



深圳市宇鸿实业有限公司
Shenzhen Yuhong Industrial Co., Ltd

承认书

SPECIFICATION FOR APPROVAL

客户名称 CUST OMER: Shenzhen kaishibo Electronic Co., Ltd

客户料号 CUS PART NO: H16E

品名规格 PART NAME: FPC Bluetooth antenna

宇鸿料号 TPT PART NO: _____

版 本 edition: V3.0

客户签章 Customer signature: _____ 日期 date: _____ 年 月 日

采购部 Purchasing Department	工程部 engineering Ministry	批准 approval

宇鸿实业 Yuhong industry: _____ 日期 date: 2021 年 08 月 26 日

Structure Department	工程部 engineering Ministry	批准 approval
Cindy	long	tony



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Please return one specification or one copy of it with your chop and signature of approval and retain the others for your record. In the event of an order being placed for this part number before the chop and signed with specification (or copy) is returned and without special explanation, it will be assumed that full approval have been given.

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目录 catalog

封 面 Cover.....	1
目 录 catalog.....	2
一、成品图片 Finished product picture	3
二、产品参数 Product parameters.....	3
三、天线测试环境 Antenna test environment	4
四、天线匹配 Antenna matching.....	5
五、数据 data.....	6-7
六、产品结构图 Product structure diagram	8
七、环境，盐雾试验报告 Environment, salt spray test report	9-13
1、环境试验 environmental test	9-11
2、盐雾试验 Salt spray test	12-13
八、材料成分及有害物质表 List of material composition and harmful substances.....	14
九、模具样检测报告 Mould sample test report.....	15

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修订记录 Revision record

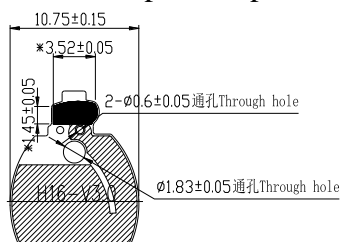
版本号 Version number	更改内容 Change content	生效年月 Effective date
V1.0	初始版本 Initial version	2021-08-26

天线规格书

Antenna specifications

一、成品图片（仅供参考）

Finished product picture (for reference only)



二、产品参数

Product parameters

产品名称 Name H16E	型号 Model Type H16E
频率范围 Frequency Range 2400~2480 MHz	驻波比 VSWR 2400~2480MHz ≤ 1.5
增益 Gain 0.81 dbi	辐射方向 Radiation 全向
极化方式 Polarization 垂直 / 水平 Vertical / horizontal	

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三、天线测试环境

Antenna test environment

SG24-L(4m*4m*4m)



网络综测仪 Network integrated measuring instrument (CMW500)



OTA 测试头模 Test head



网络分析仪 network analyzer (5071B)



测试系统 Test system:/SY-24M 天线测量系统 antenna measurement system

测试环境 testing environment: 温度 temperature $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$, 湿度 humidity $50\% \pm 15\%$

测试设备 Test equipment: Agilent 5071B Agilent CMW500 综测仪

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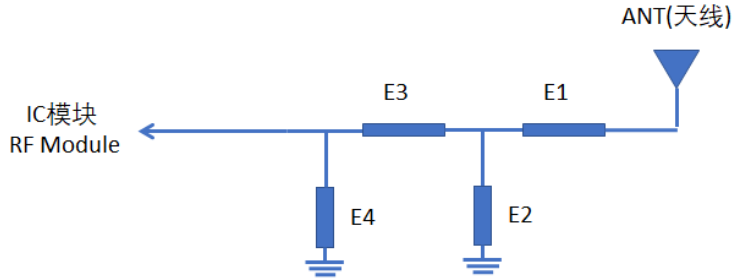
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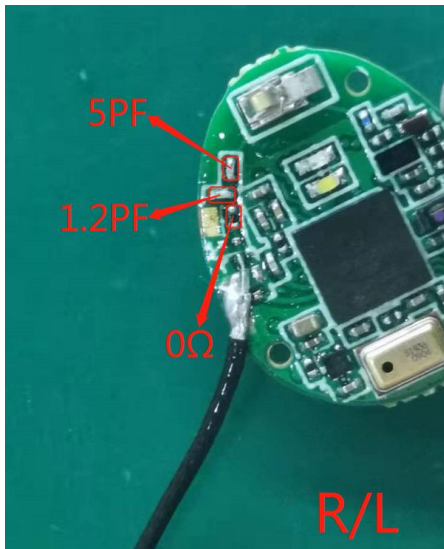
四、 天线匹配

Antenna matching



匹配说明 Match description	MINA ANT
E1	N/C
E2	5PF
E3	1.2PF
E4	
R/L	

匹配参数示意图: Matching diagram:



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五、天线数据

Antenna data

5.1 无源

Passive



5.2 无源数据（效率&增益）

Passive data gain

无源测试		
频点 (MHz)	Effi(%)	Gain (dBi)
2400	27.79	-0.9
2410	28.29	-0.45
2420	27.91	-0.44
2430	27.40	-0.31
2440	26.85	-0.35
2450	26.98	-0.24
2460	27.20	-0.25
2470	28.35	-0.04
2480	29.45	0.32
2490	30.56	0.61
2500	31.21	0.81

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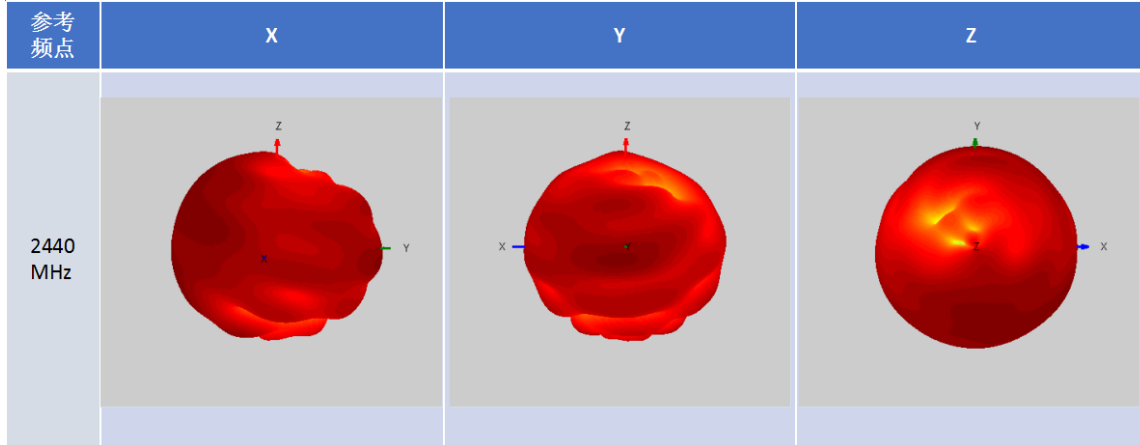
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5.3 效率场型图 Efficiency field pattern



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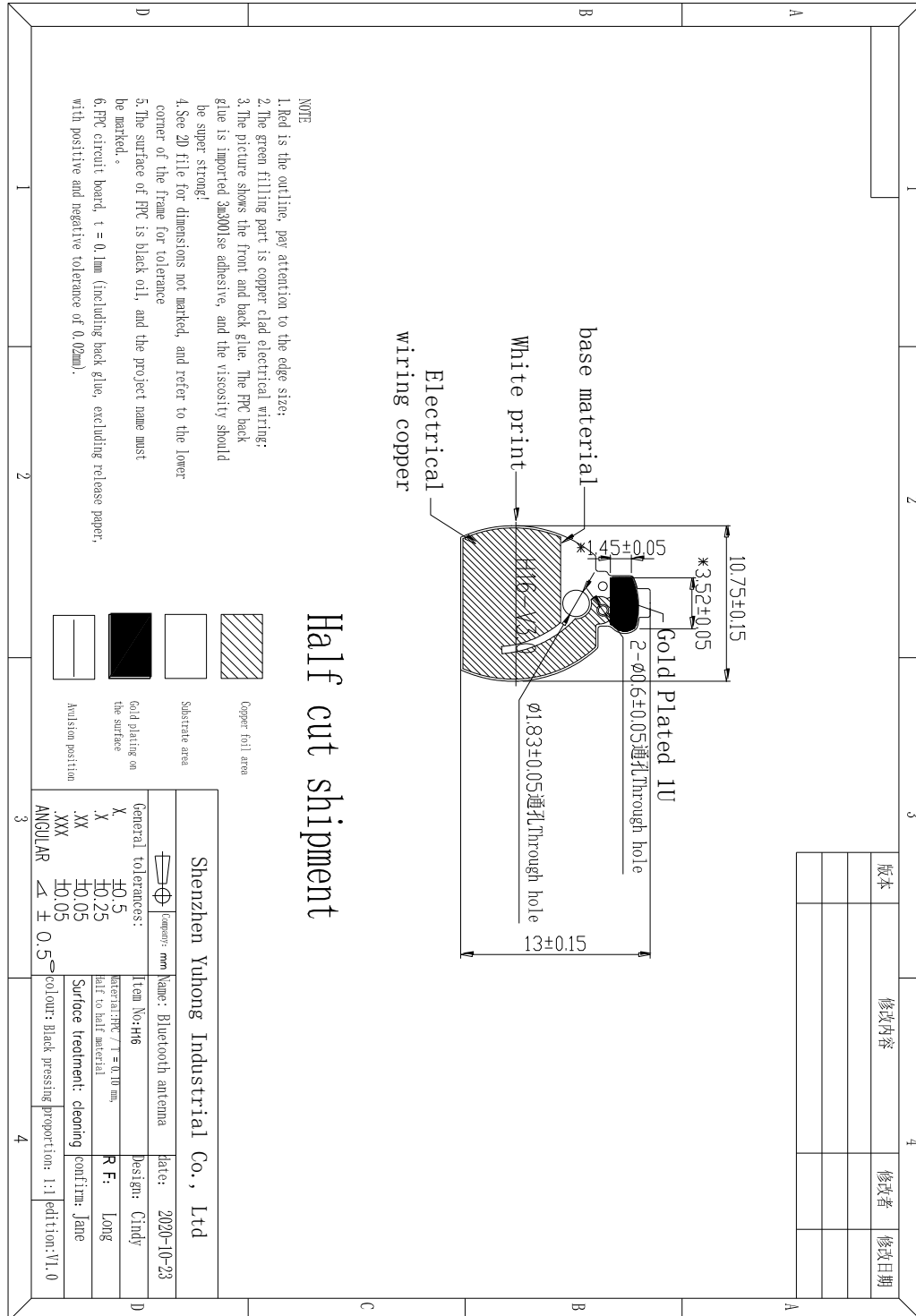
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六、结构图

Structure diagram



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七、环境，盐雾试验报告 Environment, salt spray test report

1、环境试验

environmental test

参数属性 Parameter attribute	参数名称 Parameter name	要求值 Required value	厂家规格值 Manufacturer specification value	产品典型值 Typical value of product
可靠性 reliability	盐雾 Salt fog	≥24hours (35℃, 5%, PH6.5~7.2), 测试后无明显外观不良。There was no obvious appearance defect after the test.	≥24hours (35℃, 5%, PH6.5~7.2), 测试后无明显外观不良。There was no obvious appearance defect after the test.	≥24hours
	高低温 High and low temperature	温度 70℃测试 12H 转 -45℃测试 12H, 时间 24H, 测试后无明显外观不良; 电性能正常。There was no obvious appearance defect after the test; Electrical performance is normal.	温度 70℃测试 12H 转 -45℃测试 12H, 时间 24H, 测试后无明显外观不良; 电性能正常。There was no obvious appearance defect after the test; Electrical performance is normal.	-40~75℃
	冷热冲击 Thermal Shock	-25~85℃; 1hours*10cycle=10hours, 恢复 2H 后无明显外观不良; 电性能正常。There was no obvious appearance defect after 2 h recovery, and the electrical performance was normal.	-25~85℃; 1hours*10cycle=10hours, 恢复 2H 后无明显外观不良; 电性能正常。There was no obvious appearance defect after 2 h recovery, and the electrical performance was normal.	-25~85℃;
	保质期 quality guarantee period	6months	6months	6months

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试验项 Test project	高温、低温、恒湿试验 High temperature, low temperature and constant humidity test					
试验样板名称 Test sample Plate name	H16...FPC 天线		测试日期 date of observation	2021.06.21		
实验/检测设备 Experimental / testing equipment	恒温恒湿试验箱 网络分析仪 Humidity Chamber network analyzer		测试数量 Number of tests	5 PCS		
检验标准 Test standard	<p>1. 金属表面镀层无脱落、裂痕、起皱等不良；非金属部分不能有变色、破裂、变形、脱胶等不良。The coating on the metal surface shall be free from defects such as falling off, cracking and wrinkling; the non-metallic parts shall not have such defects as discoloration, fracture, deformation and degumming.</p> <p>2. 电气测试符合设计要求；电压驻波比测试合格。The electrical test meets the design requirements and the VSWR Test is qualified.</p>					
试验名称 Test name	试验项目 Test items	要求 require ment	试验方法 Test method	实际 测试 数据 Actua l test data	结果 result	
					样品 sample	判定 determine
高温试验 high temperature test	温度 temperature (°C)	+85±3	按照 GB2423.1- 89 第 9 章 规定的方 法进行 According to Chapter 9 of gb2423.1- 89 In the prescribe d way	+87 1.2 2.3 1	1	合格 qualified
	试验样品温度稳定 时间 Temperature stabilization time of test sample (h)				2	合格 qualified
	试验持续时间 Test duration (h)				3	合格 qualified
	恢复时间 recovery time (h)				4	合格 qualified
					5	合格 qualified
低温试验 low	温度 temperature (°C)	-45±3	按照 GB2423.1-	-46 1.2	1	合格 qualified

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temperature test	试验样品温度稳定时间 Temperature stabilization time of test sample (h) 试验持续时间 Test duration (h) 恢复时间 recovery time (h)	2	89 第 8 章规定的方法进行 According to Chapter 8 of gb2423.1-89 In the prescribed way	2.4 1.1	2	合格 qualified
		1			3	合格 qualified
					4	合格 qualified
					5	合格 qualified
恒定湿热试验 Constant humidity Thermal test	温度 temperature (°C) 相对湿度 relative humidity (%) 试验持续时间 Test duration (h) 恢复时间 recovery time (h)	+40±2 90-95 21 1	按照 GB2423.3-93 第 5 章规定的方法进行 According to Chapter 5 of gb2423.3-93 In the prescribed way	+42 92 22 1.1	1	合格 qualified
					2	合格 qualified
					3	合格 qualified
					4	合格 qualified
					5	合格 qualified

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2、盐雾试验

Salt spray test

盐雾试验报告 Salt spray test report			
试验项目 Test items	盐雾试验 Salt spray test		
试验样板名称 Name of test sample plate	H16	测试日期 date of observation	2021.06.21
设备名称 Equipment name	盐雾腐蚀试验箱 Salt spray corrosion test chamber	测试数量 Number of tests	5 PCS
试验方法 test method	将测试样板放入调制好的盐溶液试验箱内、盐雾腐蚀箱进行连续喷雾试验 The test samples were put into the modulated salt solution test chamber and salt spray corrosion chamber for continuous spray test.		
盐溶液浓度 Salt solution concentration	52g/L	盐溶液 PH 值 PH value of salt solution: 6.5-7.2	试验周期 Test cycle: 24h
The actual test data is	55g/L	盐溶液 PH 值 PH value of salt solution: 6.8	试验周期 Test cycle: 26h
试验标准 Test standard	The test was carried out according to GB / t10125 "artificial atmosphere corrosion test, salt spray test"; the results were rated according to GB /		

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t6461-2002 "metallic and other inorganic coatings on metal substrates - Rating of specimens and specimens after corrosion test".				
试验结果 test result				
编号 number	耐腐蚀等级 Corrosion resistance grade	实际测试数据 Actual test data	评定结果 Evaluation results	备注 remarks
1	Rp/Ra=10/10vs B	Rp/Ra=10/10vsB	合格 qualified	
2	Rp/Ra=10/10vs B	Rp/Ra=10/10vsB	合格 qualified	
3	Rp/Ra=10/10vs B	Rp/Ra=10/10vsB	合格 qualified	
4	Rp/Ra=10/10vs B	Rp/Ra=10/10vsB	合格 qualified	
5	Rp/Ra=10/10vs B	Rp/Ra=10/10vsB	合格 qualified	

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八、材料成分及有害物质表

List of material composition and harmful substances

产品 BOM 及成分分析 Product BOM and component analysis					
产品拆分描述 Product split description	序号 Serial number	零件名称/外观描述 Part name / appearance description	材质/规格 Material / specification	供应商 supplier	测试报告 Test report 编号 number
零部件名称 Part name					
零部件名称 Part name	1	双面胶 double faced adhesive tape	3M9497	顺帆 Sailing	SHAEC1901358201
	2	电 解 铜 Electrolytic copper	CU:18um AD:20um PI:25um	蔡伦 Cai Lun	SHAEC2001939104
	3	油墨 printing ink	哑光黑油 Matte black oil	优利 Benefits	CC/2019/A0063
	4	镀金 gold-plated	NI:120-280U" AU:1U"	创达 Chuangda	A2190212856101001E
	5				
	6				

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九、模具样检测报告

Sample inspection report

Comprehensive evaluation		<input checked="" type="checkbox"/> OK		<input type="checkbox"/> NG				confirm	to examine	to bear
								Cindy	anna	Jane
Customer name	Shenzhen kaishibo Electronic Co., Ltd			Illustration:						
Customer name	H16									
Customer item No										
Company item No										
Material specification	FPC									
Sample date	2021/6/21									
一、Appearance inspection:										
Visual inspection items	Spot check	Test results								
1. Dirty surface	5PCS	OK								
2. Overflow		OK								
3. waste		OK								
4. tearing		OK								
5. Gold oxidation		OK								
二、Reliability test (5 pcs randomly selected):										
Test items	standard	1	2	3	4	5	Test results			
1. Coating Adhesion Test	The ink should not fall off	nothing	nothing	nothing	nothing	nothing	OK			
2. Salt spray test status	Gold surface without corrosion	nothing	nothing	nothing	nothing	nothing	OK			
3. Wear resistance test	No leakage of substrate	nothing	nothing	nothing	nothing	nothing	OK			
三、Dimension measurement (5 pcs randomly selected):										
position	Reference value	Tolerance + (mm)	Tolerance - (mm)	1	2	3	4	5	detection result	
1	10.75	0.15	0.15	10.76	10.75	10.76	10.74	10.75	OK	
2	13.00	0.15	0.15	13.01	13.02	13.00	13.00	13.00	OK	
3	1.45	0.15	0.15	1.45	1.46	1.44	1.45	1.46	OK	
4	3.52	0.15	0.15	3.52	3.50	3.51	3.50	3.52	OK	
5										
6										
7										
四、Packaging inspection:										
Serial number	Inspection items				Test results					
1	Is the packing material correct				OK					
2	Is the packing quantity correct				OK					
3	Is the label correct				OK					

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