深圳众城无线技术有限公司
Shenzhen unity wireless technology co., ltd
地址: 深圳市宝安区西乡街道南昌社区前湾硬科技产业园 B 栋 601-603
电话: 0755-23285621 传真: 0755-23285621

Antenna test report

Customer name: Kuhangxin

Product model: KHX-100D

Antenna frequency band: 2.4G

Watchmaking: Zhang Zhengtel: 0755-23285621	**RF Engineer: Zhang Zhineng Tel: 0755-23285621**	**Date: May 9, 2024**

Commissioning resume:

Revision date	fix subscribe to inside allow	reviser	Original version
2024.05.09	Preliminary test	Zhang zhineng	

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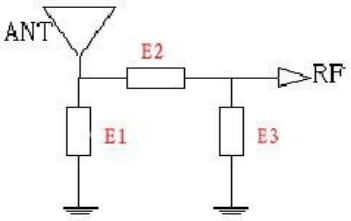
1. Antenna matching (original antenna matching)



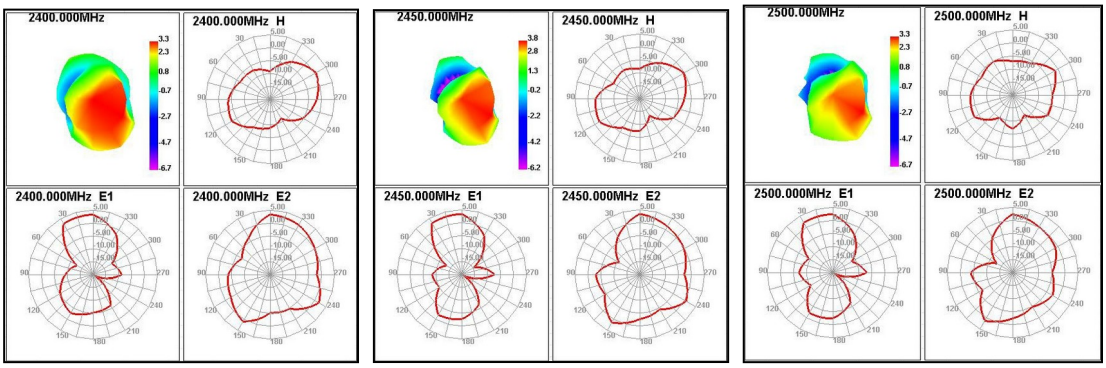
	E1	E2	E3
	N/A	0 ohm	N/A

2. Installation picture of the whole antenna:

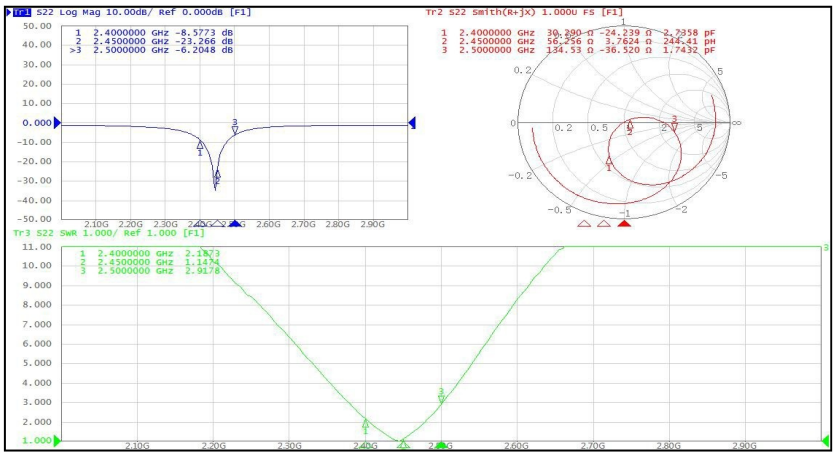
3. Antenna passive test data:

Freq (MHz)	Effi (%)	Gain (dBi)
2400	53.3	3.31
2410	50.93	3.31
2420	49.17	3.28
2430	45.81	3.05
2440	49.18	3.56
2450	50.54	3.76
2460	48.59	3.64
2470	45.35	3.31
2480	45.68	3.46
2490	45.67	3.46
2500	44.47	3.32

4. Apple map of antenna direction:



5. Antenna standing wave diagram:



6. testing equipment

- Measuring instruments: microwave darkroom, network analyzer, standard antenna.
- **Description of microwave darkroom:**

This is a microwave anechoic room set up by our company in Shenzhen. This microwave anechoic room belongs to a far-field measurement system. The size of the anechoic room is 7.0m x 4.0m x 3.0m, and the Quiet zone is 15cm x 15cm x 15cm.

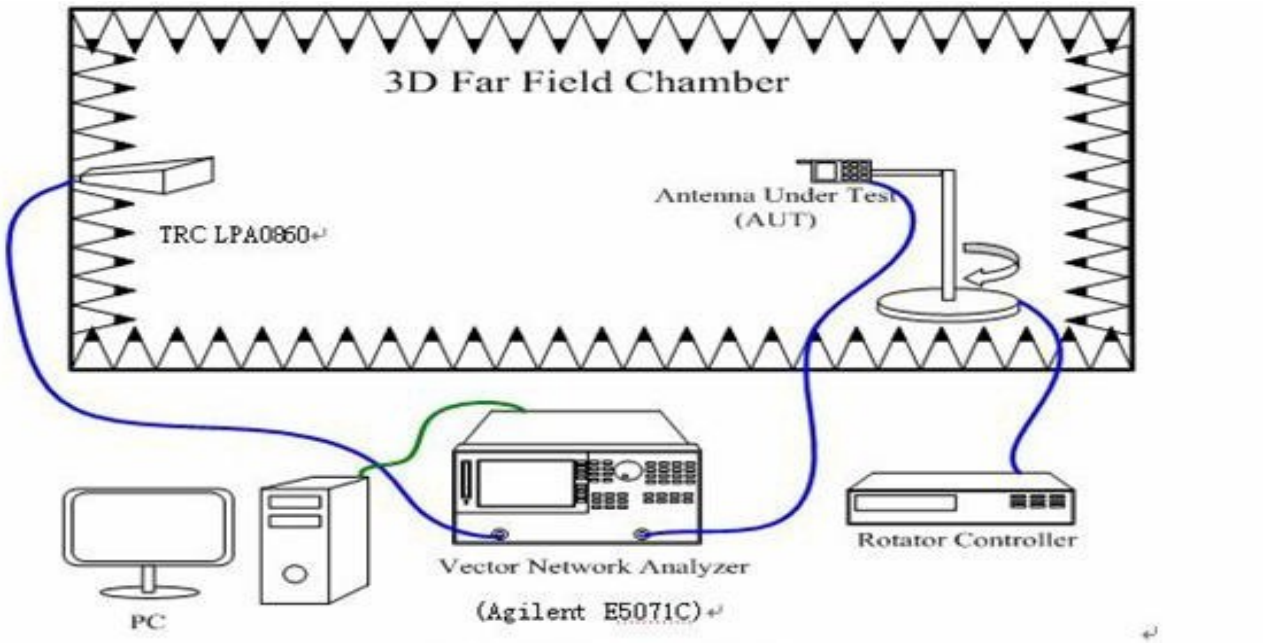


图. 1. 微波暗室内部仪器设置 r.

Fig. 1 is the connection diagram of the instrument setup and network analyzer in the microwave anechoic room. The distance between the transmitting antenna (the model of the transmitting antenna used in this anechoic room is TRC LPA0860 800MHZ-6GHZ) and the antenna to be tested (AUT) is 1.35 meters. The antenna to be tested is placed on the rotating platform, and the antenna to be tested can be roughly and accurately measured by controlling the rotation angle of the turntable.

The antenna to be tested is placed on the turntable, and the 360-degree field strength data of each plane (ZY plane and ZX plane) are measured. Then the day to be measured

The line is replaced by a standard dipole antenna (the model of the standard dipole antenna used in this darkroom is TRC AD series dipole antenna 800 MHz ~ 2500 MHz), and its 360-degree field strength data is measured to convert the gain standard value, and the gain value and pattern of the antenna to be tested can be obtained through the conversion of Formula 1.

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$$G_{AUT} = G_{stand} + P_{AUT} - P_{stand}$$

G_{AUT} : Gain of AUT

G_{stand} : Gain of Standard Gain Antenna

P_{AUT} : Measured Power of AUT

P_{stand} : Measured Power of Standard Gain Antenna