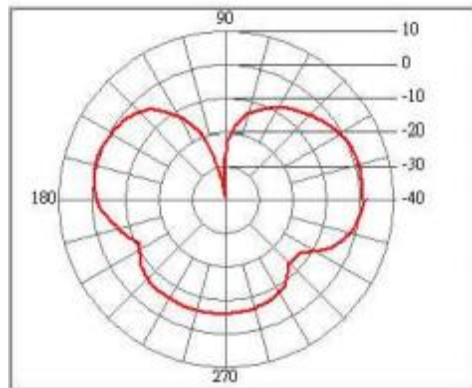
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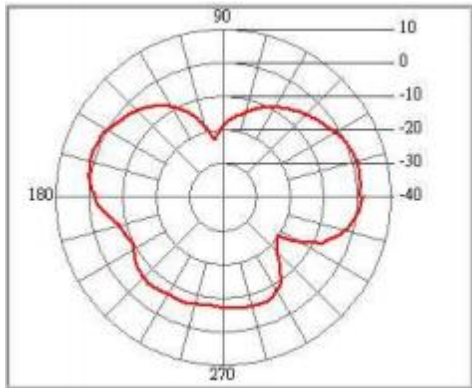
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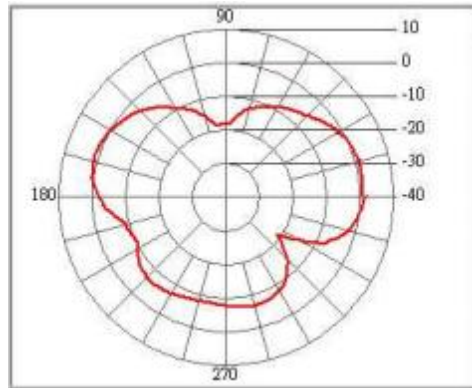
2470



2480



2490



2500



Antenna : 2400MHz Antenna//XY  
 Remark : H-Plane//V-Pol  
 Tested by : Antenna 3D Lab

Location: Chamber

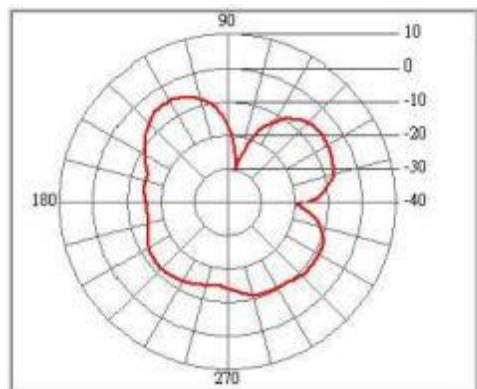
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Time:下午 04:37:12

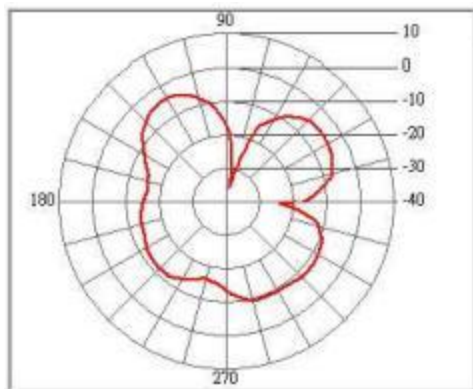
Temperatuer (七) : 25.00

Humidity (%): 65.00

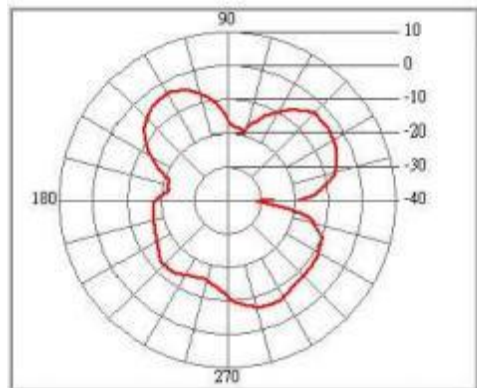
Approved by:



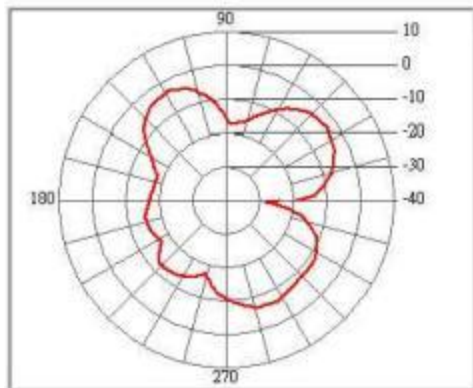
2390



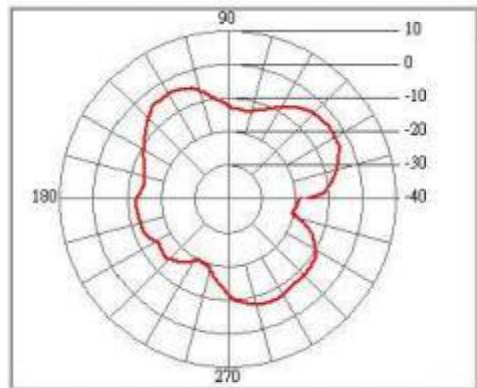
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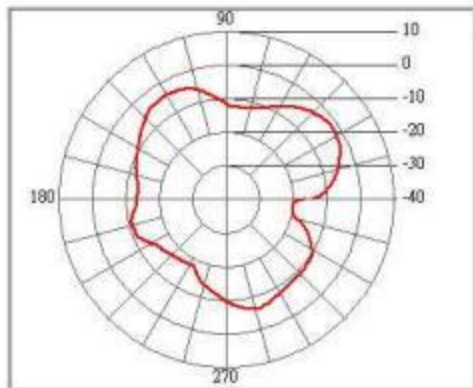
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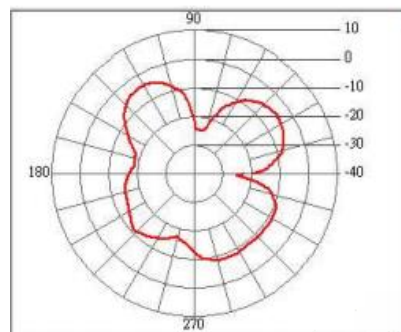


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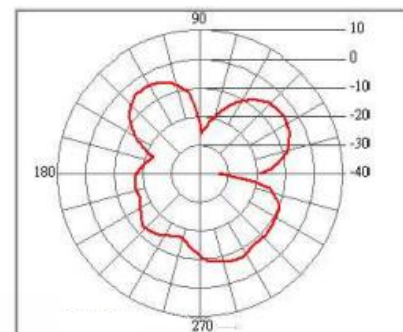


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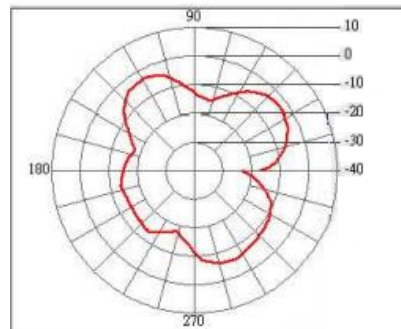
Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	-4.96	-4.27	-4.23	-4.27	-3.26	-3.09	-2.64	-2.57	-3.06	-1.66	-1.87	-1.58
Peak Degree	119	119	119	95	95	95	95	95	95	95	95	95
AV Gain (dBi)	-10.05	-9.64	-9.75	-9.66	-8.89	-8.83	-8.52	-8.37	-8.7	-8.12	-8.38	-8.24



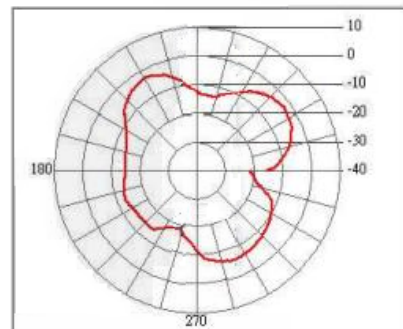
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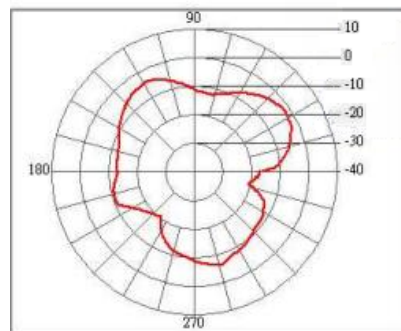
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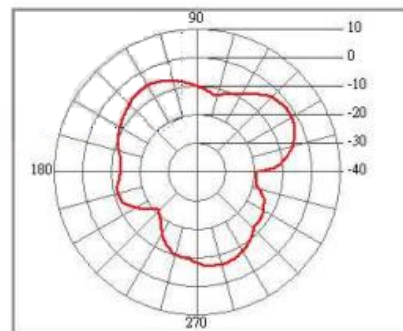
2470



2480



2490



2500



Antenna : 2400MHz Antenna/YZ  
 Remark : H-Plane//H-Pol Tested  
 by : Antenna 3D Lab

Location: Chamber

Date: 202211/10

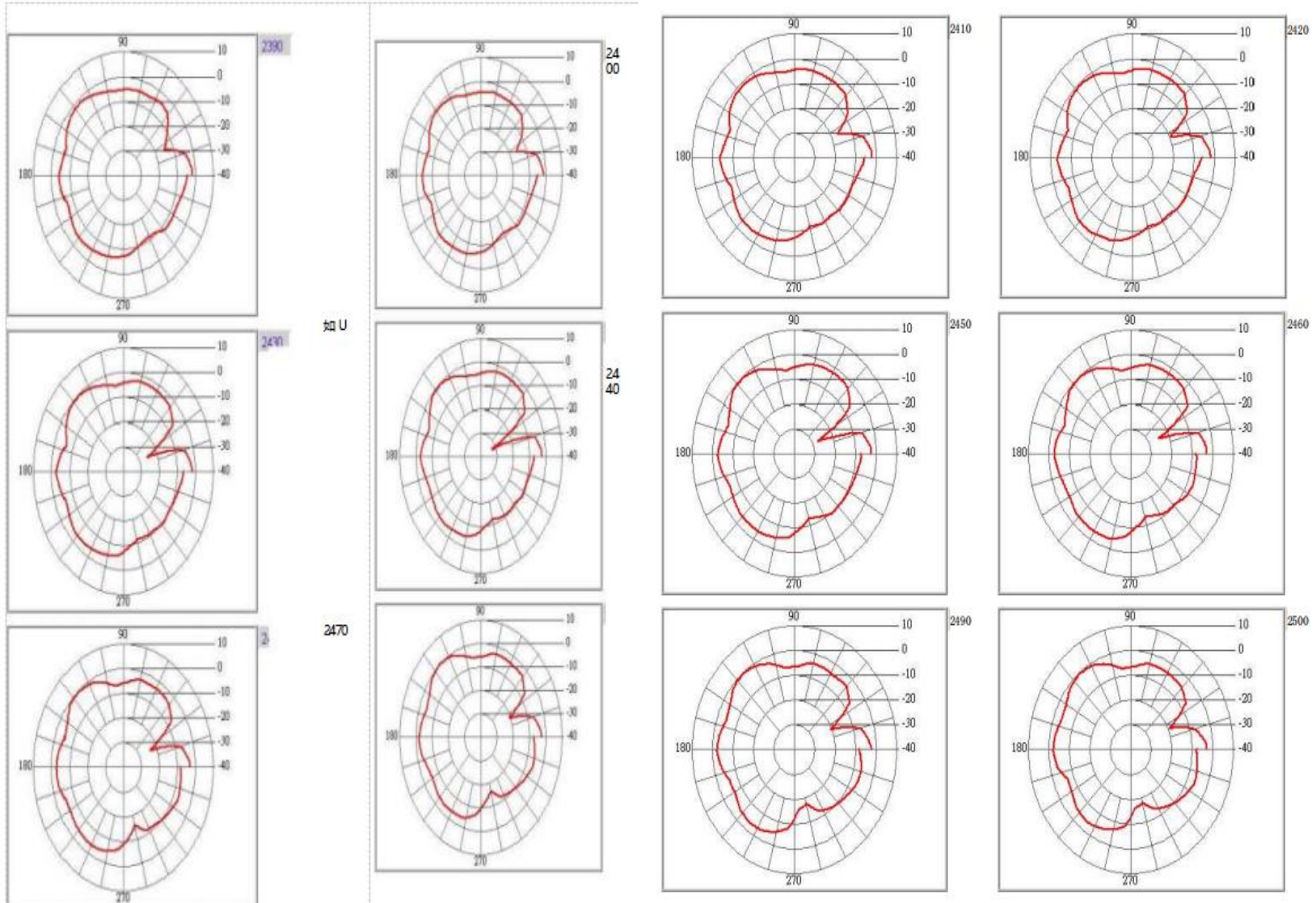
Time: 下午 04:37

Temperature (°C) : 25.00

Humidity (%) : 65.00

Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dB)	-1.51	-1.27	-1.16	-0.94	-0.57	-0.57	-0.45	-0.3	-0.41	0.06	-0.31	-0.45
Peak Degree	0	139	129	129	130	129	129	129	129	129	129	129
AV Gain (dB)	-5.35	-5.08	-5.12	-4.93	-4.64	-4.67	-4.77	-4.73	-4.98	-4.6	-5.03	-5.19



## 4. Test Results

Bluetooth	Frequency 2400~2500 MHz			
SWR	< 2.0			
2D Test Gain (dBi)	XY	Vertical	Peak Gain	-1 —4
			Av Gain	-8 — 10
		Horizontal	Peak Gain	0 ~ 2
			Av Gain	-3 ~ - 5
	XZ	Vertical	Peak Gain	0 ~ 1
			Av Gain	-4 ~ - 6
		Horizontal	Peak Gain	-1 ~ 2
			Av Gain	-6 —7
	YZ	Vertical	Peak Gain	-4 ~6
			Av Gain	-8 — 10
		Horizontal	Peak Gain	0 ~ -1
			Av Gain	-4 — 5
3D Test	Efficiency (%)		45 %	
	Peak Gain (dBi)		2.16 dBi	