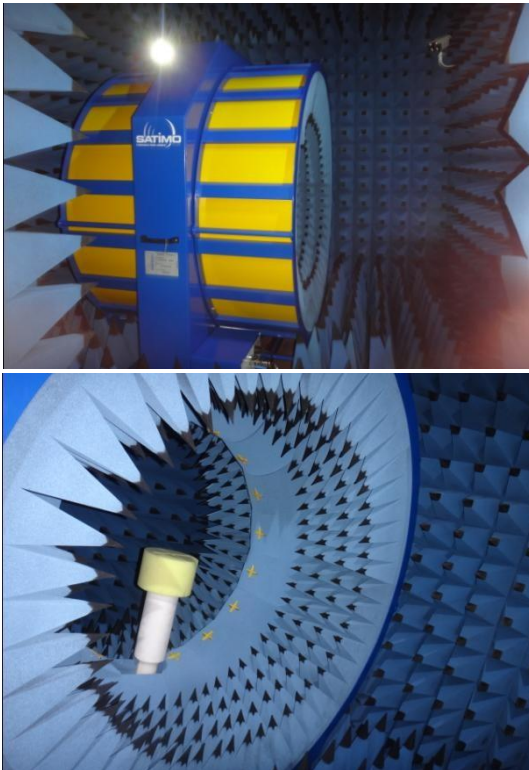


Test Report

BLE Module Name	PTR9813
Test frequency band	2. 4G (BLE)
Antenna type	Onboard antenna
Date	2024/10/29
Address	2nd Floor West, Building C10, Xin 'an Second Industrial Zone, Guxing Community, Xixiang Street, Baoan District, Shenzhen



StarLab 3D laboratory, originally imported from France SATIMO Company, can accurately and quickly test the TRP, TIS, efficiency, gain, apple chart, direction chart and other parameter data of communication terminal products such as mobile phones, tablets and notebooks.

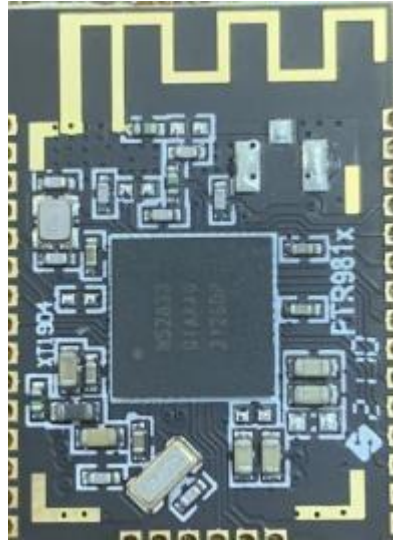
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1. Report version summary
2. Antenna diagram
3. Standing wave ratio, return loss, Smith chart
4. Antenna matching circuit
5. Gain, efficiency, radiation pattern

一: Report version summary

versions	date	Content overview
V1.0	2024/10/29	initial version

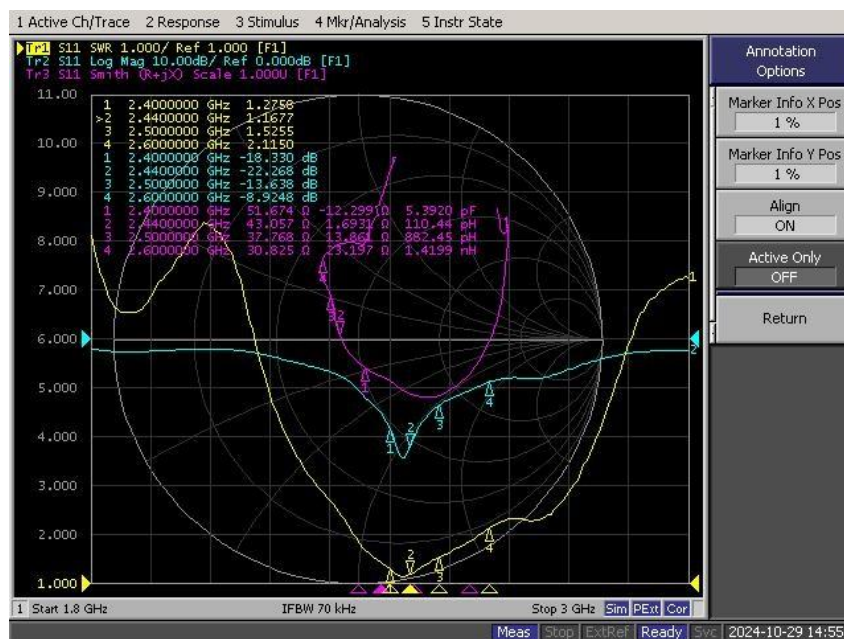
二: Antenna diagram



PCB Antenna Size



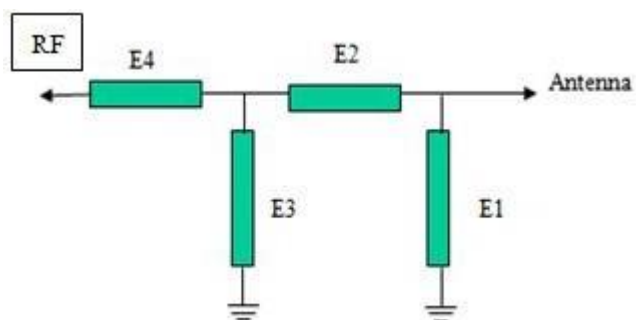
三: Antenna standing wave ratio, return loss



四: Antenna matching circuit

Element	E1	E2	E3	
Value	NC	0R	NC	

Our company has not made any modifications to the matching circuit!



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五: Gain, efficiency, radiation pattern.

5.1 GAIN

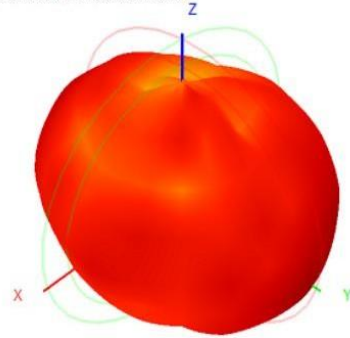
Frequency	Gain(dBi)	Efficiency (%)
2400MHz	0.08	32.49
2410MHz	0.45	34.30
2420MHz	0.45	34.45
2430MHz	0.55	35.33
2440MHz	0.47	35.76
2450MHz	0.33	35.45
2460MHz	0.32	34.38
2470MHz	0.45	34.25
2480MHz	0.45	34.42
2490MHz	0.55	35.66
2500MHz	0.47	34.23

5.2 Return Loss/VSWR/Input Impedance

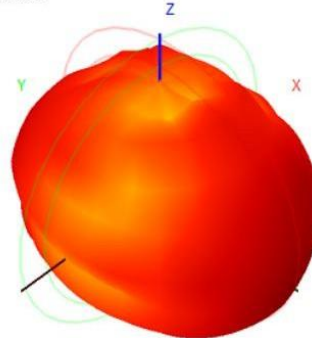
Frequency	Return Loss (dB)	VSWR	Input Impedance(Ω)
2400MHz	-18.330	1.2768	51.674
2440MHz	-22.268	1.1677	43.057
2500MHz	-13.638	1.5255	37.768

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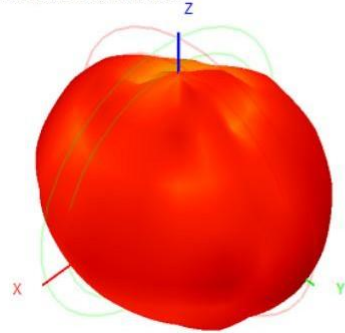
2400.0MHz H+V, Eff. 32.49 %



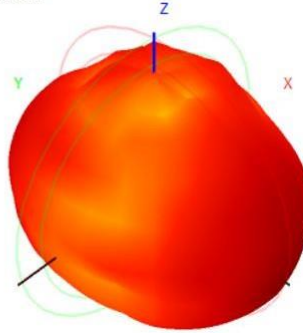
Back View



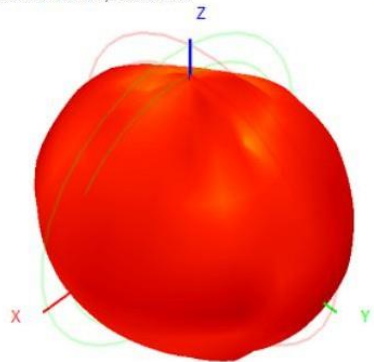
2450.0MHz H+V, Eff. 35.45%



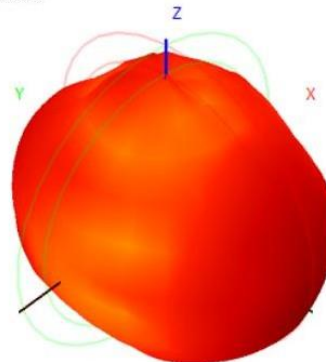
Back View



2500.0MHz H+V, Eff. 34.23%



Back View



5.4 2D Radiation Pattern

