

OCEAN COMPONENTS LTD.

2.4GHz / 5.8GHz, Cable 250mm, Wifi Dual Band PCB Antenna Specifications
Part number: YP-A200-JK-010

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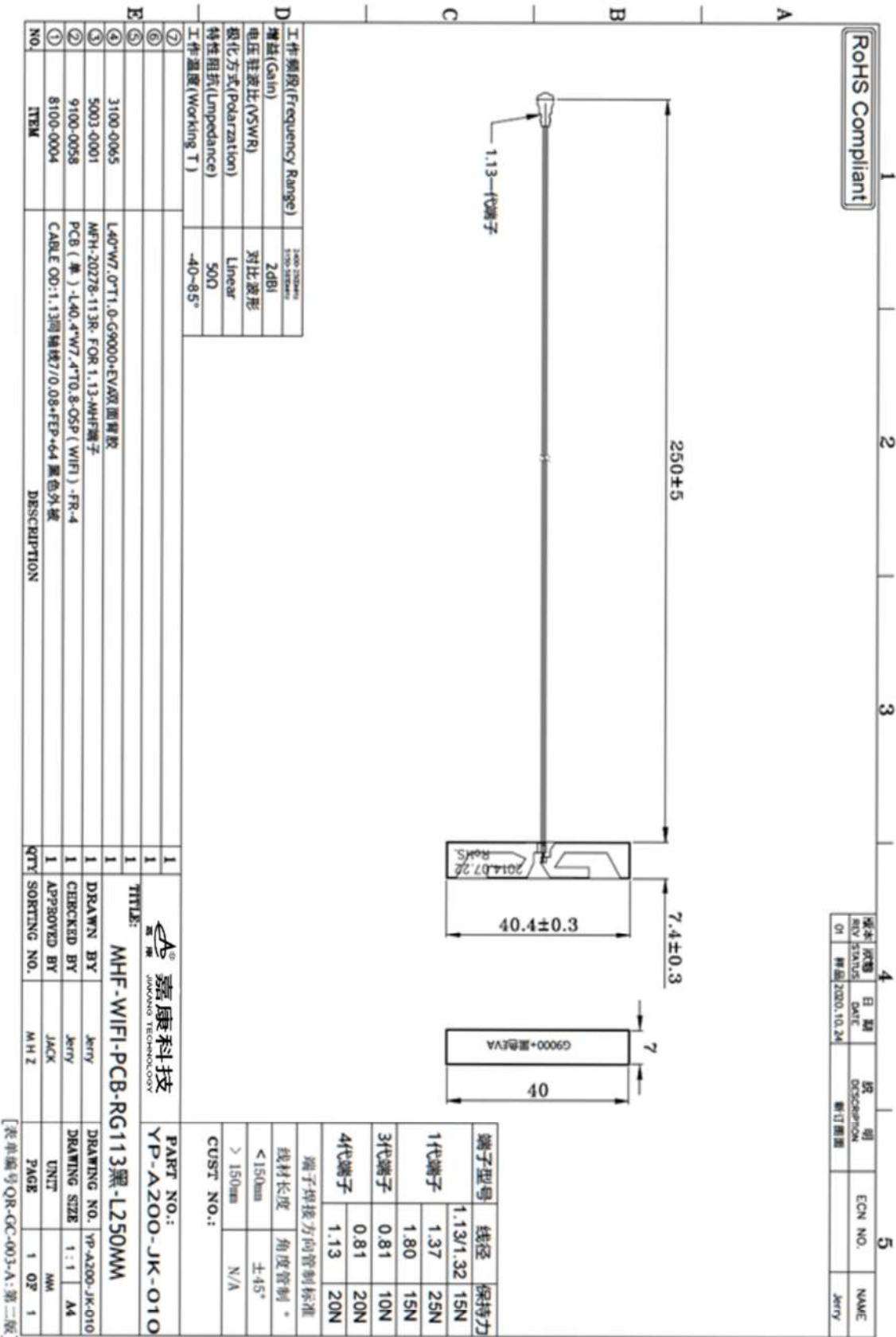
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目录 INDEX

序 NO	内容 Content	页 Page
1	封面/Cover	1
2	目录/Index	2
3	图面/Drawing	3
4	产品特性/Product feature	4-17
5	可靠性测试/Reliability testing	18-22

变更记录/Update of the Records			
版本/Rev	拟制/Formulate	日期/Date	内容/Content
01	Cham	2020.10.24	新订承认书

图面/ Drawing



产品特性表

产 品 类 型 / product type	IPEX-2.4G/5.8G-FPC-RG113-L250mm
DESCRIPTION	VALUE
Frequency Range (工作频段)	2400-2500 MHZ 5150-5850 MHZ
V.S.W.R(电压驻波比)	对比波型 (空测)
Impedance (特性阻抗)	50Ω
Gain (增益)	2 dBi
Radiation (方向性)	Omni-directional
Radiating element	1/4 Wave Helical
Polarization (线化方式)	linear Vertical
Admitted power (功率)	1W
Connector (接头型号)	MHF(一代端子) MALE
Operating temp (工作温度)	-40°C~+85°C

1.Summary :

这份测试数据用于说明天线的测试环境设置和测试的结果

This Report to account for the measurement setup and result of the Antenna.

测试的结果包括了 S 参数（VSWR 或增益、天线的方向图）

The measurement setup includes s-parameter, pattern, and gain measurement.

对天线的测试数据进行了简述分析

The measured data for Antenna are presented and analysis.

2.S-Parameter Measurement :

A. 反射系数:Reflection coefficient :

(a)仪器:网络分析仪 Instrument: Network Analyzer.

(b)设置: Setup:

(1) 通过使用 O.S.L 校准装置的一个端口校准来校准网络分析仪。

Calibrate the Network Analyzer by one port calibration using O.S.L. calibration kits.

(2)将天线下的天线连接到网络分析仪。

Connect the antenna under test to the Network Analyzer.

(3)测量图 1 所示的 S11(反射系数)。Measure the S11(reflection coefficient) shown in Fig.

(4) 一般来说, S11 小于-10 分贝, 以保证 90%的天线功率, 只有不到 10%的功率回到系统。

Generally, the S11 is less than -10dB to ensure the 90% power into antenna and only less than 10% power back to system.

3.Antenna measured in Network Analyzer

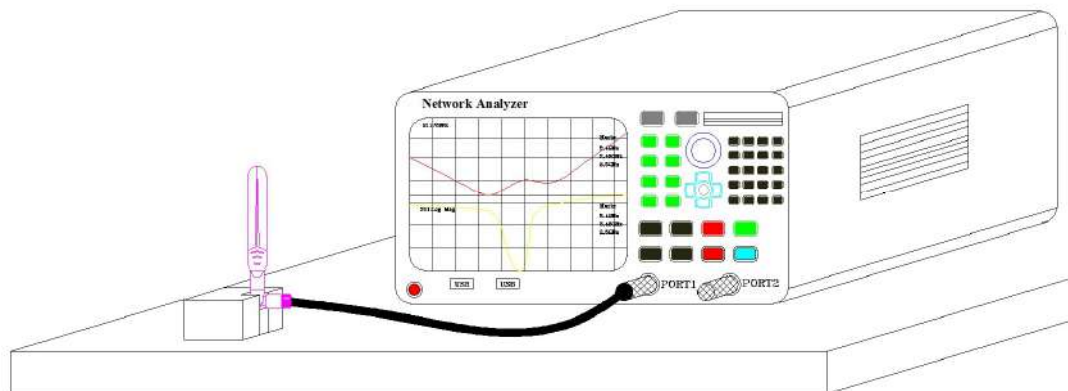


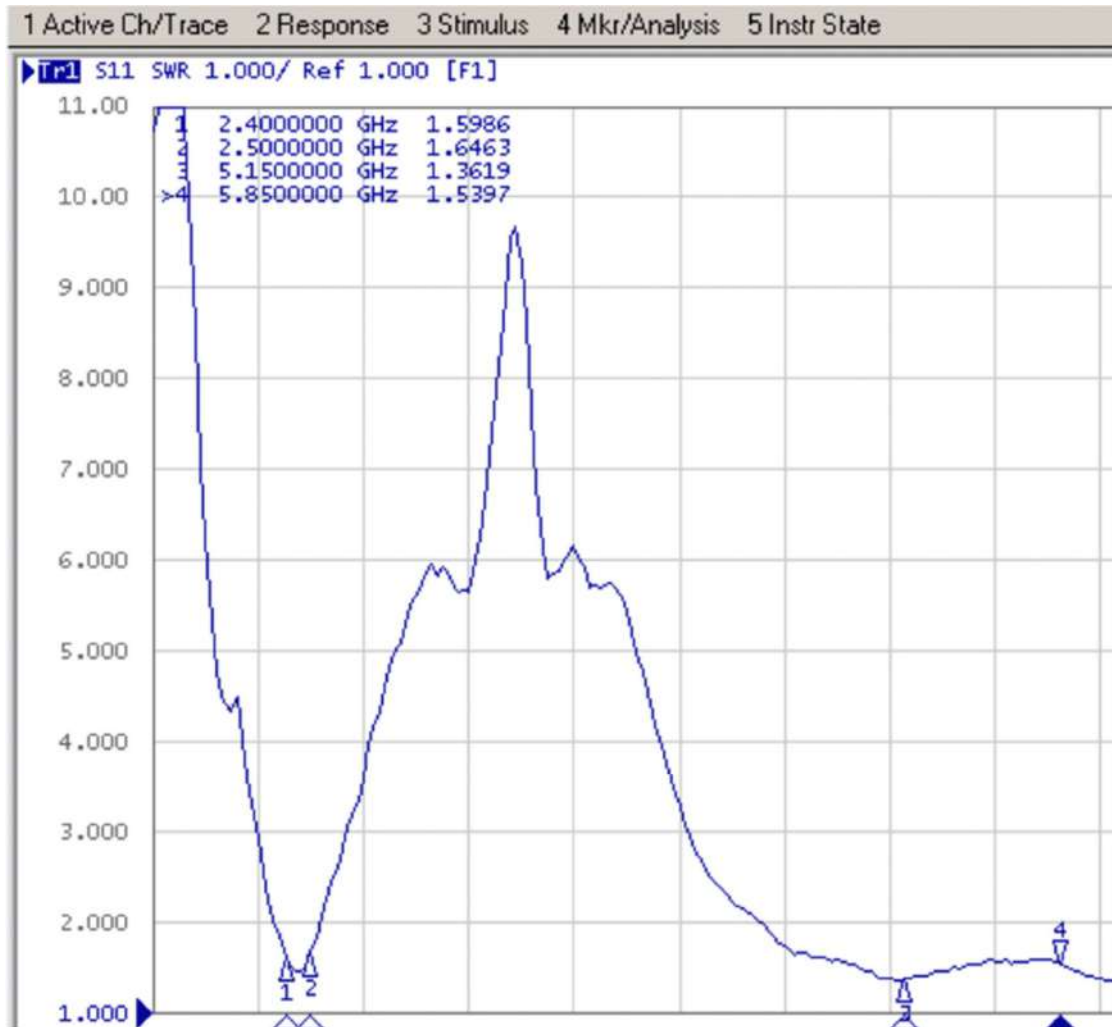
Fig.1 Antenna measured in Network Analyzer

4. S 参数测量结果/S-Parameter Measurement Result S

参数测试数据:S-Parameter test data S:

Frequency MHz 工作频段	2400 MHz	2500MHz	5150MHz	5850 MHz
电压驻波比/VSWR	1.59	1.64	1.36	1.53

参数测试图片:S-Parameter test image:



5. 全电微波暗室测试/The Test Information Anechoic Chamber

A. 范围 Scope

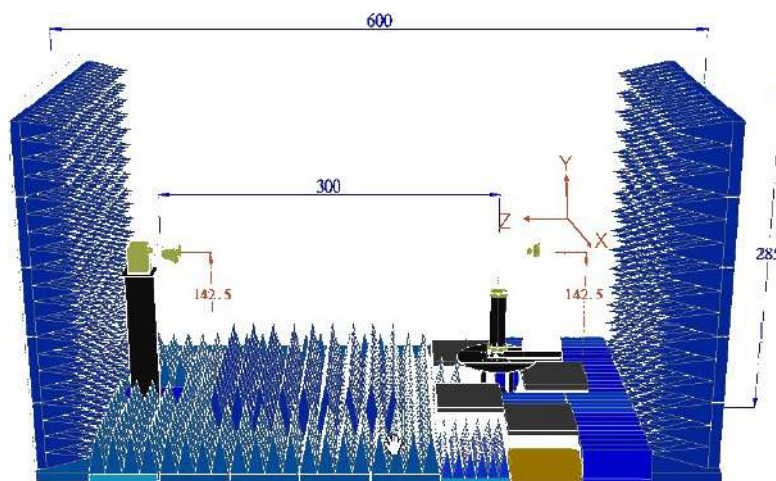
这项工作说明了远场天线测量范围的要求，包括（This statement of work defines the requirements of a far-field antenna measurement range, which includes）

(1)一个 325 厘米(W)x 285 厘米(H)x 640 厘米(L)天线测量的微波暗室；(One 325 cm (W) x 285 cm (H) x 640 cm (L) Antenna Measurement Anechoic Chamber)

(2)一个具有旋转线性 CP 测量能力的远场天线测量系统；(One Far-field Antenna Measurement System with spinning linear CP measurement capabilities)

(3)一个宽带传输的天线；(One broad-band transmitted antenna,)

(4)3 个 nrl-4433 标准增益天线。(Three NRL-4433 standard gain antennas)



B. 天线测量微波暗室 Antenna Measurement Anechoic Chamber

全无微波暗室，宽度为 325 厘米，高度为 285 厘米，长度为 640 厘米。这个房间的安静区域应该大于 70 厘米@0.9 GHz，50 厘米@1.8 GHz，44 厘米@2.4 GHz，28 厘米@5.8 GHz，16 厘米@18 GHz。

这个微波暗室被用来进行远程的天线测量（Fully anechoic chamber with dimension 325 cm in width, 285 cm in height and 640 cm in length. The quiet zone of this Chamber shall be greater than 70 cm @ 0.9 GHz, 50 cm @1.8 GHz, 44 cm @2.4 GHz, 28 cm @5.8 GHz, 16 cm @18 GHz. Contractor should be aware of this anechoic chamber is going to be used for performing far-field antenna measurement）

C. 电气规范 Electrical specifications

频率范围:800 兆赫到 18 千兆赫，(Frequency Range: 800 MHz to 18 GHz)

安静区域的大小:70 厘米，@0.9 GHz，50 厘米@1.8 GHz，44 厘米@2.4 GHz，28 厘米@5.8 GHz，16 厘米@18 GHz (Quiet zone size: >70 cm @ 0.9 GHz, >50 cm @1.8 GHz, >44 cm @2.4 GHz, >28 cm @5.8 GHz, >16 cm @18 GHz.)

静区波纹:小于+/-0.5 分贝，1.5 2.4 GHz，小于+/-0.25 分贝@2.4 18GHz (Quiet zone ripple: < +/- 0.5 dB @1.5~2.4 GHz, < +/- 0.25 dB @2.4~18GHz)

Field Probing Frequency	Peak-to-Peak Amplitude Ripple (within specified Quiet Zone Area)	Quiet Zone Size (cm)	Compliant
0.9 GHz	< 0.8 dB	70	Yes
1.575 GHz	< 0.6 dB	55	Yes
1.8 GHz	< 0.5 dB	50	Yes
2.45 GHz	< 0.4 dB	44	Yes
4.8 GHz	< 0.3 dB	31	Yes
5.8 GHz	< 0.3 dB	28	Yes

D. 微波吸收器 (Absorbers)

我们将在室内的内壁上设计和安装适当的吸收器，以保证电气规格。但是，吸收器的高度应不小于 24 英寸，使室内空间达到 203 厘米(W)x 163 厘米(H)x 533 厘米(L)。所有的吸收器都应符合 nrl-8093 防火规定 (We shall design and install proper absorbers on the inner walls of the chamber to guarantee the electrical specifications . However, the absorbers height shall be no less than 24" which enables the space in the chamber to be around 203 cm (W) x 163 cm (H) x 533 cm (L). All the absorber used shall meet NRL-8093 fire retardant regulations)

E. 远场天线测量系统 (Far-field Antenna Measurement System)

我们将提供能够将天线辐射模式从 30 千赫兹到 6 千兆赫的所有硬件和软件，使用现有的 Agilent 5230A pna-l 或 Agilent 8753ES 矢量网络分析仪。该系统将能够自动测量和绘制单轴振幅和相位天线模式，无论是笛卡尔坐标还是极坐标形式。We shall supply all the hardware and software which are capable of characterizing antenna radiation patterns from 30 KHz to 6 GHz Agilent 5230A PNA-L or Agilent 8753ES Vector Network Analyzer. The system shall be able to automatically measure and plot single axis amplitude and phase antenna patterns in either Cartesian or polar formats.

F. 远场测量软件 Far-field measurement software

该软件由控制或数据采集软件和数据绘图软件组成 (The software consists of the control or data acquisition software and the data plotting software)

(一)数据采集软件至少具备下列功能: (The data acquisition software shall at least be capable of the following functions)

*测量单个频率的单轴频率(方位角);系统可以在扫描结束时自动切换频率。measuring single frequency per cut - single axis (azimuth); system can automatically switch frequency at the end of a scan.

*单向或双向测量数据 measuring data in Uni-direction or bi-direction

*至少用方位角 360 度测量数据。(±180 度或 0-360 度)measuring data at least with azimuth 360 degrees. (±180 degrees or 0-360 degrees)

*实时的笛卡尔坐标或极坐标形式 real time plot in Cartesian or polar format

*屏幕显示实时角度位置 screen shows real time angle position

*系统根据测量信号的波动自动计算/n 比率 system automatically calculates S/N ratio level based on measured signal fluctuation

*定位定位器零位的功能 function to set positioner zero position

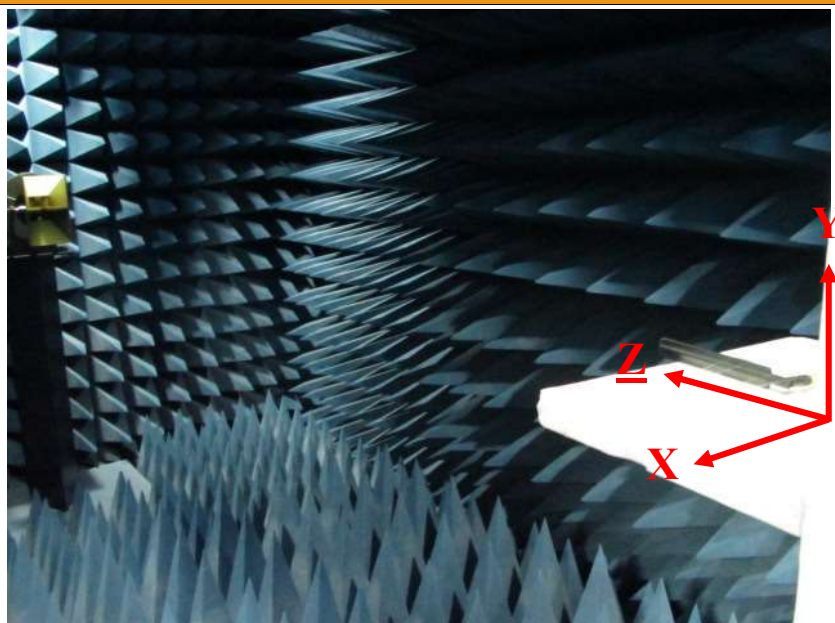
*操作员可以设置数据取速度和数据采样间隔 operator can set data taking velocity and data sampling interval

*允许定位器对任何角度的偏移 entry to allow positioner offset to any angle

Broadband 传输天线 (Broadband Transmitted antenna)

一个线性极化的宽带天线，其规格要优于频率:1-18 千兆赫，增益:12 dBi@10 GHz，VSWR:小于 20:1，前回 20 分贝 We shall provide a linear-polarized broadband antenna with the specifications better than those listed hereafter in this article, Frequency: 1-18 GHz, Gain: >12 dBi @10 GHz, VSWR:<2,0:1, Front to Back Ratio > 20 dB

6. 微波暗室 XYZ 的示意图 Chamber XYZ Photo



测试环境及方向示意图

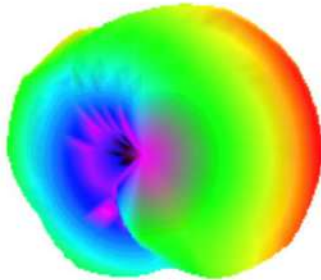
7. 微波暗室测试的效率及增益 Chamber Test Result

Freq	Effi	Gain
2400	63.06%	2.24
2450	59.41%	2.47
2500	60.49%	2.55
5150	54.32%	2.82
5500	61.00%	2.39
5700	63.63%	2.41
5850	63.44%	2.47

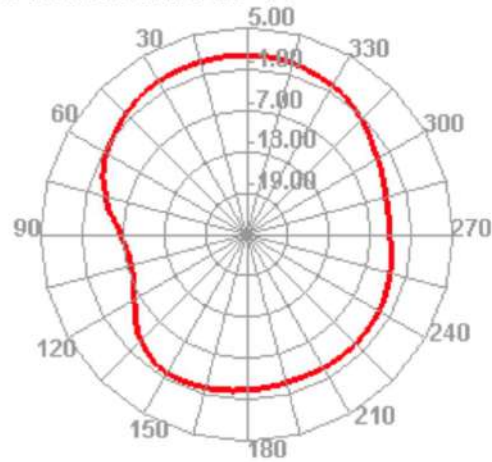
8.微波暗室测试的方向图 Chamber Radiation Pattern

2.4GHZ

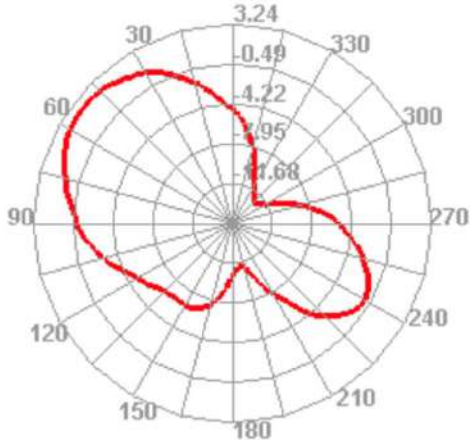
2400.000MHz



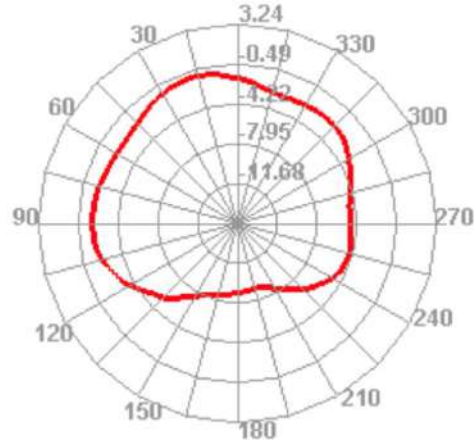
2400.000MHz H



2400.000MHz E1

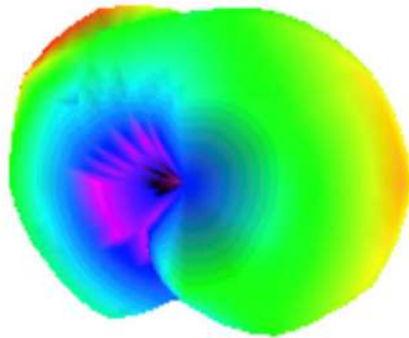


2400.000MHz E2

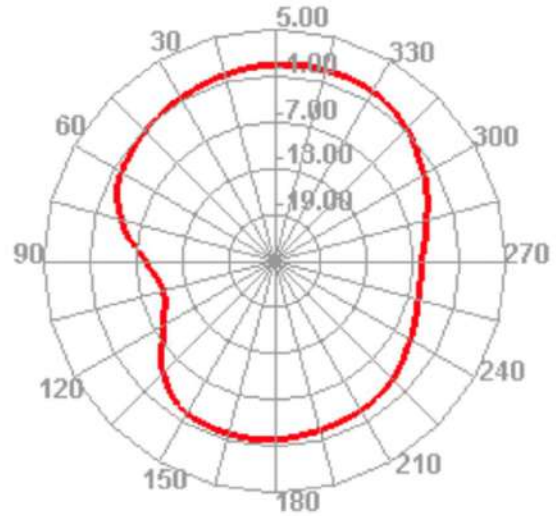


2.45GHZ

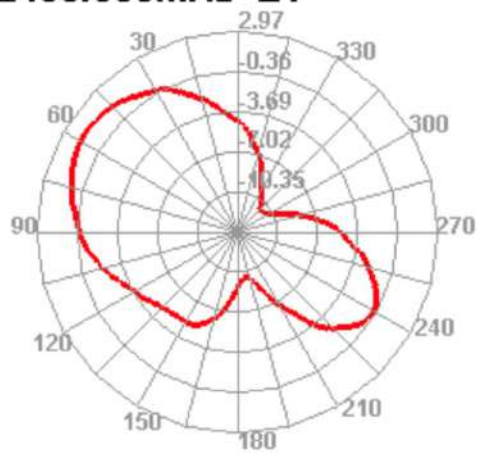
2450.000MHz



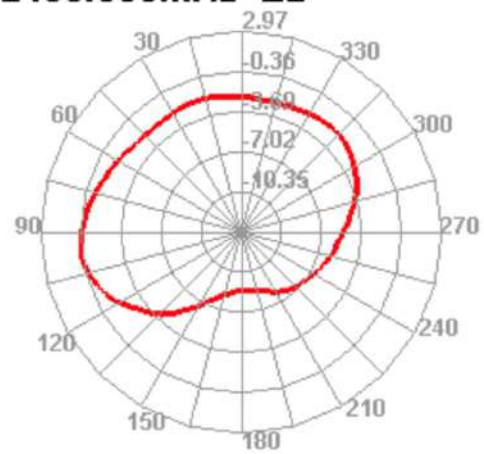
2450.000MHz H



2450.000MHz E1

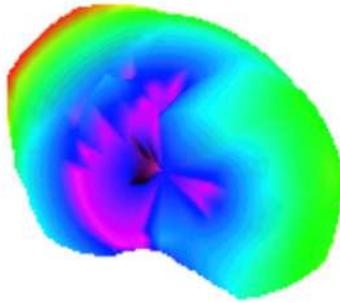


2450.000MHz E2

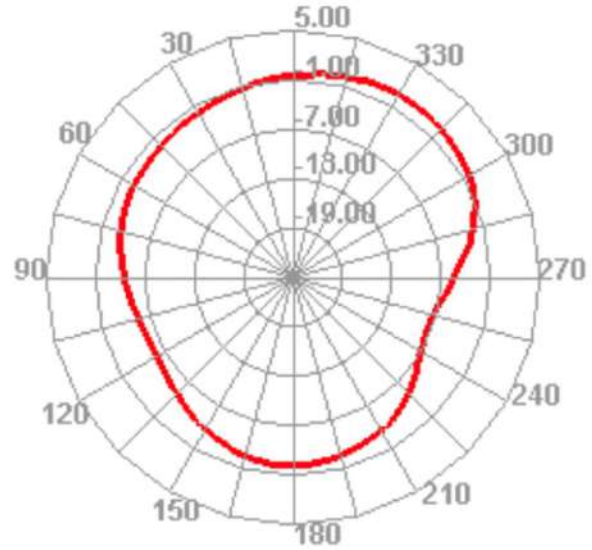


2.5GHZ

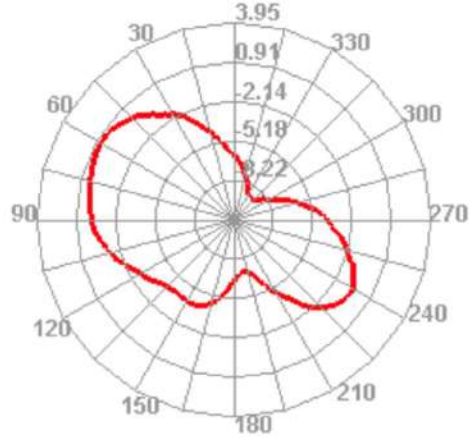
2500.000MHz



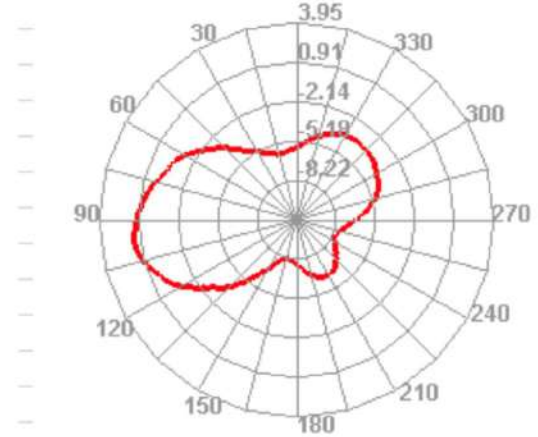
2500.000MHz H



2500.000MHz E1

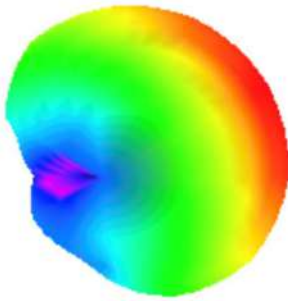


2500.000MHz E2

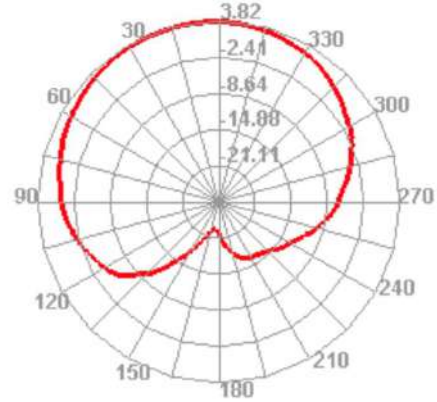


5.15GHZ

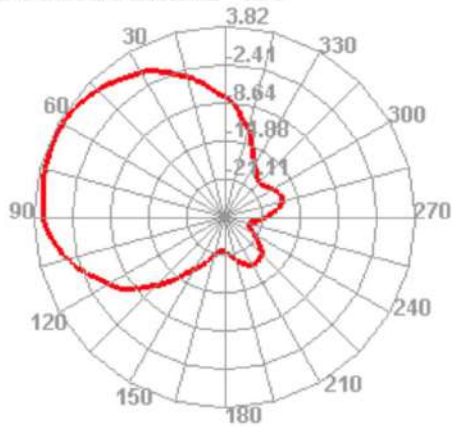
5150.000MHz



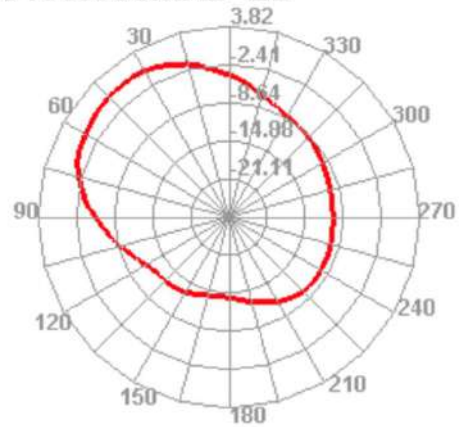
5150.000MHz H



5150.000MHz E1

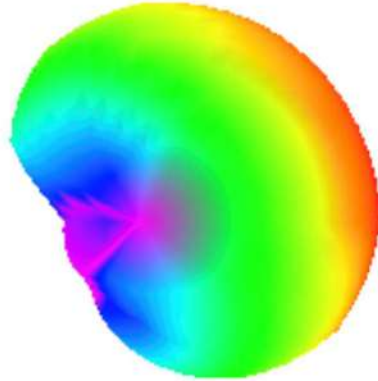


5150.000MHz E2

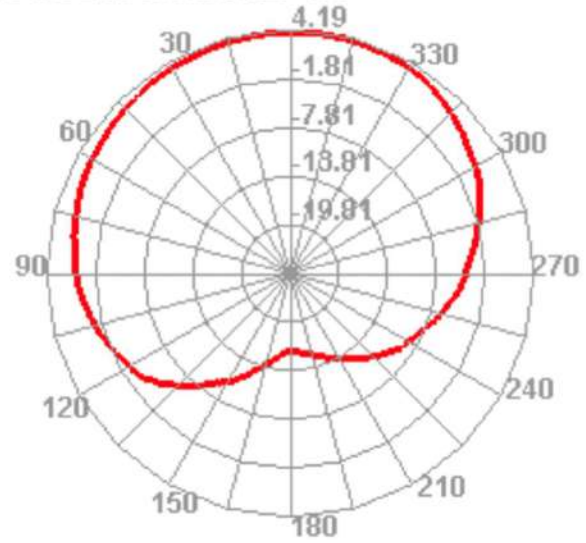


5.450GHZ

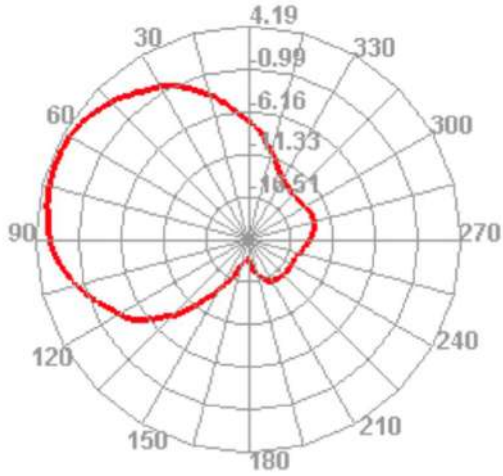
5450.000MHz



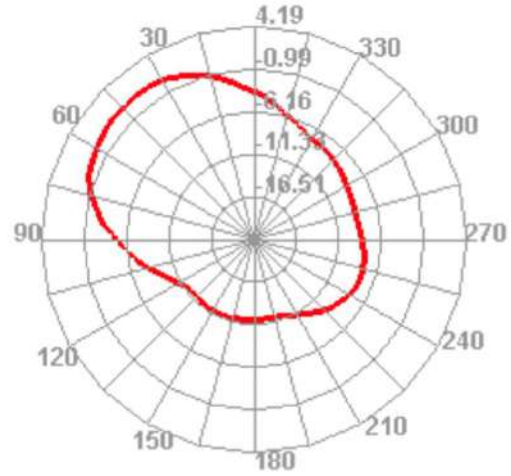
5450.000MHz H



5450.000MHz E1

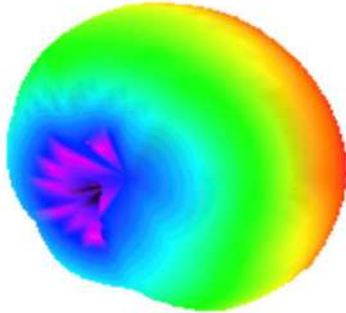


5450.000MHz E2

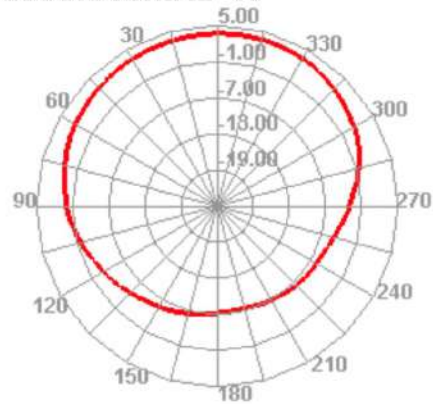


5.85GHZ

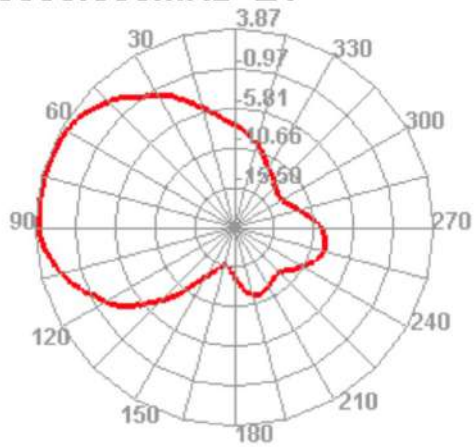
5850.000MHz



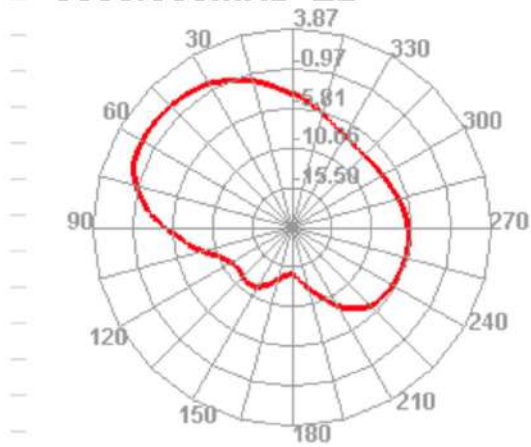
5850.000MHz H



5850.000MHz E1



5850.000MHz E2



环境可靠性测试/Environmental Performance

1.保持力

测试项目/ Test project	保持力		测试编号/ Test No			
产品料号/ Part No:	YP-A200-JK-010		试验数量/ Number of test		5PCS	
产品规格/ specification	IPEX-2.4G/5.8G-PCB-RG113-L250mm					
测试条件: Testing Conditions	1. 将待测物进行机械固定测试 2. 固定连接器与线材 3. 使用一定的力将连接器与线材与相关方向破坏性拉开					
测试结果/ Test result	☒ 合格/OK ☐ 不合格/NG					
测试数据/Test data						
Test number	Sample-1	Sample-2	Sample-3	Sample-4	Sample-5	Sample-6
Test data	1.25Kg	1.20 Kg	1.24 Kg	1.26 Kg	1.28Kg	
备注说明/ Remark						
1. MHF 端子与 1.13 线材拉力 1.0Kg MHF terminal and 1.13 C able pull 1.0Kg. 2. MHF 端子与 1.37 线材拉力 1.5Kg MHF terminal and 1.37 C able pull 1.0Kg. 3. SMA 等连接器与 RG316 RG-173 线材的拉力为 3Kg The tensile strength of SMA and other connectors and RG316 rg-173 Cable is 3Kg.						
测试/ Test		审核/Check		批准/Approve		

2. 恒温恒温试验

测试项目/ Test project	恒温恒温试验	测试编号/ Test No	
产品料号/ Part No:	YP-A200-JK-010	试验数量/ Number of test	5PCS
产品规格/ specification	IPEX-2.4G/5.8G-FPC-RG113-L250mm		
测试设备/ Test equipment	1. 恒温恒湿试验箱/ Constant temperature and humidity test case 2. 网络分析仪/ Network analysis ;		
测试条件: Testing Conditions	1. 温度/Temp:25°C 2. 湿度/ Humidity : 65% 温度: 25°C Humidity : 85 ~ 90% (R.H)持续时间: 24 小时 Duration : 24 hours		
测试结果/ Test result	☒ 合格/OK ☐ 不合格/NG		
判定标准/ Requirement			
1. 金属表面镀层无脱落层 There is no peeling layer on metal surface. 2. 表面不可起皱，分离等外观不良现象 The surface is not wrinkled, and the appearance of separation is undesirable. 3. 非金属部分不可生发色变，开裂，变型，脱胶等不良现象 Non-metallic parts shall not be changed in color, cracking, variation, degumming and other undesirable phenomena. 4. 可靠测试完毕后，电气性要求符合测试要求。 After reliable testing, the electrical requirements meet the test requirements			
测试/ Test		审核/Check	批准/Approve

3. 高低温冷热冲击

测试项目/ Test project	高低温冷热冲击	测试编号/ Test No	
产品料号/ Part No:	YP-A200-JK-010	试验数量/ Number of test	5PCS
产品规格/ specification	IPEX-2.4G/5.8G-FPC-RG113-L250mm		
测试设备/ Test equipment	1. 高低温交变温热箱/ High and low temperature alternating heat box 2. 网络分析仪/ Network analysis ;		
测试条件: Testing Conditions	1. 高温/High Temp:85°C 2. 低温/Low Temp: -40°C 3. 高低温进行 6 次循环/ High and low temperature for 6 cycles. 4. 持续时间:24 小时/Duration : 24 hours		
测试结果/ Test result	☒ 合格/OK ☐ 不合格/NG		
判定标准/ Requirement			
1. 金属表面镀层无脱落层 There is no peeling layer on metal surface. 2. 表面不可起皱，分离等外观不良现象 The surface is not wrinkled, and the appearance of separation is undesirable. 3. 非金属部分不可生发色变，开裂，变型，脱胶等不良现象 Non-metallic parts shall not be changed in color, cracking, variation, degumming and other undesirable phenomena. 4. 可靠测试完毕后，电气性要求符合测试要求。 After reliable testing, the electrical requirements meet the test requirements			
测试/ Test		审核/Check	批准/Approve

4. 盐雾试验 Salt Spray

测试项目/ Test project	盐雾试验	测试编号/ Test No	
产品料号/ Part No:	YP-A200-JK-010	试验数量/ Number of test	5PCS
产品规格/ specification	IPEX-2.4G/5.8G-FPC-RG113-L250mm		
测试设备/ Test equipment	1. 盐雾机/ Salt spray machine 2. 网络分析仪/ Network analysis ;		
测试条件: Testing Conditions	1. 溶液为 PH 值为 6.5-7.2 的 5%Nacl 溶液, concentration : 5±1 % PH:6.5-7.2 , 2. 连续喷雾;试验温度为 35±2℃, continuous spray 。 temperature : 35± 2 ℃ 3. 喷雾时间为 24 小时: Spray time: 24 hours		
测试结果/ Test result	☒ 合格/OK ☐ 不合格/NG		
判定标准/ Requirement			
1. 观察实验品表面无腐蚀现象。 The sample's surface without cautery to inspect 2. 可靠测试完毕后, 电气性要求符合测试要求。 After reliable testing, the electrical requirements meet the test requirements			
测试/ Test		审核/Check	批准/Approve

包装规范/ packaging specification

产品料号/ Part No:	YP-A200-JK-010											
产品规格/ Specification	IPEX-2.4G/5.8G-FPC-RG113-L250mm											
标签图示/ Label signal												
<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td> </td></tr> <tr><td>客户名称:</td></tr> <tr><td>品名规格:</td></tr> <tr><td>料 号:</td></tr> <tr><td>产品批号:</td></tr> <tr><td>数 量:</td></tr> <tr><td>日 期:</td></tr> </table>							客户名称:	品名规格:	料 号:	产品批号:	数 量:	日 期:
客户名称:												
品名规格:												
料 号:												
产品批号:												
数 量:												
日 期:												
装箱说明/ Qty Description												
1. 内包装 ■ 产品 <u>50</u> PCS 包装/小袋 ■ 产品 <u>500</u> PCS 包装/大袋 2. 外包装 ■ 产品 <u>5000</u> PCS 包装/箱 (预估实际量产后更新包装信息) ■ 3. 重量: 正式量产后更新 4. 注意事项: ■ 客户是否有指定标签 ■ 客户是否有指定包装方式及纸箱规格												
制表		审核/Check		批准/Approve								