



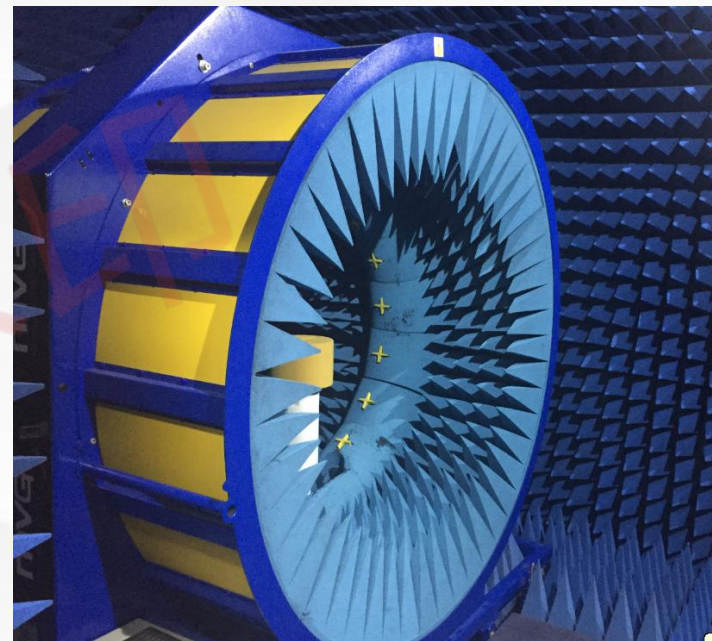
Shenzhen cape deep communication technology co., LTD

凯普深

BLUETOOTH TEST

Project Name: QX Air
Radio frequency: Mr.li
Date: 2025.12.02
Version: V0.3

Laboratory testing environment and equipment

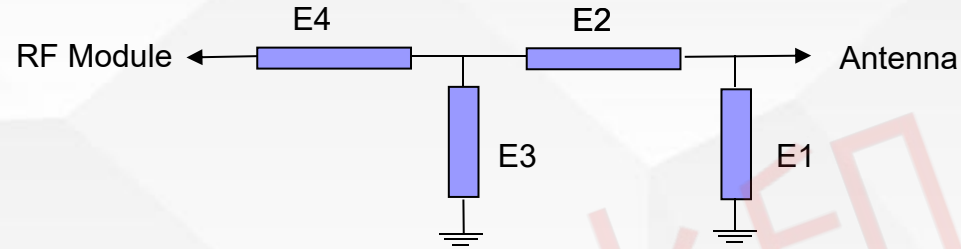


test project	test equipment
S11、S12、VSWR、LOSS	E5071B、E5062A
Efficiency、Gain 3D Radiation Pattern	Satimo SG16、GP7*4*3、E5071B
TRP、TIS	Satimo SG16、GP7*4*3、8960、 CMW500、MT8820C、E4438C、

Introduction to Project Debugging

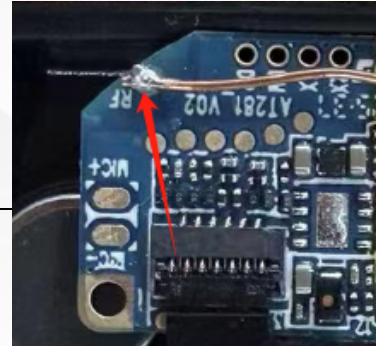
machine type	Band			
		frequency band	Antenna form	Match changes
Antenna type and frequency band	antenna	2400-2480M	unipolar	yes
material	Enameled copper wire			

BT Antenna matching circuit

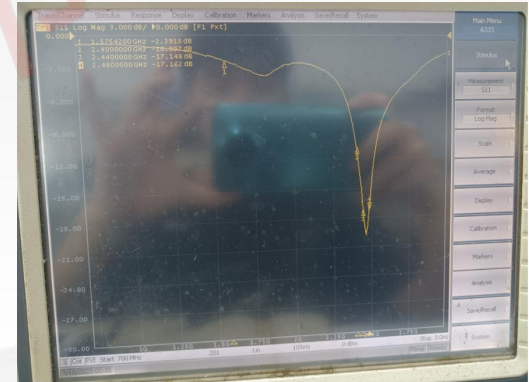
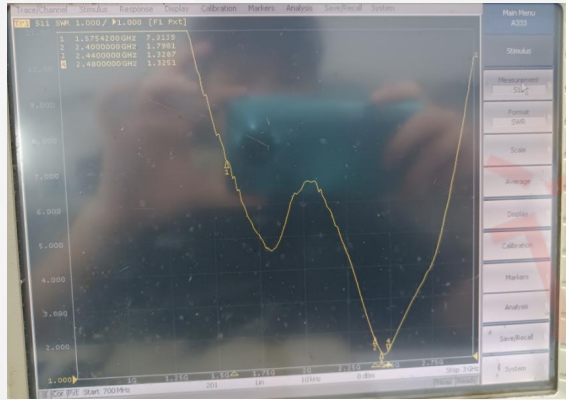


Infinite microphone

Element	Value
E1(0201)	2.4PF
E2(0201)	0 ohm
E3(0201)	NC



Passive standing wave diagram of antenna



test data

free

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	12.85	-8.91	-5.5
2410	14.08	-8.51	-5.18
2420	14.82	-8.29	-5.08
2430	15.78	-8.02	-4.68
2440	17.43	-7.59	-4.12
2450	18.08	-7.43	-3.96
2460	17.69	-7.52	-4.06
2470	16.59	-7.8	-4.39
2480	16.63	-7.79	-4.33
2490	16.83	-7.74	-4.25
2500	16.63	-7.79	-4.29

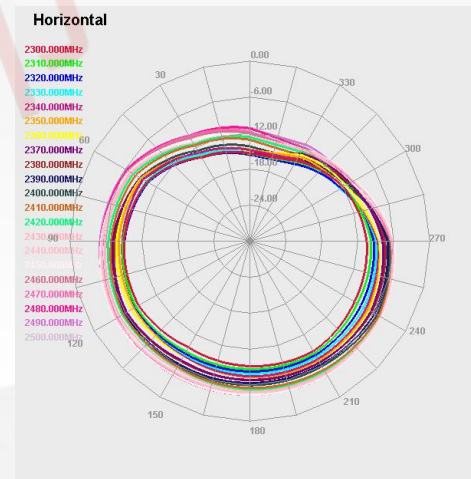
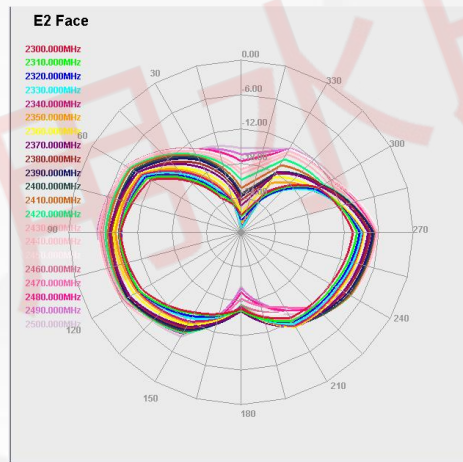
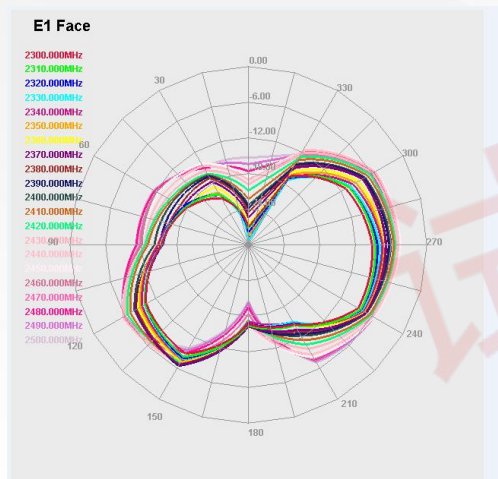
test data

hand model

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	3.35	-14.75	-8.94
2410	3.63	-14.4	-8.54
2420	3.83	-14.17	-8.23
2430	4.06	-13.91	-7.79
2440	4.58	-13.39	-7.3
2450	4.8	-13.19	-7.08
2460	4.84	-13.15	-7.05
2470	4.64	-13.34	-7.2
2480	4.81	-13.18	-7.13
2490	5	-13.01	-6.96
2500	5.19	-12.85	-6.9

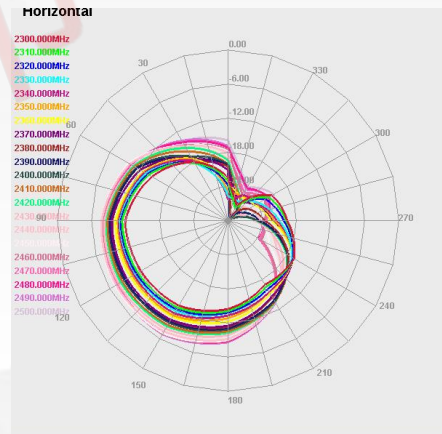
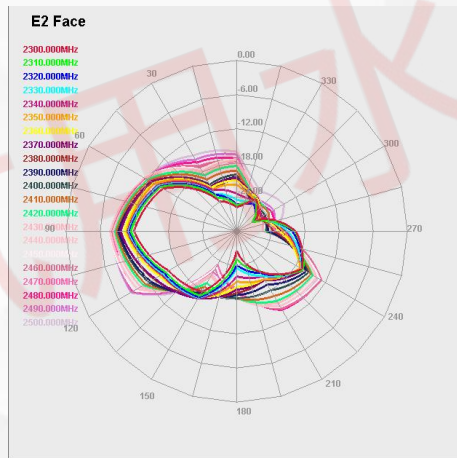
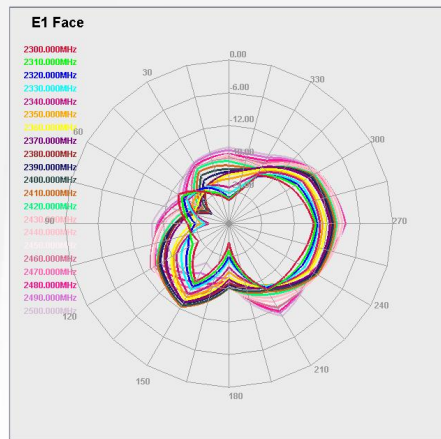
Testing direction

free



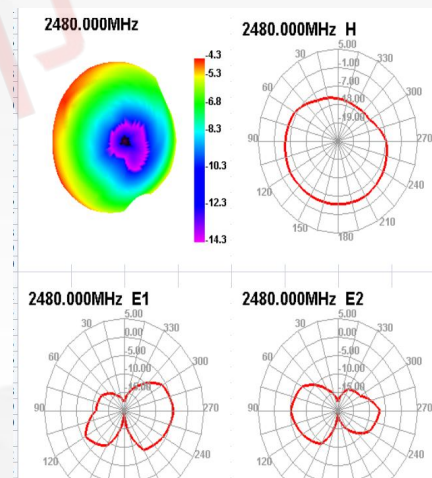
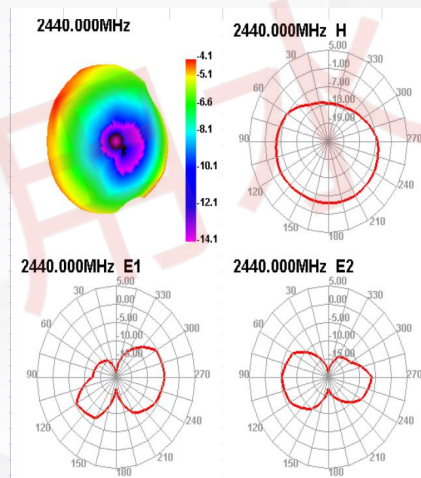
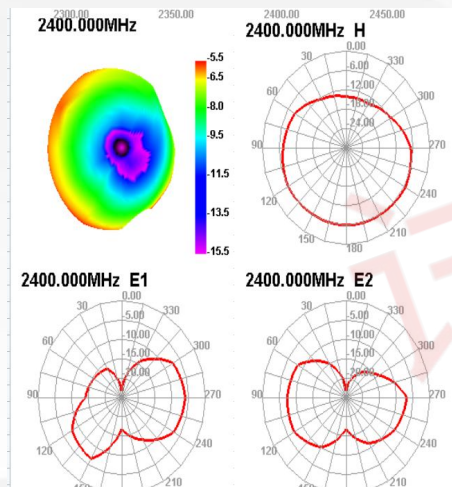
Testing direction

hand model



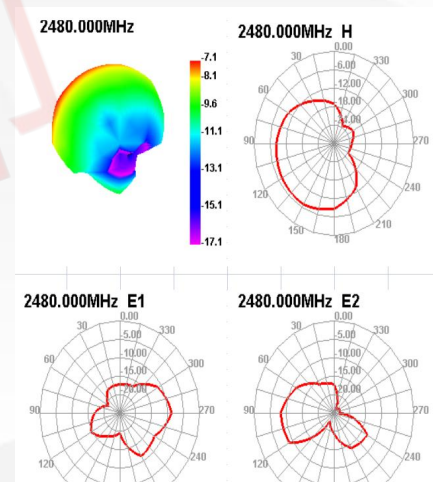
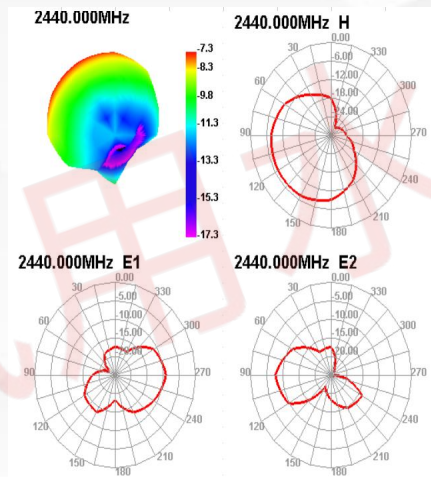
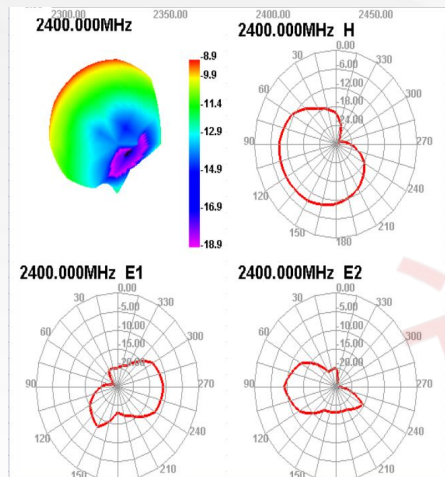
Test Apple Chart

free



Test Apple Chart

hand model



Whole machine environment treatment



As shown in the figure :
Stick the insulation tape onto the
motherboard components

Antenna size diagram

