Yi Hua acknowledged that the book countersign form

number:

Applicable model		T86L		delivery mode	☐ Machine ☐ SKD	The nature of the supplier	☐ New Suppliers ☐ Qualified Suppliers	
material code		main antenna FPC				supplier	Renesola communication	
Material name and description		main antenna						
material properties	☐ Structural parts ☐ electronic components ☐ motor parts ☐ packaging material ☐ accessories ☐ others							
Number of samples sent	5	Send sample date		purchasing cycle		Day / week	purchase department	
Sample test status	Check items	Inspection content / test results					Signature / Date	
	surface	Confirm materials: exterior structural parts (screen printing, color) / accessories / labeling / packaging, etc					ID Design Validation accessory validation	
		Confirm content: screen printing / color / label / packaging materials meet the design requirements					Sales confirmation	
	structure	Confirm material: All materials / accessories on the nose Confirmation content: key structural dimensions / drawings / assembly accessories / mutual match verification					MD design confirmation	
	hardware	Confirmation material: LCD / TP / CAM / horn / antenna / antenna / accessories / T card / Confirm content: function / effect					HW test confirmation	
	character	Confirmation Item: All items in the BOM Confirmation content: reliability test / appearance standard / drawing / supplier test report					Quality Manager confirmation	
	Reliability test report							
project department Confirm opinion	Make a comprehensive treatment opinion for the certified materials project manager:					Confirmation material: LCD / TP / CAM / FPC / antenna / battery Confirm content: Key dimensions / drawing / function / process Project Director:		
Sample storage department	quantity	Receiver / Date	Sample storage department	quantity	Receiver / Date	Sample storage department	quantity	Receiver / Date
project department	A		purchase department	A		quality department	A	
fabricating plant	A		other					
remarks								

Material requirement specification for T86L project antenna

Customer name: Yihua Intelligence

Customer name: **T86L**

product name:Main antenna

Change Content CV:

order number	edition	state	availability date	person liable	page number	remarks
1	R:A	editio princeps	2024-6-17	Li Jieyi	14	
2						

The Supplier acknowledges the signature of the following documents:

Responsible person / date		IQC/ date	Review / Date	Approval / Date
MD				
RF				

The Demander acknowledges the signature (please send it back after the confirmation):

The demander's judgment result: □ qualified □ unqualified			
Development & Design Engineer / Date	SQE Engineer / Date	Purchasing Leader / Date	Development Manager approval / date

Catalogue

1. Overview

1.1 Scope of application

This requirement specifies the antenna technical requirements and material requirements specifications for T86L products.

This requirement applies to **T86L** Antenna type selection, test, and acceptance.

1.2 Project basic information

Antenna name:	T86L
Antenna band:	2G:GSM850/900/1800/1900 3G:WCDMA B1/5/8 4G:LTE B1/3/5/7/8/20/38/40/41 GWB:1575.42MHz/2.45GHz/5.8GHz DRX:1700MHz-2700MHz
Antenna material:	FPC+ coaxial cable

2. Technical index requirements

2.1 Introduction of test items and equipment

inventory	test item	equipment
Active test	TRP,TIS	Integrated tester, microwave darkroom

2.2 Active Reporting

2.2.1 Test instructions

Test tools: Agilent8960 instrument, R & S CMW500, full wave far field ETS dark room, high precision positioning system and its controller and computer with automatic test program

Test environment: temperature 22℃± 3℃, humidity 50% ± 15%

Test method: DUT is fixed in the center of the turntable with the H plane, on the same horizontal line as the center of the horn antenna.

The positioning system enables the DUT to rotate in the whole sphere to satisfy the high-precision 3 D positioning. Each RF instrument and turntable controller communicate with the PC with automatic test software through the GPIB interface.

2.2.2 Main board conduction parameters

frequency range	CH	TRP(db)	TIS(dbm)	frequency range	CH	TRP(db)	TIS(dbm)
GSM850	CH(low)	30.6	-108	WCMDA B1	CH(low)	18.3	-108
	CH(centre)	30.6	-108		CH(centre)	18.5	-108
	CH(tall)	30.5	-109		CH(tall)	19.0	-109
EGSM900	CH(low)	30.4	-108	WCMDA B5	CH(low)	22.6	-110
	CH(centre)	30.5	-108		CH(centre)	22.2	-109
	CH(tall)	30.5	-107		CH(tall)	22.4	-110
DCS1800	CH(low)	26.0	-104	WCMDA B8	CH(low)	22.5	-109
	CH(centre)	25.8	-103		CH(centre)	22.4	-109
	CH(tall)	25.4	-103		CH(tall)	22.4	-109
PCS1900	CH(low)	24.7	-104	LTE B1	CH(low)	22.4	-95
	CH(centre)	24.9	-104		CH(centre)	22.7	-95
	CH(tall)	24.8	-104		CH(tall)	22.7	-95

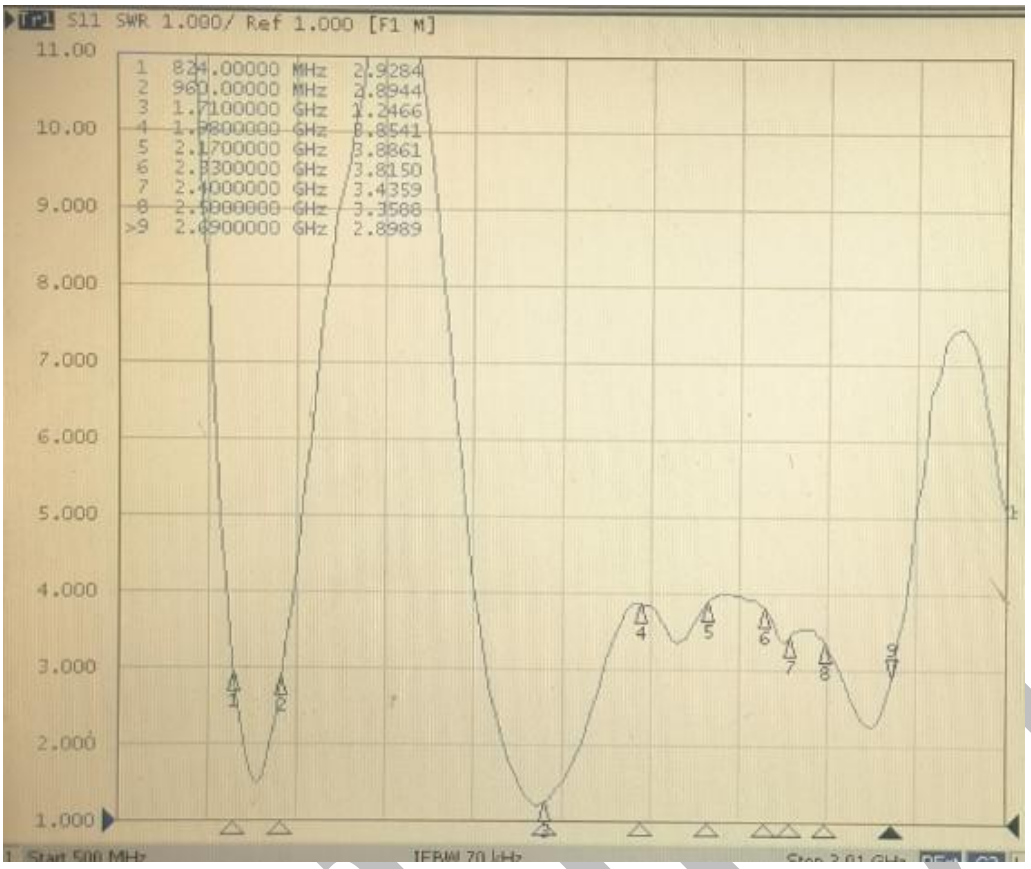
frequency range	CH	TRP(db	TIS(dbm	frequency range	CH	TRP(db)	TIS(dbm)
LTE B3	CH(low)	21.7	-96	LTE B 20	CH(low)	22.6	-99
	CH(centre)	21.6	-96		CH(centre)	22.7	-99
	CH(tall)	21.5	-96		CH(tall)	22.6	-99
LTE B 5	CH(low)	22.7	-99	LTE B38	CH(low)	23.7	-91
	CH(centre)	22.7	-99		CH(centre)	23.5	-91
	CH(tall)	22.6	-99		CH(tall)	23.9	-91
LTE B 7	CH(low)	22.8	-96	LTE B 40	CH(low)	23.5	-92
	CH(centre)	22.6	-96		CH(centre)	23.5	-92
	CH(tall)	22.6	-96		CH(tall)	23.8	-92
LTE B 8	CH(low)	22.5	-97	LTE B 41	CH(low)		
	CH(centre)	22.5	-97		CH(centre)	23.8	-92

	CH(tall)	22.4	-97		CH(tall)		

2.2.3 Antenna active parameters

frequency range	CH	TRP(db)	TIS(dbm)	frequency range	CH	TRP(db)	TIS(dbm)
LTE B 1	CH(low)	17.62		LTE B 8	CH(low)	16.42	
	CH(centre)	16.85			CH(centre)	15.80	
	CH(tall)	16.34	-86.2		CH(tall)	15.54	-80.34
LTE B 3	CH(low)	16.73		LTE B 20	CH(low)	15.62	
	CH(centre)	16.22			CH(centre)	15.81	
	CH(tall)	15.88	-88.5		CH(tall)	16.34	-85.26
LTE B 5	CH(low)	15.97		LTE B 38	CH(low)	18.33	
	CH(centre)	16.43			CH(centre)	17.55	
	CH(tall)	16.92	-87.22		CH(tall)	16.68	-86.4
LTE B 7	CH(low)	18.34		LTE B 40	CH(low)	16.72	
	CH(centre)	17.76			CH(centre)	17.66	
	CH(tall)	17.43	-86.34		CH(tall)	18.26	-85.1
LTE B 41	CH(low)						
	CH(centre)	18.45	-87.31				
	CH(tall)						

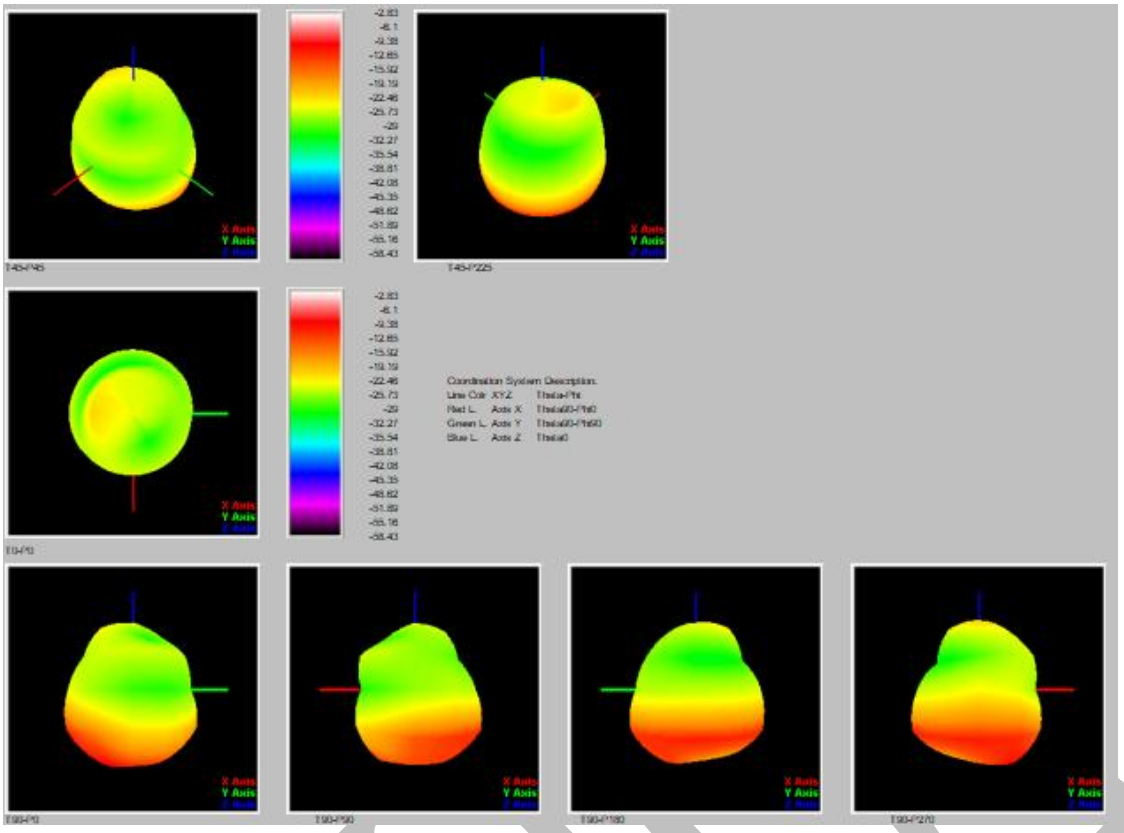
2.2.4 Main antenna has passive parameters



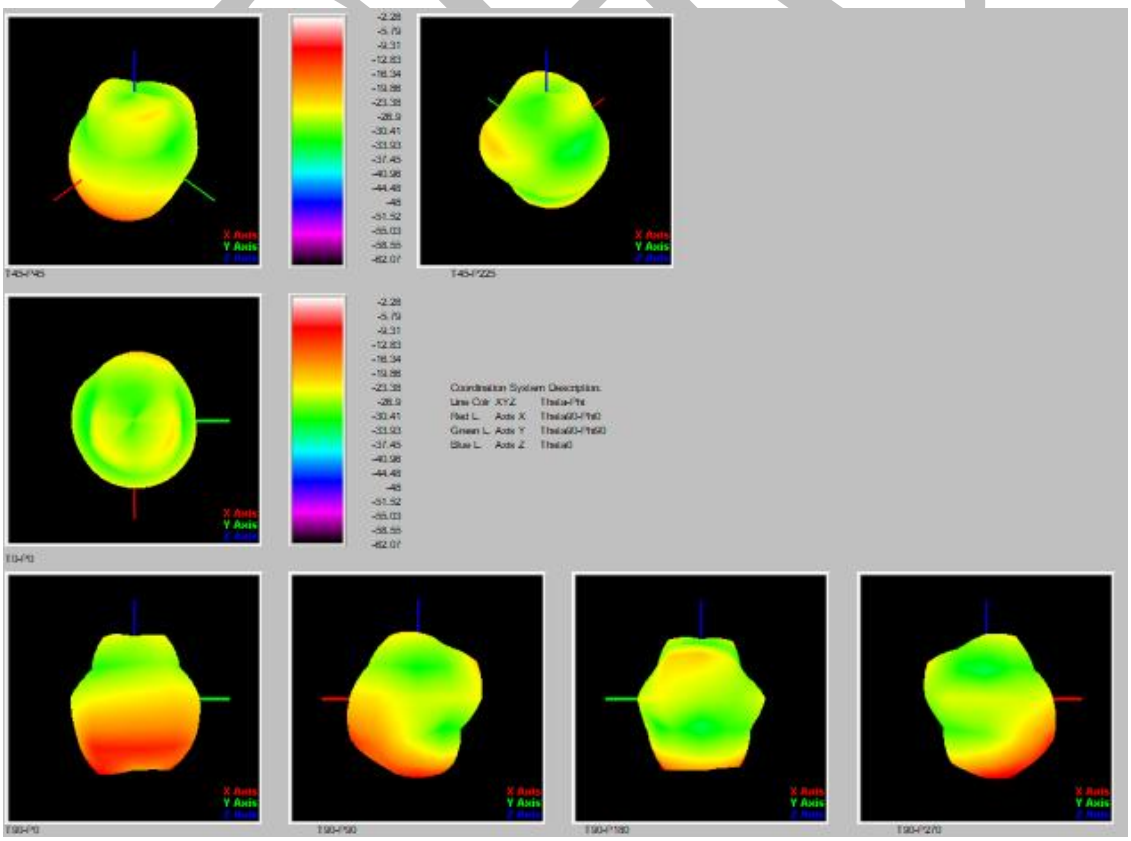
Freq(Main antenna efficiency)	Effi(%)	Gain(dBi)
800MHZ	20.9	-2.83
840MHZ	21.4	-2.46
890MHZ	22.6	-2.31
940MHZ	22.8	-2.09
980MHZ	23.5	-2.05
1700MHZ	27.3	-1.86
1750MHZ	28.5	-2.28
1800MHZ	29.2	-3.37
1850MHZ	30.2	-4.22
1900MHZ	30.6	-0.61
1950MHZ	31.0	-0.76
2000MHZ	29.8	-0.43
2050MHZ	29.4	-0.31

Freq(Main antenna efficiency)	Effi(%)	Gain(dBi)
2100MHZ	28.8	0.38
2150MHZ	27.6	0.14
2200MHZ	26.5	-0.37
2250MHZ	25.7	-1.19
2300MHZ	26.4	-2.28
2350MHZ	26.8	-2.77
2400MHZ	27.4	-2.77
2450MHZ	28.6	-1.80
2500MHZ	29.2	-1.88
2550MHZ	30.7	-1.91
2690MHZ	31.8	-2.51

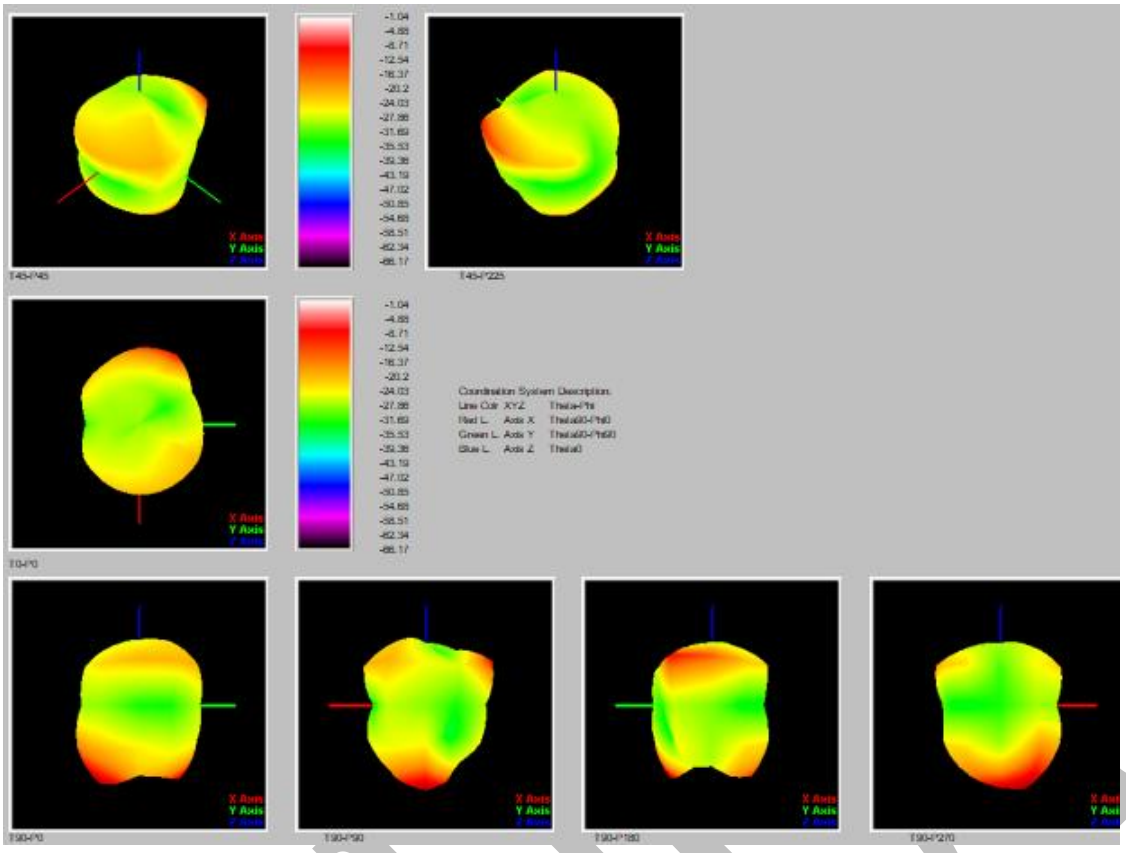
2.2.5 Main antenna of main parameters-direction diagram-880 MHZ



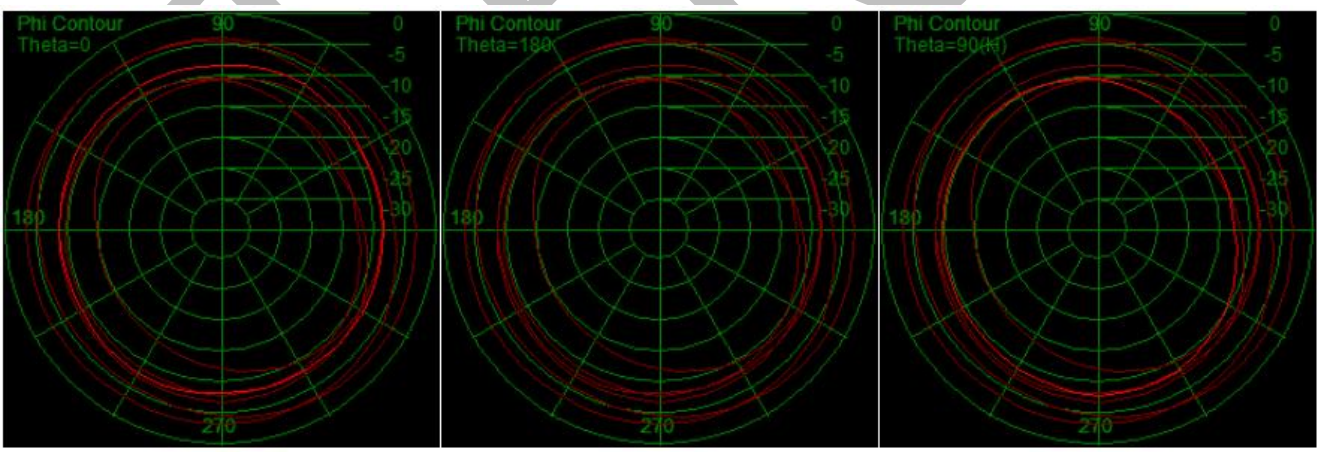
2.2.6 Active parameters of main antenna-direction diagram-1980 MHZ



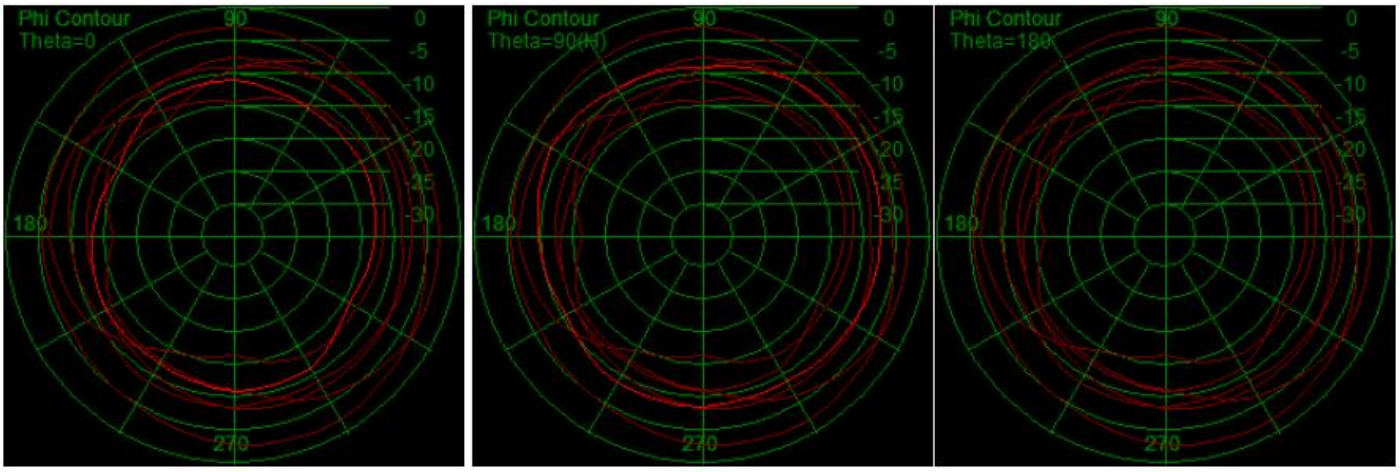
2.2.7 Passive parameters of the main antenna-direction diagram-2580 MHZ



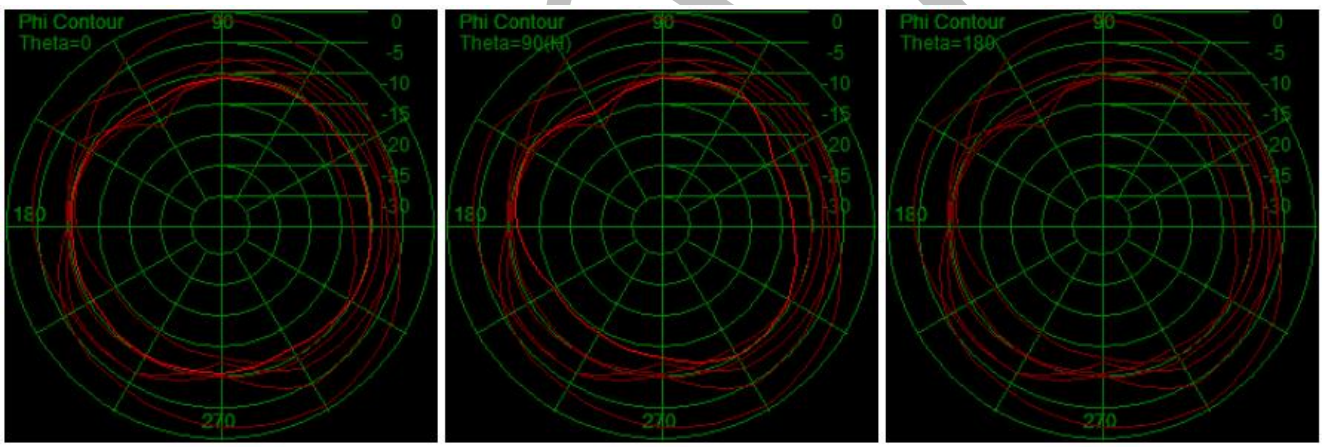
2.2.8 Main antenna of main antenna-plan plan-880 MHZ



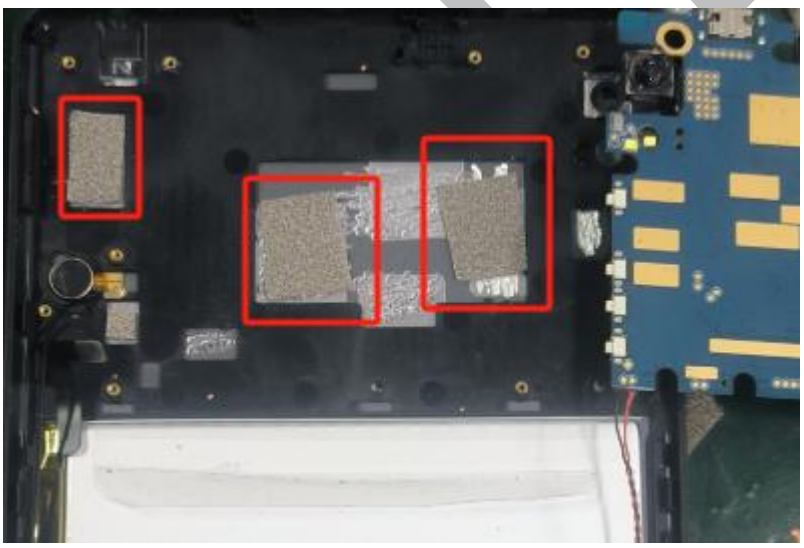
2.2.9 Active parameters of main antenna-plan-1980 MHZ



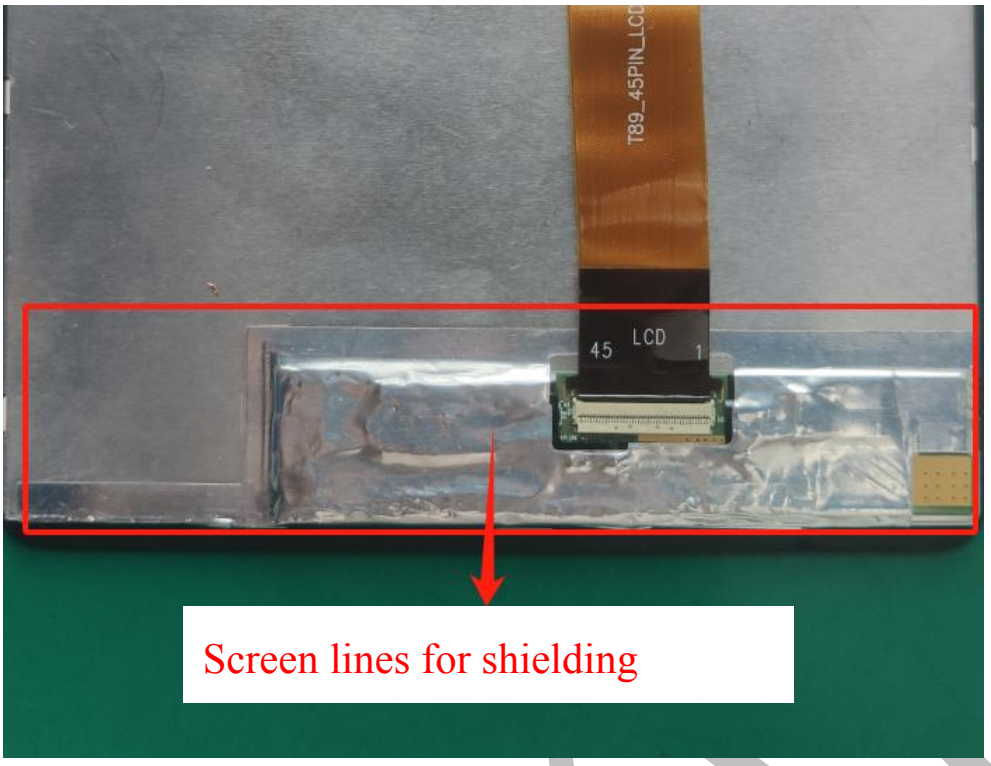
2.2.10 Main antenna-plane plan-2580 MHZ

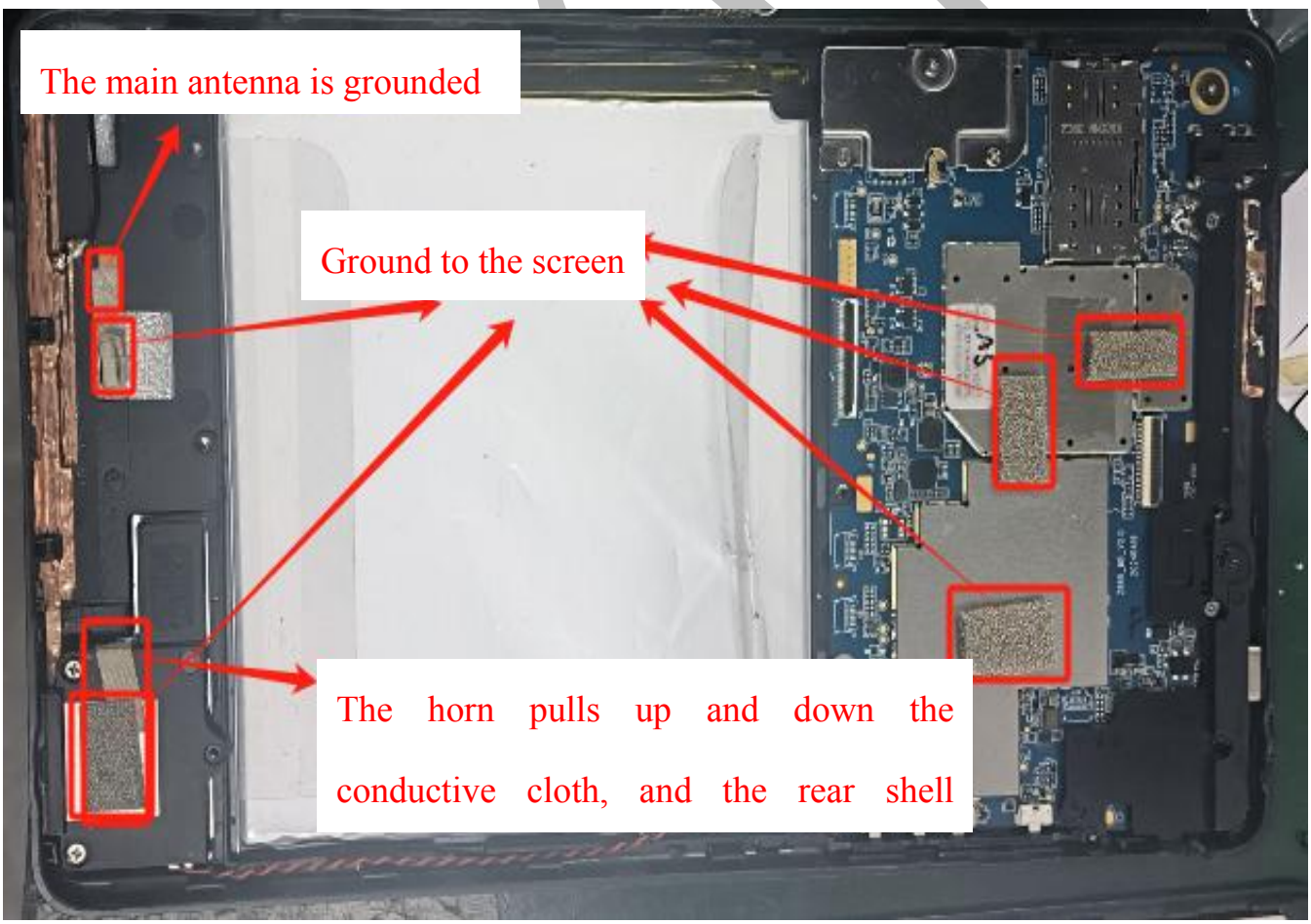


2.2.11, and the treatment of the antenna environment



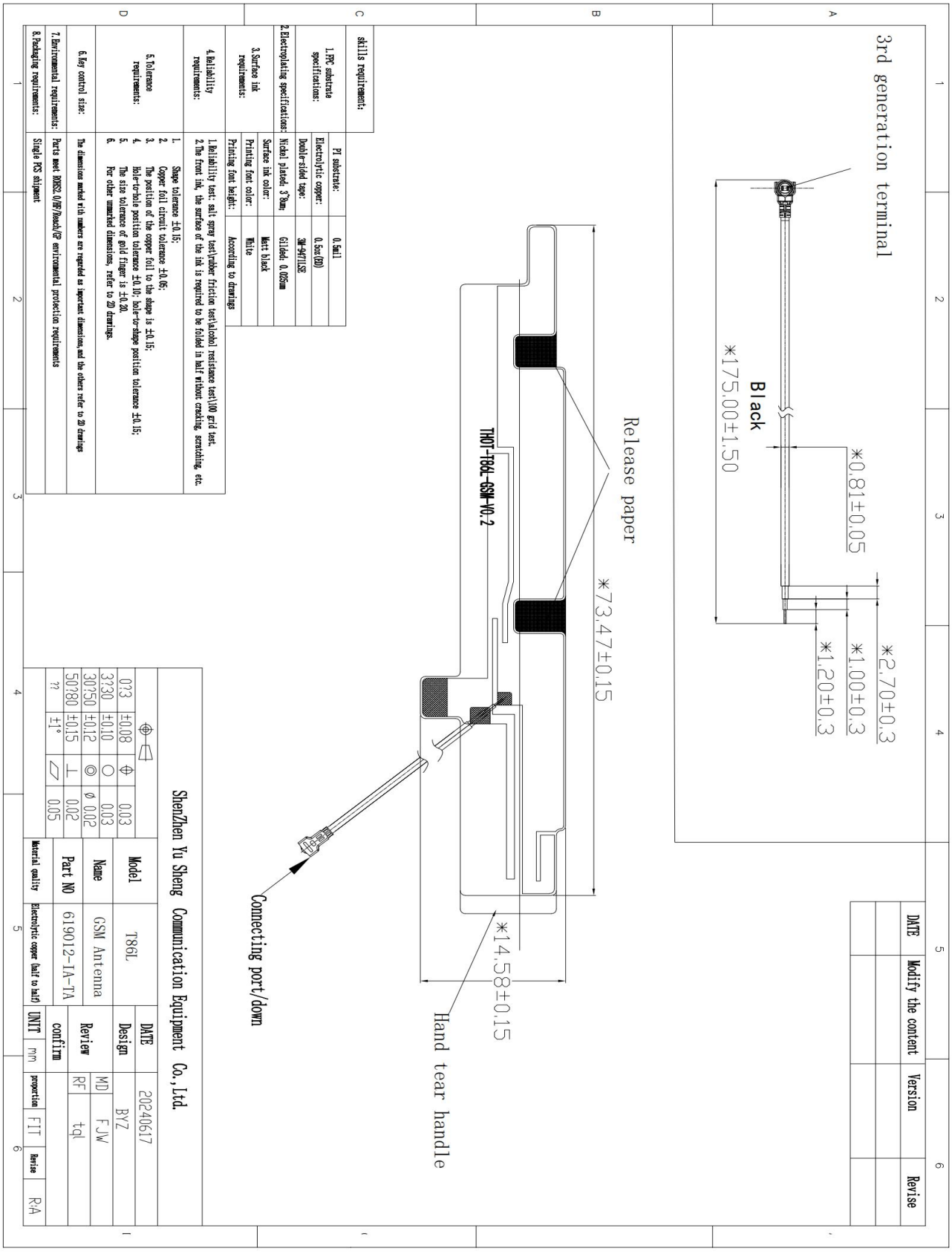
The rear shell is grounded to the motherboard


T89_45PIN_LCD
45
LCD
1
Screen lines for shielding


The main antenna is grounded
Ground to the screen
The horn pulls up and down the conductive cloth, and the rear shell

3. Engineering drawings

GSM antenna



4. Bill Of Material

Shenzhen Yusheng Communication Equipment Co.,LTD

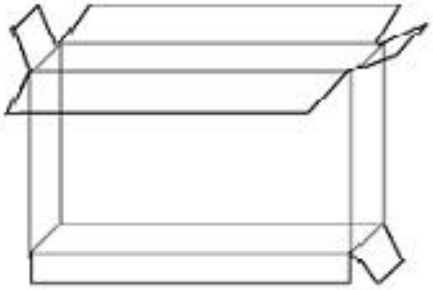
619012 (T86L) -BOM

edition: T:A client: 619 Type of aircTAft: 619012 Set a date: 2024/6/17

Item	*Material code	*Material name	name	*Machine type	Specification and model	colour	*UNIT.	dosage	remark
1	619012-IA-TA	GSM antenna		T86L	GSM-FPC+CABLE+weld	black	PCS	1	
1.1	619012-IA-01-TA	FPC		T86L	GSM-FPC Electrolytic copper 73.47*14.58*0.12 mm	black	PCS	1	
1.2	619012-IA-02-TA	CABLE		T86L	Fourth geneTAtion terminal ⌀ 0.81*120.5mm	black	PCS	1	
1.3	619012-IA-04-TA	assemble		T86L	weld	black	PCS	1	
2	619012-IB-TA	DIV antenna		T86L	DIV-FPC Electrolytic copper 22.45*12.68*0.12 mm	black	PCS	1	
2.1	619012-IB-01-TA	FPC		T86L	DIV-FPC Electrolytic copper 22.45*12.68*0.12 mm	black	PCS	1	
3	619012-IC-TA	BGW antenna		T86L	BGW-FPC 30.20*17.25*0.12 mm	black	PCS	1	
3.1	619012-IC-01-TA	FPC		T86L	BGW-FPC 30.20*17.25*0.12 mm	black	PCS	1	

verify: examine: manufacture: BYZ

5. Packaging diagram

<table>
<tr><td colspan="3">Packaging method diagram</td></tr>
<tr><td>product name</td><td colspan="2">FPC welding on the common axis</td></tr>
<tr><td>Project model</td><td colspan="2">T86L</td></tr>
<tr><td rowspan="3">File details</td><td>Carton Size 1:
35*25*24.5cm
Carton Size 2:
Depending on the order quantity / volume</td><td>  </td></tr>
<tr><td>Boating method</td><td>Packaging by order quantity</td></tr>
<tr><td>Total number of binning</td><td>Packaging by order quantity</td></tr>
<tr><td>labeling requirement</td><td>Tag Size 1:
Universal use 100 * 100mm
Tag Size 2:
According to customer requirements</td><td></td></tr>
<tr><td colspan="3">matters need attention</td></tr>
<tr><td colspan="3">1. Due to the limitation of order quantity, the packing method of each material is the size of the box according to the total quantity of the order or the physical volume</td></tr>
<tr><td colspan="3">2. Storage temperature: room temperature</td></tr>
<tr><td colspan="3">3. Preservation conditions: store them in a cool and dry place</td></tr>
</table>