

SHENZHEN ATN COMMUNICATION TECHNOLOGY CO.,LTD.

Antenna Tuning Report

Customer:	Hailinwei	Project	S52	Date	2025. 07. 03
Frequency Band	2. 4G-2. 48G				
Report Version	V3. 0 (Molded Housing Tuning)				
Antenna Structure	FPC attached to decorative cover, dual- polarized antenna, Antenna Version: S52- V7				

Address: 504-505, Xiagu Building, Meisheng Innovation Valley, Longchang Road, Xin'an Sub-district, Bao'an District, Shenzhen

Tel: 0755-29308863 Fax: 0755-29308861

Test System

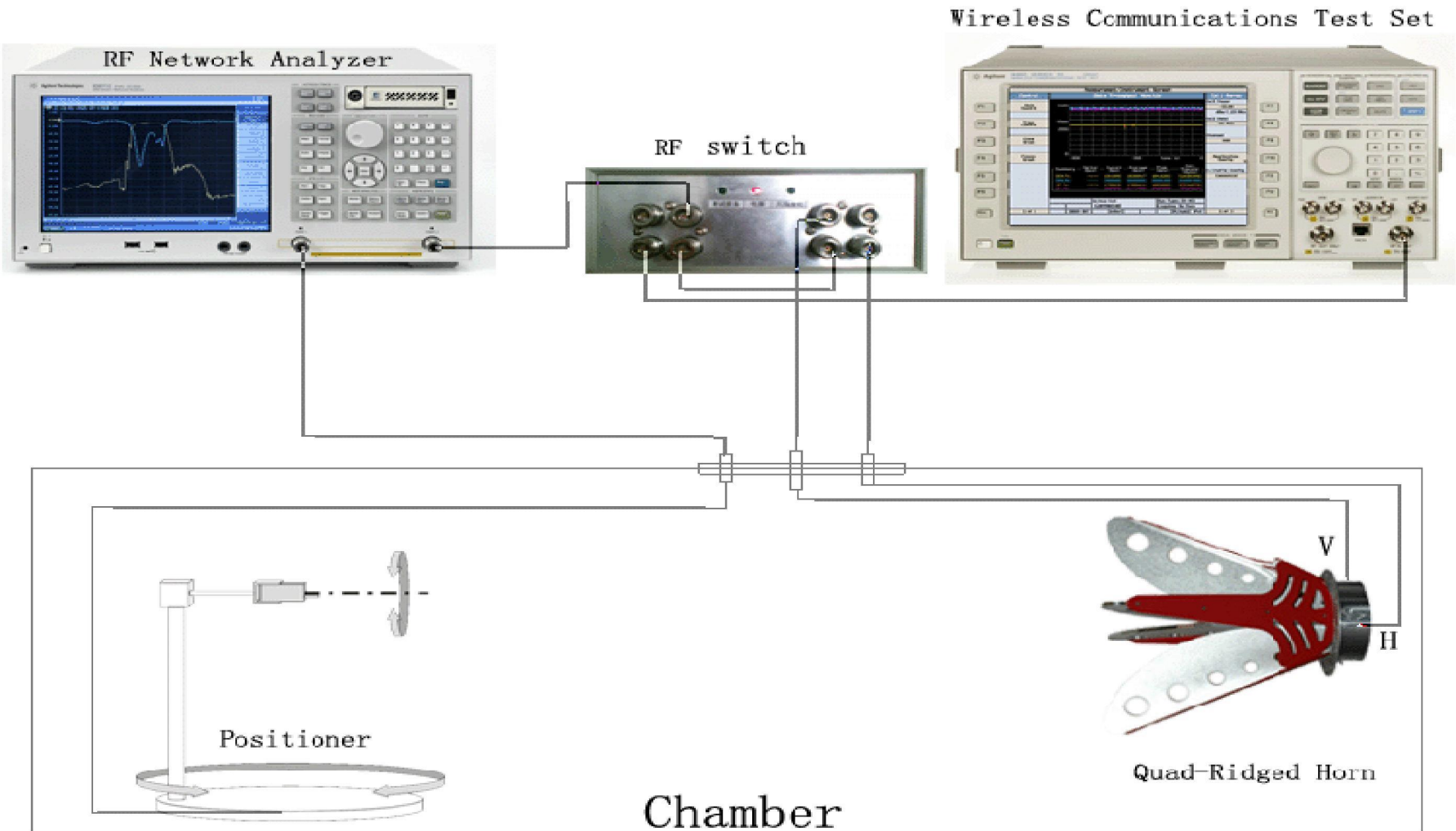
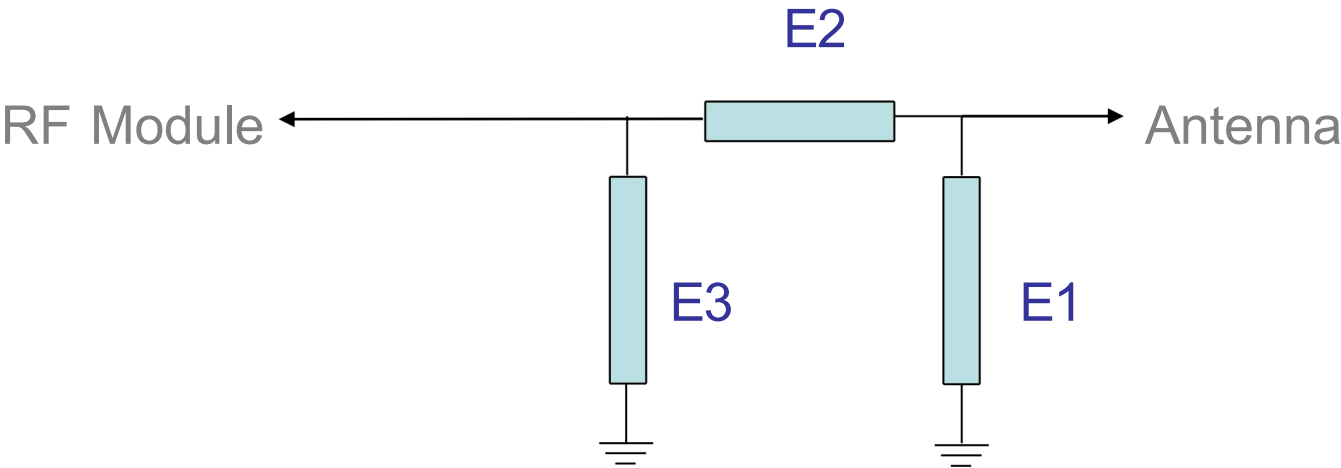


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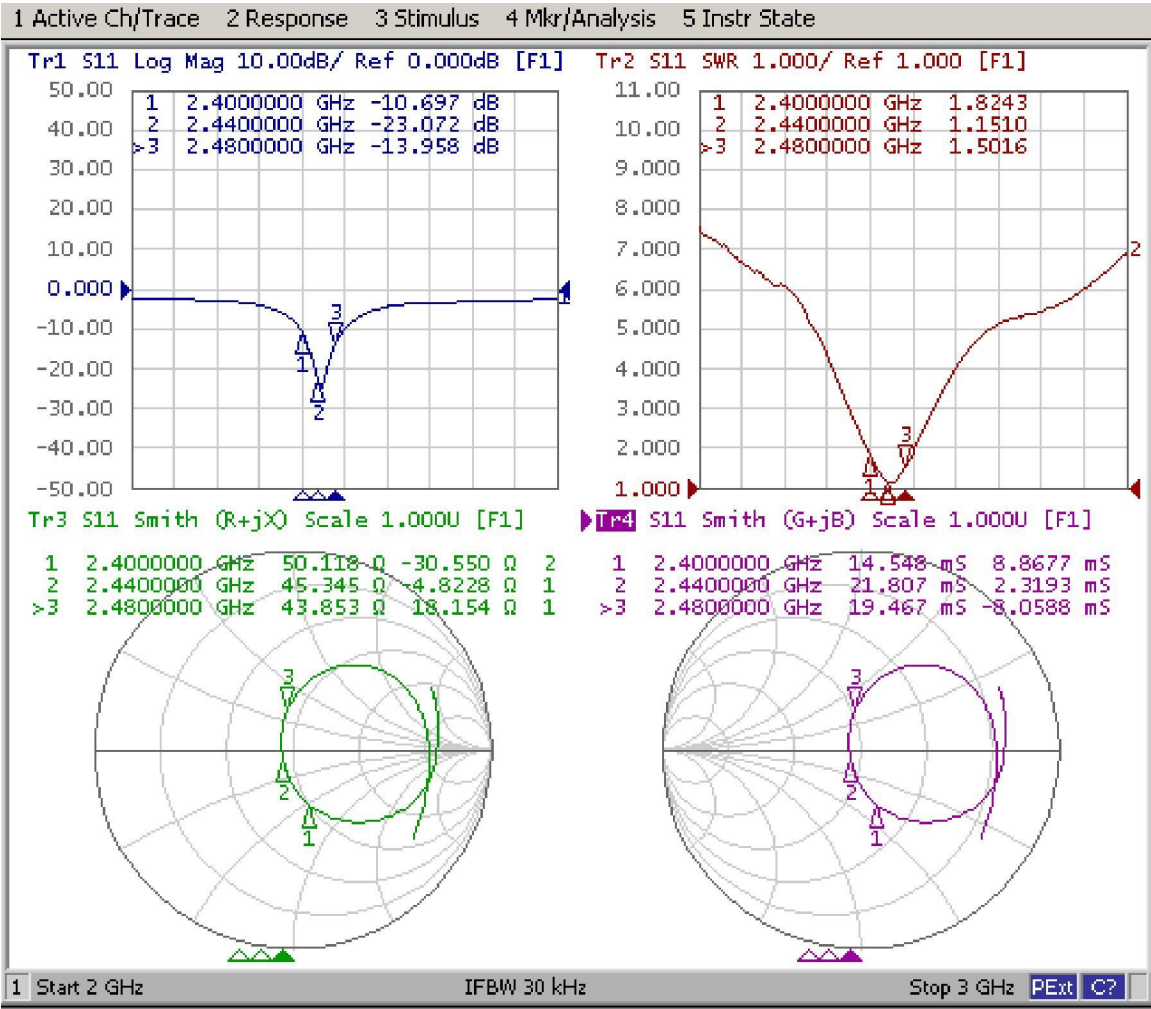
1、 Matching Circuit



Element	Value
E1(0201)	NC
E2(0201)	0R
E3(0201)	NC
Matching network is identical for L and R antenna	

2.1Passive Test Data(L)

2.1.1 S11 Parameter

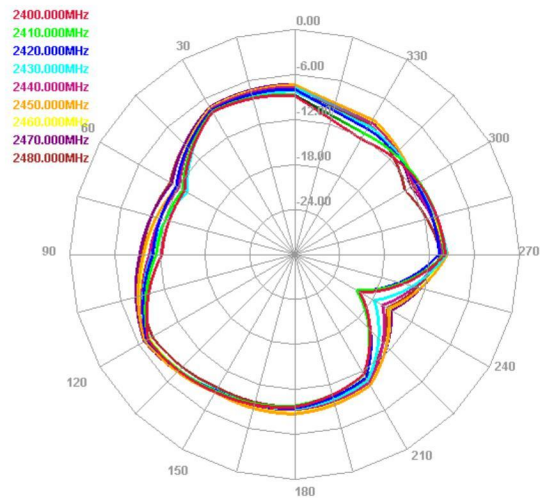


2.2 Gain & Efficiency

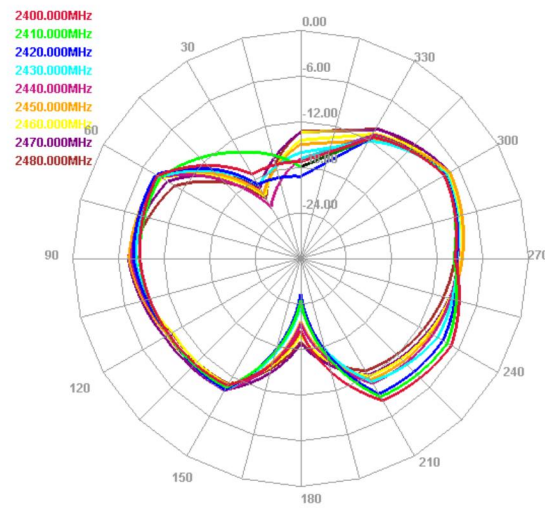
Freq(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)
2400.00	-6.03	-9.61	10.95
2410.00	-6.03	-9.71	10.7
2420.00	-5.67	-9.74	10.62
2430.00	-5.9	-9.99	10.02
2440.00	-6.1	-10.15	9.67
2450.00	-5.97	-9.87	10.31
2460.00	-6.06	-10.22	9.5
2470.00	-6.1	-10.15	9.66
2480.00	-6.51	-10.71	8.49

2.1.3 Radiation pattern

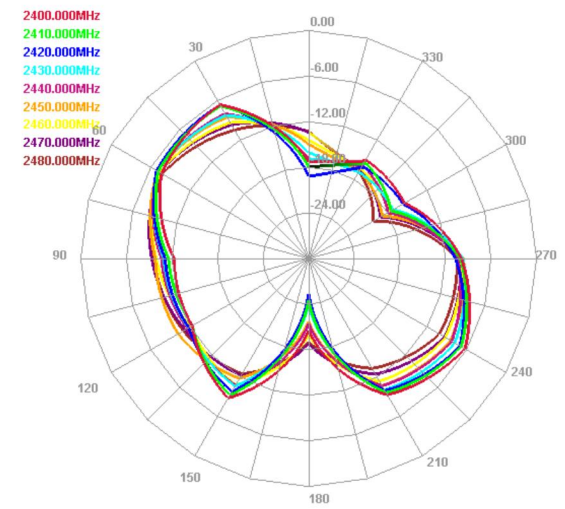
Horizontal



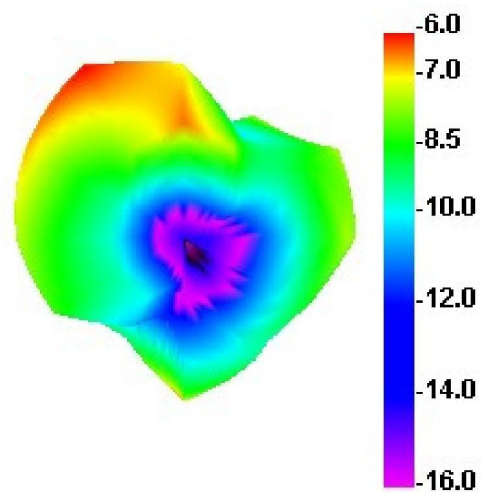
E1 Face



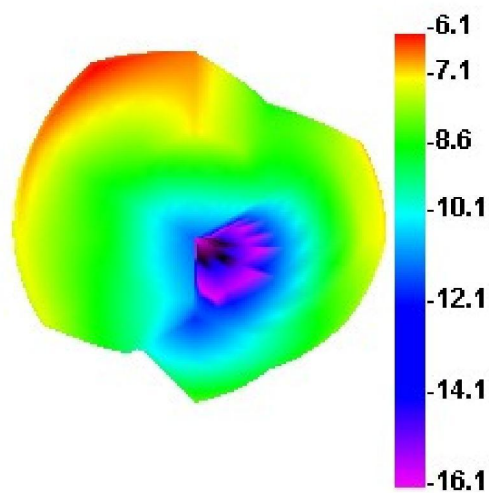
E2 Face



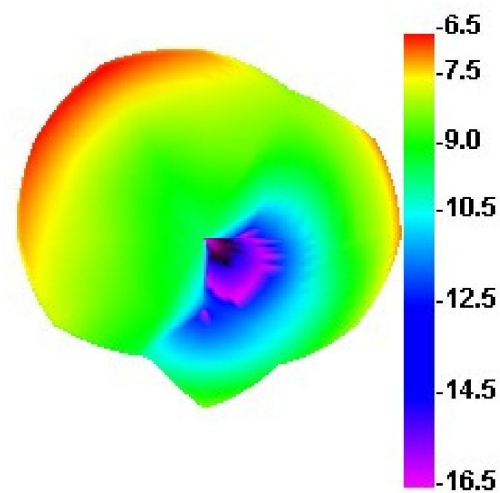
2400.000MHz



2440.000MHz

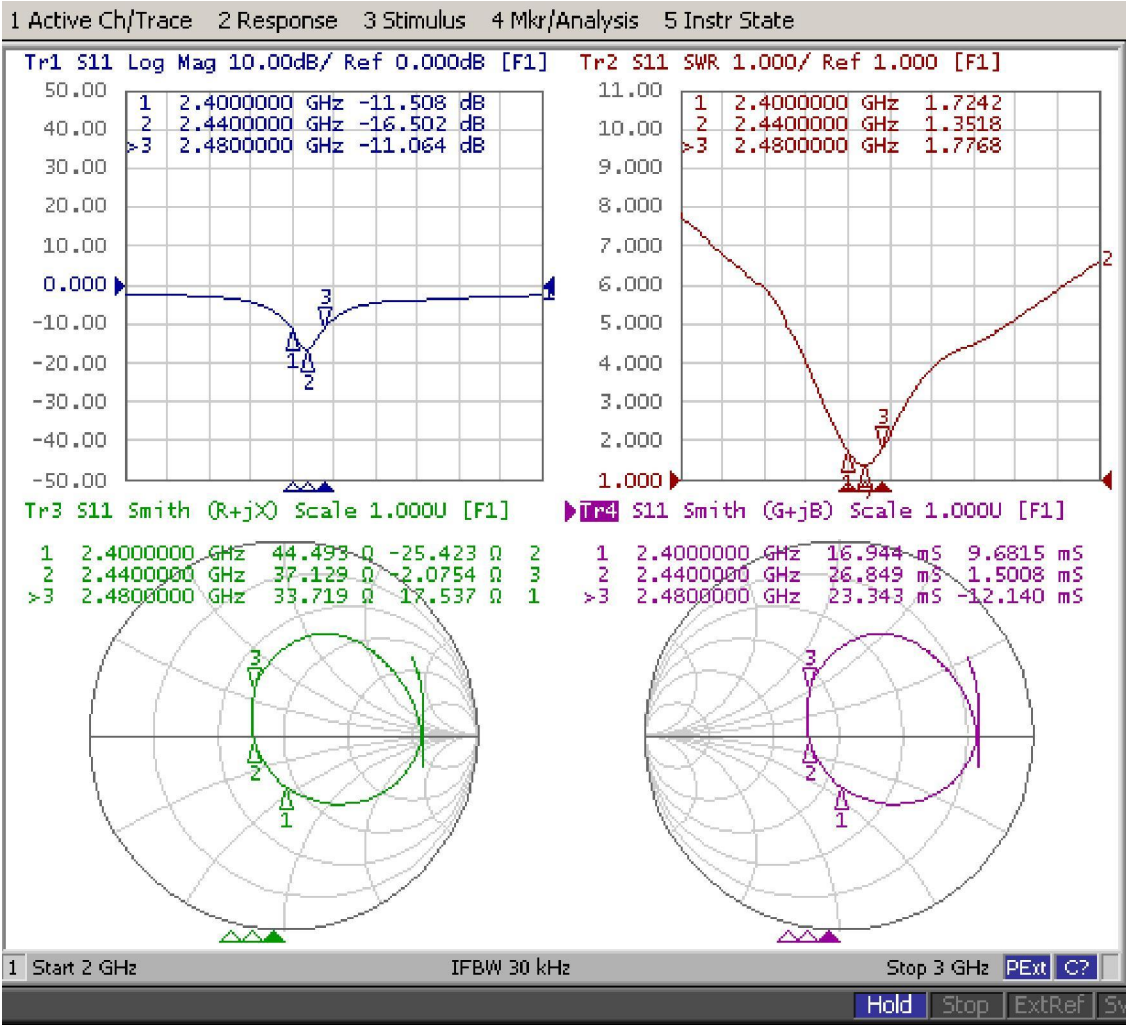


2480.000MHz



2.2、Passive Test Data(R)

2.2.1 S11 Parameter

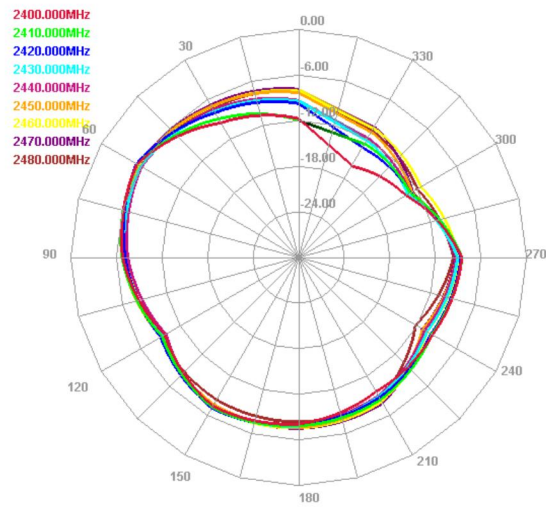


2.2.2 Gain & Efficiency

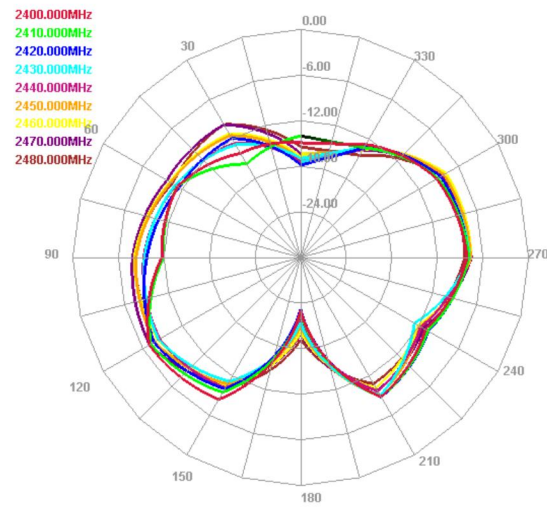
Freq(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)
2400.00	-4.67	-9.42	11.42
2410.00	-4.58	-9.34	11.65
2420.00	-4.53	-9.24	11.9
2430.00	-5.1	-9.56	11.07
2440.00	-5.42	-9.64	10.88
2450.00	-5.21	-9.35	11.61
2460.00	-5.13	-9.21	11.99
2470.00	-4.89	-9.04	12.49
2480.00	-5.02	-9.46	11.32

2.2.3 Radiation pattern

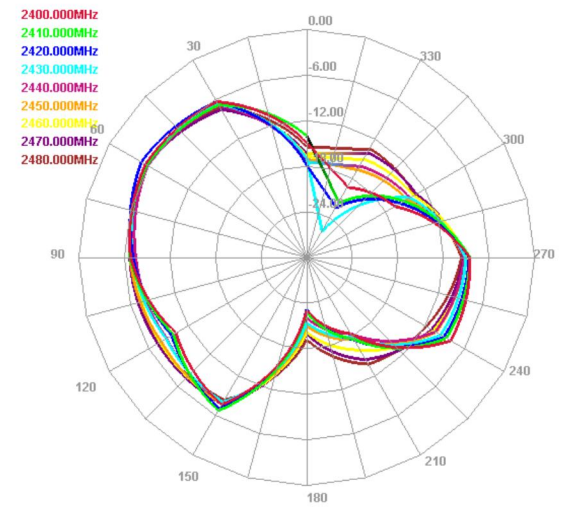
Horizontal



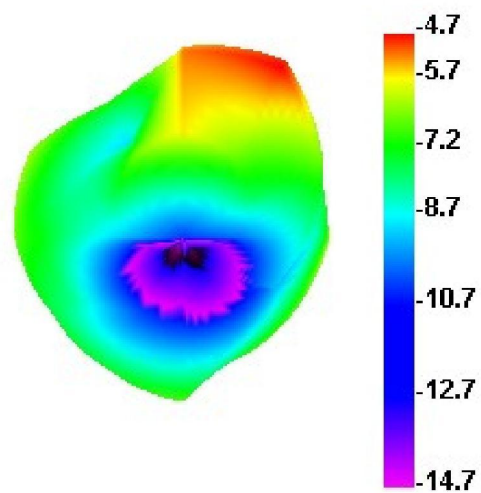
E1 Face



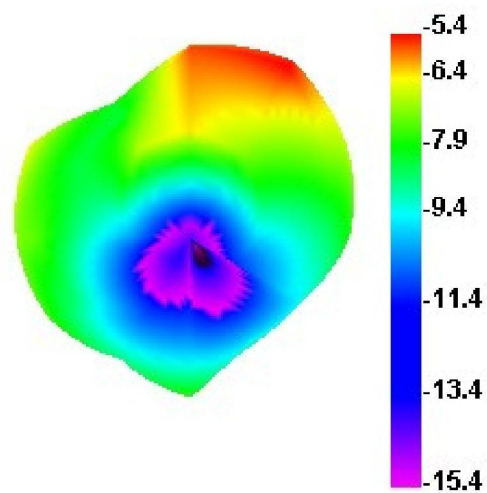
E2 Face



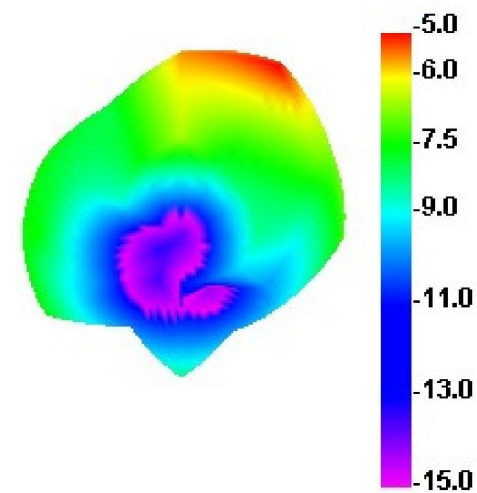
2400.000MHz



2440.000MHz



2480.000MHz



3. OTA Test Data

Free- Space
Left

Channel	Frequency (MHz)	TRP (dBm)
0	2402	0.02
39	2441	0.96
78	2480	1.6
Channel	Frequency (MHz)	TIS (dBm)
0	2402	-86.27
39	2441	-85.89
78	2480	-85.36

Free- Space
Right

Channel	Frequency (MHz)	TRP (dBm)
0	2402	3.84
39	2441	4.32
78	2480	3.29
Channel	Frequency (MHz)	TIS (dBm)
0	2402	-87.81
39	2441	-87.32
78	2480	-87.67

Head- Phantom
Right

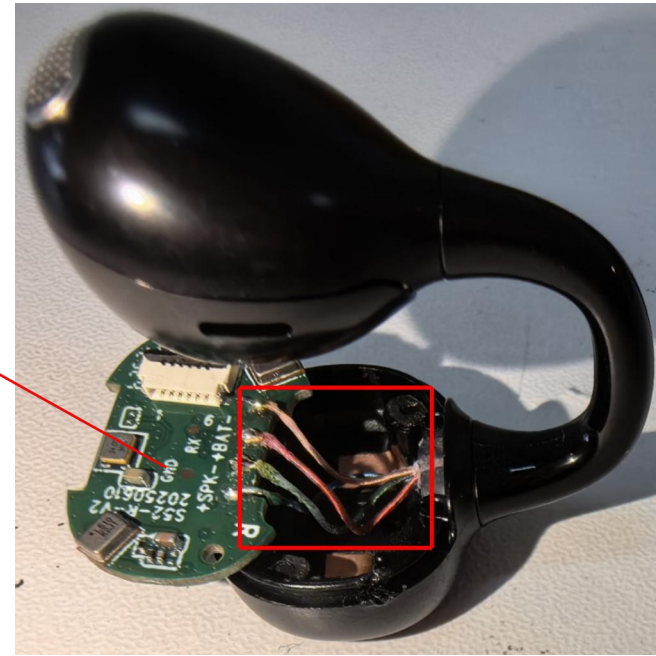
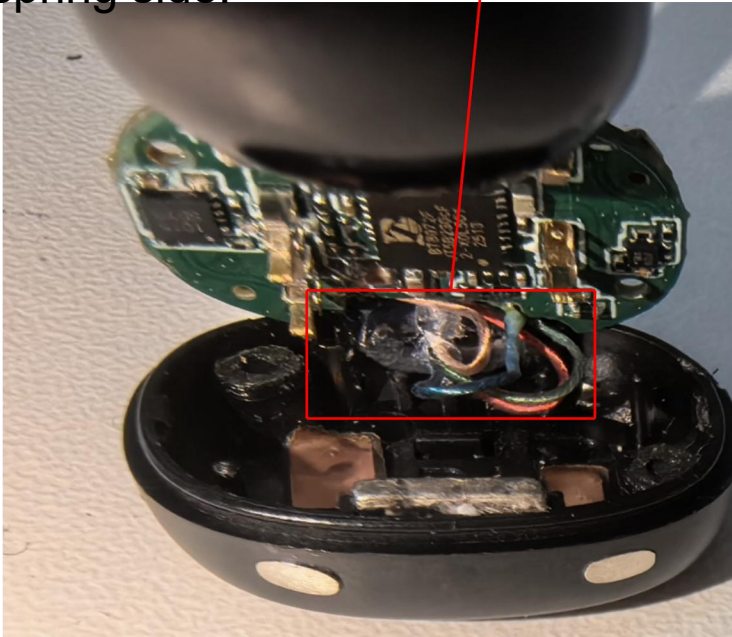
Channel	Frequency (MHz)	TRP (dBm)
0	2402	-2.48
39	2441	-1.7
78	2480	-1.13
Channel	Frequency (MHz)	TIS (dBm)
0	2402	-83.53
39	2441	-83
78	2480	-82.66

Head- Phant
om Right

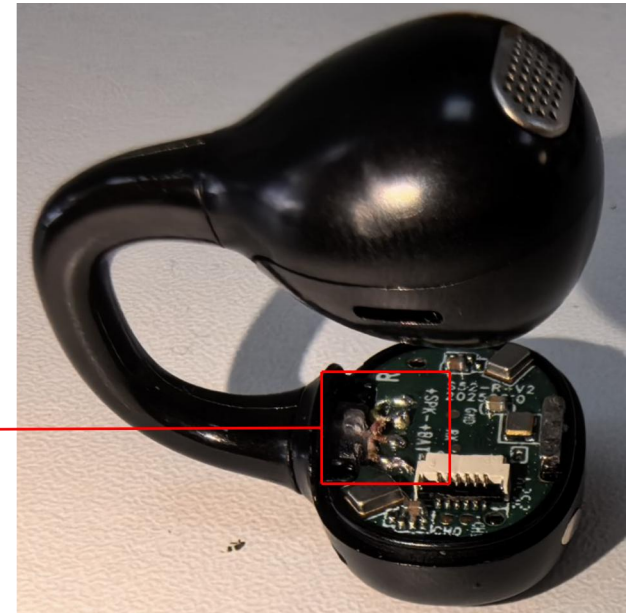
Channel	Frequency (MHz)	TRP (dBm)
0	2402	1.05
39	2441	-0.18
78	2480	-1.62
Channel	Frequency (MHz)	TIS (dBm)
0	2402	-84.96
39	2441	-83.66
78	2480	-83.42

4、Assembly Requirements

- 1、 The charging cable and speaker wire shall extend 17 mm from the ear-hook post.
- 2、 All wires shall not be twisted together; route them in parallel toward the touch spring side.



3. During assembly, tuck all wires fully underneath the main PCB. Keep wires away from antenna spring contacts and route toward touch spring contacts.



5、Practical Range Test

Test Location: South Gate, Meisheng Innovation Valley, Longchang Road

Test Phone	Samsung S8
Music playback omnidirectional range (m)	14