V16 Antenna Test Report

Customer	新联芯
Project	V16
Antenna Revision	A1
Product Description	板载天线
Product No	
DATE	2024.06.20

Purpose

This report is to measure the performance of BT antenna for V16 .The antenna operating frequency at 2.4~2.5GHz, All test data are showed as below.

Content

1. Product Overview & Dimension
2. Test system
3. Antenna Matching Network
4. Test Result
   - 4.1 S11 Parameter
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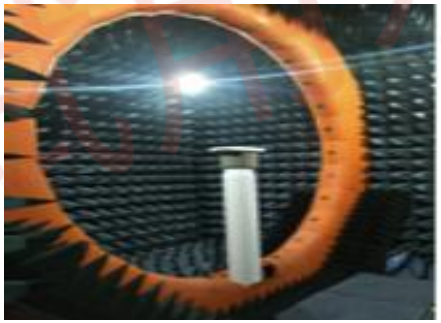
   - 4.5 BT Boot measured
5. Antenna Assembly & environmental processing

2.Test System

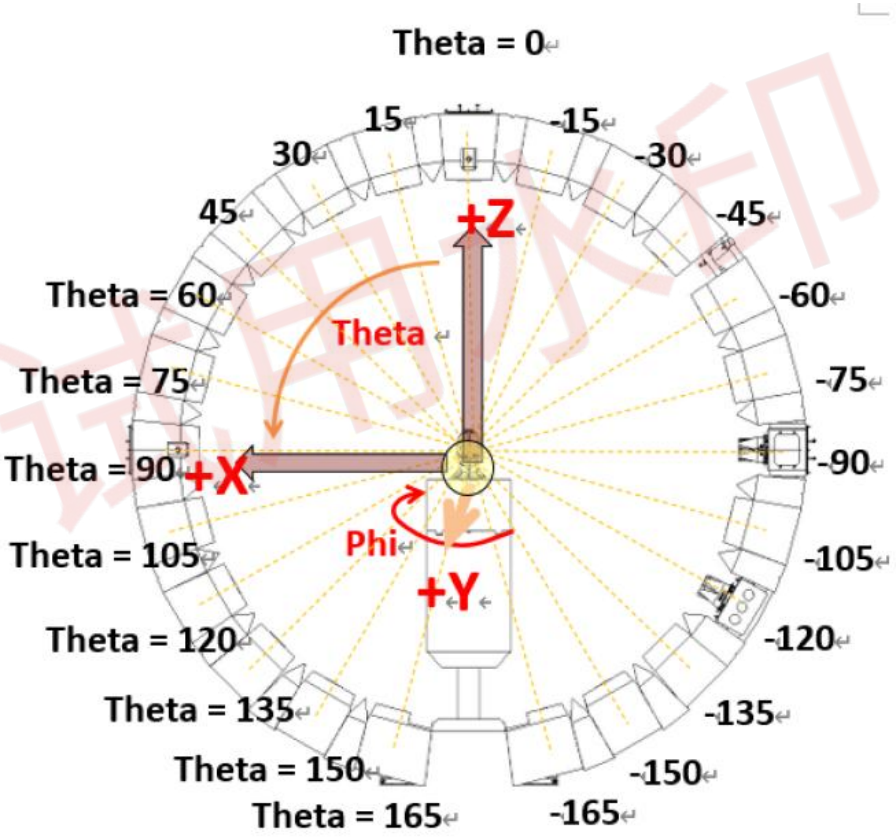
Sequence Number	Test Item	equipment
S parameter	VSWR	Agilent 5071C & Agilent 5062A
OTA Test	TRP&TIS	CMW500 &CMW270 ETS&SATIMO
Gain & Efficiency	Gain & Efficiency	ETS&SATIMO Agilent 5071C



产品图片

Test Result

Sample status & coordinates



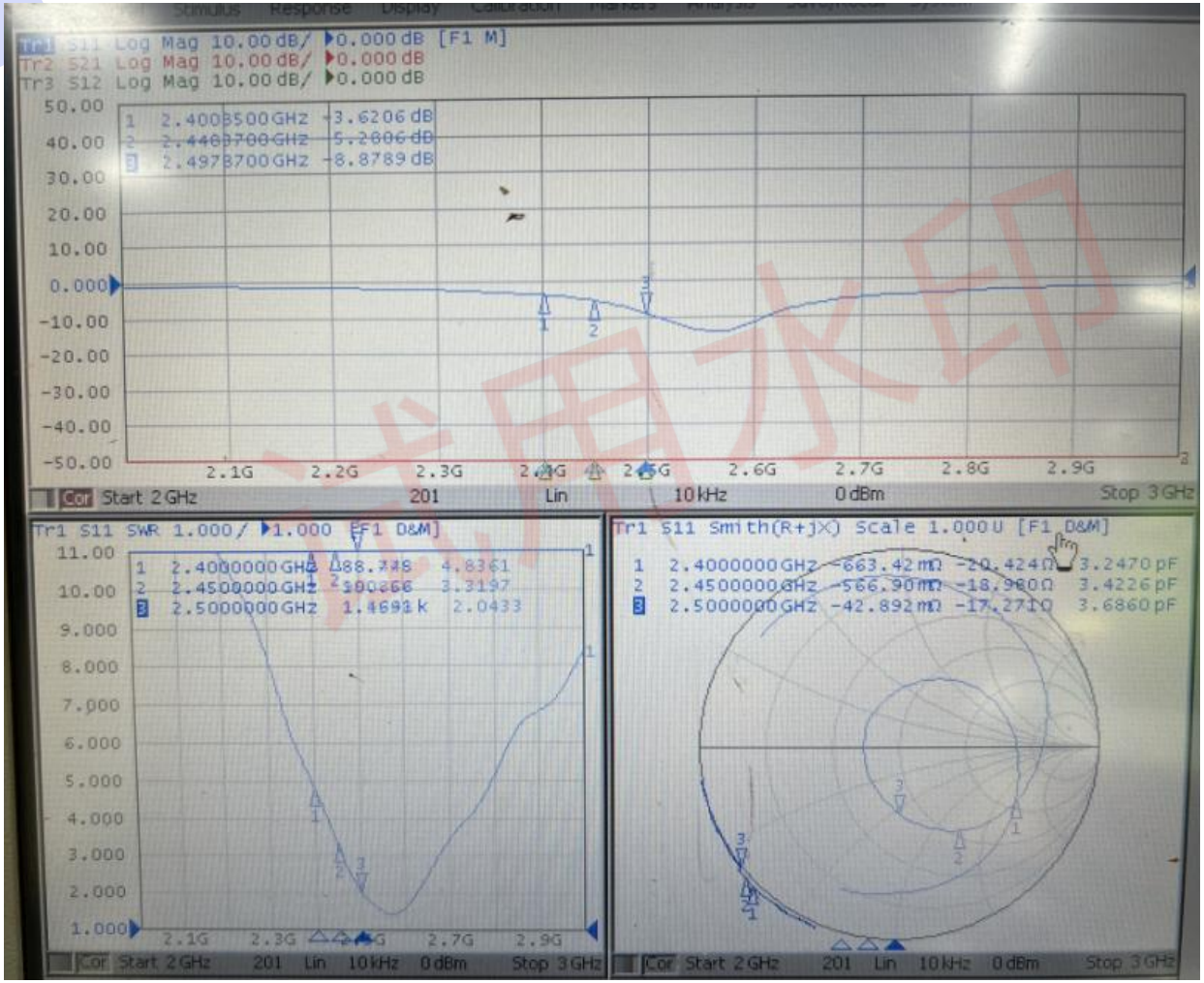
Test Result

Gain & Efficiency——BT- ANT

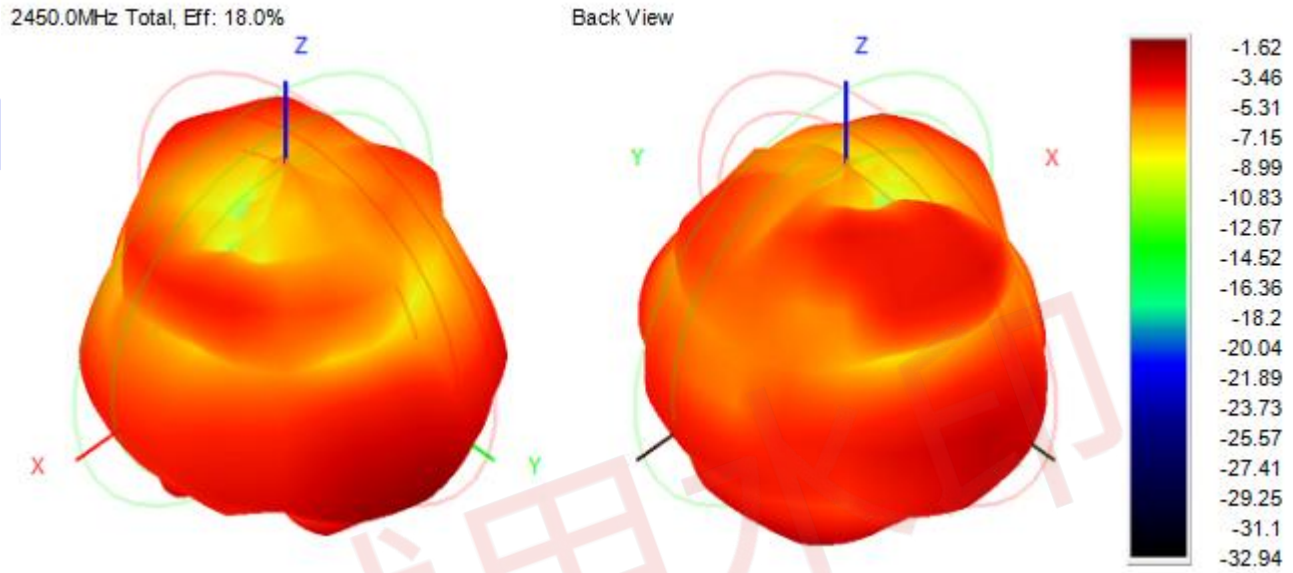
深圳市合拓科技有限公司

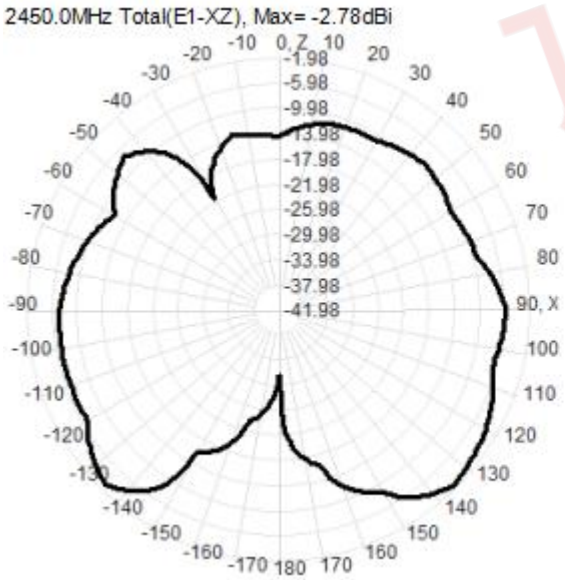
Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	2400.0	2410.0	2420.0	2430.0	2440.0	2450.0	2460.0	2470.0	2480.0	2490.0	2500.0
Efficiency (dBi)	-10.00	-9.59	-8.80	-8.12	-7.77	-7.46	-7.41	-7.51	-7.30	-7.02	-6.90
Gain (dBi)	-4.05	-3.69	-2.59	-2.29	-1.47	-1.62	-1.60	-1.95	-1.48	-1.88	-1.69
Efficiency (%)	10.01	10.98	13.17	15.42	16.70	17.96	18.17	17.73	18.60	19.85	20.41
Directivity (dB)	5.95	5.91	6.22	5.83	6.30	5.83	5.81	5.57	5.84	5.14	5.21
Peak Gain Position (Theta)	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00	135.00
Peak Gain Position (Phi)	210.00	210.00	210.00	210.00	210.00	210.00	210.00	210.00	60.00	60.00	210.00
Efficiency ThetaPol (%)	7.18	7.85	9.23	10.77	11.97	13.08	13.18	12.68	12.73	13.90	14.58
Efficiency PhiPol (%)	2.83	3.13	3.94	4.64	4.72	4.88	4.99	5.06	5.87	5.94	5.83
Upper Hem. Efficiency (%)	3.58	3.96	5.19	6.34	6.68	7.08	6.88	6.40	7.10	7.50	7.65
Lower Hem. Efficiency (%)	6.43	7.02	7.98	9.07	10.02	10.89	11.29	11.33	11.50	12.35	12.76

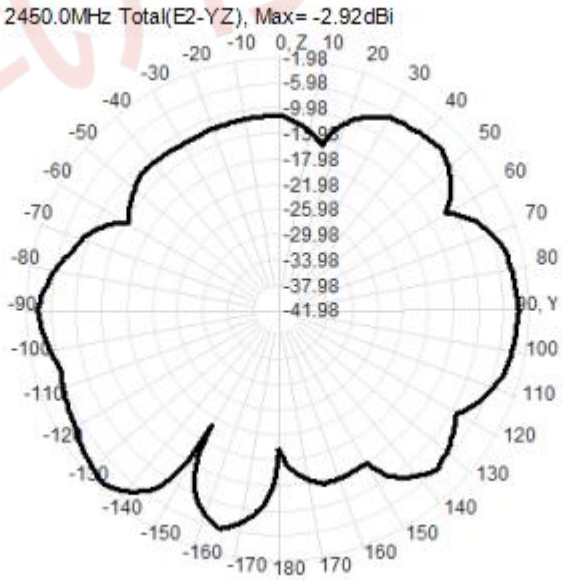
无源S11—(BT ANT)-耳机

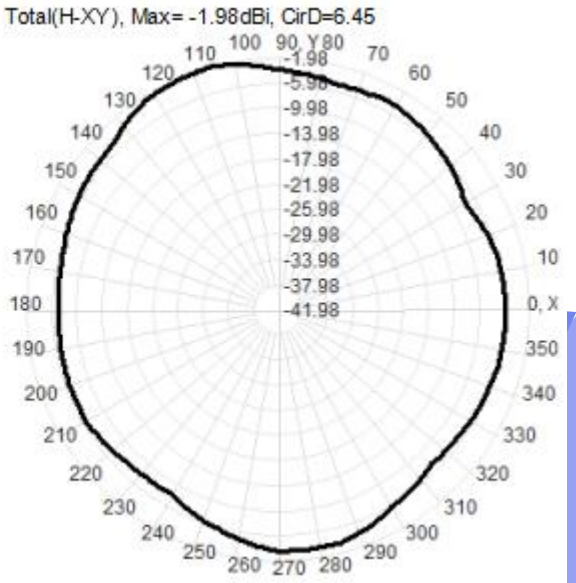


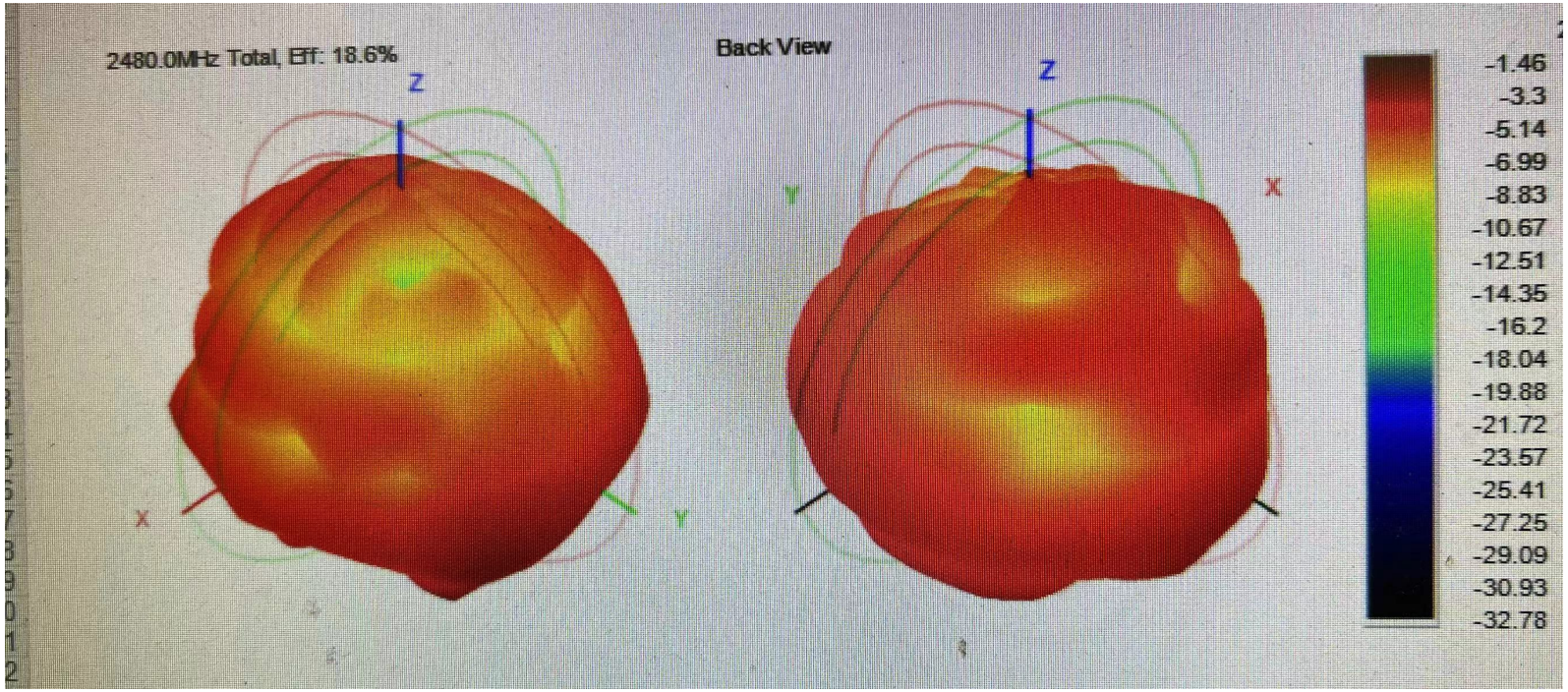
无源场型图

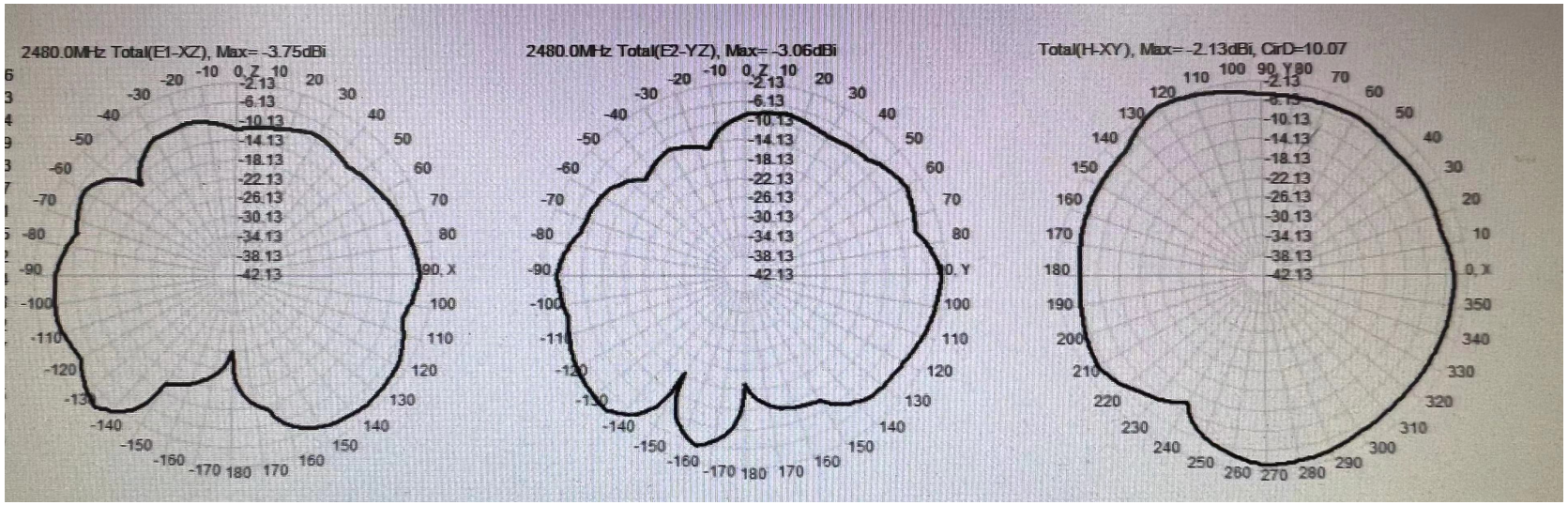

2450.0MHz Total, Eff: 18.0%
Z
X
Y
Back View
Z
Y
X
-1.62
-3.46
-5.31
-7.15
-8.99
-10.83
-12.67
-14.52
-16.36
-18.2
-20.04
-21.89
-23.73
-25.57
-27.41
-29.25
-31.1
-32.94


2450.0MHz Total(E1-XZ), Max= -2.78dBi
-1.98
-5.98
-9.98
-13.98
-17.98
-21.98
-25.98
-29.98
-33.98
-37.98
-41.98
90, X

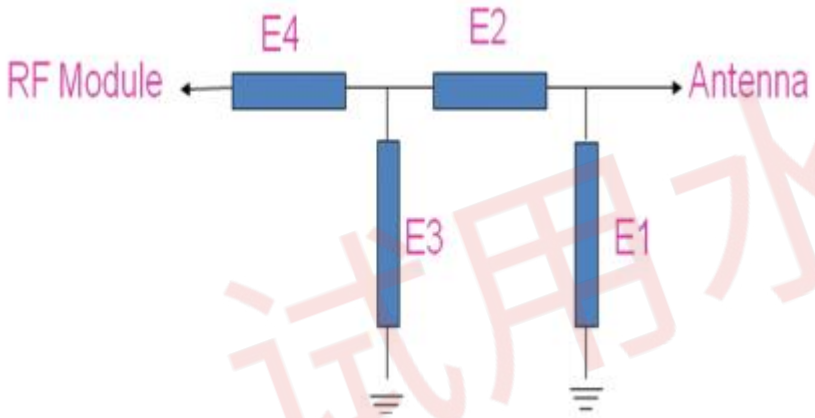

2450.0MHz Total(E2-YZ), Max= -2.92dBi
-1.98
-5.98
-9.98
-17.98
-21.98
-25.98
-29.98
-33.98
-37.98
-41.98
90, Y


Total(H-XY), Max= -1.98dBi, CirD=6.45
-1.98
-9.98
-13.98
-17.98
-21.98
-25.98
-29.98
-33.98
-37.98
-41.98
0, X


2480.0MHz Total, Eff: 18.6%
Z
X
Y
Back View
Z
X
Y
-1.46
-3.3
-5.14
-6.99
-8.83
-10.67
-12.51
-14.35
-16.2
-18.04
-19.88
-21.72
-23.57
-25.41
-27.25
-29.09
-30.93
-32.78


2480.0MHz Total(E1-XZ), Max= -3.75dBi
2480.0MHz Total(E2-YZ), Max= -3.06dBi
Total(H-XY), Max= -2.13dBi, CirD=10.07
-2.13
-6.13
-10.13
-14.13
-18.13
-22.13
-26.13
-30.13
-34.13
-38.13
-42.13

匹配参数



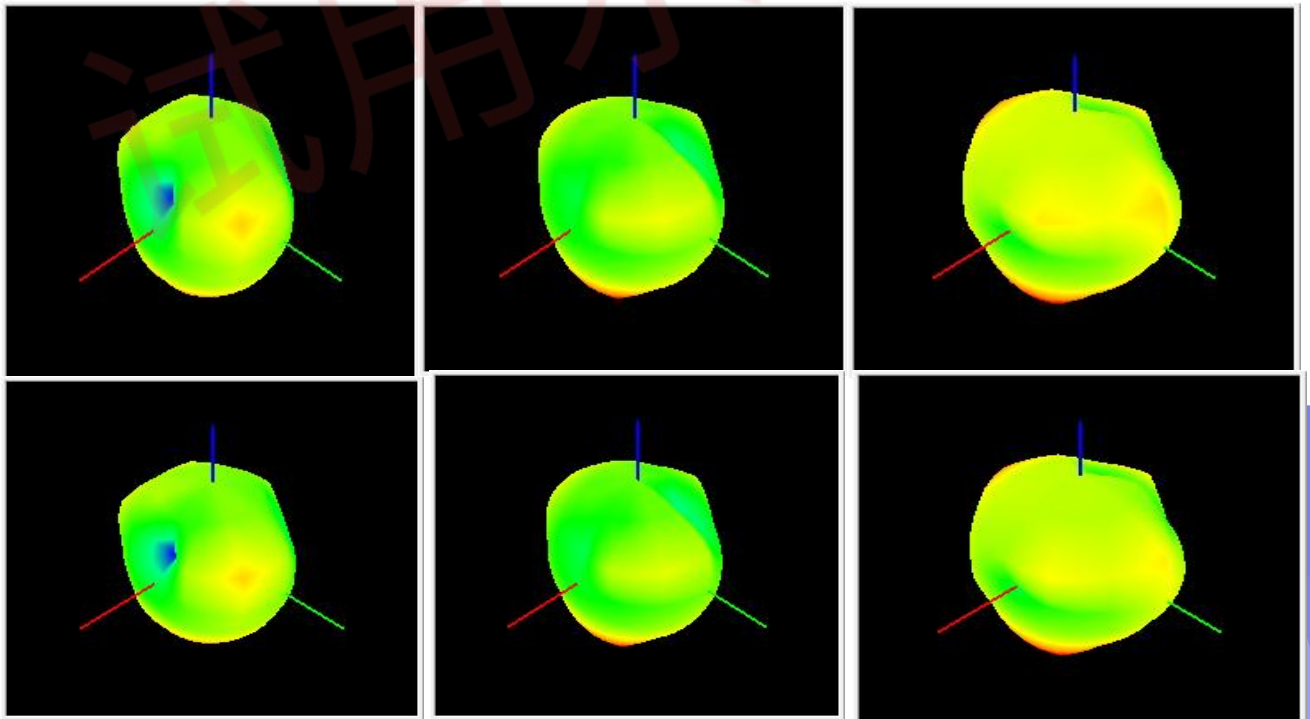
Element	
E1	NA
E2	0Ω
E3	NA
E4	0Ω

OTA DATA--自由空间

Test Equipment：	R&S CMW500			
Test Condition：				
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
BT		0	-1.46	-80.47
		39	-1.12	-80.45
		78	-0.94	-80.59

TIS

TRP



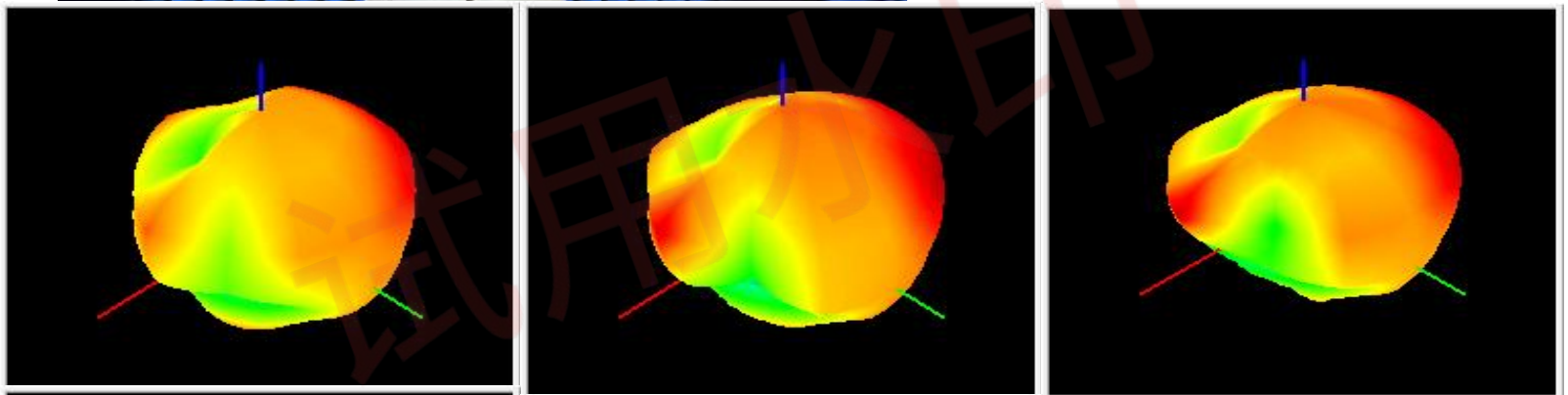
OTA DATA--头模

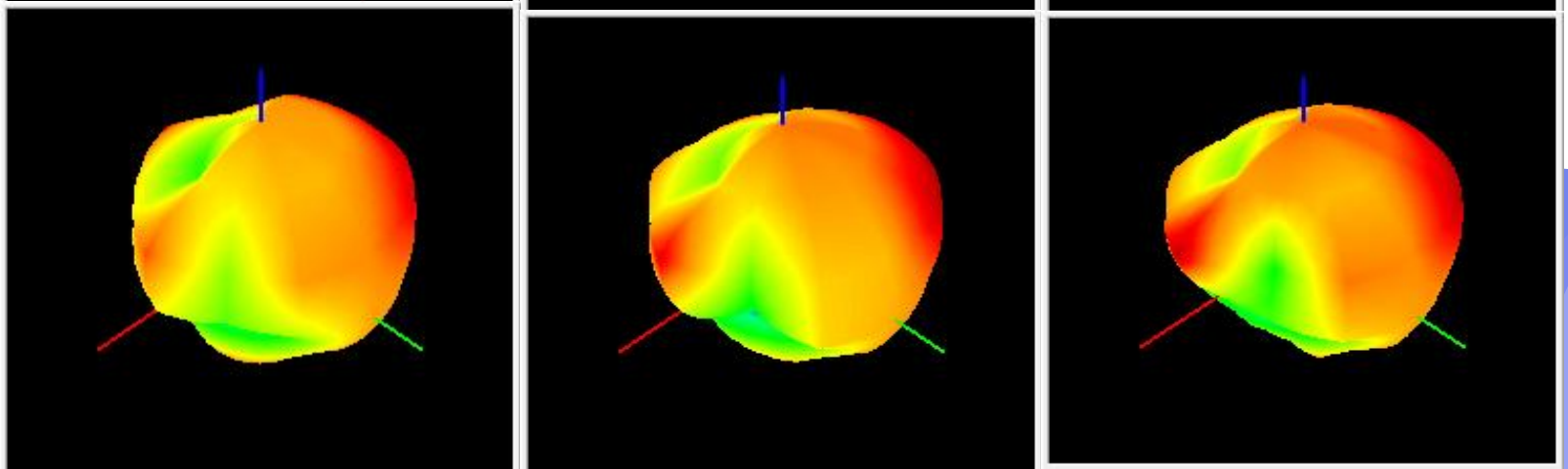
Test Equipment：	R&S CMW500			
Test Condition：				
Band	Wireless Protocol	Channel	TRP(dBm)	TIS(dBm)
BT		0	-3.30	-78.78
		39	-2.79	-78.94
		78	-2.44	-78.89

头模场型图

TIS

TRP





Thanks for your comment!

- Shenzhen hetuo Science Co.,Ltd.
- Shenzhen: 1202B, Building C6, Hengfeng Industrial City, Xixiang, Baoan District, Shenzhen
- RF:Wu Shouping 18665934465

Product specification

Quick Reference Date

	Antenna module on the system board	
Frequenc Range	2400 ~ 2500MHz	
Ant. Port Input Pwr. (dBm)	0 (Typ. BT class 2 output power)	
Tot. Rad. Pwr. (dBm)	-1.2 (Input pwr – loss pwr)	
Peak EIRP(dBm)	1.2	
Directivity (dBi)	1 (all direction antenna)	
Efficiency (dB)	6 0.2 %	
Gain (dBi)	1.2 (Avg Gain XY-plane)	
Maximum Power (dBm)	1.7 (XY-plane)	
Minimum Power (dBm)	-4(XY-plane)	
Avg. Power (dBm)	-0.5(XY-plane)	
Input Impendence(ohm)	50	
Polarization Type	V ertical & Horizontal	
V . S .W . R	< 1.4	
ANTENNA NAME	PIFA	
TEST PLACE	SHENZHEN CITY DERUIEN TECHNOLOGY CO., LTD	

All the technical data and information contained herein are subject to change without prior notice

Antenna Layout & module on the system board