



宁波立捷电子有限公司

Ningbo LiJie Electronics Co., Ltd

承认书

APPROVAL SHEET

客户名称Customer Name SHINING 3D Tech Co., Ltd.
产品型号Product Model WIFI Antenna 4:Frequece5150-5850MHz;FPC
Black coated oil with adhesive backing+
RF1.13MM Black coaxial line+MHF I 90mm
客户料号Customer P/N /
立捷料号Lijie P/N LJ89SAWF004R
制作日期Date Prepared 2022.9.15
制作版本Revision A0

Lijie Electronics Co.,LTD (LJICT)		
Prepare	Checked	R&D
Customer		
Responsible	Checked	APPROVED

Company: Ningbo LJICT Electronics.,LTD

Add: No .599 Qiming Road Yin zhou District, Ning bo

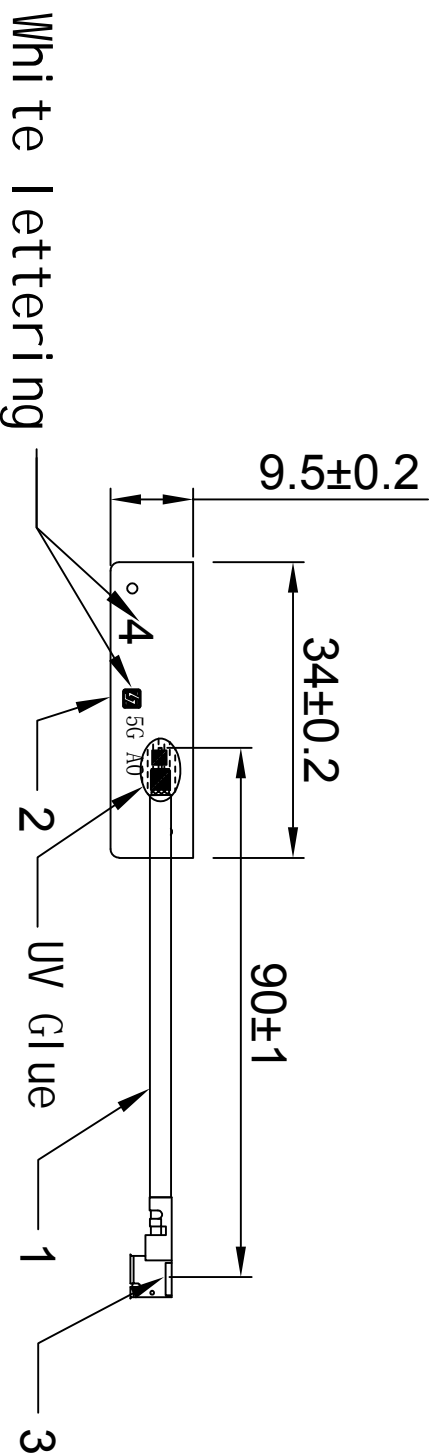
电话(Tel): +86 574 88025737

手机(Mob): +86 18126545121

Index

1 . Title Page	1
2. Index	2
3. Blueprint	3
4. Performance Test Report	4-14
5. Tensile Test Report	15
6. Sample Inspection Report	16

REV.	DATE	DESCRIPTION	OWNER
A0	2022.09.07	新发行	ZHANG



NOTES:

- Electrical:
 - Impedance: 50 OHM;
 - Frequency: 5150-5850MHz;
 - VSWR: 3.0;
 - Gain: 1.6dBi;
 - Max Power: 50W.
 - Polarization: Horizontal.
 - As much as Omni-directional.
- Environmental:
 - Storage Temperature Range: -40 TO +85.
 - Operating Temperature Range: -40 TO +85.
- All Materials Must Meet & Shall RoHS Request.

TITLE	2.4G/5G天线-1.13黑色同轴线 1-90MM	UNIT	m/m	TOLERANCES UNLESS OTHERWISE SPECIFIED			APPROVE	CHECKED	DRAWN	CUSTOMER
ORD. NO.	LJ89SAWF004R	MODEL NO.		ONE PLACE DECIMAL	X	± 0.2				 宁波立捷电子有限公司 先临三维
BOM NO.	LJ89SAWF004R	SCALE		TWO PLACE DECIMAL	XX	± 0.1				
CUSTOMER PART NO.		DWG NO.	CAD21-07-041	THREE PLACE DECIMAL	XXX	± 0.05				
				HOLE DIA. VARIATION	XX	N/A				
				ANGULAR DIMENSION (ENG)	N/A	N/A				

ITEM	SPEC	QTY
3	端子	1
2	FPC	1
1	同轴线	1

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5G Antenna Test Report

Customer	SHINNING 3D
Project	AOS4
Antenna Revision	A1
Product Description	FPC+Cab1e+MHF I
Product No	

Purpose

This report is to measure the performance of **LJ 5G WIFI**

antenna for **SHINING 3D -AOS4**. All test data are showed as below.

Content

- 1 : Product Overview & Dimension
- 2 : Test Result
 - 2.1 Antenna Matching Network
 - 2.2 VSWR
 - 2.3 Gain & Efficiency
 - 2.4 Radiation Pattern
 - 2.5 OTA
- 3 : Antenna Assembly Method

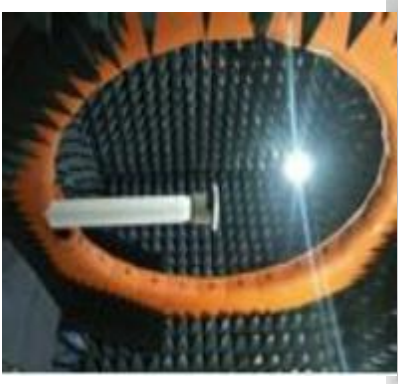
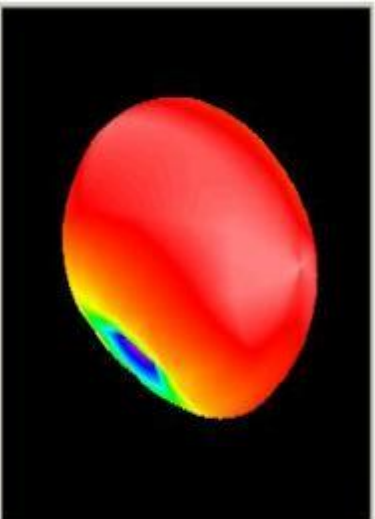
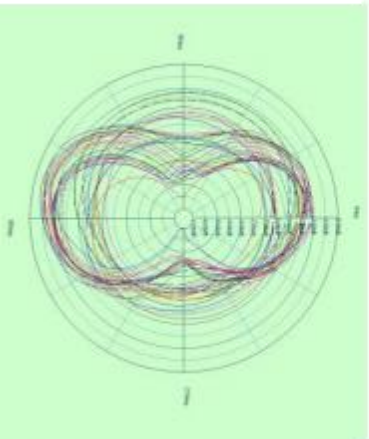


1. Product Overview & Dimension

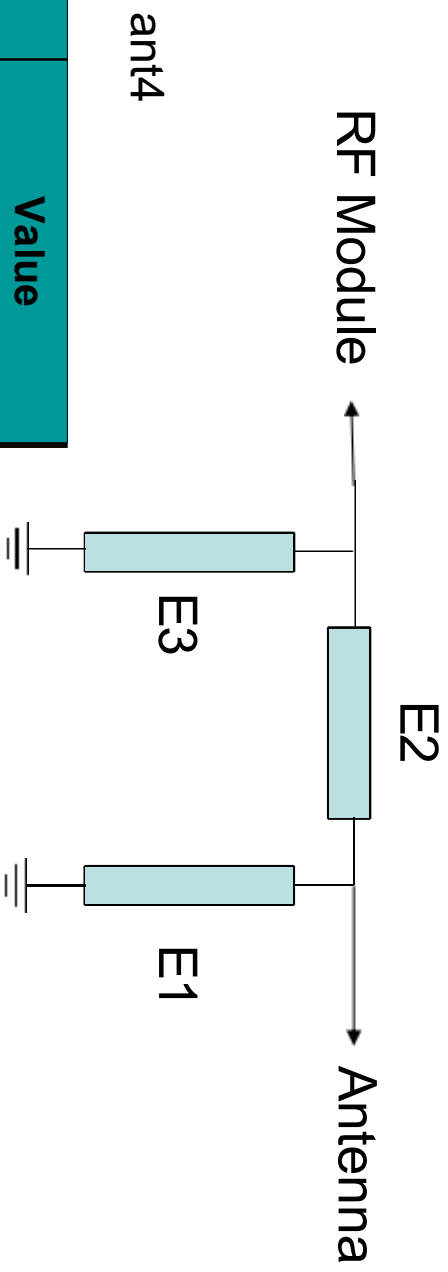


2. Test System

Sequence Number	Test Item	equipment
1. S parameter	VSWR	Agilent 5071C
2. OTA Test	TRP& TIS	Agilent 8960 E5515C& Agilent 4438C&CMW500 & CMW270 GTS
3. Gain & Efficiency	Gain & Efficiency	GTS Agilent 5071C



2.1 Antenna Matching Network

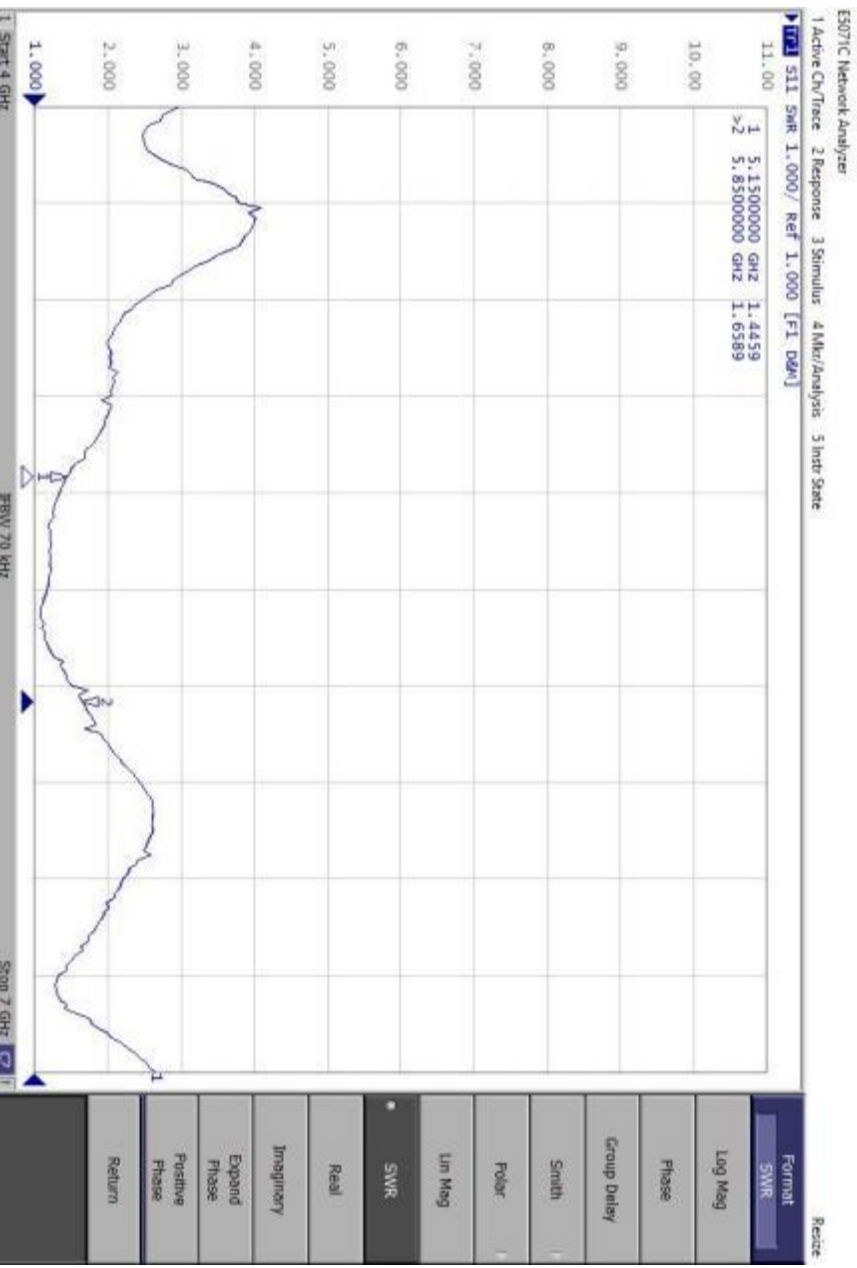


Element	Value
E1(0402)	NC
E2(0402)	0 Ω
E3(0402)	NC

Antenna matching not changed

2.2 VSWR

ant4



Freq. (MHz)	5150	5850
VSWR	1.44	1.65

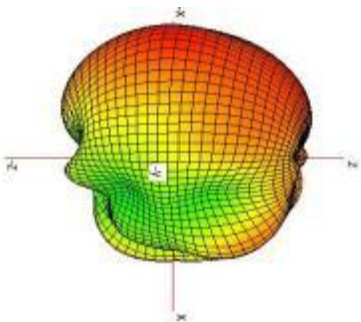


2.3 GAIN & Efficiency

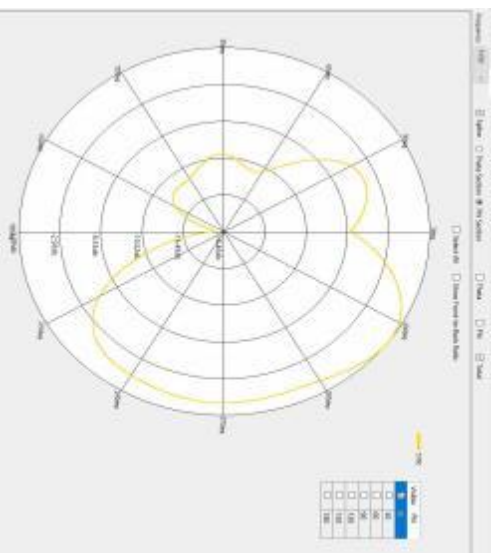
ant4

Freq. (MHz)	Effi. (dB)	Effi. (%)	Gain(dBi)
5150	-4.10	38.89	-0.96
5200	-3.89	40.79	-0.39
5250	-3.82	41.51	-0.62
5300	-3.72	42.46	-0.7
5350	-3.68	42.83	0.71
5400	-3.64	43.3	0.94
5450	-3.90	40.75	0.98
5500	-3.99	39.92	0.12
5550	-3.87	41.04	1.52
5600	-3.88	40.95	1.18
5650	-3.98	39.99	1.14
5700	-4.08	39.12	0.89
5750	-4.09	39.03	0.75
5800	-4.13	38.61	0.24
5850	-4.28	37.29	-0.89

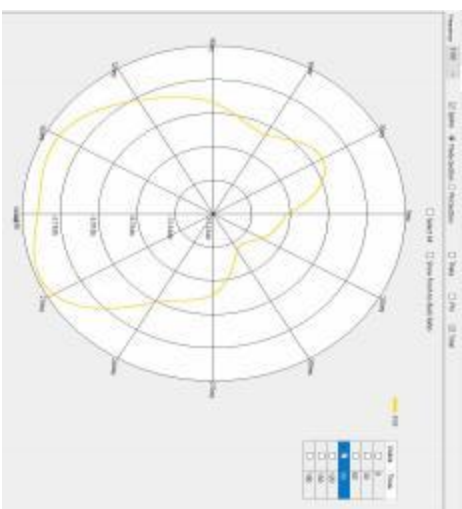
2.4 Radiation Pattern



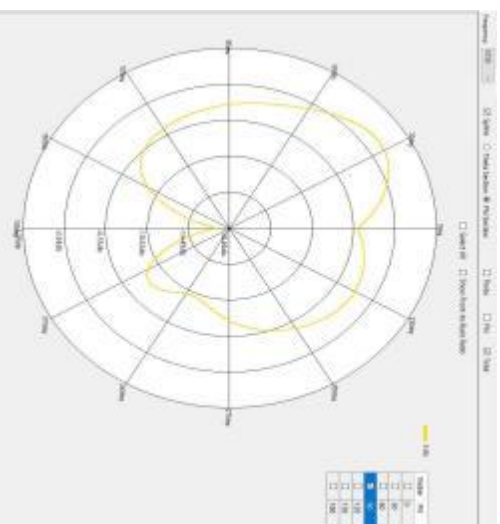
5150MHz



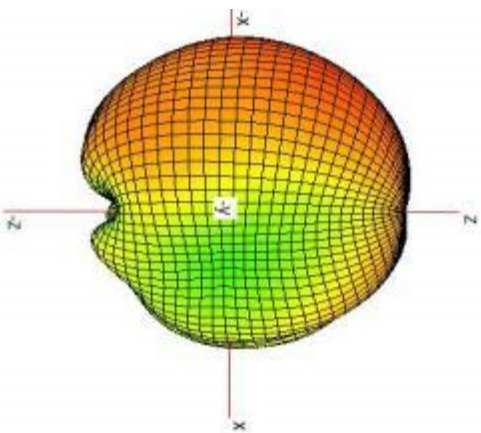
5150MHz(XOZ)



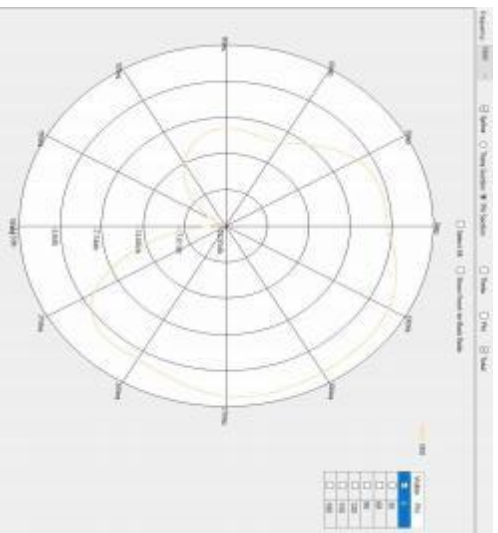
5150MHz(XOY)



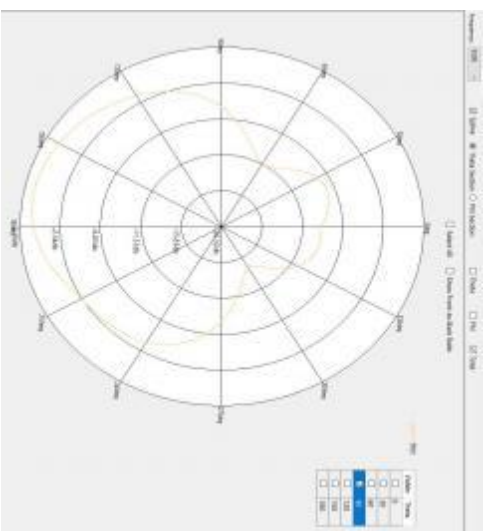
5150MHz(YOZ)



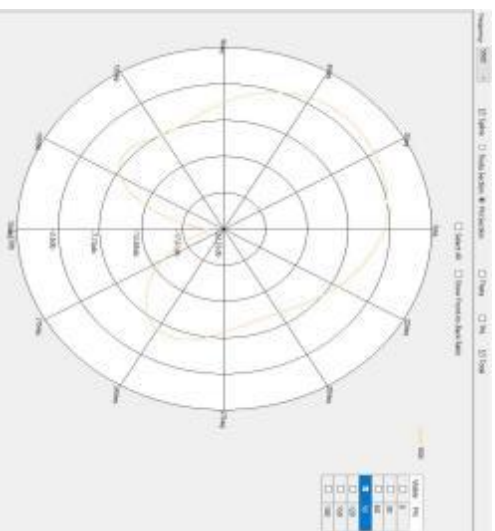
5500MHZ



5500MHZ(XOZ)



5500MHZ(XOY)



5500MHZ(YOZ)



2.5 OTA

ant3

Band	Channel	TRP	Channel	TIS
11A	36	17.27	36	-72.05
	149	17.69	149	-69.54
	157	16.64	157	-69.66
	165	16.29	165	-69.08

ant4

Band	Channel	TRP	Channel	TIS
11A	36	17.09	36	-71.16
	149	16.79	149	-70.98
	157	16.15	157	-71.56
	165	16.48	165	-71.06

Confluence

Band	Channel	TRP	Channel	TIS
11A	36	20.26	36	-74.0
	149	20.29	149	-72.52
	157	19.52	157	-73.83
	165	19.31	165	-72.29



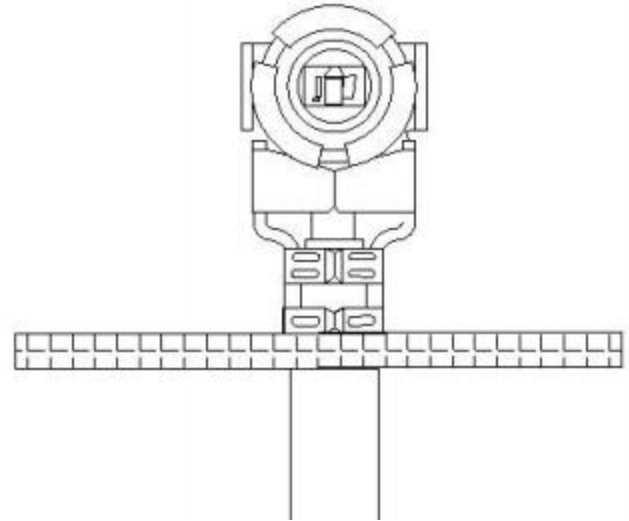
PULLING FORCE TEST REPORT

Customer: Shinning 3D LTD,.CO

Part Number: LJ89SAWF004R

Order: Sample

Date: 2022.09.15



Test conditions	Snap force	Pull force	1Kg
		Time	1 minute
		Equipment	Pulling Tester

Test position: SMA CONNECTOR

Test results.

Sample No	Test Standard		Decided
	Cable Appearance	Electric Test	
1	No damaged	No open and no short circuit	Pass
2	No damaged	No open and no short circuit	Pass
3	No damaged	No open and no short circuit	Pass
4	No damaged	No open and no short circuit	Pass
5	No damaged	No open and no short circuit	Pass

Remarks:

The Pulling Force Test Weight Load 1Kg/min.

Approved By: WEI HONG HOU

Checked By: JIU LONG ZHENG

Date: 2022.09.15

Date: 2022.09.15



Sample Inspection Report

CUSTOMER: SHINNING 3D

DATE: 2022.09.15

CONCLUSION

PART NO.: LJ89SAWF004R

QTY: 5 PCS

PASS

FAIL

一 Appearance Inspection:

	Result	PASS	FAIL
1 Appearance	GOOD	√	
2. onstruction	WIFI Antenna 4: Frequece 5150-5850MHz; FPC Black coated oil with adhesive backing+ RF1.13MM Black coaxial line+MHFI 90mm	I √	

二. Electric Charactreistic Inspection:

Test Item	Test Condition	PASS	FAIL
1. Continuity Test	0.5Ω	√	
2. Withstand Voltage	DC 500V/ AC300 V	√	
3. Insulation Resistance	20MΩ	√	
Conductive Resistance	0.5Ω	√	
5. VSWR:	≤3.0	√	

三. (Mechanical Characteristic Inspection) YES NO

(Test Item)	(Test Condition)	RESULT	PASS	FAIL
Lifting Tension	1Kg/min	OK	√	

四. (Dimension Inspection):

Spec(Unit:mm)	Actual Range (Unit:mm)					PASS	FAIL
	1	2	3	4	5		
1 90± 1	90.15	90.00	89.80	90.10	90.04	√	
2 34±0.2	34.03	34.00	34.05	34.02	34.15	√	
3 9.5±0.2	9.56	9.52	9.50	9.55	9.48	√	
4							
5							
6							
7							
8							
9							
10							

Authorizer :

Auditor:

Auditor: