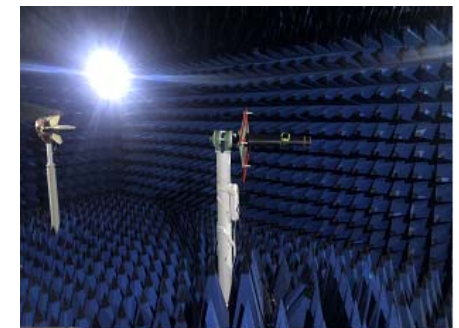# M80 antenna optimization report

RF: Jiang Mingfei

Date: 2024-3-4

Contact information:

13762527134

Project development environment

We are moving from the Internet era to the intelligent era, and the country is building a digital society and a smart city. In the next 5-10 years, there is a huge development potential in both the consumer electronics market and the Internet of Things market. The field of wireless communication is very diversified. In the future, relying on the customer platform advantages of the main antenna industry, Yusheng will strive to provide customers with professional product solutions with market competitiveness.
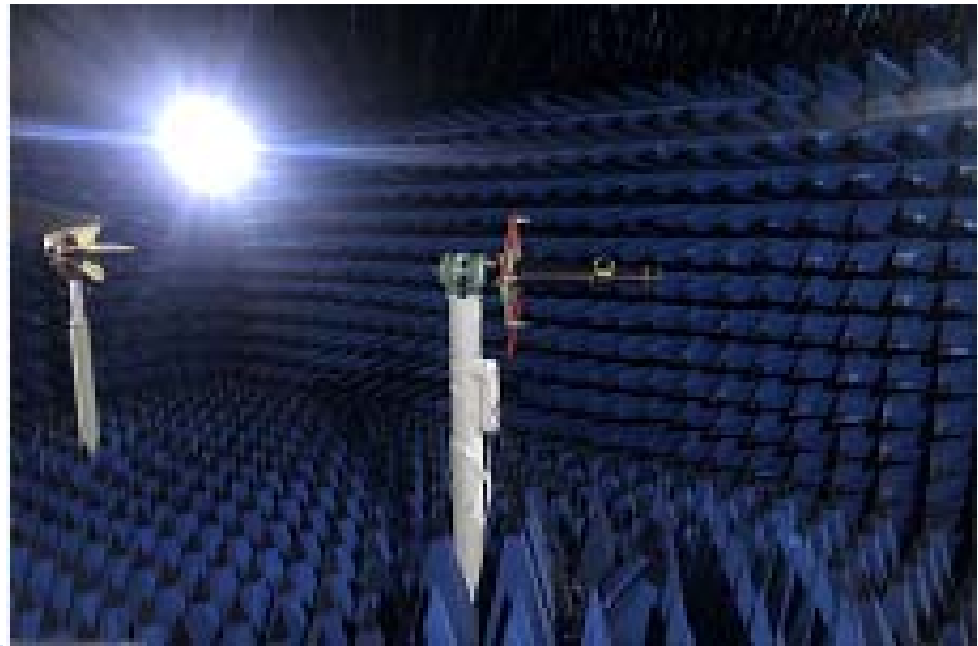
Yu Sheng communication products cover almost all wireless terminal equipment antenna applications, including car antenna, high precision surveying antenna, drone ground and satellite data navigation, high precision positioning antenna, medical equipment wireless transmission, consumer antenna (mobile phone antenna, PAD, laptop antenna), base station / indoor distribution antenna, smart wear antenna (smart watches, TWS headphones), security household antenna and a variety of wireless data transmission and wireless control of intelligent equipment antenna, etc.

1	Project commissioning brief
2	Outline of the report version
3	Antenna passive parameter
4	Antenna pull distance test
5	Antenna matching changes

Project commissioning brief

| type	watch		
Frequency band and antenna material	antenna	frequency range	material quality
		BT	2400-2500MHZ	Metal medium frame + FPC
performance requirement	According to the customer's requirements		
Antenna Type	Internal Antenna		

| Report version	Report time	The problem solved by the antenna development
V0.1	2023-12-12	Antenna preliminary commissioning report
V0.2	2023-12-26	Antenna optimization report
V0.3	2024-3-2	Increase antenna gain
V0.4	2024-3-4	Add to the antenna orientation diagram

Antenna passive parameter
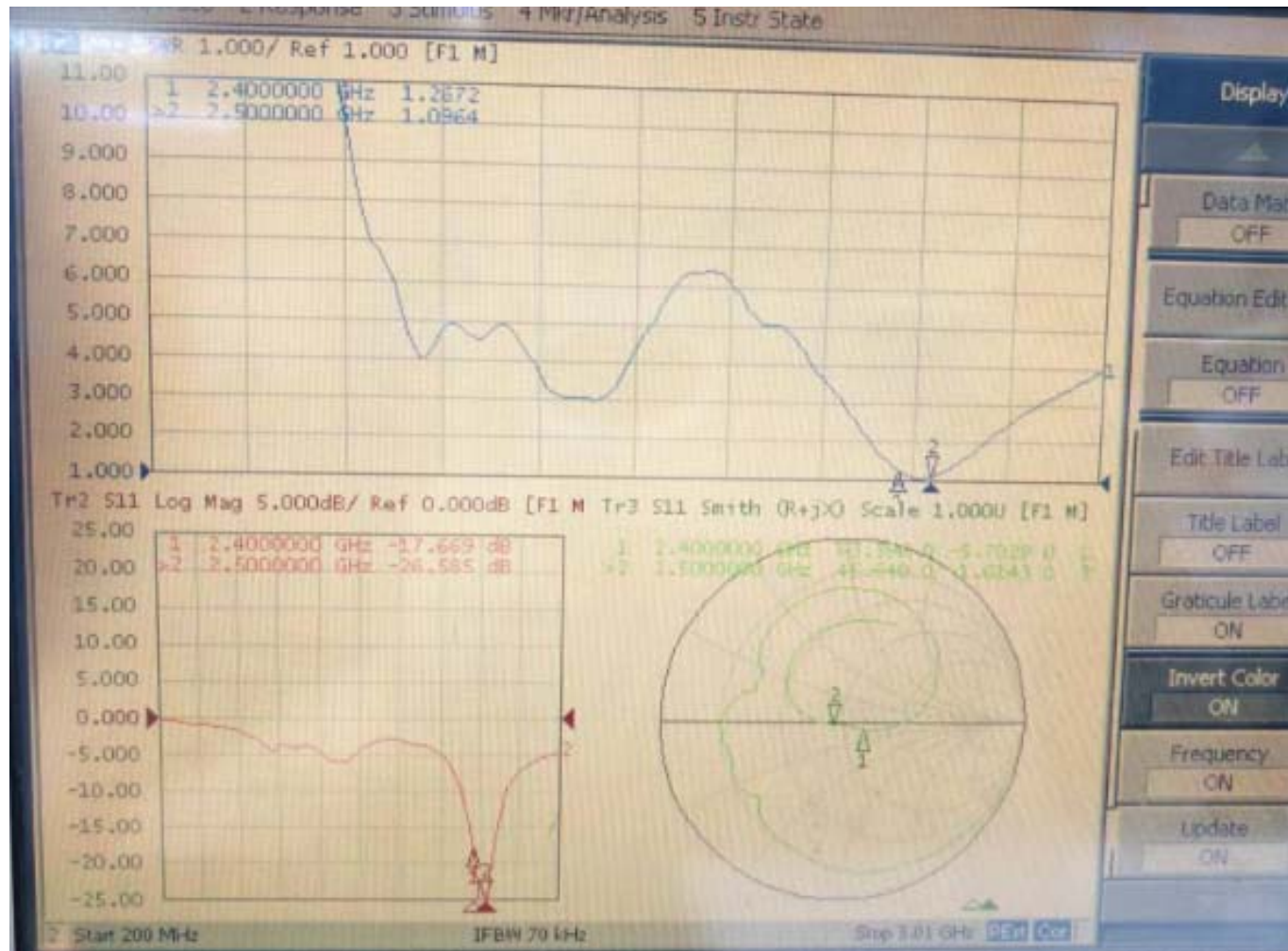
Antenna passive parameter

No FPC antenna is added

Test	free state								
Test Point ID	1	2	3	4	5	6	7	8	9
Freq.(MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	8.5	8.7	9.1	10.7	11.4	12.7	9.8	8.7	8.3
gain (dBi)	-3.76	-3.82	-3.56	-3.53	-3.44	-3.27	-3.88	-4.15	-4.27

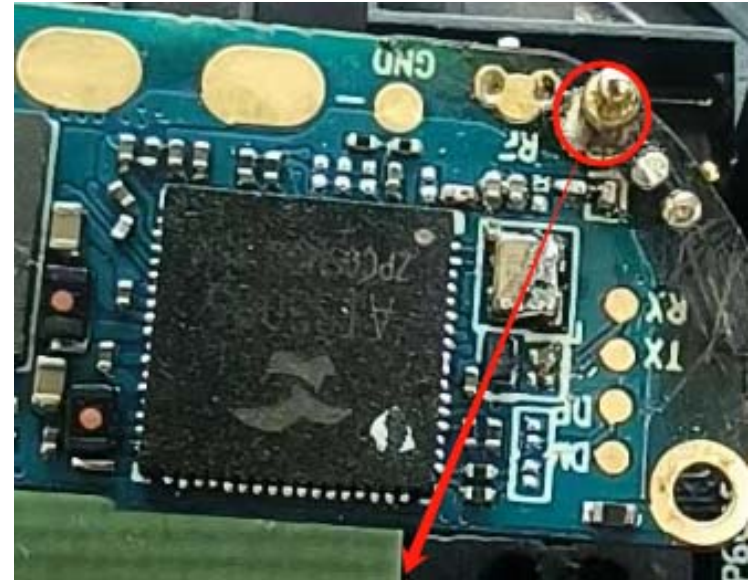| Test	Arm state								
Test Point ID	1	2	3	4	5	6	7	8	9
Freq.(MHz)	2400	2410	2420	2430	2440	2450	2460	2470	2480
Efficiency (%)	4.1	4.3	5.1	6.7	6.5	7.3	5.1	4.5	4.2
gain (dBi)	-7.52	-6.86	-6.73	-6.75	-7.22	-6.23	-6.70	-6.78	-6.66

antenna pattern

Antenna matching changes

串1.5PF
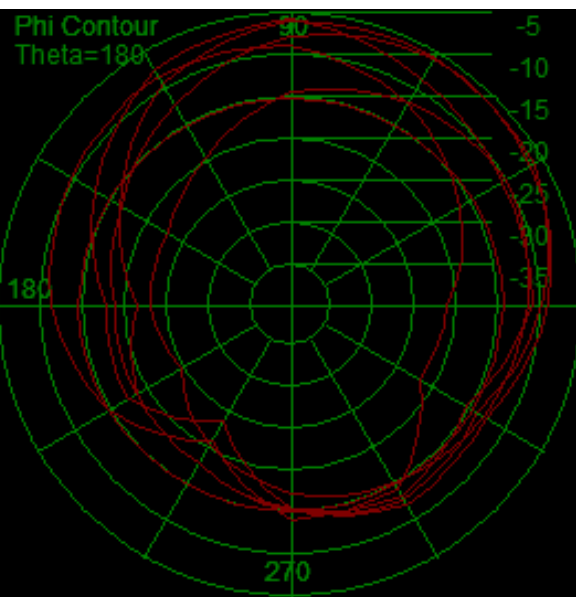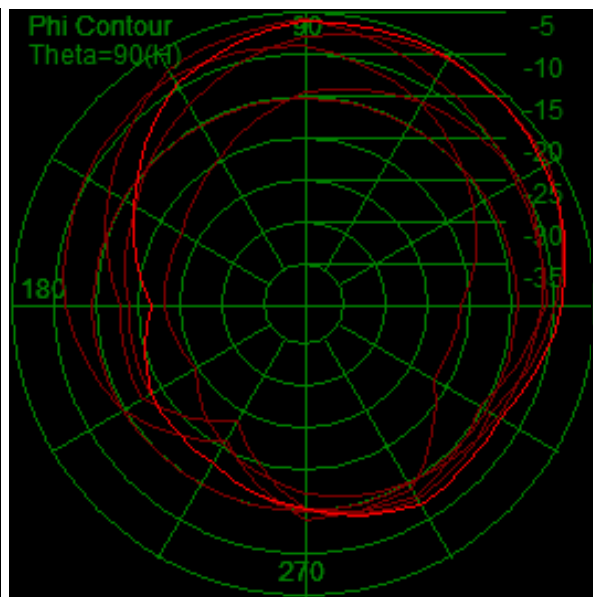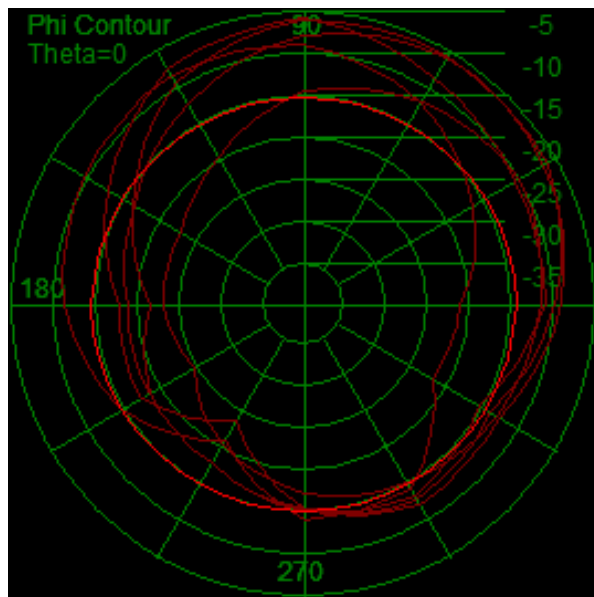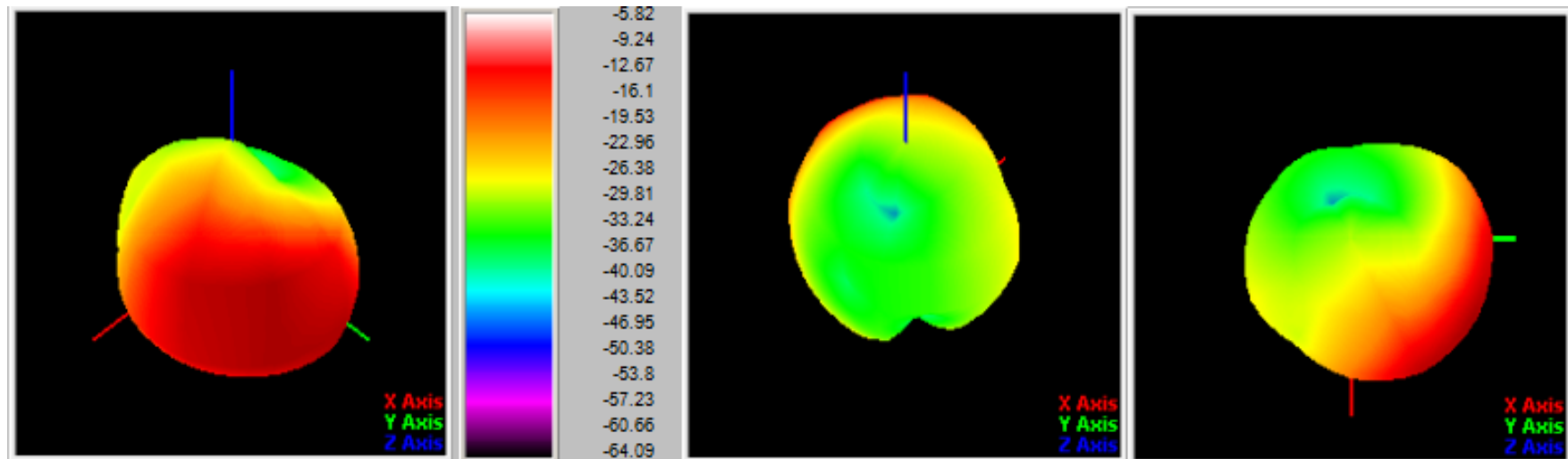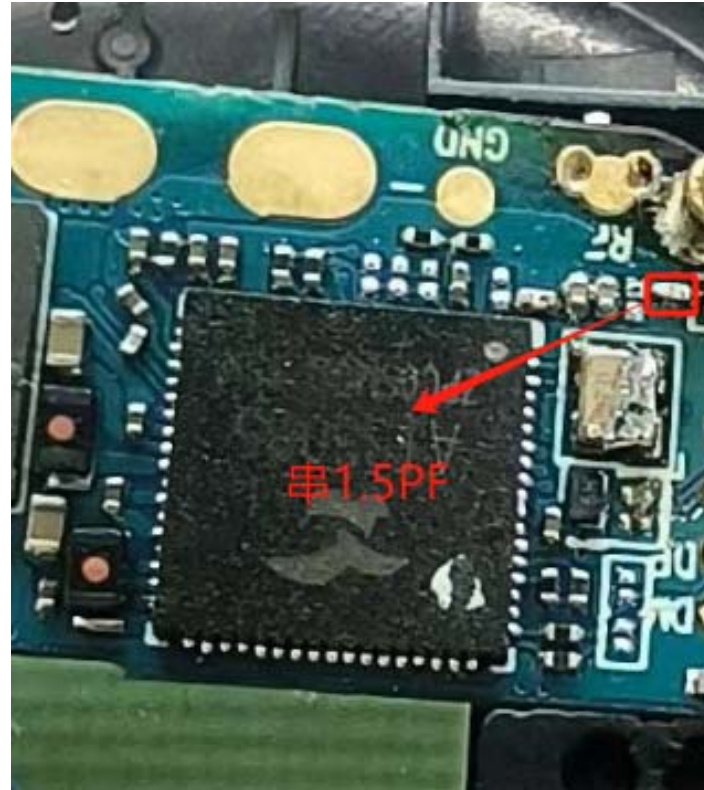
Antenna environment processing

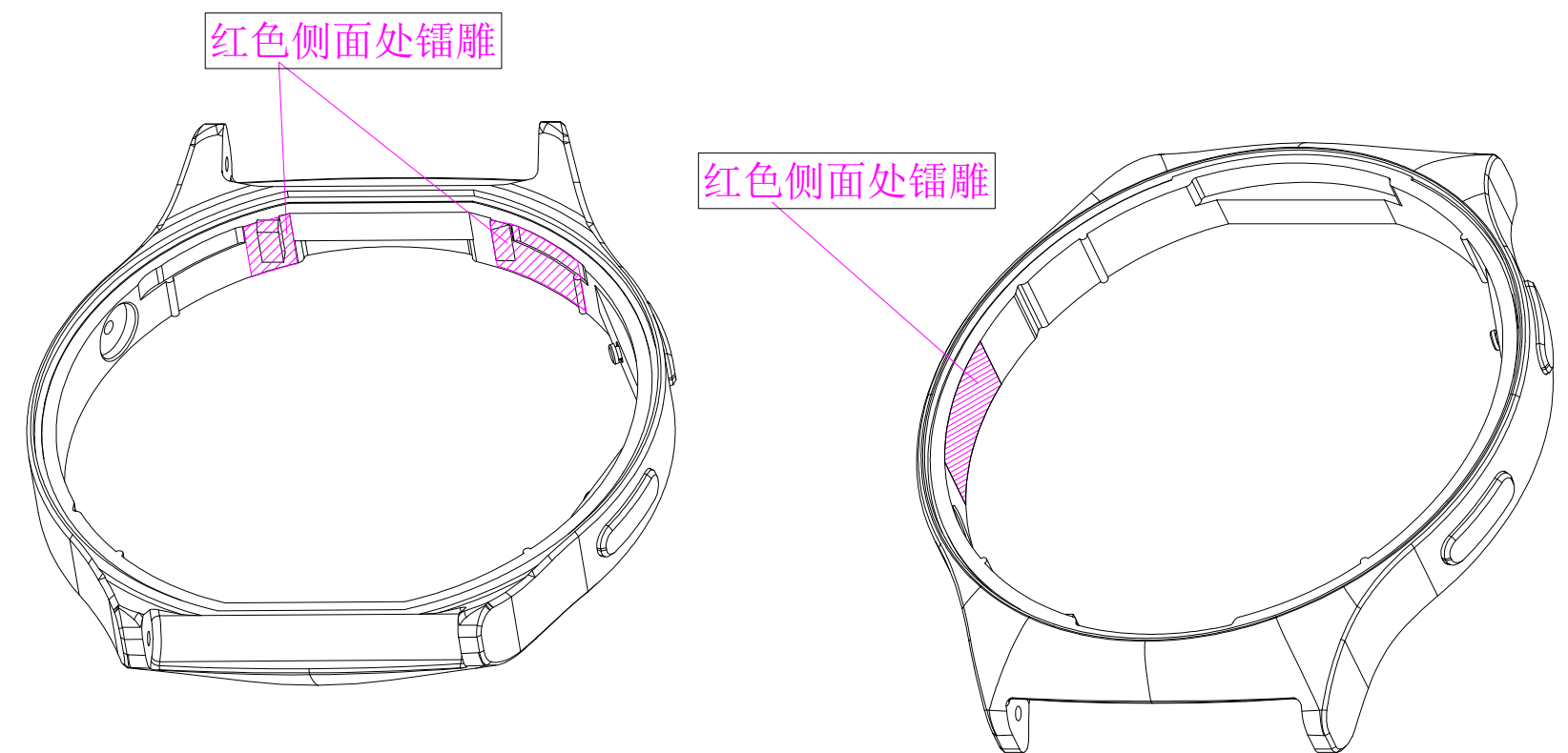Remove a thimble for a monopolar antenna

Add gold finger thimble to do FPC auxiliary debugging

单位：mm
Unit: mm

Antenna size diagram

Section A-A

Section B-B

红色侧面处镭雕

φ44.6

φ43.2±0.05

0.6±0.03

0.6±0.03

0.5±0.03

0.6±0.03

φ1

φ1

7.9±0.05

1.4±0.03

1.4±0.03

7.9±0.05

2.6±0.05

6±0.05

6

4.8

44.6

50.6

φ41.69±0.05

38.59

φ43.7±0.05

φ40.6

22.2

40.6

红色侧面处镭雕

红色侧面处镭雕

红色侧面处镭雕

Arm simulation test scenario

Thank you!

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