



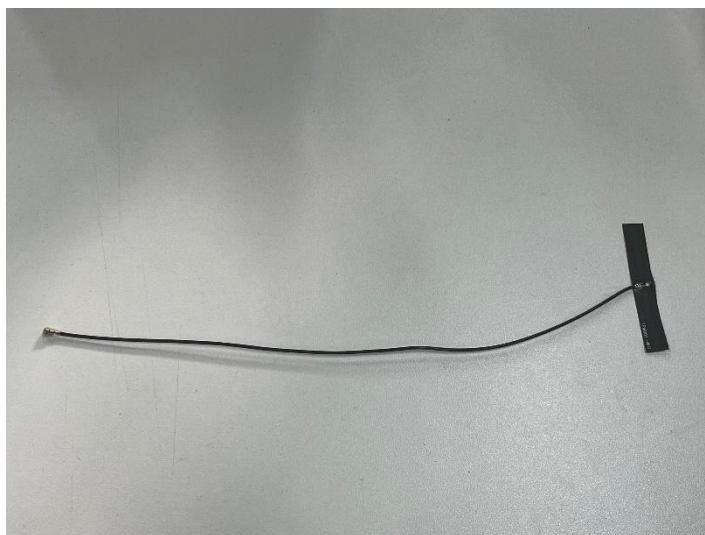
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## 说明instructions

这份报告包含天线电性能测试的若干设备、测试环境和测试结果，以及天线的结构图纸和检验报告. 以下为天线图片。

This report includes several equipment, test environment and test results for the electrical performance of the antenna, as well as structural drawings and inspection reports of the antenna. Below is a picture of the antenna.



## 2 产品技术指标 Product specifications

电性能指标 Electrical Specifications	
频率范围 Frequency Range (MHz)	2400-2500&5100-5850
增益 Gain (dBi)	2400-2500: 2.0 5100-5850: 2.2
电压驻波比 VSWR	≤2
输入阻抗 Input Impedance (Ω)	50
极化方式 Polarization	水平
最大功率 Maximum input power (W)	2
接头型号 Input connector type	1代IPEX
机械指标 Mechanical Specifications	
天线尺寸 Dimensions (mm)	详情见下方图纸
天线重量 Antenna weight (kg)	1g
天线颜色 Antenna color	黑色

### 3 机械性能测试 Mechanical properties test

编号	测试项目	测试方法	测试标准	结论
1	摇摆测试 BENDING TEST	放离接头 30CM 的线端上荷重 120g, 固定接头后进行遥摆测试, 遥摆角度左右各60 度, 遥摆 1000 次后测试特性. The load on the wire end 30cm away from the connector is 120g. After fixing the connector, carry out the remote swing test, and the remote swing angle is on the left and right 60 degrees, Test the characteristics after 1000 remote swings	遥摆 1000 次后测试特性无任何现象显示电器性能之损坏. After 1000 times of remote swing, the test characteristics show no damage to the electrical performance	OK
2	强度测试 STRENG TEST	一个 15 磅之静负荷施加放线端底部持续一分钟. A static load of 15 pounds is applied to the bottom of the paying off end for one minute	无任何现象显示机械及电器性能之损坏. There is no sign of damage to mechanical and electrical properties	OK
3	拉力测试 PULLING FORCE	用拉力计接头及线材间进行拉力测试. Conduct tension test between joint and wire rod with tension meter	可承受拉力为5Kg 无任何现象显示电器性能之损坏. It can bear the tensile force of 5kg without any damage to the electrical performance	OK
4	振动测试 VIBRATION TEST	以 1.10mm 和振幅和33.30Hz/sec 振动频率以 X 轴方向振动 120 分钟, Y轴方向振动120 分钟, Z 轴方向振动 240 分钟. Vibrate in the x-axis direction for 120 minutes with an amplitude of 1.10mm and a vibration frequency of 33.30hz/sec, and vibrate in the y-axis direction 120 minutes, vibration in z-axis direction for 240 minutes	无任何现象显示电器性能之损坏. There is no sign of damage to the electrical performance	OK

## 4 耐久性测试

编号	测试项目	测试方法	测试标准	结果
1	盐雾试验 SAIT SPRAY TEST	盐水喷雾试验：依 GB1266-86 标准蒸馏水： 一次蒸馏PH6.5~7 喷雾量：1.4me80cm <sup>2</sup> /h 压缩空气压力：1Kgf/ cm <sup>2</sup> 试验相对度：98° 温度：45° ~47° 压力温度：35° 测试时间：24hr Brine spray test: distilled water according to GB1266-86 standard: single distillationPH6.5~7 Spray volume: 1.4me80cm <sup>2</sup> / H compressed air pressure: 1kgf / cm <sup>2</sup> Test Relativity: 98 ° Temperature: 45 ° ~ 47 ° Pressure temperature: 35 ° Test time: 24hr	所有规格变 华范围初始 值 30% All characteristic range is 30% of the initial value	OK
2	高温试验 HEAT TEST	在 85+2℃环境中放 96 小时，再放在正常环境中 30 分钟后进行测试 85+2℃ for 96 hours, after keep in normal condition for 30mim the to test.		OK
3	中温试验 HUMIDITY TEST	在 40+2℃ 90-95%RH 环境中放 96 小时，再放在正常环境中 30 分钟后进行测试 40+2℃ 90-95%RH for 96hours, after keep in normal condition for 30mim the to test.		OK
4	底温试验 COLD TEST	在-40+2℃ 环境中放 96 小时，再置放正常环境中 30 分钟后进行测试 -40+2℃ for 96hours, after keep in normal condition for 30mim the to test.		OK

## 6 电气性能测试 Electrical performance test

### 6.1 测试设备 Test equipment and environment

#### 测试设备



SATIMO-24

ETS

模拟人头手



安捷伦8960



安利MT8820C



CMW500



安捷伦E5071C

测试系统

测试环境

有源测试

无源测试

SATIMO—24

温度：22°C ± 3°C

支持2G/3G/4G

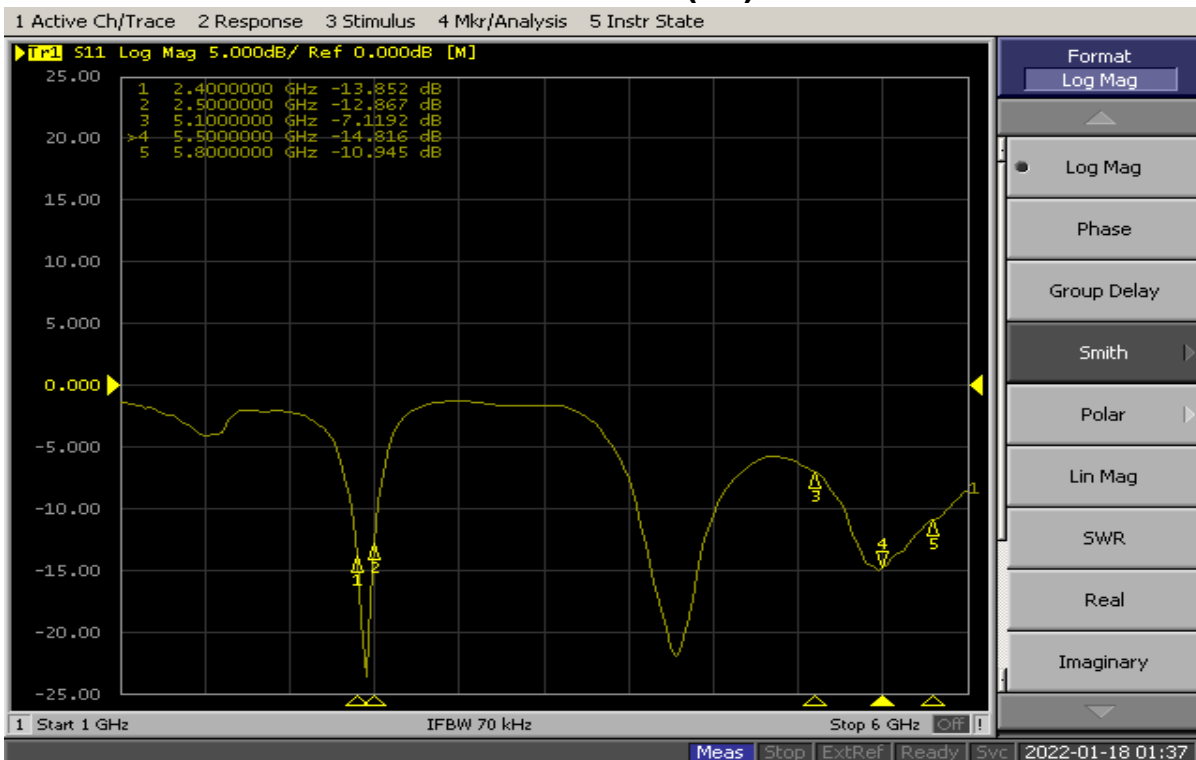
400MHZ—6G

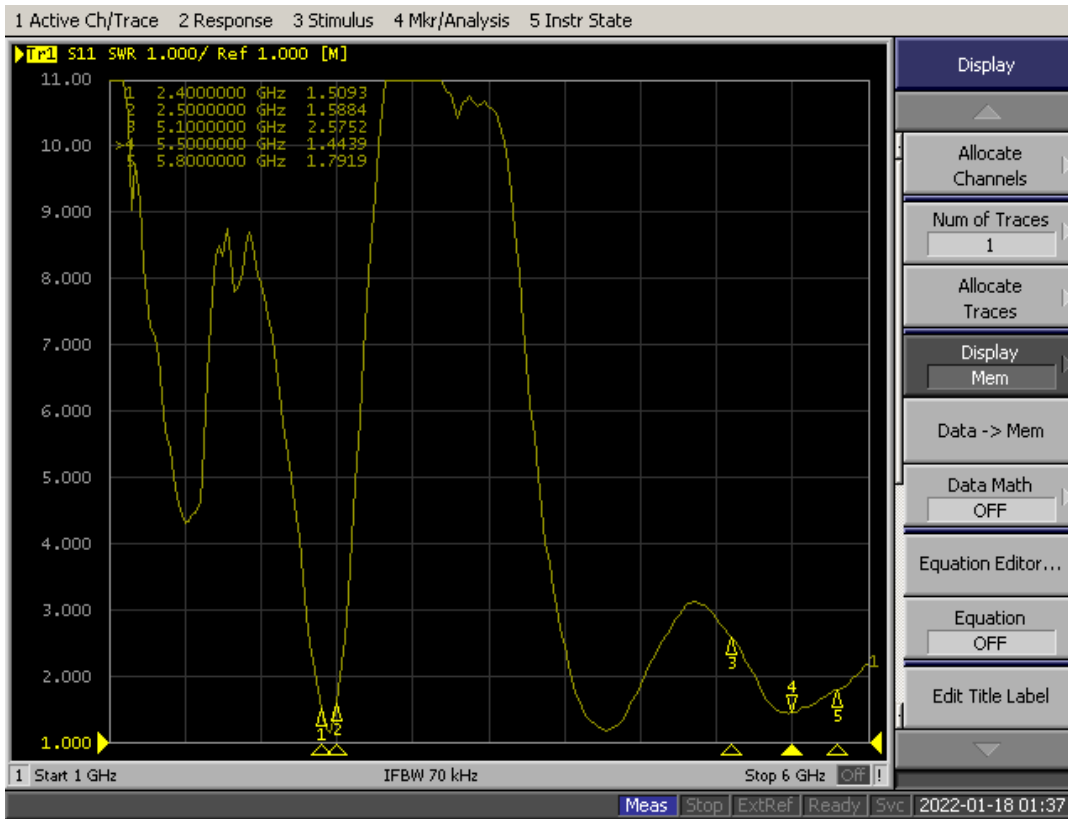
ETS

湿度：50% ± 15%

BT/WIFI/GPS

### 6.2 天线回损与驻波 Antenna Return Loss(RL) and SWR

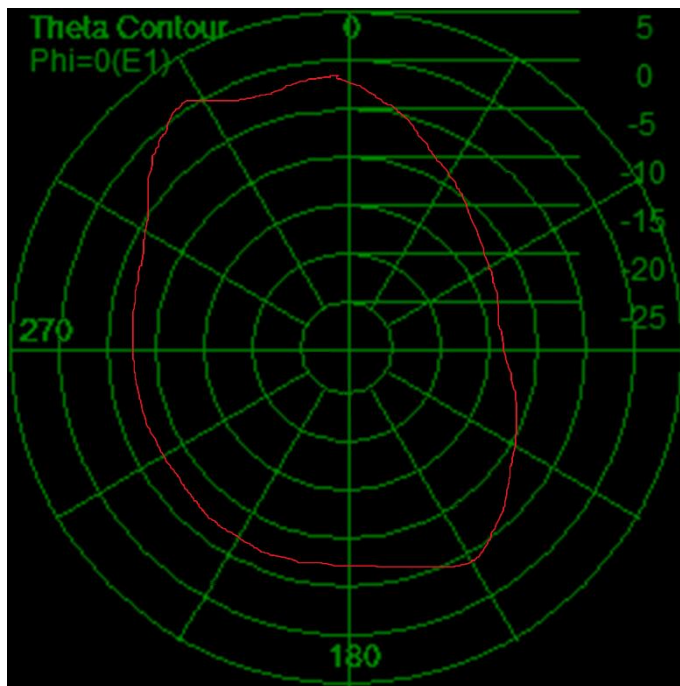




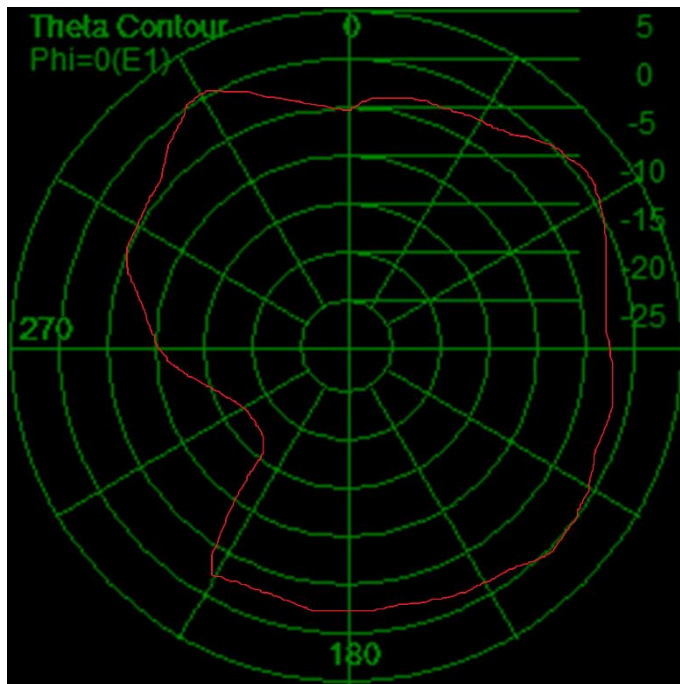
### 6.3 天线无源数据 Antenna passive test data

Test Point ID	Freq. (MHz)	Gain (dBi)	Efficiency (%)
1	5100.0	1.7	47.3%
2	5200.0	1.9	48.1%
3	5300.0	1.9	49.6%
4	5400.0	2.2	52.1%
5	5500.0	2.1	52%
6	5600.0	2.2	52.3%
7	5700.0	1.9	50.9%
8	5850.0	1.8	50%

**Frequency: 5100MHz**

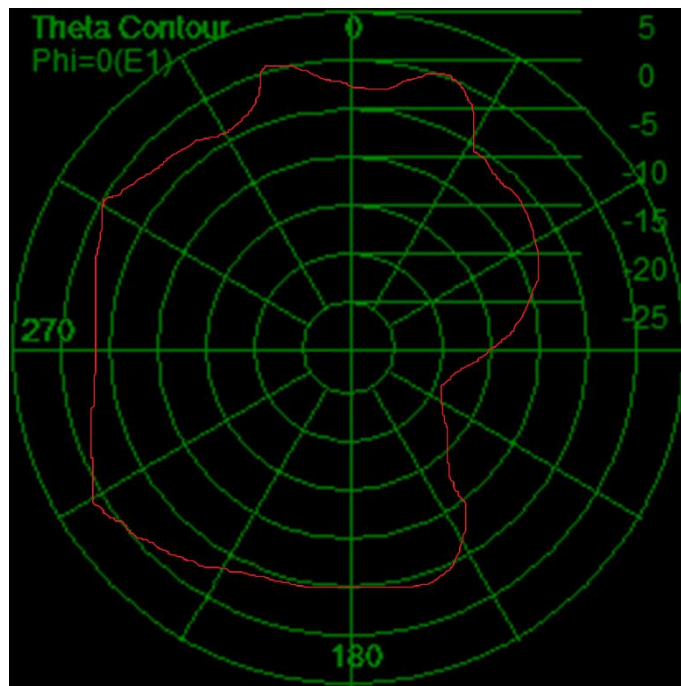


**Frequency: 5200MHz**

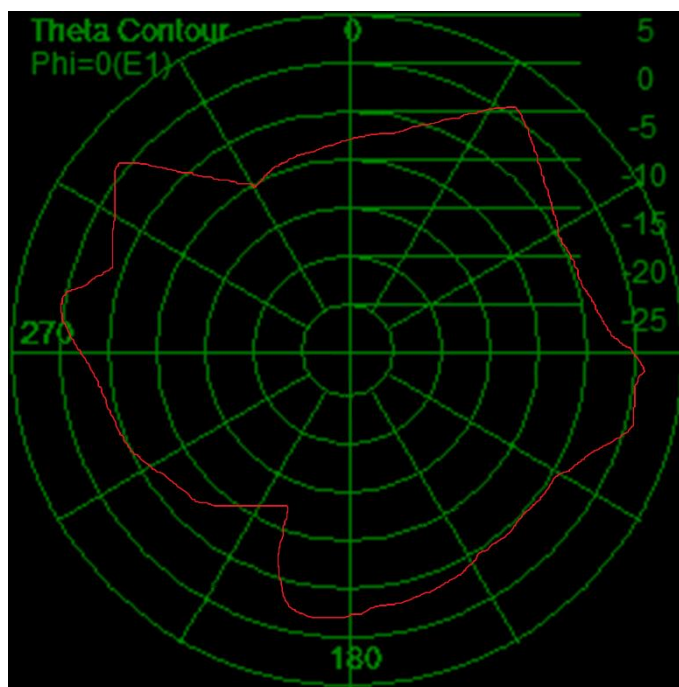




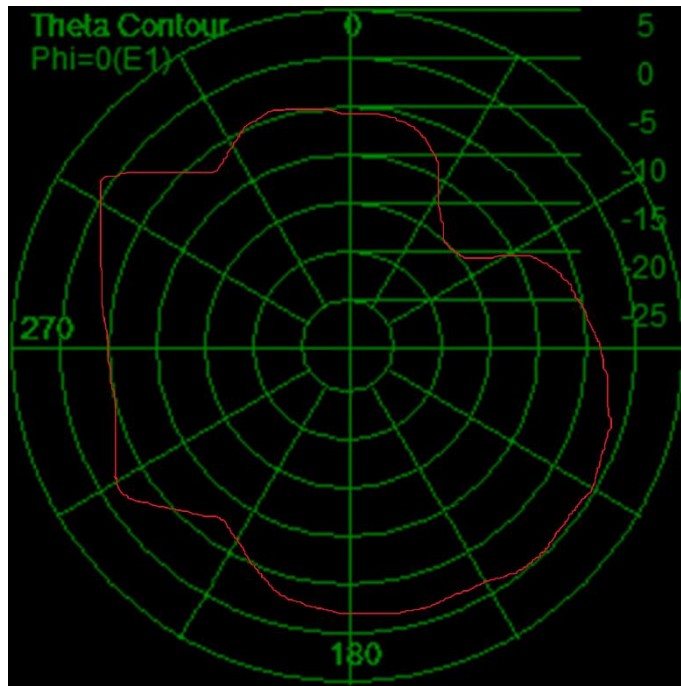
**Frequency: 5300MHz**



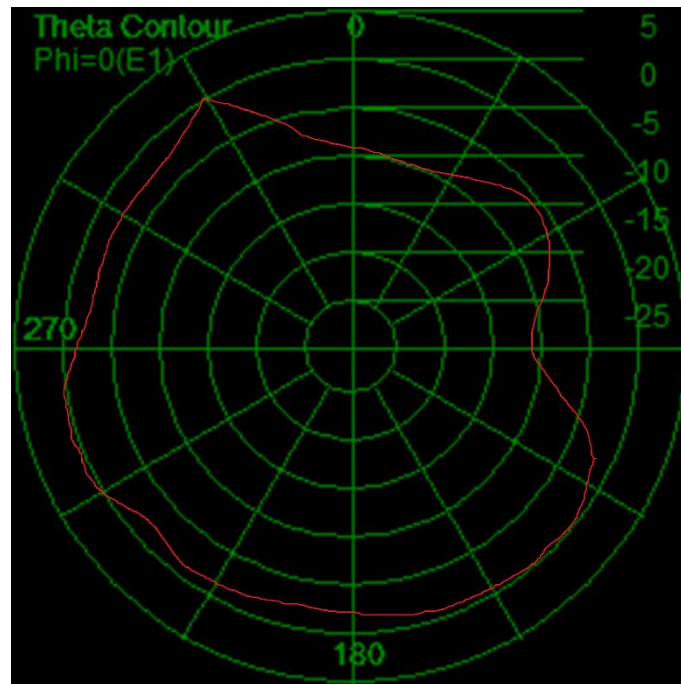
**Frequency: 5600MHz**



**Frequency: 5700MHz**



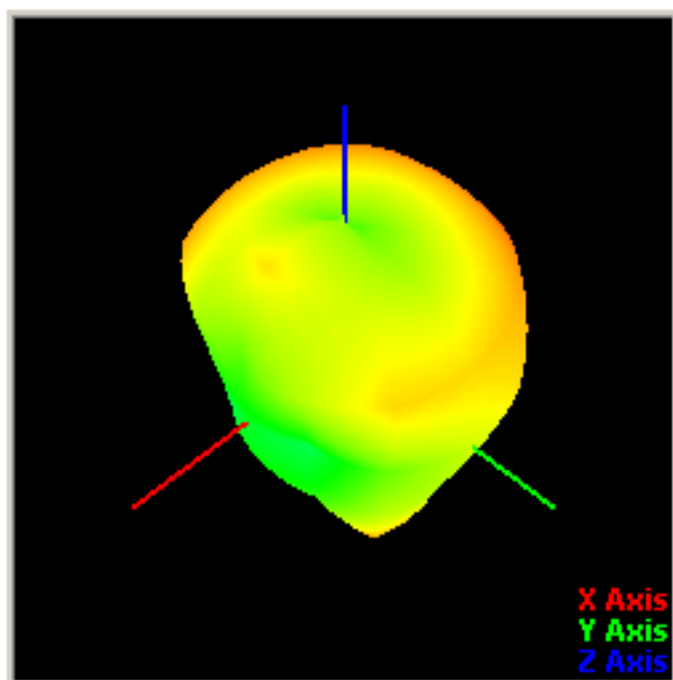
**Frequency: 5850MHz**



#### 6.4 OTA测试 OTA TEST

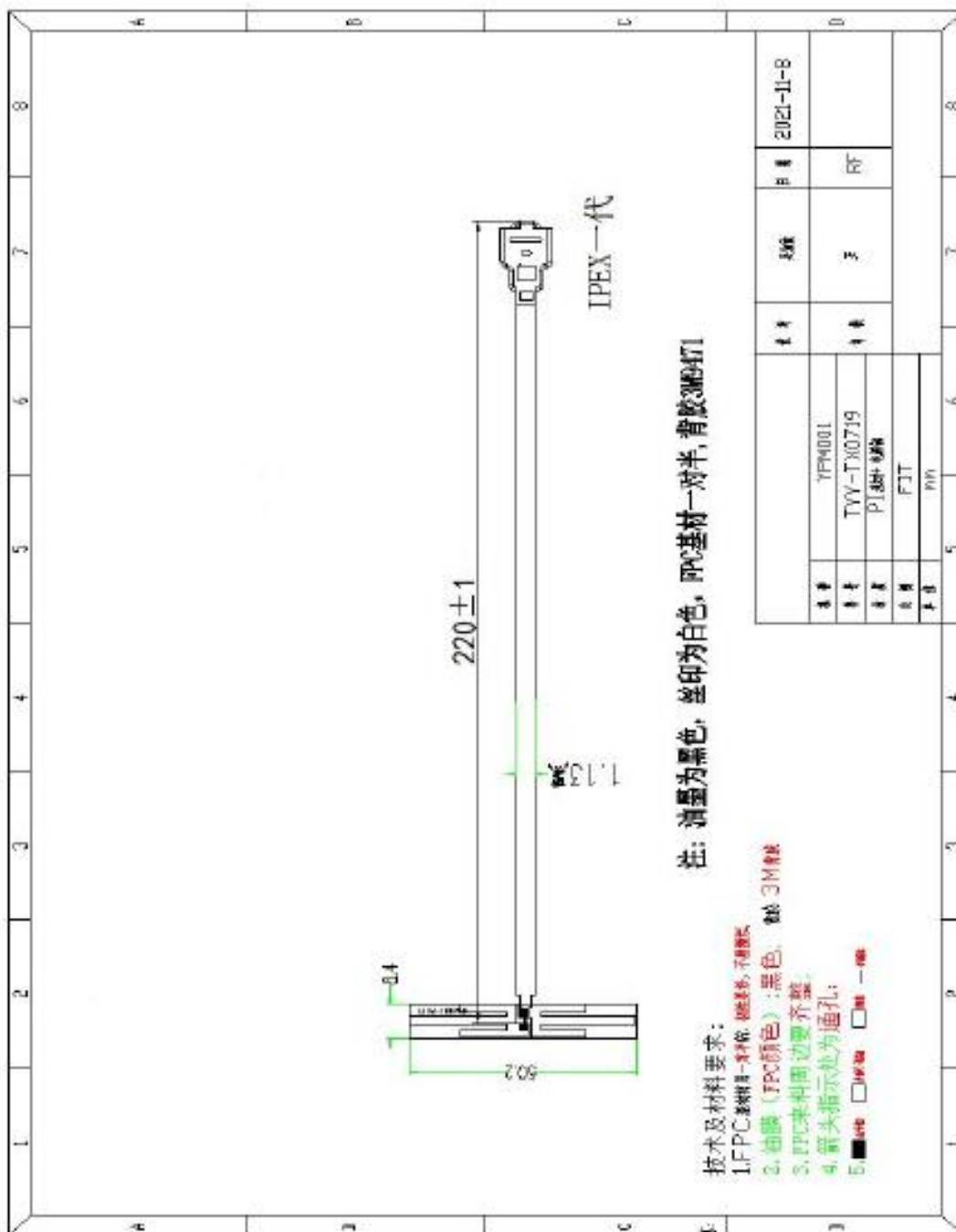
CHN	1	6	11	36	149	165
TRP	14.4	14.7	14.5	13.1	13.3	13.5
TIS	-75.3	-75.8	-75.6	-70.1	-70.2	-70.3

#### 6.5天线方向图Antenna Pattern



# 7 工程图纸 Engineering drawings

3.天线结构图:



## 8包装方式 **Packing method**

### **Inside:**

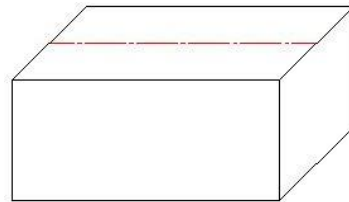
PE bag packaging, 200pcs / bag



PE bag size: 30\*180

### **External :**

carton packaging, 100 bags / box



carton packaging size 330\*270\*220