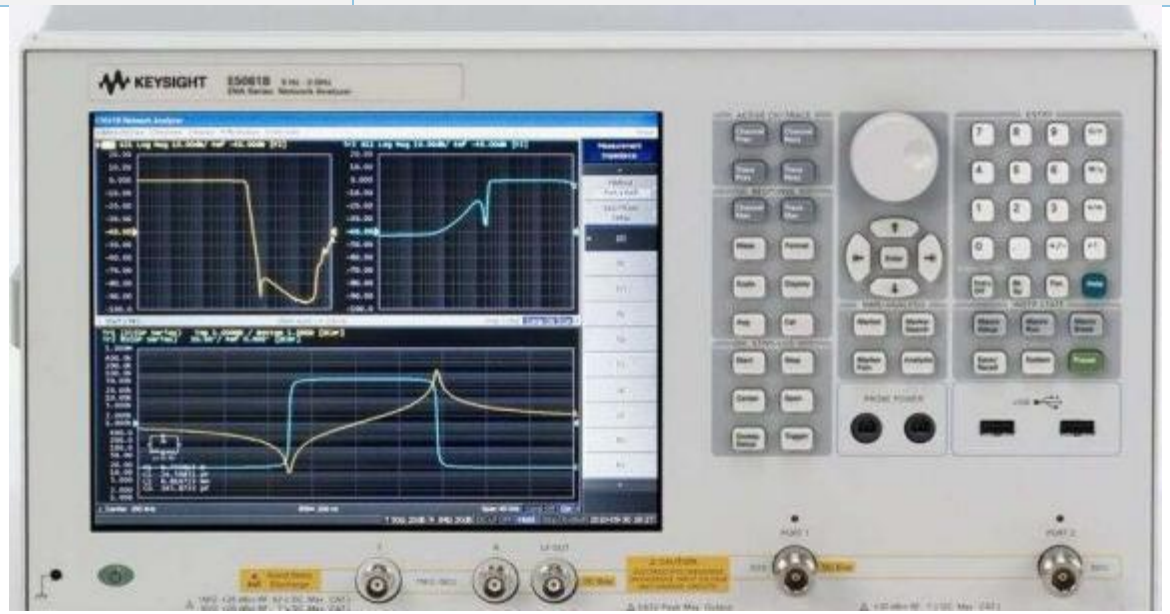
杰迅通

WiFi antenna test report

* This report is a confidential archive of Shenzhen Jie Xuntong Wireless Technology Co., LTD. and relevant customers. Please keep it properly and do not disclose it without permission.

Test items and equipment systems

Test item	Test parameter	Testing facility
1、 S parameter	VSWR; Smith;	Network analyzer: Agilent 5071B
2、 Passive testing	Productiveness	Comprehensive tester: Network analyzer: Agilent 5071B Microwave anechoic chamber: GTS Chamber



Key terms:

VSWR: VSWR is the abbreviation for Voltage Standing Wave Ratio, referring to the ratio of the amplitude of the reflected wave to that of the incident wave. In an ideal situation where impedance is perfectly matched, the standing wave ratio is 1. In practical engineering, reflections are inevitable, making the standing wave ratio greater than 1. The larger the reflection, the higher the standing wave ratio. Therefore, for this technical parameter, the lower the value of the standing wave ratio, the better it is to be close to 1.

Return Loss: Return Loss RL refers to the ratio of the power reflected back from the RF input signal to the input signal power. It is measured in dB and can be negative. In an ideal scenario, the impedance between the antenna and the RF circuit matches perfectly, with no reflected power at all, resulting return loss is infinitesimally small. However, in practical applications, impedance matching is impossible, so some reflection power always exists. The worst case is when the input power is completely reflected, in which case the return loss is zero. Therefore, for this technical parameter, a lower value indicates better antenna performance.

Effi: Efficiency is the ratio of the power radiated by the antenna (that is, the power effectively converted from part of the electromagnetic wave) to the power input into the antenna. It is a constant value less than 100%.

Gain: Antenna gain refers to the ratio of the power density of the signal produced by the actual antenna and the ideal radiation unit at the same point in space under the condition of equal input power. It quantitatively describes the degree to which an antenna concentrates the input power. Generally expressed in dBi units.

Smith graph: Impedance circle is a trajectory graph that uses the one-to-one correspondence between normalized impedance and reflection coefficient to represent normalized impedance on the complex plane of reflection coefficient.

TRP: Total radiation power (Total Radiated Power) is the integral value of the spherical area integral of the effective radiation power EIRP in three-dimensional space (spherical average value), which reflects the transmission characteristics of the mobile station in all directions.

TIS: Total omnidirectional sensitivity (Total Isotropic Sensitivity) is the integral value (average value over the sphere) obtained by integrating the effective radiation reception sensitivity EIS of the mobile station over the three-dimensional space. It reflects the receiving characteristics of the mobile station in all directions.

1 Schematic diagram of whole machine/dark room test

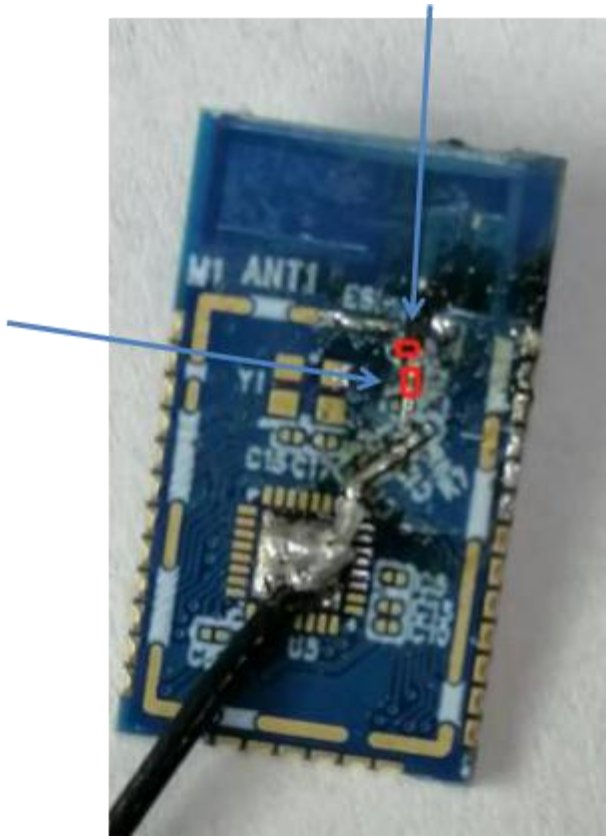
Schematic diagram of the whole machine

Schematic diagram of dark room test

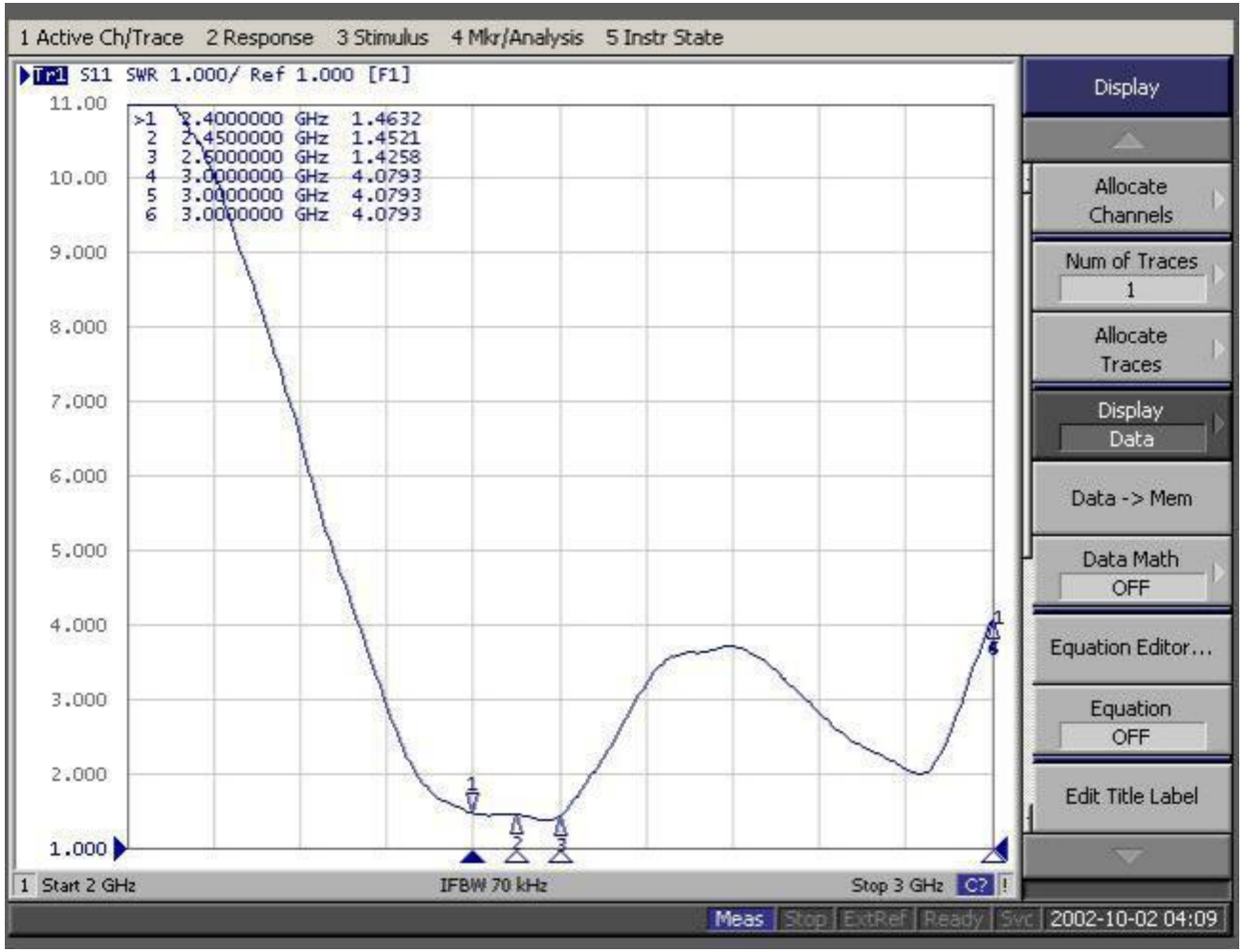
2 Antenna diagram

The main board is connected in parallel with 1PF capacitor

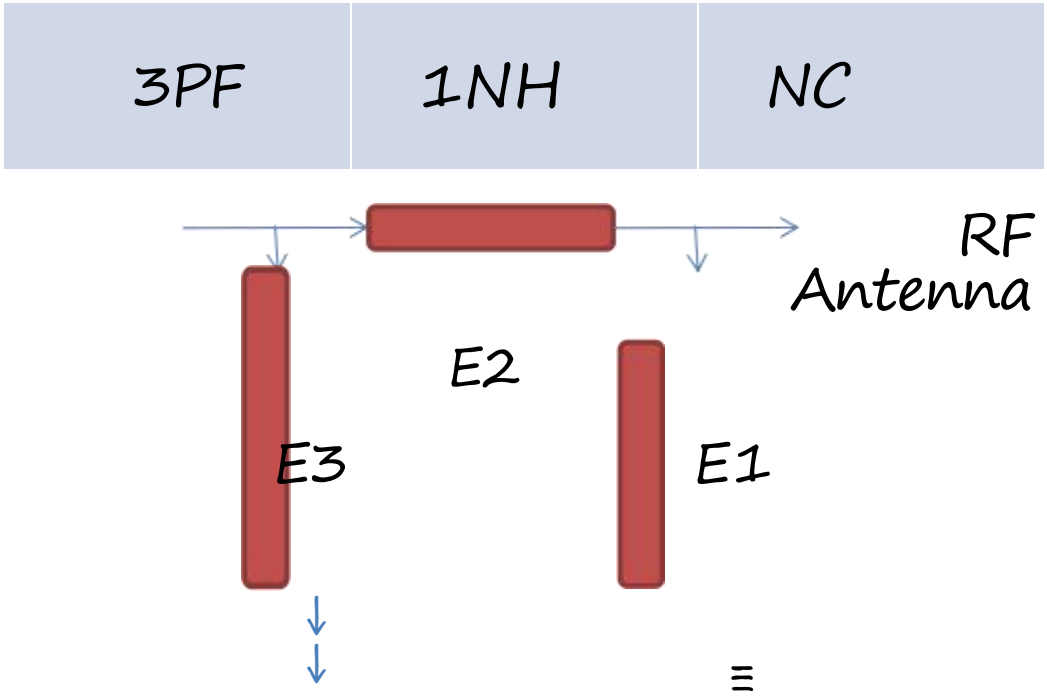
The main board is connected to a 3NH inductor



3 Antenna standing wave diagram



4 Matching instructions

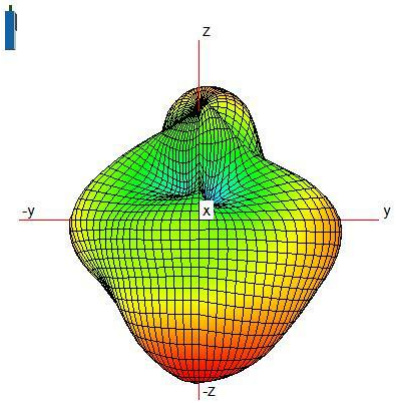


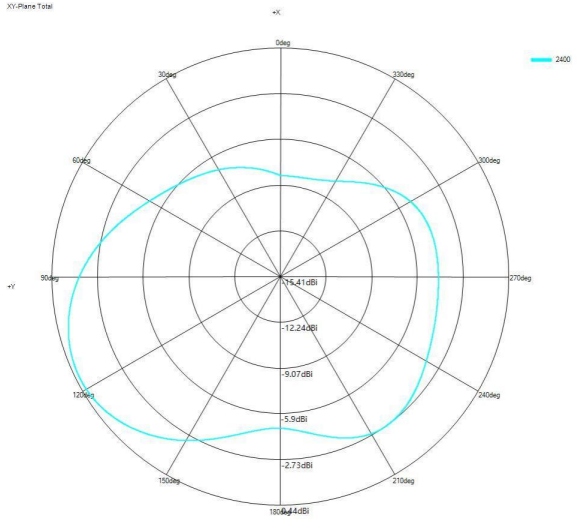
Note: The main board E2 is connected in series with a 3NH inductor and E1 is connected in parallel with a 1PF capacitor

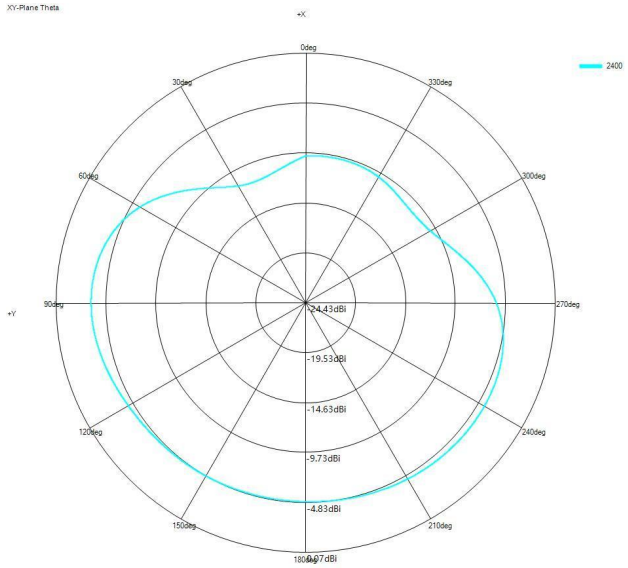
5 2.4 G Passive efficiency gain whole machine test data

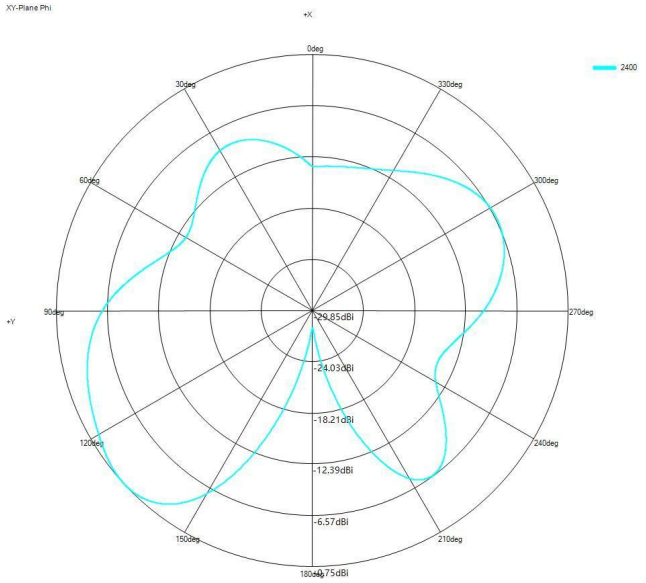
Freq (MHz)	Gain(dBi)	Efficiency (dB)	Efficiency (%)
2400	0.307662387	-3.874739229	40.97567128
2410	0.260288327	-3.970519992	40.08187237
2420	-0.158495319	-4.084248116	39.04587759
2430	-0.338371129	-4.0897665	38.99629526
2440	-0.056188314	-4.139314955	38.55391668
2450	0.159251499	-4.020785248	39.62063897
2460	0.011375509	-3.997975705	39.8292776
2470	-0.135391618	-4.001993536	39.79244699
2480	0.013310725	-4.153682995	38.42657707
2490	0.294409622	-4.132385102	38.61548464
2500	0.193458534	-4.146749356	38.48797523

Passive test 3D&2D diagrams

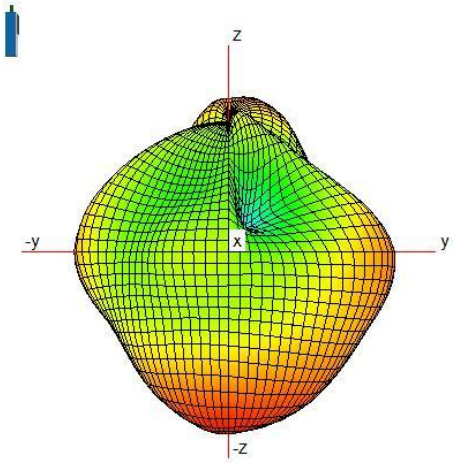


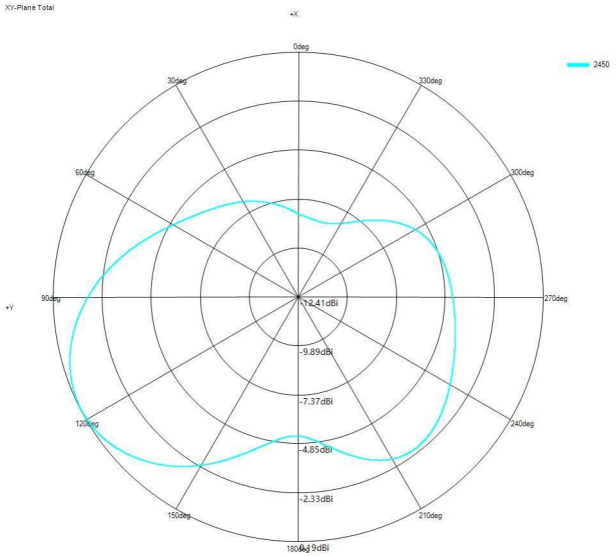


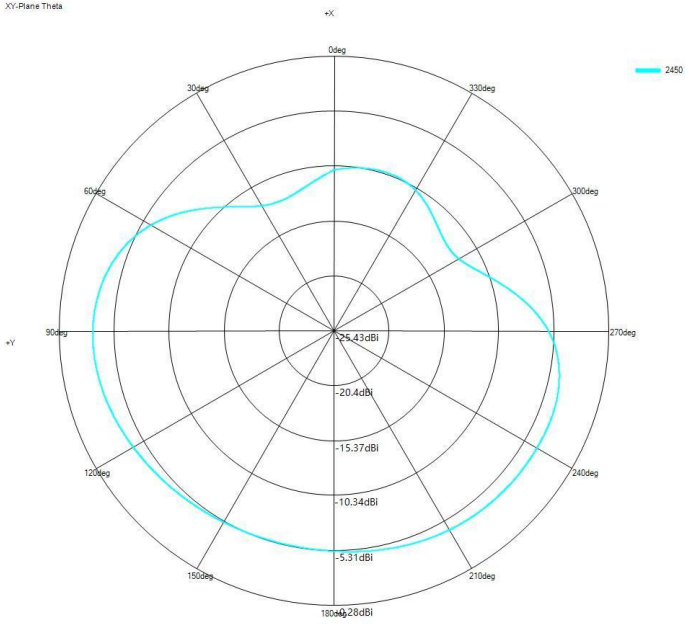


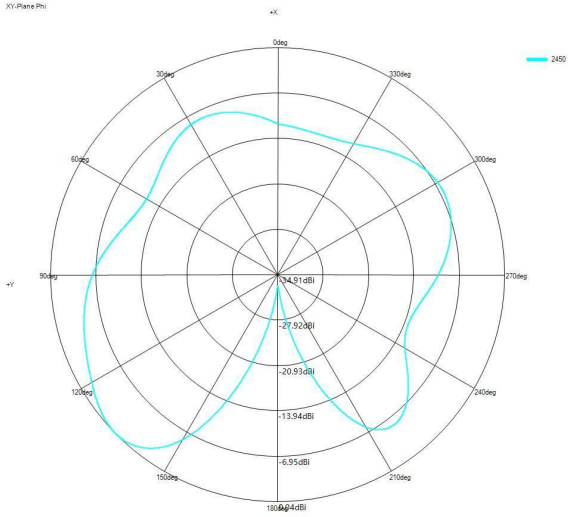


6 Passive test 3D&2D diagrams

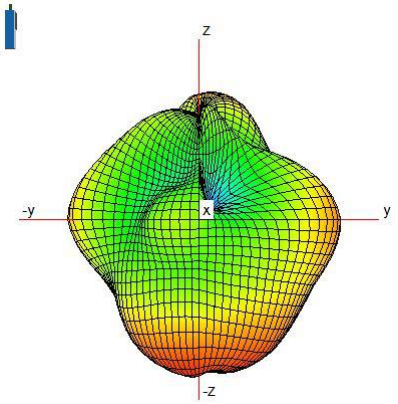


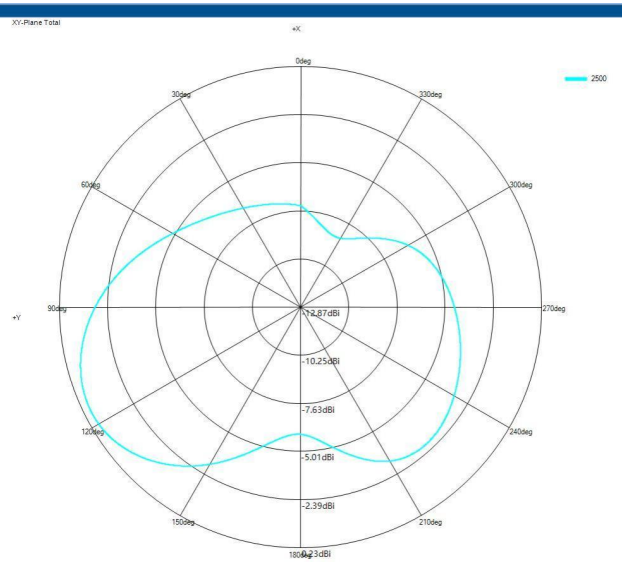


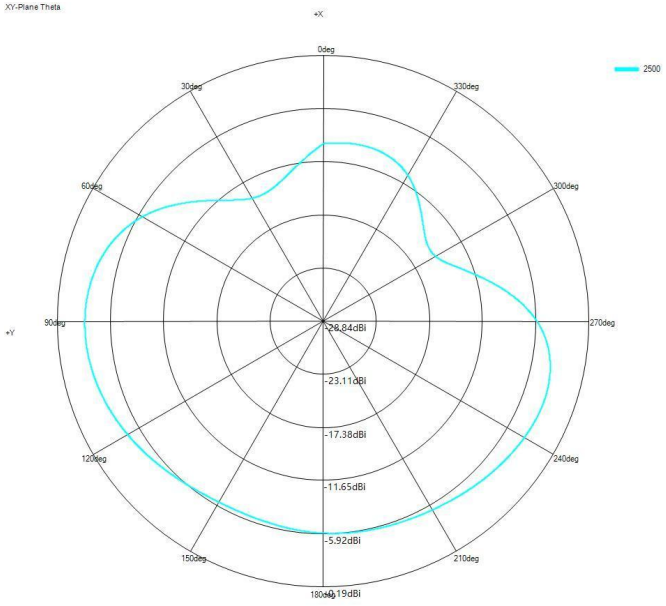


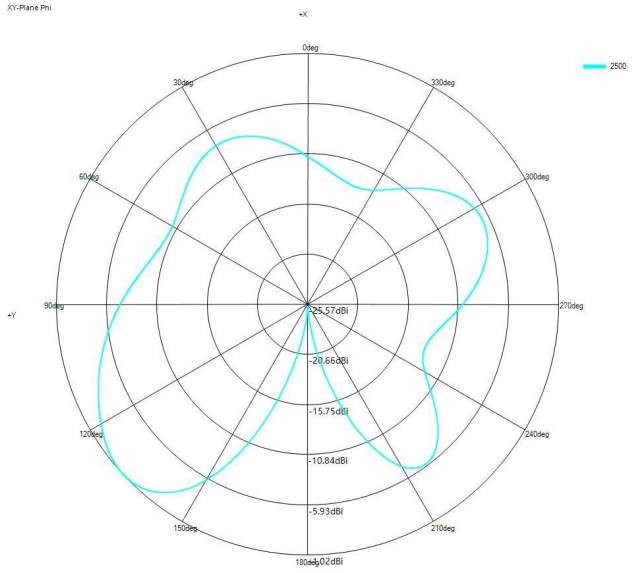


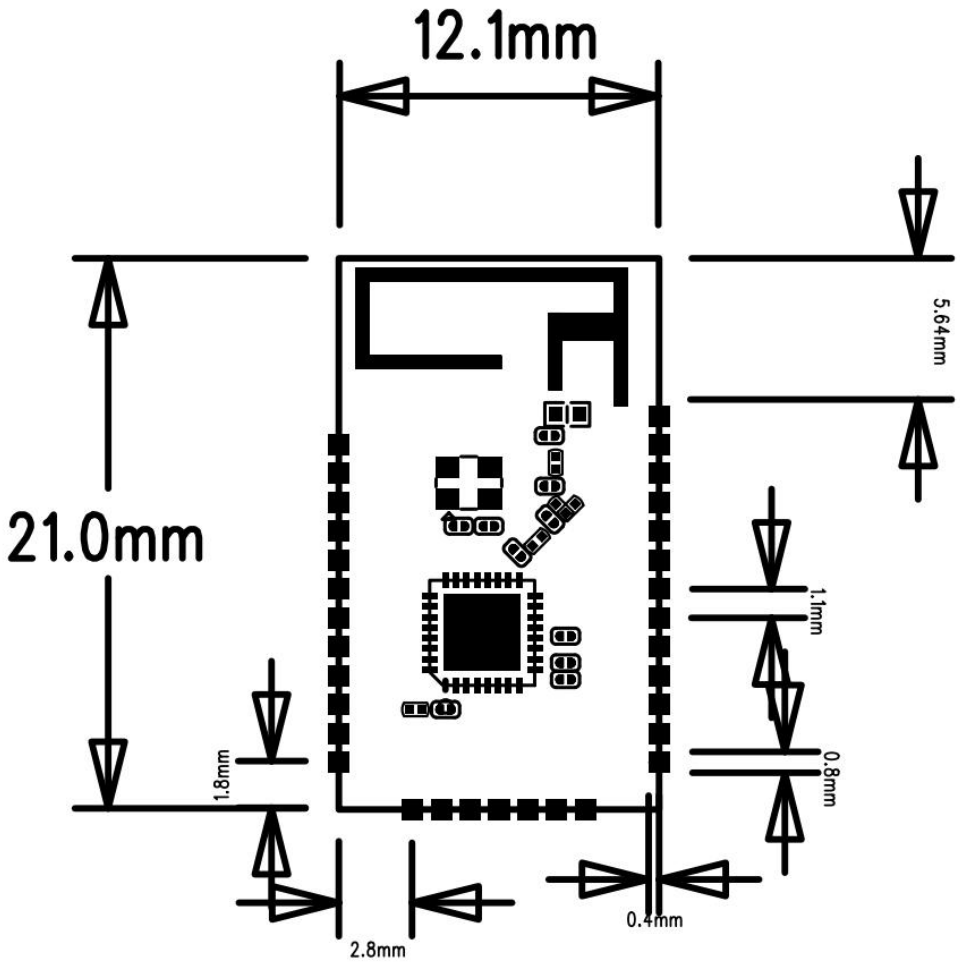
Passive test 3D&2D diagrams

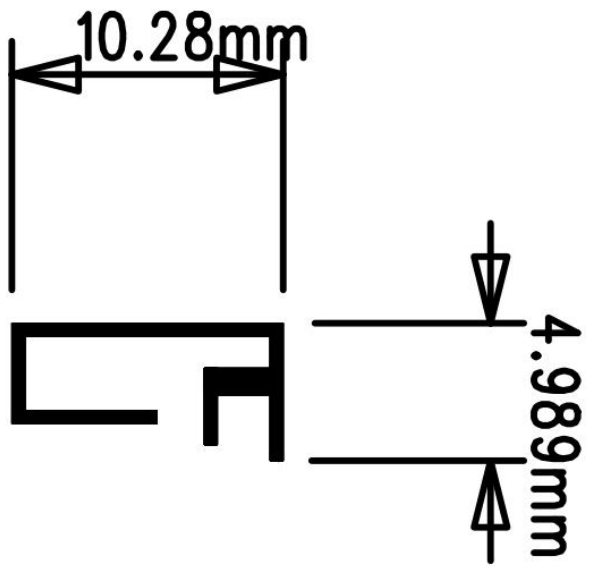












Antenna Mode:AN-IN727
Antenna supplier:ITON Technology Corp,
Address: East, 7th Floor, Building C, Shenzhen International Innovation Center (Futian Technology Plaza), No. 1006, Shennan Avenue, Huafu Street, Futian District, Shenzhen

7 Remarks

1. The above is the BLE passive test data.

2. Please be aware of the above. If you have any questions, please contact us. Thank you!