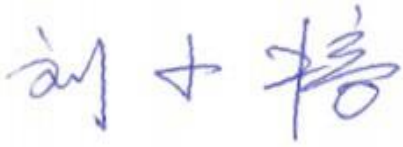
Shenzhen Skyworth Technology Co., Ltd.

SZ SKYWORTH DIGITAL TECHNOLOGY

CO.,LTD ENGINEERING EVALUATION

REPORT (COMPONENTS)

REPORT NO.	EDED2401109	DATE OF APPLICATION	2024-01-18
MODEL	TDY09	APPLICATION NO.	NASP2024010033-1
DESCRIPTIONS	ANTENNA WIFI 50 OHM 196mm/(2.4G/90+5G/80)* 1.13mm * IPEX1 /5dB Wihte-Y FLY Flat S30 RoHS		
SUPPLIER'S PART NO.	3.13.1001003003		
SKYWORTH'S PART NO.	53EM-085525-A017		
MANUFACTURER	Shenzhen Shenzhen Feiyu Xinxin Electric Co., Ltd.		
SAFETY CERTIFICATION REQUIREMENTS	No need		
ENVIRONMENTAL PROTECTION REQUIREMENTS	ROHS2.0		
REMARKS:			
COMMENTS:	IF THERE IS ANY QUALITY PROBLEM,PLEASE FOLLOW THE AGREEMENT OF BOTH		
FICTION:		APPROVAL:	
			

Move

Shenzhen Skyworth Digital Technology Co., Ltd. Version Number V1.3

Material Declaration Parameter Table

Shenzhen Feiyuxin Electronics Co., Ltd.

Shenzhen Feiyuxin Electronics Co.,Ltd

SPECIFICATION FOR CUSTOMS

Supplier Name: **SUPPLIER:**	**Shenzhen Feiyuxin Electronics Co., Ltd.** **Shenzhen Feiyuxin Electronics Co.,Ltd**
Manufacturer Name: **MANUFACTURER:**	**Shenzhen Feiyuxin Electronics Co., Ltd.** **Shenzhen Feiyuxin Electronics Co.,Ltd**
Brand of parts: **PART LOGO:**	FEIYUXIN 飞宇信
Product Name: **PART NAME:**	**IPEX-2.4G/5.8 G-5dBi-White Flat Antenna -113 Grey/Black-L340MM/L320MM**
Manufacturer model: **SPEC. TYPE:**	**3.13.1001003003**
Net weight of monomer (g): **MONOMER NET WEIGHT(g):**	**18.13g**
Outer packing method: **PACKAGE:**	**Bagged**
Minimum Package Quantity (Pcs): **MIN. PACKAGE QTY(Pcs):**	**100PCS**
Production origin: **MANUFACTURING ORIGIN:**	**Shenzhen, China**
Date of tabulation: **DATE:**	**2024-01-03**

The contractor **MANUFACTURER**		
Ficus **DRAFTER**	**Audit** **CHECK**	**Approved** **APPROVER**
Jiang Li-song	**Zhou Xihua**	**Li He**

Name of the **contractor (seal): Shenzhen Feiyuxin Electronics Co., Ltd. Address: 76** Baotong South Road, Xikeng Industrial Zone, Henggang Town, Longgang District, Shenzhen
Tel (Tel):0755-89737230 Fax (FAX):0755-89737181
Web: www.fyxdz.com

Design Specification for External Receiving Antenna

Product physical picture

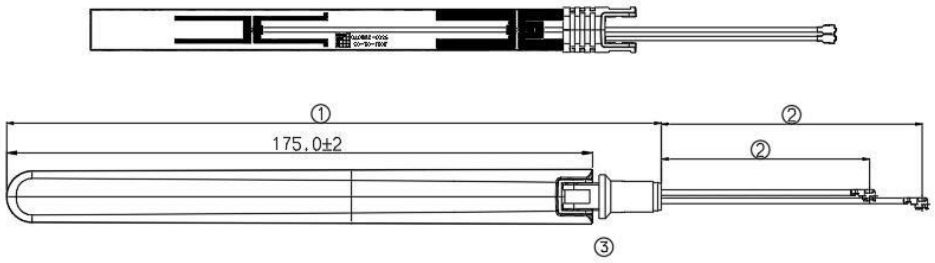
Parameters Property	Parameter Name	Required value	Manufacturer specification value (Manufacturer required)
Basic specifications	glue stick	Move to white, 175mm	Skyworth Mobile White, 175mm
	Feeder	Gray 1.13 line, 90mm; Black 1.13 wire, 80mm;	Gray 1.13 line, 90mm; Black 1.13 line, 80mm;
	feeder end	IPEX (Generation 1)	IPEX (Generation 1)
	Accessories	None	None

Material

Parameters Property	Parameter Name	Required value	Manufacturer specification value (Manufacturer required)
Material	glue stick under the solid	PC New Mobile White Do not add back material	PC New Mobile White No return material added
	Feeder	Conductor 7/0.08±0.005mm plated tin copper wire Weaving 16*4/0.05±0.005 Tinned copper wire	Conductor 7/0.08±0.005mm plated tin copper wire Weaving 16*4/0.05±0.005 Tinned copper wire

Structure size

Structure dimension drawing



Parameters Property	Parameter Name	Required value	Manufacturer specification value (Manufacturer required)	Product mean (Manufacturer required)
Structure size	Length of glue stick	196±3mm	196±3mm	196
	Feedline length	90±3mm;80±3mm;	90±3mm;80±3mm;	90;80;
	The lower fixed outer diameter	Φ13±0.1mm	Φ13±0.1m	Φ 13

Dimensions of fittings (clips)

None				
Parameters Property	Parameter Name	Required value	Manufacturer specification value (Manufacturer required)	Product mean (Manufacturer required)
Structure Dimensions	/	/	/	/

electrical properties

Parameters Property	Parameter Name	Required value	Manufacturer specification value (Manufacturer required)	Typical value of product (Manufacturer required)
electrical properties	Frequency range	2400-2500MHz/5150-5850MHz	2400-2500MHz/5150-5850MHz	Compliance
	characteristic impedance	50Ω	50Ω	Compliance
	Maximum Gain	5dB	5dB	Compliance
	Efficiency	≧ 60%	≧ 60%	Compliance
	S11	≦-10dB	≦-10dB	Compliance

Reliability

Parameters Property	Parameter Name	Required value	Manufacturer specification value (Manufacturer required)	Typical value of product (Manufacturer required)
Reliability	Resistance to welding heat	The temperature of the tin furnace is 265±5 ℃, the wire immersion tin head is immersed in the solder tank at a speed of 1 cm/s until the junction of weaving and the outer coat is reached, maintained for 3 s, and taken out vertically at a speed of 1 cm/s. After the test, there is no obvious poor appearance and no obvious deformation of the insulation layer.	The tin furnace temperature is 265± 5 ℃, and the wire immersion tin head is immersed in the solder tank at a speed of 1 cm/s until the junction between the weaving and the outer coat is maintained for 3 s, and the wire rod is taken out vertically at a speed of 1 cm/s. After the test, there is no obvious poor appearance and no obvious insulation layer. Deformation.	Compliance
	Up and down fixing torque	The antenna bends 100 cycles, Bend 45 degrees, the end of the hanging 50g weight, can keep still.	Antenna bends 100 cycles Ring, bend 45 degrees, 50g weight hanging at the end, can keep still.	Compliance
	salt spray	≧ 24hours (35 ℃,5%,PH6.5 ~ 7.2) After the test, there is no obvious appearance Good.	≧ 24hours (35 ℃,5%,PH6.5 ~ 7 . 2), no obvious after the test Poor appearance.	Compliance
	high and low temperature	Test at 80 ℃ for 12H revolutions After the test at -40 ℃ for 12 hours and 24 hours, there is no obvious appearance defect after the test; frequency offset ≤ 5%.	Test at 80 ℃ for 12H to -40 ℃ for 12 H for 24H, and there is no obvious poor appearance after the test. Frequency Partial ≦ 5%.	Compliance

	hot and cold shock	-25~85 ℃; 1hours * 10cycle = 10 hours s. 2 hours after recovery, there is no obvious appearance defect. Frequency offset ≦ 5%.	-25~85 ℃; 1hours * 10cycle = 10h ours, 2 hours after recovery; Frequency offset ≦ 5%.	Compliance
	Shelf life	6months	6months	Compliance

Note: The supplier drawing standard is allowed to be higher than the design specification.

Specification Recognition Letter

Specification For Approval

Customer Name: 10071

Customer

IPEX-2.4G/5.8 G-5dBi-white flat antenna -113 gray/black-L90MM/L80MM

Part name

Feiyu Information Material Number: 3.13.1001003003

Part No

Customer material number:

Customer Part No

Customer Confirm Customer confirmation		
Confirm	**Check**	**Approver**

Manufacturers acknowledge Manufacturer recognition			
Sales	**Drafters**	**Check**	**Approver**
Li Ying	**Jiang Lisong**	**Zhou Xihua**	**Li He**

Thank you for the opportunity to give our company a sample of recognition. If Huimon admits, please sign this form back to our company.

Thank you for giving us the chance to approve samples. If you agree to pass it, please kindly send it back to us.

Shenzhen Feiyuxin Electronics Co., Ltd.

Address: Feiyuxin Industrial Park, 76 Baotong South Road, Xikeng Industrial Zone, Henggang Town, Longgang District, Shenzhen City,

China Tel: 0755-89737230 Fax: 0755-89737181

http://www.fyxdz.com

Directory Catalog

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7. **Product real shot figure 11**

Modify records

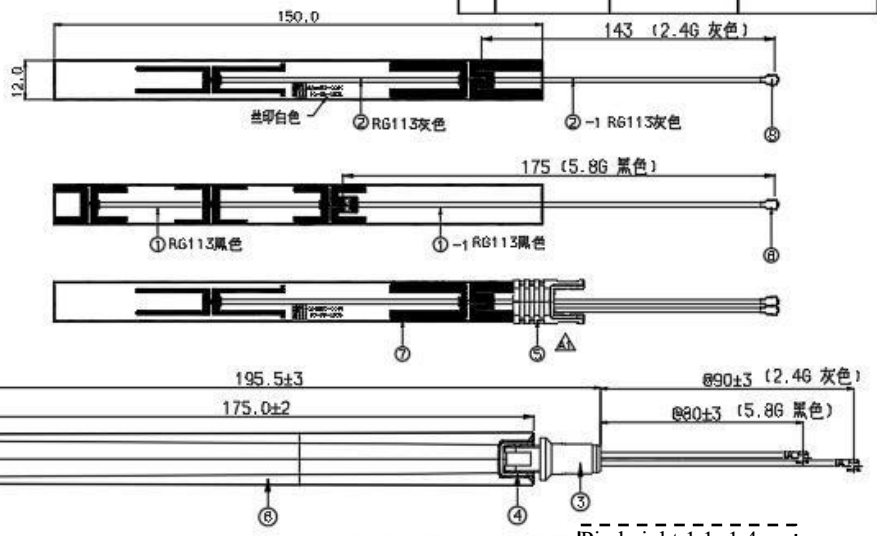
Version	Date	Engineer	Modify content
A0	2023-12-25	Jiang Lisong	New Drawing
A1	2024-01-02	Jiang Li-song	Remove foam, etc.

1. Product I

END PRODUCT DRAWING 成品图

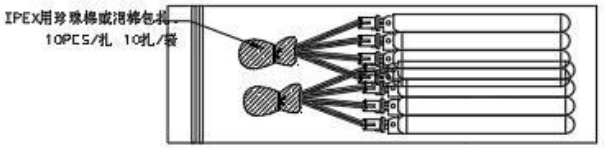
REV	DATE	DESCRIPTION	ECN NO.	NAME
A0	2023.12.25	新订图面		蒋礼松
A1	2024.01.02	去掉泡棉等		蒋礼松

RoHS Compliant



工作频段(Frequency Range)	2400-2500/5150-5850MHz
增益(Gain)	5dBi
电压驻波比(VSWR)	<2.0
极化方式(Polarzation)	Linear
特性阻抗(Lmpedance)	50 ohm

备注：
1. 塑胶/线材无损伤；
2. 成品须100%网分测试OK；
3. 成品须100%全检OK；
4. 采用环保制程；
5. 标注@部分为重点管控尺寸.



No.	Name	Qty	Remark
⑪			
⑩			
⑨			
⑧	20278-112R-13-插头	2	IPEX
⑦	2.4G/5.8G-绿色-双面板-丝印	1	PCB板
⑥	ABS-白色	1	橡胶杆套
⑤	ABS-白色	1	橡胶上座
④	POM-白色	2	铆钉
③	PC-新移动白 ⚠	1	橡胶下座
②	1.13灰	各1	线材
①	1.13黑	各1	线材

角法 ANGLE PROJECTION

公差 GENERAL TOLERANCE
100~200: ±3.00
50~100: ±2.00
25~50: ±0.20
10~25: ±0.10
1~10: ±0.05
▼:Critical Dim ⊕:Major

客户料号(CUSTOMER NO)

产品名称(PRODUCT NAME)
IPEX-2.4G/5.8G-5dBi-白色扁状天线-113灰/黑-L90MM/L80MM

产品料号(PRODUCT NO)	单位(UNIT)	MM	比例(SIZE)	FREE
3.13.1001003003	页数(PAGE)	1 OF 1	幅面(FORMAT)	A4

设计(D S)	蒋礼松
审核(CHK)	周锡华
核准(APPD)	李贺

深圳飞宇信电子有限公司
SHENZHEN FYX ELECTRONIC CO.,LTD

表单编号: FYX/E-QR-14A 版本: 第三版

2. Product Appearance

Exterior dimension	L195.5 * 16mm	Fixed way	screw fixation
Weight	/	Connector type	IPEX
Shell color	White	Cable	1.13 line

3. antenna performance parameters

Project	Characteristics	Unit
Frequency range	2400~2500/5150~5850	MHz
output impedance	50	Ω
standing wave ratio	<2.0	--
Gain	5	dBi
polarization mode	linear polarization	
radiation direction	Omni-directional	
Maximum input power	5	W
Working temperature	-40 to +70	℃
Storage temperature	-45 ~ +75	℃

4. Wire specifications

1.13 Line Structure Diagram

structural paran

	Materials	Diameter (mm)
1. Inner conductor	silver-plated copper wire	7/0.08±0.02
2. Insulator	Solid Polyethylene (PE)	0.66±0.02
3. Outer conductor	Tinned copper wire	0.88±0.05
4. Sheath	FEP	1.13±0.05

electrical performance parameters

Capacitance (pF/m) 96±3

~~Impedance (ohm) 50~~
rate (%) 66
bending radius (mm) ≤ 7

Maximum operating voltage (VMS) 1000	
Maximum Operating Frequency (MHz) 6000	
Operating	-40 to +80

Attenuation (typical)

Frequency (MHz)	Attenuation (≯ dB/m)
100	0.42
400	0.58
1000	2.20
2000	3.40
3000	4.20
4000	4.50
5000	5.20
6000	5.60

5. Environmental Experiment

Environmental test report

5. 1 High and low temperature constant humidity test

Test Items	High temperature, low temperature and constant humidity test			
Testing equipment	Constant temperature and humidity test chamber			
Inspection standard	1. The coating on the metal surface shall be free of such defects as shedding, cracks, wrinkles, etc. Non-metallic parts shall not be discolored, cracked or changed. shape, degumming and other phenomena.			
Test Name	Test Items	Requirements	Test Method	Result Judgment
High temperature test	Temperature (℃) Test sample temperature time (h) Duration of test (h) Time of recovery (h)	75±3 1 2 1	Test steps: a) Put the tested part into the test chamber, and then Adjust the temperature of the high temperature box to 75 ℃ ± 3 ℃, and monitor the time. B) After the test, place it at room temperature for 1 hour.	Qualified

			Line regular inspection.	
Low temperature test	Temperature (℃) Test sample temperature time (h) Duration of test (h) Time of recovery (h)	-40±3 1 2 1	Test steps: a) Put the tested part into the test chamber, and then Adjust the temperature of the low temperature box to -40 ℃ ± 3 ℃, and monitor the time. B) After the test, place it at room temperature for 1 hour. Line regular inspection.	Qualified
constant damp heat Test	Temperature (℃) Relative humidity (%) Test duration (h)	+40±3 90-95 21	a) Put the tested part into the test chamber, and then Adjust the temperature of the test chamber to +40 ℃ ± 3 ℃, wet 90-95%, monitoring time.	Qualified

	Recovery time (h)	1	B) After the test, place it at room temperature for 1 hour for regular inspection.	
Approved by: Chen Yan				

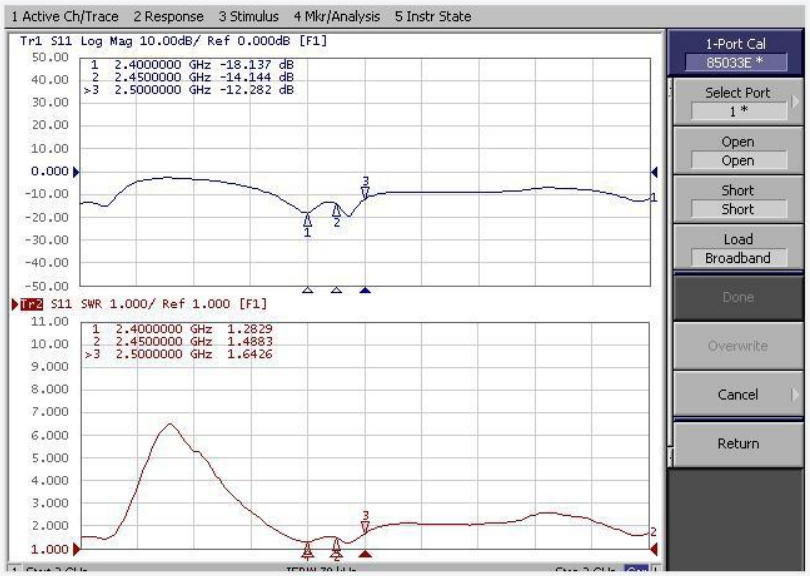
5. 2 **Free drop test**

Test Items	**Free drop test**			
Testing equipment	1 m high table top			
Inspection standard	1. Falling at a height of 1 meter, the product has no defects such as falling off, cracks, etc., and the appearance has no deformation.			
Test Name	Test Items	Requirements	Test Method	Result Judgment
Free drop test	Drop height 1000mm	The front and back sides fell 2 times	Test steps: a) Drop the tested part at a height of 1000mm, and carry out regular inspection after the test.	Qualified
Approved by: Chen Yan				

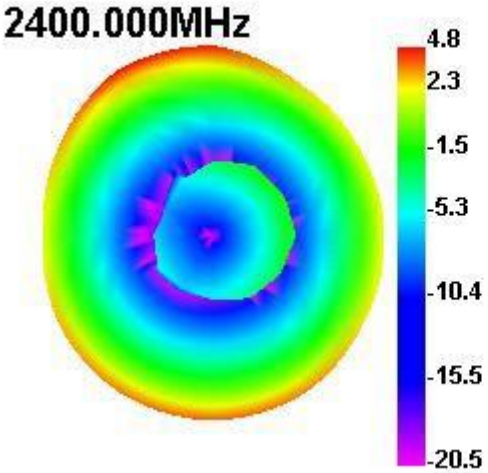
5. 3 **Salt spray test**

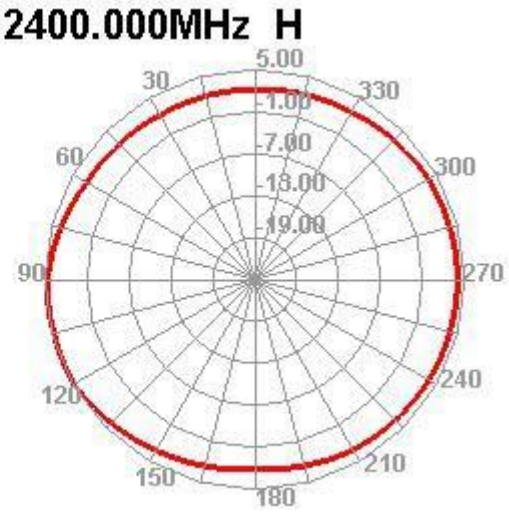
Test Items	Salt spray test			
Testing equipment	Salt spray test machine			
Inspection standard	1. There is no peeling of the coating on the metal surface; the appearance is free of rust, corrosion, oxidation and other undesirable phenomena.			
Test Name	Test Items	Requirements	Test Method	Result Judgment
Salt spray test	1. NaCl concentration: 2. Air pressure: 3. PH: 4. Spray volume: 5. Salt water test temperature setting a. Laboratory temperature: B. Pressure barrel temperature: 6. Test time:	40-60g/1kg 1.0±0.01kgf ㎡ 6.5-7.2 1.0-2.0ml/80c/h. 35±1 ℃ 47±1 ℃ 24h	Test steps: a) Modulate the salt spray tester to the relevant test conditions. B) Put the tested part in salt spray Testing machine, placed for 24 hours. Rinse with clean water after the test. Test the appearance of the tested part, and perform regular Inspection.	Qualified
Inspector: Yang Changyi			Approved by: Yan Chen	

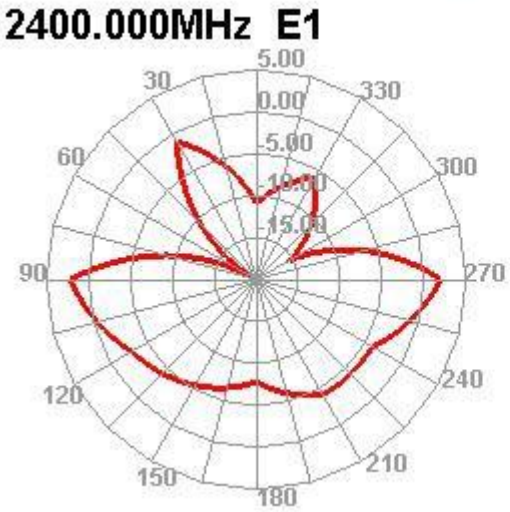
6. Antenna Performance Test

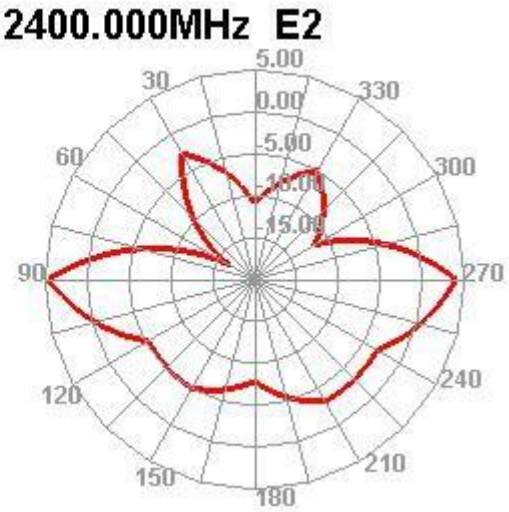


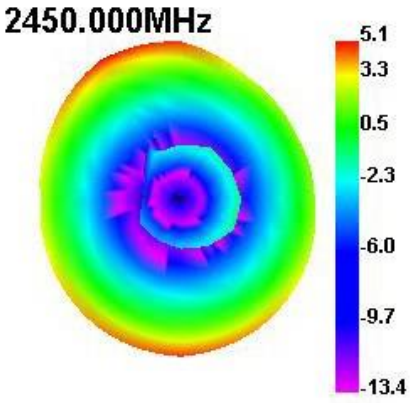
Passive Test For 2400-2500			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	78.23	-1.07	4.84
2410	74.62	-1.27	4.59
2420	73.23	-1.35	4.44
2430	75.69	-1.21	4.53
2440	80.04	-0.97	4.85
2450	80.1	-0.45	5.12
2460	83.04	-0.31	5.4
2470	85.63	-0.52	5.01
2480	81.54	-0.38	5.09
2490	83.78	-0.52	4.98
2500	83.3	-0.79	4.58







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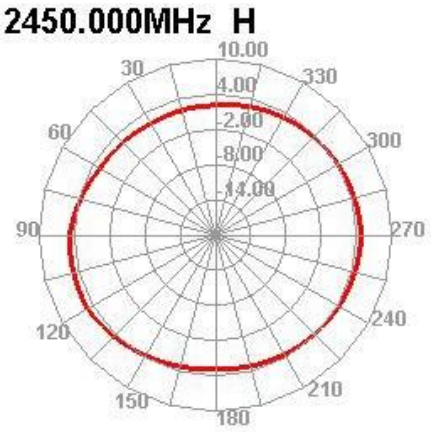
3.3
0.5
-2.3
-6.0
-9.7
-13.4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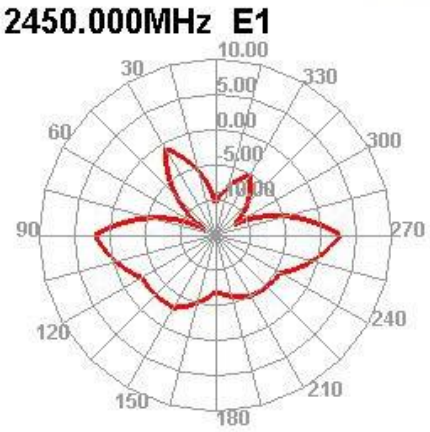
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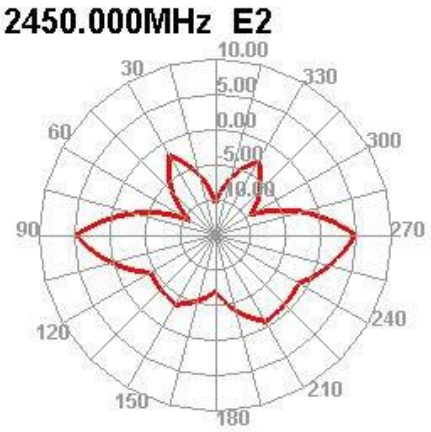
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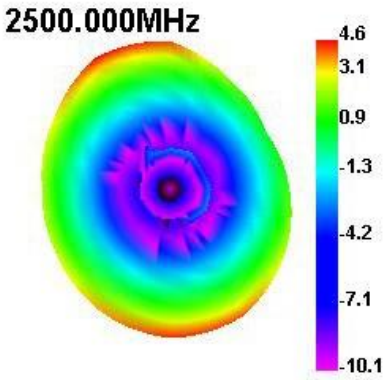
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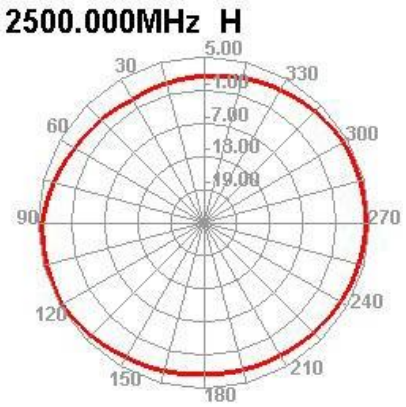
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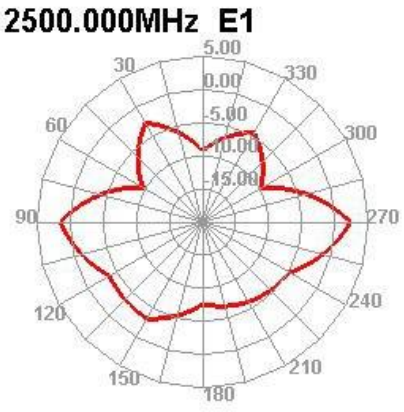
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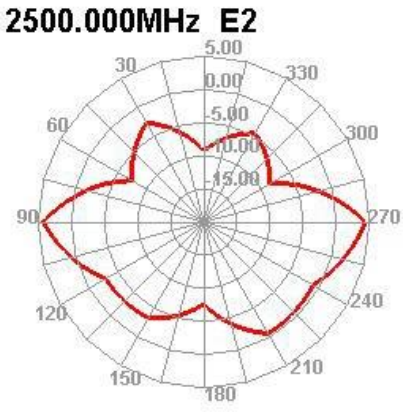
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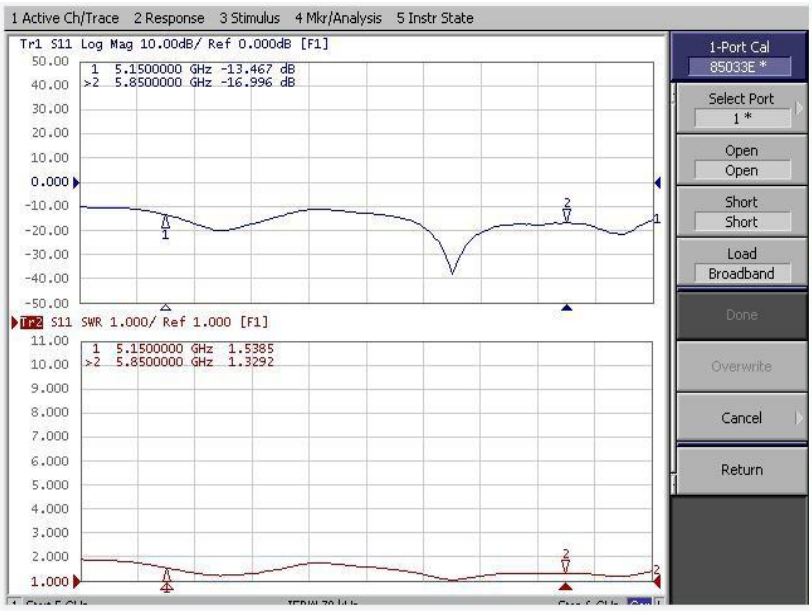
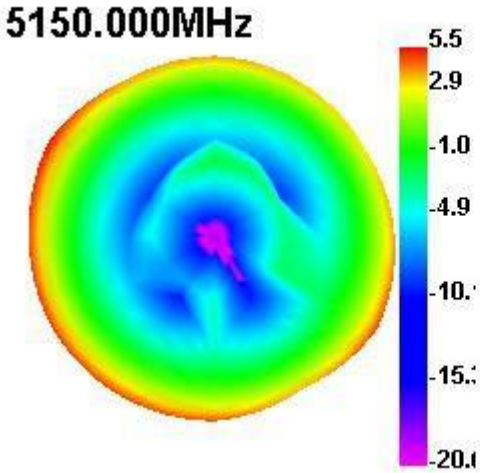
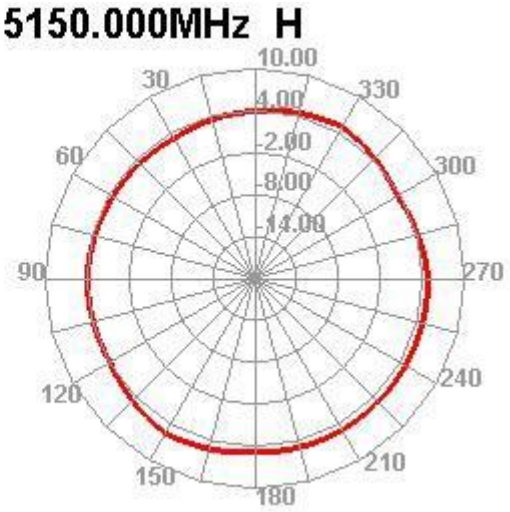
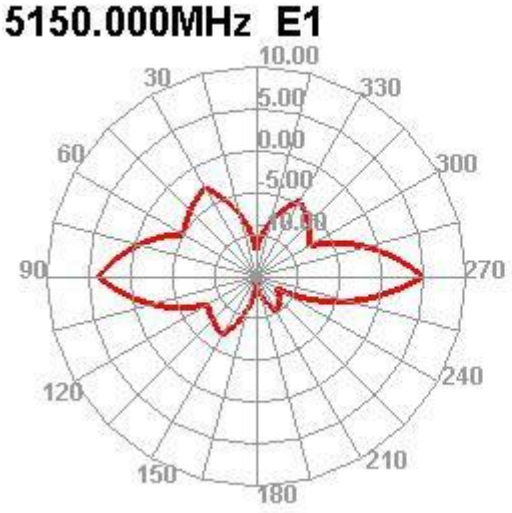
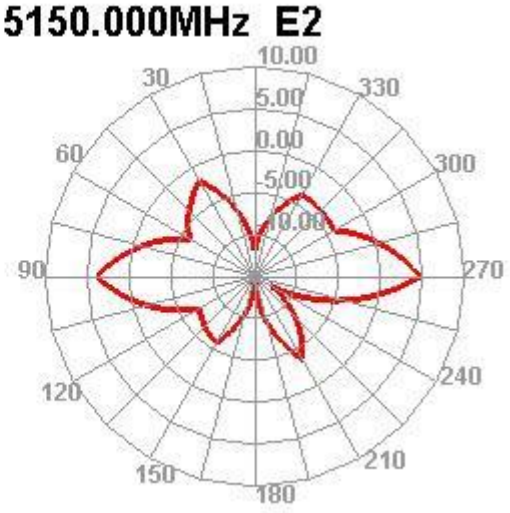


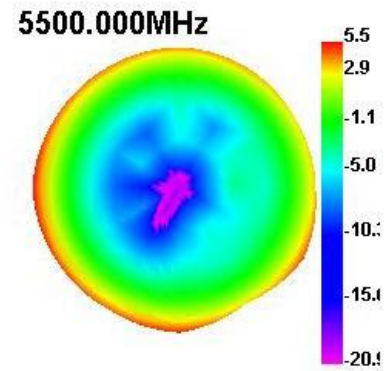
Passive Test For 5150-5850		
Freq (MHz)	Effi (%)	Gain (dBi)
5150	70.23	5.52
5220	70.6	4.59
5290	7.56	4.73
5360	71.56	4.96
5430	77.3	5.29
5500	77.22	5.53
5570	74.05	5.9
5640	68.4	5.11
5710	70.49	5.94
5780	74.35	5.88
5850	75.04	4.59

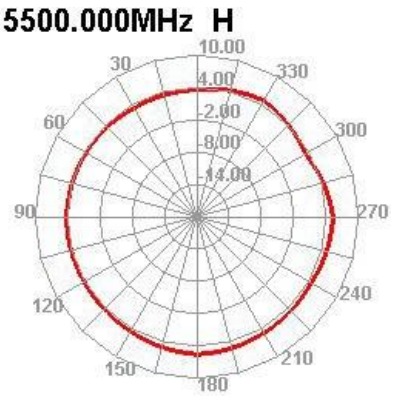


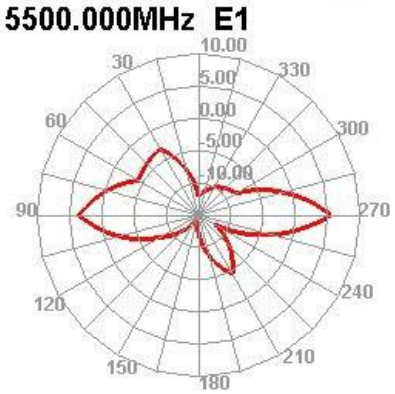







5500.000MHz
5.5
2.9
-1.1
-5.0
-10.
-15.
-20.


5500.000MHz H
10.00
4.00
-2.00
-8.00
-14.00
30
330
60
300
90
270
120
240
150
210
180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30
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60
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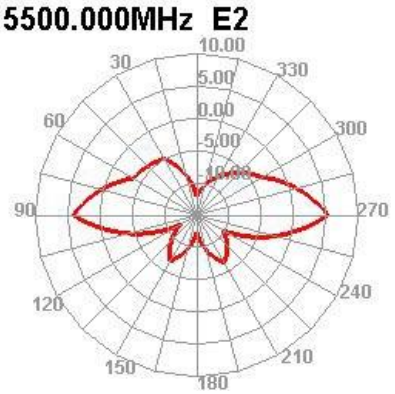
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30
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60
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120
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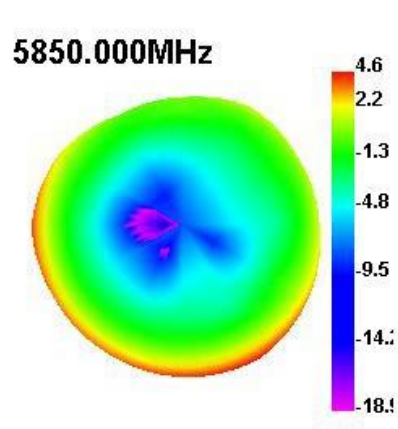
150
210
180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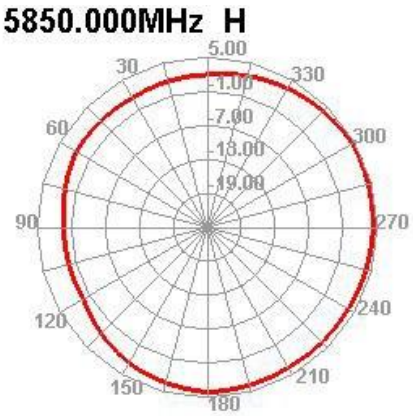
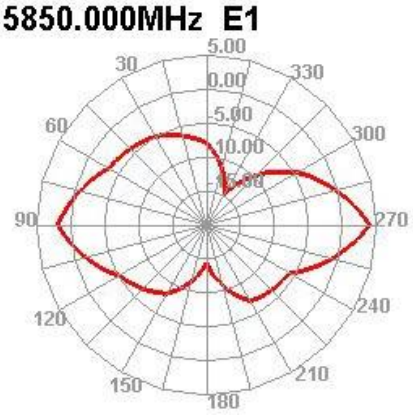
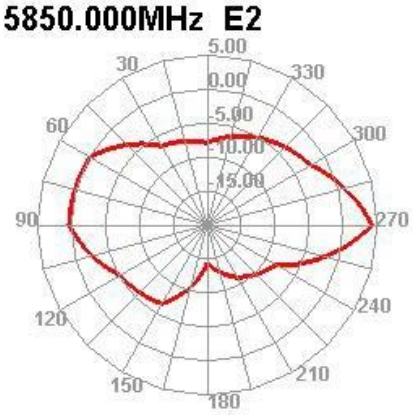
2.2
-1.3
-4.8
-9.5
-14.
-18.


5850.000MHz H
5.00
-1.00
-7.00
-13.00
-19.00
30
330
60
300
90
270
120
240
150
210
180


5850.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180


5850.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
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300
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270
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240
150
210
180

7. Product real shot

Shenzhen Feiyuxin Electronics Co., Ltd. RoHS2.0 and REACH Conformance Self-Declaration Form

SHENZHEN FYXELECTRONIC CO.,LTD company RoHS2.0 and REACH statement of conformity

Product model: 3.13.1001003003

Material Name Material name		toxic and hazardous substances or elements										Remarks Remarks
		Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	hexavalent chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated diphenyl ethers (PBDE)	2 butyl phthalate (DBP)	tolyl butyl phthalate (BBP)	o-phthalate 2 (2-Ethylhexyl) ester (DEHP)	Diisobutyl phthalate (DIBP)	
PCB	FR-4.0	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	OSP	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	green ink	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Wire gray/black	FEP gray/black Color	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	Tinned copper	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Rubber rod sleeve	ABS	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Rivets	POM	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Rubber lower seat	PC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	white toner	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Rubber Upper Seat	PC	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	white toner	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
IPEX	C5210	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	PBT	10.4	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	gold plating	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	

○: Indicates that the content of the toxic and hazardous substance in all homogeneous materials of the component is below the limit requirements specified in 2011/65/EU.
○: It indicates that the content of hazardous substance in all homogeneous materials of the component is below the limit requirement of 2011/65 / EU.
X: Indicates that the content of the toxic and harmful substance in at least one 1 of the homogeneous material of the component exceeds the limit requirements stipulated in 2011/65/EU.
×:It indicates that the hazardous substances are in excess of the limits requirement of 2011/65 / EU in at least one homogeneous material of the part.
(The supplier shall split its raw materials according to the requirements, mark them in detail according to this form, and describe the specific reasons for the parts that cannot meet the standard requirements)
(The supplier shall separate its raw materials according to the requirements and mark it in detail in accordance with this form, and describe the specific reasons for the parts that can not meet the standard requirements)

Integral components Integral part			Compliance with (EC) No 1907/2006 Compliance with (EC) No 1907/2006 standard requirements or not
	Substances of Very High Concern (SVHC)		Yes
	Prohibited and restricted substances "Annex 17" Prohibited and Restricted Substances "Annex 17"		Yes
Raw material parts Raw material components			Compliance with (EC) No 1907/2006 Standard Requirements Compliance with (EC) No 1907/2006 standard requirements or not
	Material Name 1 Part 1	Substances of Very High Concern (SVHC)	Yes
		Prohibited and restricted substances "Annex 17" Prohibited and Restricted Substances "Annex 17"	Yes
	Material Name 2 Part 2	Substances of Very High Concern (SVHC)	Yes
		Prohibited and restricted substances "Annex 17" Prohibited and Restricted Substances "Annex 17"	Yes
	PCB	Yes	Yes
	wire black	Yes	Yes
	Rubber rod sleeve	Yes	Yes
	Rivets	Yes	Yes
	Rubber lower seat	Yes	Yes
	wire ash	Yes	Yes
	IPEX	Yes	Yes
	Rubber Upper Seat	Yes	Yes

Note: 1. Control SVHC (Substances of High Concern) and prohibited and restricted substances according to (EC) No 1907/2006 standard. If yes is within the standard value, otherwise no is filled in.

1. Control SVHC (high concern substances) and prohibited and restricted substances according to (EC) No 1907/2006 standards, fill in Yes if it's in the standard, otherwise fill in No.

2. Please affix the company seal on the page.

2. Please stamp the company seal on the page.