VLG TECHNOLOGY

ShenZhen VLG Wireless TECHNOLOGY CO,.LTD

Shenzhen VLG Wireless Technology Co., LTD

Acknowledgment

Customer/project name	RuxTek RTM-103	Frequency band	LTE		
VLG P/N	V1842-008-A-01	Version	R:A		
RF	HeJunSun	Quality	YuHong	Confirm	
Structure	ShaoBing	PM	ZengCong		
Date	2023-12-6				
Customer project name and P/N	Customer project name:				
	Customer project P/N:				
Customer Confirmation					

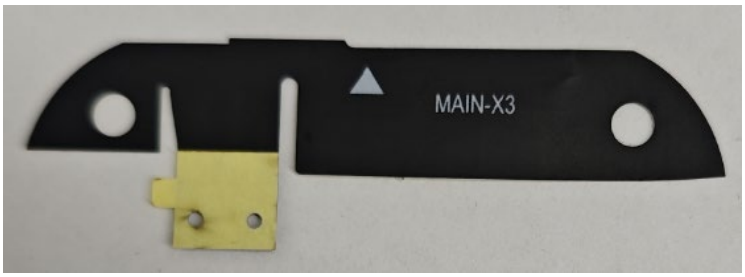
VLG Communication Technology

R&D Customer satisfaction survey of R&D projects（Customers please comment on the work of our R & D or PM management staff and urge us to better serve you）

RF technician	☐satisfaction	☐be basically satisfied	☐Dissatisfaction
Structural technician	☐satisfaction	☐be basically satisfied	☐Dissatisfaction
Project Management (PM Manager)	☐satisfaction	☐be basically satisfied	☐Dissatisfaction

Description of suggested items:

ANT Picture:



Design Specifications	Typical	Units
Antenna form	FPC	
working Frequency	824-960,1710-2690	MHz
Gain	≤5	DBi
Antenna efficiency	30-50	%
VSWR	≤3	
Ploriaztion	Line polarization	
Axial Ratio	/	N/A
Radiation pattern	all-around	
impedance	50 ohm	
Power handling	33	
Interface	Shrapnel contact	
Overal dimensions	See drawing section	
Weight	No requirement	
Operatin Temp	-30 ~ 85	
Storing Temp	-30 ~ 70	

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1、**Specifications:** The report mainly provides the test status of the electrical performance parameters of 4G antenna. 4G antennas are in the 700~960MHz/1710~2690MHz band.

2、Electrical Specification

2.1 specification standard

The working frequency band of 4G antenna is in 700 ~ 960 MHz / 1710 ~ 2690 MHz frequency band. The following table is the passive performance test index of the antenna

2.2 Antenna matching circuit：

E1	8.2nH
E2	0Ω
E3	N/A

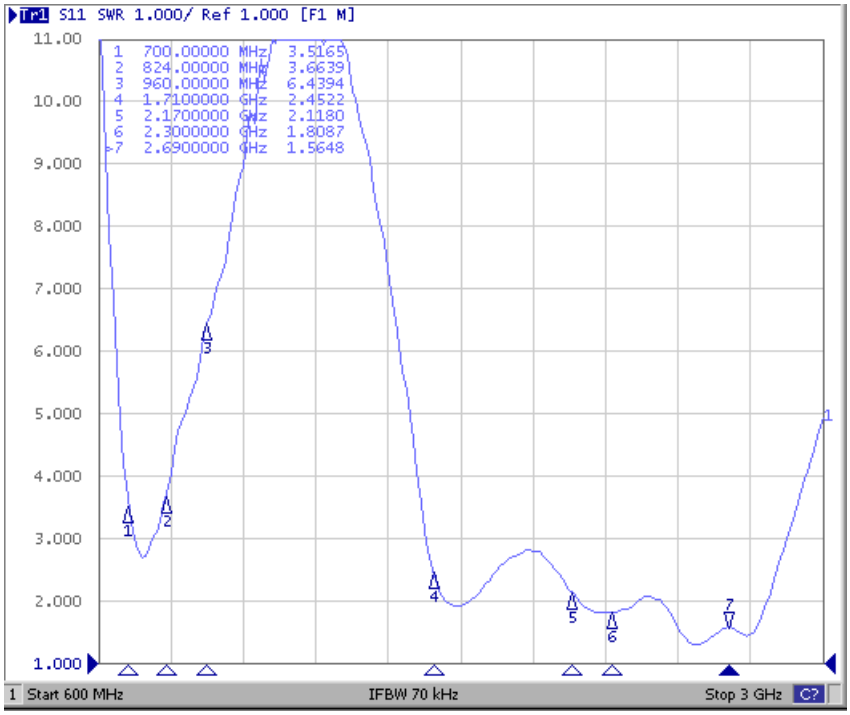
2.3 ANT VSWR

2.3.1 Test setup

 VSWR The test device is successively connected as：8714ET:**network analyzer**→50 Ω coaxial Cable→→**Test Fixture**

Treatment of test fixture: a cable is used to lead out the SMA connector at the 50 ohm test point of the antenna, which is connected with the copper tube with a choke, and then connected to other devices in turn.

2.3.2 ANT VSWR：



2.4 Passive test data：

Frequency	Efficiency	Efficiency . dB	Gain . dB	Frequency	Efficiency	Efficiency . dB	Gain . dB
700	25%	-6.0	-2.5	1710	38%	-4.2	1.6
710	27%	-5.8	-1.9	1745	39%	-4.1	1.4
720	28%	-5.5	-1.6	1780	39%	-4.1	0.9
730	29%	-5.4	-1.3	1815	40%	-4.0	0.8
740	30%	-5.2	-0.9	1850	39%	-4.1	0.2
750	31%	-5.1	-0.7	1885	37%	-4.3	0.0
760	31%	-5.1	-0.6	1920	36%	-4.4	-0.4
770	34%	-4.7	-0.4	1955	35%	-4.5	-0.1
780	34%	-4.7	-0.3	1990	36%	-4.4	0.4
790	33%	-4.8	-0.3	2025	39%	-4.1	0.6
800	35%	-4.6	-0.2	2060	45%	-3.4	0.7
810	35%	-4.6	-0.1	2095	48%	-3.2	1.1
820	36%	-4.5	-0.4	2130	51%	-2.9	1.4
830	35%	-4.5	-0.4	2165	51%	-2.9	1.1
840	36%	-4.5	-0.2	2200	46%	-3.3	0.4
850	34%	-4.7	-0.4	2235	47%	-3.3	0.2
860	32%	-5.0	-0.7	2270	48%	-3.2	0.9
870	32%	-5.0	-0.7	2305	50%	-3.0	1.7
880	30%	-5.3	-1.0	2340	49%	-3.1	1.4
890	27%	-5.7	-1.6	2375	49%	-3.1	1.9
900	26%	-5.9	-2.0	2410	46%	-3.4	2.3
910	25%	-6.0	-2.5	2445	45%	-3.5	2.0
920	23%	-6.4	-2.8	2480	45%	-3.5	2.0
930	22%	-6.6	-3.1	2515	46%	-3.4	2.5
940	22%	-6.6	-2.8	2550	39%	-4.1	2.3
950	21%	-6.7	-3.0	2585	42%	-3.7	2.1
960	20%	-7.0	-3.2	2620	38%	-4.2	1.1
				2655	36%	-4.4	0.5
				2690	30%	-5.2	0.0

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Gain . dB(B4)
1.6
1.4
0.9
0.8
0.2
0.0
-0.4
-0.1
0.4
0.6
0.7
1.1
1.4
1.1

Gain . dB(B28)
-2.5
-1.9
-1.6
-1.3
-0.9
-0.7
-0.6
-0.4
-0.3
-0.3
-0.2

Gain . dB(W2)
0.8
0.2
0.0
-0.4
-0.1
0.4

Gain . dB(W8)
-1.0
-1.6
-2.0
-2.5
-2.8
-3.1
-2.8
-3.0
-3.2

2.5 Active test data

Band	BandWidth	Channel	TRP	Channel	TIS	Band	BandWidth	Channel	TRP	Channel	TIS
FDD B2	10M	18650	19.62	650		TDD B38	20M	37800	18.47	37800	
		18900	20.28	900				38000	18.92	38000	
		19150	19.63	1150	-96.02			38200	19.57	38200	-91.31
FDD B4	10M	20000	19.21	2000		TDD B40	20M	38700	19.48	38700	
		20175	18.54	2175				39150	19.5	39150	
		20350	20.37	2350	-96.49			39600	19.13	39600	-92.6
FDD B7	10M	20800	18.46	2800		TDD B41	20M	40340	18.89	40340	
		21100	17.89	3100				40740	19.17	40740	
		21400	17.56	3400	-94.54			41140	18.71	41140	-92.81
FDD B5	10M	20450	16.19	2450		WCDMA 2	/	9262	19.3	9662	
		20525	17.31	2525				9400	20.29	9800	
		20600	17.83	2600	-88.04			9538	19.08	9938	-107.47
FDD B8	10M	21500	17.46	3500		WCDMA 4	/	1312	19.1	1537	
		21625	16.65	3625				1412	18.55	1638	
		21750	16.46	3750	-88.41			1513	19.44	1738	-105.45
FDD B28	10M	27260	15.89	9260		WCDMA 5	/	4132	16.08	4357	
		27435	17.19	9435				4182	17.6	4408	
		27610	15.97	9610	-87.31			4233	17.49	4458	-101.83
						WCDMA 8	/	2712	17.66	2937	
								2788	16.41	3012	
								2863	16.09	3088	-102.08

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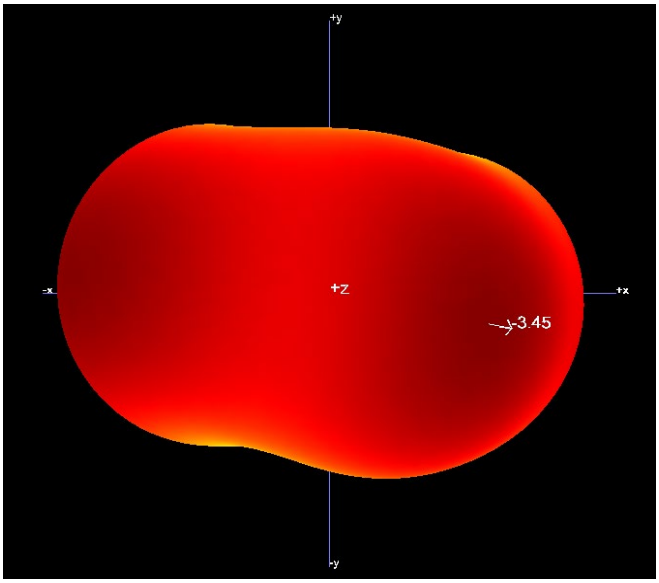
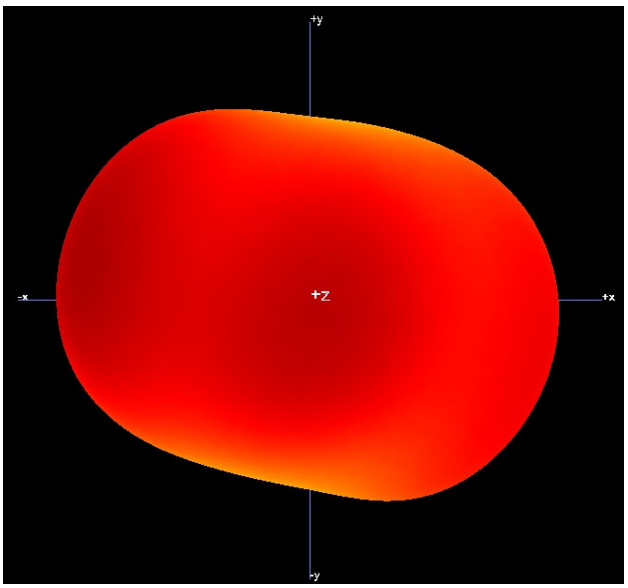
2.6 Directions

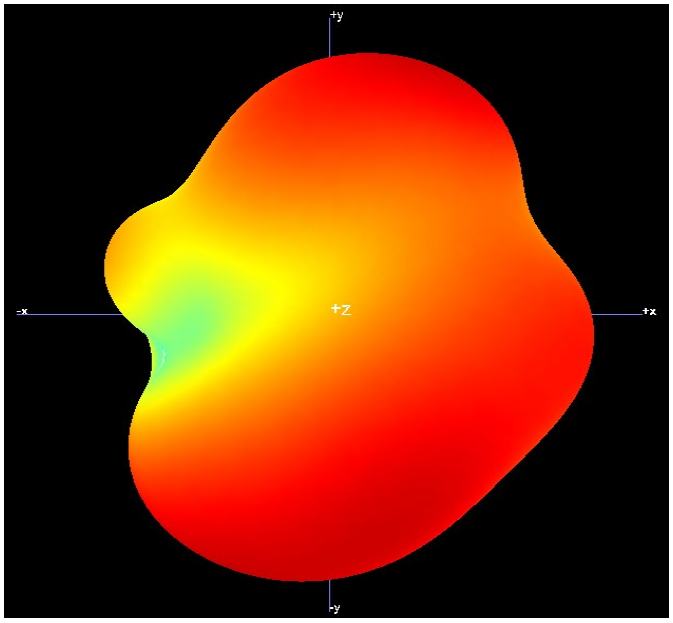
700MHz（B28）



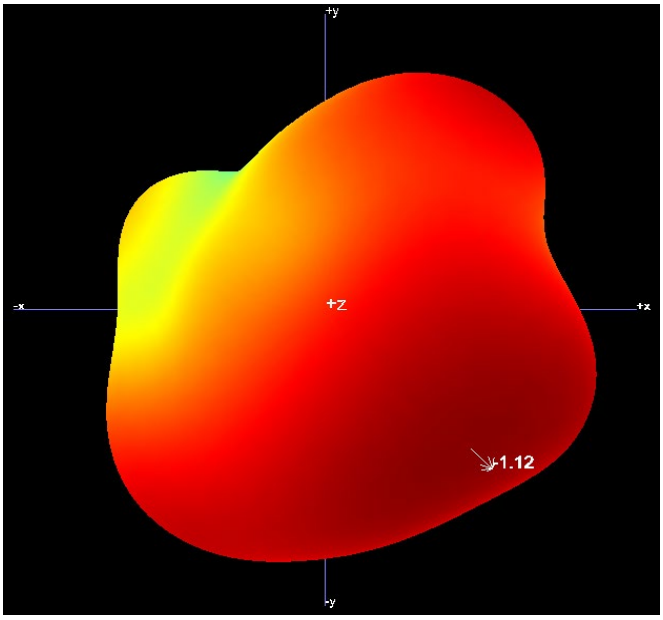
900MHz(W8)



1750MHz(B4)



1950MHz(W2)



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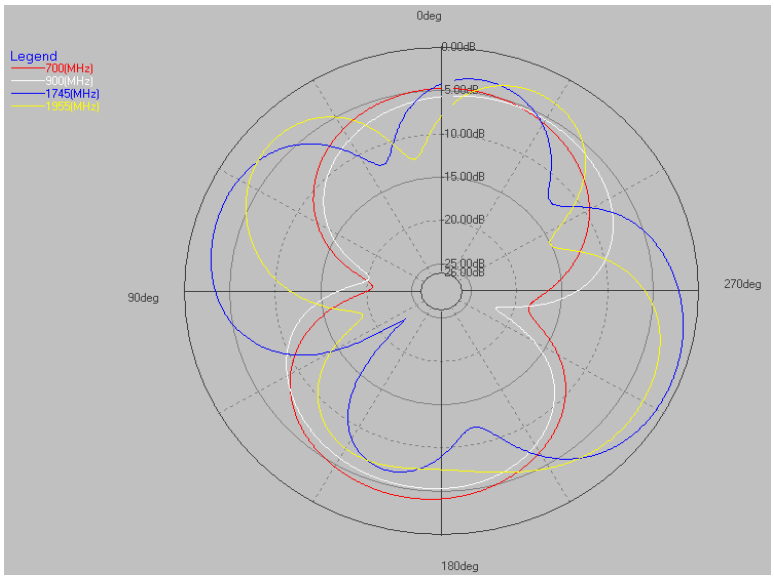

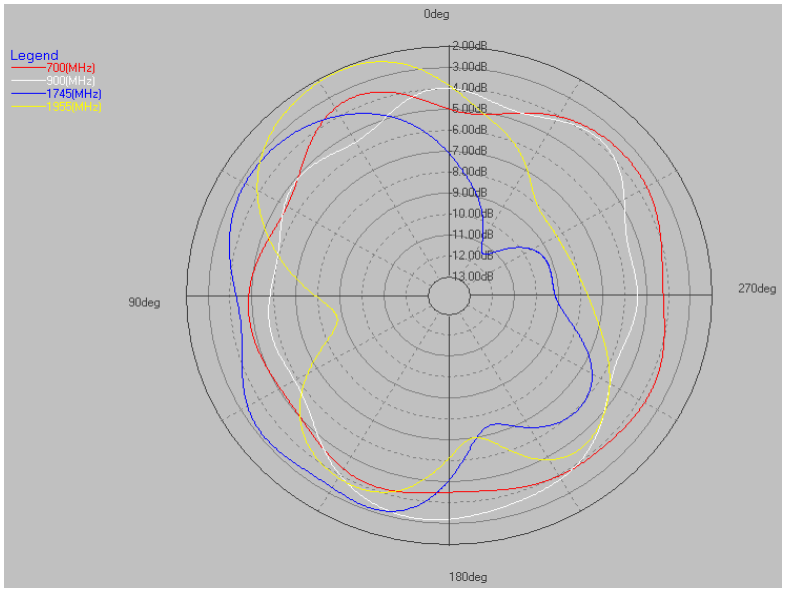

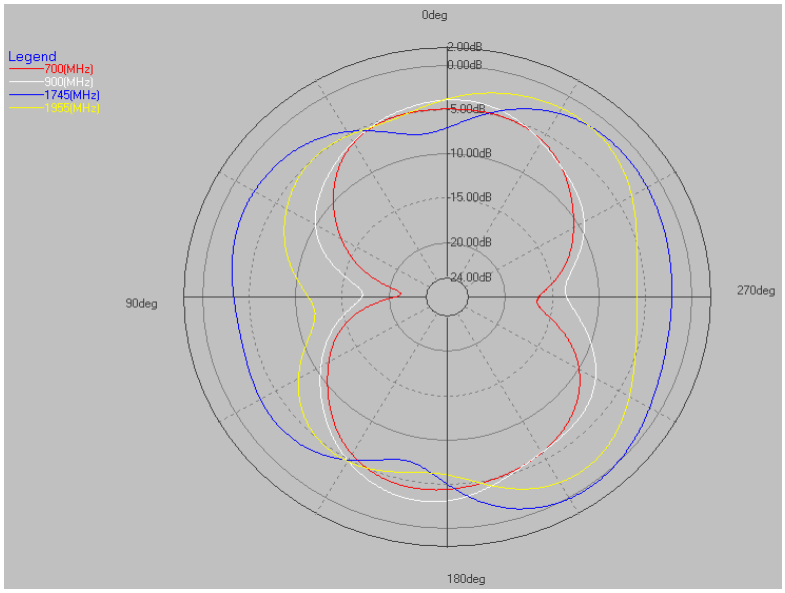

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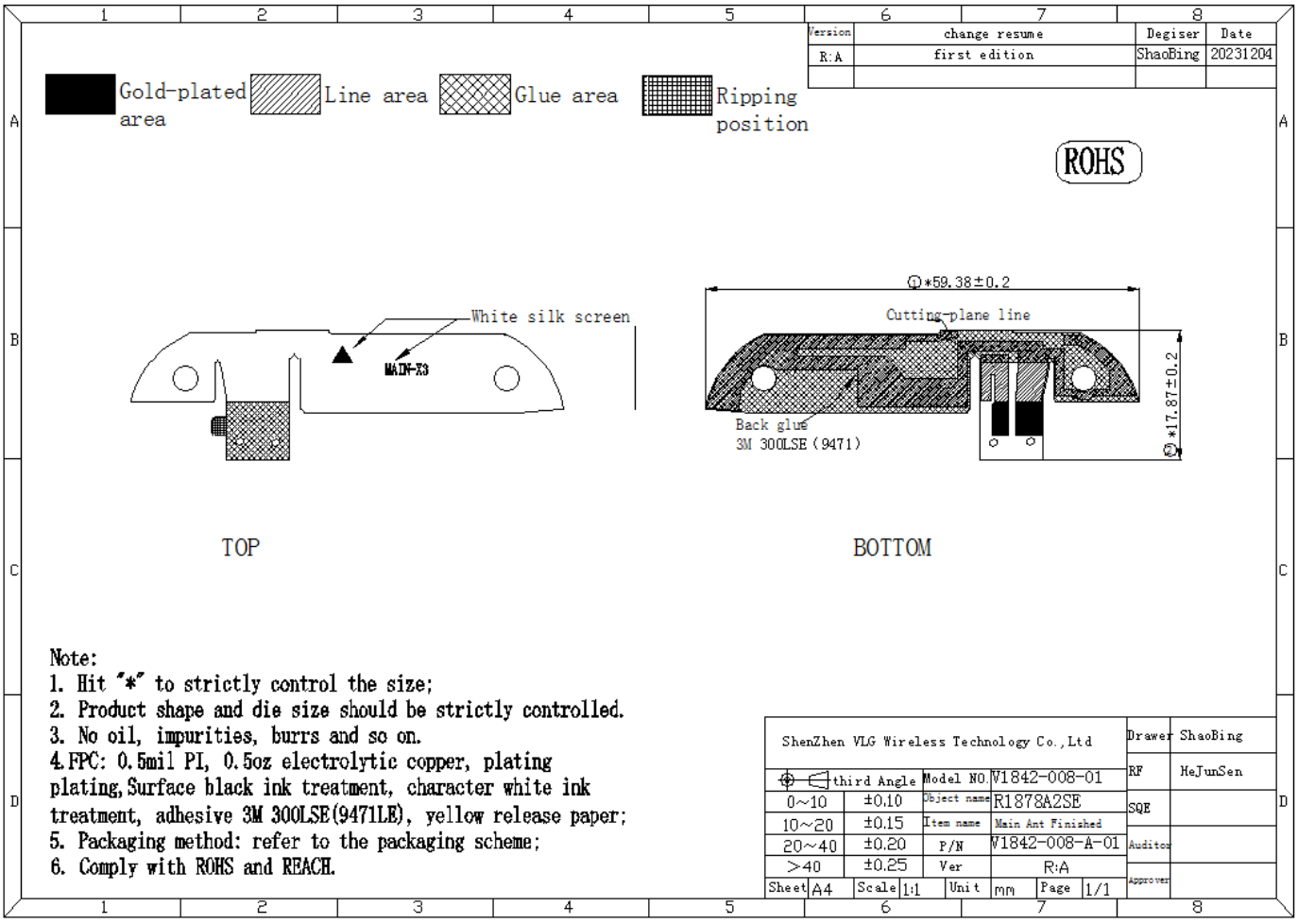
3、Recommendations and conclusions

This report is based on the electrical performance of the final version of the R18784G antenna supplied by the customer. As can be seen from the above test data, this antenna provides better electrical performance. VLG R & D staff look forward to your confirmation, thank you for your cooperation!

4、 Product 2D Drawing:



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Sample size test report (FAI)

customer name		RuxTek RTM-103				product name					type				LTE
supplier		/				P/N		V1842-008-A-01			Tester				YuHong
Drawing version		A				Unit		mm			Survey Date				11/19
NO.	test item	test standard				measurement					result	instrument			remark
						1	2	3	4	5					
1	aspect	Brief description of bad appearance				OK	OK	OK	OK	OK	OK	test			
	drawing size	★	59.38	±	0.20	59.37	59.37	59.38	59.31	59.39	OK	PM			
		★	17.87	±	0.20	17.85	17.89	17.88	17.80	17.82	OK	PM			
		blank below													
final judgment: OK■ NG□															

Testing instrument for short: PG - plug (round hole) gauge, RG - R gauge, SG - block gauge, LG - ring gauge DC-digital caliper PM - quadratic coordinate projector

Version :A.0 Form Number :VLG/QRF8.2-28/A.0

Inspection: Jiang Tao Audit: Approved: Yu Hong

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R1878A2SE-FPC product raw material list		
name	Raw material type	Raw material brand
base material	Half and half gel single side electrolytic	CAI Lungetti
gum	3M9471 adhesive paper	3M
printing ink	Matte black oil (PSM-800)	Youli
characte	wrongly written or mispronounced	Chuanyu
release liner	Yellow release paper	Ze Xingyu
gold plating	0.03um	ZhiFu

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Salt spray test report

customer name	RuxTek RTM-103			quantity of test	3pcs		
product name	MAIN ANT			P/N	/		
date of survey	2023/11/28			testing standard	ANSI/IEEE Std 149-2008		
test time: 2023.8.26-2023.8.28							
test Object	Standard	Actual Value	judge	test Object	Standard	Actual Value	judge
instrument specification	KD-60	KD-60	OK	test time	24H	24H	OK
Salt spray test type	NSS PH	NSS PH	OK	Salt spray tank temperature	35±2° C	35° C	OK
saline water PH	6.5-7.2	6.8	OK	The amount of salt spray settling (H.80C)	1-2ml	1.6	OK
Spraying mode	continuous spray	continuous spray	OK	Salt spray humidity	>85%	95%	OK
Brine composition	5± 1%/NaCL	5%/NaCL	OK	Compressed air node pressure	1± 0.1KG/CM^2	1KG/CM^2	OK
saturation temperature	34° C	34° C	OK	Sample horizontal direction placement Angle	70-75°	75°	OK
No.	1	2	3	4	5	result	remark
No surface corrosion, coating peeling, foaming and other bad phenomena	OK	OK	OK	OK		OK	
judgeStandard: According to the national standard 5944-86 rating method judge, grade 9 or above is qualified							
Final judge	Pass☐ ✓				NO Pass☐		
tester	jiangtao		check	/	approve	Yuhong	
remark: Common salt spray test methods are: NSS neutral salt spray test, AASS Acetic acid salt spray test, CASSA ccelerated copper acetic acid test.							

versions: A.0

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Low temperature storage test report

customer name	RuxTek RTM-103	production batch	N
product name	MAIN ANT	quantity of test	3
P/N	V1842-008-A-01	testing standard	ANSI/IEEE Std 149-2008
date of survey	2023/11/25	Goods material	

test time: 2023.8.8-2023.8.10

testing standard	Standard	Actual Value	judge	testing standard	Standard	Actual Value	judge
instrument specification	80L	80L	OK	State testing standard	GB/T 2423.1-2001	GB/T 2423.1-2001	OK
Cal High Fusing	.-40℃	.-40℃	OK	Temperature	5° C-30° C	28℃	OK
HUMI SV	0%	0%	OK	humidity	25%-85%	40%	OK
test time	48 H	48 H	OK	open air compressor below 61℃	open	open	OK
Recovery time	2 H	2 H	OK				
Test observation time	Low temperature observation						
24H	No abnormal products (no deformation, no bubbles)						
48H	No abnormal products (no deformation, no bubbles)						
Final judge	Pass☐ ✓				NO Pass☐		
tester	jiangtao	check		Zhangwang	approve	Yuhong	

remark: After the test, it is necessary to check whether the electrical performance meets the original test requirements。

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Shenzhen Weiligu Wireless Technology Co., Ltd.

High temperature storage test report

customer name	RuxTek RTM-103			production batch	N		
product name	MAIN ANT			quantity of test	3		
P/N	V1842-008-A-01			testing standard	ANSI/IEEE Std 149-2008		
date of survey	2023/11/23			Goods material			
testing standard	Standard	Actual Value	judge	testing standard	Standard	Actual Value	judge
instrument specification	80L	80L	OK	State testing standard	GB/T 2423.1-2001	GB/T 2423.1-2001	OK
Cal High Fusing	85℃	85℃	OK	Temperature	5° C-30° C	28℃	OK
HUMI SV	65%	65%	OK	humidity	25%-85%	40%	OK
test time	24 H	24 H	OK	open air compressor below 61℃	open	open	OK
Recovery time	2 H	2 H	OK				
Test observation time	High temperature observation						
24H	No abnormal products (no deformation, no bubbles)						
48H	No abnormal products (no deformation, no bubbles)						
Final judge	Pass☐ ✓				NO Pass☐		
tester	jiangtao		check	wanghailing	approve	Yuhong	

remark：After the test, it is necessary to check whether the electrical performance meets the original test requirements。

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Packing

Step	project	Note
1		Full page (packaging) inspect ok
2		Full page take into PE bag
3		Label PE bag
4		carton
5		seal the box
6		label of the outer carton

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