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佳邦科技股份有限公司

INPAQ TECHNOLOGY CO., LTD.

PSA

PASSIVE SYSTEM ALLIANCE

INPAQ TECHNOLOGY CO., LTD.

LITT EVT Report

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Outline

- Antenna Design History
- Requirements Antenna Design Measurement
- Antenna Placement & Solution
- S Parameter
- Efficiency & Peak Gain
- 2D Radiation Pattern
- 3D Radiation Pattern
- Conclusions

Requirements Antenna Design Measurement

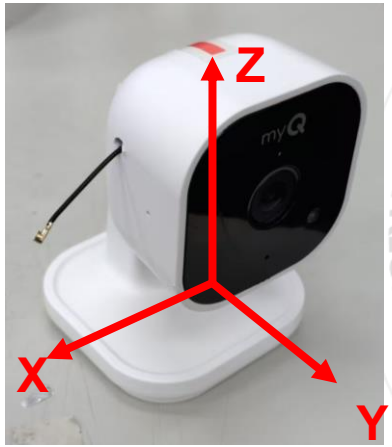
Requirements of Antenna Design

RF Function	Number of ANT	Frequency Band	Remark
Wi-Fi 2.4G	1	2400~2500 MHz	

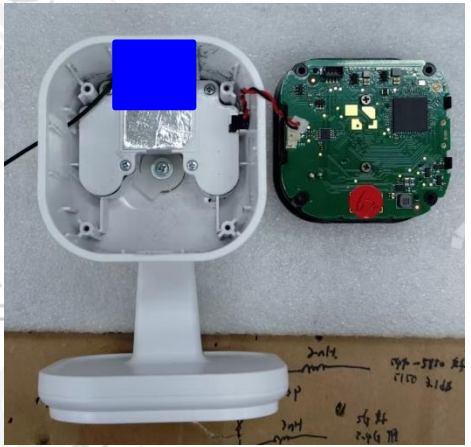
Requirements of Measurement

Test Item	Specification	Remark
Return Loss	<-10dB	
VSWR	VSWR < 2	
Average Gain	>-4.3 dBi	
Efficiency	40~50%	
Pattern	Omi directional	

Antenna Placement & Solution



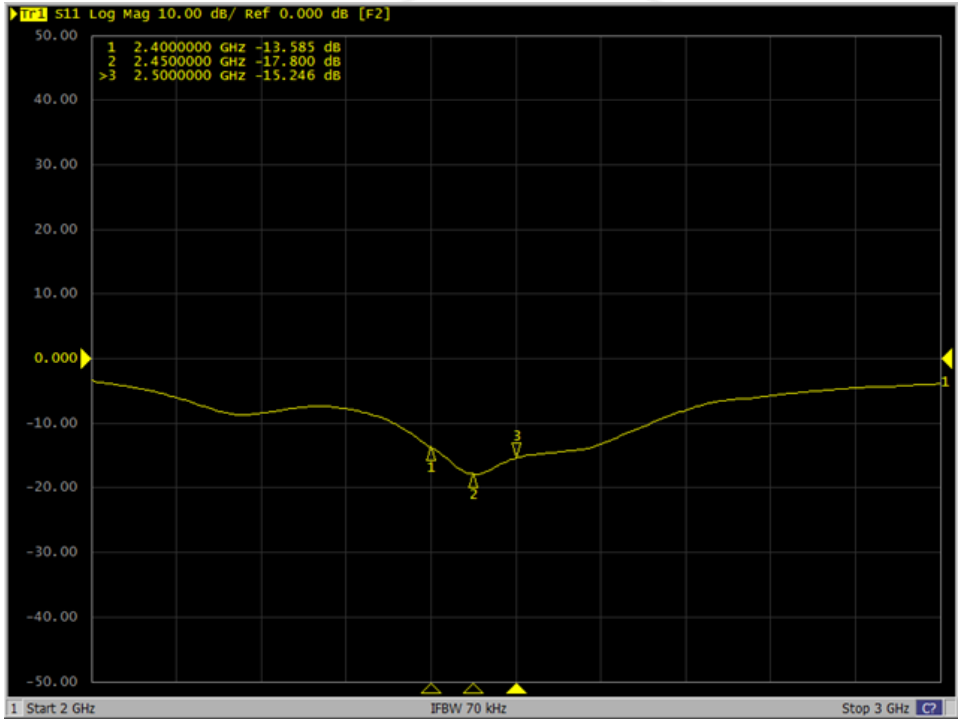
Wi-Fi 2.4G



Antenna	ANT Type	Size (L * W * H)
Wi-Fi 2.4G	PCB + Cable + Al foil	40*20*0.4mm(POC) 35.5*20*0.4mm(EVT)

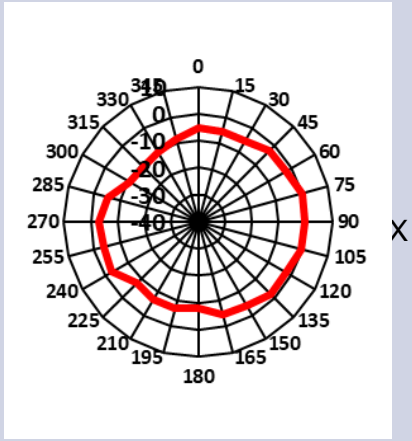
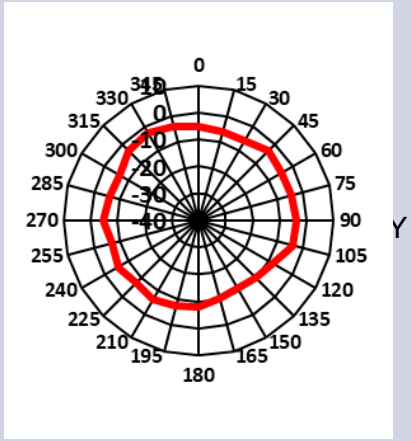
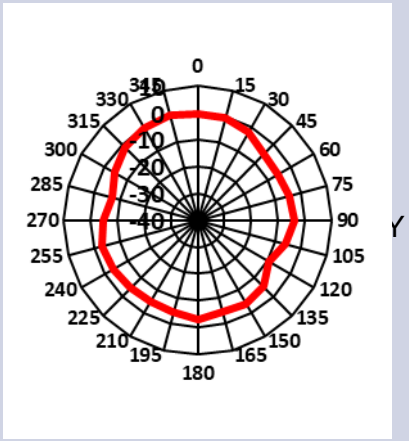
S Parameter

WiFi 2.4G

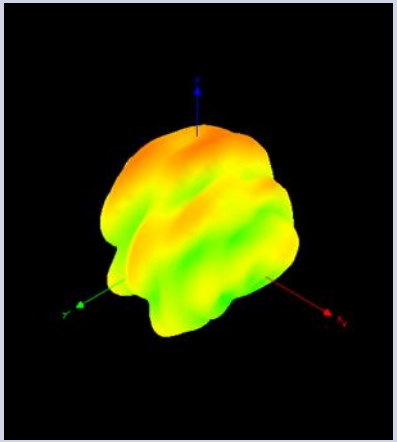
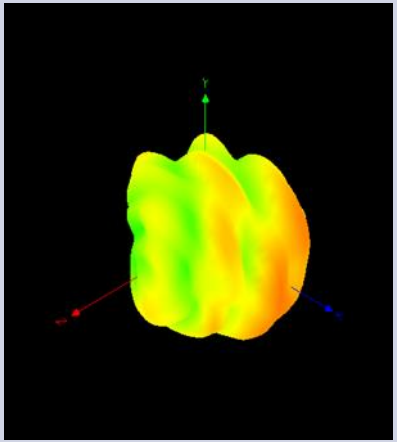
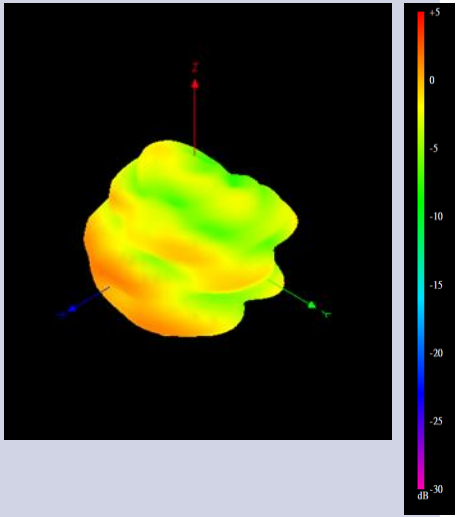


2D Radiation Pattern Wi-Fi 2.4G

Wi-Fi 2.4G

2450MHz	X-Z plane	Y-Z plane	X-Y plane
			

3D Radiation Pattern–Wi-Fi 2.4G

2450MHz	X-Z plane	Y-Z plane	X-Y plane
			

Efficiency & Peak Gain-Wi-Fi 2.4G

Frequency (MHz)	Black Line		
	Efficiency(%)	Average Gain(>-4.3dBi)	Peak Gain(dBi)
2400	40.01	-3.95	0.16
2410	40.18	-3.99	0.18
2420	43.27	-3.64	0.58
2430	43.68	-3.60	0.85
2440	45.09	-3.47	1.19
2450	44.61	-3.52	1.06
2460	45.80	-3.4	1.20
2470	45.21	-3.44	1.03
2480	45.89	-3.39	1.06
2490	44.79	-3.50	1.01
2500	45.03	-3.46	1.28

Conclusions

1. The efficiency is about 40% to 45%.
2. In order to pass TIS requirement, modify antenna pattern to trade off antenna performance.

Design Change for PVT