

承 认 书

SPECIFICATION FOR APPROVAL

客户名称：深圳赫兹创新技术有限公司

Customer Name:

Shenzhen Hertz Innovations Technology Co.,Ltd.

客户料号：100999010019

Customer P/N: 100999010019

产品料号：HX-FPC24-289-2000D1

PRODUCT P/N: HX-FPC24-289-2000D1

产品名称：天线

PRODUCT NAME: Antennas

制造商：深圳市红心科技电子有限公司

Manufacturer: Shenzhen Hongxin Technology

Electronics Co., Ltd

生产地址：深圳市宝安区西乡街道固兴社区新安第二工业区

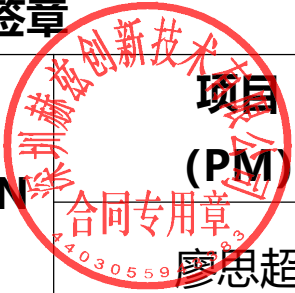
C10栋厂房201

**Production Address: 201, Building C10, Xin'an
Second Industrial Zone, Guxing Community, Xixiang
Street, Bao'an District, Shenzhen City, Guangdong
Province**

出厂签章

 SIGN	品质 (DQE)	结构 (ME)	射频 (RF)
研发部	汤杨阳	黄小宇	庄伟峰

客户签章

 SIGN	项目 (PM)	结构 (ME)	品质 (DQE)
合同专用章	廖思超	查兵	黄晨

版本更改记录

Revise Record

版本号 Version	变更记录 Record of change	拟制 Made	批准 Approve	日期 Date
V1	首次发行	黄小宇	庄伟峰	2025.08.28

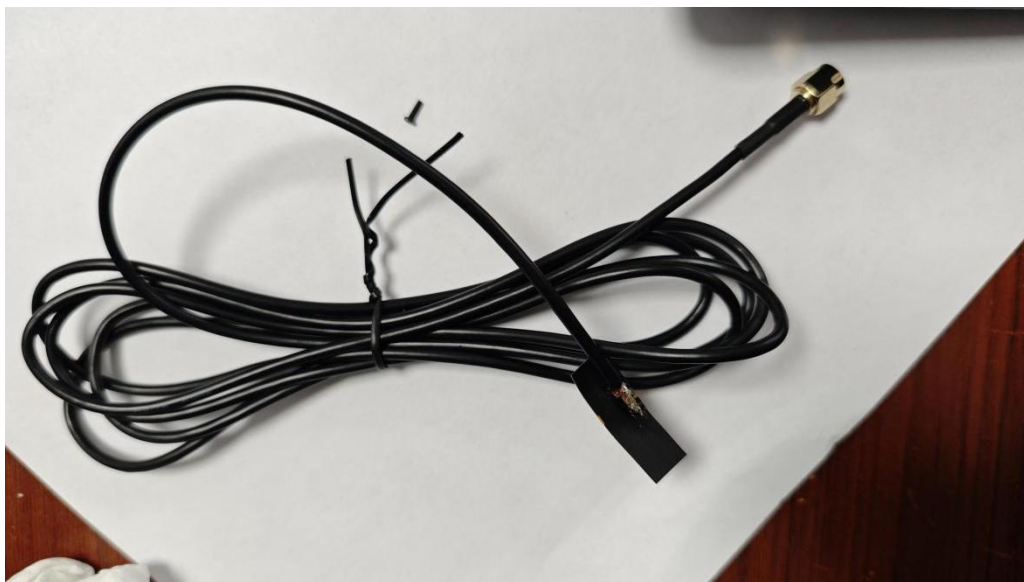
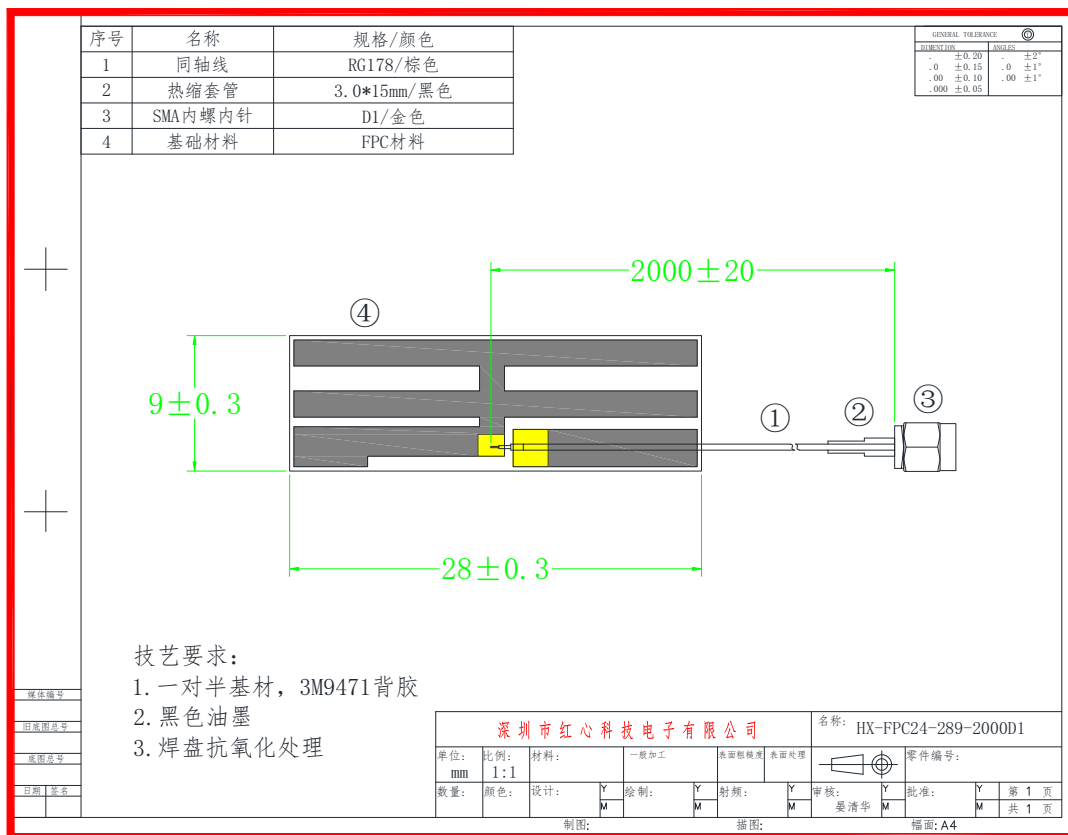
备注：

1、更改产品指标时，版本号需更换（V1换为V2、V3.....）；

目 录

		Revise Record 版本更改记录
1		2D Drawing & Product Picture 2D图纸以及实物照片
2		Antenna Specification 天线规格
	2.1	Electrical Specification 电气规格
	2.2	Mechanical Parameter 机械参数
	2.3	Environment Specification 环境规格
3		Passive Test Data 无源测试数据
	3.1	VSWR / Smith chart / Return loss 驻波比/史密斯圆图/回波损耗
	3.2	Test System 测试系统
	3.3	Efficiency & Gain 效率&增益
	3.4	2D Radiation Model - 2D 辐射模型
	3.5	3D Radiation Model - 3D 辐射模型

1. 2D Drawing & Product Picture 2D图纸以及实物照片



2. Antenna Specification 天线规格

2.1 Electrical Specification 电气参数

Electrical Specification 电气参数	
频率范围 Operation Frequency (MHz)	2400-2500
输入阻抗 Impedance (Ohms)	50
驻波比 VSWR	2400-2500<1.5
效率 Efficiency (%)	2400-2500: 47-54%
峰值增益 Peak Gain (dBi)	2400-2500: 2.67
辐射方向 Radiation Properties	Omnidirectional 全向
极化方式 Polarization	Linear polarization 线极化
功率容量 Max input Power (Watts)	50

2.2 Mechanical Parameter 机械参数

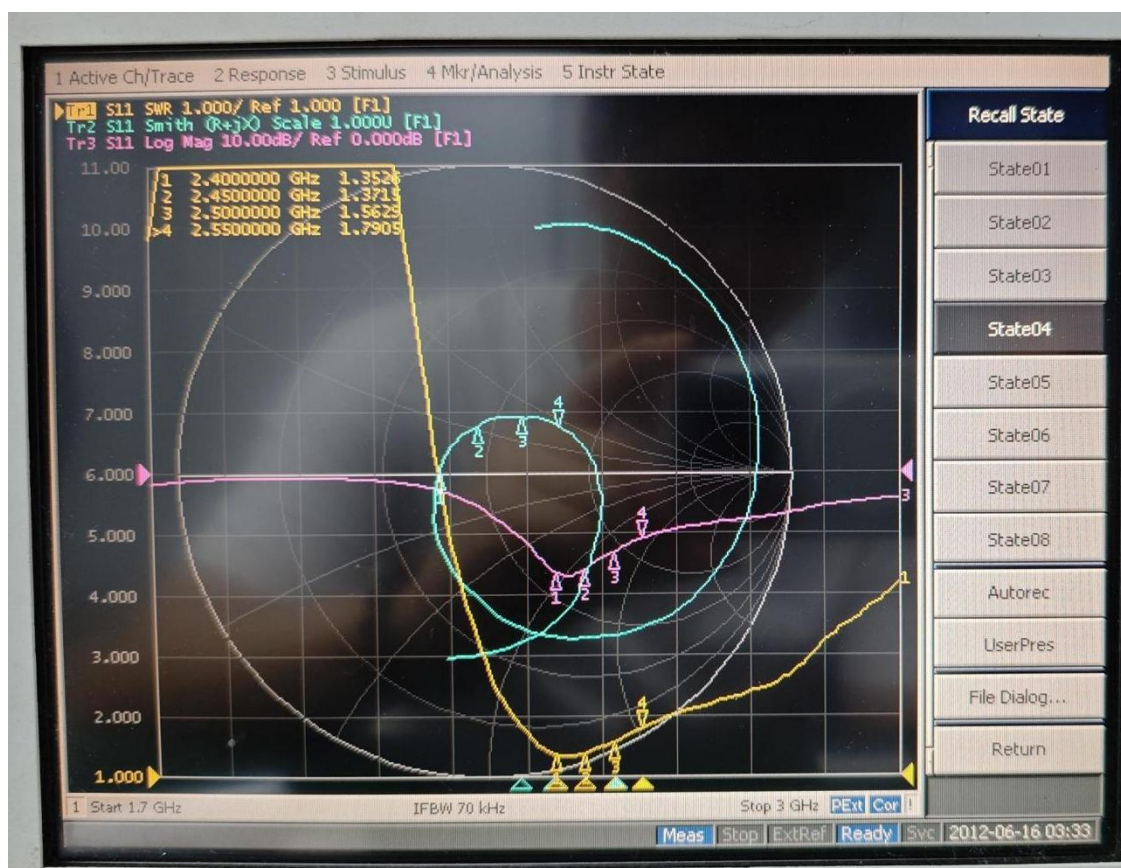
Mechanical Parameter 机械参数	
Structure Type 结构方式	FPC天线
Dimension 尺寸	28*9
Material 材料	FPC+CABLE+PLUG
Salt Spray 盐雾测试	48H

2.3 Environment Specification 环境规格

Environment Specification 环境规格	
Operating temperature 工作温度	-40°C ~ +80°C
Storage temperature 存储温度	-40°C ~ +80°C

3 Passive Test Data 无源测试数据

3.1 VSWR / Smith chart / Return loss 驻波比/史密斯圆图/回波损耗

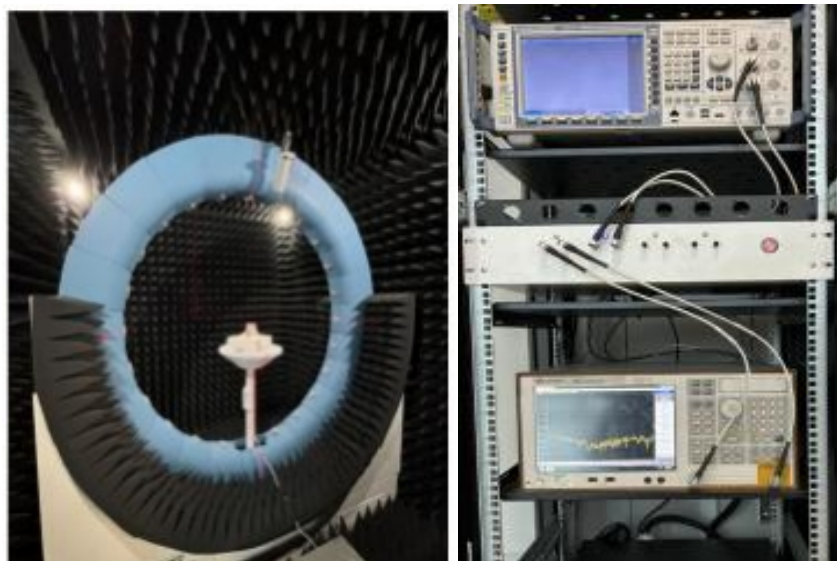


频段: 2400-2500MHz

3.2 Test System 测试系统

Multi-probe spherical near-field anechoic chamber test system that meets the relevant international regulations such as CTIA and 3GPP, a multi-functional wireless test system with excellent performance in radio frequency, absorption, and mechanical structure. The system has high integration and reliability. It supports pendulum sampling frequency-doubling technology and can be adapt to the testing needs of small multi-lobed antennas. It is suitable for the wireless testing of small high-integration electronic devices such as IoT devices, drone modules, car machine modules, smart home devices, and mobile communication equipment. It can also meet the testing needs of ceiling antennas, miniature base stations, and embedded routers, etc., which have high dependence on the passive performance of antennas.

多探头球面近场空腔暗室测试系统，符合CTIA和3GPP等相关国际法规的多功能无线测试系统。该系统在射频、吸波和机械结构等有良好的表现，系统的集成度和可靠性较高。系统支持摇摆式采样倍频技术，可适应小型多副瓣天线的测试需求，适用于物联网、无人机、车机模块、智能家居、移动通信设备等小型高集成度电子设备的无线测试。同时也可满足吸顶天线、微型基站、嵌入式路由器等对天线无源性能依赖度高的无线设备测试。

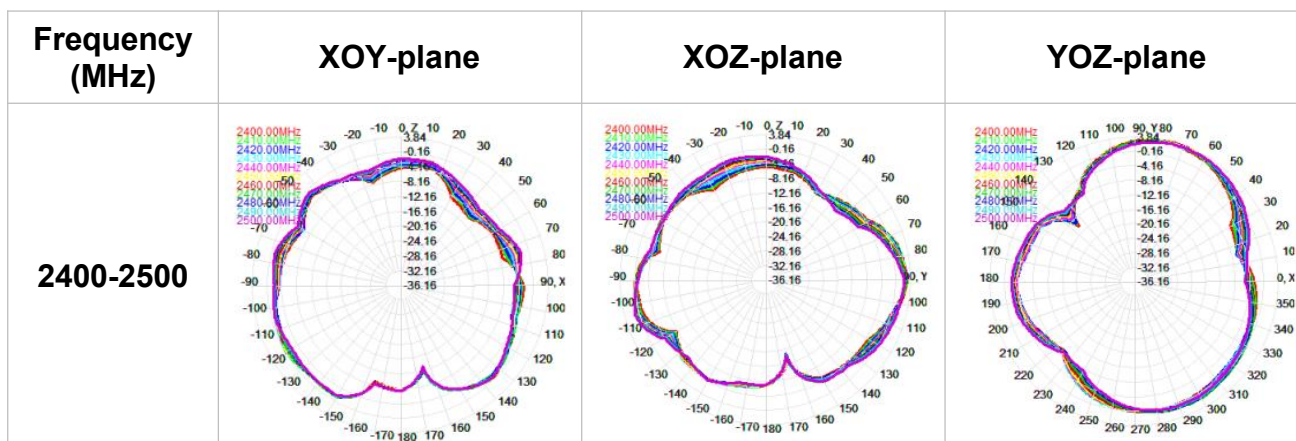


Supported Band 可支持频率	600MHz-9GHz (Expand. 12GHz)
Test Item 测试内容	Passive: Gain/Efficiency/2D/3D radiation/non-circularity(不圆度)/axial ratio(轴比) ... Active: TRP/TIS/EIRP/EIS
Test Standard 测试制式	2G/ 3G /4G / 5G/ Wi-Fi b/g/n/a/ac/ax/蓝牙/NB-IOT /Cat-M(eMTC)/ GPS/ BEIDOU/ GLONASS/ ZigBee/ LoRa (Non-signaling 非信令)...

3.3 Efficiency & Gain 效率&增益

Frequency (MHz)	Gain (dBi)	Efficiency (%)
2400	2.46	47.95
2410	2.62	49.66
2420	2.67	50.47
2430	2.61	52.24
2440	2.37	52.61
2450	2.21	54.01
2460	2.04	54.32
2470	2.04	54.16
2480	1.99	53.03
2490	2.10	53.75
2500	2.15	54.79

3.4 2D Radiation Model - 2D 辐射模型



3.7 3D Radiation Model - 3D 辐射模型

