B631 Gate 433&2.4G Antenna Specification

Design Specifications	Typical	Units
Antenna type	PCB+MCX adapter line	
working Frequency	【433】 & 【2400-2500】	MHz
Gain	-13.21dBi@433MHz, -2.18dBi@2.4G	dBi
Antenna efficiency	/	%
Return loss	【-14.62】 & 【-7.89 ~ -7.73】	
Ploriaztion	Linear polarization	
Axial Ratio	When the antenna is circular polarization, note the axial ratio in the working bandwidth	N/A
Radiation pattern	omnidirectional	
impedance	50 ohm	
Power handling	33	dBm
Interface	MCX-J	
Overal dimensions	See drawing section	
Weight	no requirement	
Operatin Temp	-30 ----- 70	°
Storing Temp	-30 ----- 70	°

1、Indication

The report mainly provides the test status of various electrical performance parameters of the B631 Gate 433&2.4G Antenna. （As shown in Figure 1 below）

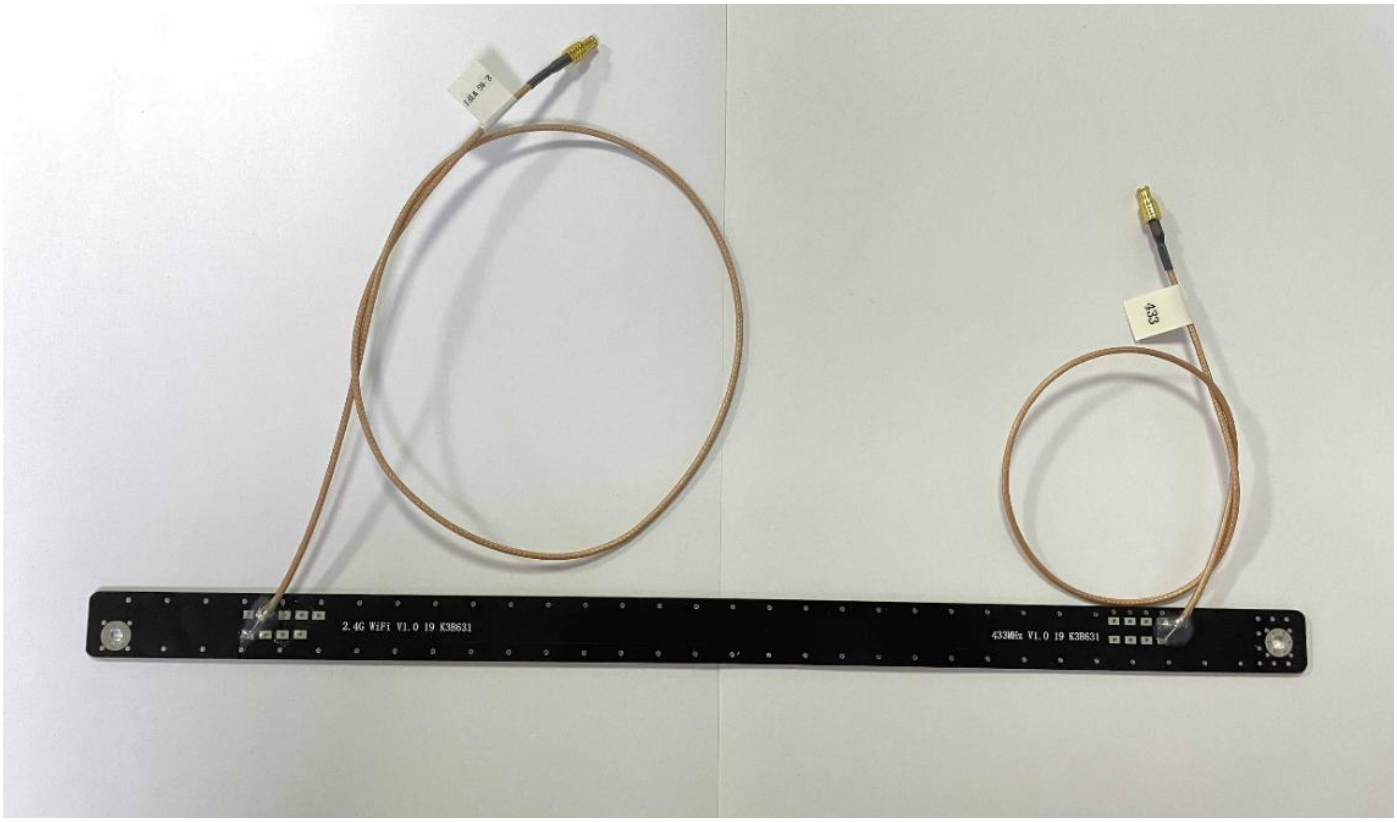


Figure 1　B631 Gate 433&2.4G Antenna

2、 Electrical Performance

2.1 Specification standard

B631 Gate 433&2.4G Antenna working band is at 433MHz & 2400-2500MHz.

2.2 Antenna matching circuit

B631 Gate 433&2.4G Antenna matches the original matching circuit.

2.3 Return loss Test

A. Test setup

Return loss measurements (S11) were performed using Agilent E5071B Network Analyzer and the previously described test fixture. A ferrite-loaded coaxial cable was used to mitigate surface currents on the outside of the cabling. The testing was performed in free space ETS AMP8500S chamber.

B. Return loss

The table below shows the standing wave ratio value of the edge frequency of the working band of B631 Gate 433&2.4G Antenna matches the original matching circuit.

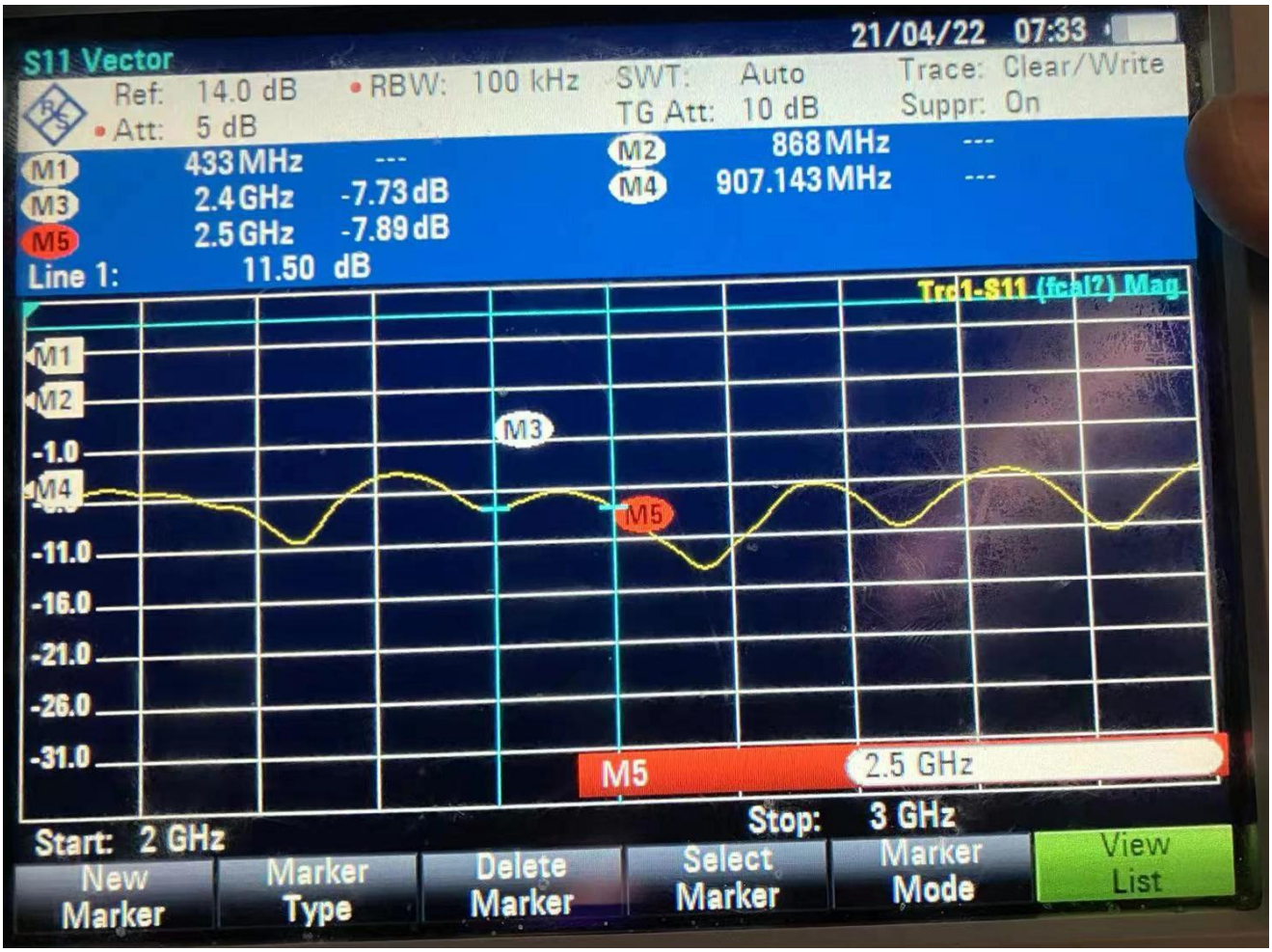
.

Frequency band	frequency (MHz)	Return loss
433	433	-14.62
2.4G WIFI	2400	-7.73
	2500	-7.89

2.3.1 S11 parameter

433 ANT：

2.4G ANT：



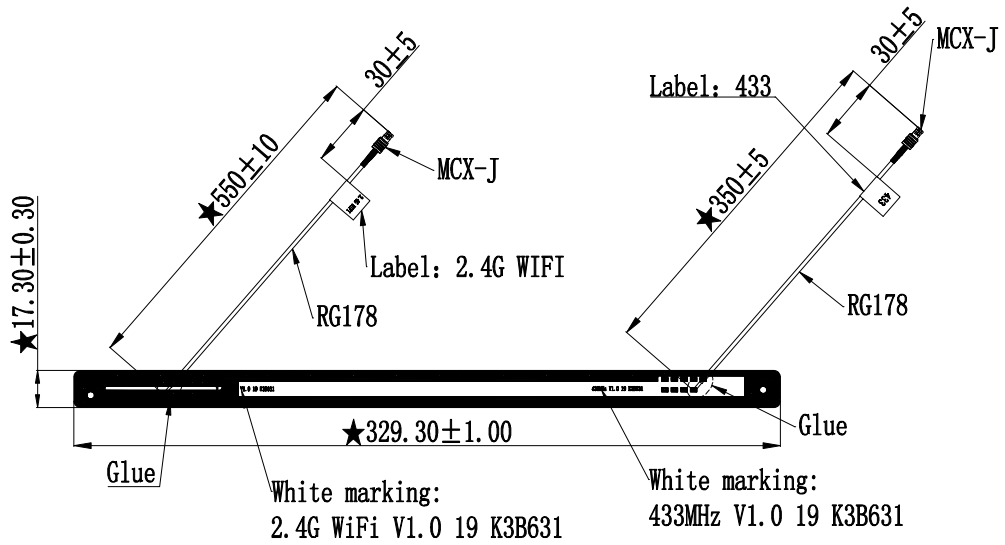
3、Suggestion And Solution

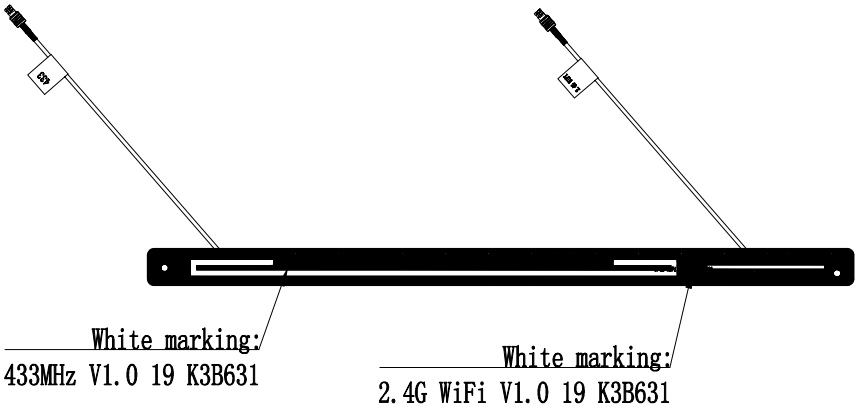
This report is according to the customer provide B631 Gate 433&2.4G Antenna the final version of the electrical performance of antenna.

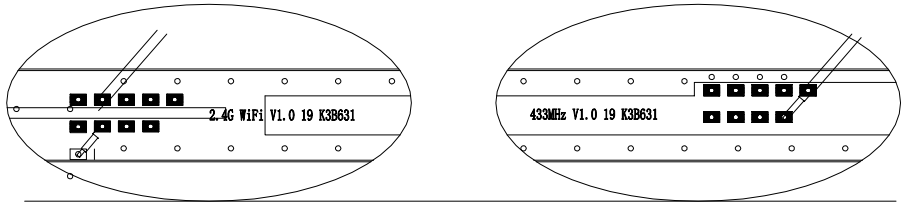
As can be seen from the above test data, this antenna provides better electrical performance.

We are looking forward to your confirmation. Thank you for your cooperation!

4、Appearance Drawing







Reference figure of welding position

Remark

1. "★" is strictiy controued size (must measure grade A)
   "*" is important size (should control when making mould, mould verify measure grade B) , athers are design referemce size grade C)
2. Appearance clean, no obvious flaws
3. Porduct can not be bumped, scratched or damaged etc during package and transportation.
4. Material can not chang without VLG confirmation.
5. Packgge and quality standard refers to VLG standard.
6. Product must meet EU DIRECTIVE 2002/95/EC(ROHS) standard.

Num.	Content modification	Date		
2				
1				

	Name	Material	Color	Treatment	Amount	Remark
4	Glue					
3	MCX-J	MCX-J+RG178			1	
2	MCX-J	MCX-J+RG178			1	
1	PCB	FR4 T=1.6mm	Black		1	

ShenZhen VLG Wireless Technology Co,.Ltd

The third Angle				Project	B631 Gate	Date	22-05-09		1 OF 1		
0~10	±0.10	○	0.02	Description	433&2.4G Antenna	Draw		RF Review			
10~20	±0.15	◎	⌀ 0.03	P/N	V1334-326-A-01	Review					
20~40	±0.20	⊥	0.02	Material							
> 40	±0.25	▱	0.04	Surface treatmed		ME Review					
		⫽	0.02	Outlook treatmed		Unit	mm	Scale		Version	R:A

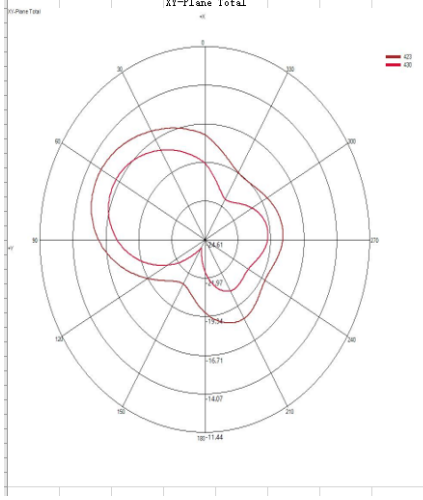
433MHz Summary Report:

Freq(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)
420	-10.70	-14.37	3.66
421	-10.97	-14.61	3.46
422	-11.27	-14.88	3.25
423	-11.54	-15.09	3.10
424	-11.82	-15.30	2.95
425	-12.11	-15.63	2.73
426	-12.38	-15.95	2.54
427	-12.41	-15.99	2.52
428	-12.41	-16.02	2.50
429	-12.69	-16.29	2.35
430	-12.92	-16.54	2.22
431	-13.04	-16.69	2.14
432	-13.14	-16.85	2.06
433	-13.21	-16.95	2.02
434	-13.31	-17.05	1.97
435	-13.55	-17.29	1.86
436	-13.77	-17.52	1.77
437	-13.98	-17.69	1.70
438	-14.18	-17.86	1.64
439	-14.43	-18.02	1.58
440	-14.57	-18.18	1.52

2D Plot for 433MHz:

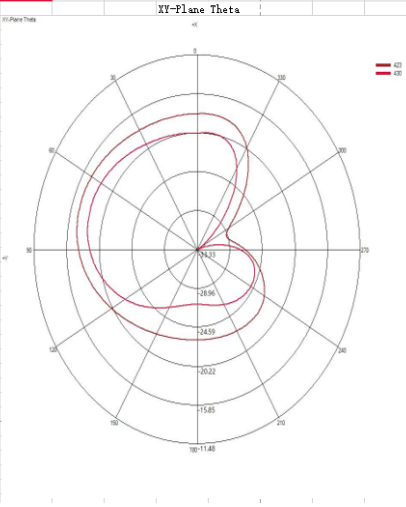
Freq(MHz)	Max.	Ave.	Min.
423	-15.0168	-17.8839	-21.1159
430	-16.3859	-19.5829	-23.93

XY-Plane Total



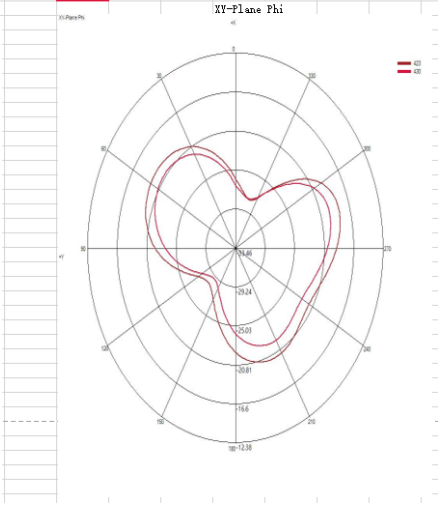
Freq(MHz)	Max.	Ave.	Min.
423	-16.9423	-20.2004	-28.4823
430	-18.4083	-22.2602	-33.1583

XY-Plane Theta



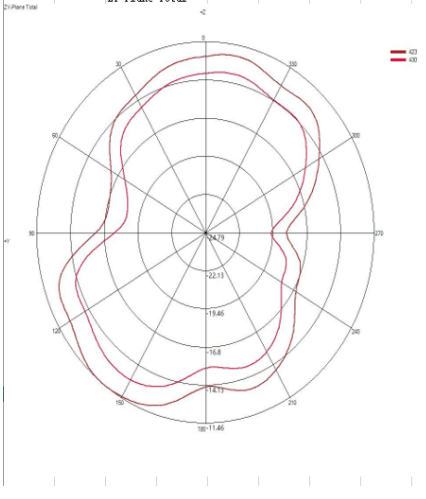
Freq(MHz)	Max.	Ave.	Min.
423	-19.0563	-21.7202	-27.2863
430	-20.3671	-22.9539	-28.4571

XY-Plane Phi



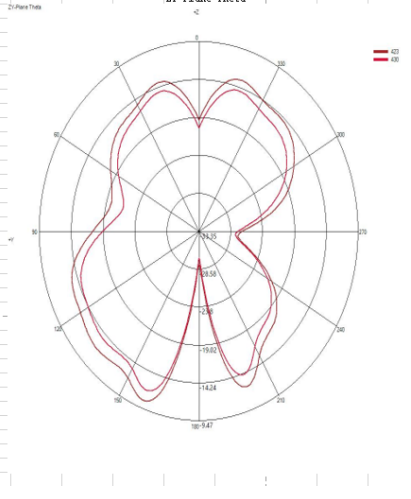
Freq(MHz)	Max.	Ave.	Min.
423	-11.5697	-13.7329	-18.3988
430	-12.9224	-15.0389	-19.6066

ZY-Plane Total



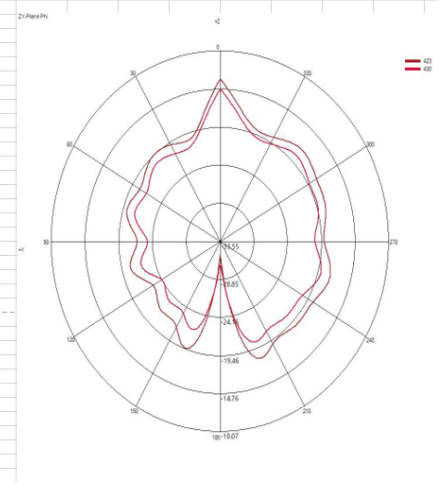
Freq(MHz)	Max.	Ave.	Min.
423	-12.0534	-15.4898	-29.1954
430	-13.3413	-16.813	-29.971

ZY-Plane Theta



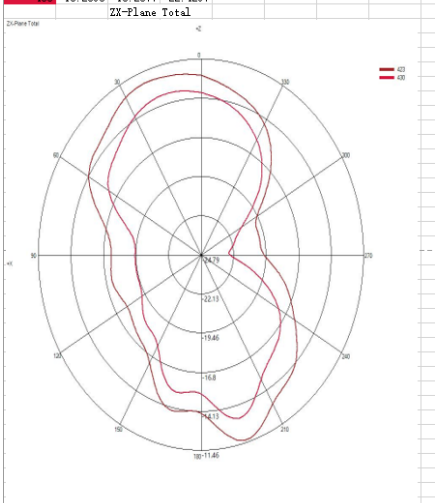
Freq(MHz)	Max.	Ave.	Min.
423	-13.4754	-18.5123	-31.9203
430	-14.7084	-19.7839	-30.6295

ZY-Plane Phi



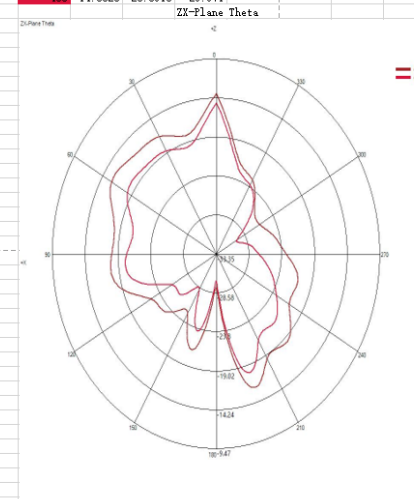
Freq(MHz)	Max.	Ave.	Min.
423	-11.7121	-14.754	-19.8883
430	-13.2695	-16.2677	-22.4297

ZX-Plane Total



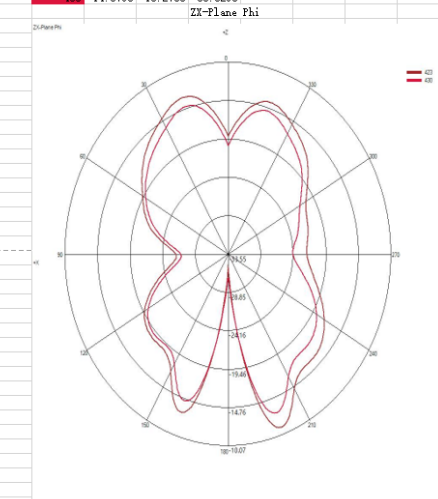
Freq(MHz)	Max.	Ave.	Min.
423	-13.657	-18.6192	-29.1954
430	-14.8323	-20.5916	-29.971

ZX-Plane Theta



Freq(MHz)	Max.	Ave.	Min.
423	-13.1803	-17.0503	-31.9203
430	-14.6795	-18.2708	-30.6295

ZX-Plane Phi



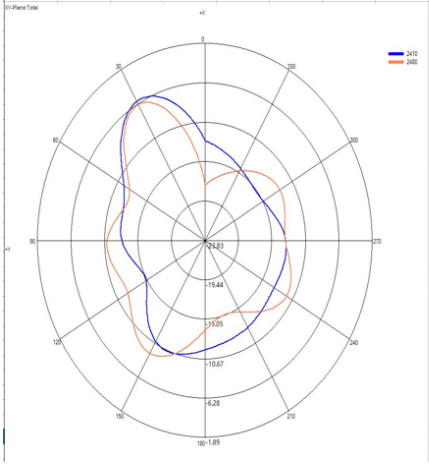
2.4G Summary Report:

Freq(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)
2400	-3.00	-9.80	10.46
2410	-3.01	-9.91	10.20
2420	-3.05	-9.93	10.17
2430	-2.89	-9.92	10.18
2440	-2.70	-9.77	10.55
2450	-2.42	-9.51	11.19
2460	-2.18	-9.44	11.37
2470	-2.30	-9.51	11.19
2480	-2.18	-9.45	11.35
2490	-2.10	-9.27	11.84
2500	-2.10	-9.20	12.04

2D Plot for 2.4G:

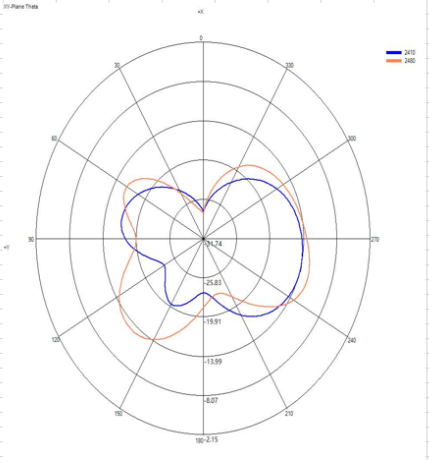
Freq(MHz)	Max.	Ave.	Min.
2410	-5.92006	-11.618	-15.0391
2480	-6.31454	-11.5108	-17.631

XY-Plane Total



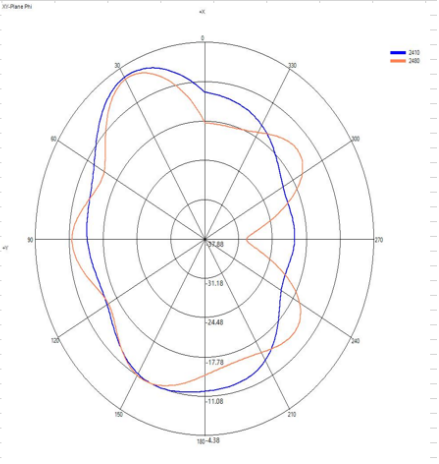
Freq(MHz)	Max.	Ave.	Min.
2410	-14.2703	-18.4521	-27.6503
2480	-13.2672	-16.6123	-27.8872

XY-Plane Theta



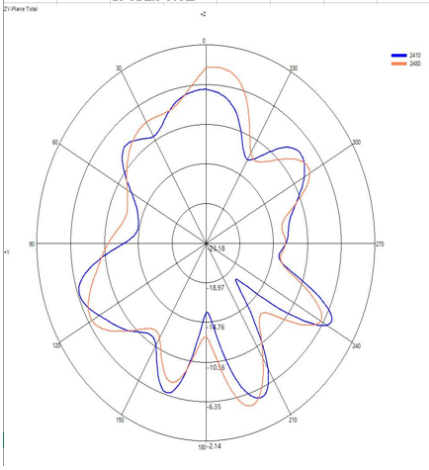
Freq(MHz)	Max.	Ave.	Min.
2410	-5.99853	-12.6268	-20.4285
2480	-6.39098	-13.1156	-29.611

XY-Plane Phi



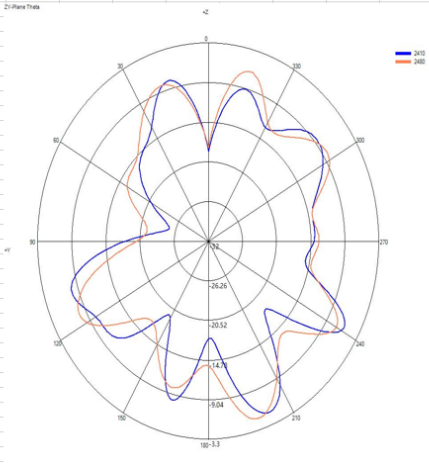
Freq(MHz)	Max.	Ave.	Min.
2410	-5.8007	-9.14002	-17.7882
2480	-4.51672	-8.53409	-13.3043

ZY-Plane Total



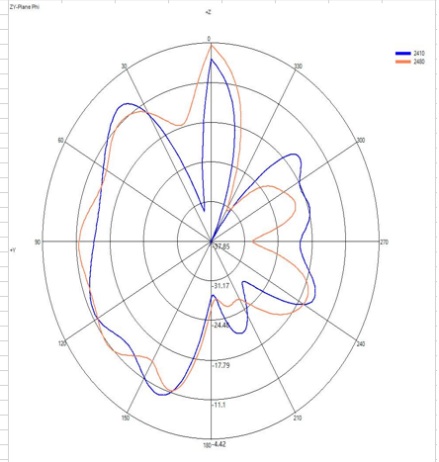
Freq(MHz)	Max.	Ave.	Min.
2410	-6.18539	-11.1241	-25.0796
2480	-5.57101	-10.8182	-20.7932

ZY-Plane Theta



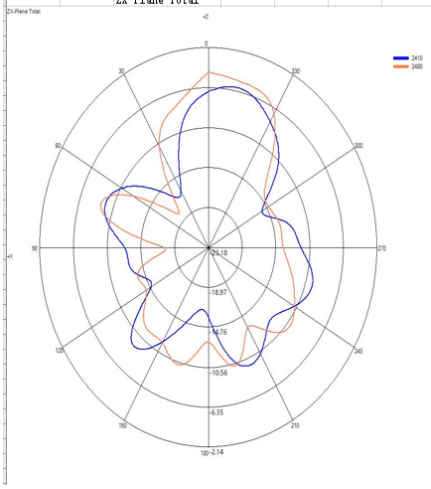
Freq(MHz)	Max.	Ave.	Min.
2410	-7.05718	-13.4966	-37.8136
2480	-4.69748	-12.4168	-31.3453

ZY-Plane Phi



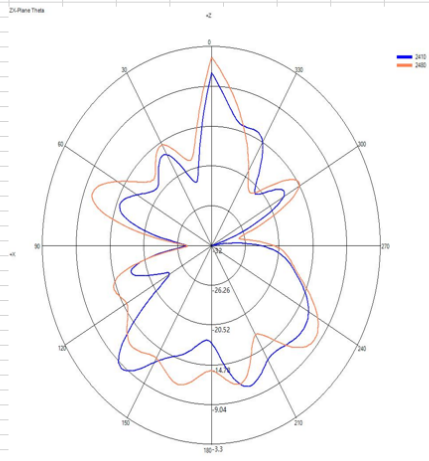
Freq(MHz)	Max.	Ave.	Min.
2410	-5.98971	-10.4198	-16.2855
2480	-4.69838	-9.87972	-17.9616

ZX-Plane Total



Freq(MHz)	Max.	Ave.	Min.
2410	-7.05747	-13.6422	-31.6896
2480	-4.79358	-12.2301	-27.8872

ZX-Plane Theta



Freq(MHz)	Max.	Ave.	Min.
2410	-6.79751	-13.2279	-28.35
2480	-6.14863	-13.6685	-30.3455

ZX-Plane Phi