

APPROVAL SPECIFICATION

Product : Internal Antenna

Model Name : TMRV07P5G

Date : 2024.05.27

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1. Manufacturer

- ANT0&1 ,ANT2&7: Kunshan Innowave Communication Technology Co.,Ltd
- ANT3,ANT4&5,ANT6&10,ANT9,ANT8:SHENZHEN SUNWAY COMMUNICATION CO.,LTD

2. Model Name

- **Basic Model:** TMRV07P5G

3. Antenna Type

ANT	Antenna type
ANT0	FPC Antenna, IFA
ANT1	FPC Antenna, IFA
ANT2	FPC Antenna, IFA
ANT3	FPC Antenna, IFA
ANT4	FPC Antenna, IFA
ANT5	FPC Antenna, IFA
ANT6	FPC Antenna, IFA
ANT7	FPC Antenna, IFA
ANT8	FPC Antenna, IFA
ANT9	FPC Antenna, IFA
ANT10	FPC Antenna, IFA



	TRX (TX+PRX)	DRX	PRX MIMO	DRX MIMO	BT/WIFI	GPS
ANT0	TAS0: GSM 850/900 UMTS 5/8 LTE: B5/8/12/13/17/20/26/28/71 NR: N28/71 ULMIMO: N41 ENDC LTE B7	LTE:B38/41 NR: N38/41 TAS1: GSM 850/900 UMTS 5/8 LTE: B5/8/12/13/17/20/26/28/71 NR: N28/71	LTE:B7 NR: N7			
ANT1	TAS0: GSM: GSM1800/1900 UMTS: B1/2/4 LTE : B1/2/3/4/25/39/66 NR: N1/3/25/66 UL MIMO: N77/78	TAS1: GSM: GSM1800/1900 UMTS: B1/2/4 LTE : B1/2/3/4/25/39/66 NR: N1/3/25/66				
ANT2		LTE:B7/40 NR: N7	LTE: B1/2/3/4/25/66 NR: N1/3/25/66/77/78	LTE:B38/41 NR:N38/41		
ANT3	LTE:B7/38/40/41 NR:N7/38/41 TAS1: GSM 850/900/1800/1900 UMTS B1/2/4/5/8 LTE: B5/8/12/13/17/20/26/28/71 /1/2/3/4/25/39/66 NR:N1/3/25/28/66/71	TAS0: LTE : B1/2/3/4/25/39/66				
ANT4	NR:N77/78	NR: N1/3/25/66				
ANT5					BT/WIFI Chain0 2.4G(IEEE 802.11 b/g/n/ax)	GPS L1
ANT6			LTE:B38/41 NR:N38/41	LTE: B1/2/3/4/7/25/66 NR: N1/3/7/25/66/77/77		
ANT7					WIFI MIMO Chain1 2.4G+5G+6G(IEEE 802.11b/g/n/a/ac/ax)	
ANT8						GPS L5
ANT9		ENDC LTE B20/n28 DRX				
ANT10					WIFI Chain0 5G+6G(IEEE 802.11 n/a/ac/ax)	

4. Electric Performance Data

4.1 Specification Sheet

Electronic Specification				
Frequency Range [MHz]	WIFI 2.4G Chain0/BT	WIFI 5G Chain0	WIFI 6E Chain0	WIFI 2.4G Chain1
		2400-2484	5150-5850	5925-7125
ANT	ANT5	ANT10	ANT10	ANT7
Peak Gain(dBi)	-2.1	-0.3	1.0	-8.5
Frequency Range [MHz]	WIFI 5G Chain1	WIFI 6E Chain1	GPS	BT
	5150-5850	5925-7125	698-746	2400-2483.5
ANT	ANT7	ANT7	ANT5	ANT5
Peak Gain(dBi)	-1.9	4.2	-6.65	-2.1

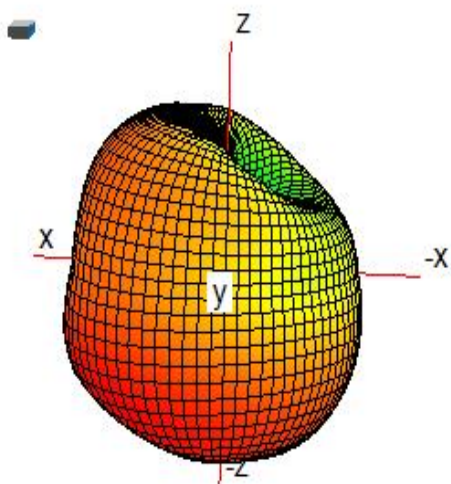
Antenna gain

Band		Antenna Gain(dBi)					
		config0			config1		
		ANT	Peak Gain	Average Gain	ANT	Peak Gain	Average Gain
GSM	GSM 850	ANT0	-2.89	-3.94	ANT3	-5.35	-5.84
	GSM 900	ANT0	-1.67	-3.45	ANT3	-4.67	-5.84
	GSM 1800	ANT1	-1.00	-0.52	ANT3	-1.02	-1.35
	GSM 1900	ANT1	-0.78	-2.00	ANT3	-0.10	-1.29

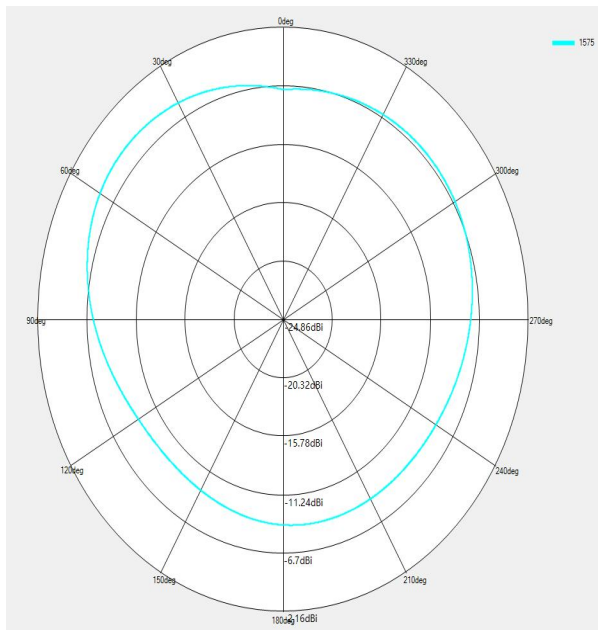
WCDMA	WCDMA B1	ANT1	-0.60	-1.82	ANT3	0.35	-0.38	
	WCDMA B2	ANT1	-0.78	-2.00	ANT3	-0.10	-1.29	
	WCDMA B4	ANT1	-0.26	-1.4	ANT3	-1.18	-2.32	
	WCDMA B5	ANT0	-2.89	-3.94	ANT3	-5.35	-5.84	
	WCDMA B8	ANT0	-1.67	-3.45	ANT3	-4.67	-8.85	
LTE	LTE B1	ANT1	-0.60	-1.82	ANT3	0.35	-0.38	
	LTE B2	ANT1	-0.78	-2.00	ANT3	-0.10	-1.29	
	LTE B25	ANT1	-0.78	-2.00	ANT3	-0.10	-1.29	
	LTE B3	ANT1	-1.00	-0.52	ANT3	-1.02	-1.35	
	LTE B4	ANT1	-0.26	-1.40	ANT3	-1.18	-2.32	
	LTE B66	ANT1	-0.26	-1.40	ANT3	0.98	-1.68	
	LTE B5	ANT0	-2.89	-3.94	ANT3	-5.35	-5.84	
	LTE B26	ANT0	-2.89	-3.94	ANT3	-5.35	-5.84	
	LTE B7	ANT3	0.26	-0.41				
	LTE B8	ANT0	-1.67	-3.45	ANT3	-4.67	-8.85	
	LTE B12	ANT0	-1.92	-2.77	ANT3	-5.73	-6.00	
	LTE B17	ANT0	-1.92	-2.77	ANT3	-5.73	-6.00	
	LTE B13	ANT0	-2.67	-3.06	ANT3	-5.88	-6.36	
	LTE B20	ANT0	-2.89	-3.70	ANT3	-5.22	-5.71	
	LTE B28	ANT0	-1.11	-3.60	ANT3	-5.65	-6.36	
	LTE B39	ANT1	-0.78	-2.00	ANT3	1.21	0.48	
	LTE B40	ANT3	-1.24	-1.58				
	LTE B38	ANT3	-0.28	-0.38				
	LTE B41	ANT3	-0.28	-0.38				
	LTE B71	ANT0	-3.11	-4.20	ANT3	-6.75	-8.40	
	NR	NR n1	ANT1	-0.60	-1.82	ANT3	0.35	-0.38
		NR n3	ANT1	-1.00	-0.52	ANT3	-1.02	-1.35
		NR n7	ANT3	0.26	-0.41			
NR n25		ANT1	-0.78	-2.00	ANT3	-0.10	-1.29	
NR n28		ANT0	-1.11	-3.60	ANT3	-5.65	-6.36	
NR n38		ANT3	-0.28	-0.38				
NR n41		ANT3	-0.28	-0.38				
NR n66		ANT1	-0.26	-1.40	ANT3	0.98	-1.68	
NR n71		ANT0	-3.11	-4.20	ANT3	-6.75	-8.40	
NR n77		ANT4	-0.62	-1.90				
NR n78		ANT4	-1.58	-2.19				

4.2 Antenna Pattern Drawing

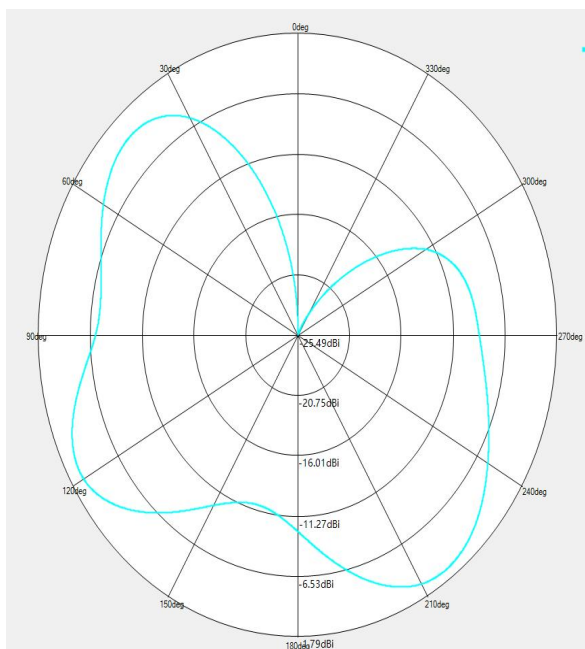
ANT5 GPS



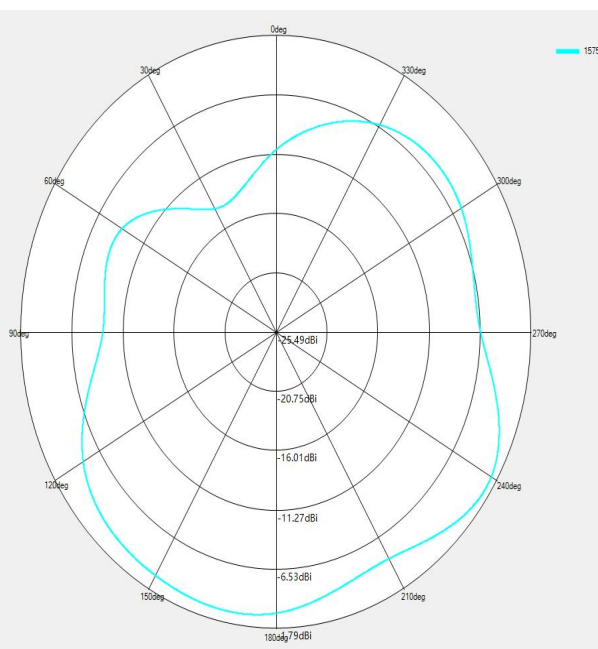
1575MHz



Theta=90°

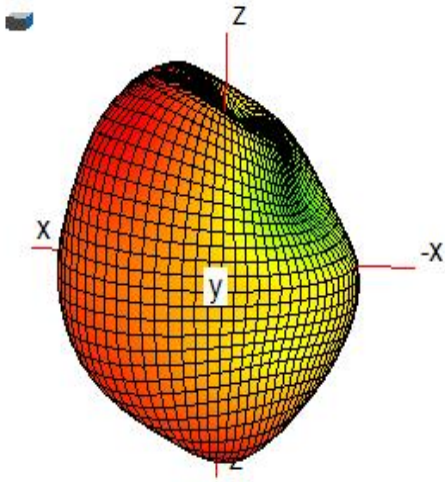


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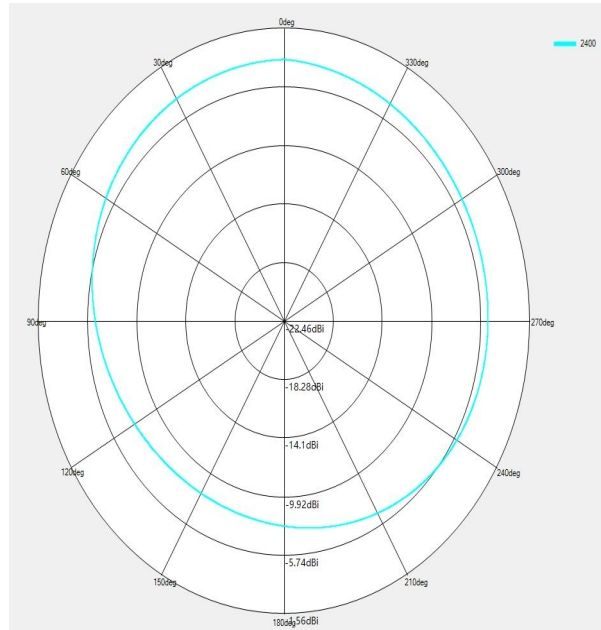


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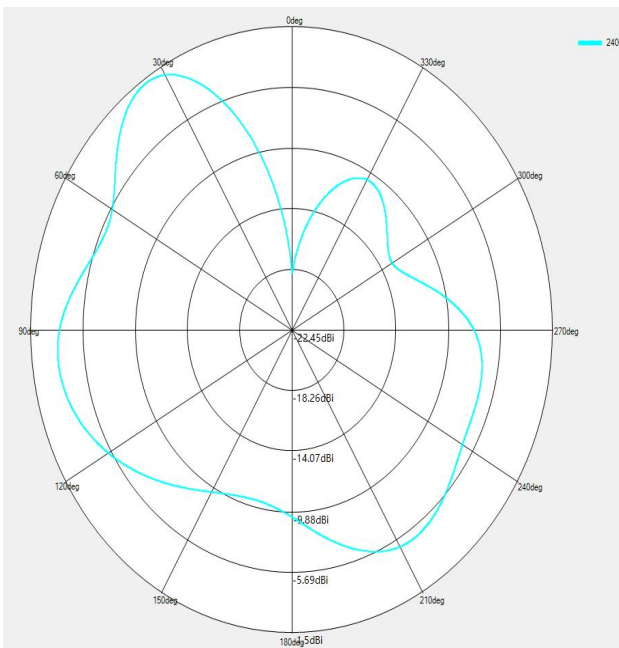
ANT5 WIFI 2.4G Chain0



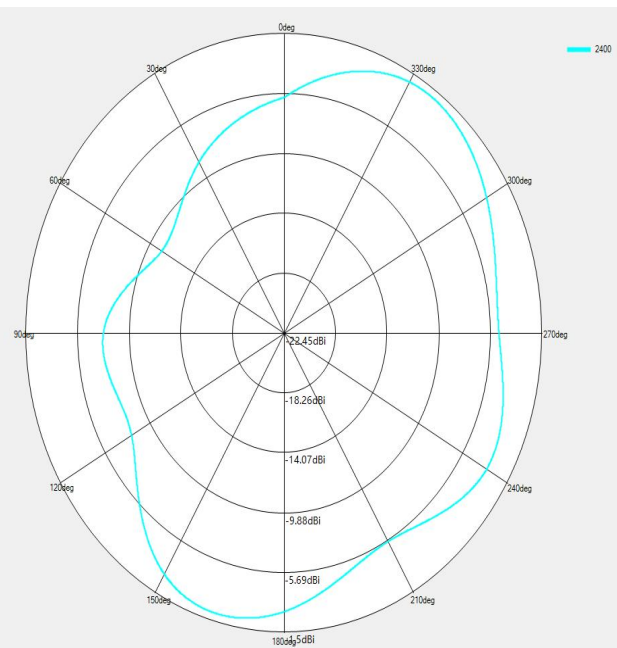
2400MHz



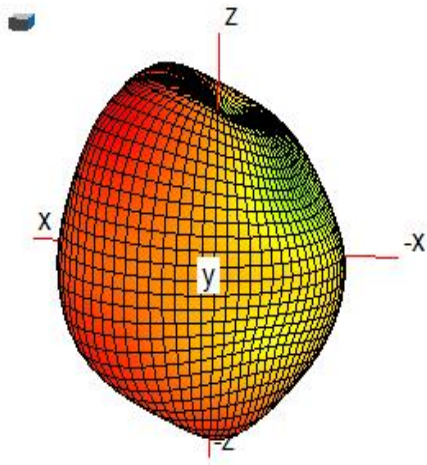
Theta=90°



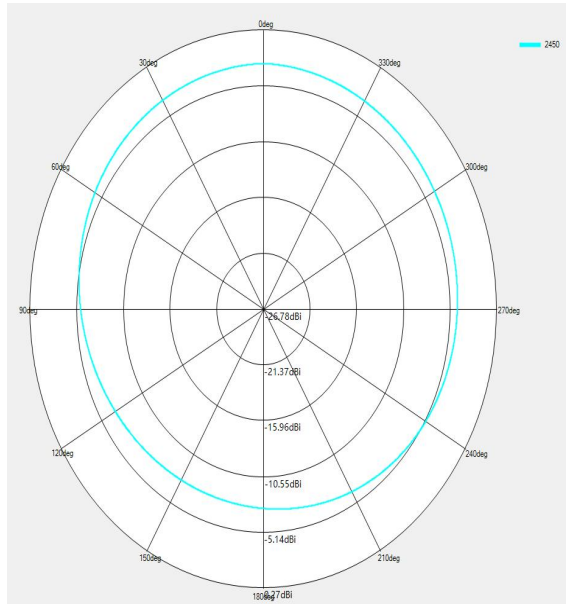
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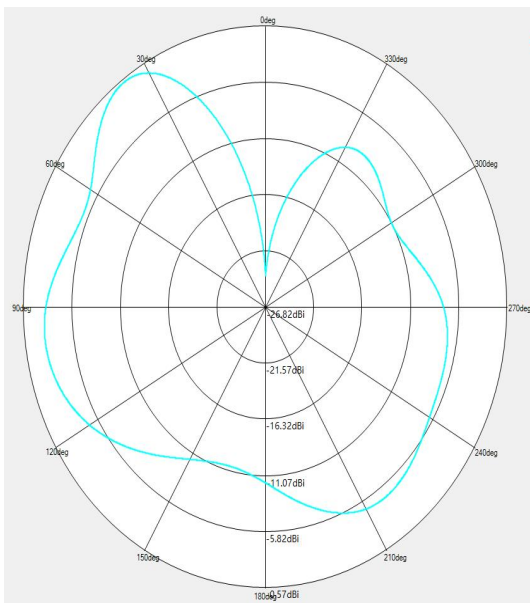
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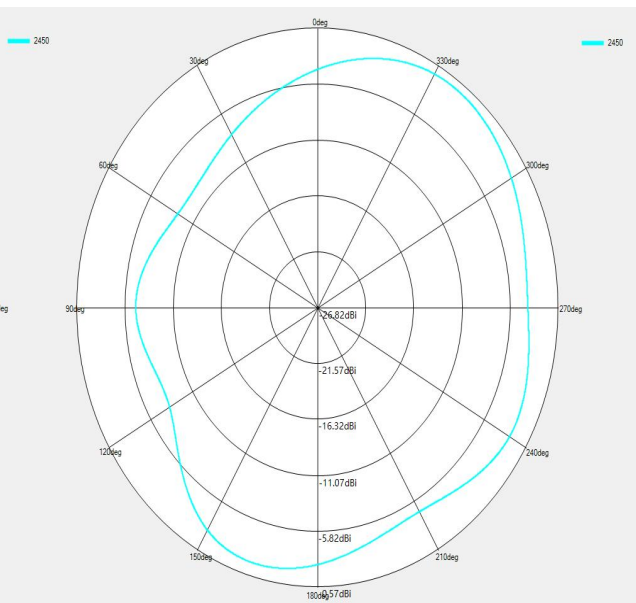
2450MHz



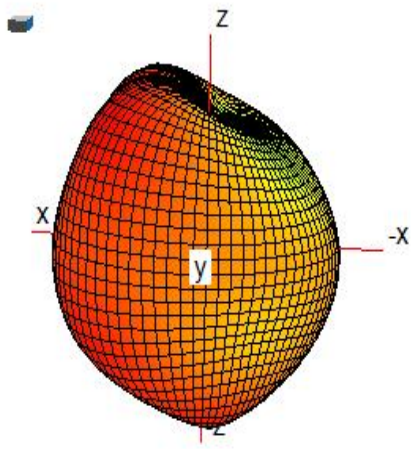
Theta=90°



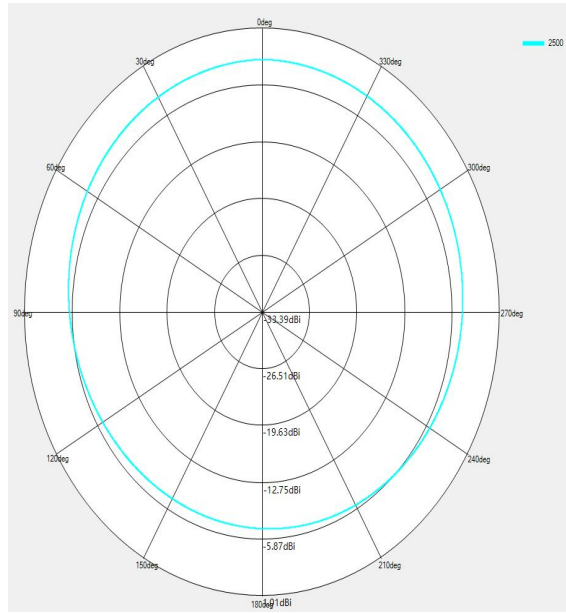
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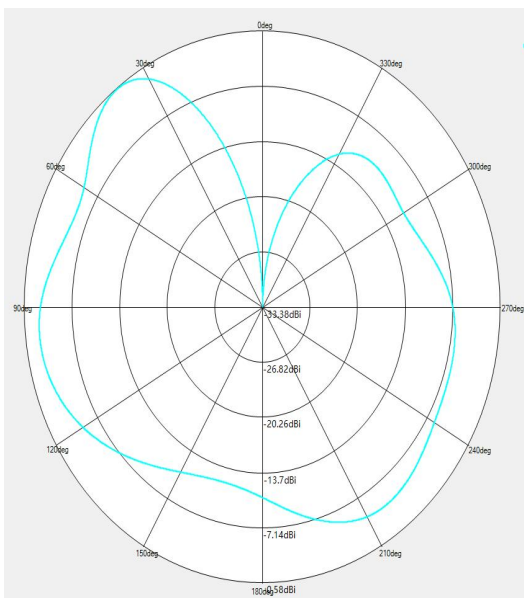
Phi=90°



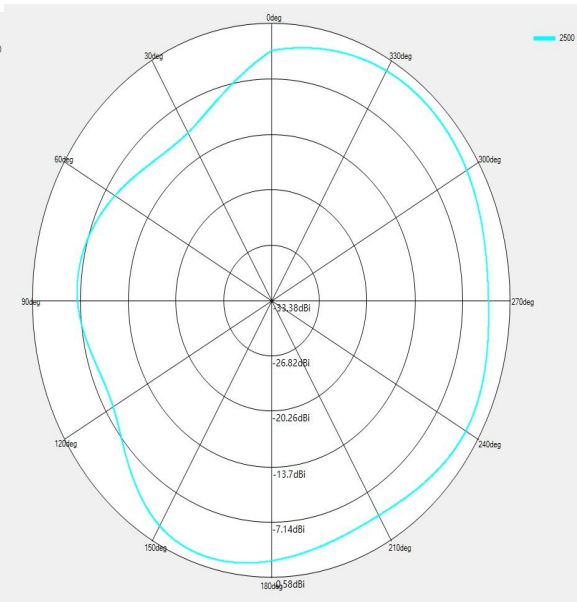
2500MHz



Theta=90°

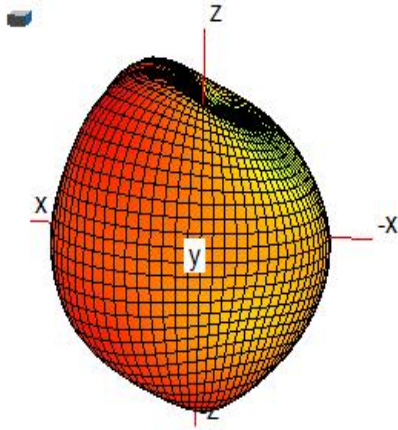


Phi=0°

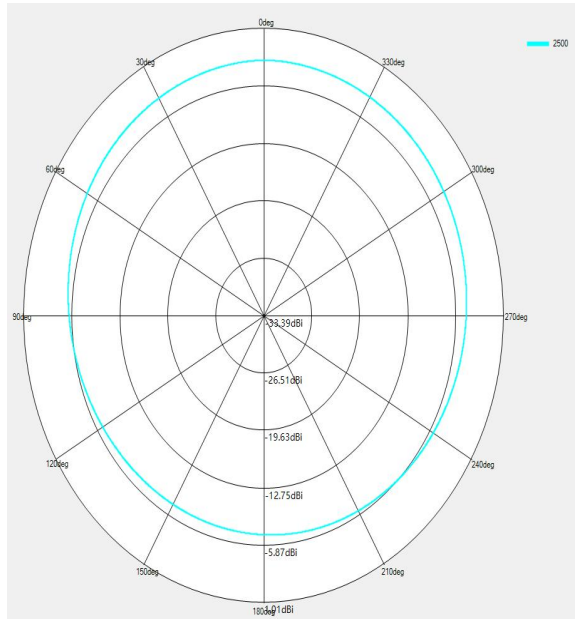


Phi=90°

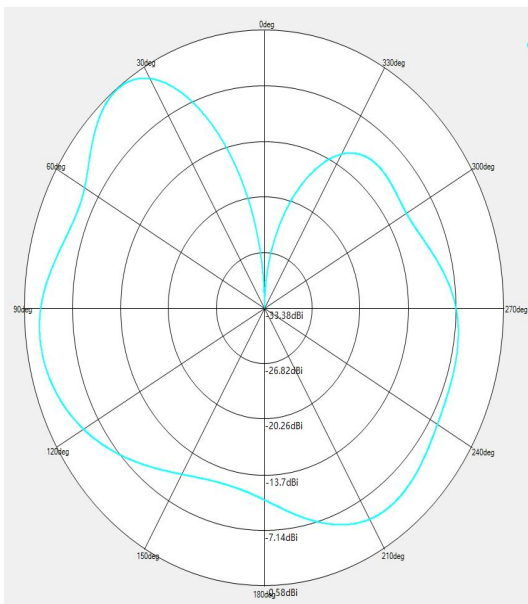
ANT10 WIFI 5G Chain0



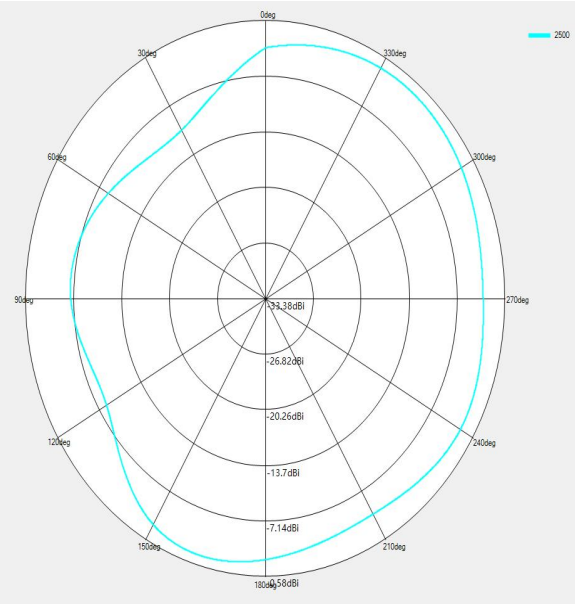
5150MHz



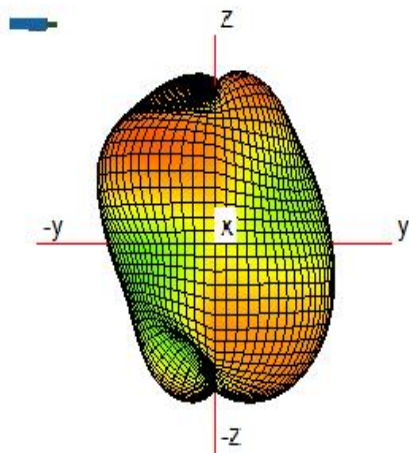
Theta=90°



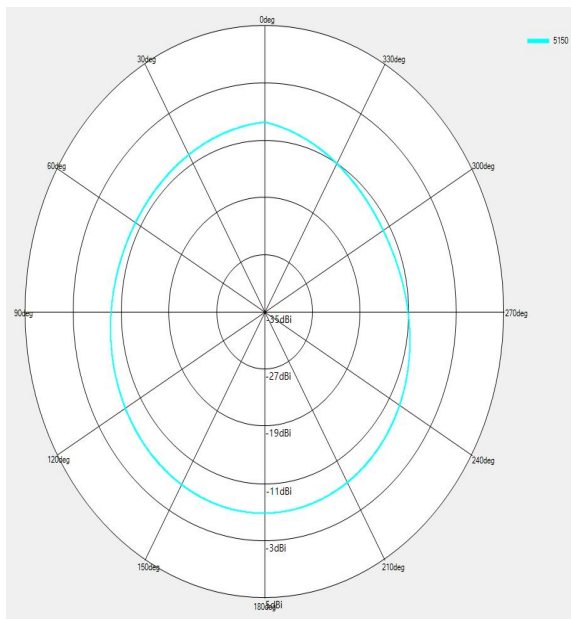
Phi=0°



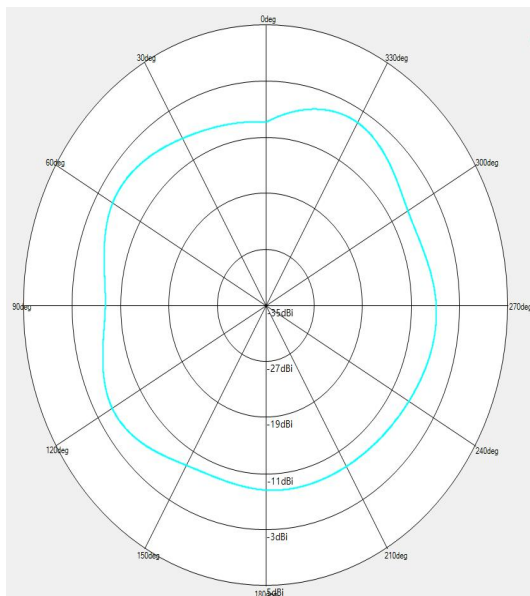
Phi=90°



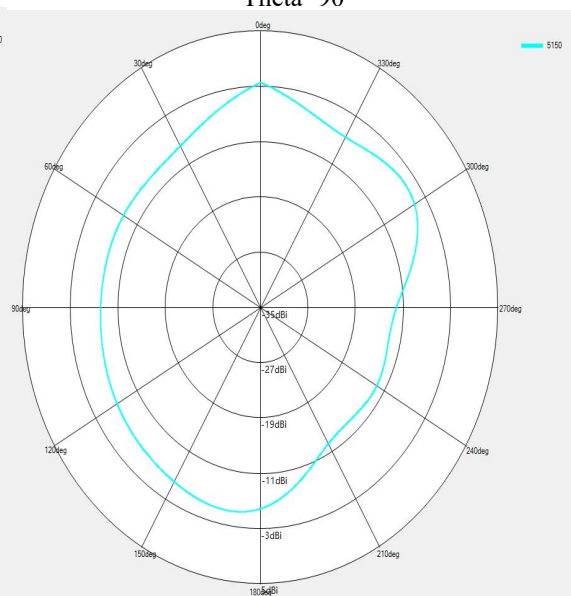
5350MHz



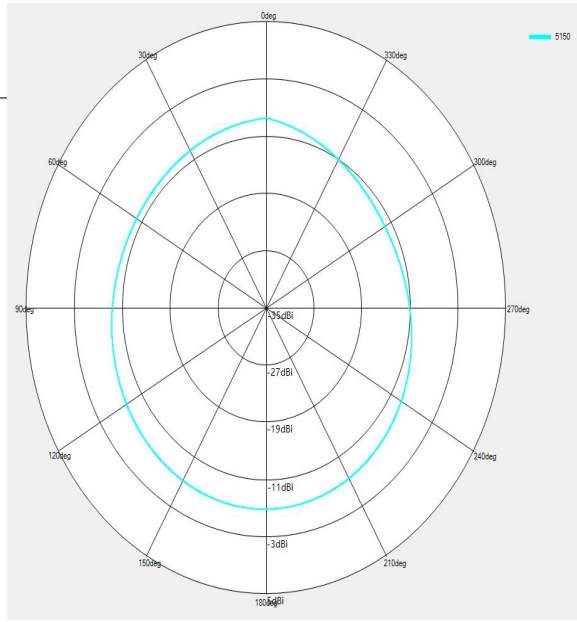
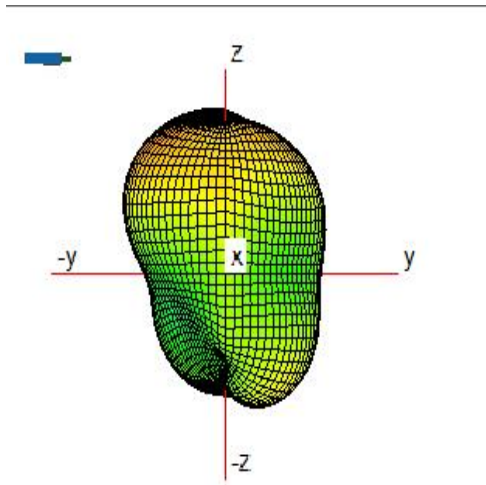
Theta=90°



Phi=0°

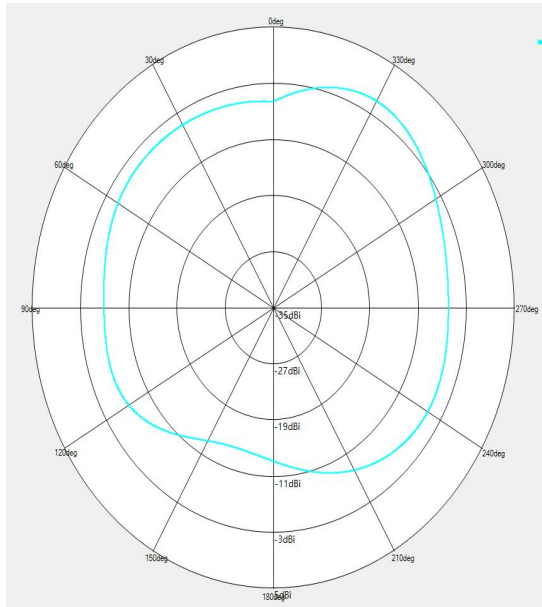


Phi=90°

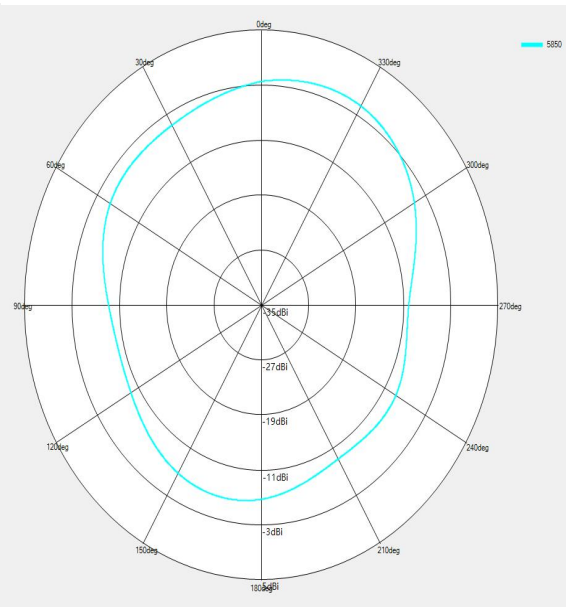


5850MHz

Theta=90°



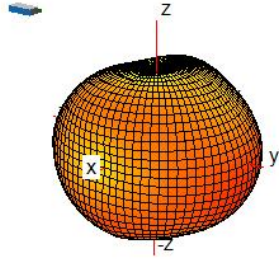
Phi=0°



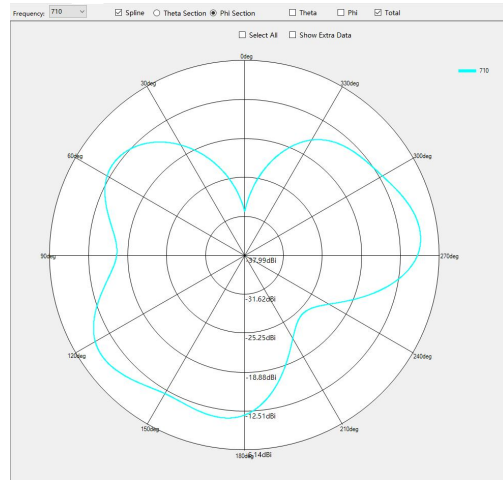
Phi=90°

ANT10 WIFI 6E Chain0

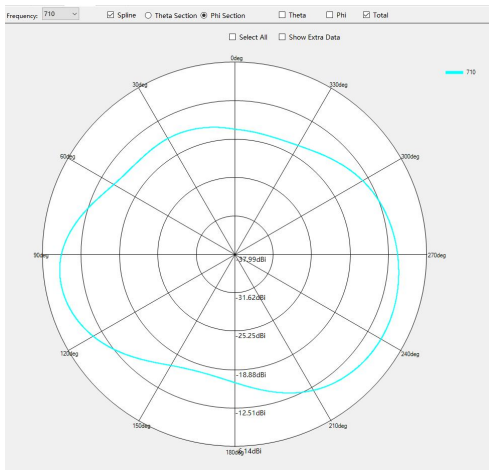
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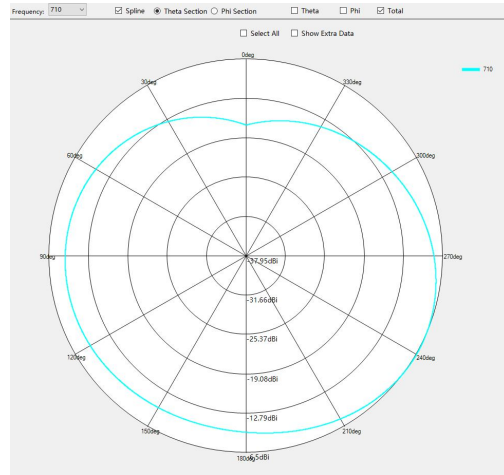
6525MHz



Phi=0.00deg

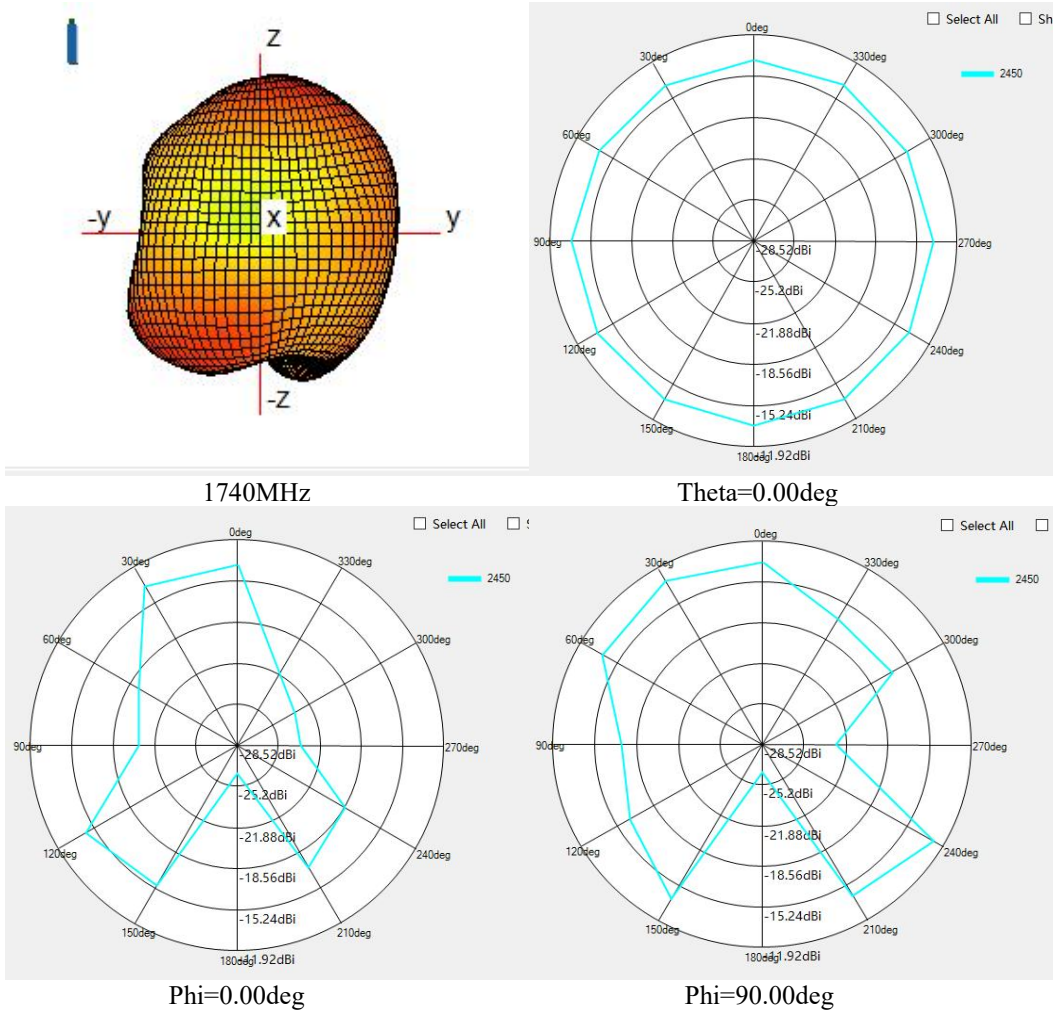


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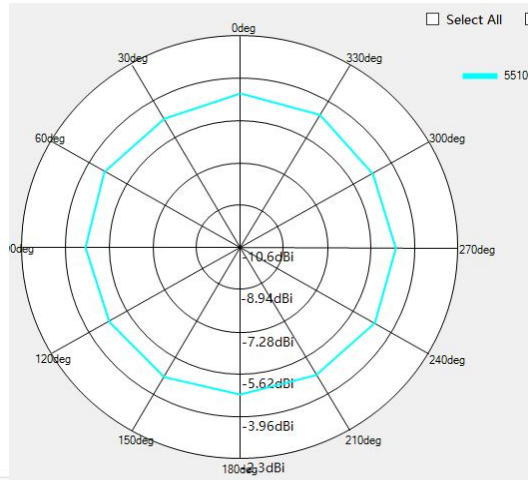
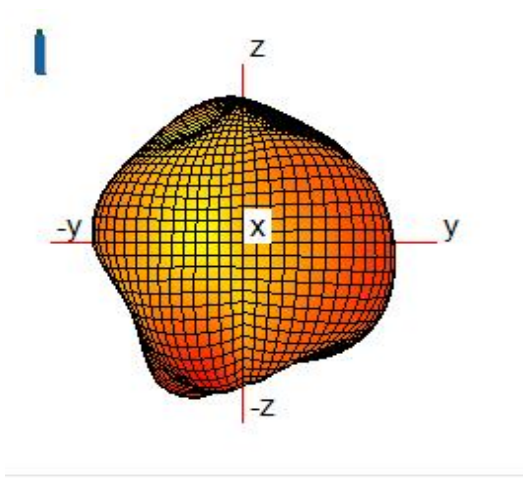


Theta=90.00deg

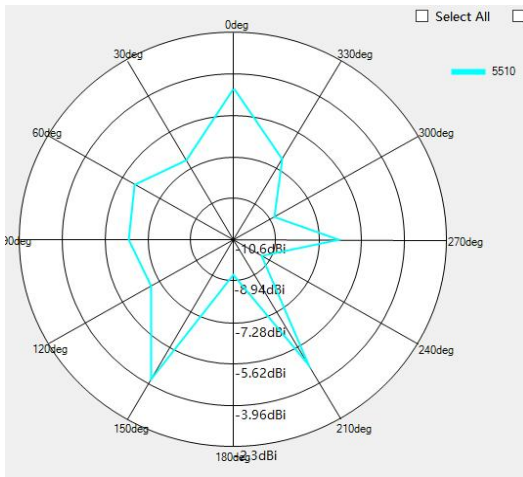
ANT7 2.4G Chain1



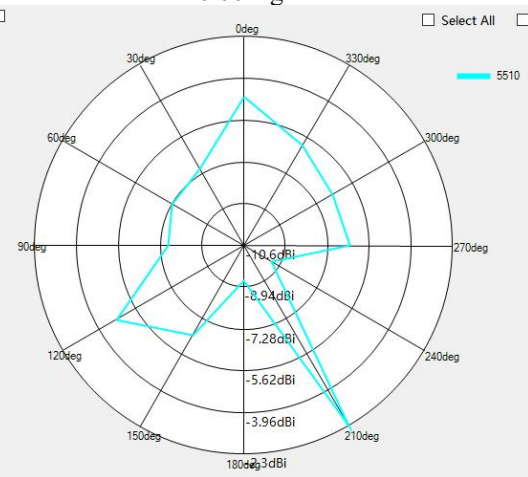
ANT7 5G Chain1



Theta=0.00deg

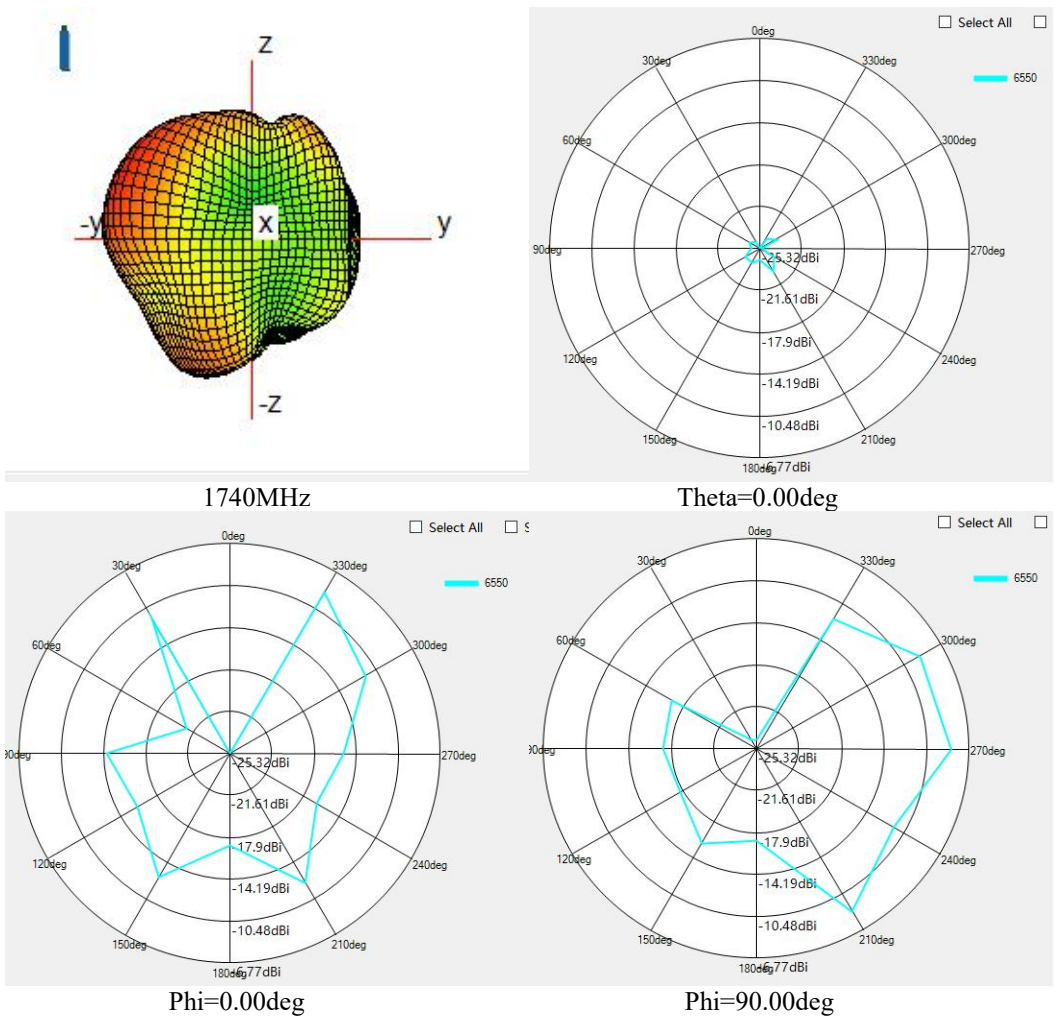


Phi=0.00deg



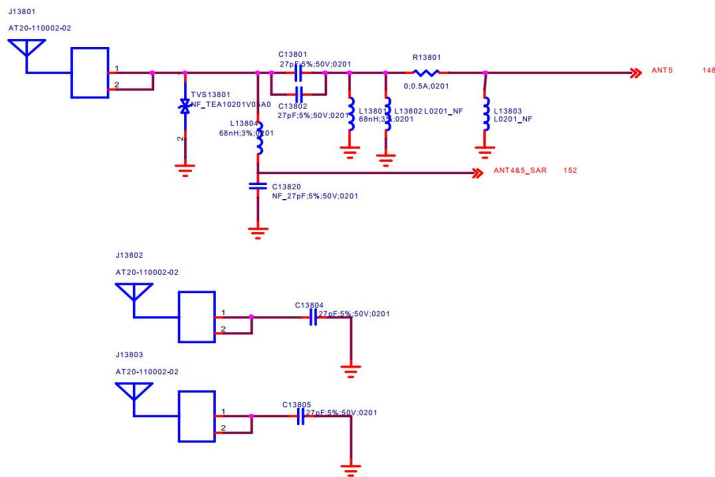
Phi=90.00deg

ANT7 WIFI 6E Chain1



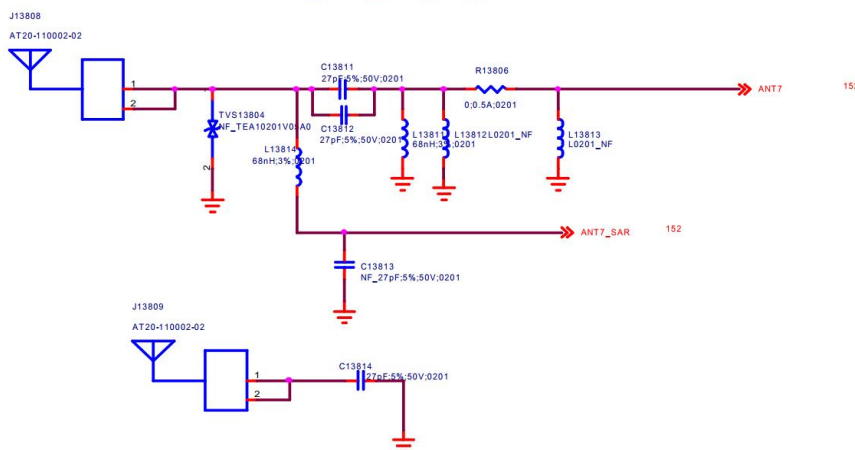
5. Matching Circuit

● ANT5



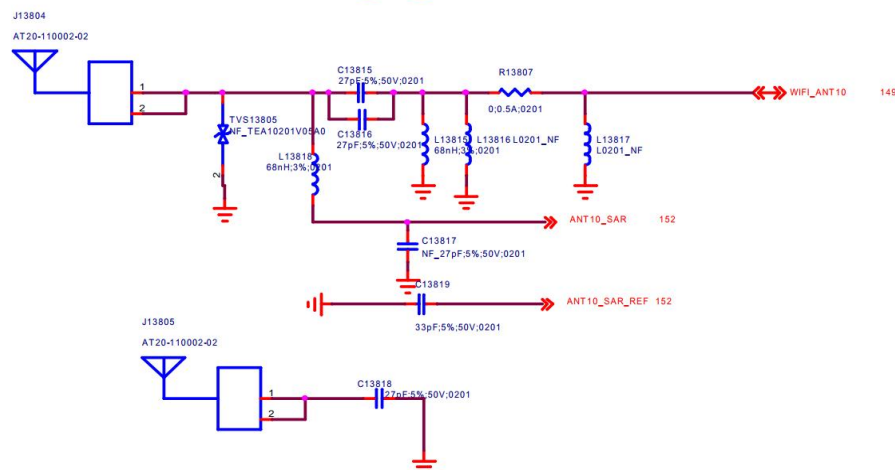
● ANT7

ANT7 WIFI_2.4G_5G_6G_Chain1



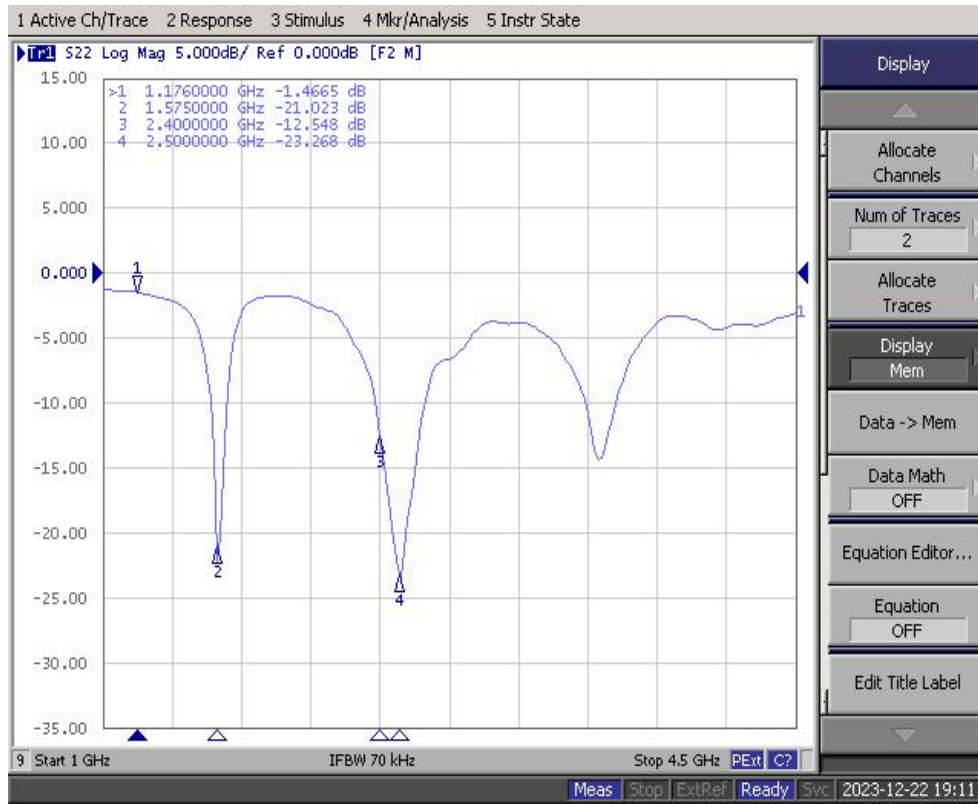
● ANT10

ANT10 WIFI5G_6G_Chain0



6. Electrical Graph(Returnloss)

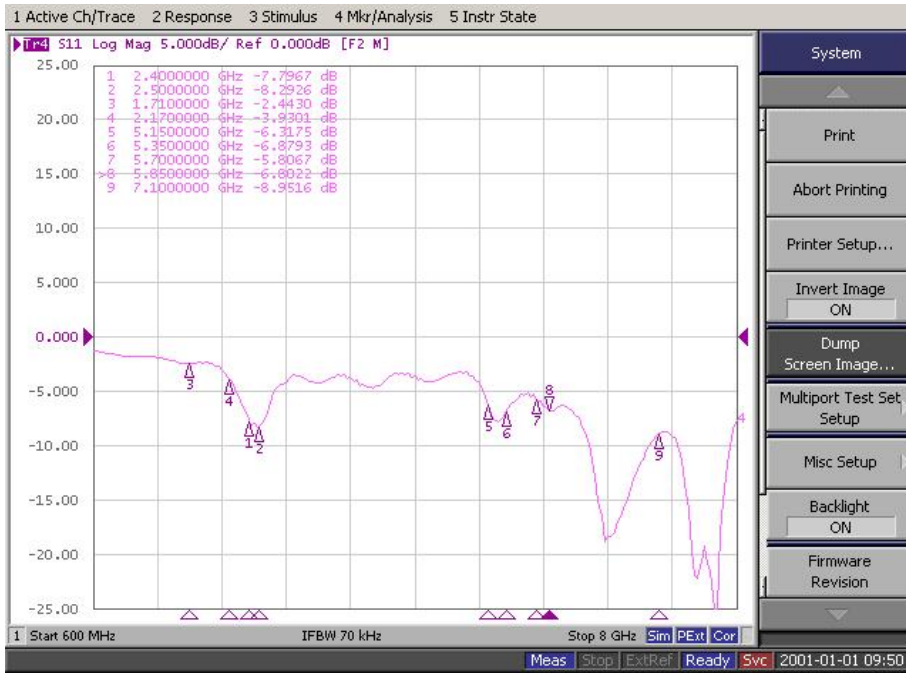
● ANT5 Return loss



● ANT10 Return loss



● ANT7 Return loss

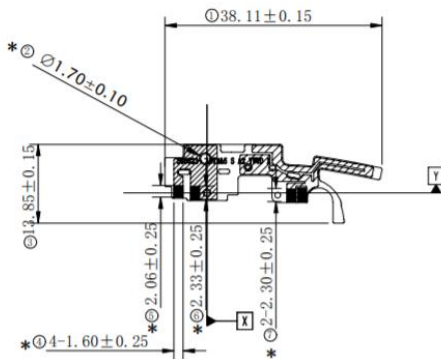


7. External Drawing

● ANT5

Length: 38.11mm

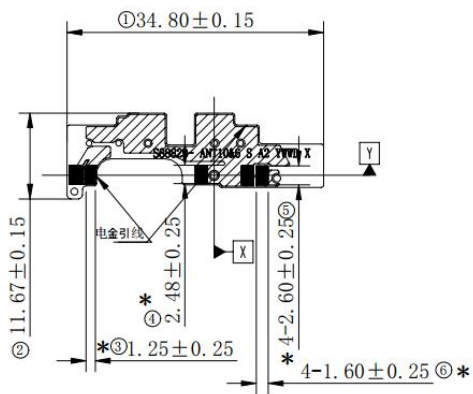
Width: 13.85mm



● ANT10

Length: 34.8mm

Width: 11.67mm



● **ANT7**

Length: 46.89mm

Width: 9.77mm

