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 1:Frequece2400-2500MHz;5150-5850MHz;FPC Black coated oil with adhesive backing+ RF1.13MM Black coaxial line+MHF I 110mm

客户料号Customer P/N　/

立捷料号Lijie P/N　LJ89SAWF005R

制作日期Date Prepared　2022.12.09

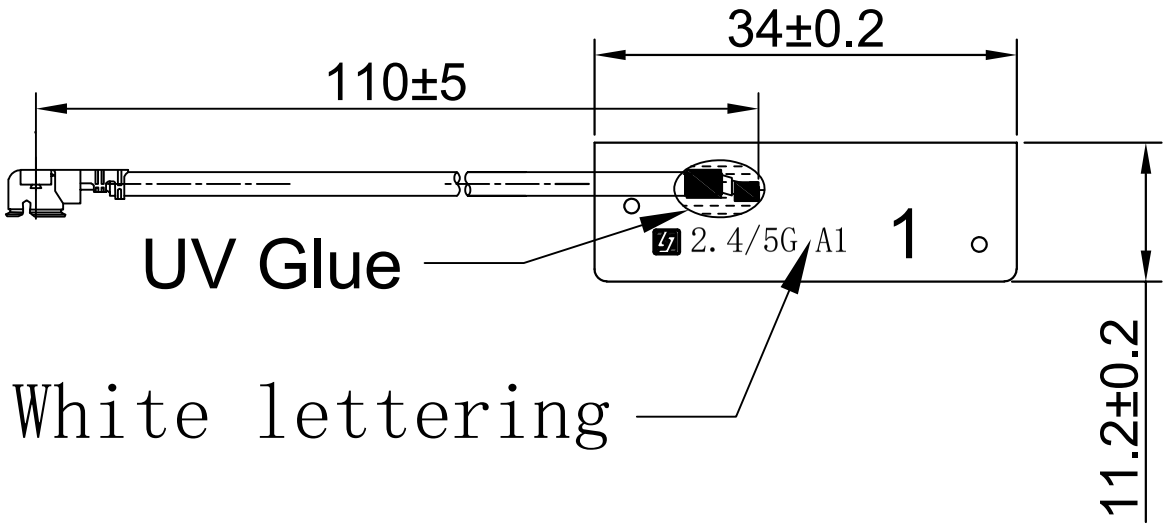
制作版本Revision　A0

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

REV.	DATE	DESCRIPTION	OWNER
A0	2023.01.06	NEW	ZHANG



NOTES:

1. Electrical:
   - 1.1 Impedance: 50 OHM;
   - 1.2 Frequency: 2400-2500MHz； 5150-5850MHz;
   - 1.3 VSWR: <3.0
   - 1.4 Gain: 2400-2500MHz<1dBi;5150-5850MHz<2.5dBi;
   - 1.5 Max Power:50W.
   - 1.6 Polarization: Linear polarization.
   - 1.7 Azimuch:Omni-directional
2. Enviromental:
   - 2.1 Storage Temperature Range: -40 TO +85 .
   - 2.2 Operating Temperature Range: -40 TO +85 .
3. All Materials Must Meet & Shall RoHS Request.

ITEM	SPEC	SPEC	Q'TY
3	MHF I	MHF I OF RG1.13 Cable	1
2	FPC	PI,Black	1
1	Cable	50ΩΦ 1.13mm Cable Black L=110MM。	1

TITLE	2.4G/5GAntenna-1.13Blacck Cable L=110MM		UNIT	m/m	TOLERANCES UNLESS OTHERWISE SPECIFIED		APPROVE	CHECKED	DRAWN
ORD. NO.	LJ89SAWF005R	MODEL NO.	/		ONE PLACE DECIMAL .X ±0.2				
BOM NO.	LJ89SAWF005R	SCALE	FREE	SHEET: 1 OF 1	TWO PLACE DECIMAL .XX ±0.1				
CUSTOMER PART NO.	/	DWG NO.	/		THREE PLACE DECIMAL .XXX ±0.05				
					HOLE DIA. VARIATION .XX N/A				
					ANGULAR DIMENSION (ENG) N/A				

Ningbo Lijie Electronics Co., Ltd

CUSTOMER

SHINING 3D Tech Co., Ltd.

立捷通信集团
LIJIE COMMUNICATIONS GROUP

2.4G/5G Antenna Test Report

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

立捷通信集团
LIJIE COMMUNICATIONS GROUP

Purpose

This report is to measure the performance of LJ 2.4G/5G WIFI antenna for SHINING 3D -AOS4. All test date are showed as below.

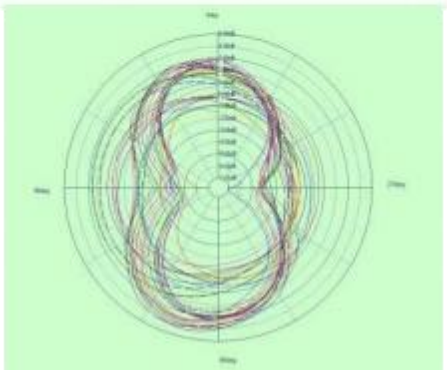
Content

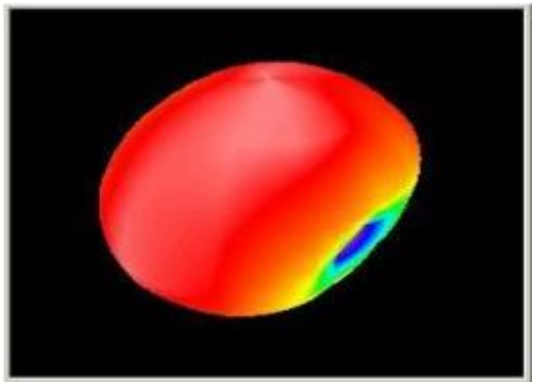
立捷通信集团
LIJIE COMMUNICATIONS GROUP

1. Product Overview & Dimension

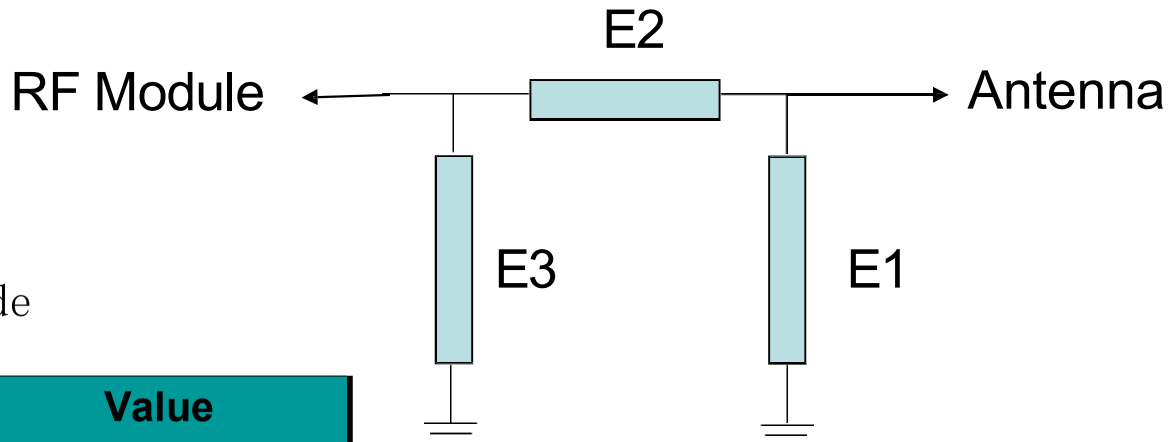
2. Test System

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



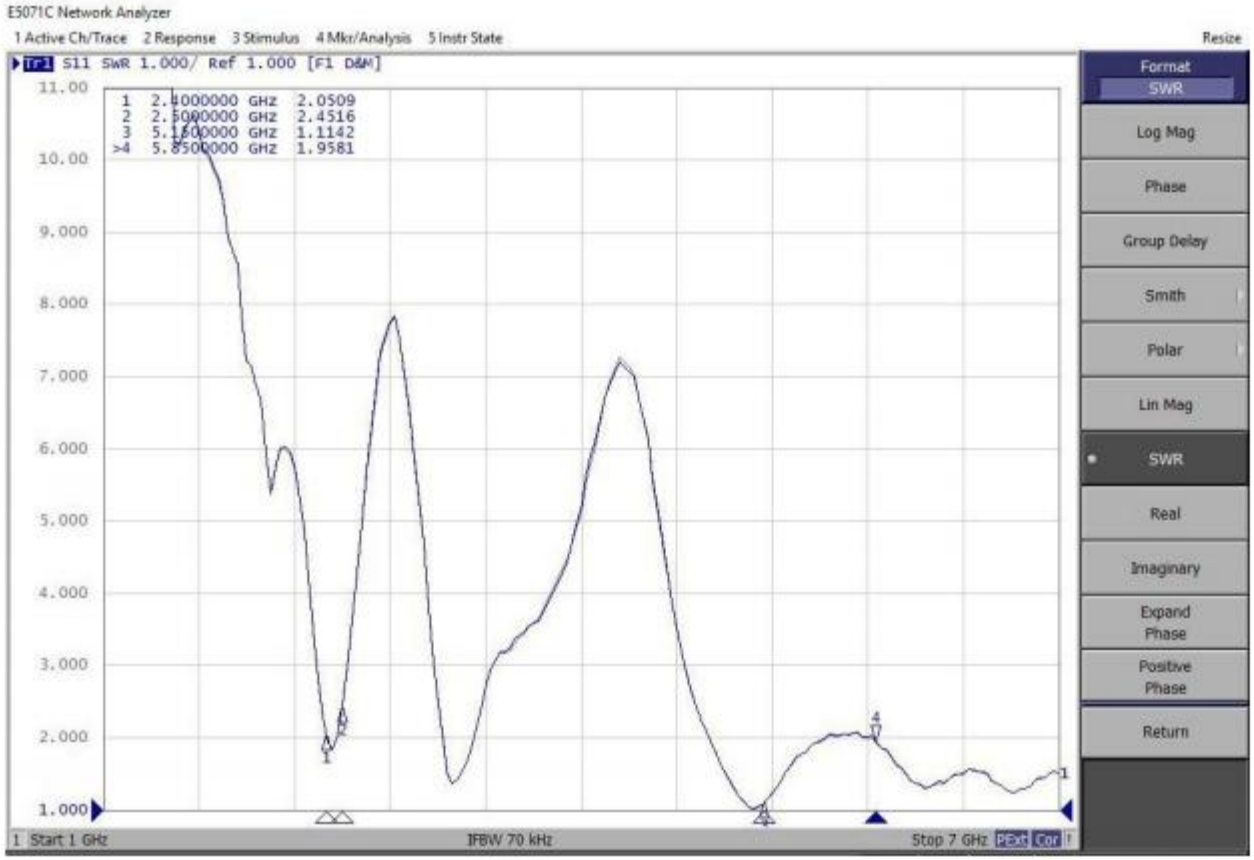
ant1:Battery Side

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

Antenna matching not changed

2.2 VSWR

ant1:Battery Side



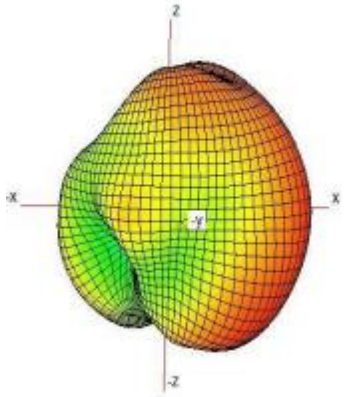
Freq. （MHz）	2400	2500	5150	5850
VSWR	2.05	2.45	1.11	1.96

2.3 *GAIN & Efficiency*

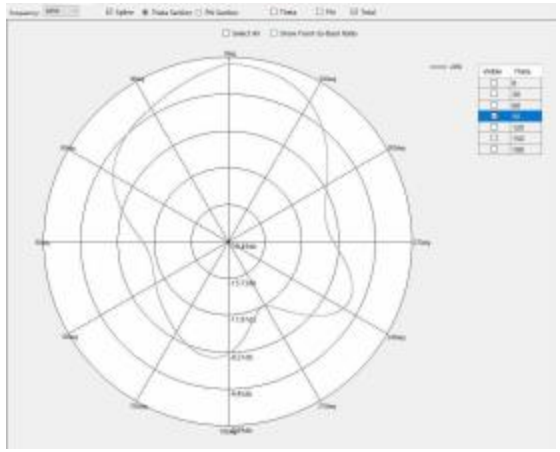
ant1:Battery Side

Freq. (MHz)	Effi. (dB)	Effi. (%)	Gain(dBi)
2400	-5.91	25.63	-0.55
2420	-5.74	26.7	-0.48
2440	-5.61	27.48	-0.37
2460	-5.86	25.95	-0.82
2480	-6.15	24.25	-1.02
2500	-6.22	23.86	-1.08
5150	-3.28	46.96	1.52
5300	-3.44	45.25	1.32
5350	-3.53	44.36	1.21
5400	-3.51	44.53	1.32
5450	-3.82	41.52	1.31
5500	-3.86	41.11	1.37
5550	-3.61	43.57	1.03
5600	-3.63	43.37	1.13
5650	-3.63	43.4	1.54
5700	-3.65	43.11	1.06
5750	-3.50	44.66	1.05
5800	-3.80	41.69	1.2
5850	-3.87	41.06	1.16

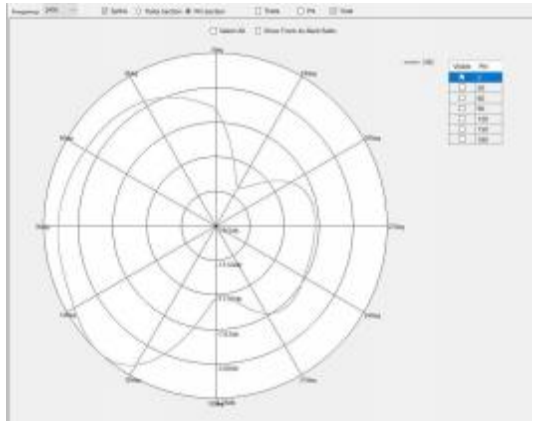
2.4 Radiation Pattern



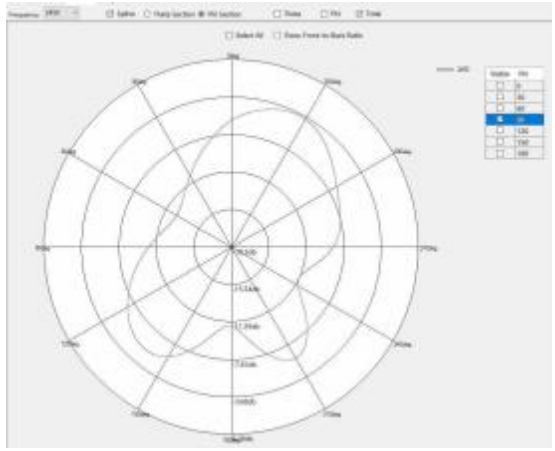
2450MHz



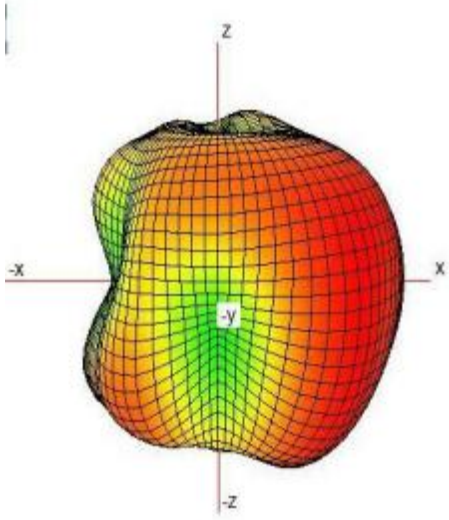
2450MHz(XOY)



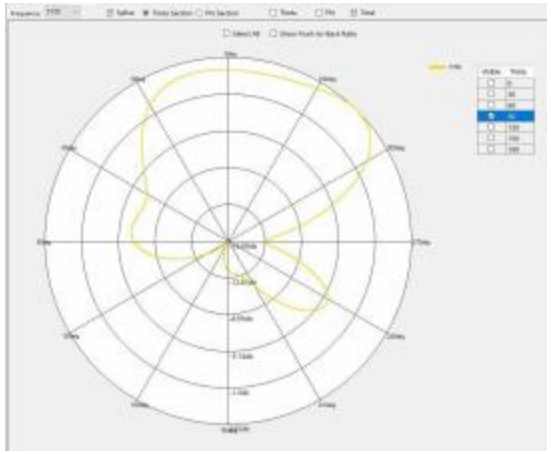
2450MHz(XOZ)



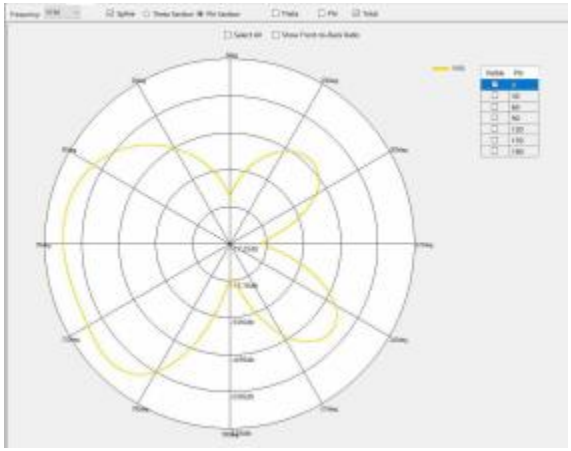
2450MHz(YOZ)



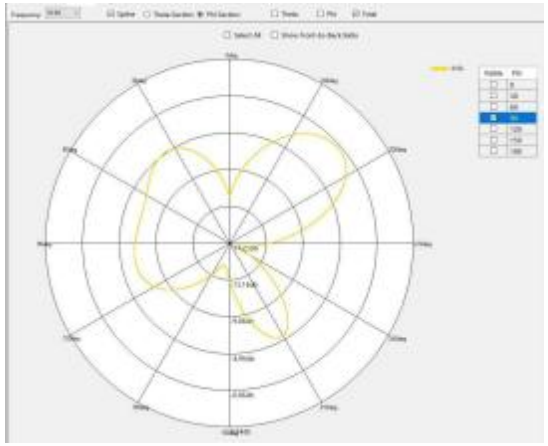
5150MHz



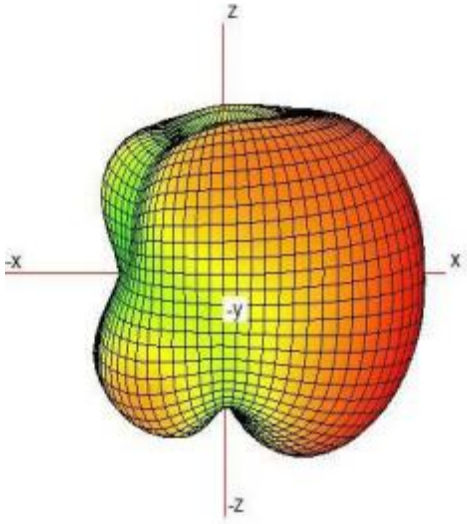
5150MHz(XOY)



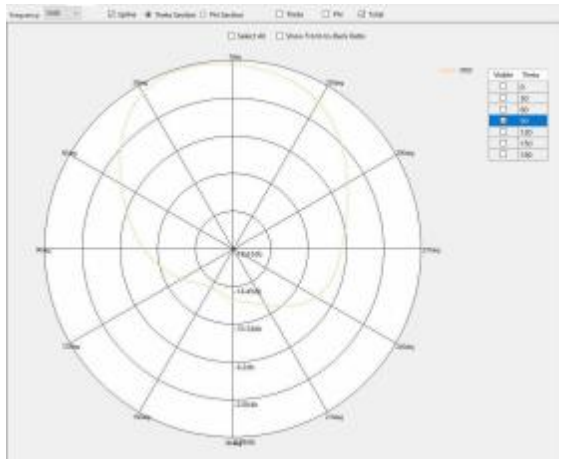
5150MHz(XOZ)



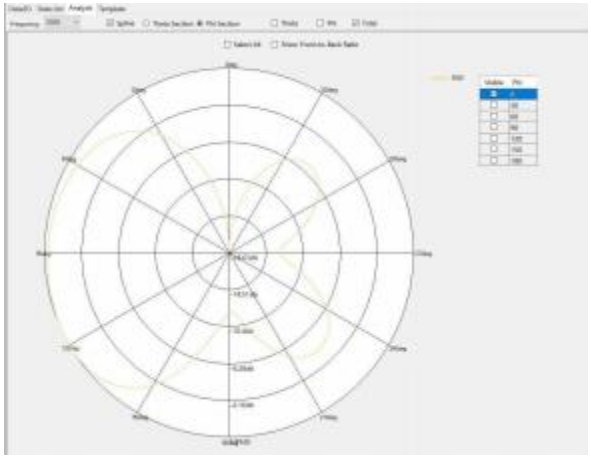
5150MHz(YOZ)



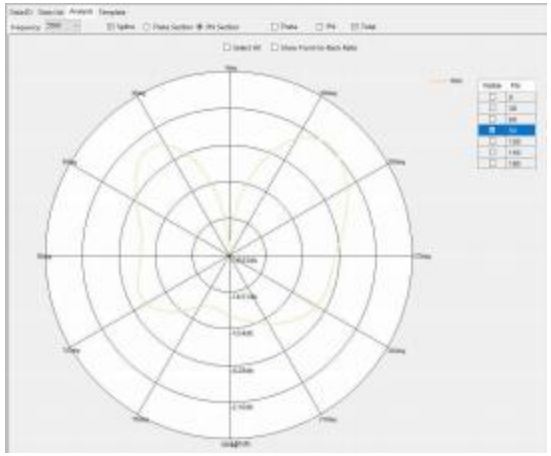
5500MHz



5500MHz(XOY)



5500MHz(XOZ)



5500MHz(YOZ)

2.5 OTA

ant1：Battery Side

Band	Channel	TRP	Channel	TIS
11A	36	11.86	36	-63.32
	149	10.82	149	-68.22
	157	10.42	157	-68.12
	165	10.96	165	-66.13
11B	1	9.13	1	-60.44
	7	9.56	7	-60
	13	9.94	13	-60.37

ant2：Fan Side

Band	Channel	TRP	Channel	TIS
11A	36	11.15	36	-56.28
	149	12.21	149	-60.31
	157	11.54	157	-59.61
	165	12.02	165	-61.02
11B	1			
	7			
	13			

Confluence

Band	Channel	TRP	Channel	TIS
11A	36	14.69	36	-65.32
	149	14.87	149	-70.76
	157	14.41	157	-71.31
	165	14.82	165	-69.25
11B	1	8.13	1	-61.43
	7	8.37	7	-59.02
	13	8.93	13	-58.59

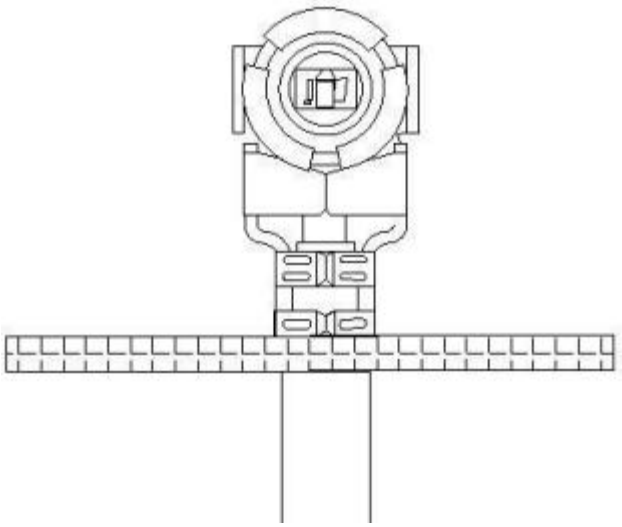
PULLING FORCE TEST REPORT

Customer： SHINNING 3D

Part Number： LJ89SAWF005R

Order： Sample

Date： 2022.12.09



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

Date： 2022.12.09

Checked By： JIU LONG ZHENG

Date： 2022.12.09

Sample Inspection Report

CUSTOMER: SHINNING 3D DATE: 2022.12.09

PART NO.: LJ89SAWF005R QTY: 5 PCS

CONCLUSION
PASS √
FAIL □

一Appearance Inspection:

	Result	PASS	FAIL
1Appearance	GOOD	√	
2.onstruction	WIFI Antenna 1:Frequece2400-2500MHz;5150-5850MHz;FPC Black coated oil with adhesive backing+ RF1.13MM Black coaxial line+MHF I 110mm	√	

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	110± 5	110.00	110.15	110.10	110.75	110.05	√	
2	34±0.2	33.85	34.00	34.03	34.06	34.07	√	
3	11.2±0.2	11.22	11.15	11.18	11.20	11.26	√	
4								
5								
6								
7								
8								

Authorizer : Auditor: Lister: