

Shanghai Shangyuan Communication Technology Co., LTD

Sample Approval

Customer name: Shenzhen Yibaite Software Co., LtdName of supplier: YBT-24-6-MAIN lineSpecifications and models: 21.79*152.4mm Black glue stick

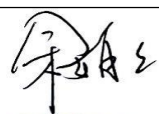
Item number: : _____

☐New material☐Replacement material

Applicable model: YBT-24-6 Sample delivery date: 2020.11.21

Sample Quantity: 1pcs Sample signing date:

Supplier's admission		
FICTION	CHECKER	APPROVER

Customer Approval		
CONFIRMER Purchase confirmation	EXAMINER R & D / CE confirmation	CHECKER Quality control confirmation
		
APPROVER		
Nature of the instrument of recognition	☒ Official recognition ☐ Temporary admitted Interim cycle : _____	

Shanghai Shangyuan Communication Technology Co., LTD

Antenna recognition

Customer name: Besiter		Project name: YBT-24-6
Operating frequency : GSM 900 / 1800 LTE1/3/5/8/38/40/41		
Motherboard version: IoT-3288A REV:V1.4 2018-12-13		
Shangyuan material specifications		
Specifications and models	Shangyuan Part Number	Customer material number
MAIN antenna	SW19073EB56	

Change the resume			
Compilation/change date	Change content	Change person	Versions
2020.11.21	New release	Chen Min	A

Shang Yuan Sign bar				
Research and Development	Structure:	Check:	Quality Engineer:	Approve:
	Radio frequency	Check:		
Customer Sign bar				
Electronics engineer	Project Manager	Structural Engineer	Quality Engineer	

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Catalogue

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1. Project picture

project picture is as follows:



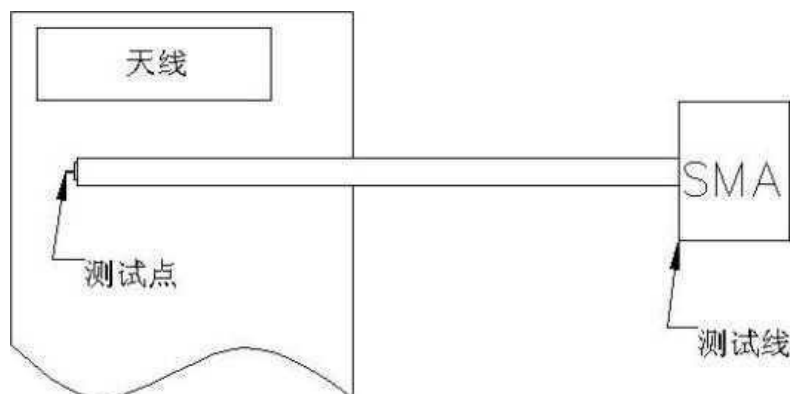
Note: The customer will keep the machine for final verification of the antenna performance in our company for at least one year, which is convenient for analyzing and solving the abnormal situation in the mass production of the antenna and ensuring the quality of the antenna shipment.

2. Test Fixture

Purpose: To test the passive parameters of the antenna as accurately as possible.

Production method: A 50 ohm coaxial cable is used for the mobile phone, one end is connected to the test point at the back end of the matching circuit (front end of the RF test hole) on the main board of the machine, and the other end is connected to the SMA connector.

The schematic diagram is as follows:



3. Matching circuit

No change

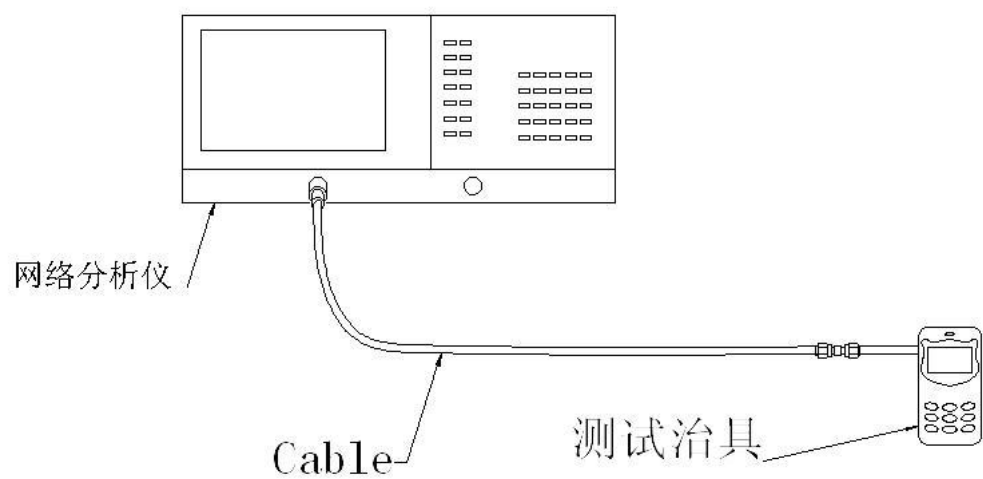
4. S11 test

4.0 S11 Test Method Description

Test equipment: Network analyzer (Agilent E5071C)

Test method: Use a 50 ohm CABLE cable to export from the test port of the instrument, use the calibration piece to calibrate and connect to the SMA connector of the machine tool, and record the return loss and standing wave ratio corresponding to the relevant frequency point.

The test diagram is as follows:



Test schematic

4.1 S11 parameters

Frequency (MHZ)	824	960	1710	2690
VSWR	1.8	1.5	1.1	1.8

4.2 Parameter picture



4.2 Passive Efficiency and Gain

Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
820	46.12	0.5	1700	38.02	-1.87	2040	30.3	-1.85	2380	37.86	-1.88
830	44.79	0.79	1720	37.85	-1.63	2060	29.62	-1.49	2400	34.58	-2.39
840	44.41	1.03	1740	39.35	-1.39	2080	30.14	-1.28	2420	30.3	-2.87
850	43.55	1.12	1760	40.62	-1.06	2100	28.21	-1.74	2440	28.13	-2.47
860	42.27	1.11	1780	39.46	-0.78	2120	27.25	-2.07	2460	25.79	-2.19
870	39.18	0.71	1800	42.33	-0.38	2140	28.19	-2.1	2480	23.67	-2.56
880	36.77	0.47	1820	38.67	-0.82	2160	26.51	-2.6	2500	21.78	-3.28
890	37.99	0.59	1840	36.79	-1.1	2180	26.25	-2.93	2520	21.53	-3.62
900	37.89	0.48	1860	33.7	-1.8	2200	26.98	-3.11	2540	22.53	-3.46
910	40.12	0.86	1880	37.37	-1.84	2220	27.81	-2.78	2560	23.74	-3.39
920	37.56	0.36	1900	39.82	-1.57	2240	29.89	-2.5	2580	24.65	-3.22
930	39.72	0.5	1920	40.13	-1.38	2260	34.43	-2.02	2600	24	-3.06
940	38.61	-0.36	1940	39.61	-1.2	2280	38.37	-1.6	2620	24.95	-2.72
950	38.34	-0.71	1960	37.99	-1.29	2300	42.74	-0.95	2640	25.57	-2.67
960	39.19	-1.18	1980	36.24	-1.63	2320	43.25	-0.62	2660	26.67	-2.89
			2000	33.52	-1.97	2340	41.58	-0.6	2680	27.11	-3.06
			2020	32.22	-1.87	2360	41.18	-0.86	2700	29.72	-2.56

5.Darkroom test data

Test Equipment
Test System: Shielded Dark Room
Test Environment: Temperature 22℃ ± 3℃, Humidity 50% ± 15%
Test Equipment: When testing passive data, use network analyzer AgilentE5071C
When testing active data, use comprehensive tester StarPoint SP8315

OTA test data

频段	信道	TRP	TIS	频段	信道	TRP	TIS
GSM 900	L	27.24		LTE 8	L	20.15	
	M	27.23			M	20.31	
	H	27.44	-102.05		H	19.86	-89.34
GSM 1800	L	24.07		LTE 38	L	18.47	
	M	24.17			M	18.23	
	H	24.3	-104.02		H	18.45	-88.73
LTE 1	L	18.89		LTE 39	L	18.89	
	M	18.89			M	18.59	
	H	18.96	-89.03		H	18.62	-89.42
LTE 3	L	18.63		LTE 40	L	18.53	
	M	18.73			M	18.55	
	H	19.21	-91.04		H	18.46	-88.89
LTE 5	L	20.79		LTE 41	L	18.62	
	M	20.28			M	18.35	
	H	20.44	-89.05		H	18.46	-88.49

6. Antenna environment and mounting position

Length of patch cord 100CM



7. Mass production antenna indicators

When the antenna is mass-produced, the standing wave ratio is used as the mass-production test standard.

According to the differences of the project itself, the following standards are given:

Frequency	Mass production standard
824~960/1710~2690MHz	$\text{VSWR (mass production performance)} < \text{VSWR (approval performance)} + 0.5$

8. Structural drawings

[illegible]

9. Terminal Insertion Force Test Report

COCENTRA
 昆山科信成电子有限公司实验室
 地址: 江苏省昆山市巴城镇迎宾西路 1688 号
 电话: 0512-57850555 传真: 0512-57008118

Test Report

Specimen Name	RF1 1.13	Part Number	ANCZ113L-1C1
Manufacturer	CCT	Model/Type	N/A
Department	QE	Applicant	Tan chun zhi
Sample Quantity	10PCS	Sample State	Receptacle: 5pcs Connector: 5pcs
Date of Receipt	2020/6/15	Date of Testing	2020/6/15
Environment	23.5℃ ; 56%RH	Report Type	CCT-20200615-005
Description: Such as testing pictures, according to the requirements of the project.			
Test Item: Mating force and Un-mating force test			
Based on testing: Refer to the EIA - 364-13 part test specification requirements, testing			
Test Conclusion: Test qualified			

Approve : Liyongqi

Check : Panliangyu

Test: Zhengweishong

Date : 2020/6/15

Date : 2020/6/15

Date : 2020/6/15



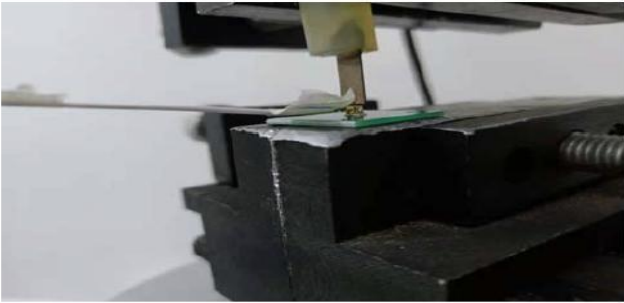
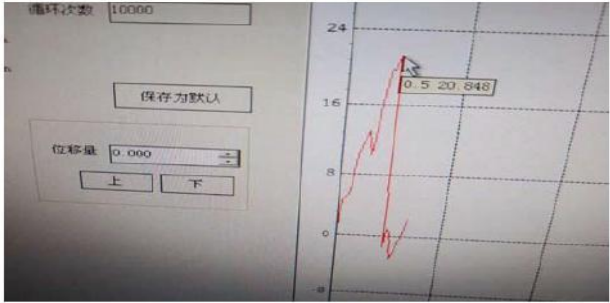
* The results of the Test Record relate only to the items tested and the specimen received.
 * This test document cannot be reproduced in any way, except in full content or the prior approval in writing of the laboratory.

Test Summary

Un-mating force test (单位: N)

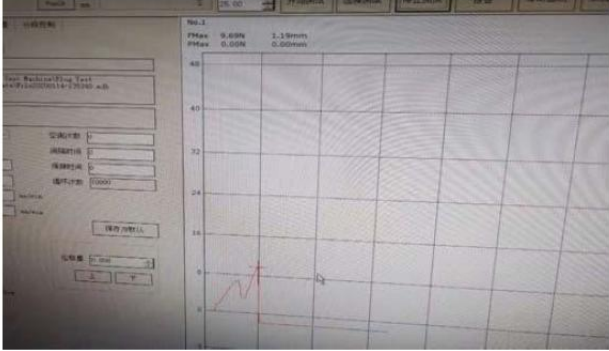
Project Matching mode	Spec	Result			PASS FAIL
		NO	Mating force	Un-mating force	PASS
Un-mating force test	Mating force 30N max Un-mating force 5N min Speed:25±3mm/min	1	20.84	9.69	PASS
		2	24.68	12.30	PASS
		3	24.06	11.10	PASS
		4	21.87	10.56	PASS
		5	19.70	9.91	PASS

Test Photo

Plug-and-pull machine	
	
Mating force	DATA



昆山科信成电子有限公司实验室
地址: 江苏省昆山市巴城镇迎宾西路 1688 号
电话: 0512-57850555 传真: 0512-57008118

	
Un-mating force	DATA

Testing equipment

Serial number	Name	Specification Model	Control Number	Term of validity
1	Plug-and-pull machine	1220S	CCT-NJ-006	2020/6/24

10. Reliability test report

Shangyuan Technology (China) Co., LTD

Salt mist detection report

No. : 20201120003

product	YBT-24-6 antenna	Test the number	5set				
Product material number	SW19073EB56	Testing standard	GB2423.17				
Inspection date	2020. 11. 19	Goods material	FPC				
Test time: 2020.11.19-2020.11.20							
Test items	Require standards	Actual numerical	Determine	test item	Require standards	Actual numerical	Determine
Specification of test instrument	KD-60	KD-60	ok	testing time	48H	48H	ok
Type of salt spray test	NSS neutral	NSS neutral	ok	Temperature of salt spray chamber	35° C	35° C	ok
Salt water PH	6.5-7.2	6.5-7.2	ok	Salt spray deposition (H.80C)	1-2ml	1.8ml	ok
Spray way	Continuous spray	Continuous spray	ok	Material of goods	FPC	FPC	ok
Brine composition	5%/NaCL	5%/NaC	ok	Compressed air section pressure	$1 \pm 0.1 \text{KG/CM}^2$	1	ok
Saturated humidity	47° C	47° C	ok	Specimen placement Angle	45°	45°	ok
Test observation time	Observations						
4H	No abnormal						
8H	No abnormal						
12H	No abnormal						
16H	No abnormal						
20H	No abnormal						
24H	No abnormal						
Judgment standard: According to National Standard 5944-86 rating method to determine, grade 9 or above is qualified							
Final judgment result	qualified ☒			unqualified ☐			
Tester	Chen guoliang	audit	Xiao-ping Chen	Examine and approve	Cao jinmao		
Remark: The commonly used salt spray test methods include: Dipper salt spray test in NSS, AASS acetate salt spray test, CASS Cupric acetate accelerated test							

11.Product specification

physical property			
Appearance Size (mm)	21.79*152.4	Length of feeder (mm)	/
Type of wire joint	SMA	Connection line type	/
antenna material	PCB	Antenna welding resistance layer	anthracene oil
Operation Temperature	-40℃~80℃	Operating humidity	10%~95%
Storage Temperature	-45℃~85℃	Storage Humidity	10%~95%
Electric Spec			
Operating frequency (MHz)	820~960/1710~2690	Bandwidth (MHz)	140/980
Gain (maximum direction)	1.12dBi	Impedance	50 Ω
polarization	vertical polarization	standing-wave ratio (SWR)	≤2.5