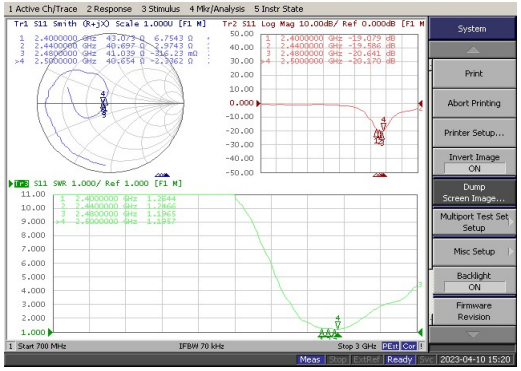
Hele H3 antenna RF research and development report V1

The main purpose of this report: Optimize the onboard antenna matching parameters to improve antenna performance

The main conclusion of this report: After optimization and matching, the passive performance and OTA data of the whole antenna are good

Key points to note in this report: The power inductor has been replaced. The inductor part number is HDC0603Y100DMT

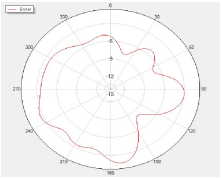
Antenna impedance parameters test condition



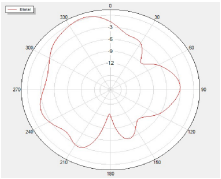
Antenna passive efficiency test (with 3D&2D direction chart)

MHz	Gain (dBi)	Efficiency (db)	Efficiency (%)
2400	0.93	-3.44	45.28
2410	1.11	-3.34	46.3
2420	1.3	-3.22	47.64
2430	1.42	-3.11	48.89
2440	1.5	-2.98	50.31
2450	1.56	-2.86	51.75
2460	1.58	-2.79	52.61
2470	1.5	-2.79	52.62
2480	1.4	-2.82	52.18
2490	1.3	-2.9	51.34
2500	1.17	-3	50.16

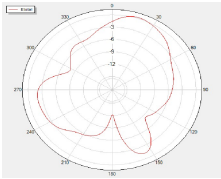
Theta=90 Freq=2440MHz

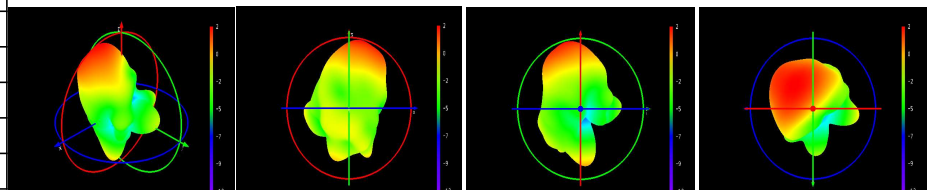


Phi=90 Freq=2440MHz



Phi=0 Freq=2440MHz





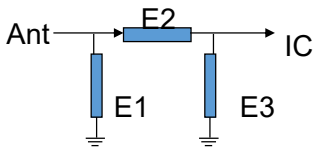
mean	1.37	-3.04	49.73

Complete machine active test data 3D field pattern/apple chart

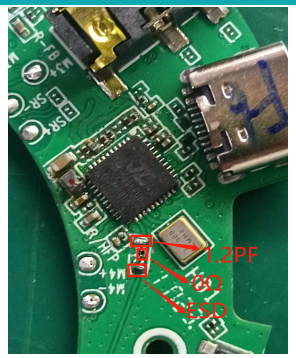
Free data			
	Channel	TRP（dBm）	TIS（dBm）
FS	CH 0	4.73	-91.04
	CH 39	5.07	-92.48
	CH 78	5.54	-92.67

Head module data			
	Channel	TRP（dBm）	TIS（dBm）
BH	CH 0	4.04	-90.45
	CH 39	4.37	-91.23
	CH 78	4.79	-91.76

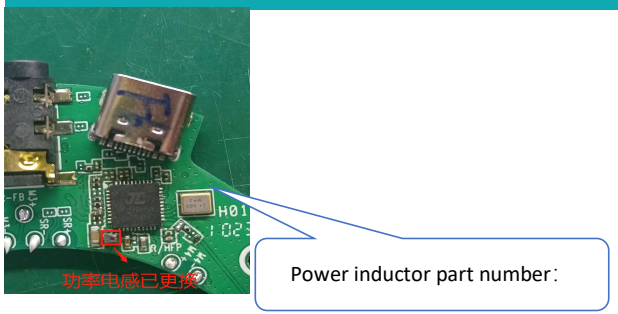
Antenna matching circuit



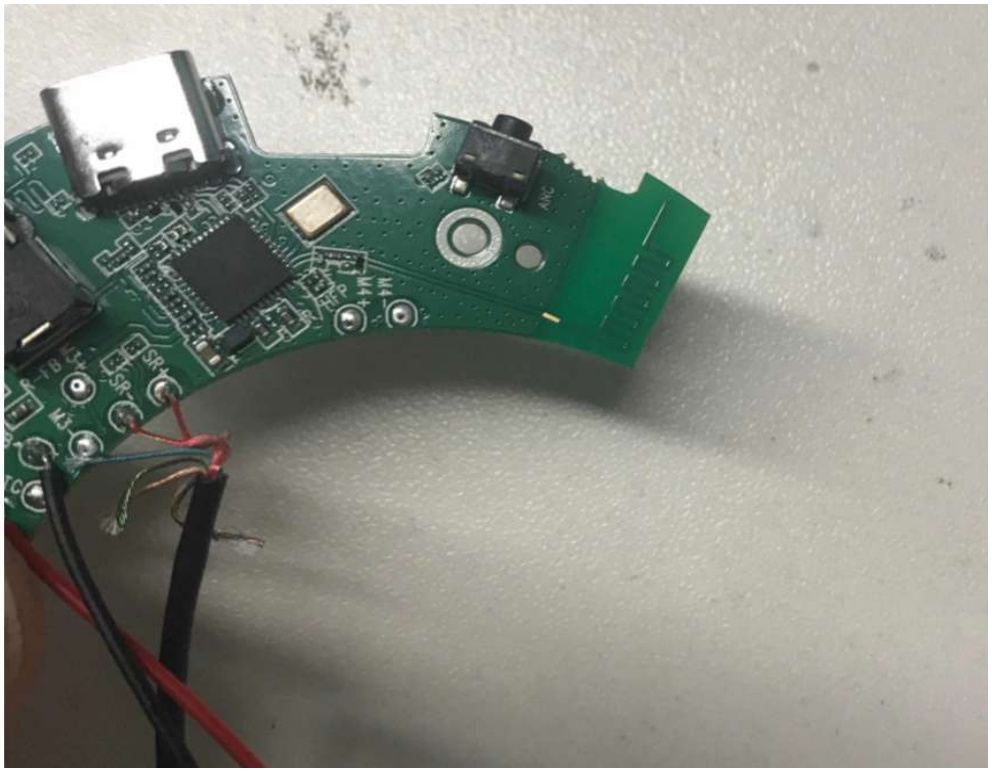
Element	Value
E1	N/A
E2	0Ω
E3	1.2PF



Material change



conclusion

After optimization and matching, the passive performance and OTA data of the whole antenna

are good.