

APPROVAL SPECIFICATION

Product : Internal Antenna

Model Name : TMRV08P5G

Date : 2025.06.20

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1. Manufacturer

- Welletronics Communication Technology Co. , Ltd.

Add:Room 110, Building 5, Phase III, Nanxiang Zhidi, No. 1101, Huyi Road, Jiading District, Shanghai (Shanghai Branch)

- Shanghai Deman Electronic Technology Co., Ltd

Add:Sunlord Industrial Park, Guanlan Da Fu Yuan, GuanGuang Road, Long Hua, Shenzhen

2. Model Name

- Basic Model: TMRV08P5G

3. Antenna Type

ANT	Antenna type
ANT0	MDA loop Antenna
ANT1	MDA loop Antenna
ANT2	MDA loop Antenna
ANT3	MDA loop Antenna
ANT4	MDA IFA Antenna
ANT5	MDA IFA Antenna
ANT6	MDA loop Antenna
ANT7	MDA monopole Antenna
ANT8	MDA loop Antenna
ANT9	MDA monopole Antenna

4. Electric Performance Data

4.1 Specification Sheet

Band		Antenna Gain(dBi)					
		ANT	Peak Gain	Average Gain	ANT	Peak Gain	Average Gain
GSM	GSM 850	ANT0	-1.81	-8.62	ANT2	-6.66	-9.85
	GSM 900	ANT0	-4.29	-12.82	ANT2	-5.91	-9.01
	GSM 1800	ANT1	0.27	-6.05	ANT4	-0.94	-5.28
	GSM 1900	ANT1	-0.06	-4.93	ANT4	-1.44	-4.52
WCDMA	WCDMA B1	ANT1	-0.06	-4.37	ANT4	-0.06	-4.4
	WCDMA B2	ANT1	-0.16	-4.51	ANT4	-1.44	-4.52
	WCDMA B4	ANT1	1.27	-5.38	ANT4	-2.4	-5.36
	WCDMA B5	ANT0	-1.81	-8.62	ANT2	-6.66	-9.85
	WCDMA B8	ANT0	-7.53	-12.82	ANT2	-5.91	-9.01
LTE	LTE B1	ANT1	-0.06	-4.14	ANT4	-0.06	-4.4
	LTE B2	ANT1	-0.16	-4.93	ANT4	-1.44	-4.52
	LTE B3	ANT1	0.27	-6.05	ANT4	-0.94	-5.28
	LTE B4	ANT1	1.27	-5.38	ANT4	-2.4	-5.36
	LTE B5	ANT0	-1.81	-8.62	ANT2	-6.66	-9.85
	LTE B7	ANT1	1.33	-4.64	ANT4	1.66	-5.51
	LTE B8	ANT0	-7.53	-12.82	ANT2	-5.91	-9.01
	LTE B12	ANT0	-2.9	-6.23	ANT2	-3.14	-7.44
	LTE B13	ANT0	-1.85	-6.32	ANT2	-3.14	-7.44
	LTE B14	ANT0	-1.85	-5.93	ANT2	-4.18	-8.24
	LTE B17	ANT0	-2.9	-6.26	ANT2	-3.14	-7.44
	LTE B20	ANT0	-1.81	-7.6	ANT2	-6.23	-9.35
	LTE B25	ANT1	1.27	-4.47	ANT4	-1.44	-4.52
	LTE B26	ANT0	-1.81	-8.46	ANT2	-6.9	-10.19
	LTE B28	ANT0	-1.91	-6.94	ANT2	-3.14	-7.44
	LTE B38	ANT1	1.33	-4.8	ANT4	1.93	-5.5
	LTE B39	ANT1	1.06	-4.42			
	LTE B40	ANT1	0.42	-5.6			
	LTE B41	ANT1	1.33	-4.65	ANT4	0.83	-5.57
	LTE B48	ANT5	-2.51	-6.27	ANT7	-2.32	-8.14
	LTE B48	ANT2	-4.26	-9.1	ANT4	-3.07	-8.95
	LTE B66	ANT1	-2.27	-5.42	ANT4	-2.53	-5.49
	LTE B71	ANT0	-3.29	-7.45	ANT2	-3	-7.46
NR	NR n1	ANT1	-0.06	-4.14	ANT4	-0.06	-4.4
	NR n3	ANT1	0.27	-6.05	ANT4	-0.94	-5.28

NR n7	ANT1	1.33	-4.64	ANT4	1.66	-5.51
NR n25	ANT1	1.27	-4.47	ANT4	-1.44	-4.52
NR n28	ANT0	-1.91	-6.94	ANT2	-3.14	-7.44
NR n38	ANT1	1.33	-4.8	ANT4	1.93	-5.5
NR n38	ANT3	-1.35	-6.48	ANT8	-1.72	-6.71
NR n41	ANT1	1.33	-4.65	ANT4	1.73	-5.57
NR n41	ANT3	-1.35	-6.48	ANT8	-1.72	-6.71
NR n48	ANT5	-2.51	-6.27	ANT7	-2.32	-8.14
NR n48	ANT2	-4.26	-9.1	ANT4	-3.07	-8.95
NR n66	ANT1	-2.27	-5.42	ANT4	-2.53	-5.49
NR n71	ANT0	-3.29	-7.45	ANT2	-3	-7.46
NR n78	ANT5	-2.51	-6.27	ANT7	-2.32	-8.14
NR n78	ANT2	-4.26	-9.1	ANT4	-3.07	-8.95

WIFI Chain0

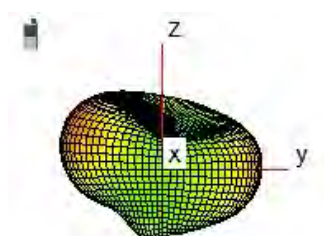
Band	Antenna	Peak Gain	Average gain(dBi)
2.4G WIFI	ANT6	-1.5	-4.61
5G WIFI	ANT7	-3.36	-7.81
WIFI 6E	ANT7	-5.82	-7.65
BT	ANT6	-1.5	-4.61

WIFI Chain1

Band	Antenna	Peak Gain	Average gain(dBi)
2.4G WIFI	ANT9	-1.1	-3.59
5G WIFI	ANT9	-4.02	-9.75
WIFI 6E	ANT9	-3.7	-5.38

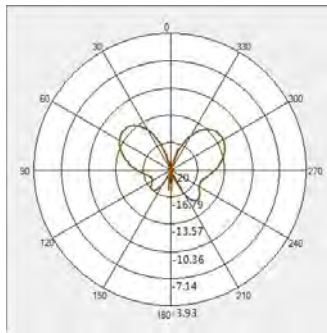
4.2 Antenna Pattern Drawing

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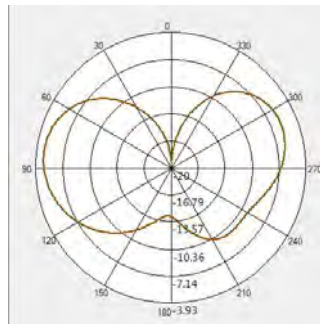


Frequency (630MHZ)

Phi=0.00deg

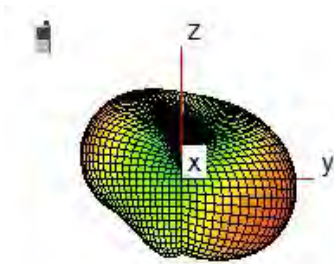


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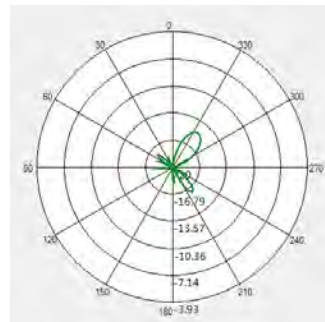


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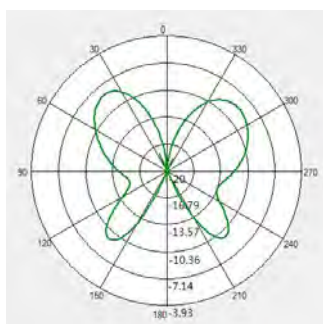
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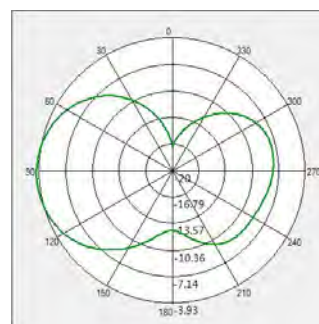
Frequency(730MHZ)



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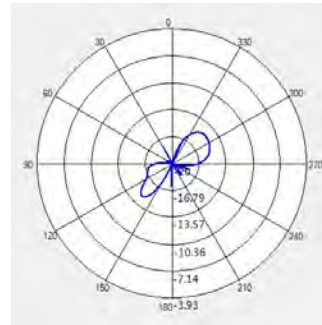
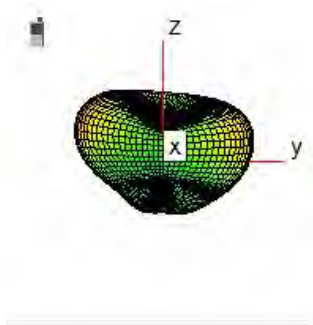


Phi=90.00deg



Theta=90.00deg

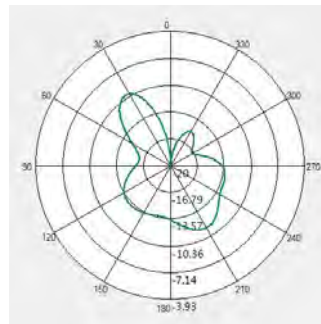
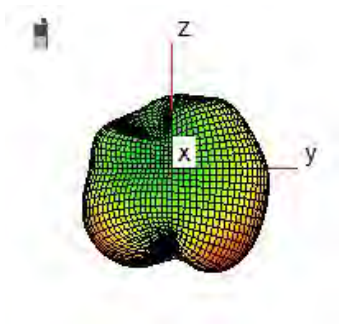
ANT0 LTE B5&B26



Frequency(830MHZ)

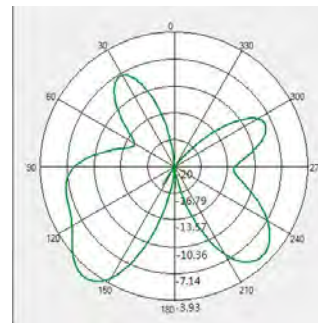
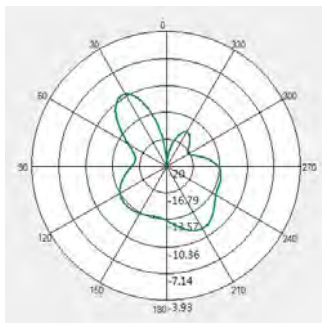
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ANT1 LTE Band2&B25



Frequency(1880MHZ)

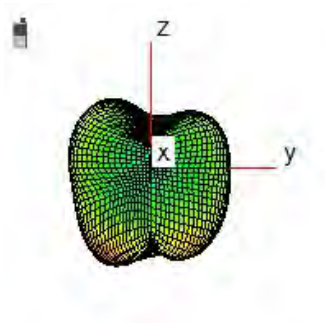
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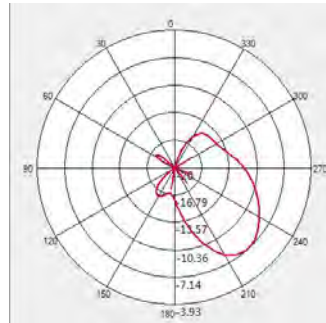
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Theta=90.00deg

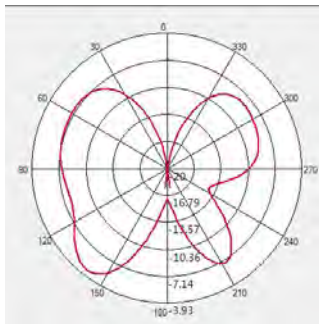
ANT1 LTE Band4&B66



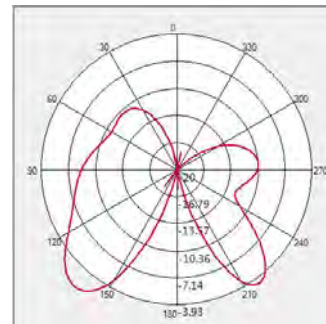
Frequency(2150MHZ)



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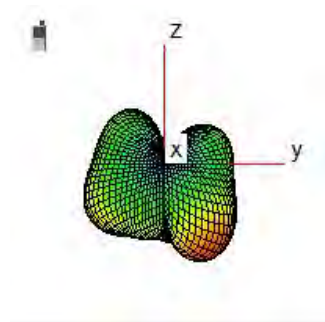


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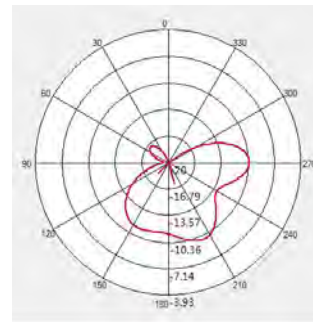


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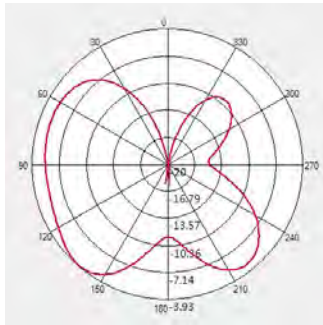
ANT1 LTE Band41



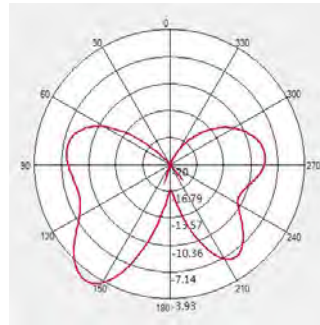
Frequency(2600MHZ)



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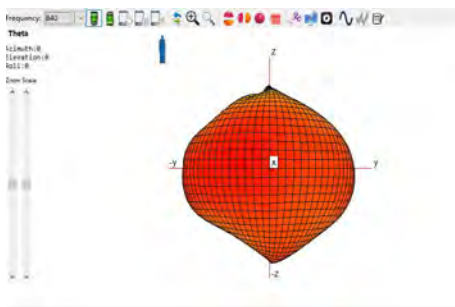


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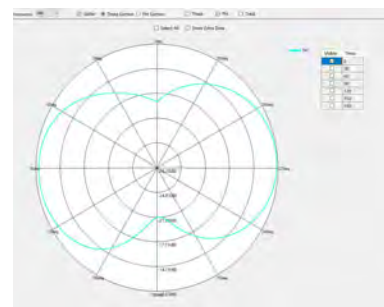


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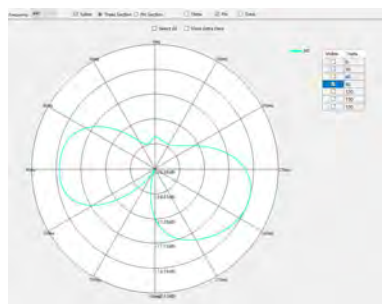
ANT2 LTE Band5 &WCDMA B5&GSM 850



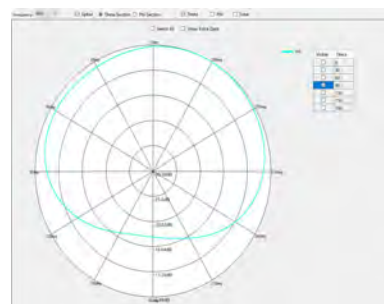
Frequency



Phi=0.00deg

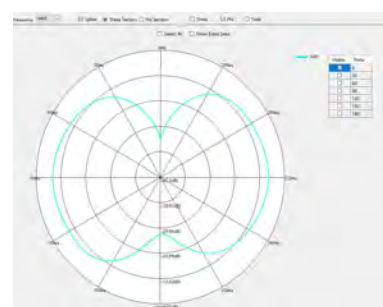
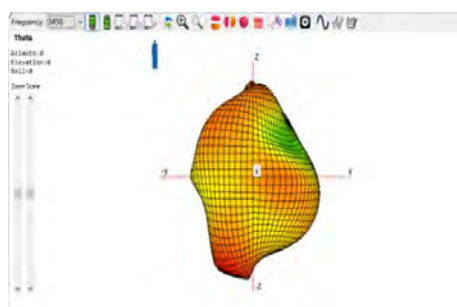


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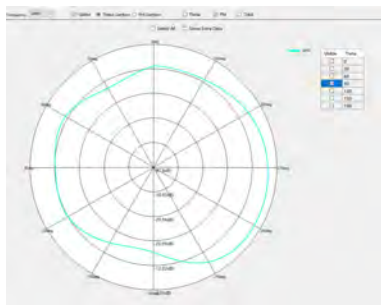


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ANT2 NR N77N78

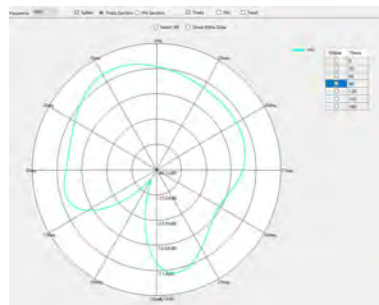


Frequency



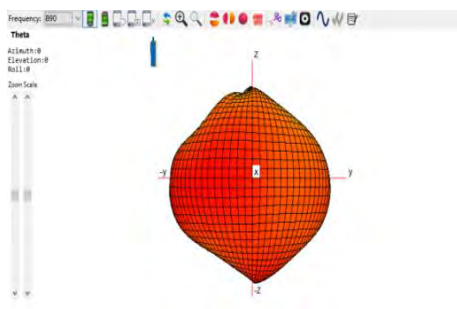
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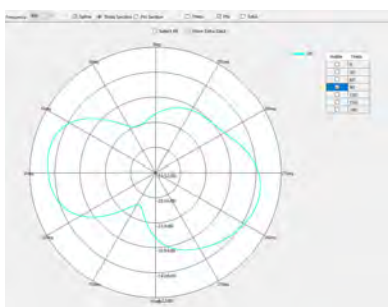


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ANT2 LTE Band8&&WCDMA B8&GSM 900

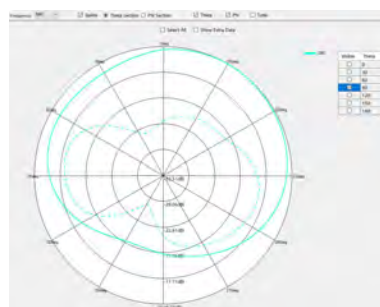


Frequency



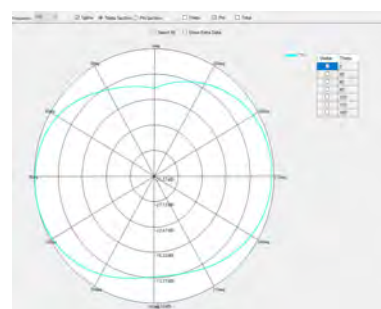
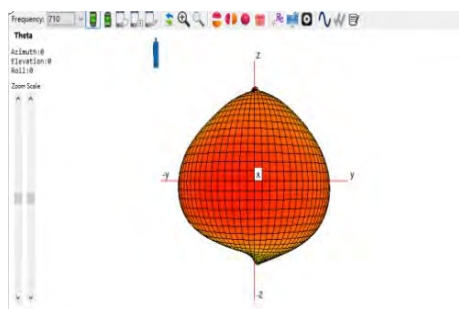
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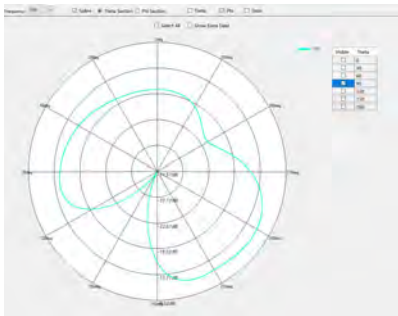


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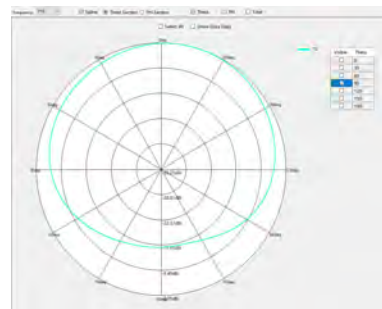
ANT2 LTE Band12<E Band17LTE Band28



Frequency



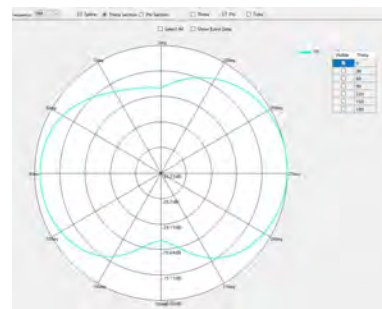
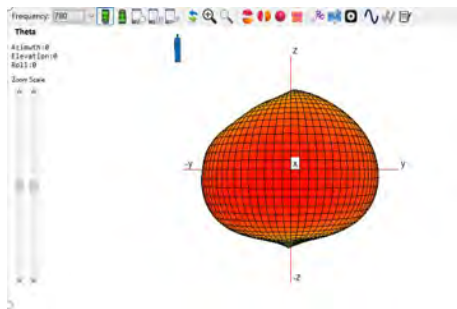
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$\Phi = 90.00^\circ$

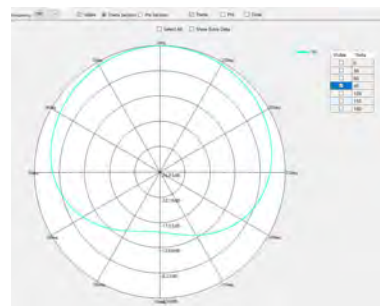
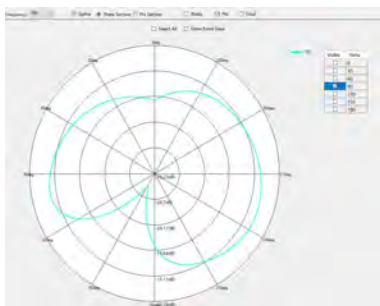
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ANT2 LTE Band13& LTE Band14



Frequency

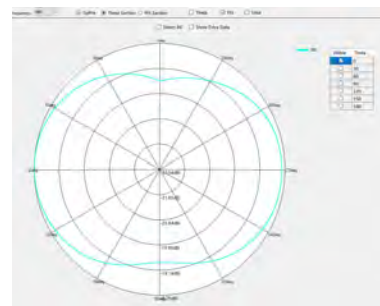
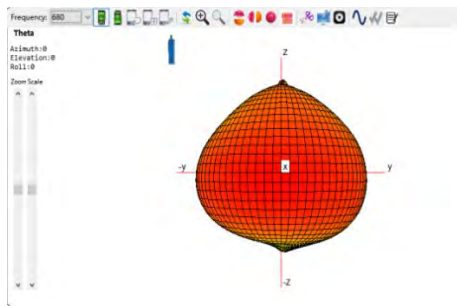
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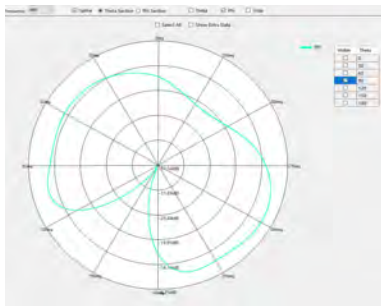
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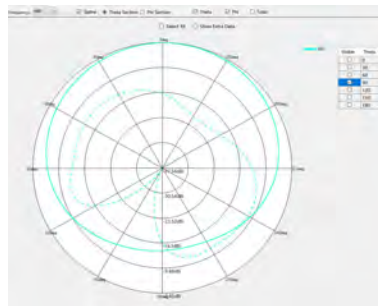
ANT2 LTE Band71



Frequency



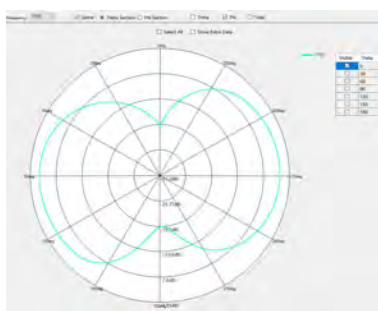
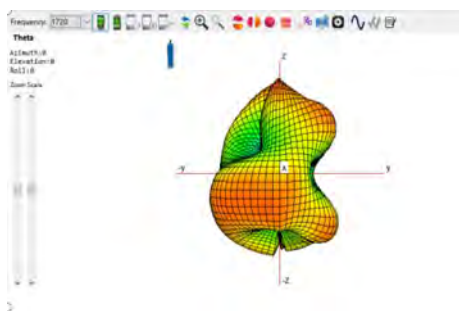
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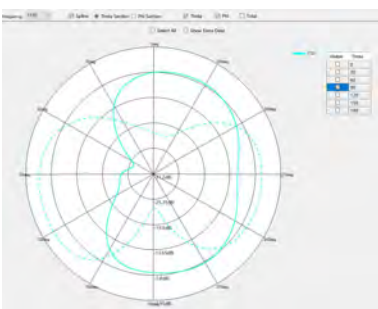
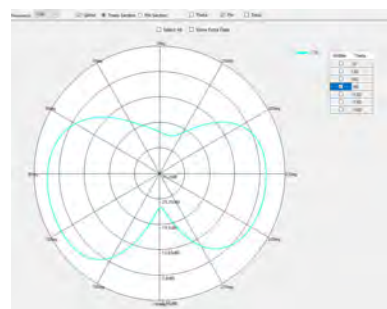
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LTE Band3&Band4&Band66 WCDMA B4&GSM 1800



Frequency

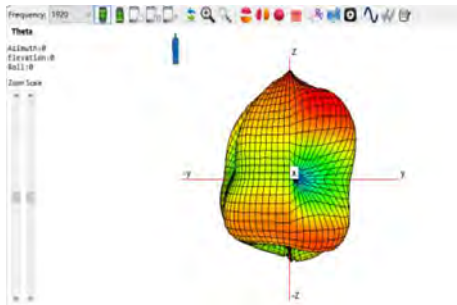
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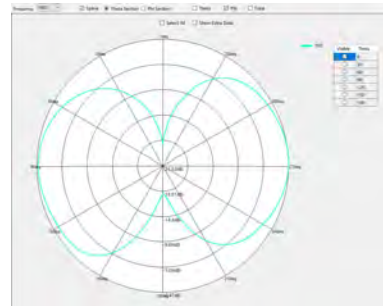
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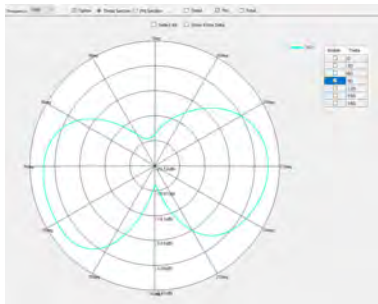
ANT4 Band1&Band2&WCDMA B1& WCDMA B2&GSM 1900



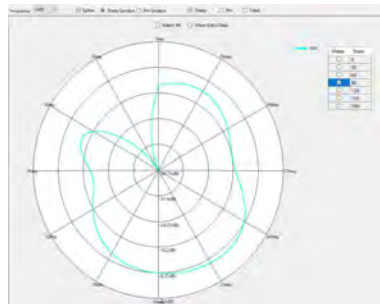
Frequency



Phi=0.00deg

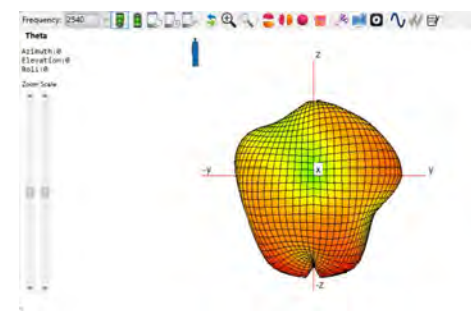


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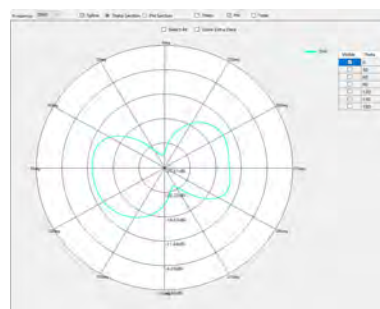


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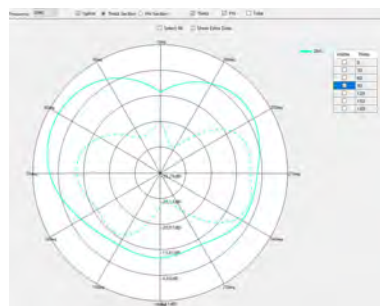
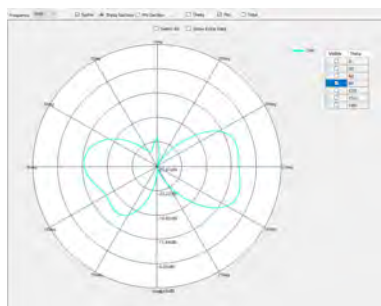
ANT4 NR N7&N38&N41&Band7Band38BBand41



Frequency



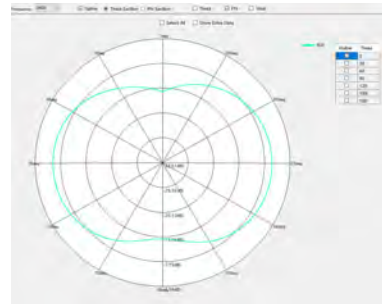
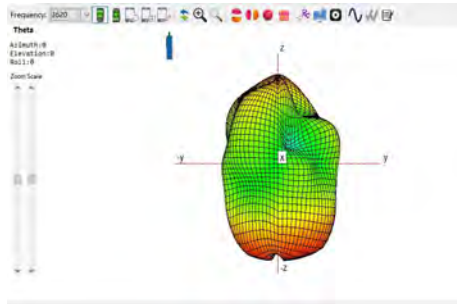
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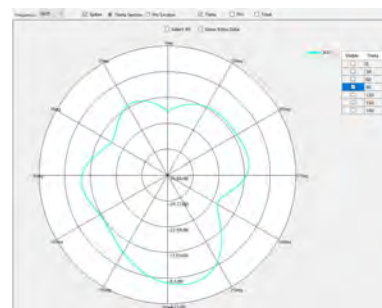
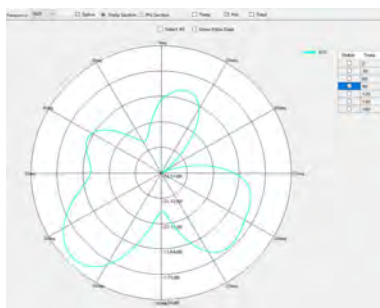
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ANT4 NR N48&NR N77&NR N78



Frequency

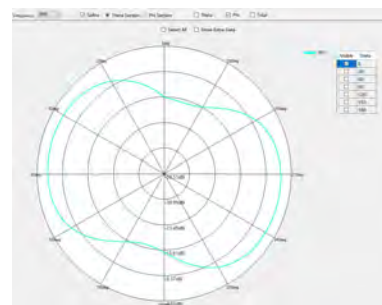
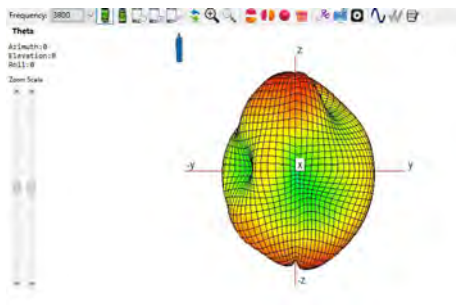
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Phi=90.00deg

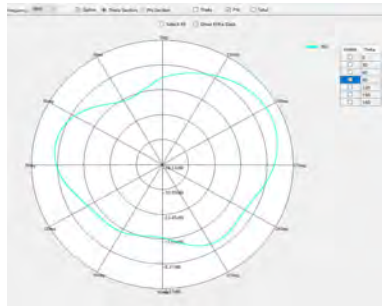
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ANT5 NR N77&NR N78

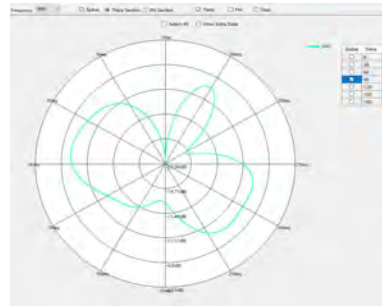


Frequency

Phi=0.00deg

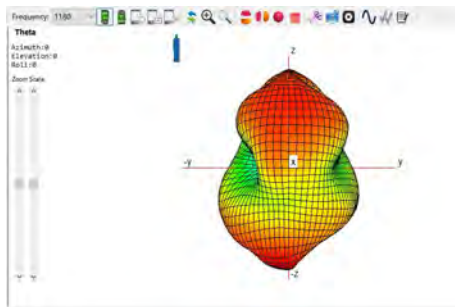


Phi=90.00deg

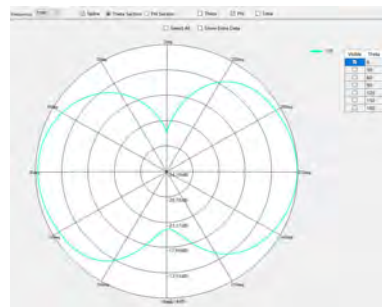


Theta=90.00deg

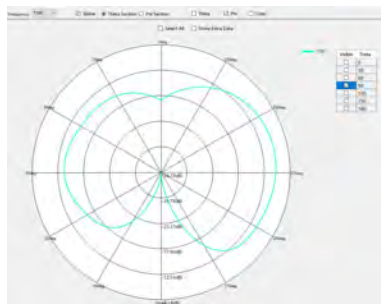
ANT5 GPS L5(1176MHz)



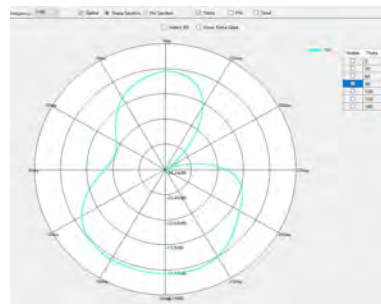
Frequency



Phi=0.00deg

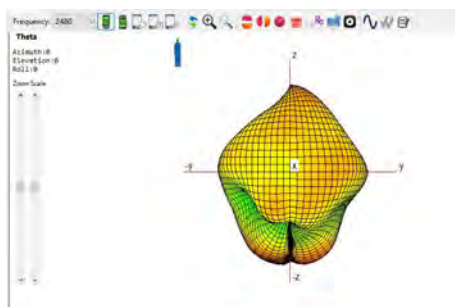


Phi=90.00deg

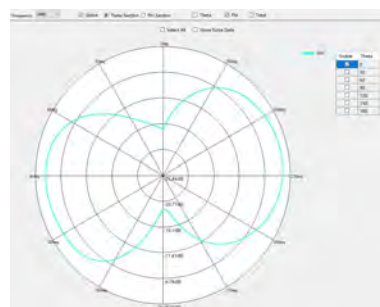


Theta=90.00deg

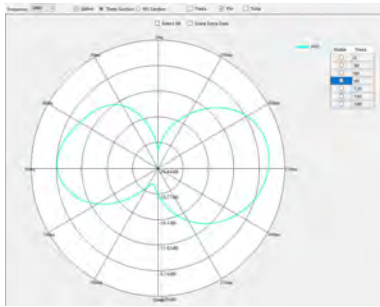
ANT6 WIFI 2.4G(2400MHz-2500MHz)



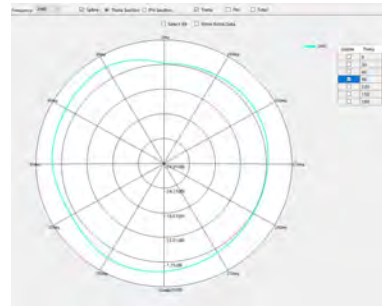
Frequency



Phi=0.00deg

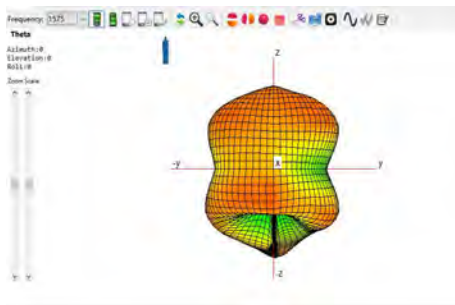


Phi=90.00deg

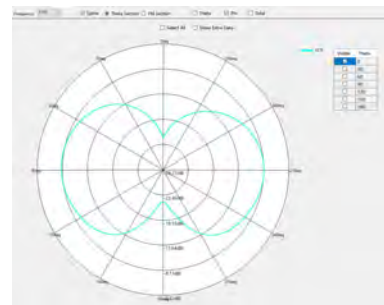


Theta=90.00deg

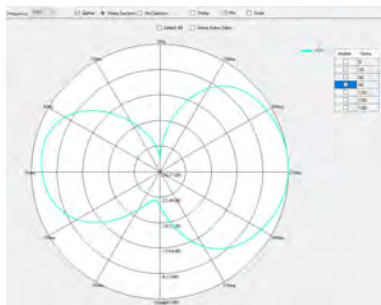
ANT6 GPS L1(1575MHz)



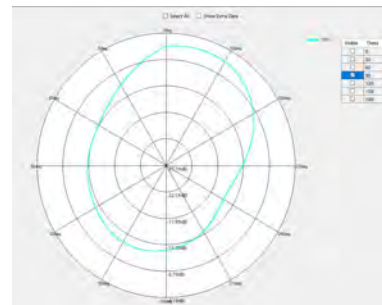
Frequency



Phi=0.00deg

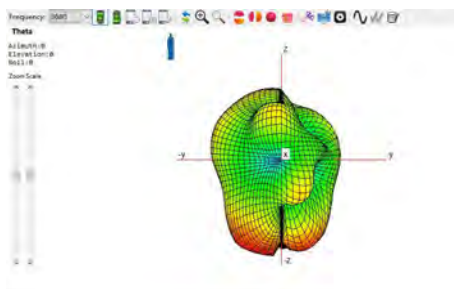


Phi=90.00deg

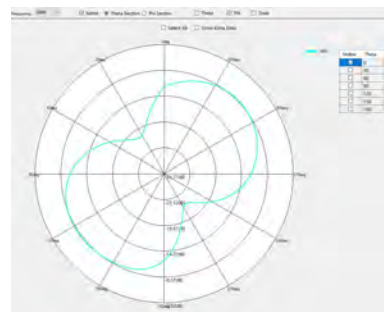


Theta=90.00deg

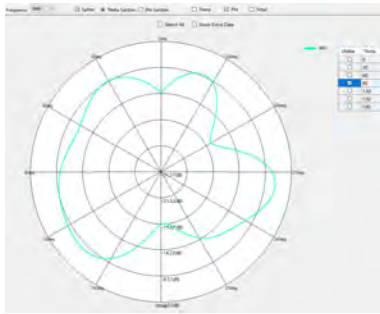
ANT7 N77/N78



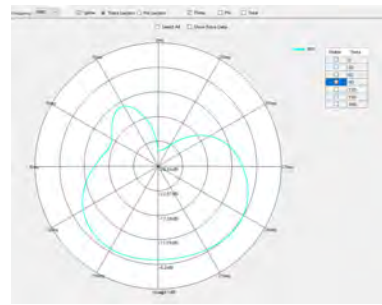
Frequency



Phi=0.00deg

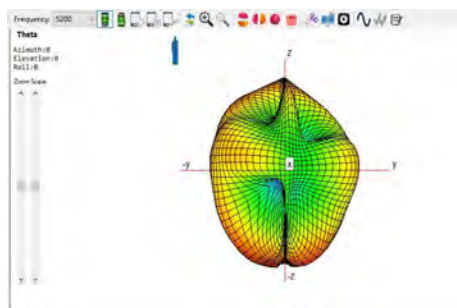


Phi=90.00deg

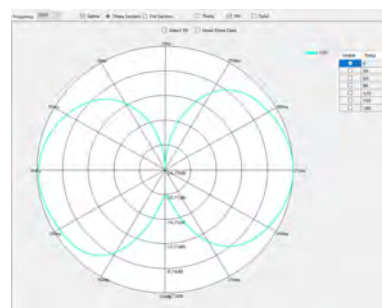


Theta=90.00deg

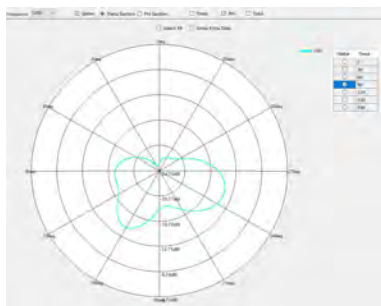
ANT7 WIFI 5G(5150MHz-5850MHz)



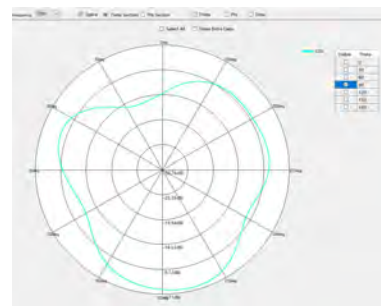
Frequency



Phi=0.00deg

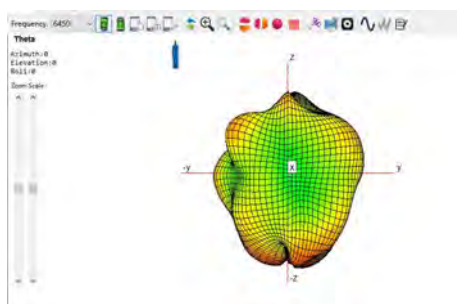


Phi=90.00deg

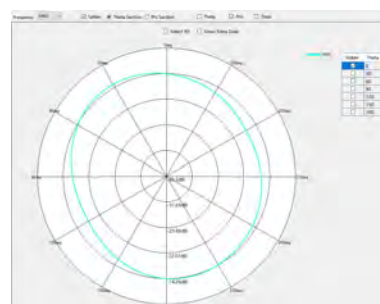


Theta=90.00deg

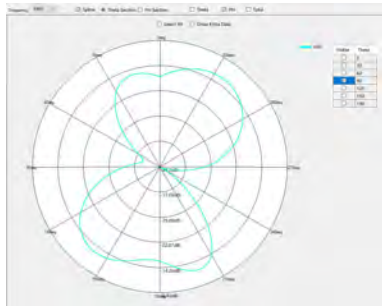
ANT7 WIFI 6E(5925MHz-7125MHz)



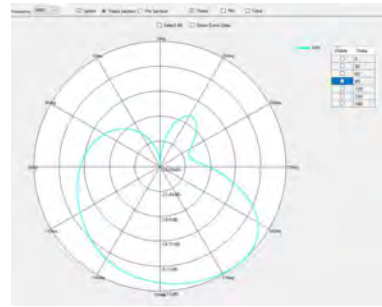
Frequency



Phi=0.00deg

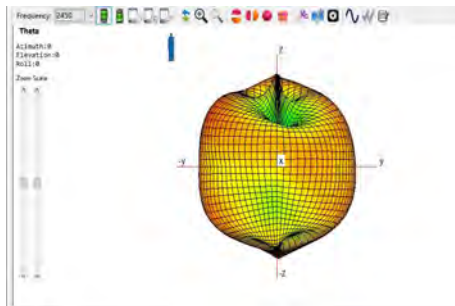


Phi=90.00deg

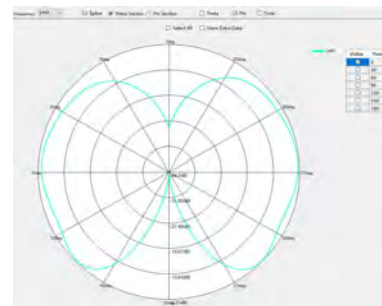


Theta=90.00de

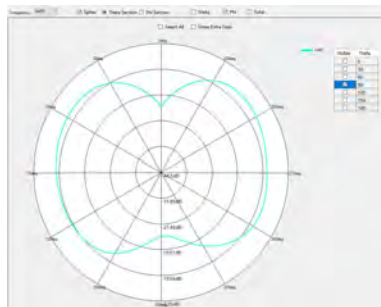
ANT9 WIFI 2.4G(2400MHz-2500MHz)



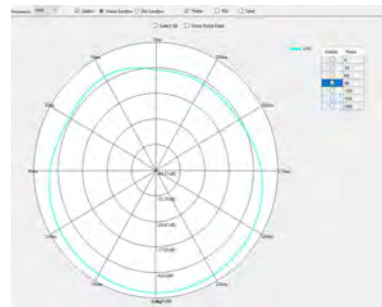
Frequency



Phi=0.00deg

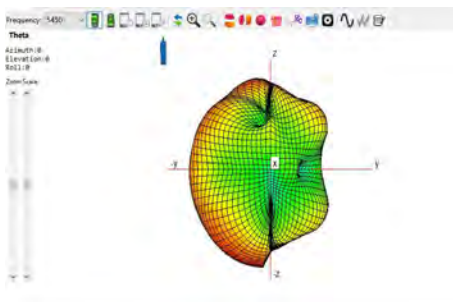


Phi=90.00deg

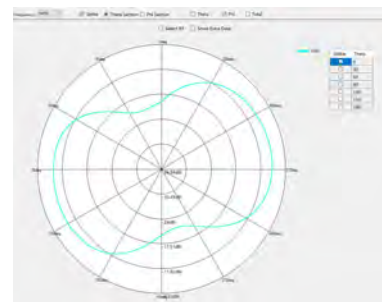


Theta=90.00deg

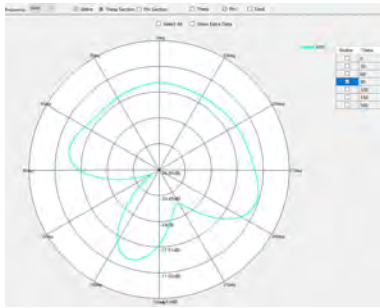
ANT9 WIFI 5.8G(5150MHz-5850MHz)



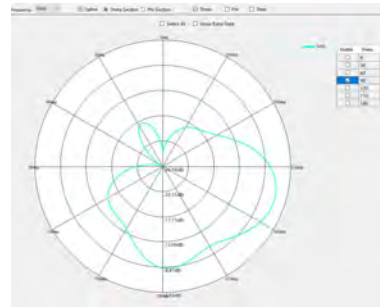
Frequency



Phi=0.00deg



Phi=90.00deg

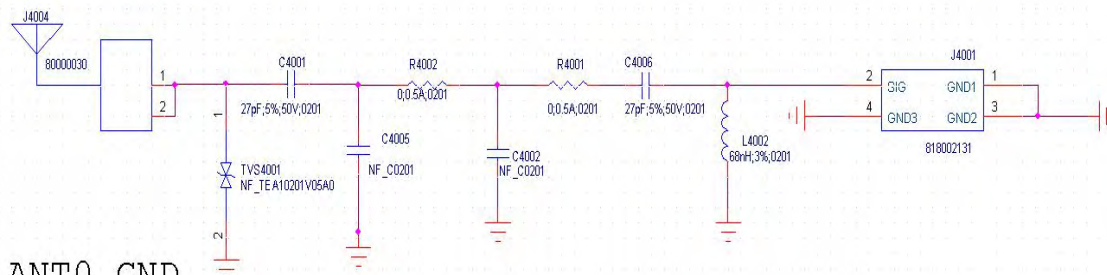


Theta=90.00deg

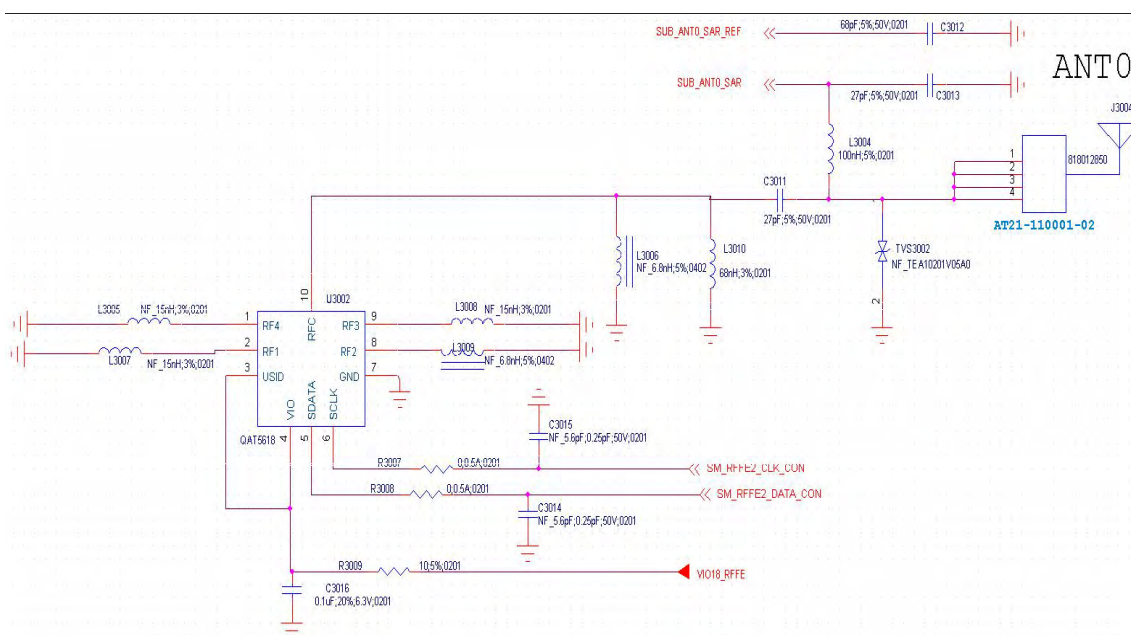
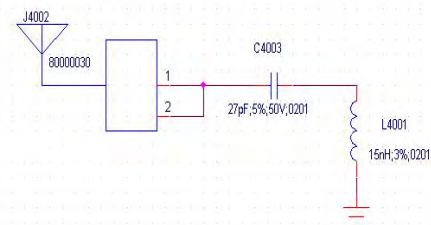
5. Matching circuit

5.1 ANT0

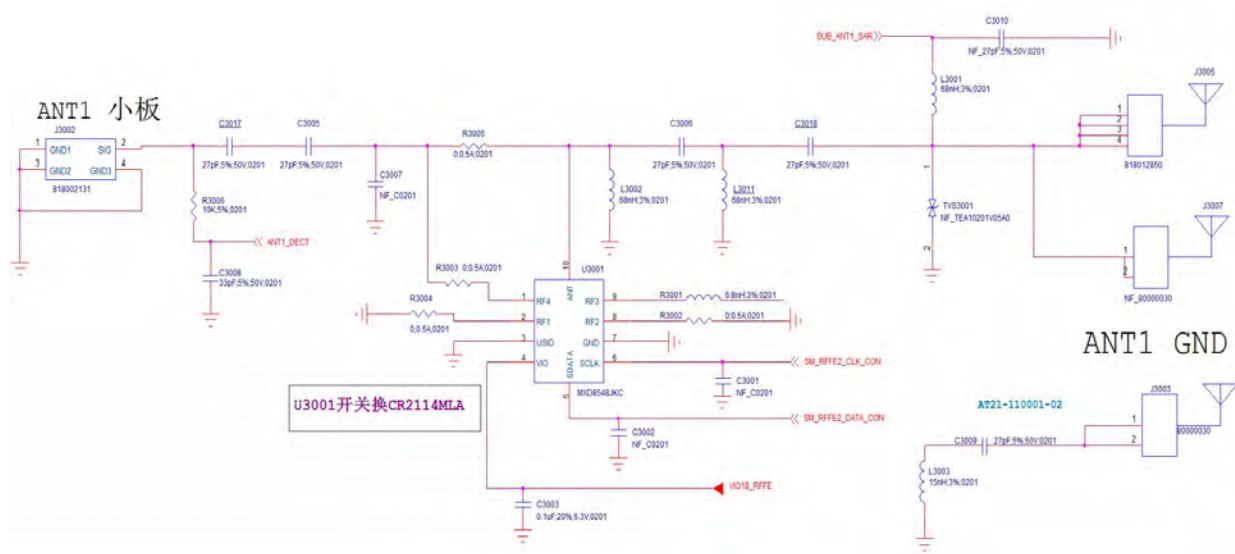
ANT0 Feed



ANT0 GND

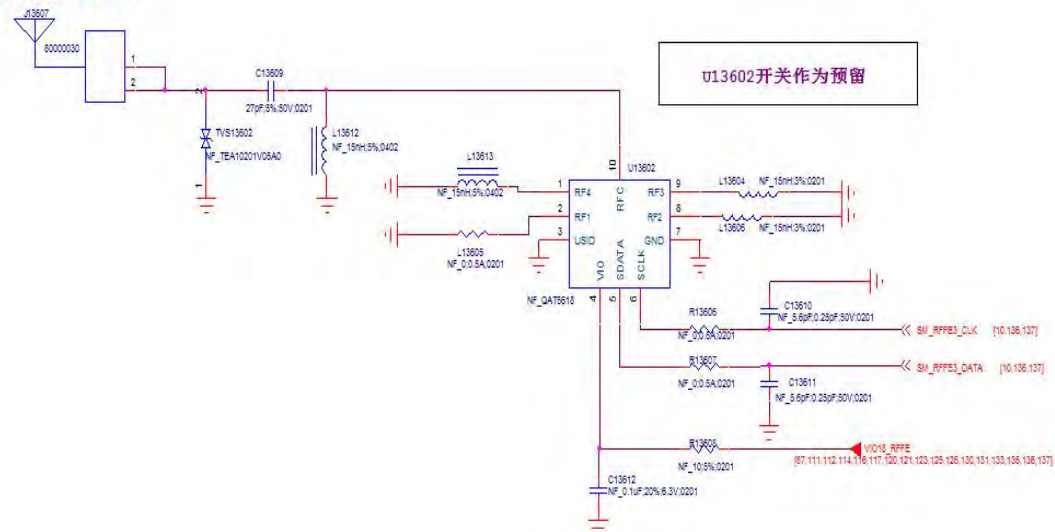


5.2 ANT1

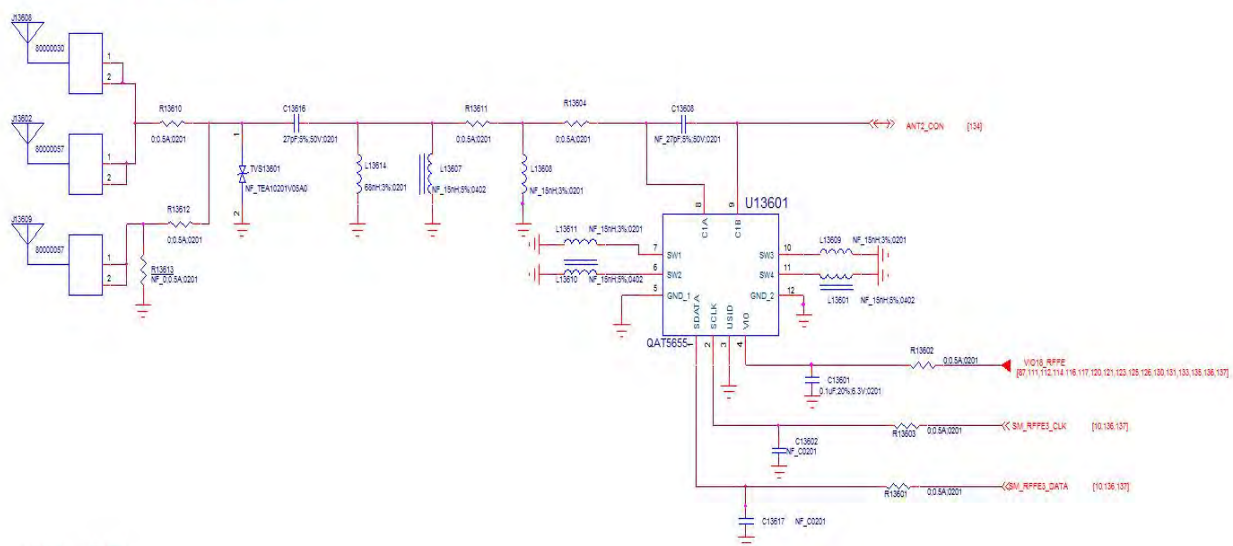


5.3 ANT2

ANT2 GND

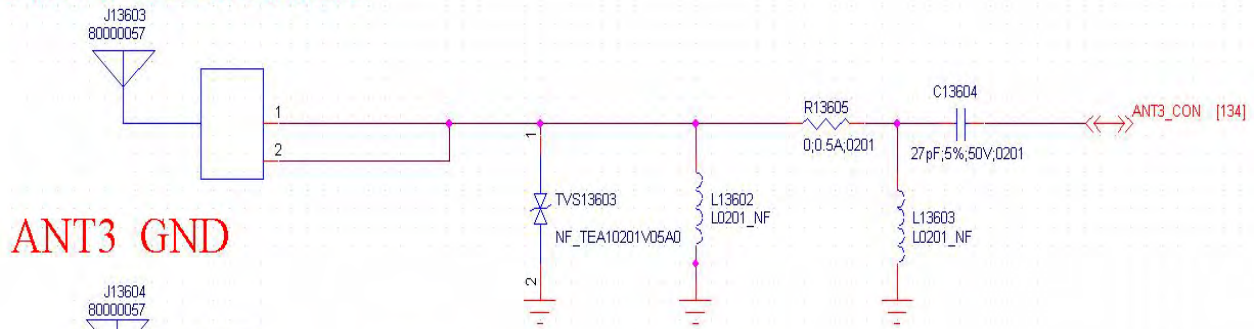


ANT2_TRX_MHB_ENDC兼容设计

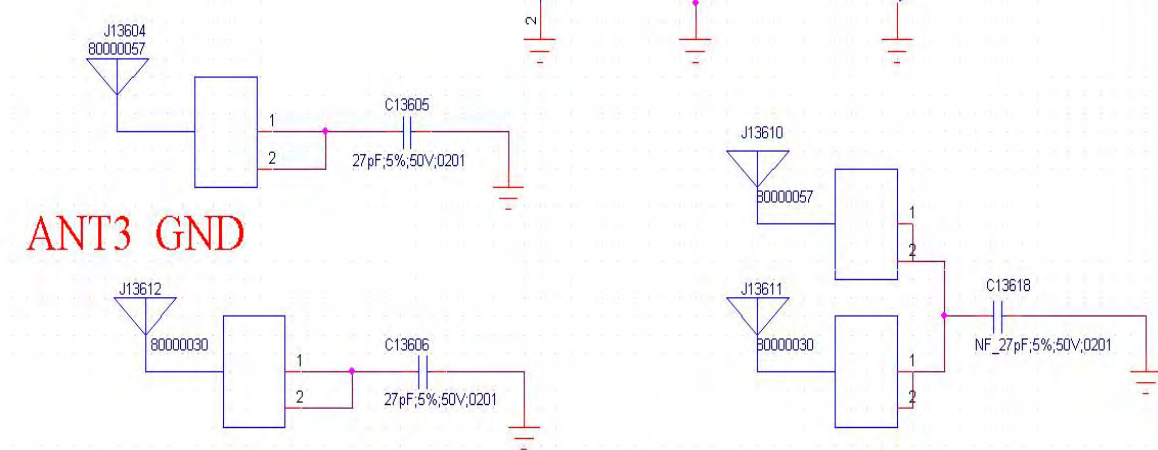


5.4 ANT3

ANT3 MHB PRXM



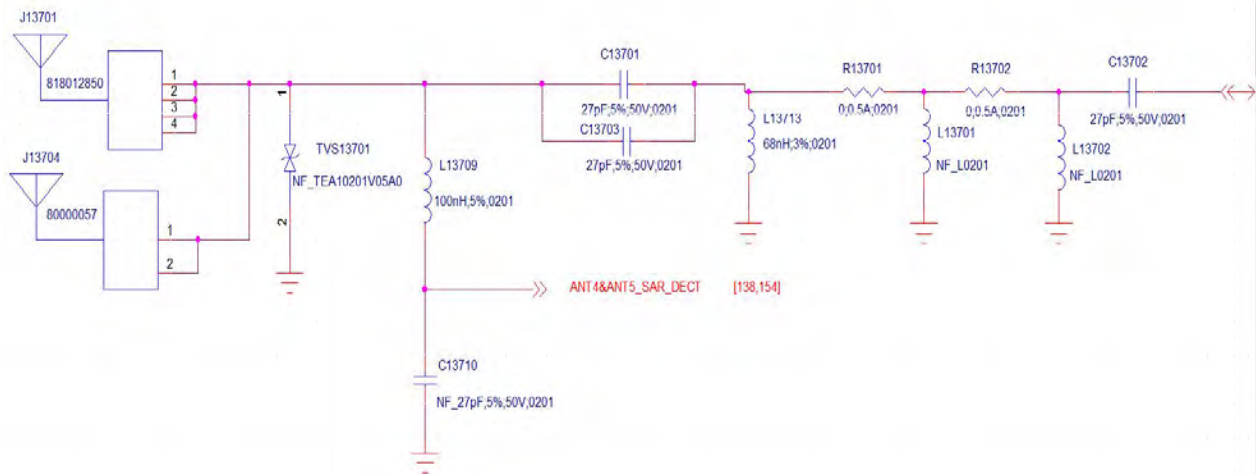
ANT3 GND



ANT3 GND

5.5 ANT4

ANT4



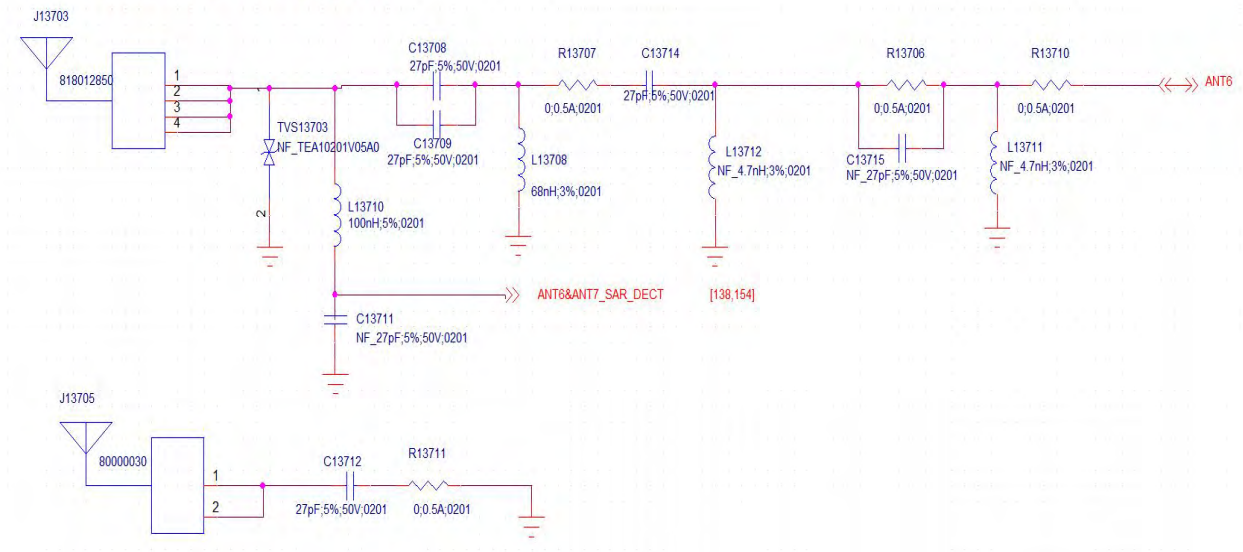
[illegible]

ANT5 L5+UHB PRX



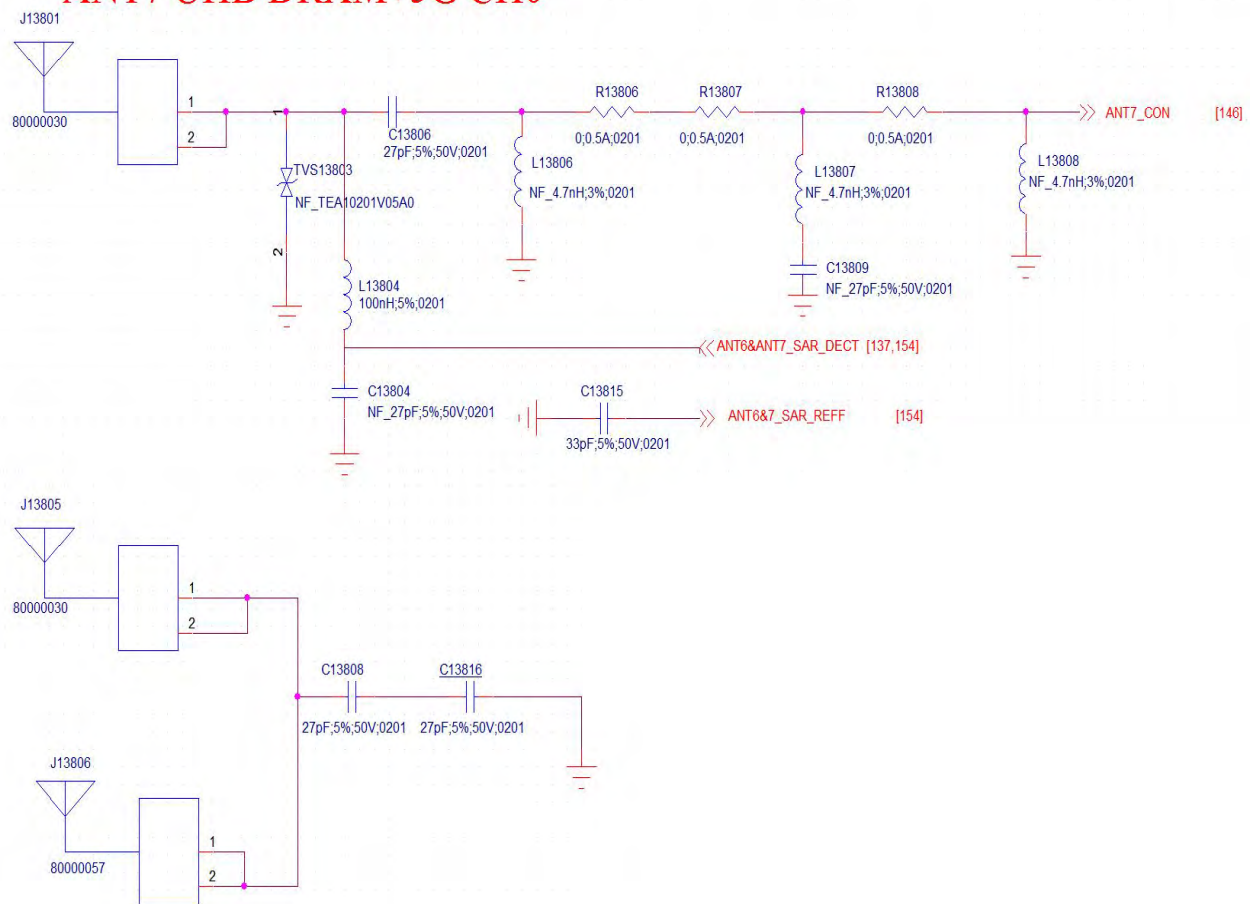
5.7 ANT6

ANT6 L1+2.4G CH0



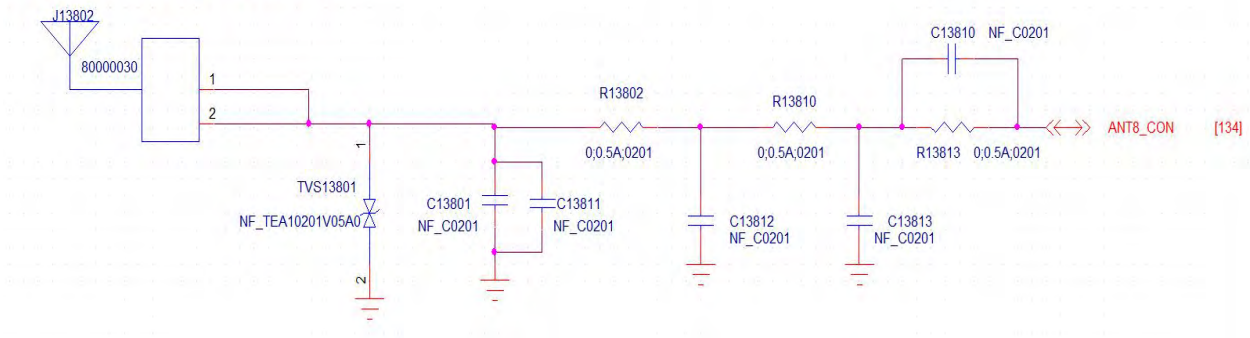
5.7 ANT7

ANT7 UHB DRXM+5G CH0



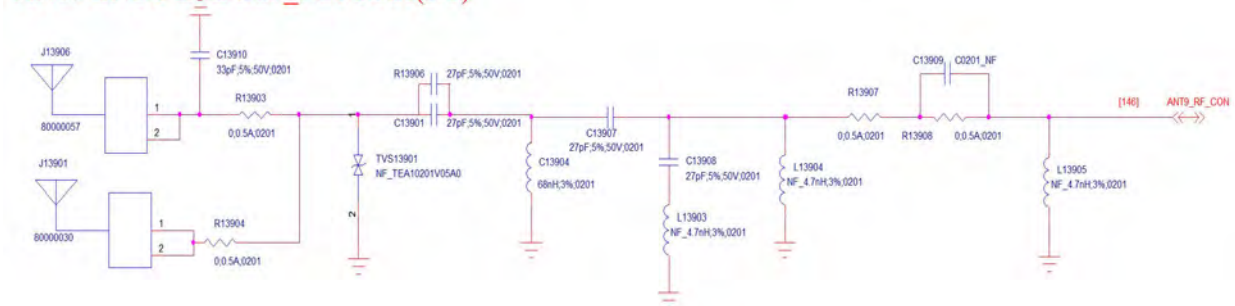
5.8 ANT8

ANT8 MHB DRXM



5.9 ANT9

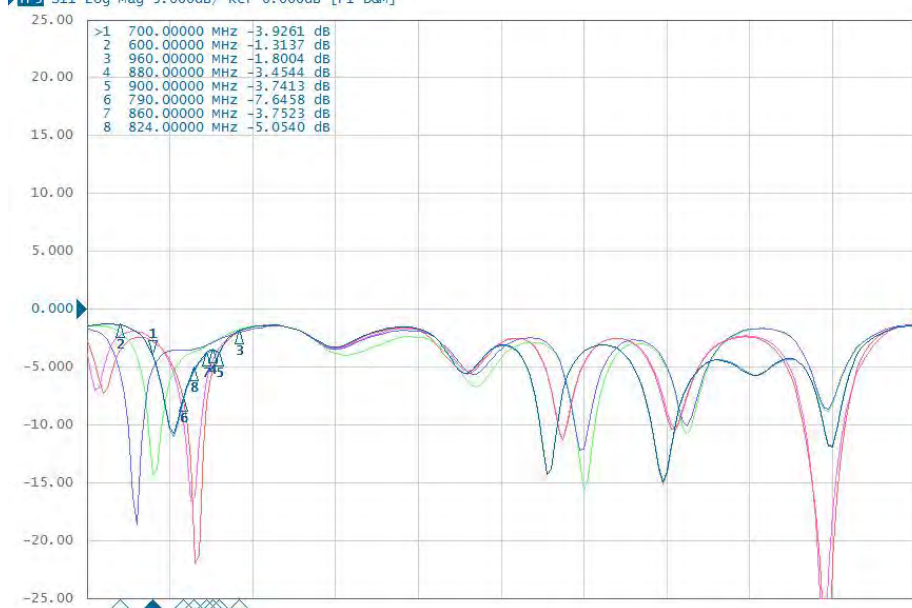
ANT9 ENDC LTE B20_N28 DRX(DT)



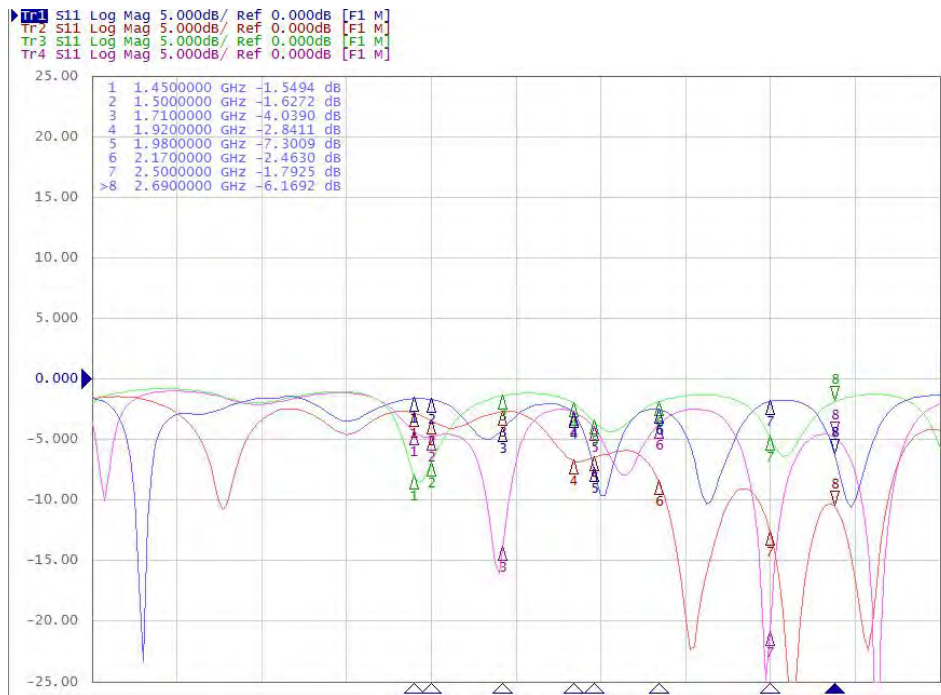
6. Electrical Graph(Returnloss)

6.1 ANT0 Return loss

Tr1 S11 Log Mag 5.000dB/ Ref 0.000dB [F1 D&M]
 Tr2 S11 Log Mag 5.000dB/ Ref 0.000dB [F1 D&M]
 Tr3 S11 Log Mag 5.000dB/ Ref 0.000dB [F1 D&M]
 Tr4 S11 Log Mag 5.000dB/ Ref 0.000dB [F1 D&M]
 Tr5 S11 Log Mag 5.000dB/ Ref 0.000dB [F1 D&M]



6.2 ANT1 Return loss



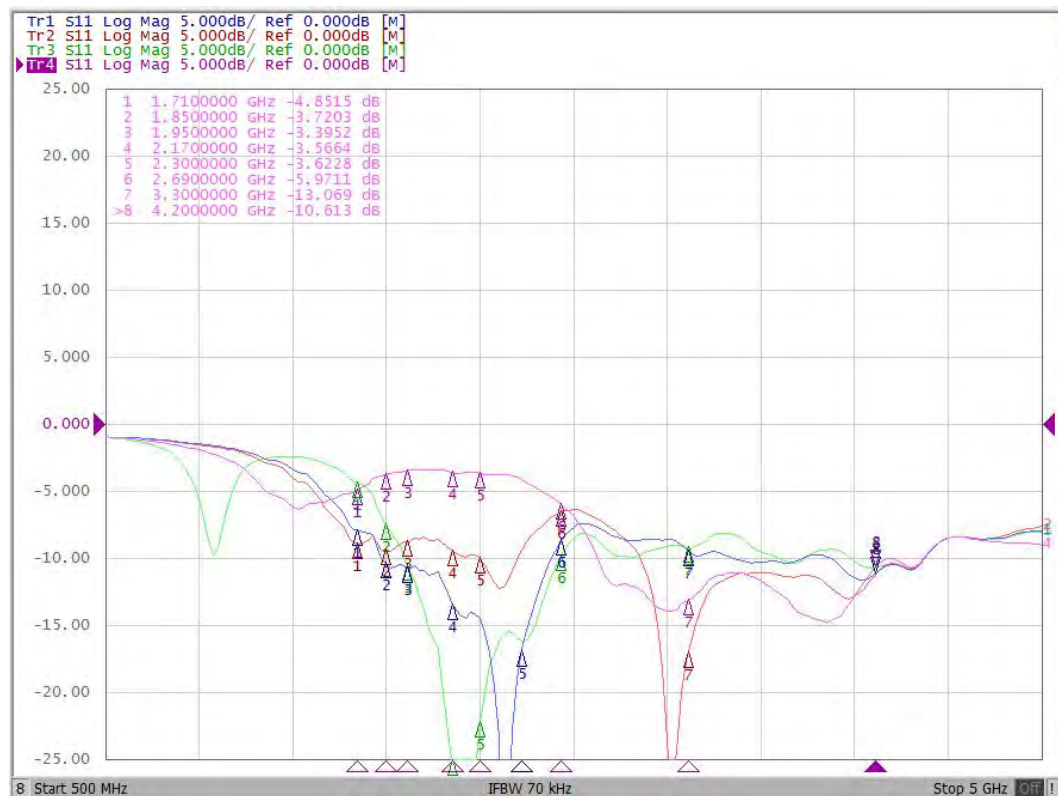
6.3 ANT2 Return loss



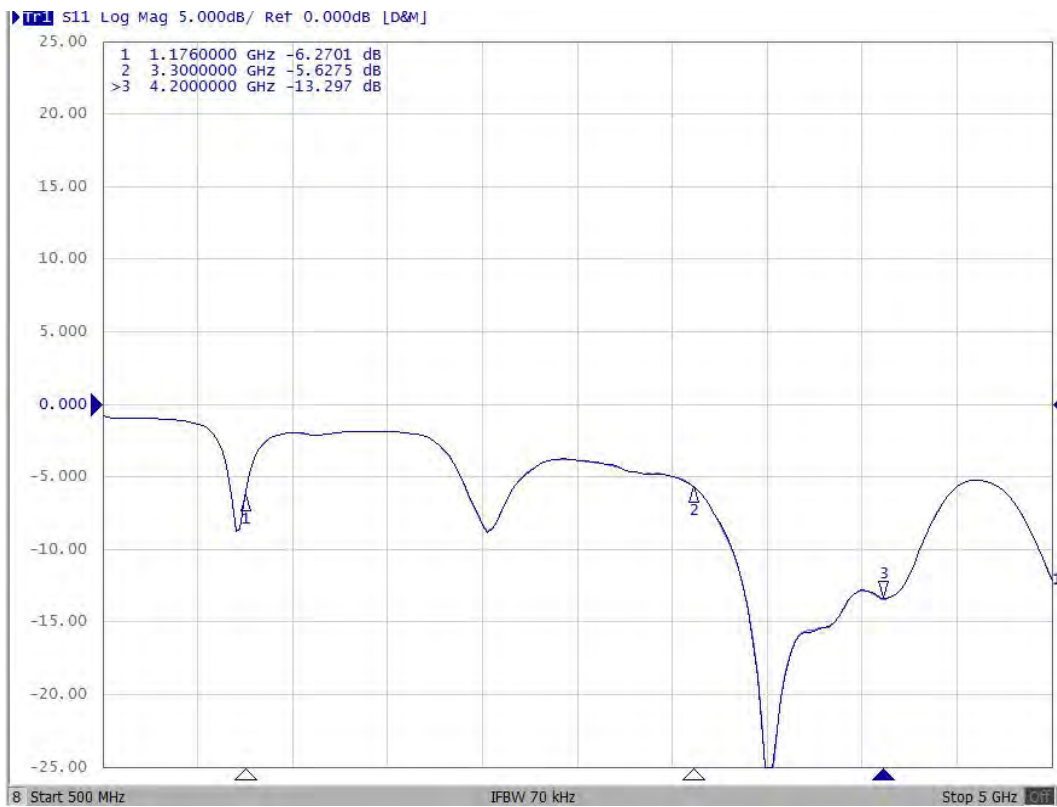
6.4 ANT3 Return loss



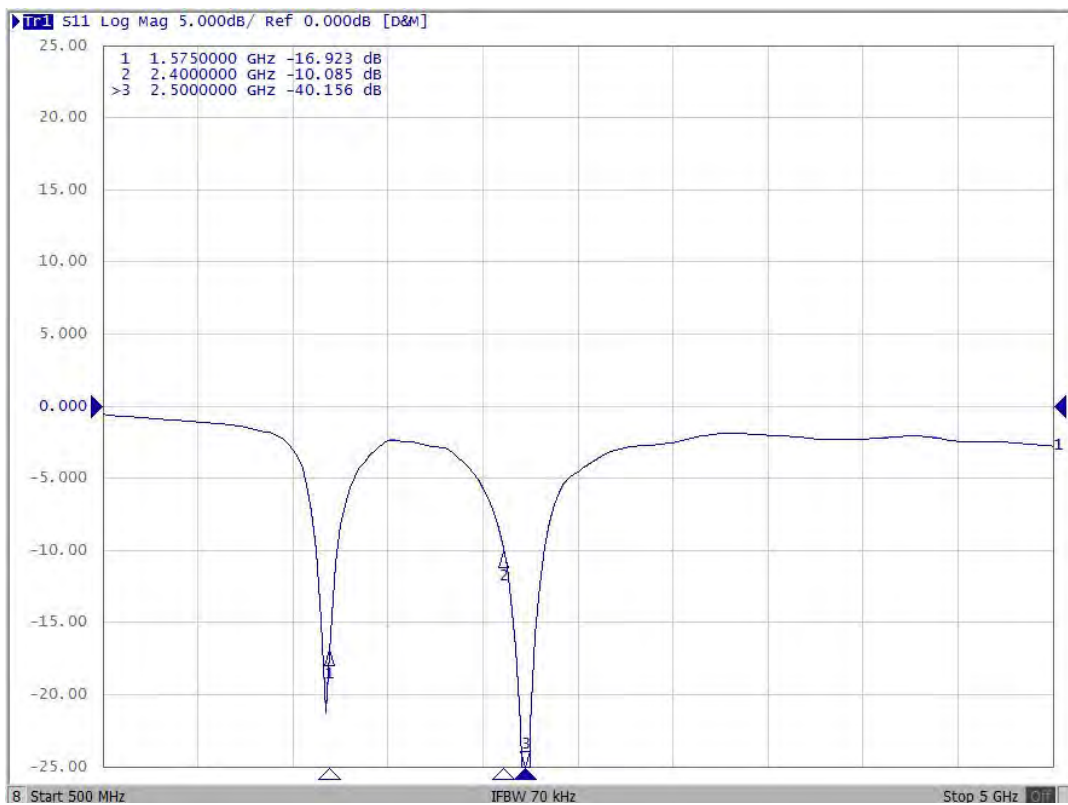
6.5 ANT4 Return loss



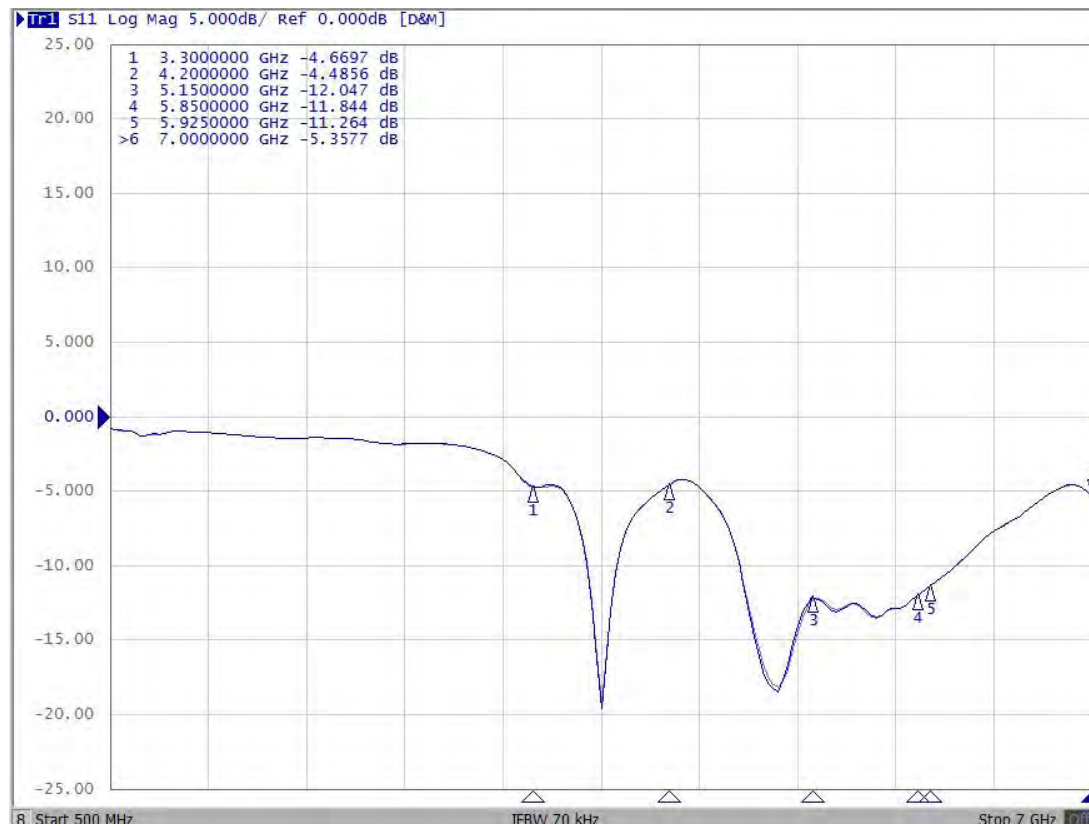
6.6 ANT5 Return loss



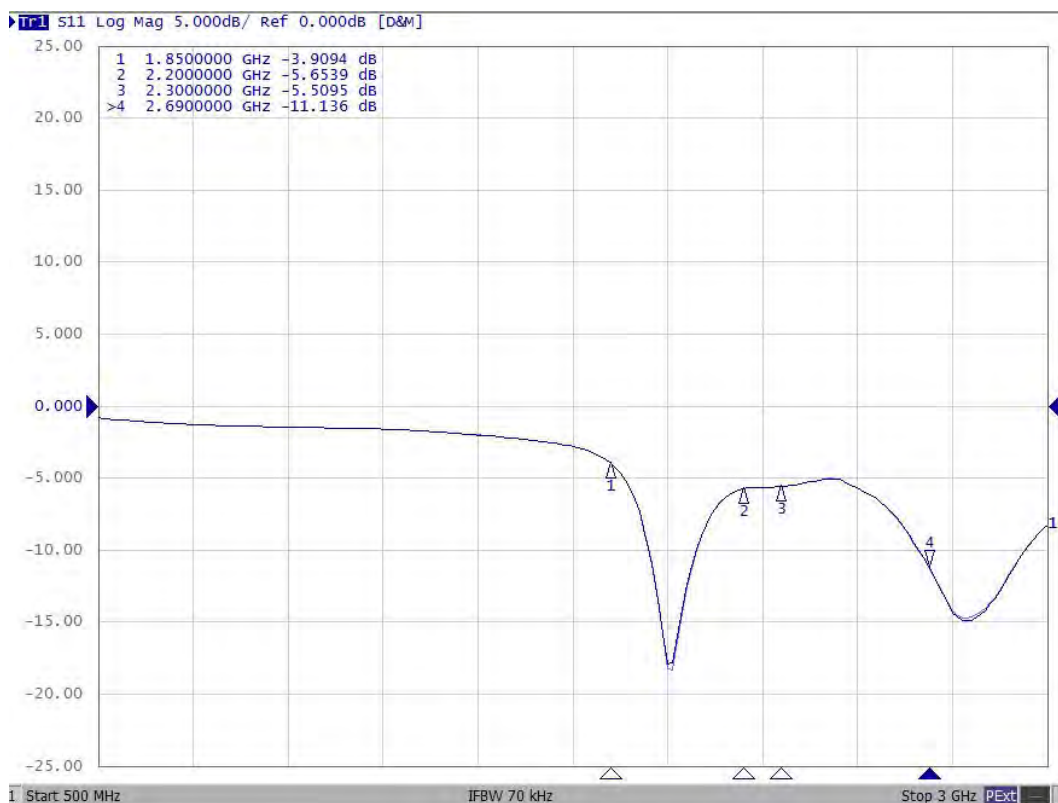
6.7 ANT6 Return loss



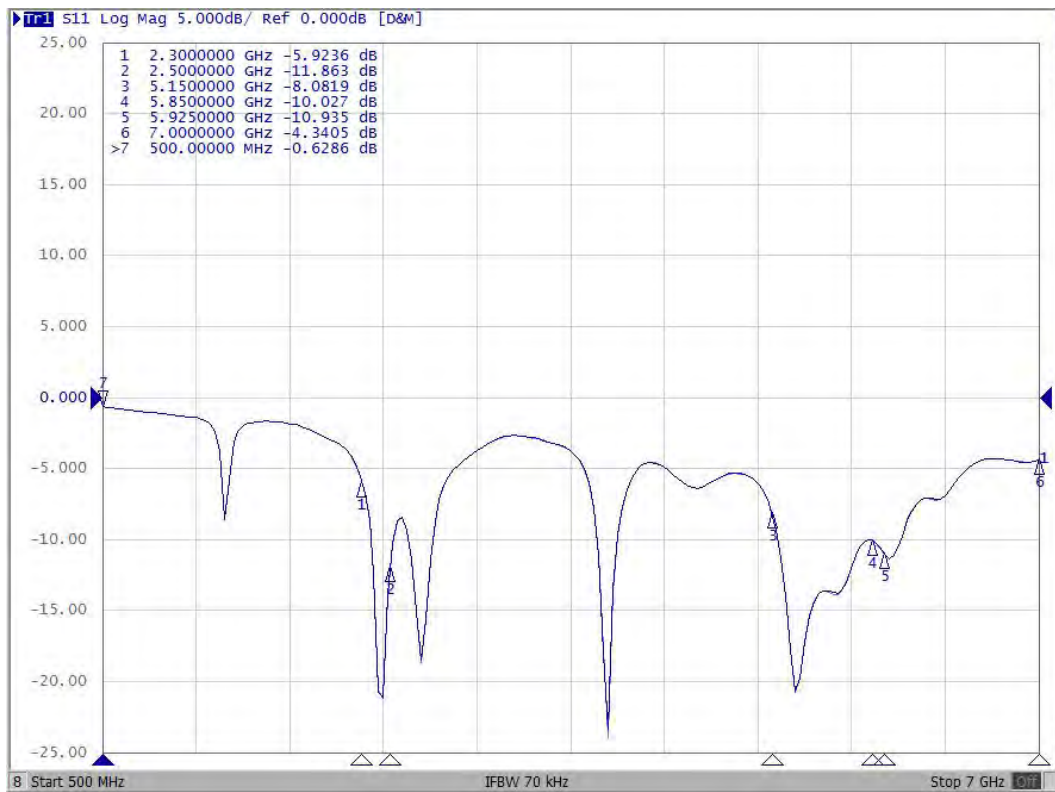
6.7 ANT7 Return loss



6.8 ANT8 Return loss



6.8 ANT9 Return loss



7. External Drawing

