天线规格书

Antenna specification

制造商名称： Manufacturer：	万物相连通讯襄阳有限公司 All things connected Communications Xiangyang Limited
供应商名称 Supplier:：	万物相连通讯襄阳有限公司 All things connected Communications Xiangyang Limited
产品名称： Part Description:	Built-in antenna内置天线
规格型号: Model No:	WWXL6009225
物料编码： Cust P/N:	360100370
日期： Issued Date：	2022.12.01

供应商确认Supplier confirmation

承办Made By	审核Engineer	批准Approver
DAIHONGBO		TONGXIAOYAN

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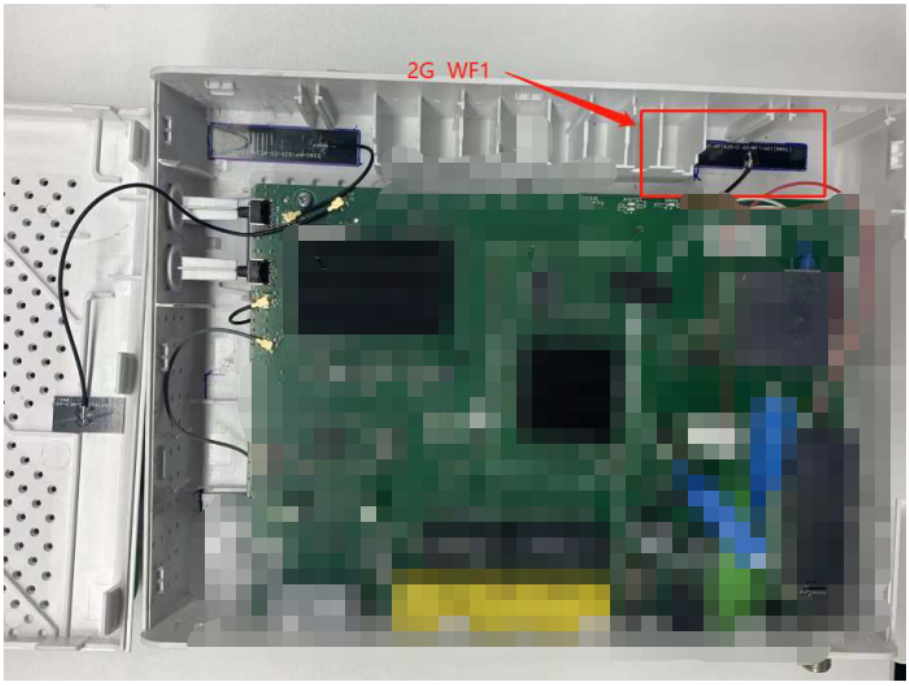
一、Product pictures产品图片



二、Test parameters产品测试参数

产品名称Name内置天线（WWXL6009225）		型号 ModelType	
电气参数ELECTRICAL SPECTFICATIONS		机械参数 MECHANICAL SPECTFICATIONS	
频率范围 FrenquencyRange 2400-2500MHz		尺寸Dimensions	40.2*7.42*1.1mm
输入阻抗 Impedance	50Ω	连接器型号Connector	IPEX
驻波比 VSWR	≤2.0	线长linelength	205±2mm 1.13 Low loss line gray 低损耗线灰色
增益 Gain	Max antenna Gain：2.37dBi	效率 Efficiency	≥51.89%
极化方式 Polarization	linear Vertical 线极化	工作温度WorkingTemperature	-45℃ – +85℃
辐射方向 Radiation	Omnidirectional 全向	存放温度Limit Temperature	-45℃ – +85℃

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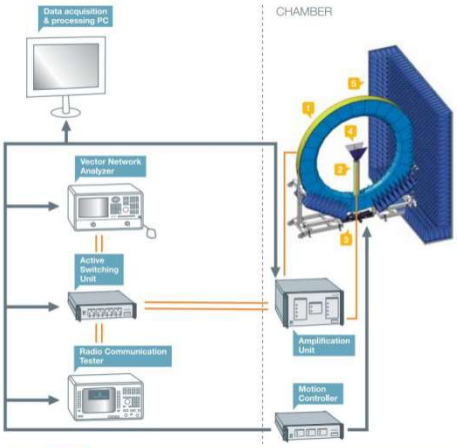
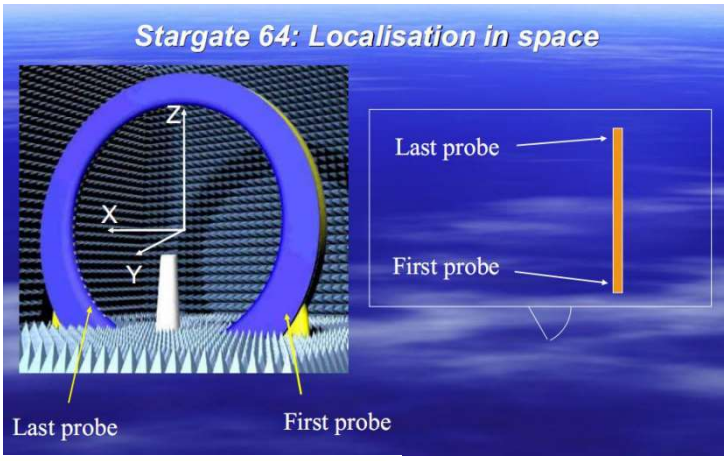
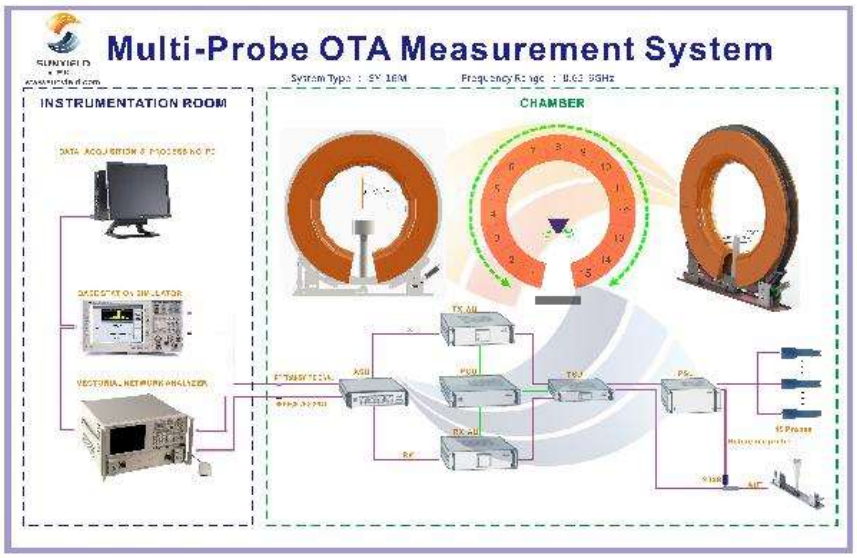
Cell phone：136 6268 4409 URL：www.wwxltx.cn

三、Antenna test environment天线测试环境



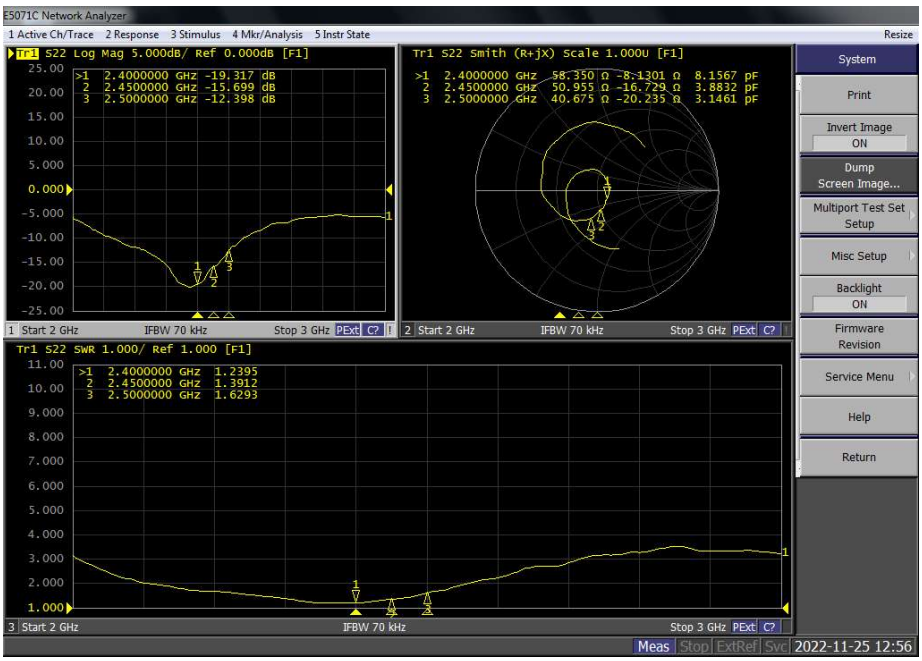




test macro 测试系统：	SY-16M Antenna measurement system 天线测量系统
testing environment 测试环境：	temperature 温度 22℃±3℃，humidity 湿度 50%±15%
testing equipment 测试设备：	Agilent 5071C Agilent 8960 Comprehensive measuring instrument 综测仪 Agilent CMW500 4G Comprehensive measuring instrument 综测仪

四、Antenna Passive Parameters天线无源参数：

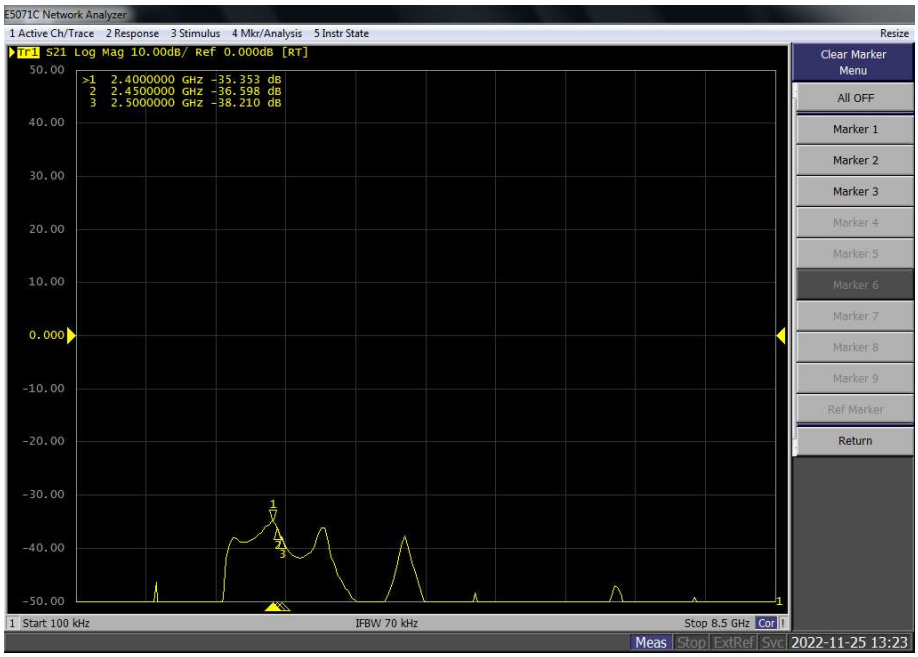
1、VSWR驻波比图：



V.S.W.R

Freq/GHz	2.4	2.45	2.5
VSWR	1.2	1.3	1.6

A天线与2.4G天线隔离度图：



Isolation of antenna A and 2.4G antenna

A天线与2.4G天线隔离度值

频率（MHZ）	2.4	2.45	2.5
隔离度（DBI）	-35.35	-36.59	-38.21

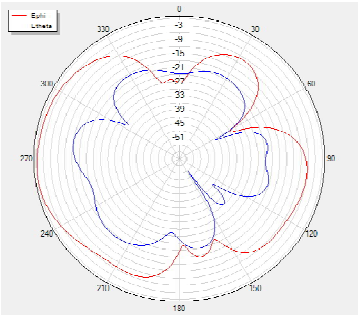
2、Gain and Efficiency增益和效率：

Gain&Efficiency&PhaseCenter 增益、效率和相位中心								
frequency 频率 (MHz)	gain 增益(dBi)	efficiency 效率(%)	frequency 频率 (MHz)	gain 增益 (dBi)	efficiency 效率(%)	frequency 频率 (MHz)	gain 增益 (dBi)	efficiency 效率(%)
2400	2.3	52.33						
2410	2.09	51.38						
2420	2.06	51.03						
2430	2.02	51.15						
2440	2.06	51.41						
2450	2.15	52.38						
2460	2.29	53.69						
2470	2.33	54.19						
2480	2.37	53.9						
2490	2.4	53.81						
2500	2.29	51.53						

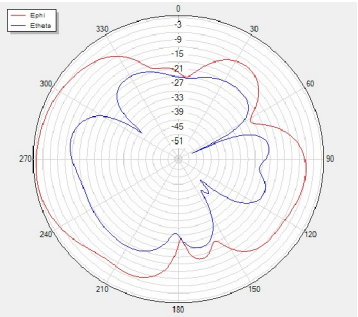
3、2D/3D directional diagram 2D/3D方向图：

天线方向图-2.4G-WF1 Unit: dBi

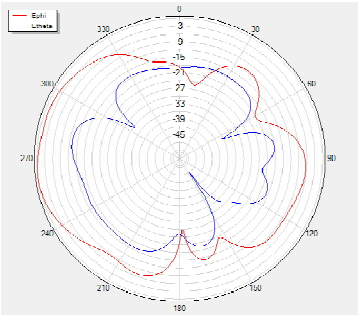
Phi=90 freq=2400MHz

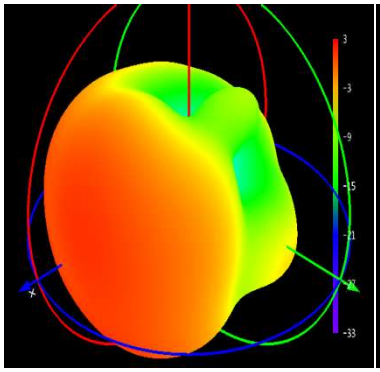


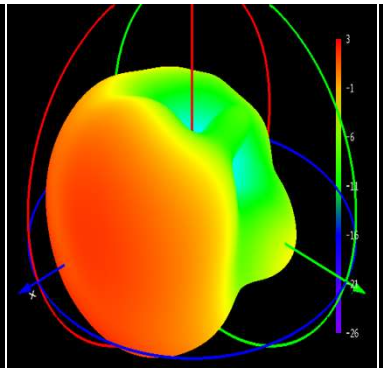
Phi=90 freq=2450MHz

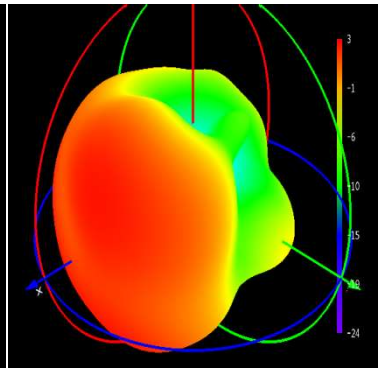


Phi=90 freq=2500MHz









4. Active parameter有源数据：

Test mode：802.11b 11Mbps BW 20M
Standard:TRP≥10dbm TIS≤-60dbm

Test	Wifi 2G TRP				Test	Wifi 2G TIS		
CH	1	6	11		CH	1	6	11
Frequency (MHz)	2412	2437	2462		Frequency (MHz)	2412	2437	2462
TRP(dBm)	24.21	24.35	24.68		TIS(dBm)	-82.34	-82.69	-82.98

Test mode：802.11g 54Mbps BW 20M
Standard: TRP≥10dbm TIS≤-60dbm

Test	Wifi 2G TRP				Test	Wifi 2G TIS		
CH	1	6	11		CH	1	6	11
Frequency (MHz)	2412	2437	2462		Frequency (MHz)	2412	2437	2462
TRP(dBm)	21.34	22.53	23.81		TIS(dBm)	-79.69	-80.61	-81.15

Test mode：802.11nMcs7 BW 20M
Standard: TRP≥10dbm TIS≤-60dbm

Test	Wifi 2G TRP				Test	Wifi 2G TIS		
CH	1	6	11		CH	1	6	11
Frequency (MHz)	2412	2437	2462		Frequency (MHz)	2412	2437	2462
TRP(dBm)	23.9	22.67	24.91		TIS(dBm)	-75.93	-76.39	-77.3

Test mode：802.11a 54Mbps BW 20M
Standard: TRP≥10dbm TIS≤-60dbm

Test	Wifi 5G TRP					Test	Wifi 5G TIS			
CH	36	64	149	161		CH	36	64	149	161
Frequency (MHz)	5180	5240	5745	5805		Frequency (MHz)	5180	5240	5745	5805
TRP(dBm)	19.43	18.13	24.29	24.42		TIS(dBm)	-77.8	-78.99	-77.36	-78.31

五、Product characteristics产品特点

1. Choose high-quality RF cable with small attenuation选用优质射频电缆，自身衰减小；
2. Stable performance性能稳定；
3. Stable performance频带内驻波良好。

六、Drawing产品结构图

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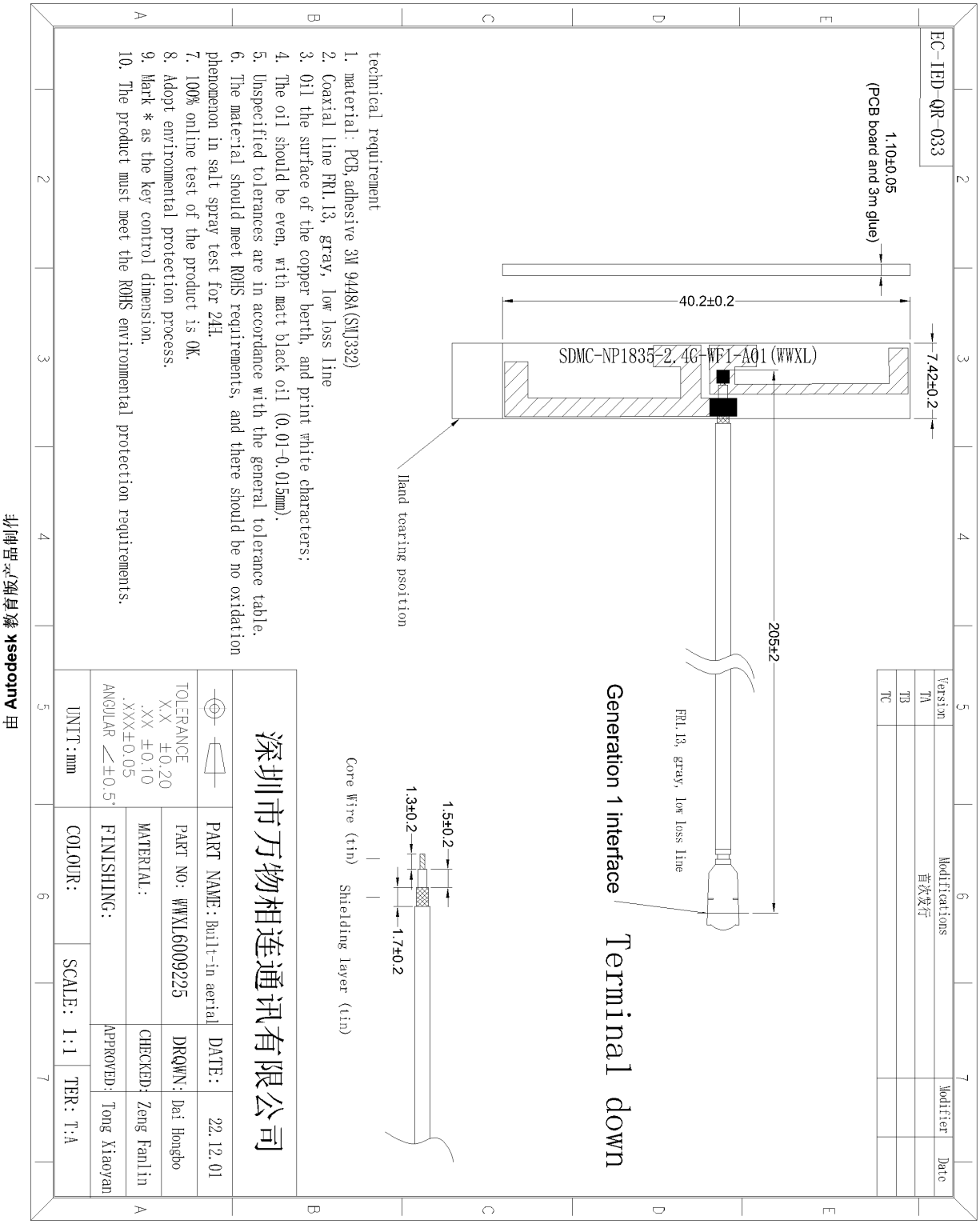

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七、Reliability testing环境可靠性试验报告

1 Environmental experiment环境试验

High and low temperature and humidity test report			
test project	High temperature, low temperature and constant humidity test		
name	Built-in antenna (WWXL6009225)	date	2022.12.01
device	Constant temperature and humidity test box network analyzer	Quantity	5PCS
Inspectin standards	1. There are no defects such as peeling off, cracks, wrinkles, etc. on the metal surface; non-metal parts must not have defects such as discoloration, cracking, deformation, degumming. 2. The electrical test meets the design requirements; the voltage standing wave ratio test is satisfactory.		

Test name	Pilot projects	request	experiment method	Actual test data	result	
					sample	Assessment result
High temperature test	Temperature (℃) Test sample temperature stabilization time (H) Test duration (h) Recovery time (h)	+85±3 1 2 1	9 according to GB2423.1-89 Method	+87 1.2 2.3 1	1	qualified
					2	qualified
					3	qualified
					4	qualified
					5	qualified
Low temperature test	Temperature (℃) Test sample temperature stabilization time (h) Test duration (h) Recovery time (h)	-45±3 1 2 1	8th in accordance with GB2423.1-89 Method	-46 1.2 2.4 1.1	1	qualified
					2	qualified
					3	qualified
					4	qualified
					5	qualified
Constant Damp Heat Test	Temperature (℃) Relative	+40±2 90-95 21	According to GB2423.3-93 Section 5	+42 92 22	1	qualified
					2	qualified
					3	qualified

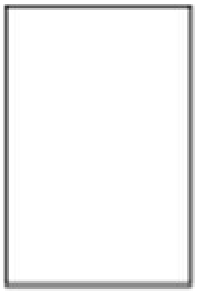
	humidity (%) Test duration (h) Recovery time (h)	1	Method	1.1	4	qualified
					5	qualified

b. Salt spray test

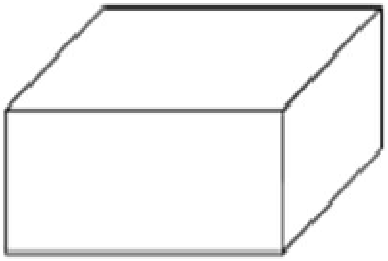
Salt fog test report				
Test item	Salt spray test			
Name	Built-in antenna (WWXL6009225)		date of observation	2022.12.01
Device name	Salt spray corrosion test box		Test quantity	5 PCS
Test method	The test samples were put into the modulated salt solution test chamber and salt spray corrosion chamber for continuous spray test			
Salt solution concentration	52g/L	PH Value of Salt Solution：6.5-7.2		Test cycle： 24h
Actual test data	55g/L	PH Value of Salt Solution：6.8		Test cycle： 26h
Test standard	Tests were carried out according to GB/T10125 "Artificial Atmosphere Corrosion Test and Salt Spray Test"; Results According to GB/T6461-2002 "Metal and other inorganic coatings on metal substrates after corrosion test are samples and specimens			

Test result				
NO	Corrosion resistance grade	Actual test data	Assessment result	Remarks
1	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
2	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
3	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
4	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	
5	Rp/Ra=10/10vsB	Rp/Ra=10/10vsB	qualified	

八、Packing instructions包装说明：



100PCS/Pouch



30Pouch/1Caron

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