



Quectel

EvIEWS/W205 Antenna Debug- ing Report

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Date: 2026.02.12

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Version History



Edition	Date	Reporter	Auditor	Remarks
V1.0	2026/01/09	Chen Jialin	Dai Kun	Manual debugging and validation (simulated arm state)
V1.1	2026/01/23	Chen Jialin	Dai Kun	First edition sample debugging verification (simulated arm state)
V1.2	2026/02/12	Chen Jialin	Dai Kun	Update DVT prototype antenna data (V1.1 motherboard)



Project Overview

Conclusion and Recommendations on Antenna Performance Evaluation and Debugging

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Project Overview



Prototype schematic

- Device dimensions: 13.5*37.5*45.8 mm; Motherboard dimensions: 32*40 mm
- Number of antennas: 3
- Antenna OC: Y0SDQ0CA1AA
- Network standard and frequency band:
 - ✓ 4G: B2/4/12/13
 - ✓ WIFI/BT: 2.4G
 - ✓ GPS: 1575.42M



Project Overview

Antenna Performance Evaluation and Debugging

conclusion and suggestion

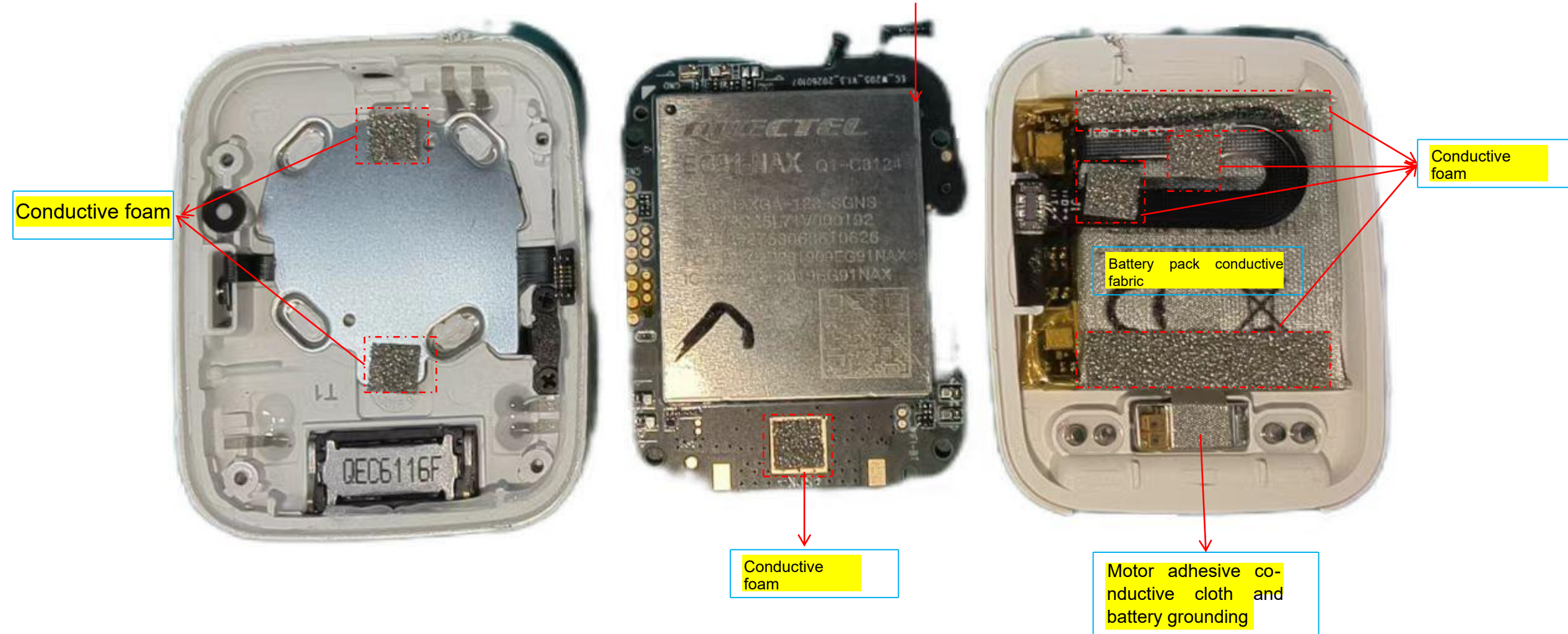
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Antenna layout



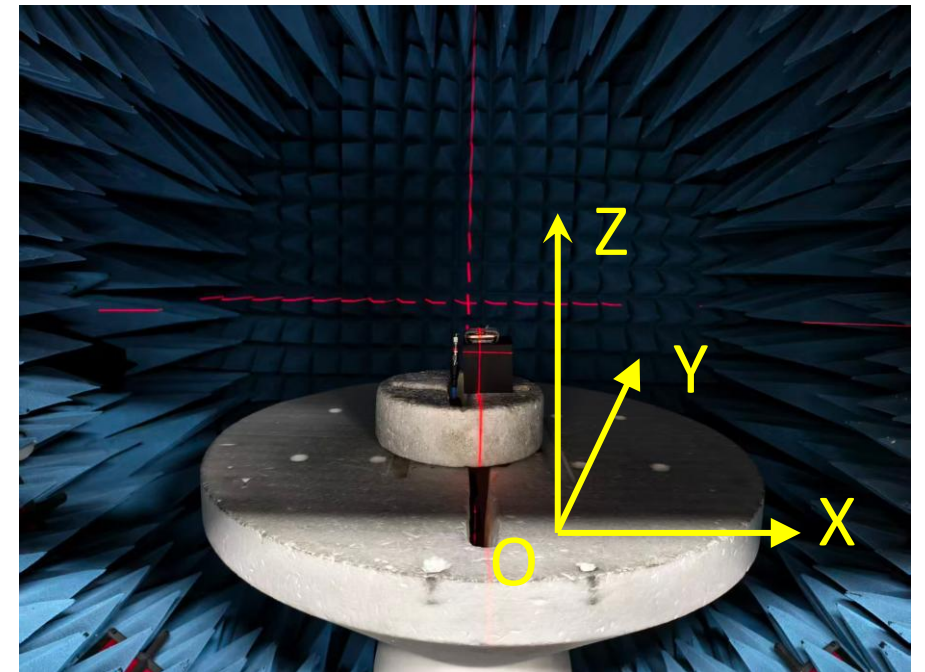
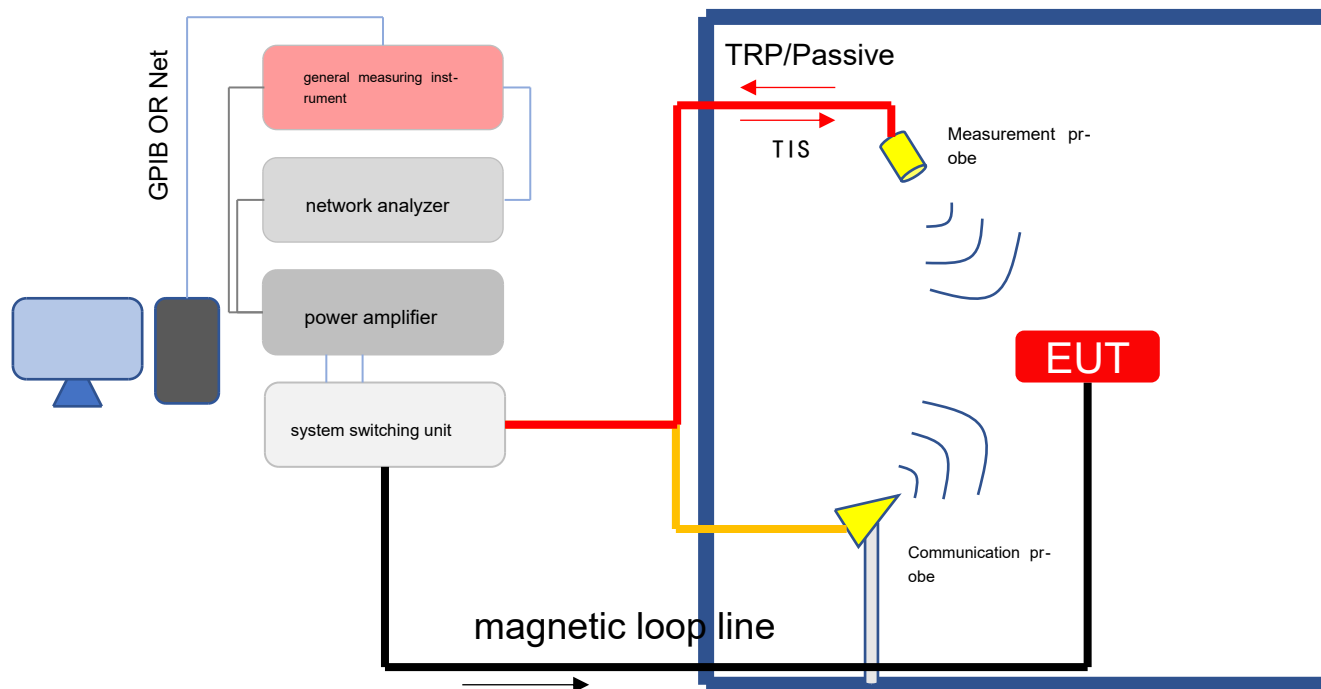
Antenna environmental processing



Antenna testing

- Dark chamber coordinate system SZ-S-1 (ID)

H Plane : XY
E1 Plane : XZ
E2 Plane : YZ



Active Testing-4G OTA (T2 Gradient Sample, Certified Prototype No.2)



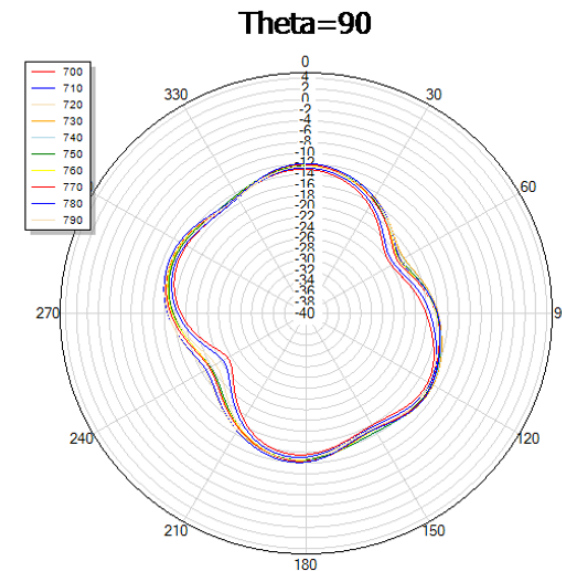
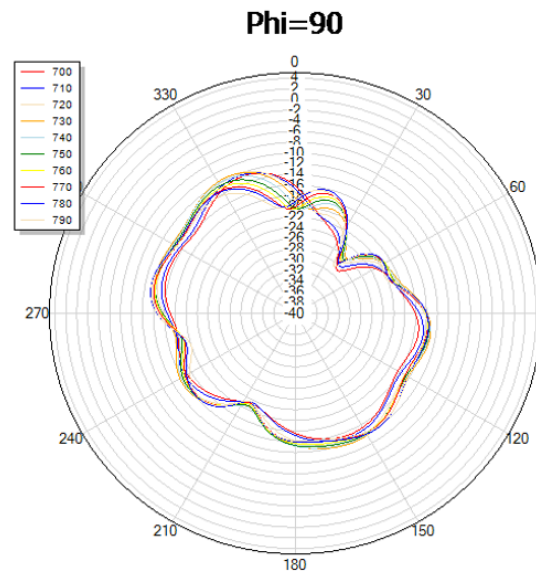
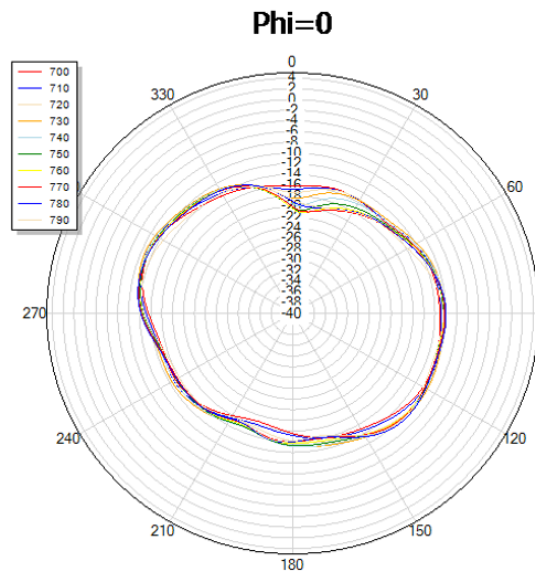
Standard	Band	Channel	TRP	TIS
FDD_LTE	B12-5MHz	23035	10.89	-87.28
		23095	11.27	-87.81
		23155	10.97	-88.36
	B13-10MHz	23230	8.89	-84.61
	B2-10MHz	18650	15.54	-88.07
		18900	15.57	-87.96
		19150	15	-87.76
	B4-10MHz	20000	12.9	-87.42
		20175	13.4	-87.38
		20350	14.32	-86.98

Passive Testing-4G (T2 Gradient Sample)



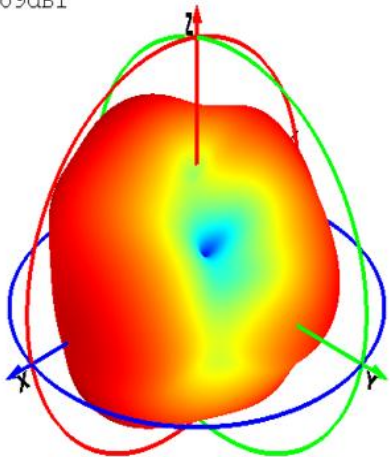
Frequency 频率(MHz)	Gain 增益(dBi)	Efficiency 效率(dB)	Efficiency 效率(%)	Frequency 频率(MHz)	Gain 增益(dBi)	Efficiency 效率(dB)	Efficiency 效率(%)	Frequency 频率(MHz)	Gain 增益(dBi)	Efficiency 效率(dB)	Efficiency 效率(%)
700.00	-11.27	-13.87	4.10	1710.00	-5.38	-9.05	12.44	1960.00	-5.42	-8.59	13.85
710.00	-10.93	-13.41	4.56	1720.00	-6.11	-9.36	11.60	1970.00	-5.38	-8.57	13.89
720.00	-10.57	-12.79	5.27	1730.00	-5.87	-9.09	12.34	1980.00	-5.32	-8.57	13.90
730.00	-10.61	-12.66	5.42	1740.00	-5.85	-8.97	12.67	1990.00	-5.47	-8.71	13.47
740.00	-10.91	-12.90	5.13	1750.00	-5.76	-8.81	13.14	2000.00	-5.64	-8.87	12.98
750.00	-11.12	-13.14	4.85	1760.00	-5.61	-8.80	13.17	2010.00	-5.65	-9.03	12.51
760.00	-11.06	-13.50	4.47	1770.00	-5.49	-8.71	13.46	2020.00	-5.60	-9.08	12.36
770.00	-11.03	-13.92	4.05	1780.00	-5.63	-8.77	13.29	2030.00	-5.53	-9.03	12.51
780.00	-10.85	-14.04	3.94	1790.00	-5.65	-8.78	13.24	2040.00	-5.33	-8.96	12.70
790.00	-11.43	-14.49	3.56	1800.00	-5.64	-8.74	13.38	2050.00	-5.16	-9.04	12.48
800.00	-11.98	-14.95	3.20	1810.00	-5.44	-8.74	13.36	2060.00	-5.18	-9.19	12.04
810.00	-12.37	-15.41	2.88	1820.00	-5.24	-8.74	13.36	2070.00	-5.34	-9.39	11.52
820.00	-12.77	-15.94	2.55	1830.00	-4.99	-8.66	13.60	2080.00	-5.45	-9.52	11.18
830.00	-13.16	-16.48	2.25	1840.00	-4.70	-8.65	13.65	2090.00	-5.58	-9.56	11.06
840.00	-13.65	-17.01	1.99	1850.00	-4.61	-8.58	13.85	2100.00	-5.24	-9.52	11.17
850.00	-13.99	-17.49	1.78	1860.00	-4.46	-8.48	14.20	2110.00	-5.15	-9.55	11.09
860.00	-14.46	-17.87	1.63	1870.00	-4.50	-8.49	14.15	2120.00	-5.02	-9.61	10.95
870.00	-15.06	-18.23	1.50	1880.00	-4.57	-8.50	14.11	2130.00	-4.91	-9.57	11.05
880.00	-15.71	-18.70	1.35	1890.00	-4.57	-8.52	14.08	2140.00	-4.76	-9.39	11.50
890.00	-16.20	-19.12	1.23	1900.00	-5.16	-8.41	14.43	2150.00	-4.62	-9.14	12.20
900.00	-16.84	-19.57	1.10	1910.00	-5.06	-8.36	14.58	2160.00	-4.79	-9.05	12.45
910.00	-17.46	-20.14	0.97	1920.00	-5.08	-8.35	14.61	2170.00	-5.02	-9.08	12.37
920.00	-17.91	-20.71	0.85	1930.00	-5.21	-8.39	14.48	2180.00	-5.38	-9.24	11.93
930.00	-18.26	-21.26	0.75	1940.00	-5.26	-8.47	14.22	2190.00	-5.84	-9.49	11.25
940.00	-18.38	-21.80	0.66	1950.00	-5.47	-8.57	13.90	2200.00	-6.16	-9.69	10.74

Direction Map-4G

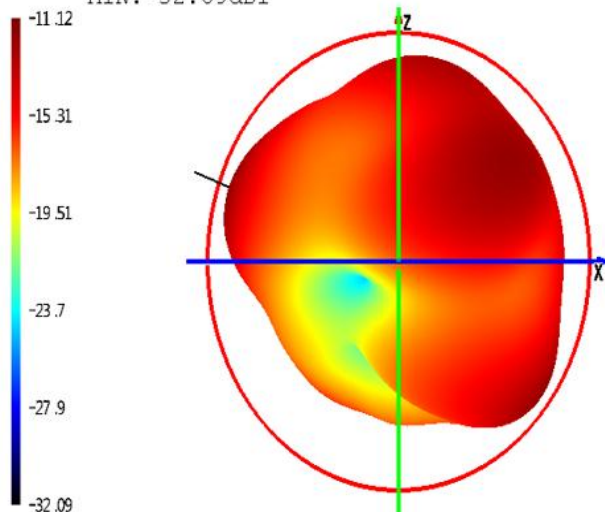


750MHz

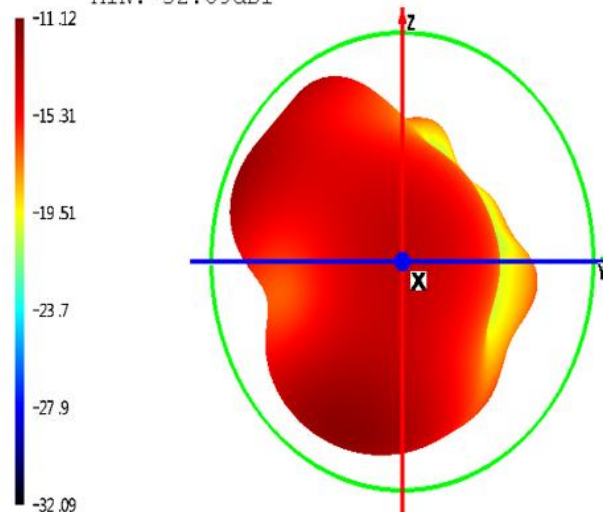
MAX:-11.12dBi
MIN:-32.09dBi



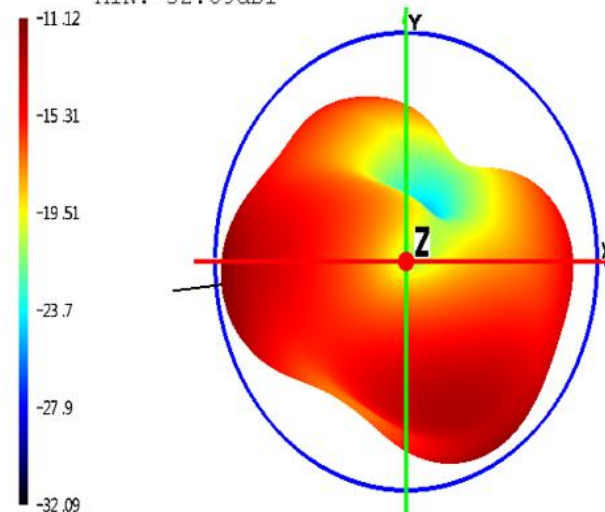
MAX:-11.12dBi
MIN:-32.09dBi



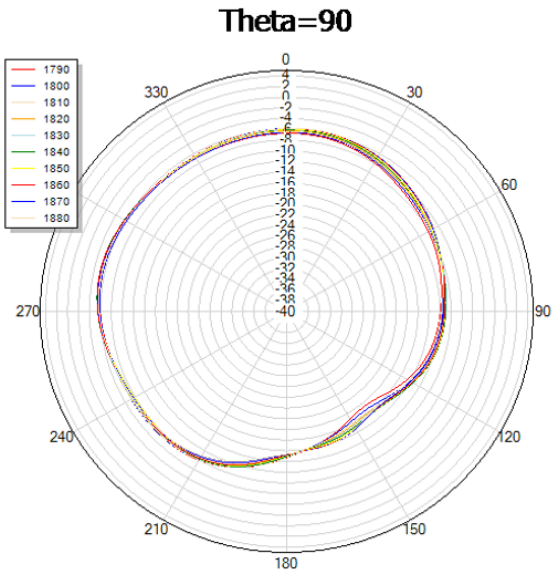
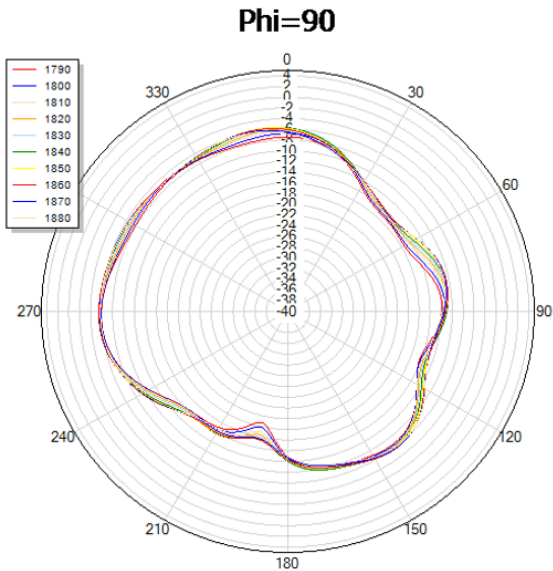
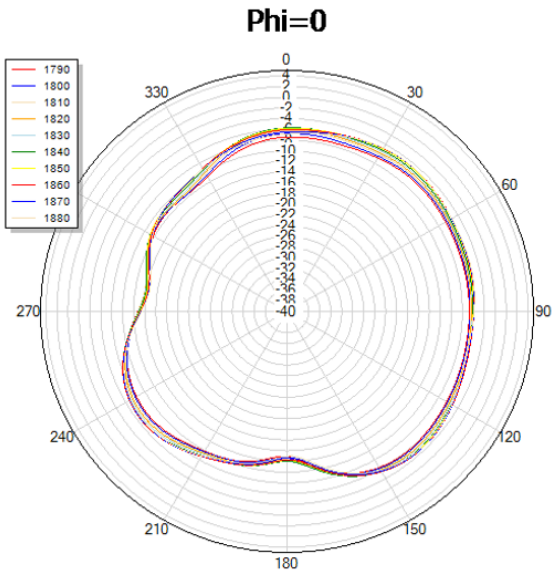
MAX:-11.12dBi
MIN:-32.09dBi



MAX:-11.12dBi
MIN:-32.09dBi



Direction Map-4G

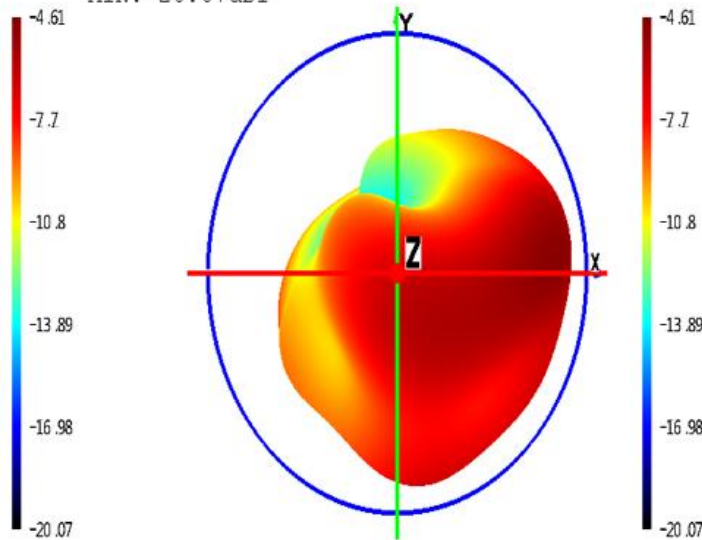
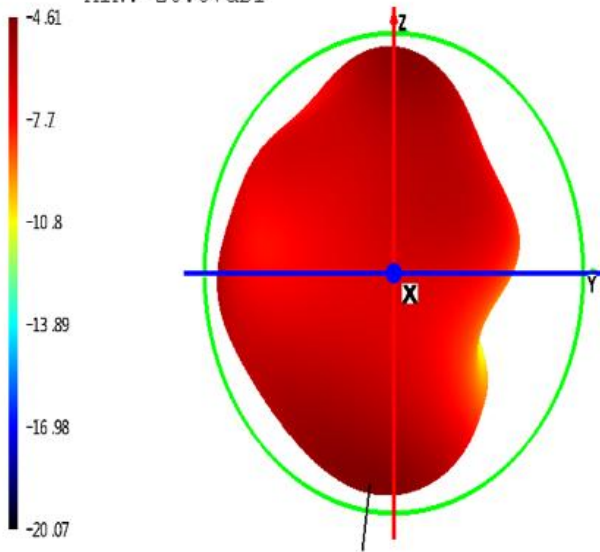
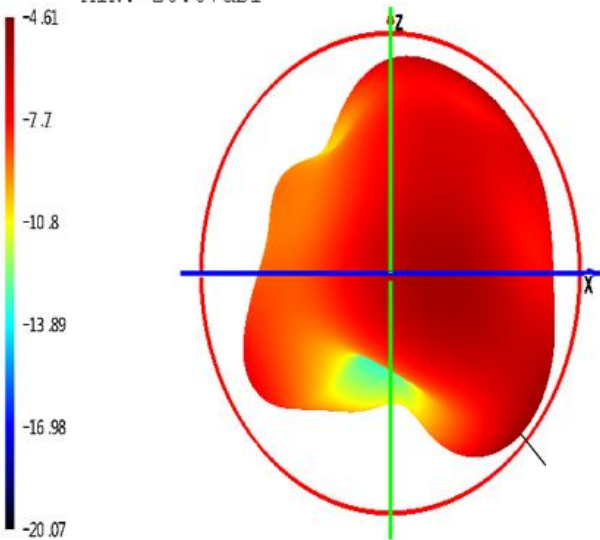
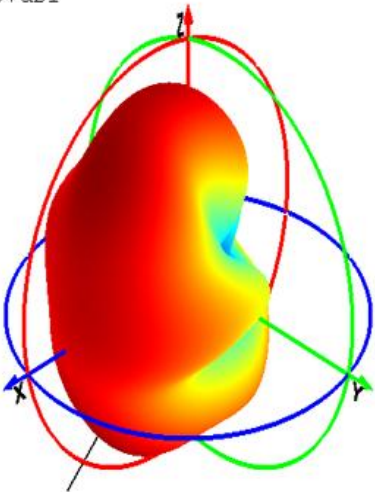


1850MHz
MAX:-4.61dBi
MIN:-20.07dBi

MAX:-4.61dBi
MIN:-20.07dBi

MAX:-4.61dBi
MIN:-20.07dBi

MAX:-4.61dBi
MIN:-20.07dBi



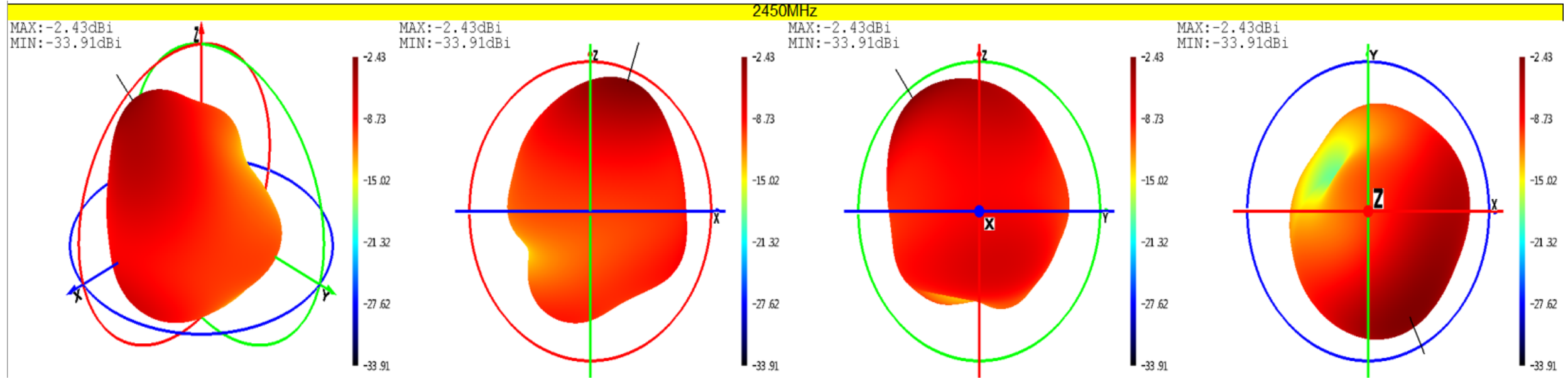
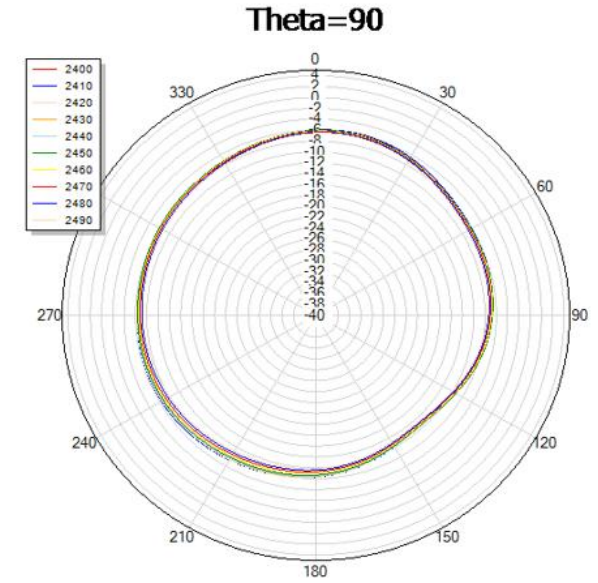
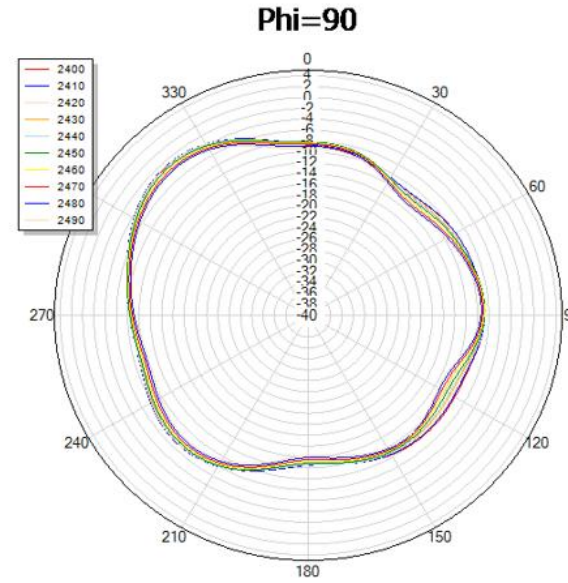
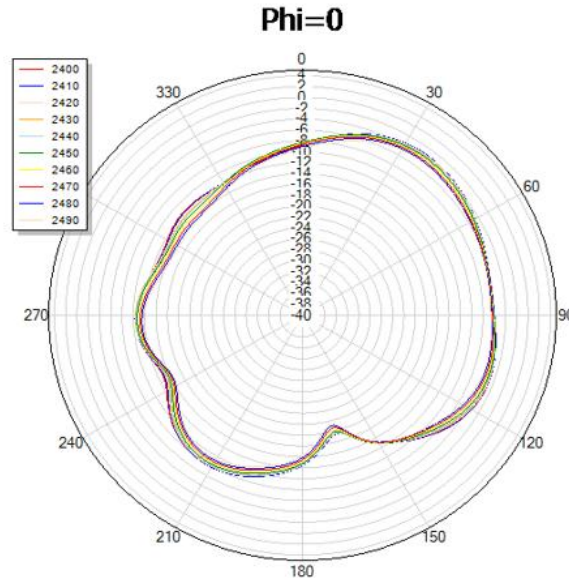
Passive Testing-WIFI/BT



Frequency 频率(MHz)	Gain 增益(dBi)	Efficiency 效率(dB)	Efficiency 效率(%)
2400.00	-2.10	-7.17	19.17
2410.00	-2.05	-7.19	19.10
2420.00	-2.05	-7.31	18.59
2430.00	-2.20	-7.40	18.19
2440.00	-2.24	-7.40	18.18
2450.00	-2.43	-7.54	17.63
2460.00	-2.69	-7.72	16.89
2470.00	-2.93	-7.96	16.00
2480.00	-3.18	-8.22	15.06
2490.00	-3.32	-8.42	14.39
2500.00	-3.44	-8.55	13.96

directional diagram -WIFI

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Passive Testing-GPS

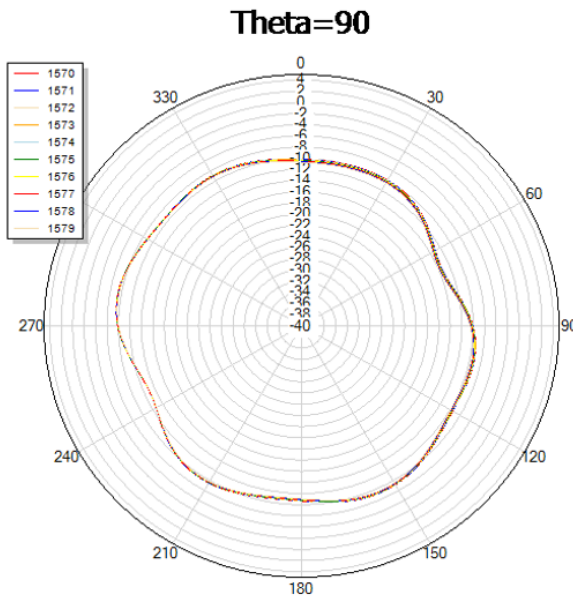
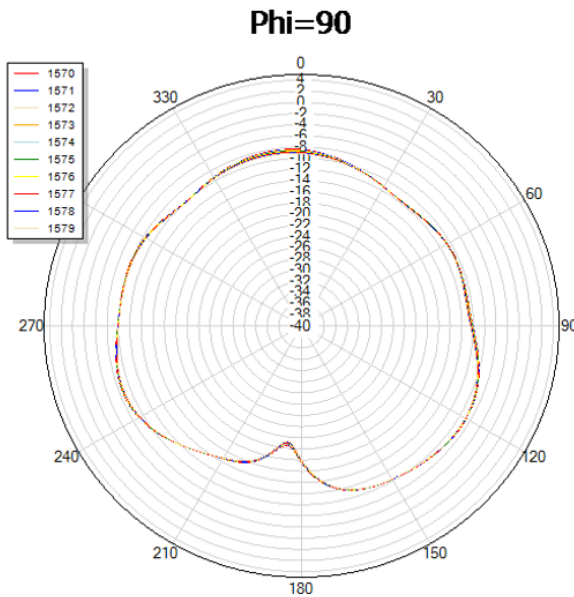
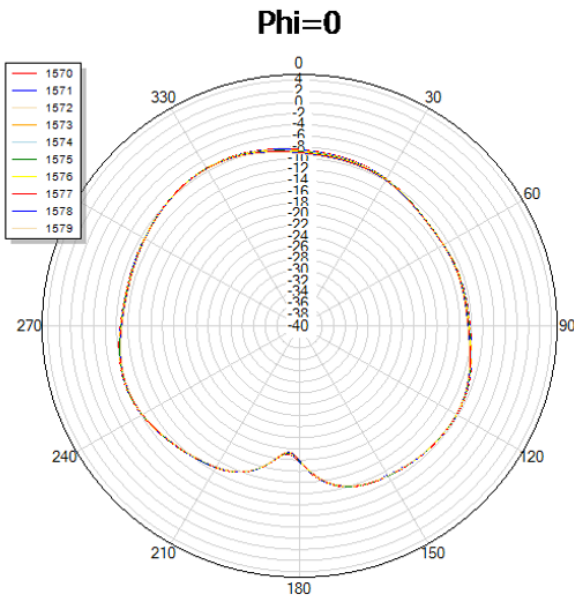


Frequency 频率(MHz)	Gain 增益(dBi)	Efficiency 效率(dB)	Efficiency 效率(%)
1561.00	-5.11	-8.35	14.63
1570.00	-5.27	-8.50	14.12
1571.00	-5.31	-8.52	14.06
1572.00	-5.33	-8.52	14.06
1573.00	-5.34	-8.53	14.03
1574.00	-5.35	-8.55	13.97
1575.00	-5.36	-8.57	13.91
1576.00	-5.38	-8.60	13.80
1577.00	-5.41	-8.63	13.72
1578.00	-5.46	-8.68	13.55
1579.00	-5.48	-8.70	13.49
1580.00	-5.50	-8.73	13.40
1600.00	-5.84	-9.19	12.06
1601.00	-5.86	-9.23	11.95
1602.00	-5.86	-9.25	11.88

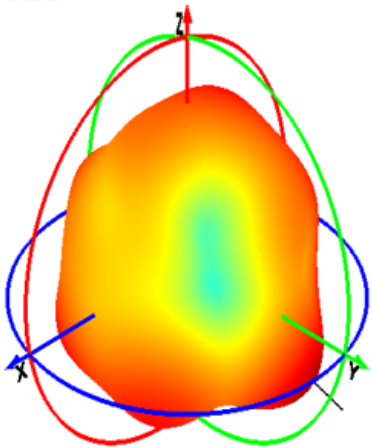
directional diagram -
GPS



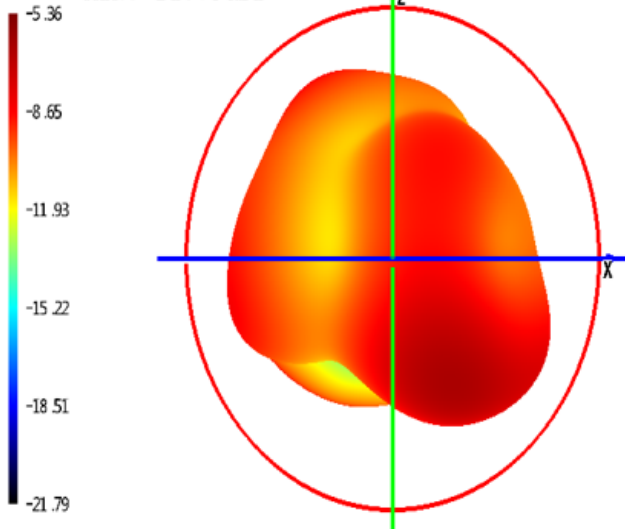
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MAX:-5.36dBi
MIN:-21.79dBi

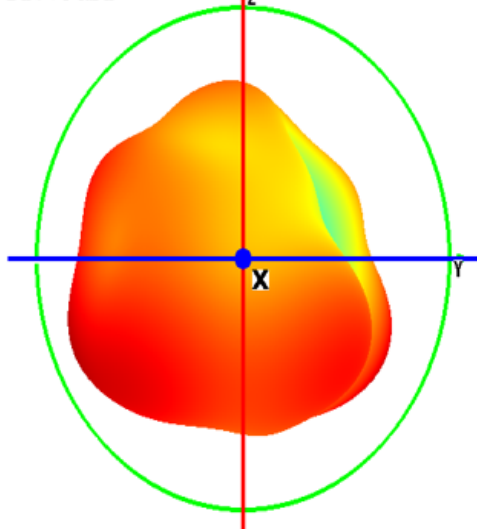


MAX:-5.36dBi
MIN:-21.79dBi

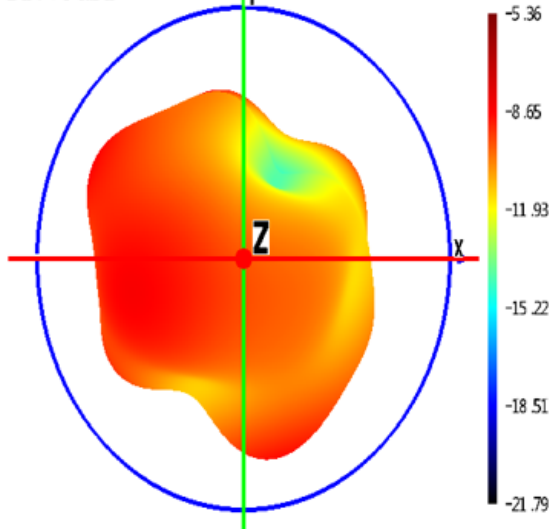


1575MHz

MAX:-5.36dBi
MIN:-21.79dBi



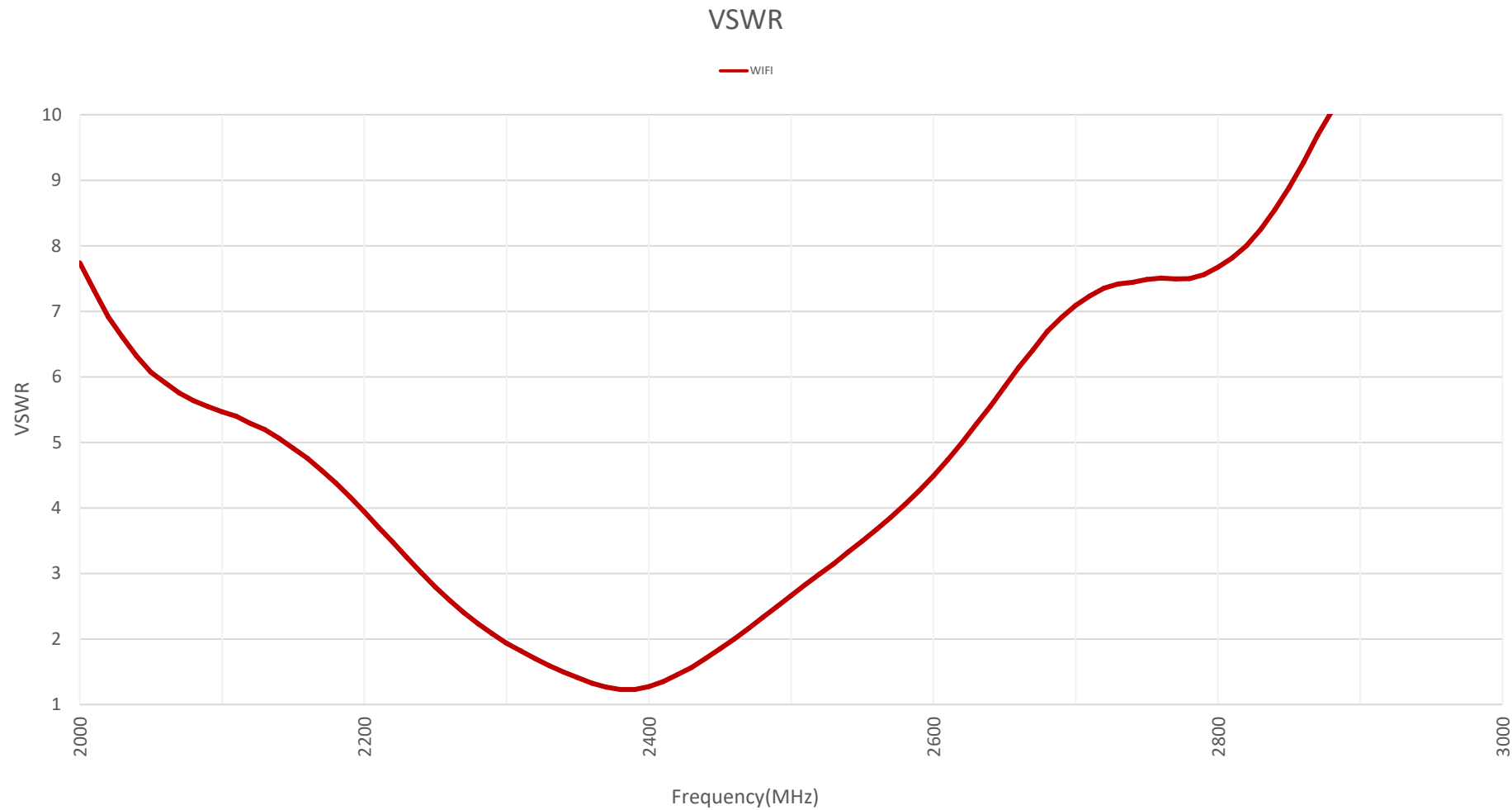
MAX:-5.36dBi
MIN:-21.79dBi



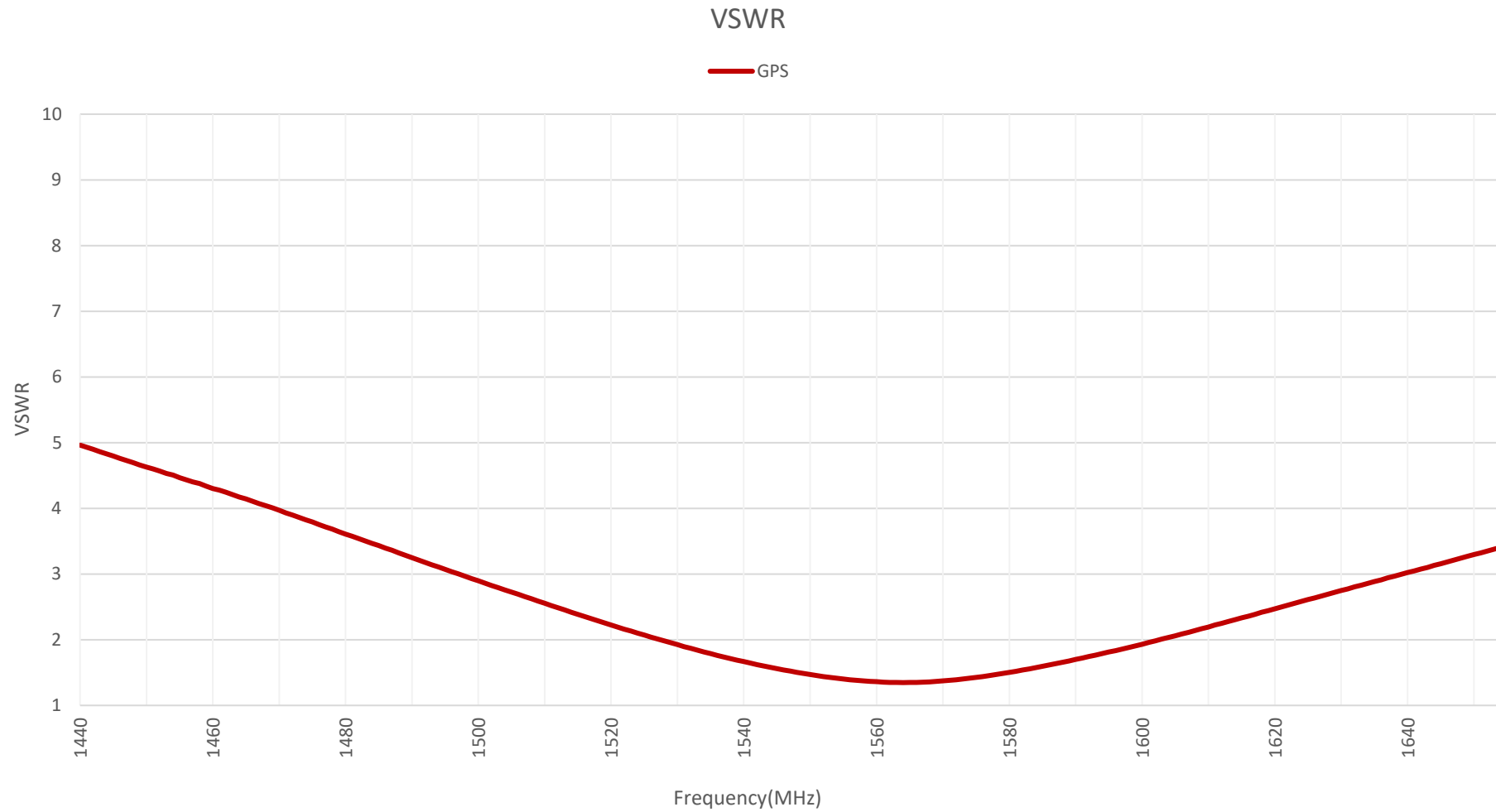
Passive Testing-4G Voltage Standing Wave Ratio



Passive Testing-Voltage Standing Wave Ratio for WIFI/BT



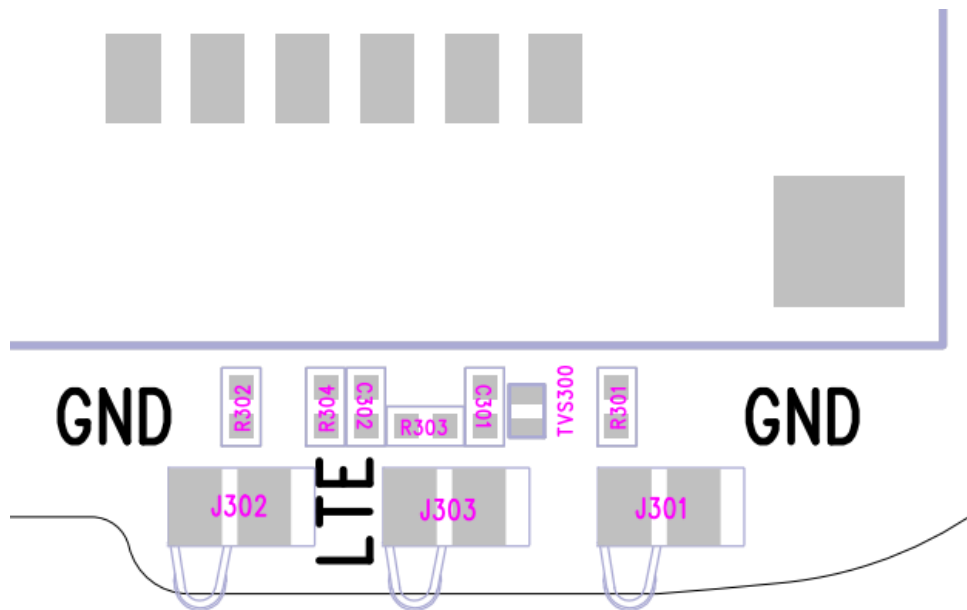
Passive Testing-GPS Voltage Standing Wave Ratio



Antenna matching (4G)



- Matching circuit schematic diagram



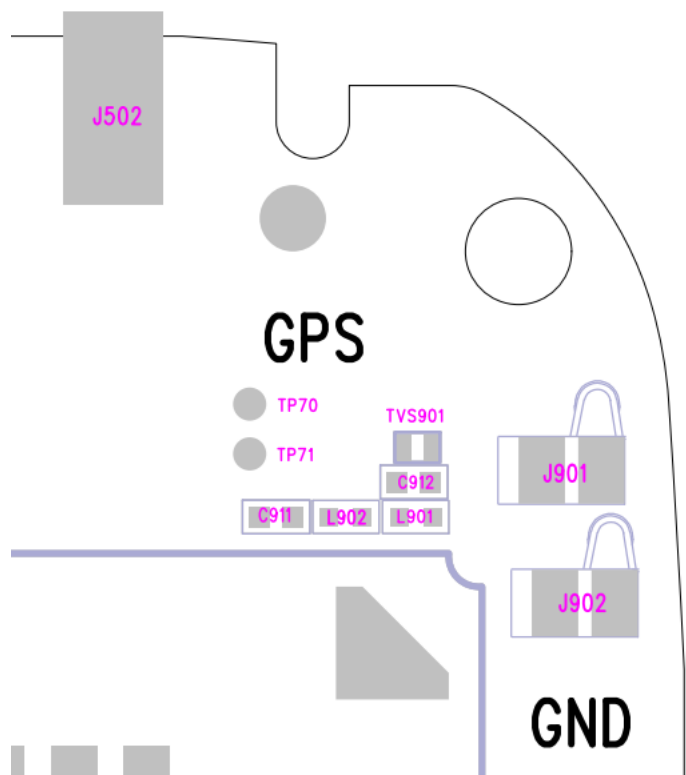
- Match value:

No.	L/C
R302	NC
R304	0Ω
C302	NC
R303	5.6PF
C301	NC
R301	2.2NH

Antenna matching (GPS)



- Matching circuit schematic diagram



- Match value:

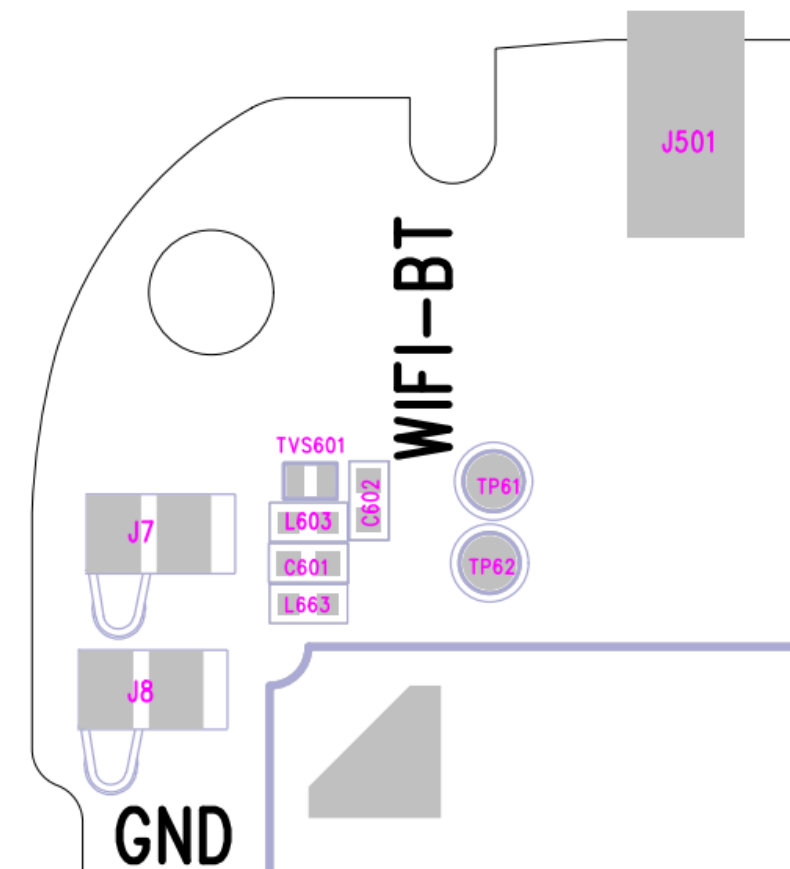
No.	L/C
C911	NC
L902	NC
L901	0Ω
C912	NC

Antenna matching (WIFI/BT)



- Matching circuit schematic diagram

- Match value:



No.	L/C
L663	0Ω
C601	2PF
L603	NC
C602	NC



Project Overview

Antenna Performance Evaluation and Debugging

Conclusion and Suggestion

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➤ antenna performance :

1. The T2 gradient-like 4 G OTA meets certification requirements
2. The DVT prototype GPS/WIFI/BT system meets customer requirements in terms of efficiency.
3. The antenna matching follows the previous version, refer to the report for details.
4. If certification is required, it is recommended that the prototype performance be verified by our company before submission to the organization (it is recommended to only increase the transmission power by 1 dBm for certification prototypes to ensure performance margin).

➤ Next Steps

- Submit report to client



Connect All Things, Aspire High and Act Far

- Offer a more comprehensive and complete range of IoT module products to meet diverse scenarios and regional requirements in a one-stop solution.
- We offer a diverse range of antenna products with full customization capabilities for antenna design, integration, and manufacturing.
- Provide end-to-end IoT solutions covering the entire process from hardware connectivity to software applications.
- Fully automated production lines and testing lines ensure consistent product quality while offering exceptional cost-performance ratio.
- Established an industry-leading R&D team to provide customers with timely, professional, and attentive technical support services.
- Continuously develop new technologies and products, taking the lead in launching offerings such as 5G, smart modules, LPWA, and C-V2X.
- An innovative international professional team consistently upholds the principle of 'customer first'.

Thank You

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