

## Confirmation of Material

**Supplier:** Shenzhen Fubang wireless  
Technology Co., LTD

**Model NO:** GM-E13GNS5

**Product Name:** Main antenna

**Spec/Type:** \_\_\_\_\_

**Material code:** 01.02.05.00015

**Colour:** black

**Address:** 3 / F, Building 1, Dalang Lianjian  
Science and Technology Industrial Park,  
Longhua District, Shenzhen

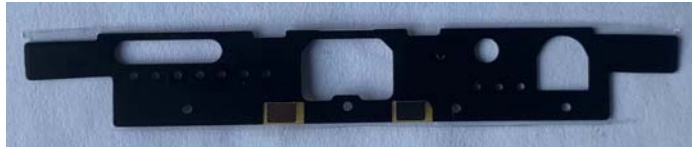
**Contacts/phone:** Zhang Haiyan 13691727201


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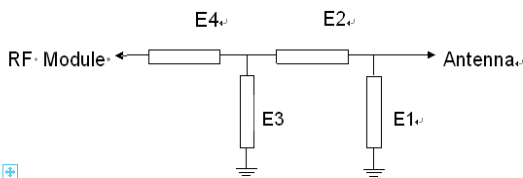
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# 1、 Specification

This report mainly provides the testing conditions of various electric and structural performance parameters for cell phone antenna ----E11 Picture 1 shows the antenna designed by FUBANG.



## 2 、 Matching circuit diagram



开关公共端(L1421)=27NH,RF1=0 欧,RF2=10NH,  
RF3=NC,RF4=NC

Element	Value
C1402	33PF
R1413	100NH
L1401	15NH
R1405	0 欧姆
L1404	NC

## 3、 VSWR Testing

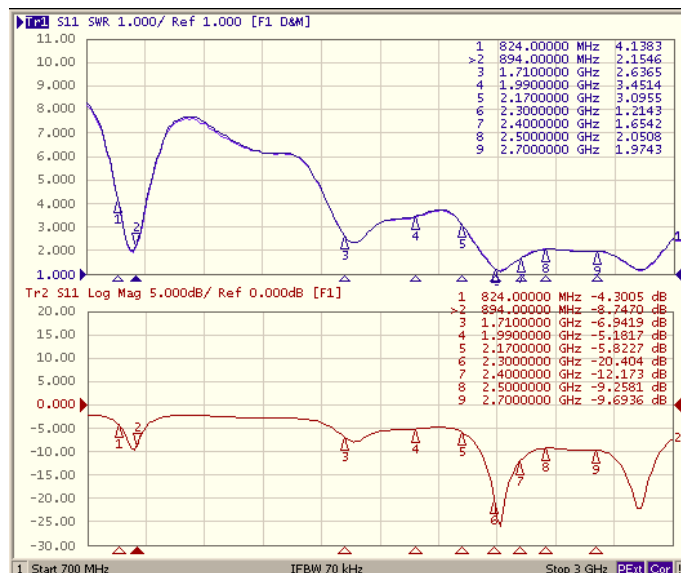
### 3.1 Testing connection

The VSWR testing devices are connected in sequence: Agilent5071C Network Analyzer → Testing Cable → Customer-providing Devices.

### 3.2 VSWR

The following table expresses the VSWR value of antenna's two edges of its frequency range. With regard to the relevant diagram of VSWR

### 3.3 Testing data



E11 DANT VSWR/Return Loss

Main antenna VSWR									
Freq(MHz)	824	894	1710	1990	2170	2300	2400	2500	2700
Free Space	4.13	2.15	2.63	3.45	3.09	1.22	1.65	2.05	1.97

## 4、 Test the efficiency of the antenna Testing

### 4.1 Testing field

FB Microwave Anechoic Chamber : testing frequency ranges from 400MHz to 6GHz and the 40cm diameter spherical quiet zone, the chamber provides less than -90dB reflectivity from 400MHz—6GHz.

### 4.2 Testing results

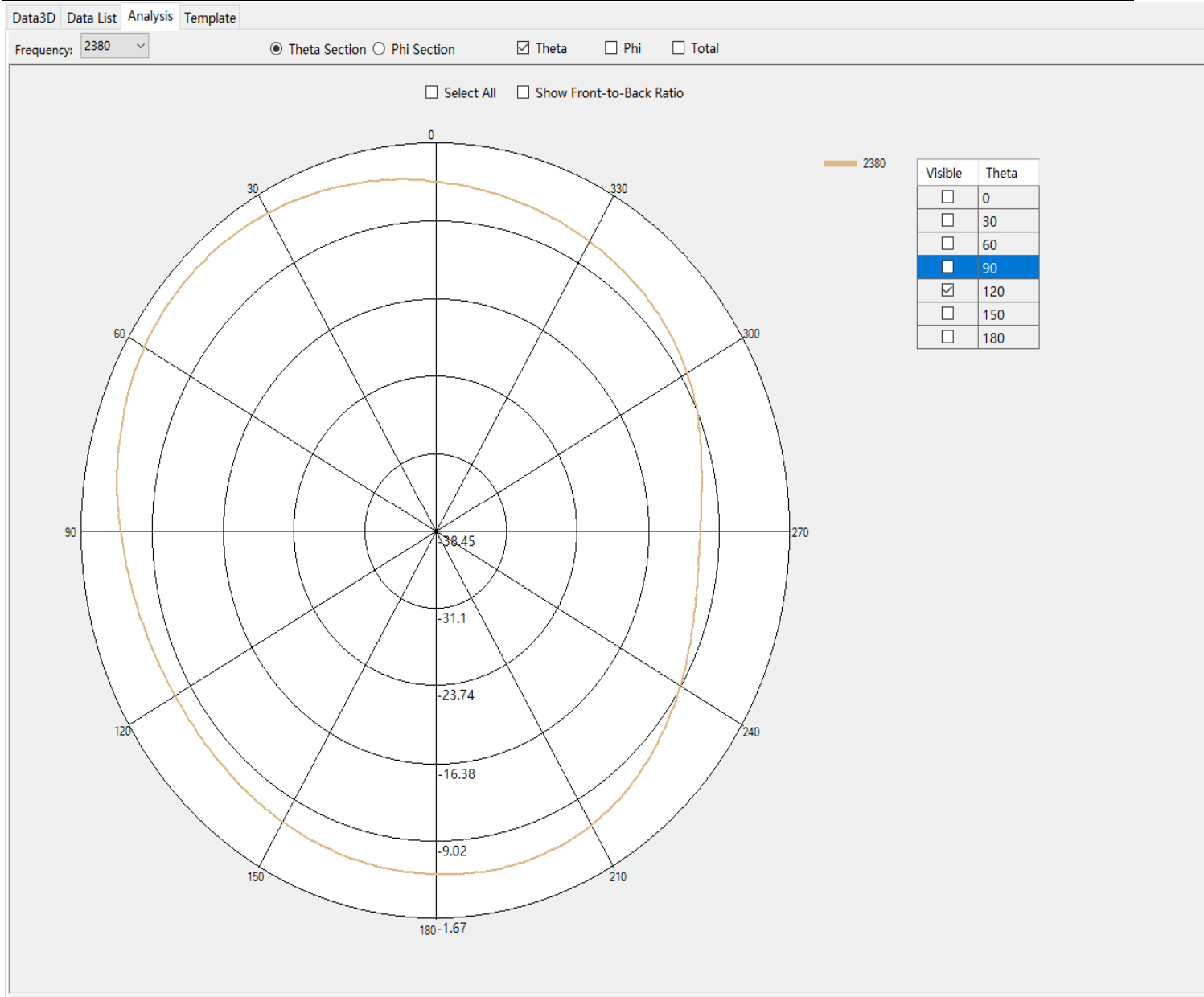
The following table indicates the testing results related to Power and Sensitivity in Microwave Anechoic Chamber, concerning the relative diagram.

Test State	Band	TRP/TIS	E11 有源数据		
			Channel		
			I	M	H
2G	GSM850	TRP	25.63	25.84	25.83
		TIS			-102.64
	E-GSM900	TRP	25.22	25.48	25.32
		TIS			-103.64
	DCS1800	TRP	24.65	25.11	25.51
		TIS			-105.25
PCS1900	TRP	27.51	27.45	26.66	
	TIS			-105.74	
3G	WCDMA Band 1	TRP	19.2	18.93	18.93
		TIS			-108.48
	WCDMA Band 2	TRP	19.16	19.18	19.24
		TIS			-106.21
	WCDMA Band 5	TRP	15.92	16.04	16.38
		TIS			-106.55
WCDMA Band 8	TRP	15.17	15.22	15.05	
	TIS			-105.27	
4G	LTE Band 1	TRP	19.95	19.72	19.68
		TIS			-97.09
	LTE Band 2	TRP	19.72	19.59	19.55
		TIS			-95.69
	LTE Band 3	TRP	18.68	19.06	18.88
		TIS			-96.94
LTE	TRP	16.15	16.16	16.18	

	Band 5	TIS			-93.47
	LTE Band 7	TRP	19.39	19.76	19.91
		TIS			-95.8
	LTE Band 8	TRP	15.73	16.01	15.77
		TIS			-93.26
	LTE Band 20	TRP	15.55	16.39	16.36
		TIS			-91.8
	LTE Band 28A	TRP	16.09	16.3	16.7
		TIS			-91.72
	LTE Band 28B	TRP	16.01	15.75	15.44
		TIS			-91.13
	LTE Band 38	TRP	19.87	19.71	19.66
		TIS			-91.68
	LTE Band 40	TRP	17.6	17.65	17.07
		TIS			-90.9
	LTE Band 41	TRP	19.95	20.16	20.58
		TIS			-91.85

#### Antenna Gain

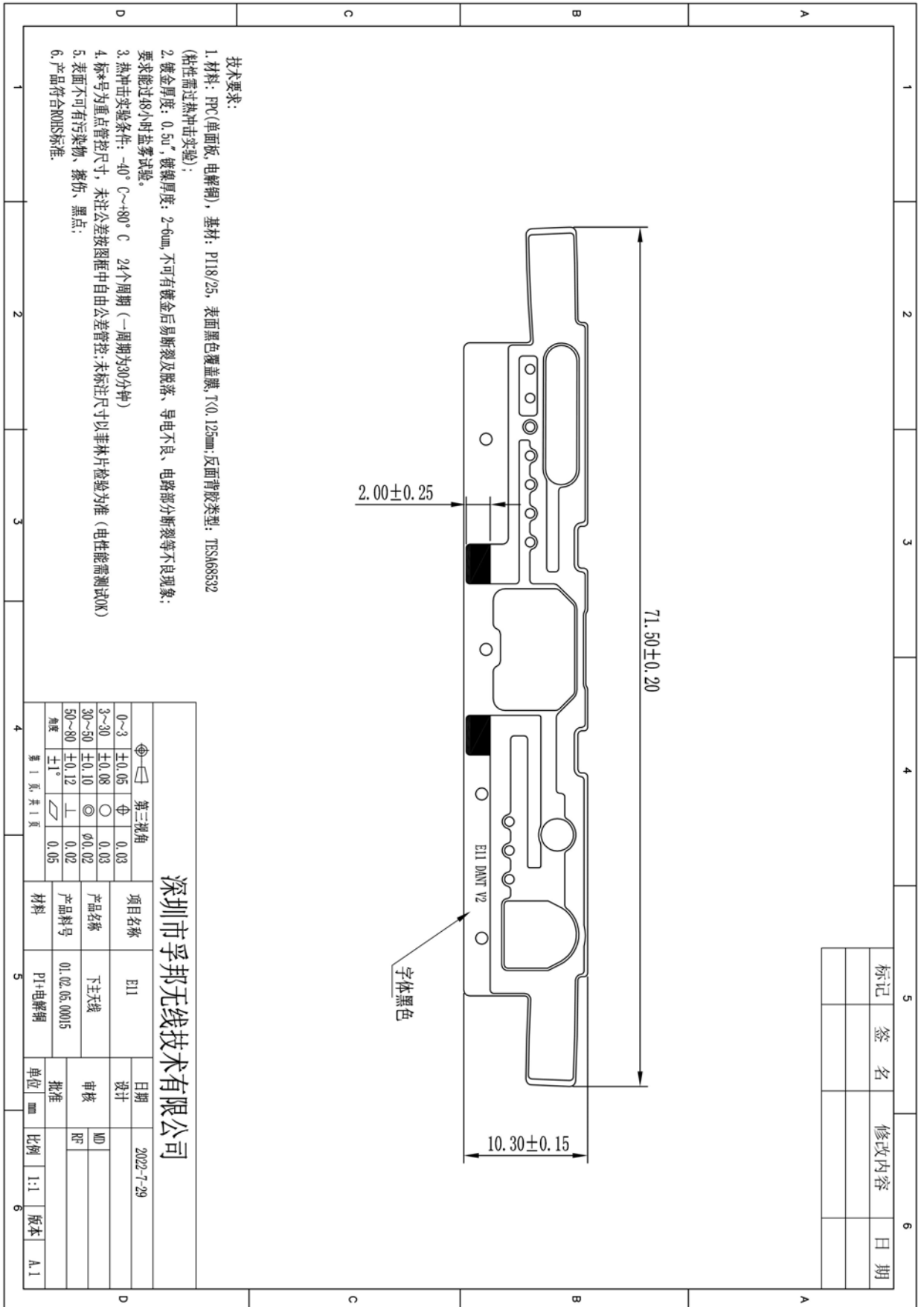
Band	Gain (dBi)
GSM850	-2.7
GSM900	-2.8
DCS1800	-2.4
PCS1900	-2.3
W1	-2.1
W2	-2.3
W5	-2.7
W8	-2.8
1	-2.1
2	-2.3
3	-2.4
5	-2.7
7	-2.2
8	-2.8
20	-2.8
28A	-3
28B	-3
38	-2.2
40	-2.3
41	-2.2



## 5、 Environmental treatment

Environment handling of the original machine.

## **6.Engineering Draw**



7.Measurement Report



**深圳市孚邦无线技术有限公司**  
 SHENZHEN FUBANG Electronic TECHNOLOGY CO., LTD  
**全尺寸检测报告**

报告编号:FUBQA20221221015

2022年12月21日

品名 Product name	GM-E13GNS5 下主天线	订单号 Order NO.		类别 Category	<input type="checkbox"/> 模具零件 <input type="checkbox"/> 材料评估 <input checked="" type="checkbox"/> 送样评估 <input type="checkbox"/> 其他							
料号 Serial No	01.02.05.00015	批 量 Batch	5PCS									
序号 Number	图面规格 Specifications	量具 Tool	测试结果 Test results							判定Result		备注Remark
			1#	2#	3#	4#	5#	6#	7#	OK	NG	
1	71.5±0.20	P	71.57	71.55	71.59	71.58	71.57			OK		
2	10.3±0.15	P	10.35	10.31	10.33	10.37	10.33			OK		
3	2.0±0.25	P	2.13	2.16	2.12	2.15	2.17			OK		
	以下空白											
量具代号 Code	卡尺 C    千分尺 M    投影仪(二次元) P    钢尺 S									最终判定 Final results		
										OK		
备注 Remarks												

FUB-4-PG-062/A.1

核准: 刘丽萍

审核: 刘丽萍

检验员: Wind

**8.Reliability Test Report**

## 深圳市孚邦无线技术有限公司

SHENZHEN FUBANG ANTENNA TECHNOLOGY CO., LTD

## 盐水喷雾试验报告

salt spray test report

报告编号:FUBQA221220056

日期:12月22日

产品名称 Product name	GM-E13GNS5 下主天线	送检部门 Inspection department	研发	料号 Serial No	01.02.05.00015	试样数量 Qty	5	
试验日期 Date	12月20日	试验时间 Test time	48H	开始START	12月20日10:00	客户Customer		
				结束OVER	12月22日10:00	供应商Supplier	/	
试验条件 Condition	项目 Item			标准 Standard		实测Actually measure MAX   MIN		条件判定 Judge
	试验前产品清洗 Test before cleaning products			GB/T2423.17-2006		用清水清洗		
	产品放置方法 Location mode			GB/T2423.17-2006		15° ~30°		OK
	压缩空气动力 Compressed air power			(1.0±0.1)Kgf/cm		1.1	0.9	OK
	实验室温度 Laboratory temperature			35±1℃		36℃	34℃	OK
	实验室相对湿度 Test chamber relative humidity			85%RH		/		OK
	环境温度 Environment temperature			常温		/		OK
	压力桶温度 The pressure barrel temperature			47±1℃		48℃	46℃	OK
	盐水桶温度 Brine house temperature			35±2℃		37℃	33℃	OK
	盐水浓度 Brine density			1:20(5±1)%		5% NaCl溶液		OK
	盐雾沉降量 Spray volume			1~2ml/H/80cm²		1.7	1.4	OK
	NaCl品质 NaCl			工业盐		建新氯化钠		OK
	蒸馏水品质 Distilled water			饮用纯净水		纯净水		OK
	其它 Other			/		/		OK
试验结果 Experiment a result	白色腐蚀率			GB/T6461-02		无		OK
	样件试验后的外观			GB/T6461-02		/		OK
说明: 1. 盐雾试验作业标准依照中华人民共和国国家标准 GB/T2423.17-2006执行. 2. 试件外观判定标准依照中华人民共和国国家标准GB/T6461-02标准执行. 3. 判定方法: 试样表面白色腐蚀率为0%为保护级别10级; 白色腐蚀率为0~0.1% 为保护级别9级; 白色腐蚀率为0.1%~0.25%为保护级别8级				Explain: 1.Salt fog experiments homework standard according to the People's Republic of China national standard GB/T2423.17-2006 performances. 2. Judge standard according to the People's Republic of China national standard GB/T6461-02 standard a performance. 3. Judge a method:Try the kind surface white corrosion rate as 0% for protect Class 10 classes;The white corrosion rate is 0~0.1% is protect Class 9 classes;The white corrosion rate is 0.1% ~ 0.25% is to protect Class 8 classes				
批准 Grant			审核 Examine			试验员Test clerk		
刘丽萍			刘丽萍			Wind		

FUB-4-PG-051/A.1

## 9.QC Engineering Chart

QC Engineering Chart

Customer(客户)		酷比		Written By(制作)		付仁松		Orig. Date(制作日期)		2020.12.27		
Description(零件名称)		FPC天线		Revised By(校订)		杨文杰		Revised Date(校订日期)		2020.12.27		
Approved By(确认)		莫思远		Approved Date(确认日期)		2020.12.27						
流程编号 Process Number	流程名称 Process Name	制程描述 Process	产品 Product	控制项目 control item	检验方式 check mode	频率 Freq	检验方法 Check method	判定标准 Evaluation standard	担当 Inspector	记录 Record		
1	IQC	来料检验 Incoming inspection	成品 finish goods	外观Appearance、颜色Color、材质Materials、版本Version	Batch inspection, RestrainingGB2828-2003 General II level, AQL: CR=0, MAJ=0.4, MIN=1.0sampling	每批 Each Batch	目检Visual inspection、依据《FPC检验标准》Basis 《FPC Inspection standard》《零件图纸》《Part drawing》	《FPC检验标准》《FPC Inspection standard》《零件图纸》《Part drawing》《材质证明》《Material Certification》	标识符合要求, 无漏贴Mark meets the requirements, no missing paste	IQC	IQC Test Report	
				尺寸 Size	SPCS	每批 Each Batch	二次元进行量测 The quadratic element is measured	《零件图纸》《Part drawing》	标识符合要求, 无漏贴Mark meets the requirements, no missing paste			
				RoHS符合性 RoHS Conformity	标识全检labeling full inspection	每批 Each Batch	每个包装是否有环保标识? 标识是否符合要求? Is there an environmental label on each package? Does the logo meet the requirements?	《FPC检验标准》《FPC Inspection standard》《零件图纸》《Part drawing》	标识符合要求, 无漏贴Mark meets the requirements, no missing paste			
				RoHS符合性 RoHS Conformity	标识全检labeling full inspection	每批 Each Batch	目检Visual inspection、依据《FPC检验标准》Basis 《FPC Inspection standard》《零件图纸》《Part drawing》	《FPC检验标准》《FPC Inspection standard》《零件图纸》《Part drawing》《材质证明》《Material Certification》	标识符合要求, 无漏贴Mark meets the requirements, no missing paste			
				尺寸 Size	SPCS	每批 Each Batch	用直尺测量测量相应尺寸/实装Use ruler to measure corresponding dimension/actual	《零件图纸》《Part drawing》	标识符合要求, 无漏贴Mark meets the requirements, no missing paste			
2	FQC	外观检验 外观 inspection	成品 finish	外观Appearance	全检full inspection	每批 Each Batch	《FQC检验指导书》《FQC inspection instruction》	《FPC检验标准》《FPC Inspection standard》	FQC	FQC Test		
				包装标识 Package label	全检full inspection	每批 Each Batch	Visual inspection、Basis 《Specification for product packaging identification》& 《BOM》	《Specification for product packaging identification》《BOM》				
				外观Appearance	全检full inspection	每批 Each Batch	Visual inspection、Basis 《Specification for product packaging identification》	《FPC检验标准》《FPC Inspection standard》				
3	OQC	出货检验 Outgoing inspection	成品 finish goods	重点尺寸 Important Size	SPCS	每批 Each Batch	二次元进行量测 The quadratic element is measured	《成品外观图》《Exterior drawing of finished product》	OQC	OQC Test Report		
				外观Appearance	标识全检labeling full inspection	每批 Each Batch	每个包装是否有环保标识? 标识是否符合要求? Is there an environmental label on each package? Does the logo meet the requirements?	标识符合要求, 无漏贴Mark meets the requirements, no missing paste				
				RoHS符合性 RoHS Conformity	标识全检labeling full inspection	每批 Each Batch	目检Visual inspection、依据《FPC检验标准》Basis 《FPC Inspection standard》《零件图纸》《Part drawing》	《FPC检验标准》《FPC Inspection standard》《零件图纸》《Part drawing》《材质证明》《Material Certification》				标识符合要求, 无漏贴Mark meets the requirements, no missing paste

**深圳市孚邦无线技术有限公司**  
 SHENZHEN FUBANG Electronic TECHNOLOGY CO., LTD  
**镀金厚度检验报告**  
 Gold thick test report

报告编号: FUBQA221222058

日期: 12月21日

品名 Product name	GM-E13GNS5 下主天线					料号 Serial No	01.02.05.00015					批量 Batch	5PCS
厚度标准	Au: 0.5um, Ni: 50-150um												
序号 Number	测试结果 Test results										备注 Remark		
	CU um					NI um							
1	1#	2#	3#	4#	5#	1#	2#	3#	4#	5#	以下空白		
	0.55	0.53	0.56	0.57	0.52	105.7	115.9	105.65	118.3	119.2			
量具代号 Code	牛津仪器 Smartlink											最终判定 OK	
备注 Remarks													

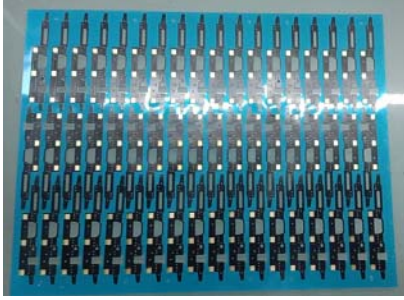
FUB-4-PG-067/A.1

核准: 刘丽萍

审核: 刘丽萍

检验员: Wind

**11.Packing Specification**



用 PE 膜打包  
with PE film packaging



防潮防水 PET 袋封装  
Moistureproof waterproof PET  
bag packaging



放于纸箱内  
Put in the cartons



纸箱用胶带封口  
Carton sealing with duct tape



包装箱整箱外观  
Cases appearance