APPROVAL SPECIFICATION

Product : Internal Antenna

Model Name : TMRV5GTB

Date : 2023.05.03

Table of Contents

1. Manufacturer

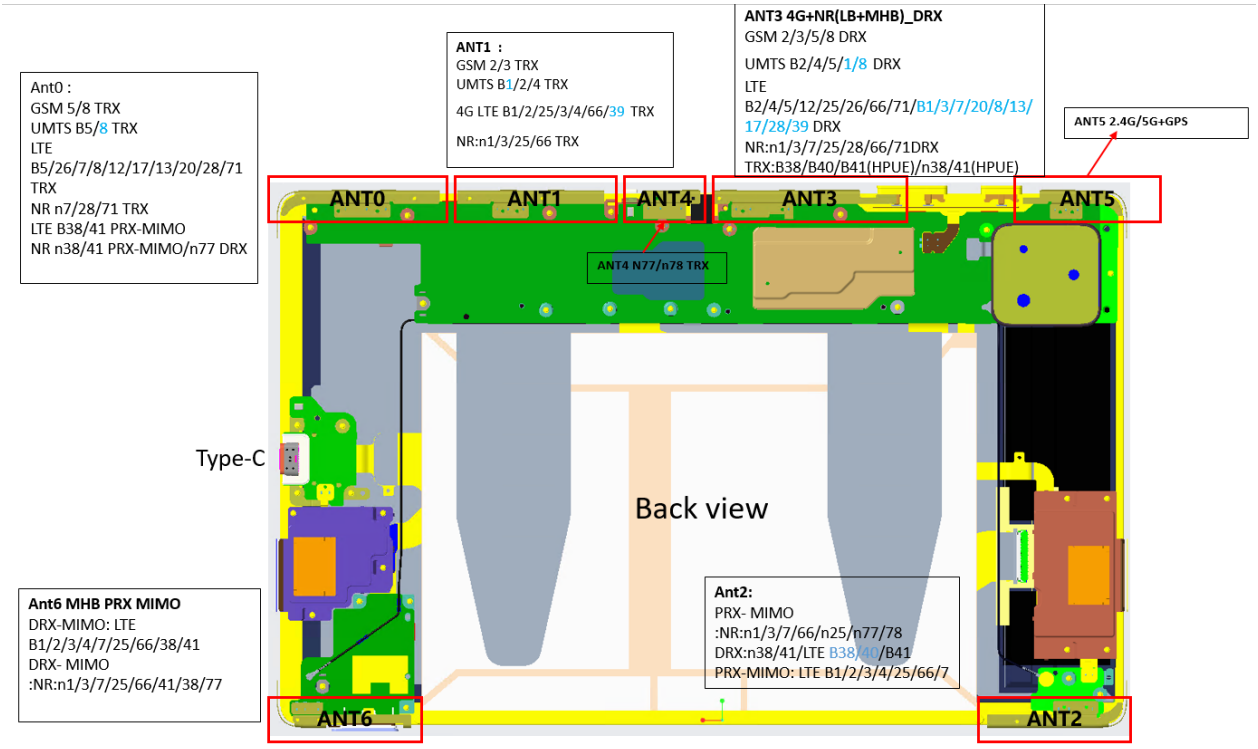
- **Kunshan Innowave Communication Technology Co.,Ltd**

2. Model Name

- **Basic Model: TMRV5GTB**

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



4. Electric Performance Data

4.1 Specification Sheet

Electronic Specification				
Frequency Range [MHz]	**LTE B1/n1 WCDMA B1**	**LTE B2/WCDMA B2/PCS1900**	**LTE B3/n3 DCS1800**	**LTE B4/WCDMA B4**
	1920-2170	**1805-1990**	**1710-1880**	**1710-2155**
ANT	**ANT1**	**ANT1**	**ANT1**	**ANT1**
Peak Gain(dBi)	0.2	0.2	0.16	0.2
Average Gain(dBi)	-0.89	-0.37	-0.63	-0.72
Frequency Range [MHz]	**LTE B5/WCDMA B5/GSM850**	**LTE B7/n7**	**LTE B8/WCDMA B8/GSM 900**	**LTE B12**
	824-894	**2500-2690**	**880-960**	**699-746**
ANT	**ANT0**	**ANT0**	**ANT0**	**ANT0**
Peak Gain(dBi)	-1.3	-0.6	-0.94	-7.48
Average Gain(dBi)	-1.58	-2.1	-2.2	-8.2
Frequency Range [MHz]	**LTE B13**	**LTE B17**	**LTE B20**	**LTE B25/n25**
	746-787	**704-746**	**791-862**	**1850-1995**
ANT	**ANT0**	**ANT0**	**ANT0**	**ANT1**
Peak Gain(dBi)	-5.9	-7.6	-1.3	0.2
Average Gain(dBi)	-6.3	-7.9	-2.2	-0.22
Frequency Range [MHz]	**LTE B26**	**LTE B28/n28**	**LTE B38/n38**	**LTE B39**
	814-894	**703-803**	**2570-2620**	**1880-1920**
ANT	**ANT0**	**ANT0**	**ANT3**	**ANT1**
Peak Gain(dBi)	-1.3	-3.64	0.93	0.2
Average Gain(dBi)	-1.6	-4.5	0.39	-0.13
Frequency Range [MHz]	**LTE B40**	**LTE B41/n41**	**LTE B66/n66**	**LTE B71/n71**
	2300-2400	**2496-2690**	**1710-2180**	**617-698**
ANT	**ANT3**	**ANT3**	**ANT1**	**ANT0**
Peak Gain(dBi)	2.9	2.93	0.2	-5.7
Average Gain(dBi)	2.73	0.56	-0.75	-8.8
Frequency Range [MHz]	**n77**	**n78**	**WIFI 2.4G**	**WIFI 5G**
	3300-4200	**3300-3800**	**2400-2484**	**5150-5850**
ANT	**ANT4**	**ANT4**	**ANT5**	**ANT5**
Peak Gain(dBi)	0.77	0.22	0.79	0.71
Average Gain(dBi)	-0.96	-1.14	0.24	-1.43

4.2 Antenna Pattern Drawing

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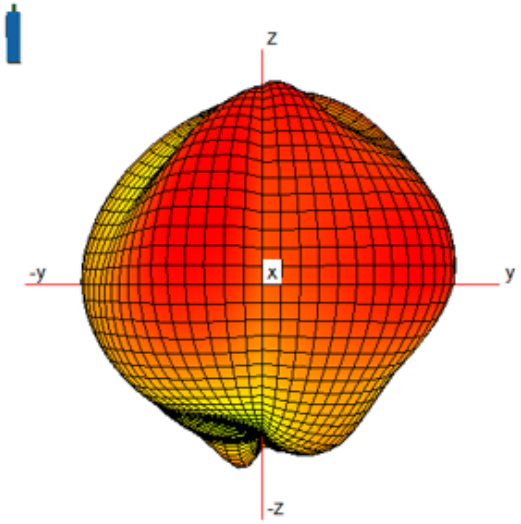

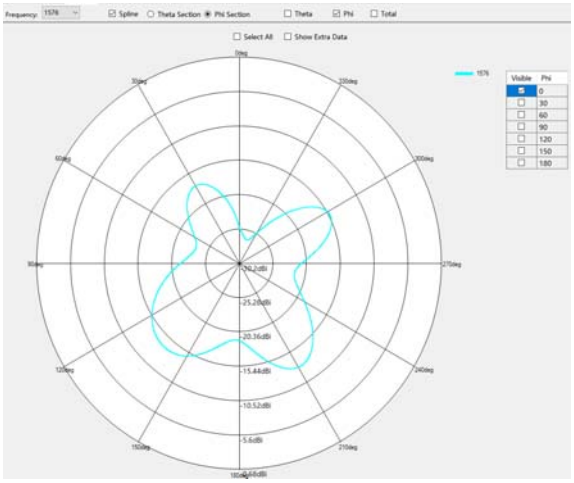

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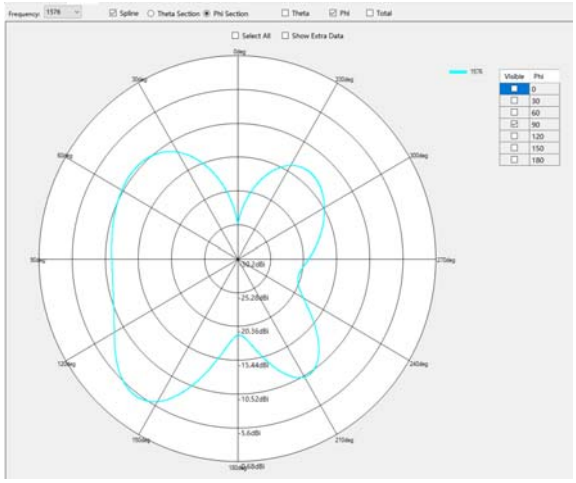

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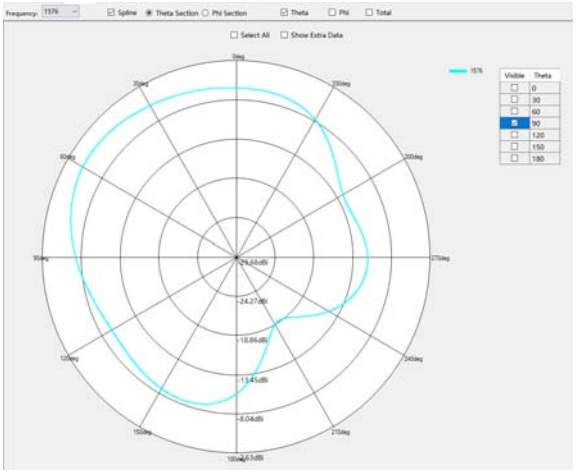

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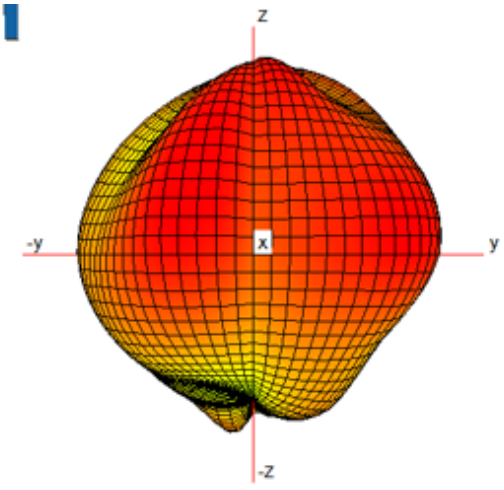

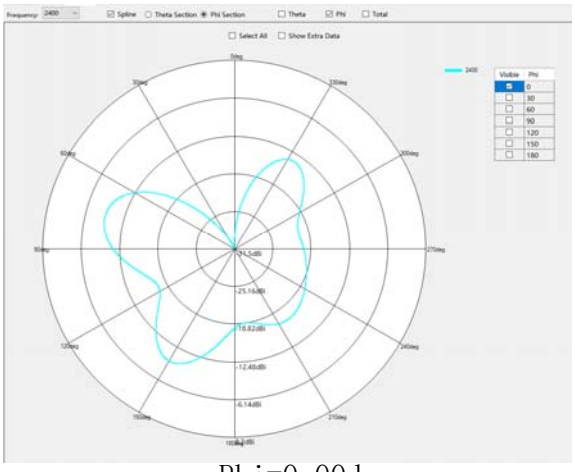

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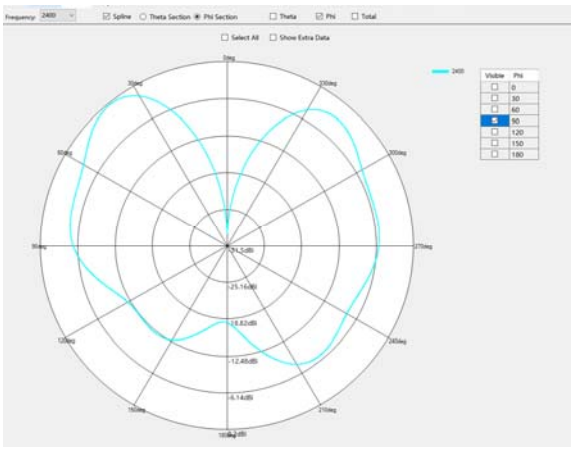

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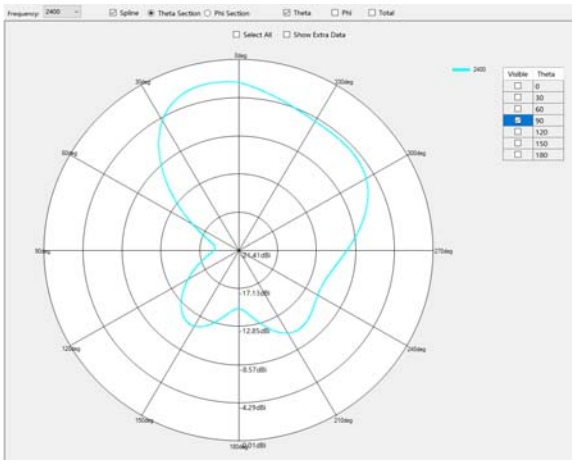

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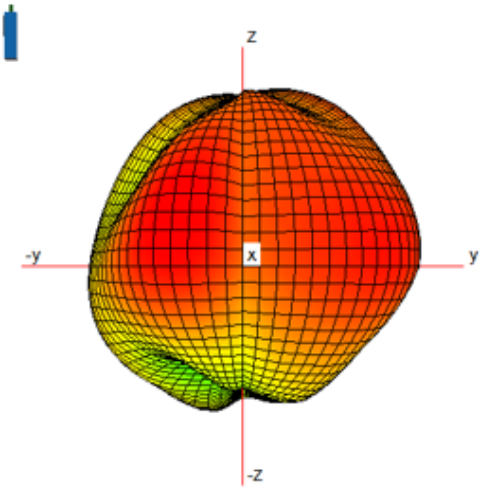

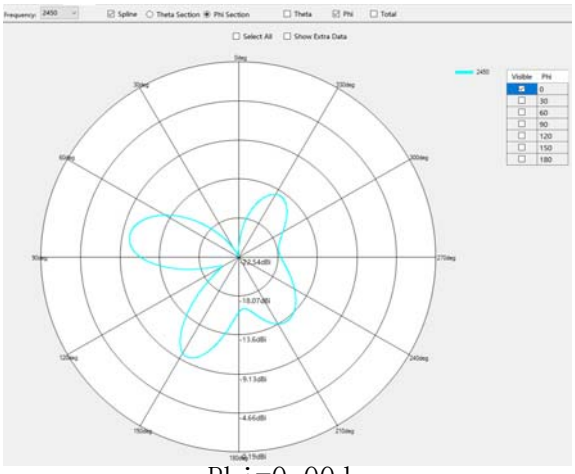

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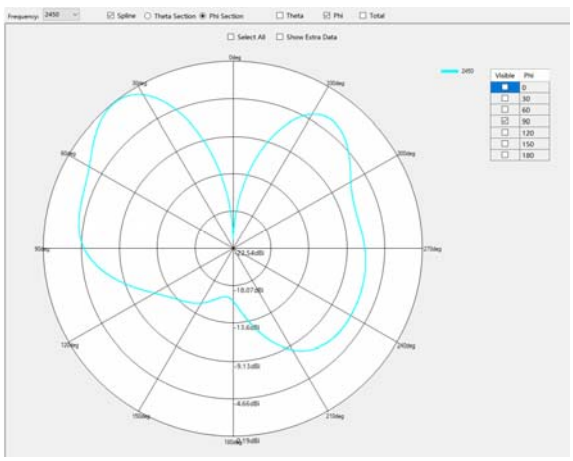

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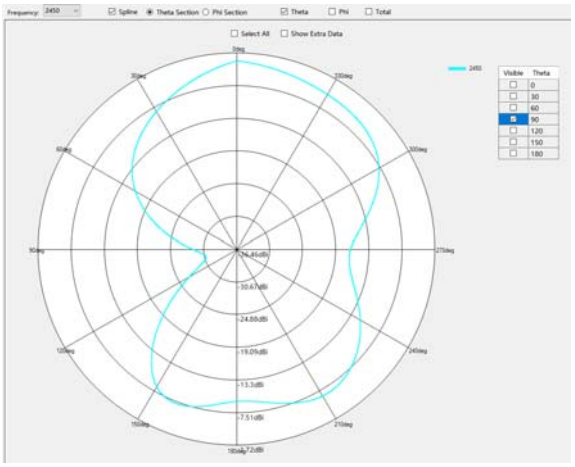

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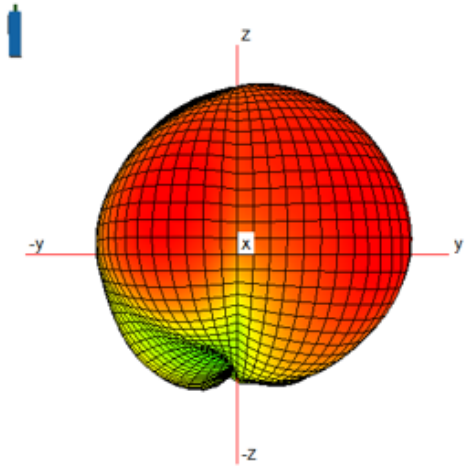

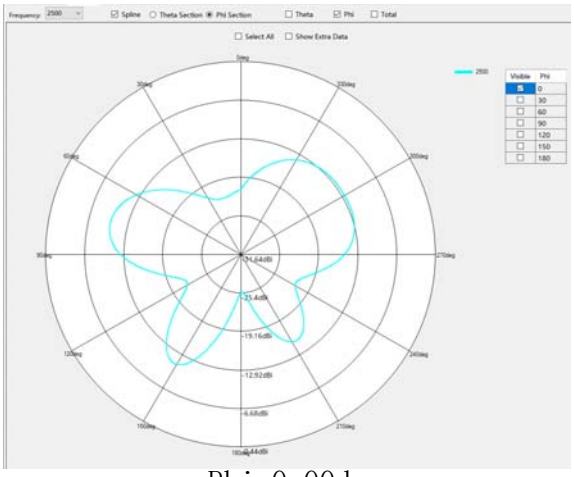

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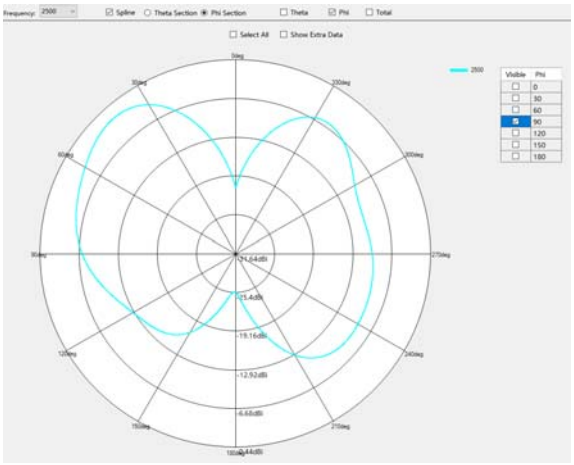

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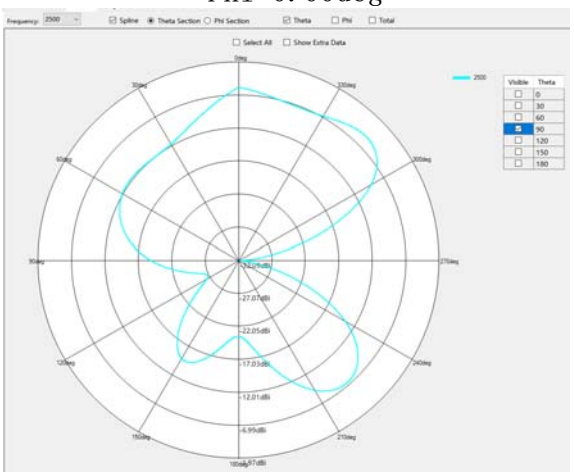

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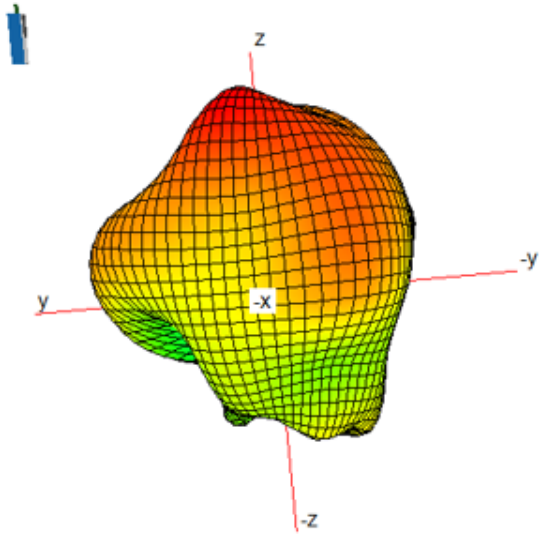

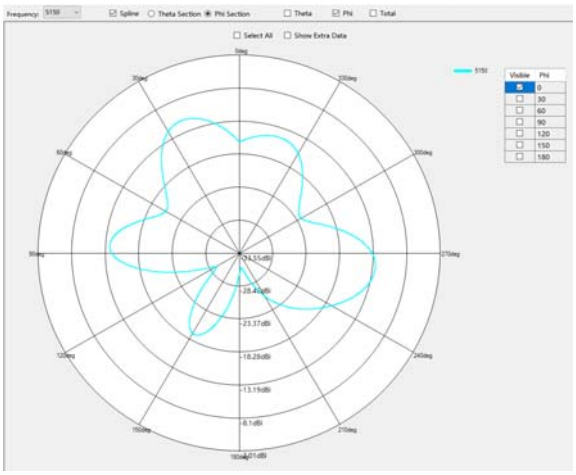

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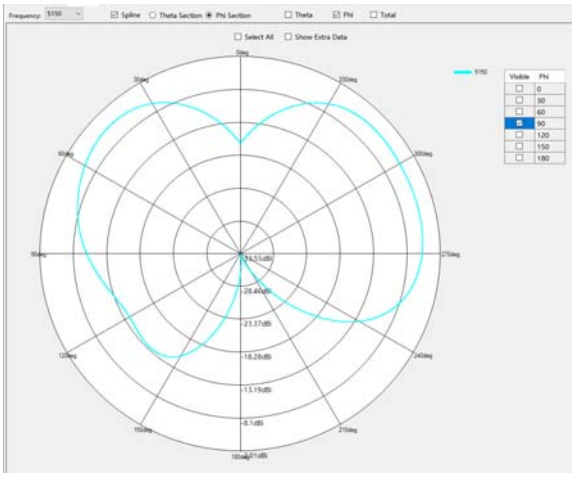

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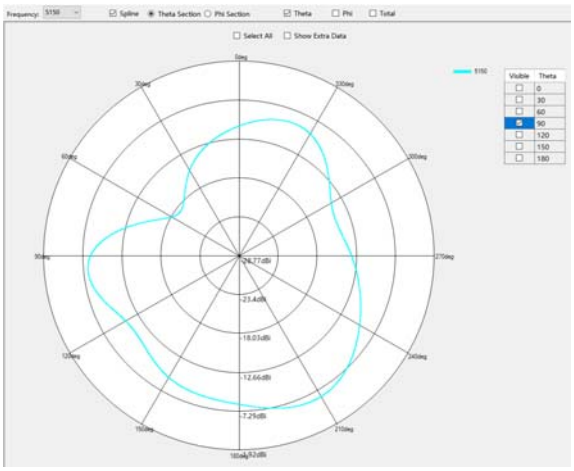

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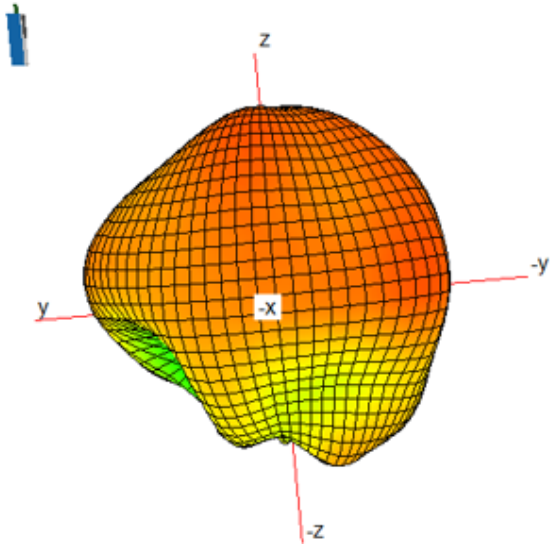

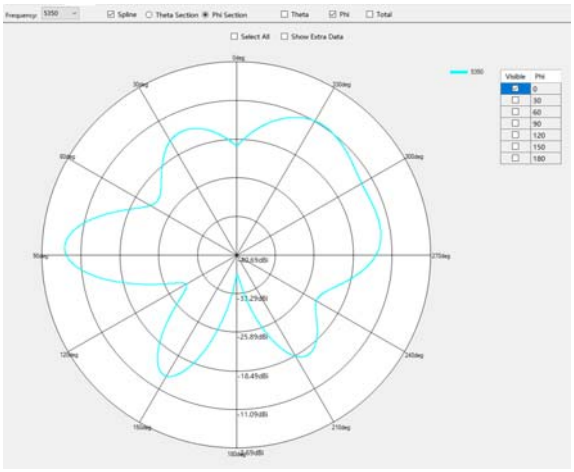

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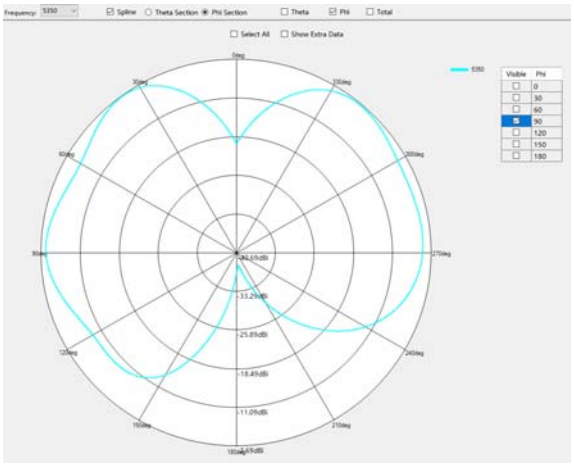

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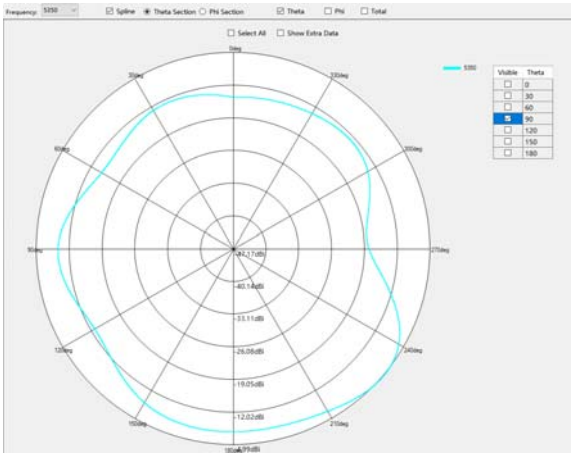

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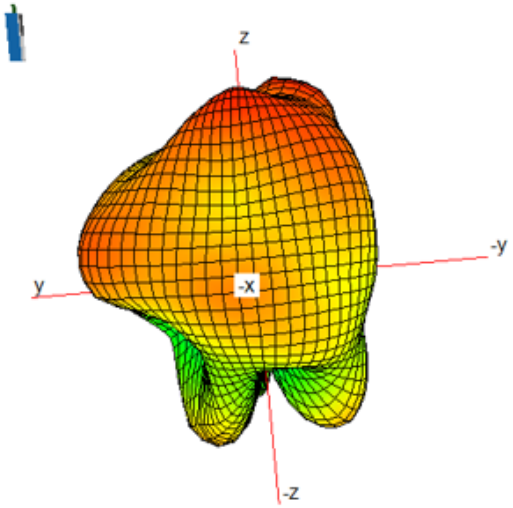

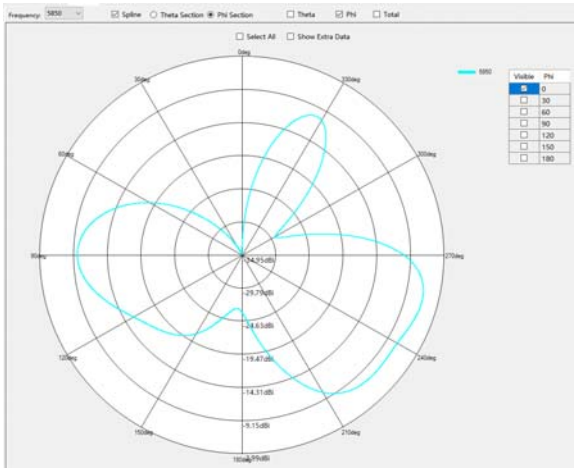

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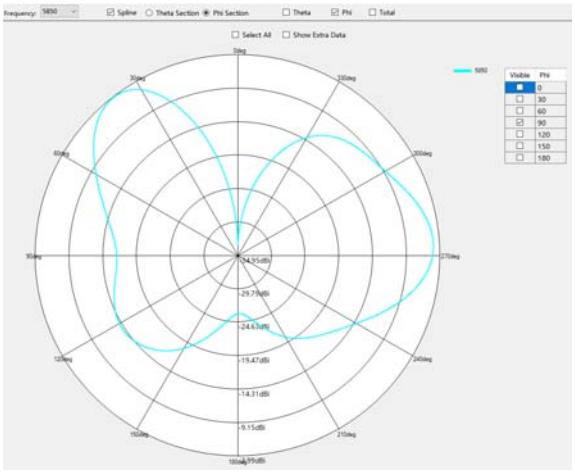

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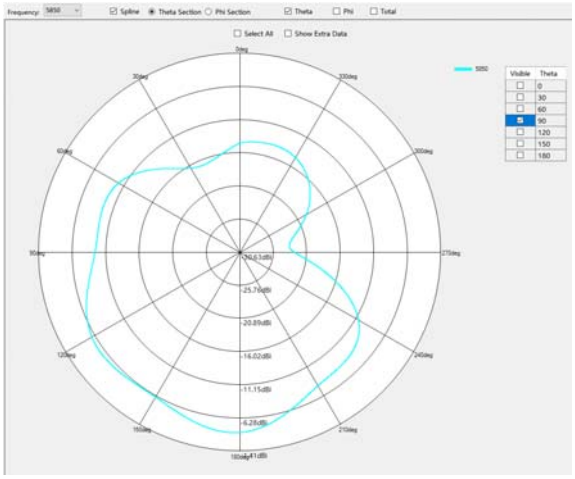

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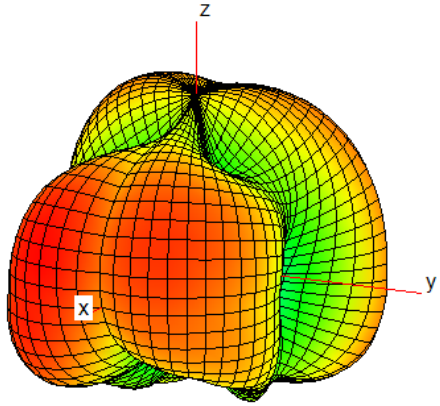

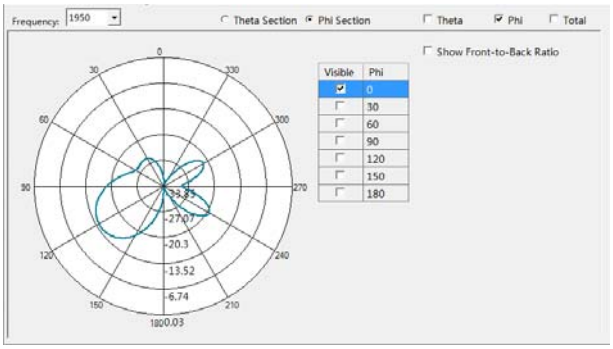

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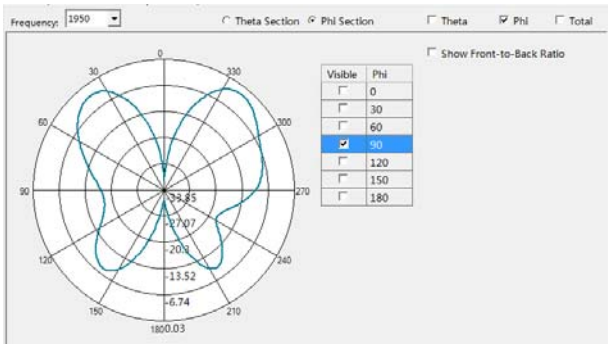

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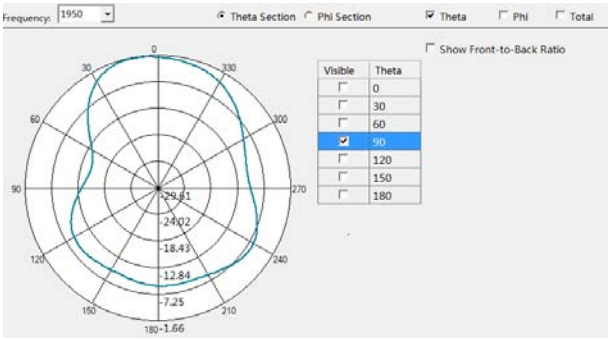

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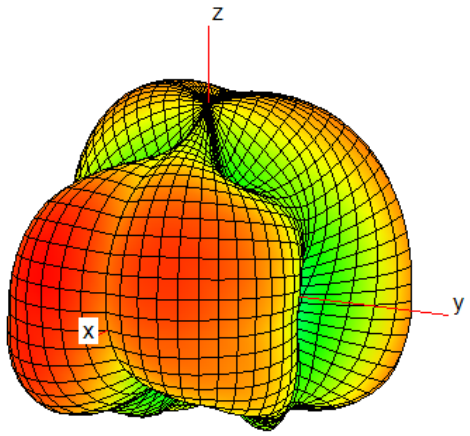

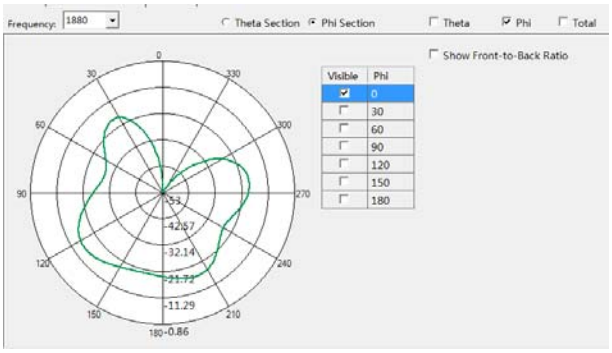

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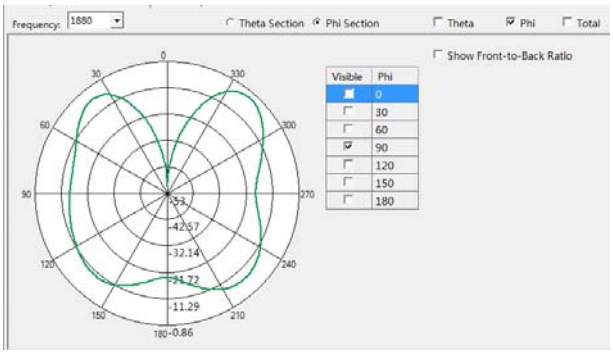

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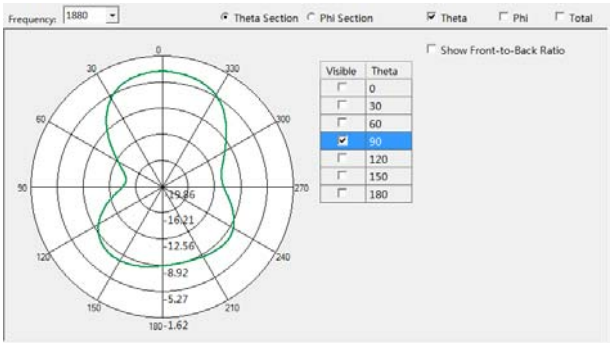

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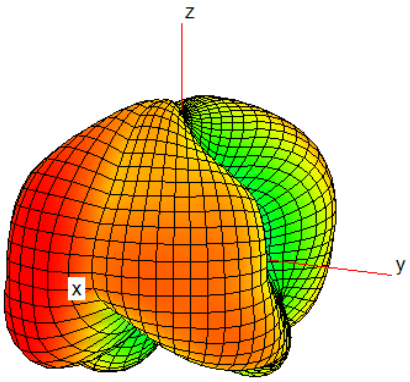

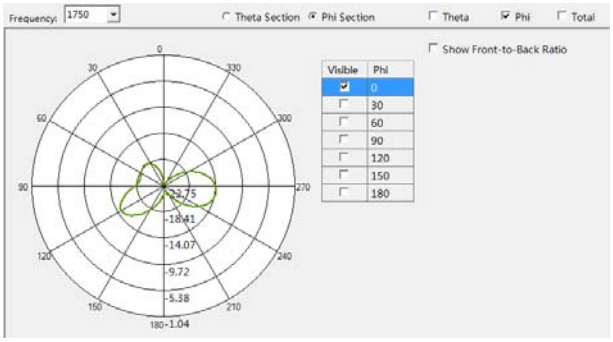

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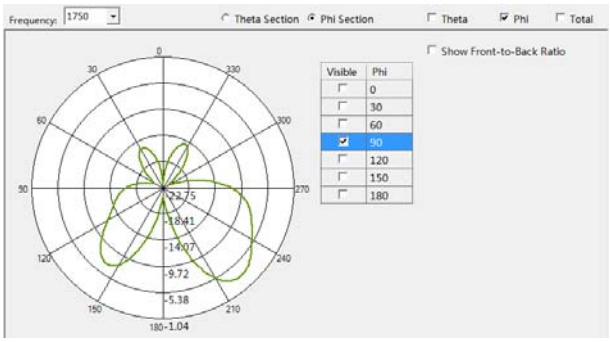

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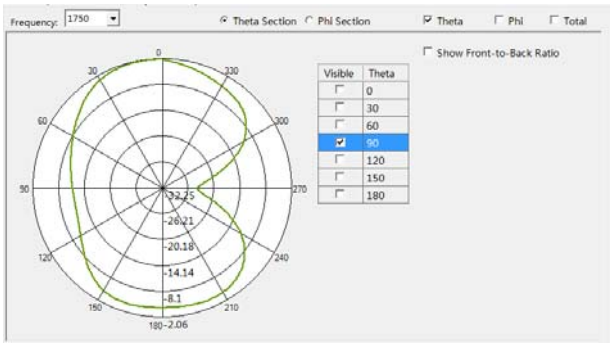

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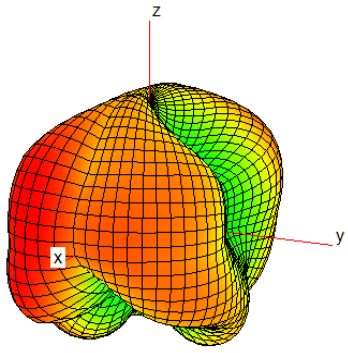

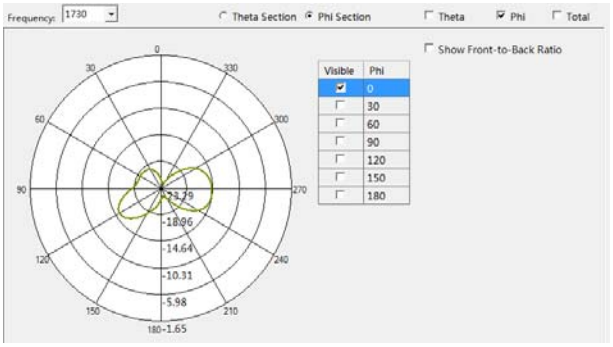

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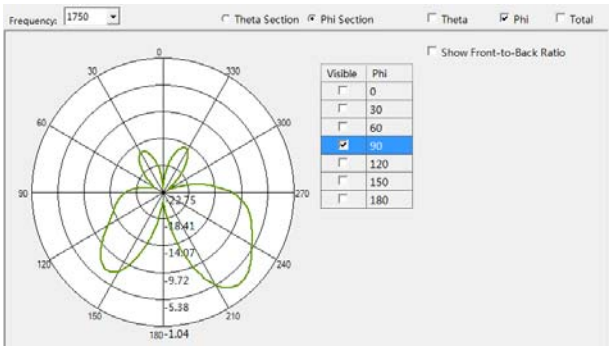

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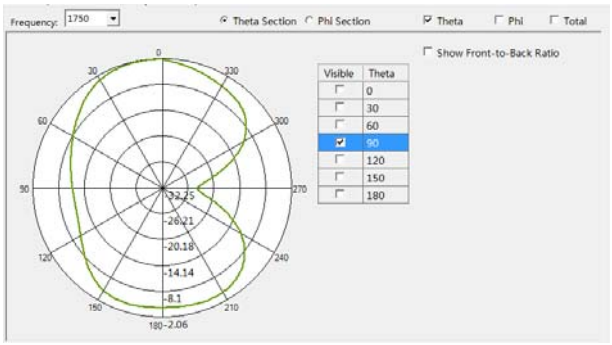

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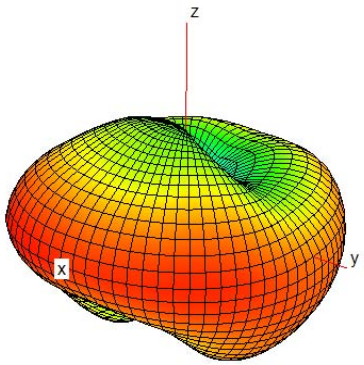

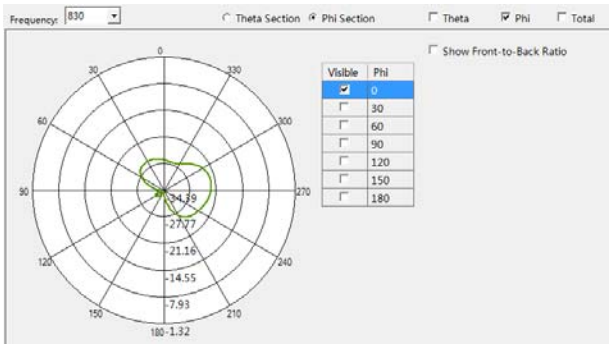

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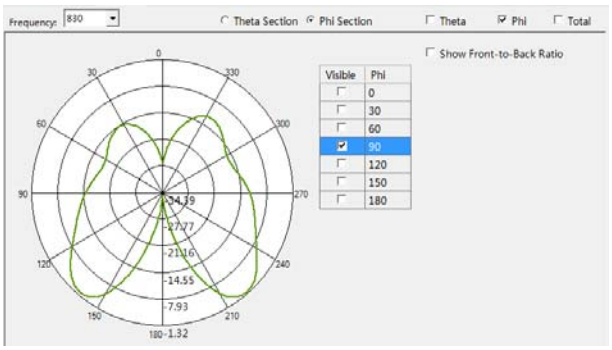

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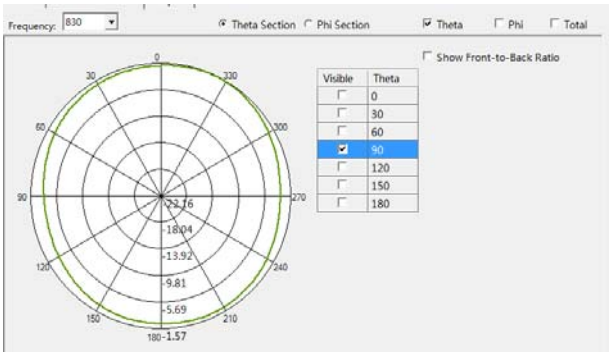

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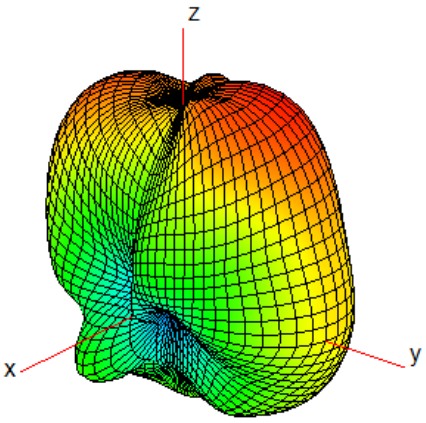

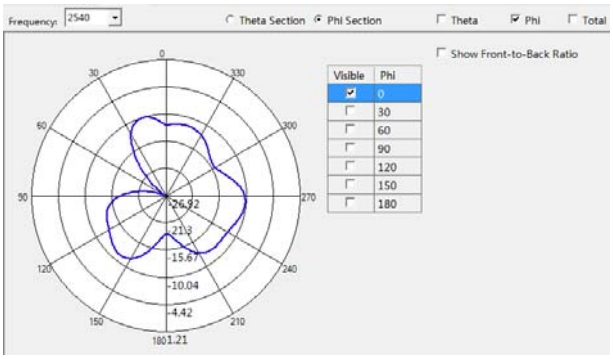

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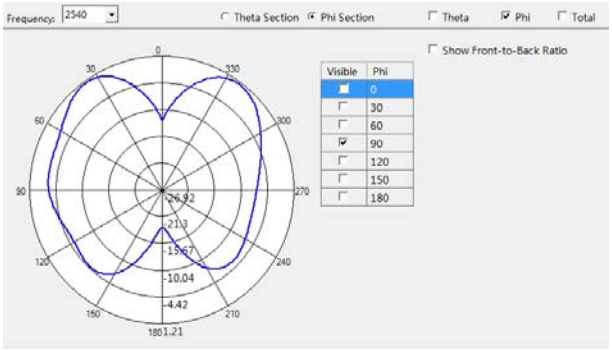

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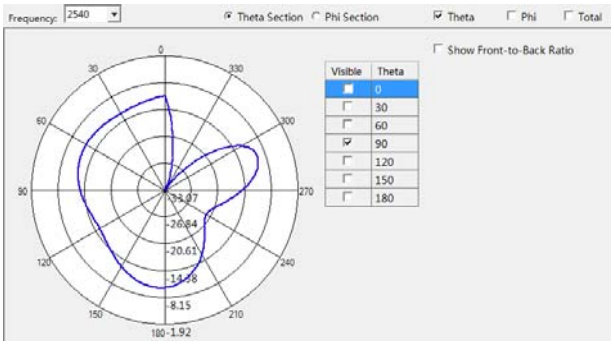

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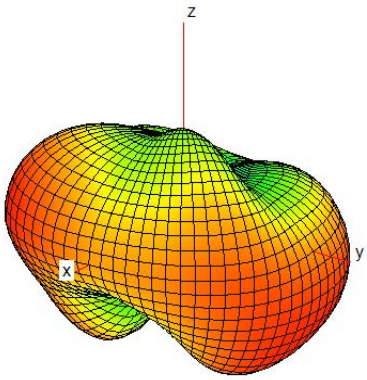
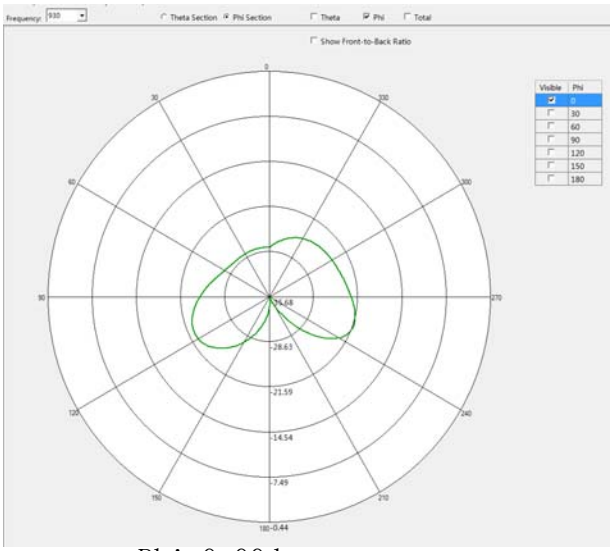
ANT0 Band8





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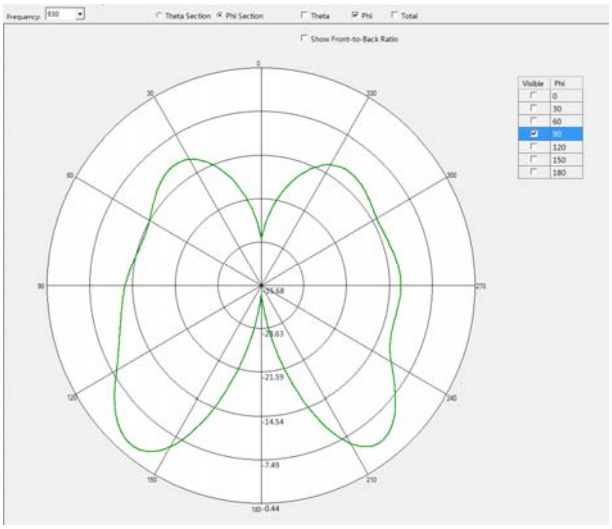

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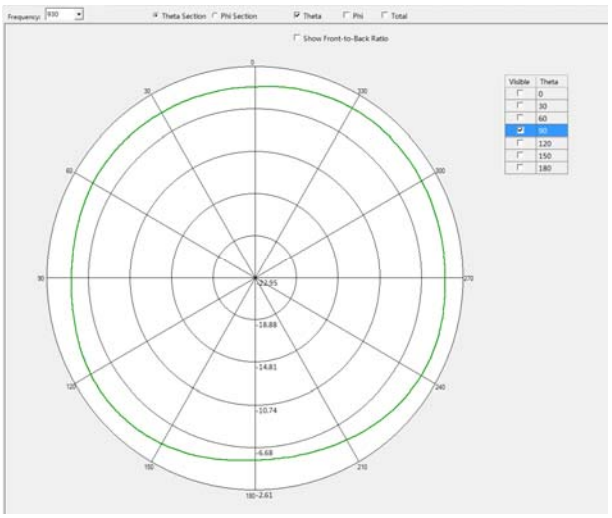

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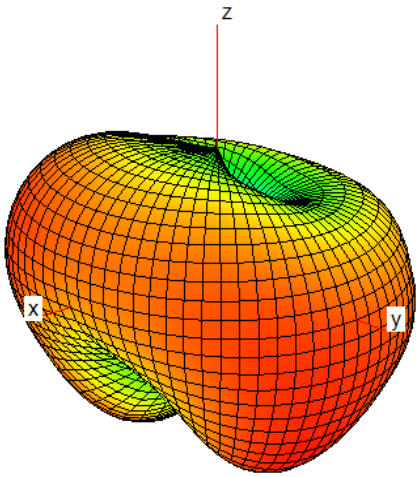
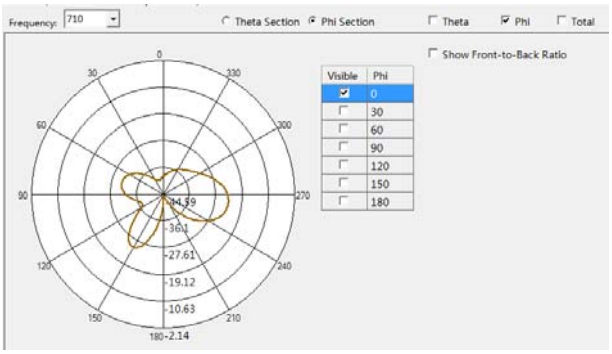
ANT0 Band12





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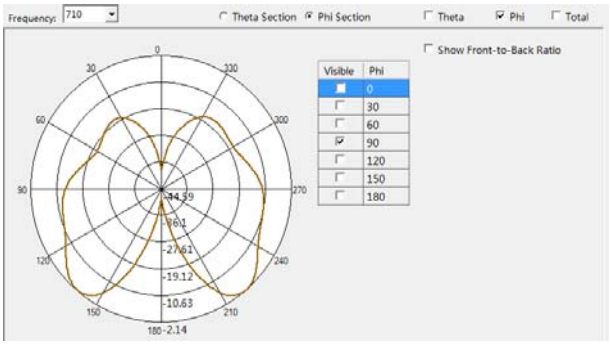

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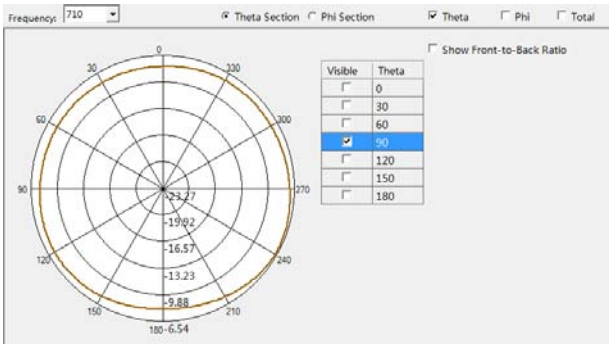

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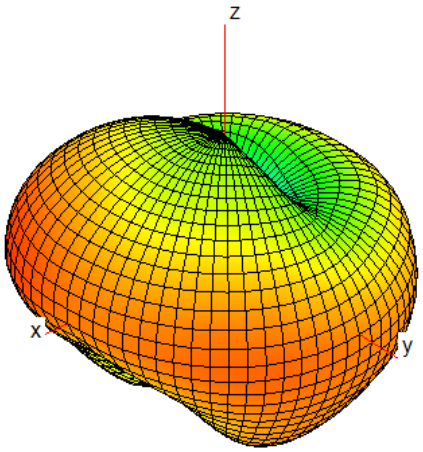
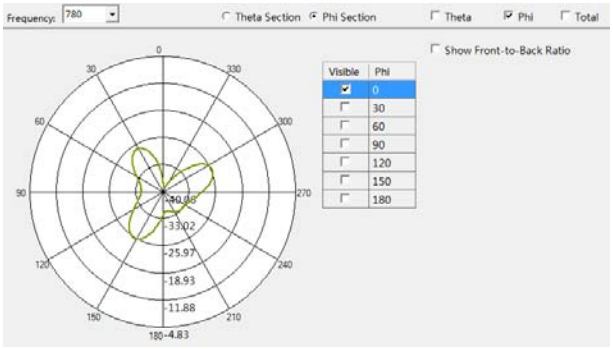
ANT0 Band13





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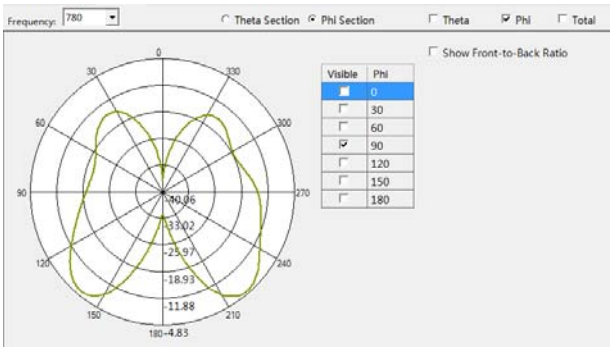

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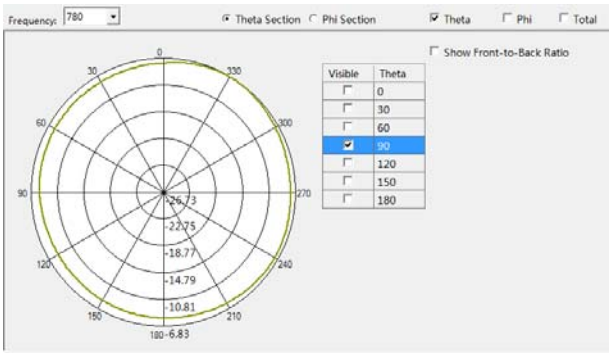

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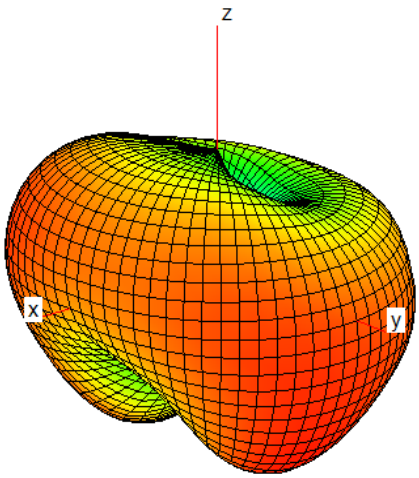
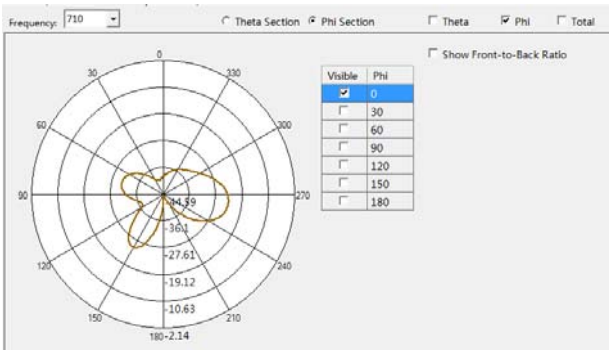
ANT0 Band17





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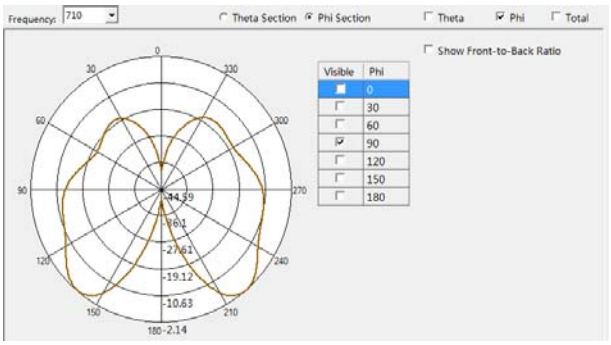

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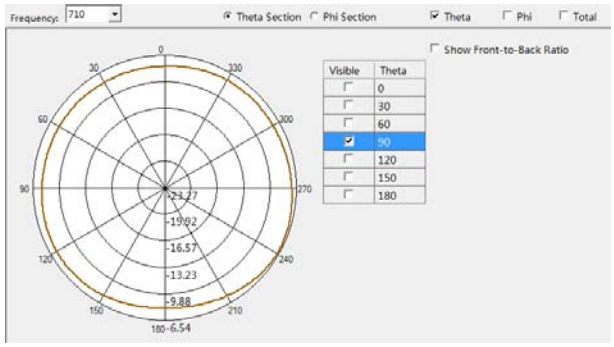

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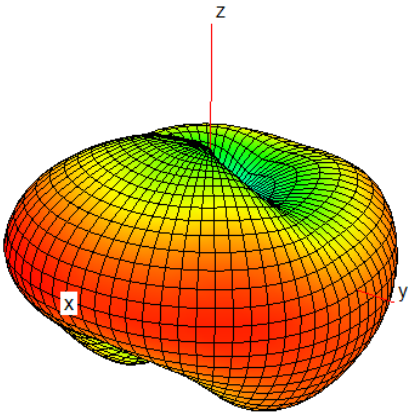
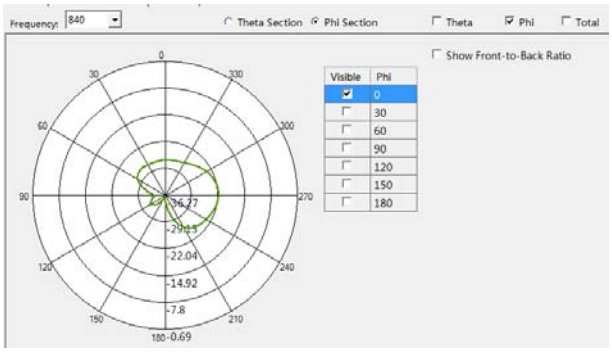
ANT0 Band20





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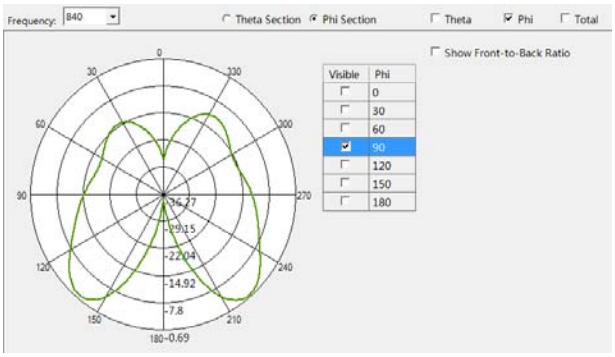

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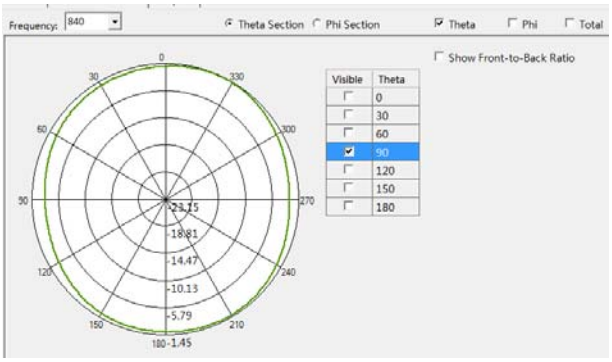

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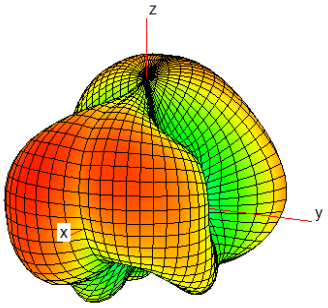
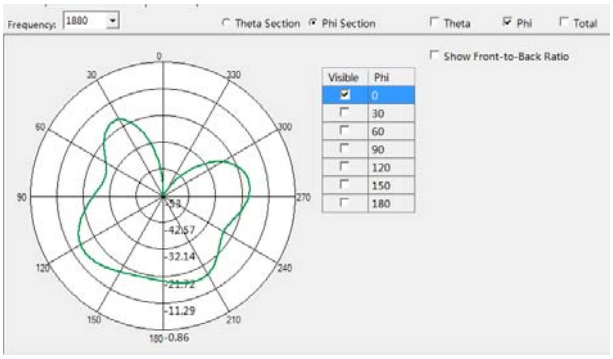
ANT1 Band25





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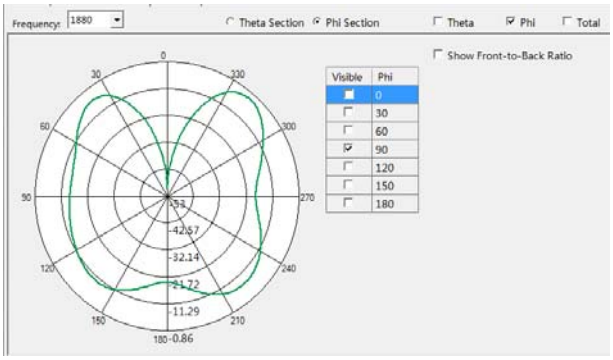

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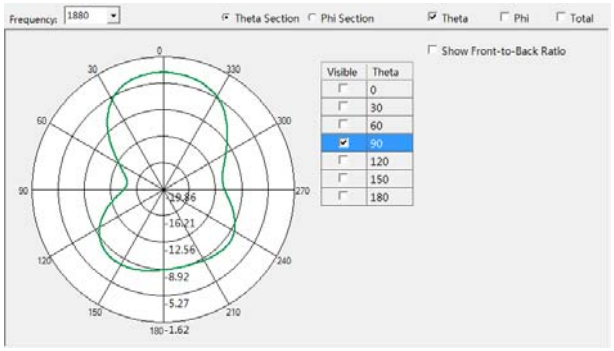

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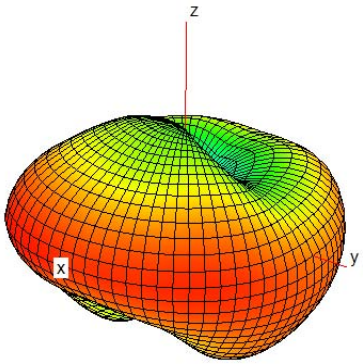
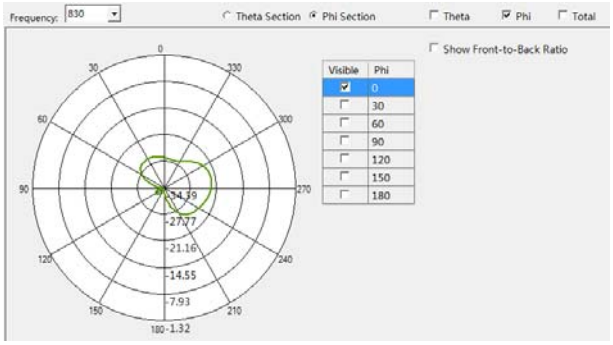
ANT0 Band26





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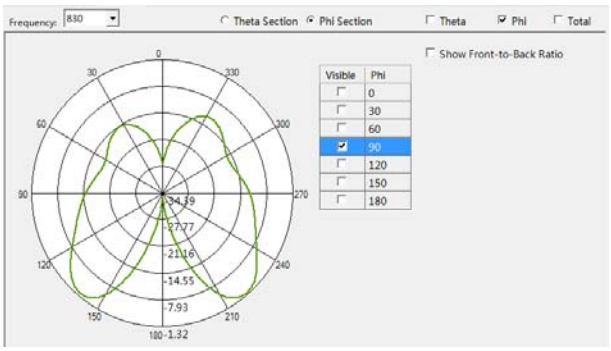

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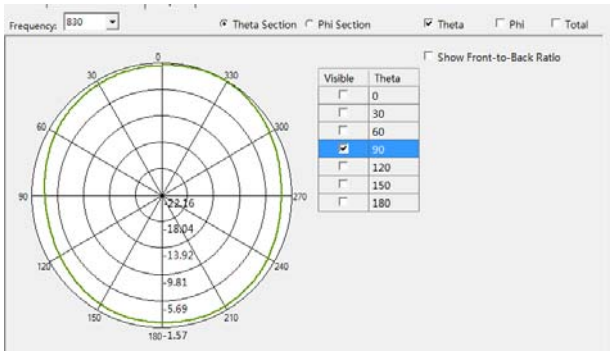

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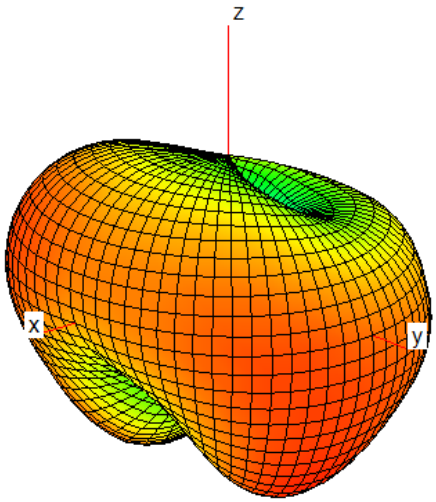
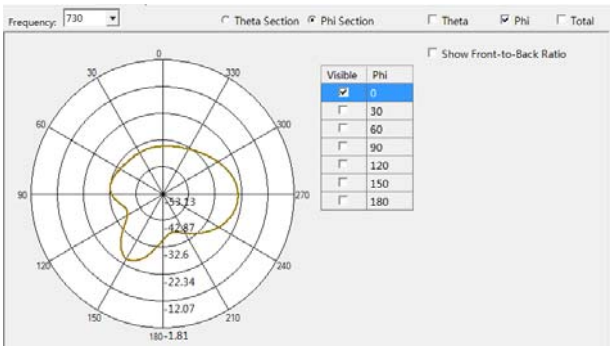
ANT0 Band28





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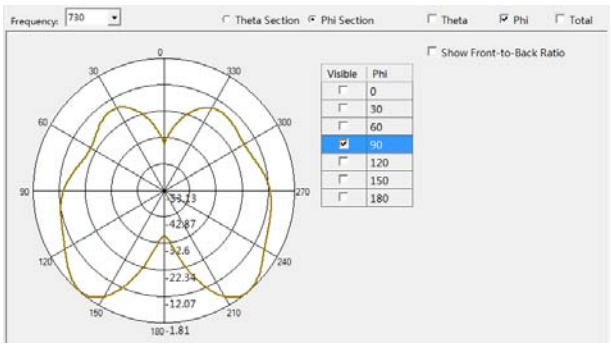

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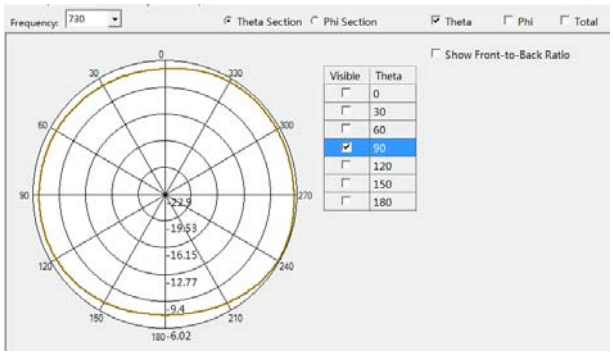

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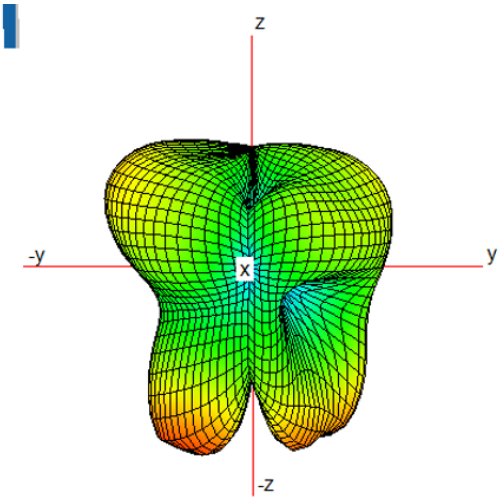
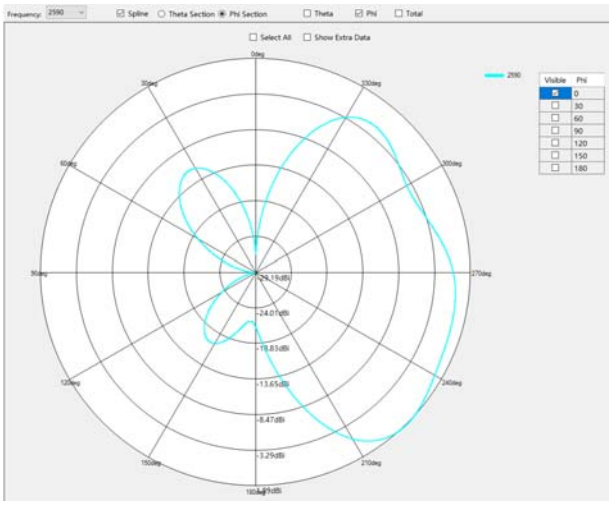
ANT3 Band38





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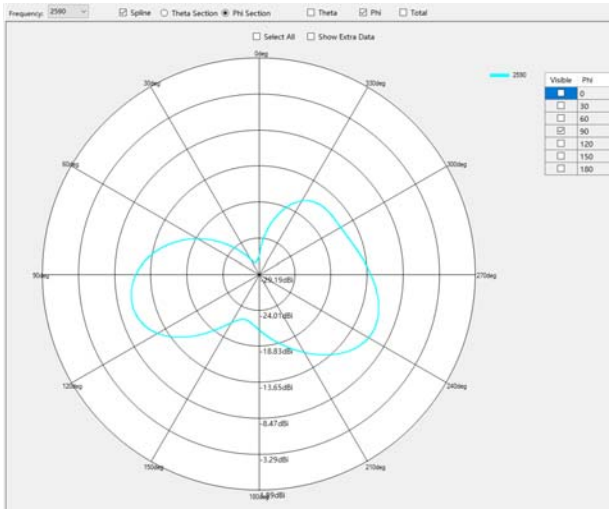

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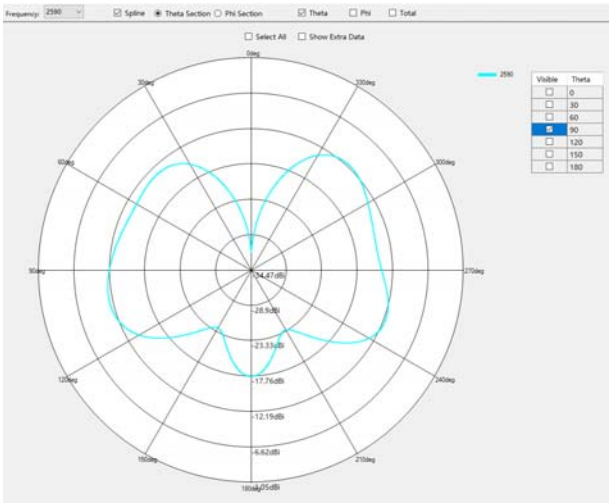

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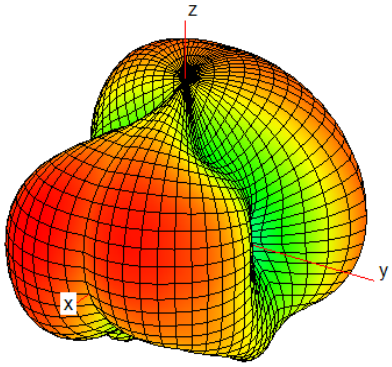
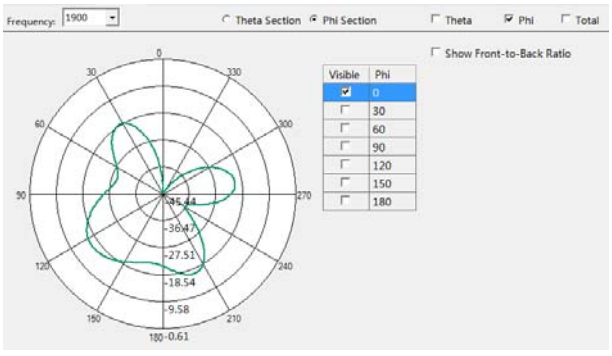
ANT1 Band39





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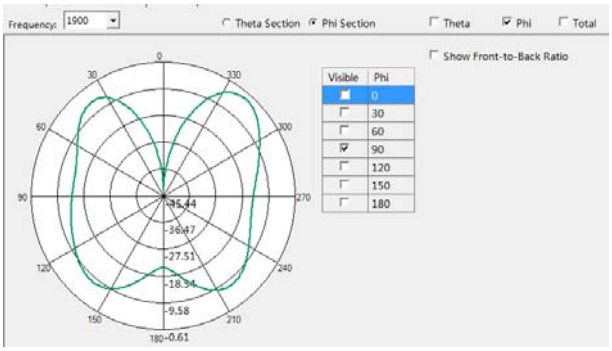

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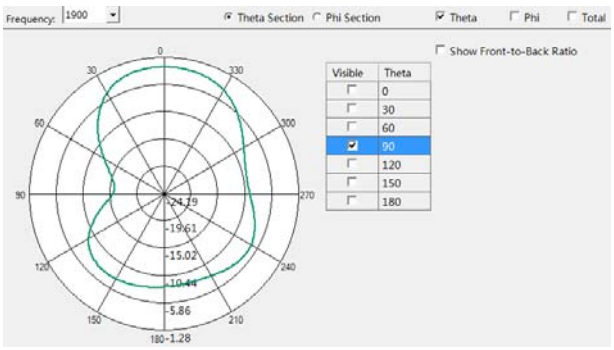

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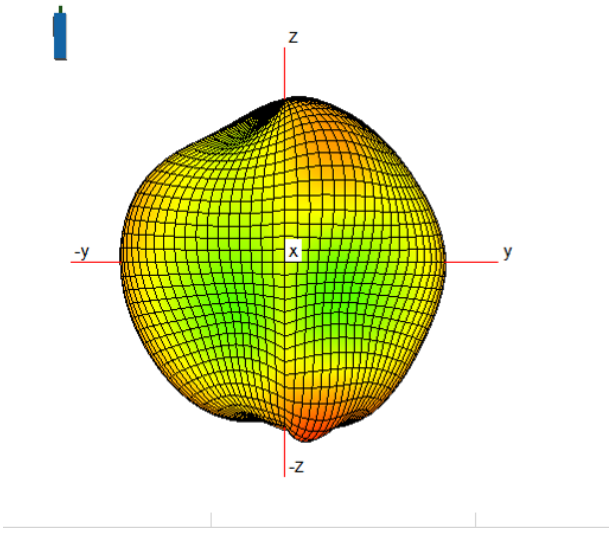
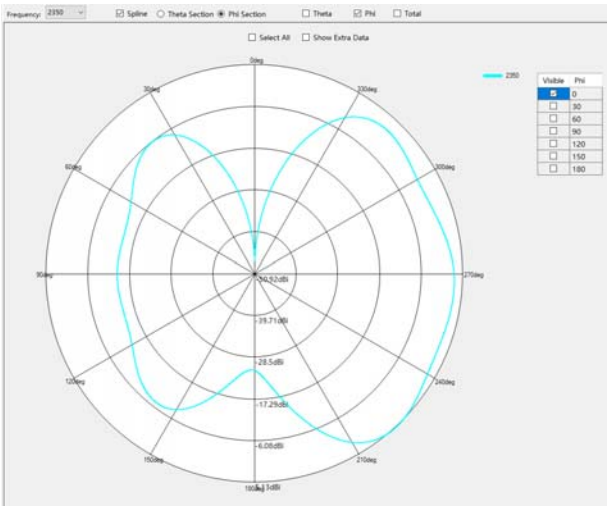
ANT3 Band40





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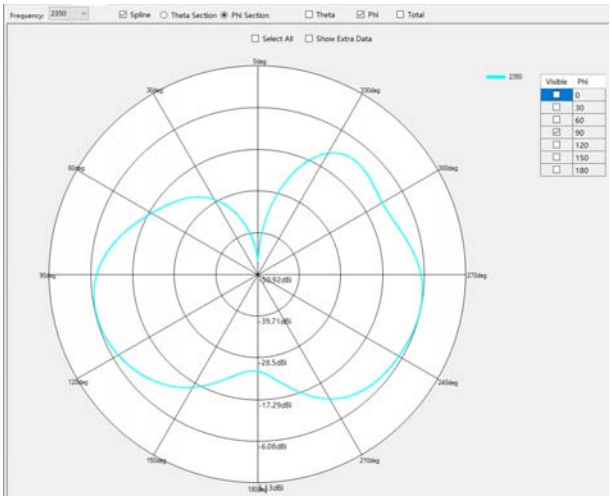

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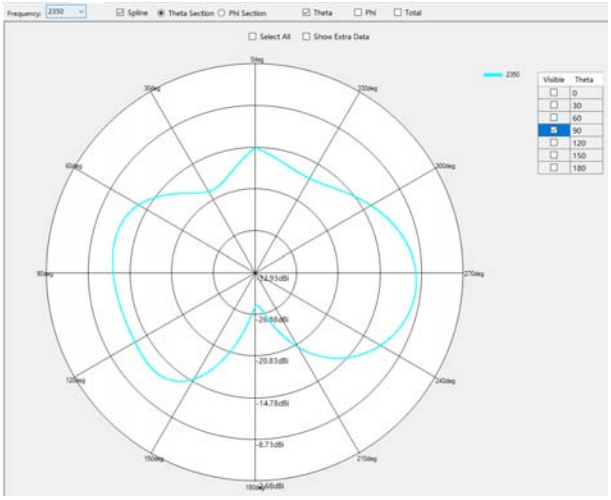

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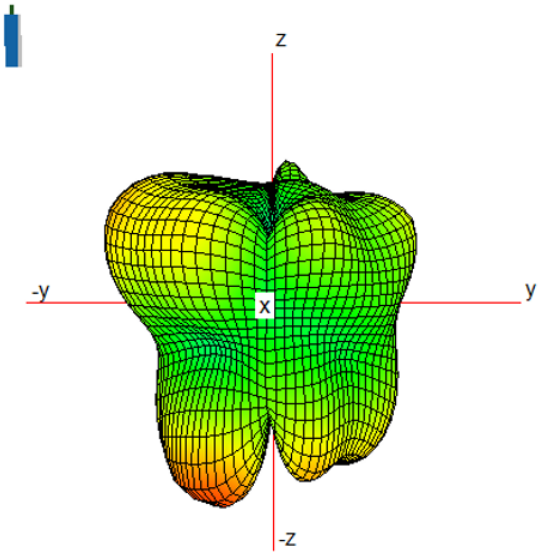
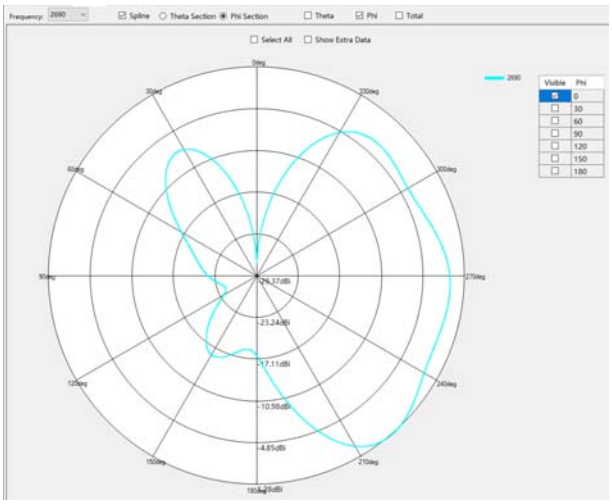
ANT3 Band41





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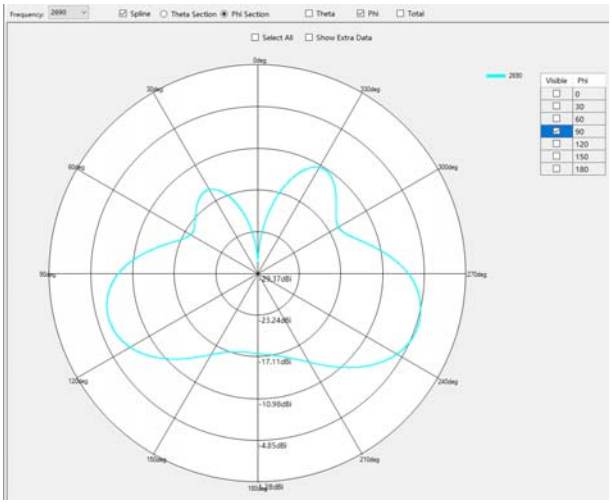

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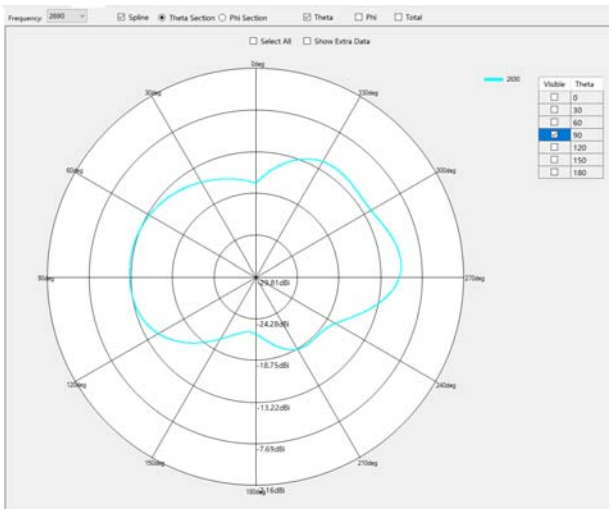

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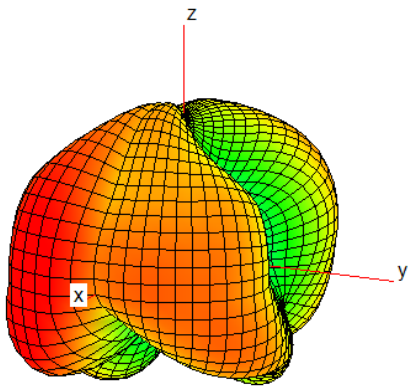
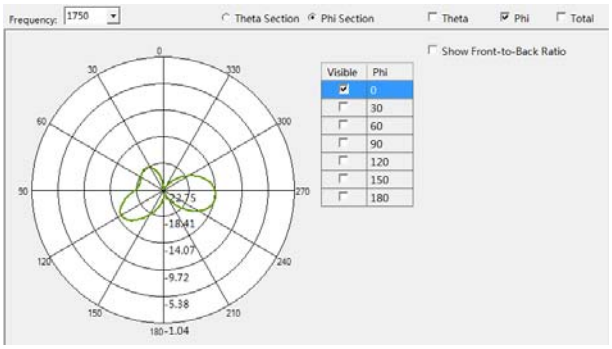
ANT1 Band66





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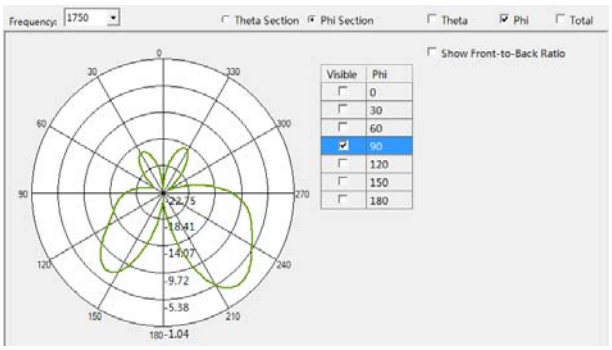

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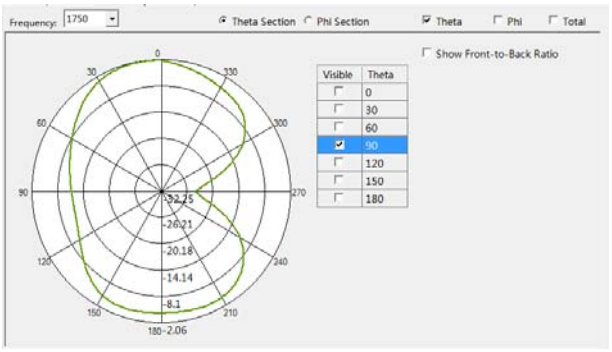

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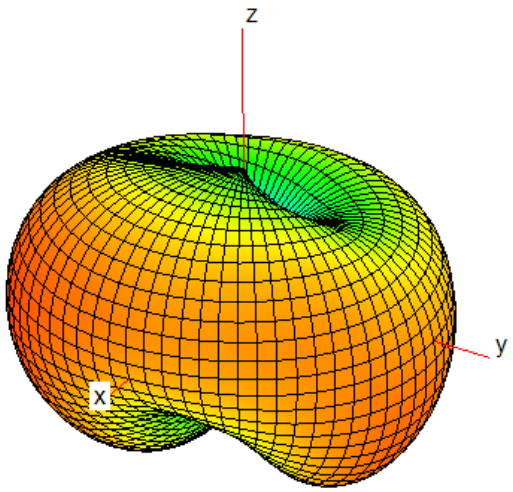
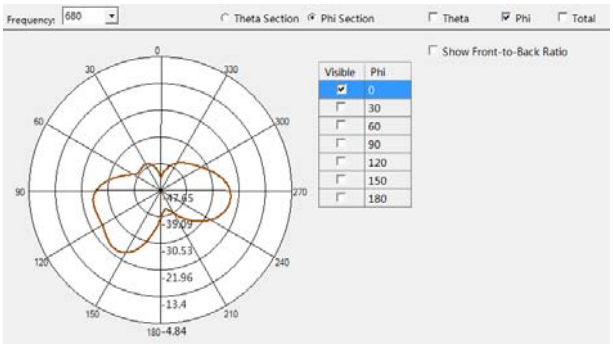
ANT0 Band71





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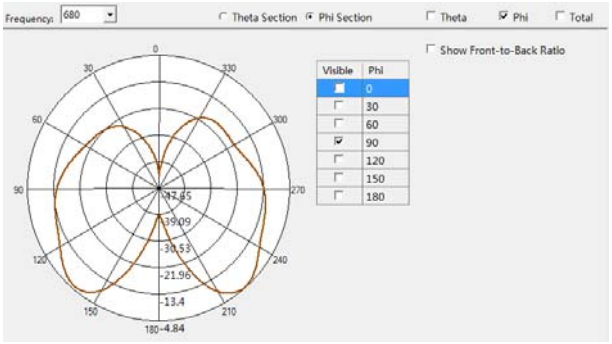

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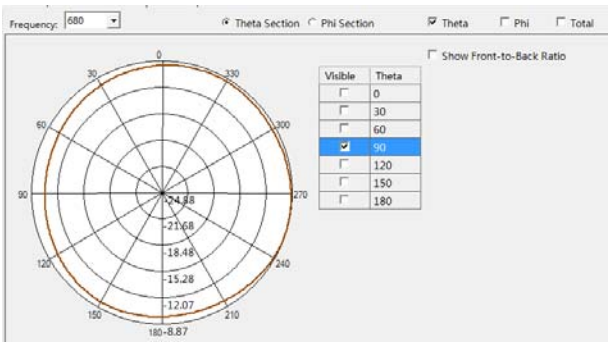
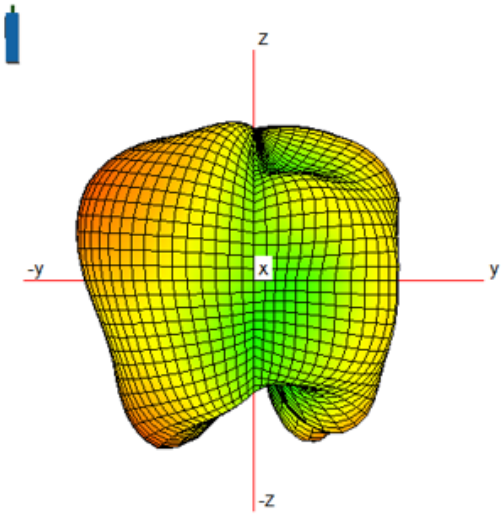
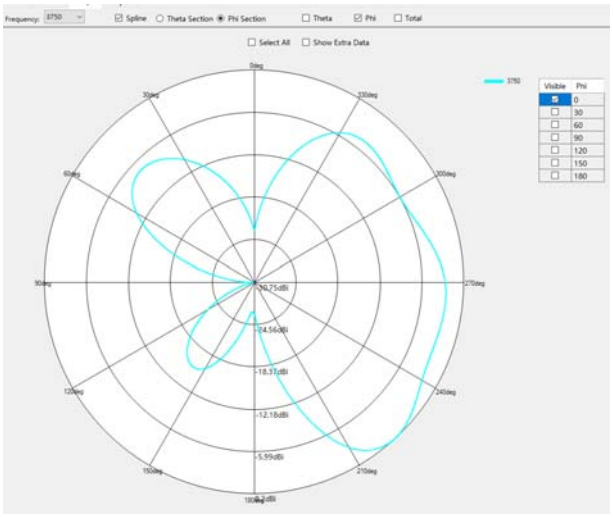


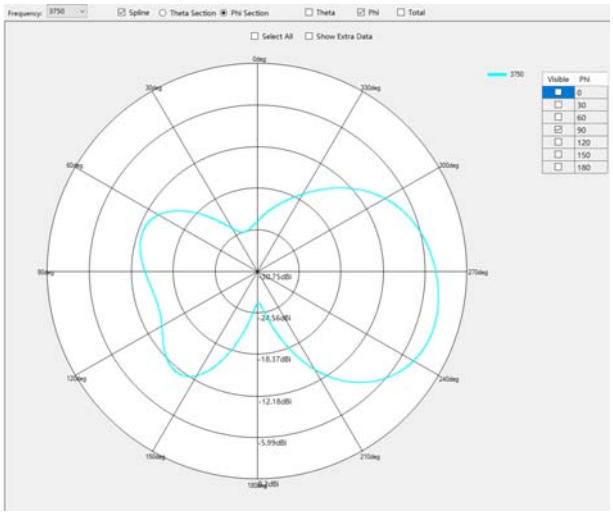
Theta=90.00deg

ANT4 Band77

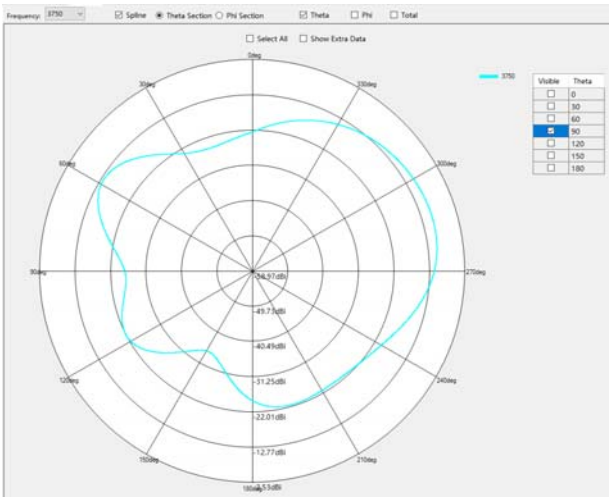




Phi=0.00deg



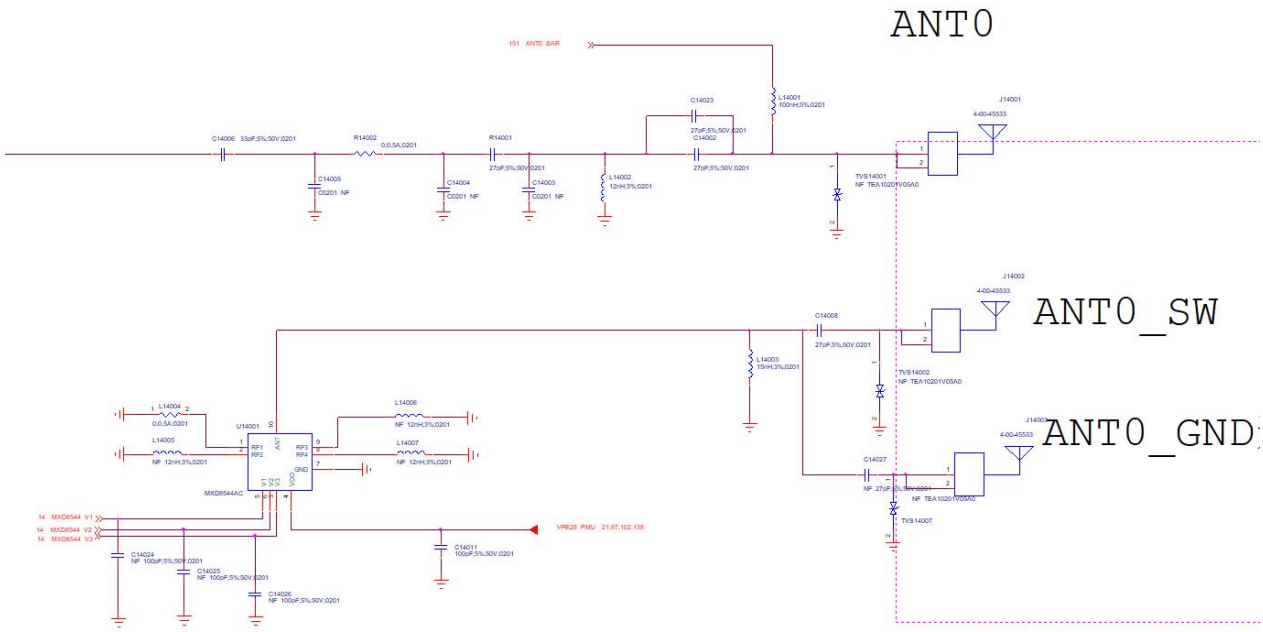
Phi=90.00deg



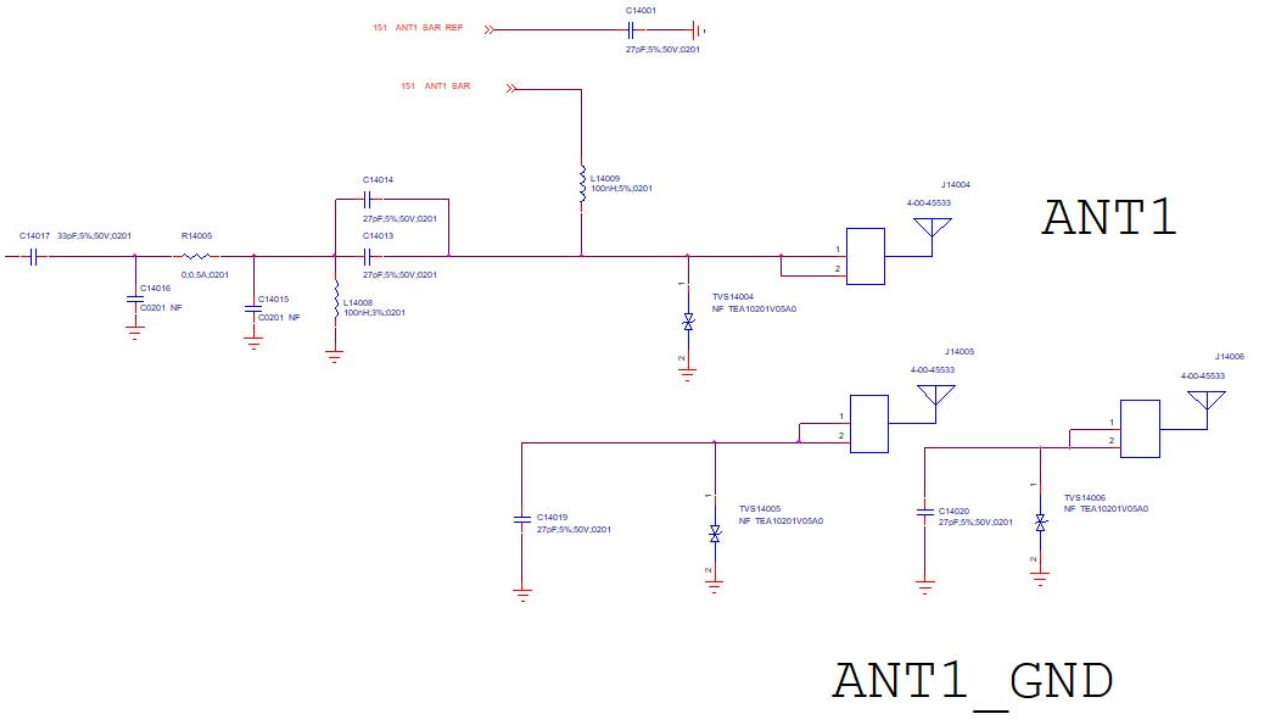
Theta=90.00deg

5. Matching circuit

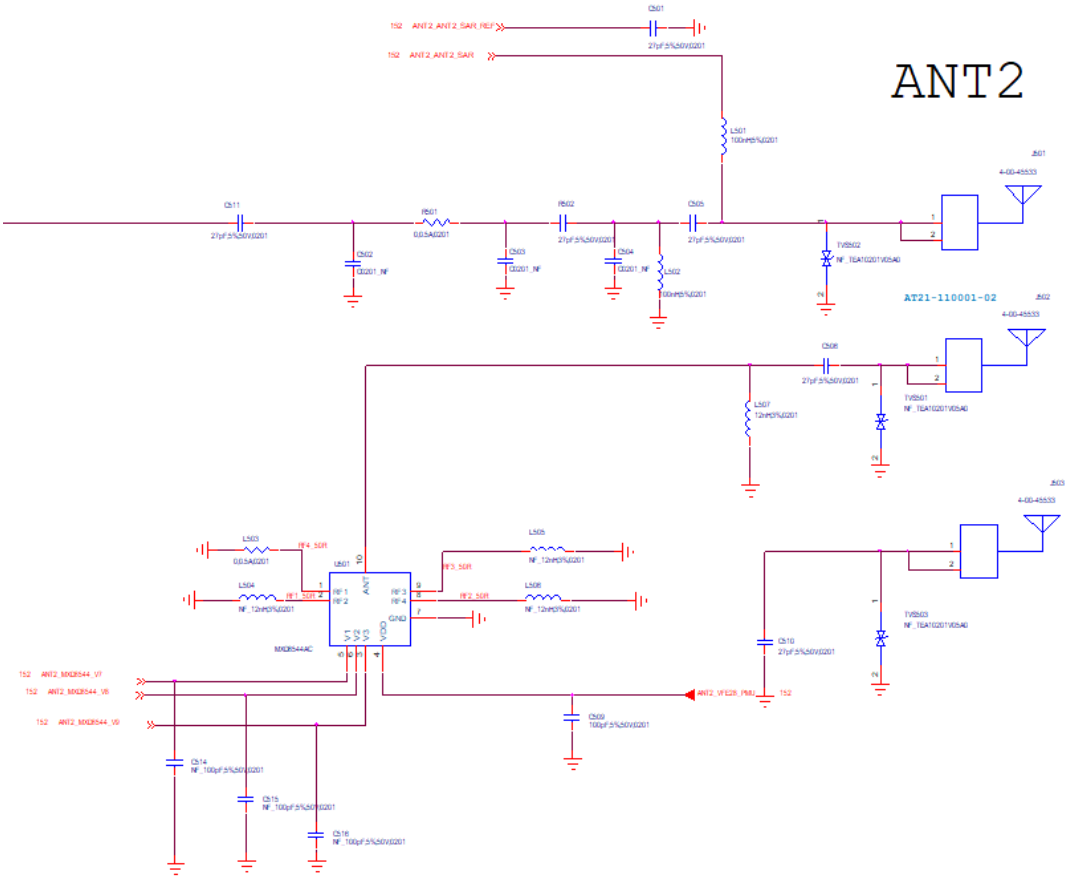
5.1 ANT0



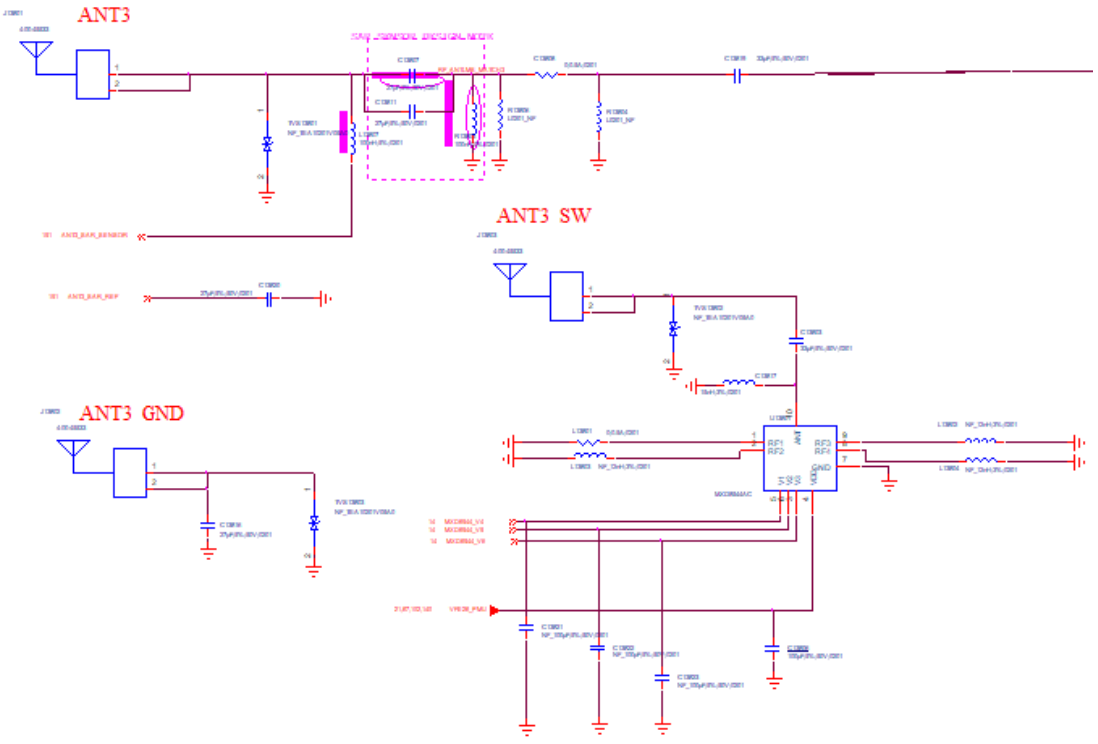
5.2 ANT1



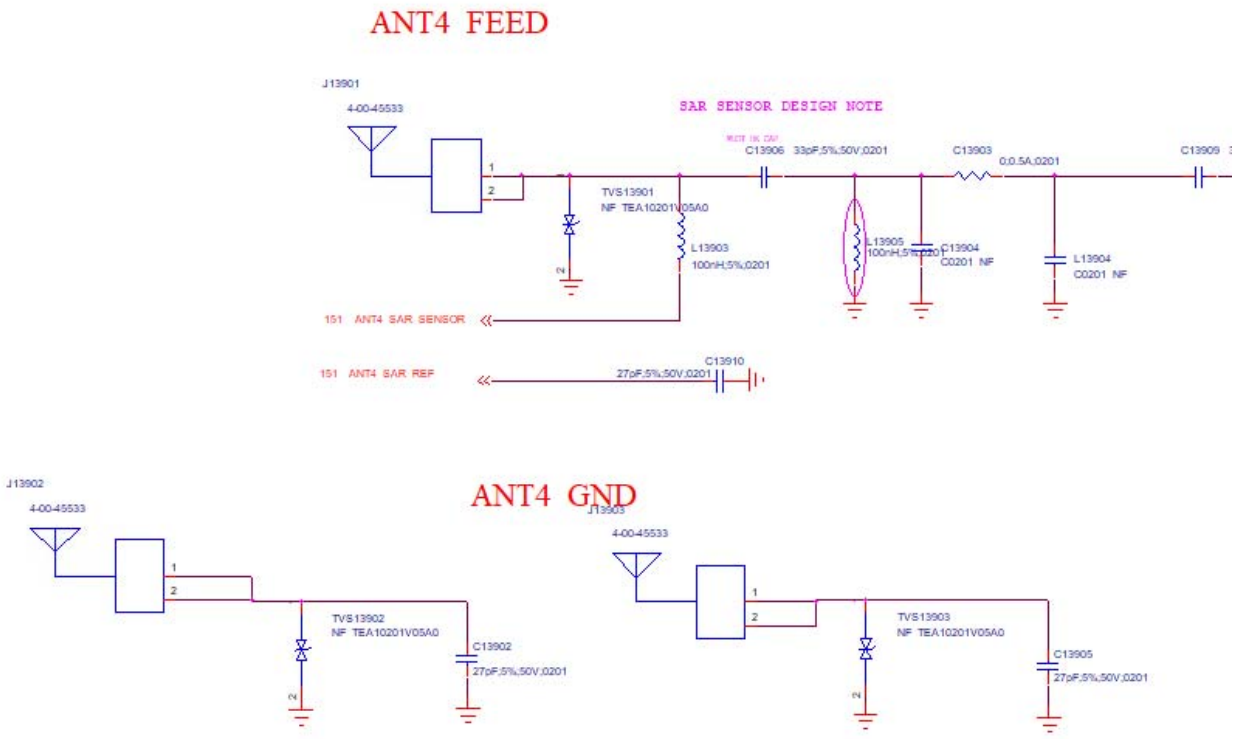
5.3 ANT2



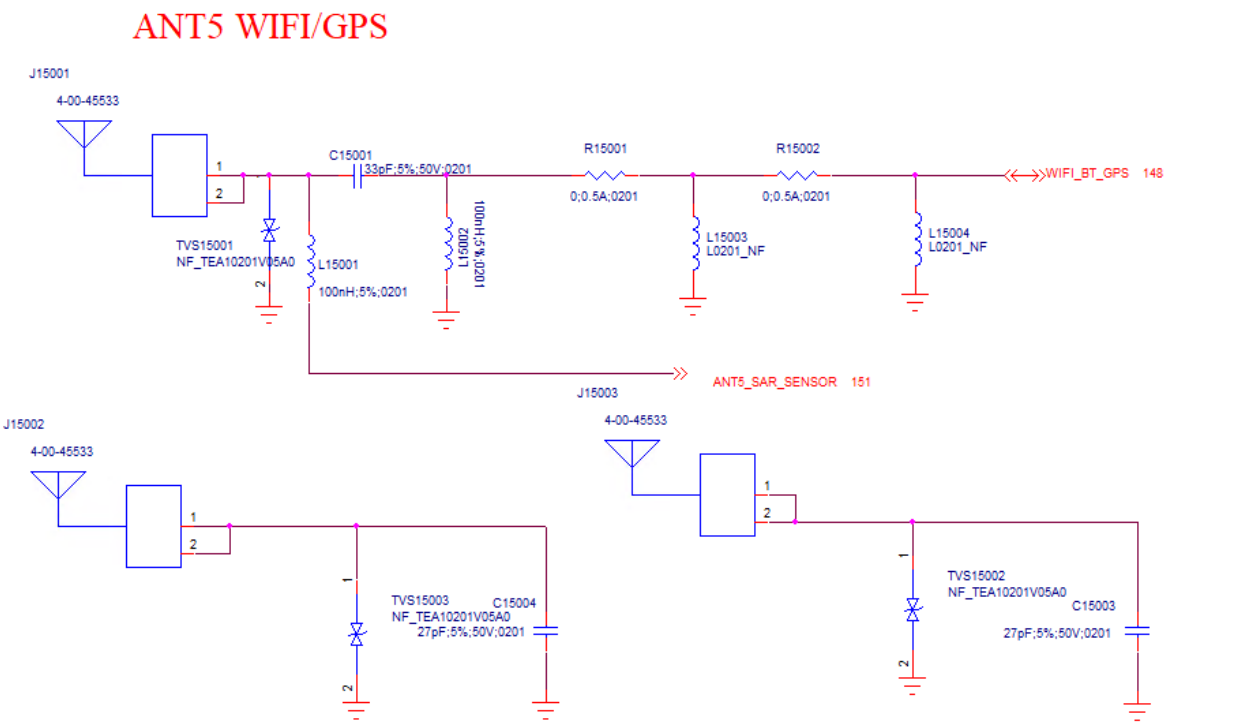
5.4 ANT3



5.5 ANT4



5.6 ANT5



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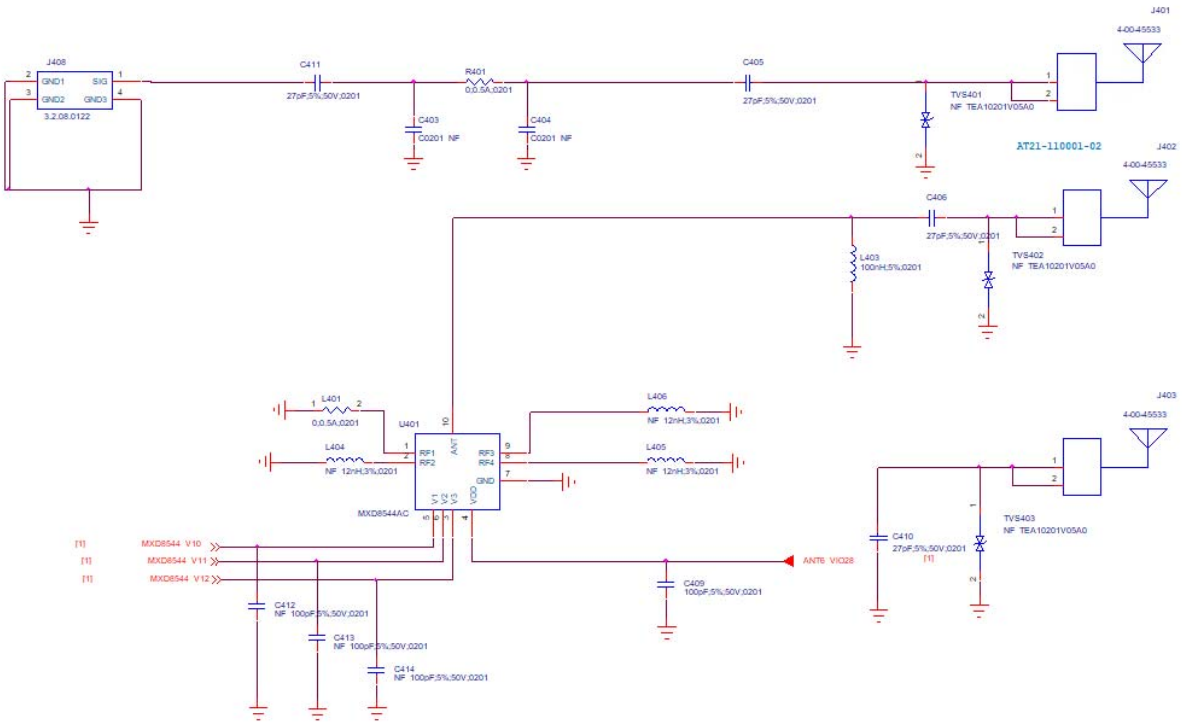
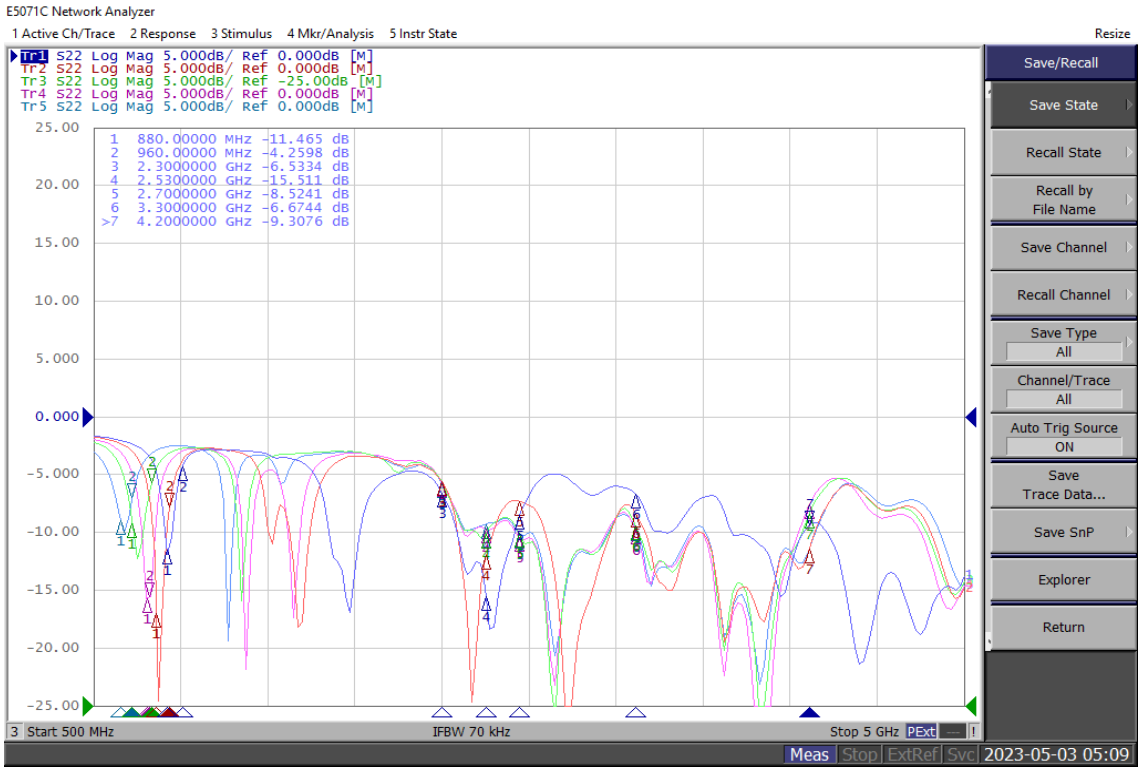
5.7 ANT6



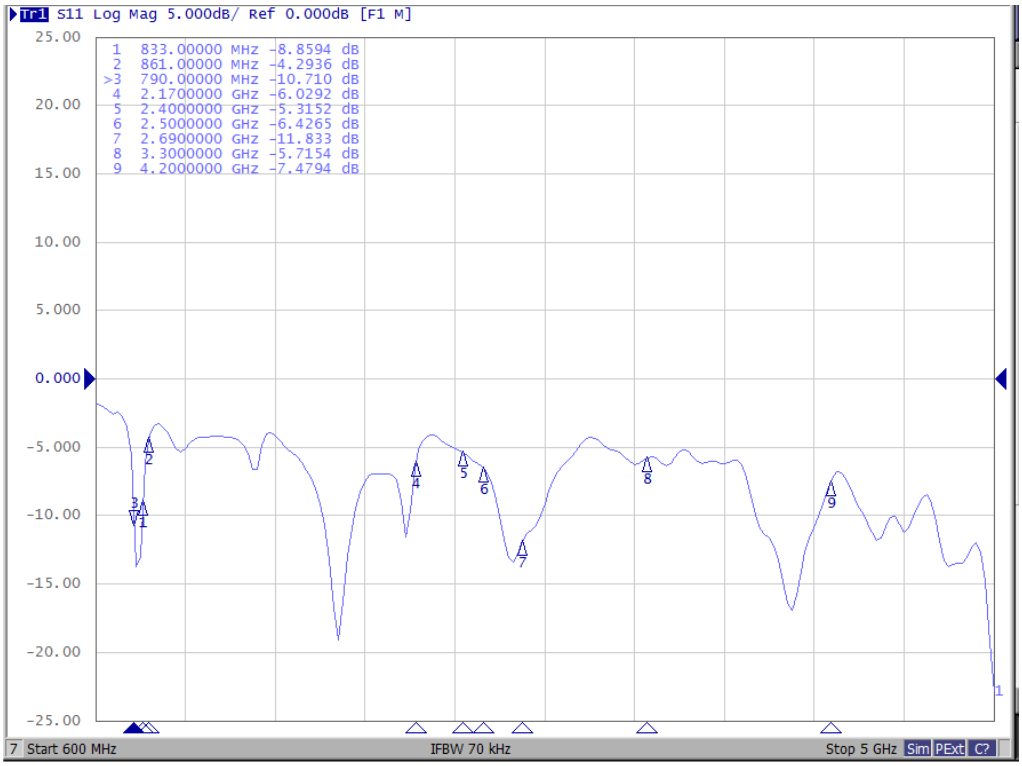
6. ElectricalGraph(Returnloss)

6.1 ANT0 Return loss

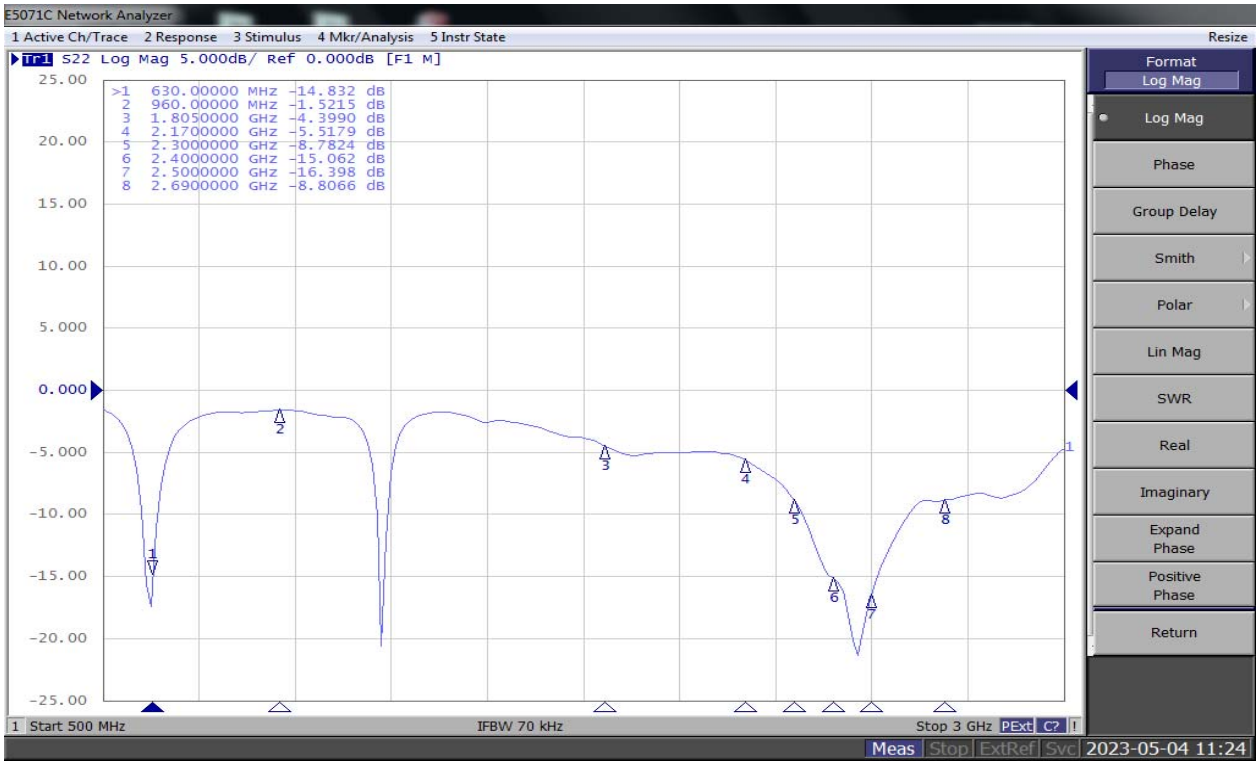


6.2 ANT1 Return loss

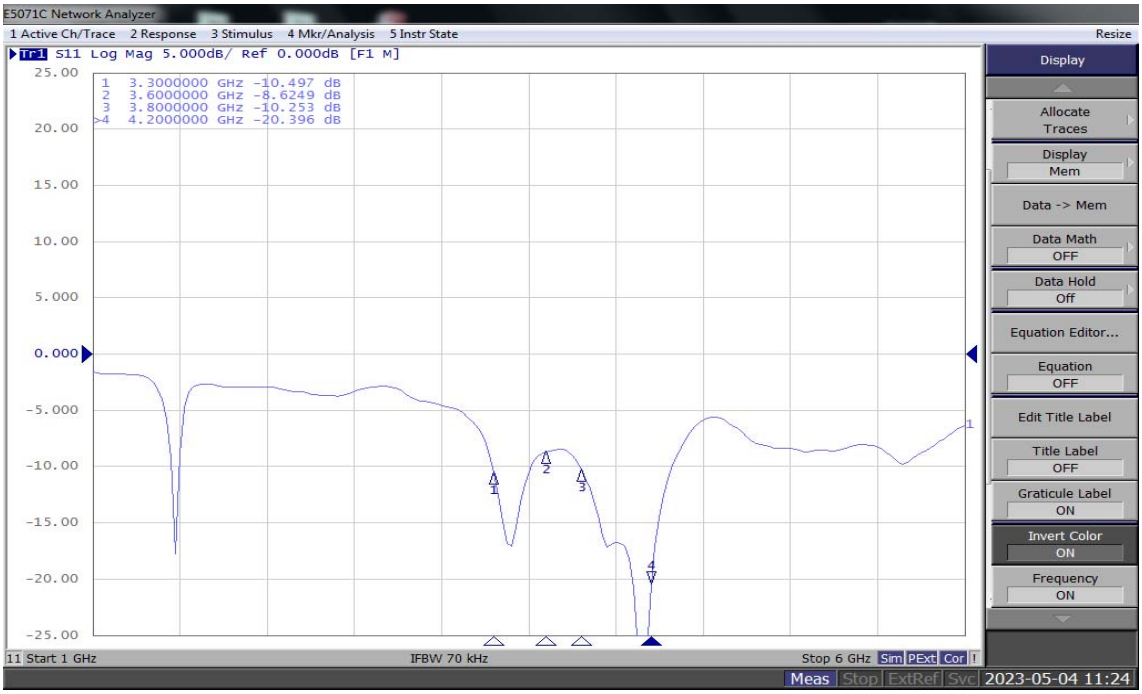
6.3 ANT2 Return loss



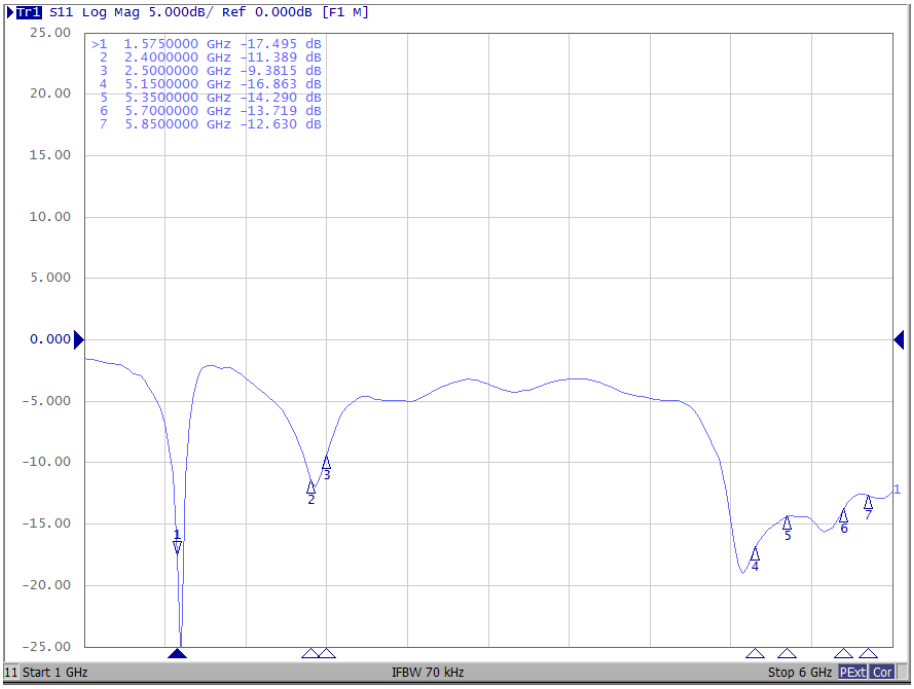
6.4 ANT3 Return loss



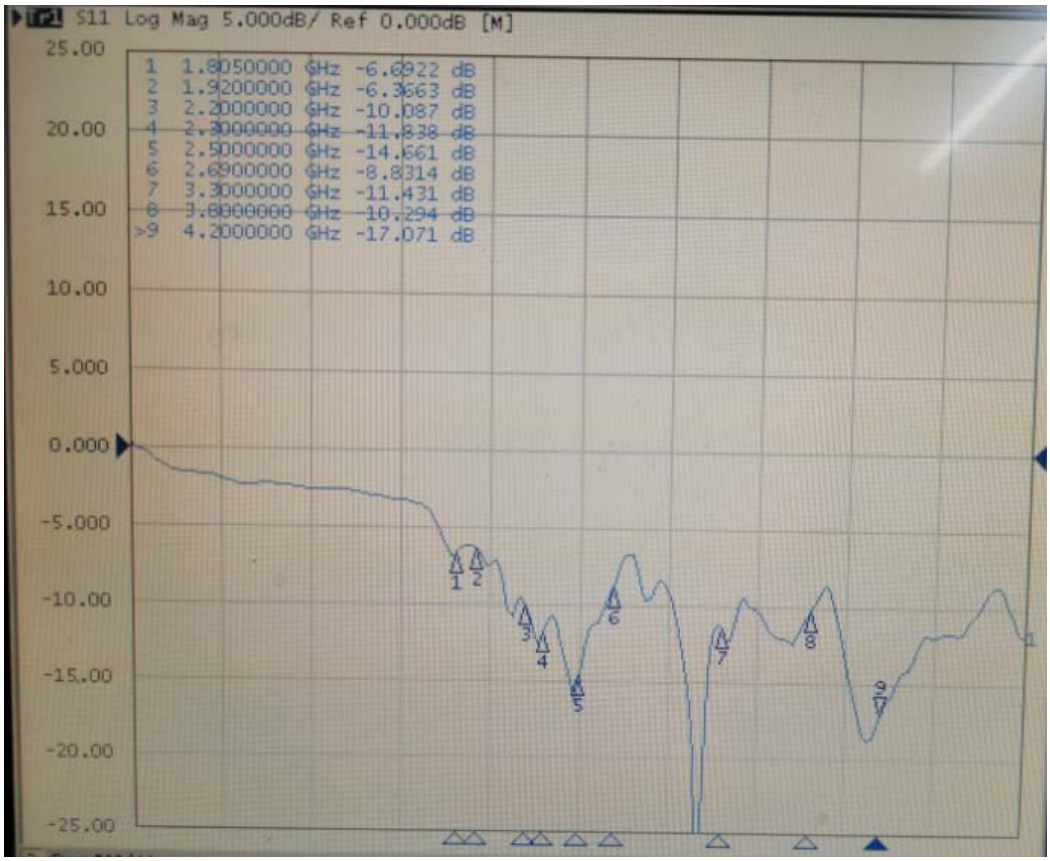
6.5 ANT4 Return loss



6.6 ANT5 Return loss

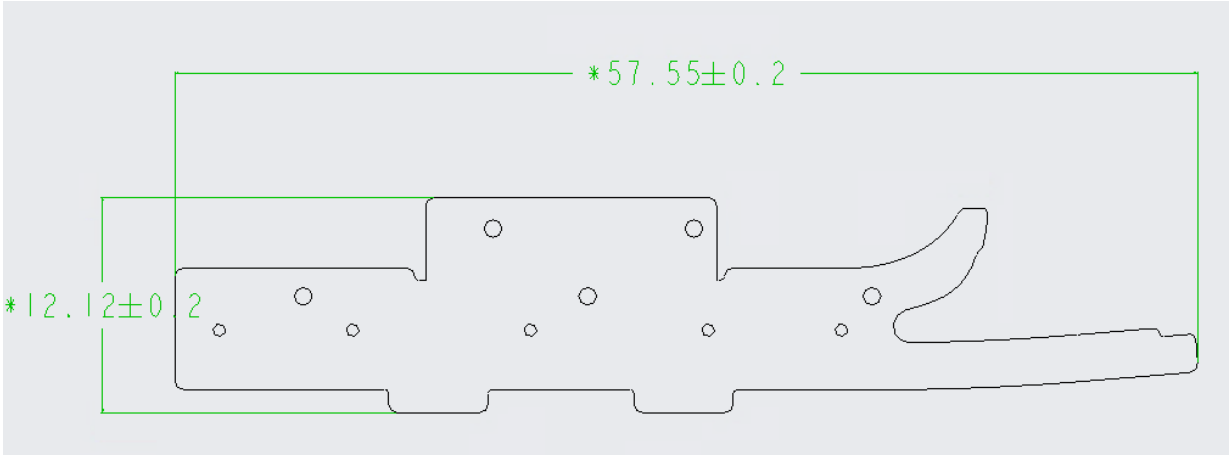


6.7 ANT6 Return loss



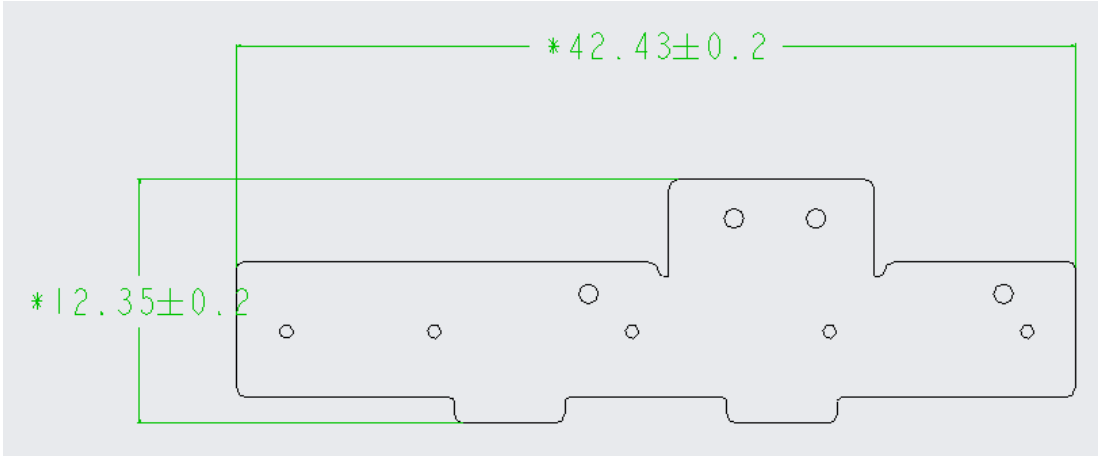
7. External Drawing

7.1 ANT0



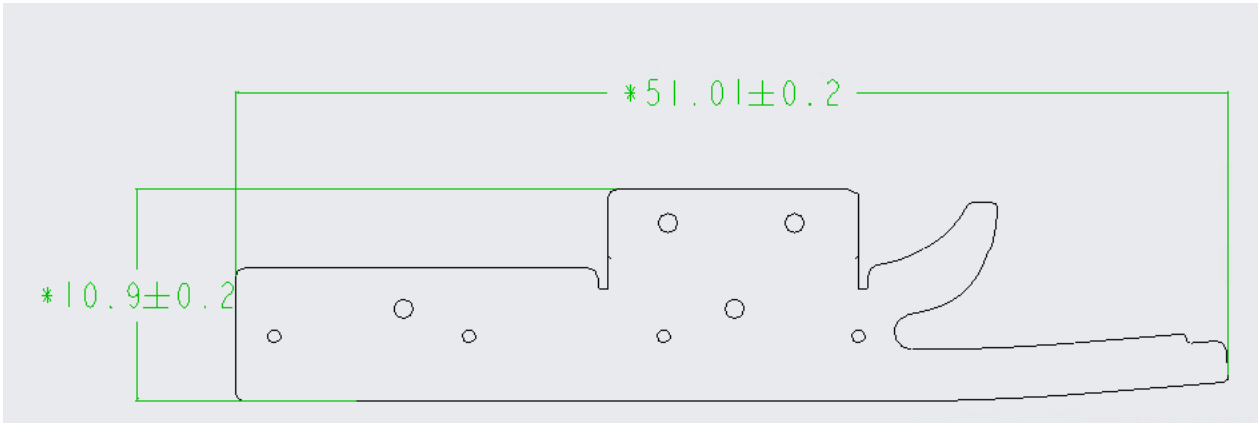
Length：57.55 mm
Width： 12.12mm

7.2 ANT1



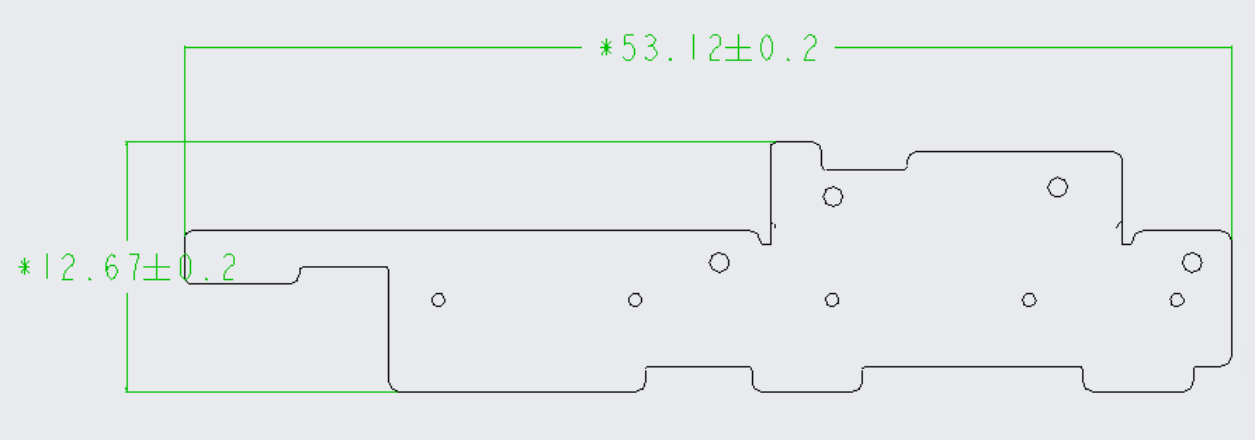
Length：42.43mm
Width： 12.35mm

7.3 ANT2



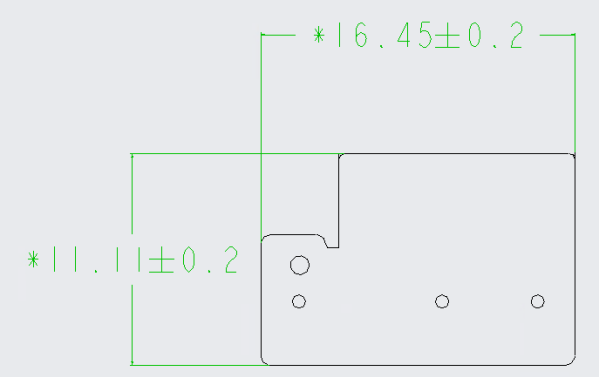
Length：51.01mm
Width： 10.09mm

7.4 ANT3



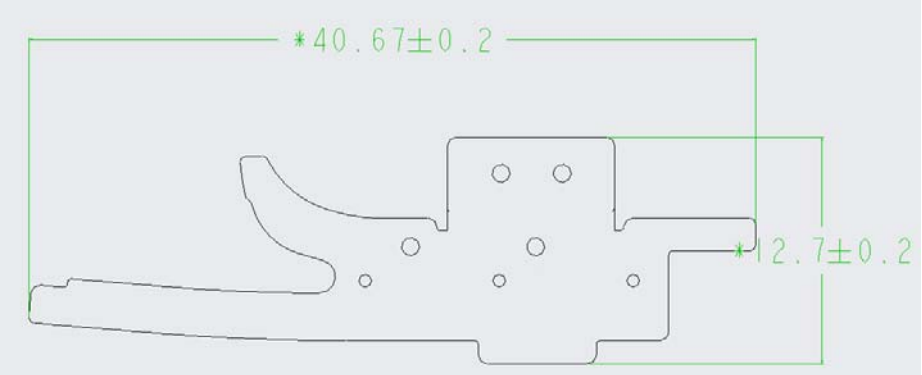
Length：53.12mm
Width： 12.67mm

7.5 ANT4



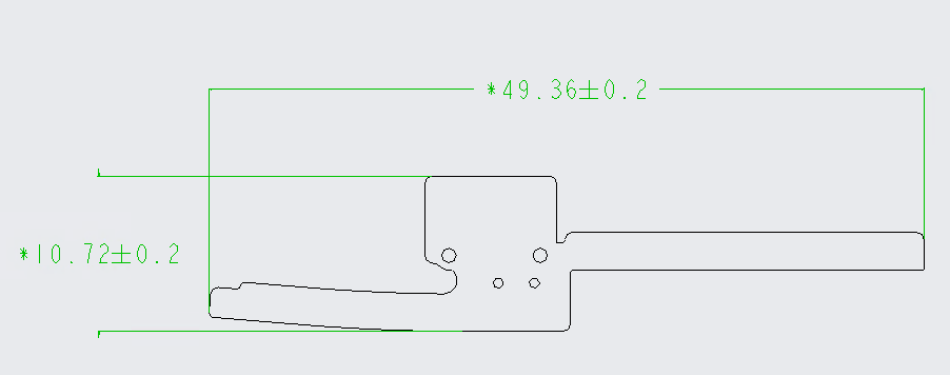
Length：16.45mm
Width： 11.11mm

7.6 ANT5



Length：40.67mm
Width： 12.7mm

7.7 ANT6



Length：49.36mm
Width： 10.72mm