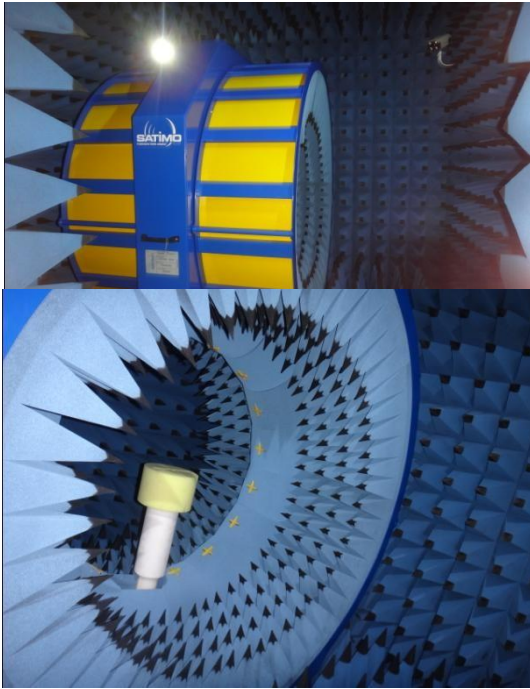


test report



Customer name	Chengfeng	Project name	PO575 American version
Debugging frequency band	GSM4P,W2/4/5,LTE:B2/4/5/ 7/12/14/17/28A/28B/29/30 /66/71	Structural mode	FPC
Radio frequency engineer	Xie Zhixiong	construction engineer	Du Qiang
Antenna type	Loop	date	2023-7-20

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Imported from France's SATIMO company's StarLab 3D laboratory, it can accurately and quickly test the TRP, TIS, efficiency, gain, Apple chart, directional chart and other parameter data of communication terminal products such as mobile phones, tablet computers and notebooks.

- ◆ Summary of report version
- ◆ ◆ conduction data of each antenna matching circuit and passive parameters
- ◆ OTA test data of main antenna
- ◆ GPS Measured Effect
- Environmental Treatment of ◆
- Whole Machine
- ◆ Summary of risk
- ◆ warning in debugging process

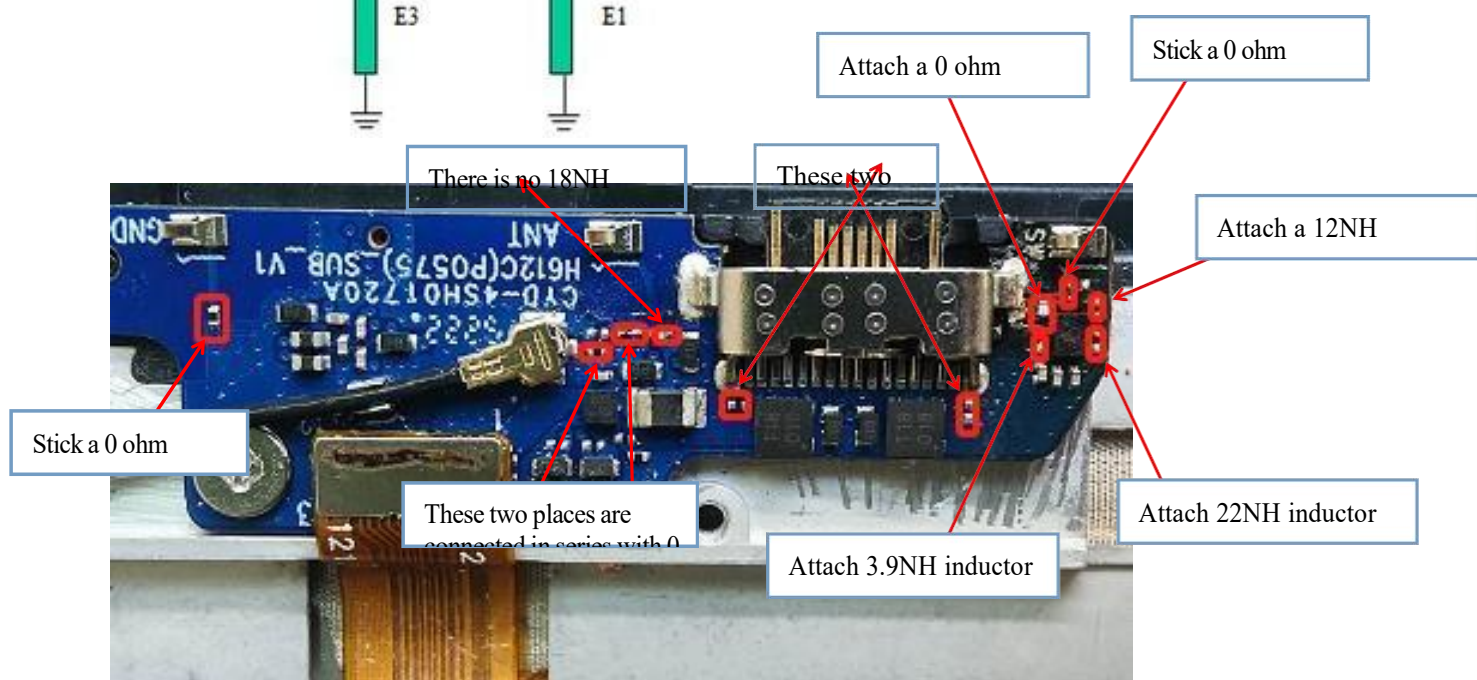
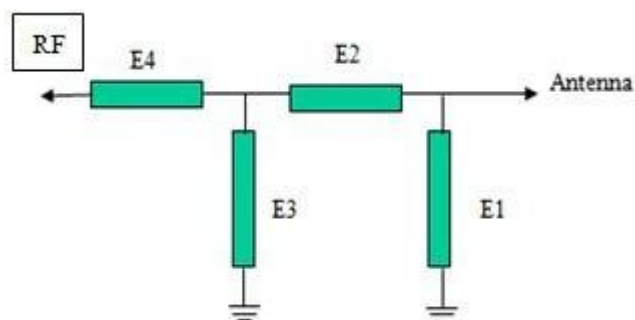
Summary of report version

version	date	Content overview
V1.0	2023-1-6	shakedown test/debug
V2.0	2023-1-14	Sample repair
V3.0	2023-3-13	Trial production prototype
V4.0	2023-3-20	Mold sample
V5.0		
V6.0		

Main antenna matching circuit

Element	E1	E2	E3	E4
Value	18NH	0 oh	NC	0 ou

Our company changes the main antenna matching circuit!!



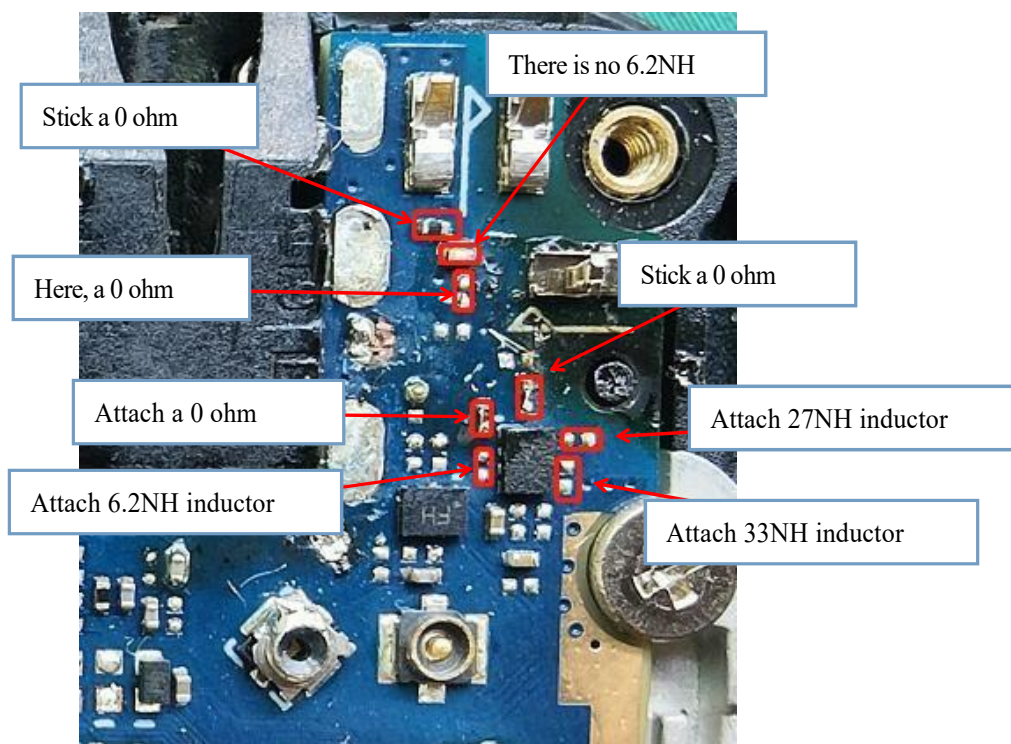
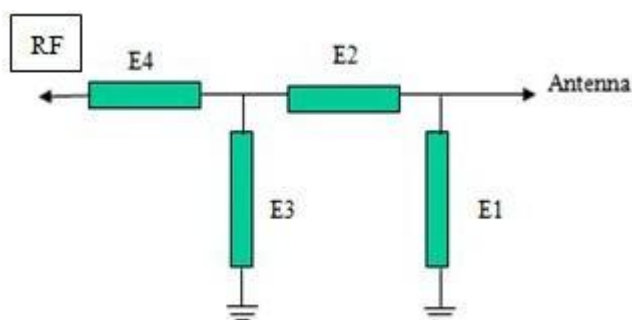
Description: antenna switch logic

1. Control GSM 900/1800/1900, W2/4, LTE-B2/4/7/30/66 at RF1.
2. GSM 850, W5 and LTE-B5 are controlled at RF2.
3. Control LTE-B12/14/17/28A/B/29 at RF3.
4. Control LTE-B71 at RF4.

Diversity antenna matching circuit

Element	E1	E2	E3	
Value	6.2NH	0 oh	NC	

Our company changes the diversity matching circuit!



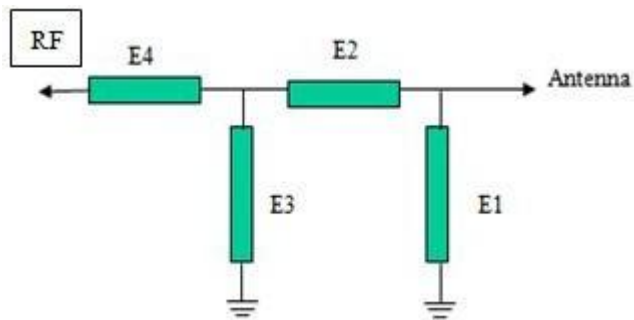
Description: antenna switch logic

1. Control GSM 900/1800/1900, W2/4, LTE-B2/4/7/30/66 at 1.RF1.
2. GSM 850, W5 and LTE-B5 are controlled at 2.RF2.
3. Control LTE-B12/14/17/28A/B/29 at 3.RF3.
4. Control LTE-B71 at 4.RF4.

Three-in-one antenna matching circuit

Element	E1	E2	E3	
Value	NC	0 ou	NC	

Our company has not changed the matching circuit of the three-in-one antenna!



Main board conduction data (low frequency line loss compensation 0.5dBm, medium frequency line loss compensation 0.8dBm and high frequency line loss compensation 1.0dBm)

Single principal set

Band	Channel	Power (dBm)	Sensitivity (dBm)	Band	Channel	Power (dBm)	Sensitivity (dBm)
GSM900	L	32.4		DCS1800	L	29.3	
	M	32.5			M	29.3	
	H	32.5	-110.0		H	29.2	-107.8
GSM850	L	32.6		PCS1900	L	29.5	
	M	32.7			M	29.4	
	H	32.8	-109.0		H	29.2	-107.8
W850	L	22.2		W1700	L	21.7	
	M	22.2			M	21.7	
	H	22.2			H	21.7	
W1900	L	22.0		LTE-B2 (10MHZ)	L	22.5	
	M	22.0			M	22.5	
	H	22.0			H	22.5	
LTE-B4 (10MHZ)	L	22.6		LTE-B5 (10MHZ)	L	22.9	
	M	22.7			M	22.9	
	H	22.7			H	22.9	
LTE-B7 (10MHZ)	L	23.0		LTE-B12 (10MHZ)	L	22.6	
	M	23.0			M	22.8	
	H	23.0			H	22.7	
LTE-B14 (10MHZ)	L			LTE-B17 (10MHZ)	L	22.8	
	M	23.0			M	22.7	
	H				H	22.7	
LTE-B28A (10MHZ)	L	22.6		LTE-B28B (10MHZ)	L	22.6	
	M	22.6			M	22.6	
	H	22.6			H	22.6	
LTE-B29 (10MHZ)	L			LTE-B30 (10MHZ)	L	22.6	
	M				M	22.6	
	H				H	22.6	
LTE-B66 (10MHZ)	L	22.6		LTE-B71 (10MHZ)	L	22.6	
	M	22.6			M	22.6	
	H	22.6			H	22.7	

Main antenna Fs OTA data:

Band	Channel	TRP(dBm)	TIS(dBm)	Band	Channel	TRP(dBm)	TIS(dBm)
GSM900	L	24.5		DCS1800	L	24.1	
	M	24.5			M	24.0	
	H	24.1	-100.0		H	24.0	-103.0
GSM850	L	24.0		PCS1900	L	25.1	
	M	24.3			M	25.2	
	H	24.5	-101.2		H	24.6	-102.2
W850	L	15.0		W1700	L	16.0	
	M	14.5			M	16.1	
	H	14.8	-103.0		H	16.7	-104.0
W1900	L	17.8		LTE-B2 (10MHZ)	L	17.5	
	M	17.6			M	17.4	
	H	17.7	-104.5		H	16.5	-92.5
LTE-B4 (10MHZ)	L	15.5		LTE-B5 (10MHZ)	L	15.0	
	M	15.6			M	15.1	
	H	16.0	-92.5		H	15.2	-92.0
LTE-B7 (10MHZ)	L	16.0		LTE-B12 (10MHZ)	L	15.0	
	M	17.0			M	15.2	
	H	17.1	-91.2		H	15.1	-92.0
LTE-B14 (10MHZ)	L	14.5		LTE-B17 (10MHZ)	L	15.2	
	M	14.3			M	15.2	
	H	14.5	-92.5		H	15.0	-92.2
LTE-B28A (10MHZ)	L	15.0		LTE-B28B (10MHZ)	L	15.1	
	M	15.1			M	15.0	
	H	15.0	-92.0		H	15.2	-92.2
LTE-B30 (10MHZ)	L	15.6		LTE-B66 (10MHZ)	L	15.5	
	M	15.7			M	15.7	
	H	15.7	-92.7		H	16.2	-92.5
LTE-B71 (10MHZ)	L	14.3					
	M	14.3					
	H	14.5	-88.7				

Description: main antenna switch logic

1. Control GSM 900/1800/1900, W2/4, LTE-B2/4/7/30/66 at 1.RF1.
2. GSM 850, W5 and LTE-B5 are controlled at 2.RF2.
3. Control LTE-B12/14/17/28A/B/29 at 3.RF3.
4. Control LTE-B71 at 4.RF4.



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Diversity antenna switching logic:

1. Control GSM 900/1800/1900, W2/4, LTE-B2/4/7/30/66 at 1.RF1.
2. GSM 850, W5 and LTE-B5 are controlled at 2.RF2.
3. Control LTE-B12/14/17/28A/B/29 at 3.RF3.
4. Control LTE-B71 at 4.RF4.

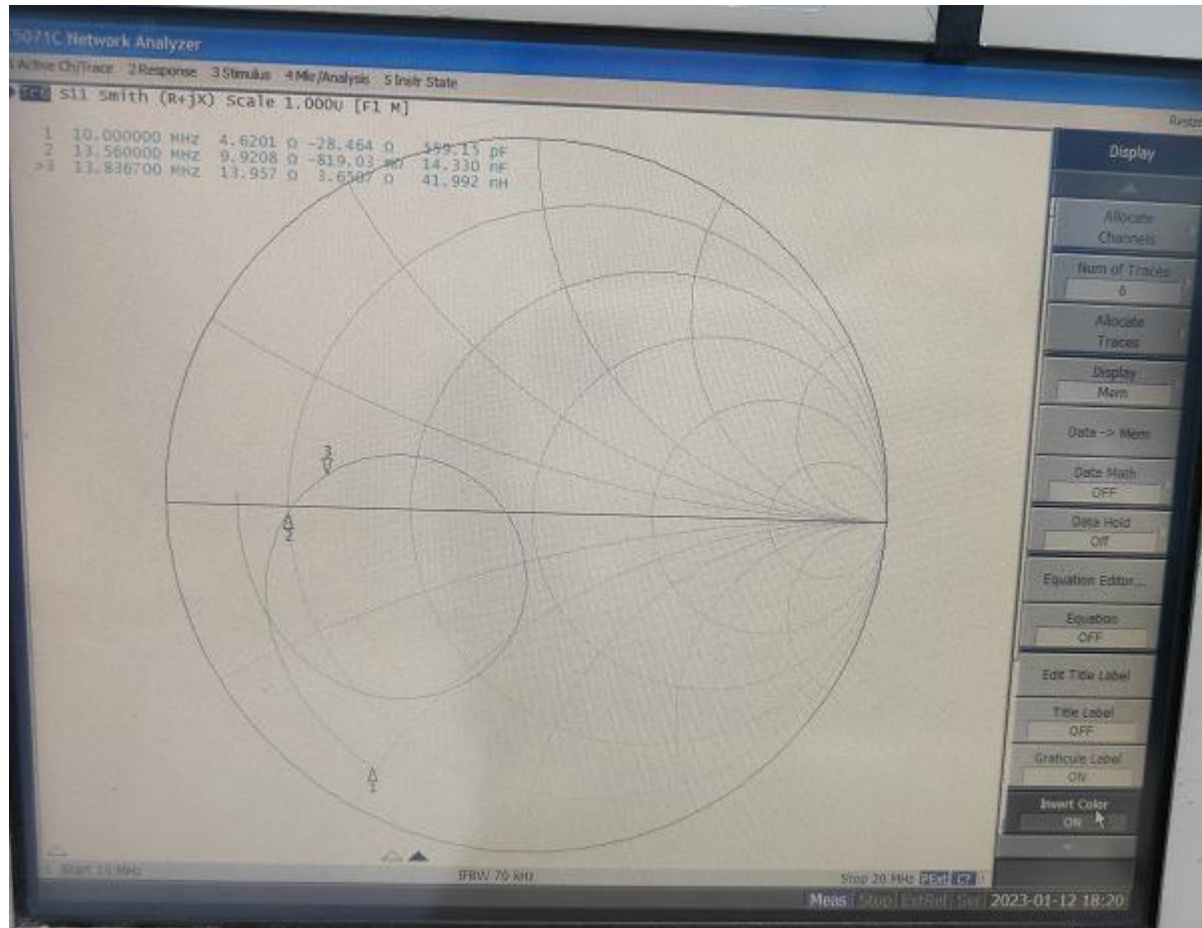
Remarks: The antenna shrapnel of the motherboard small board has not been changed.

Antenna gain:

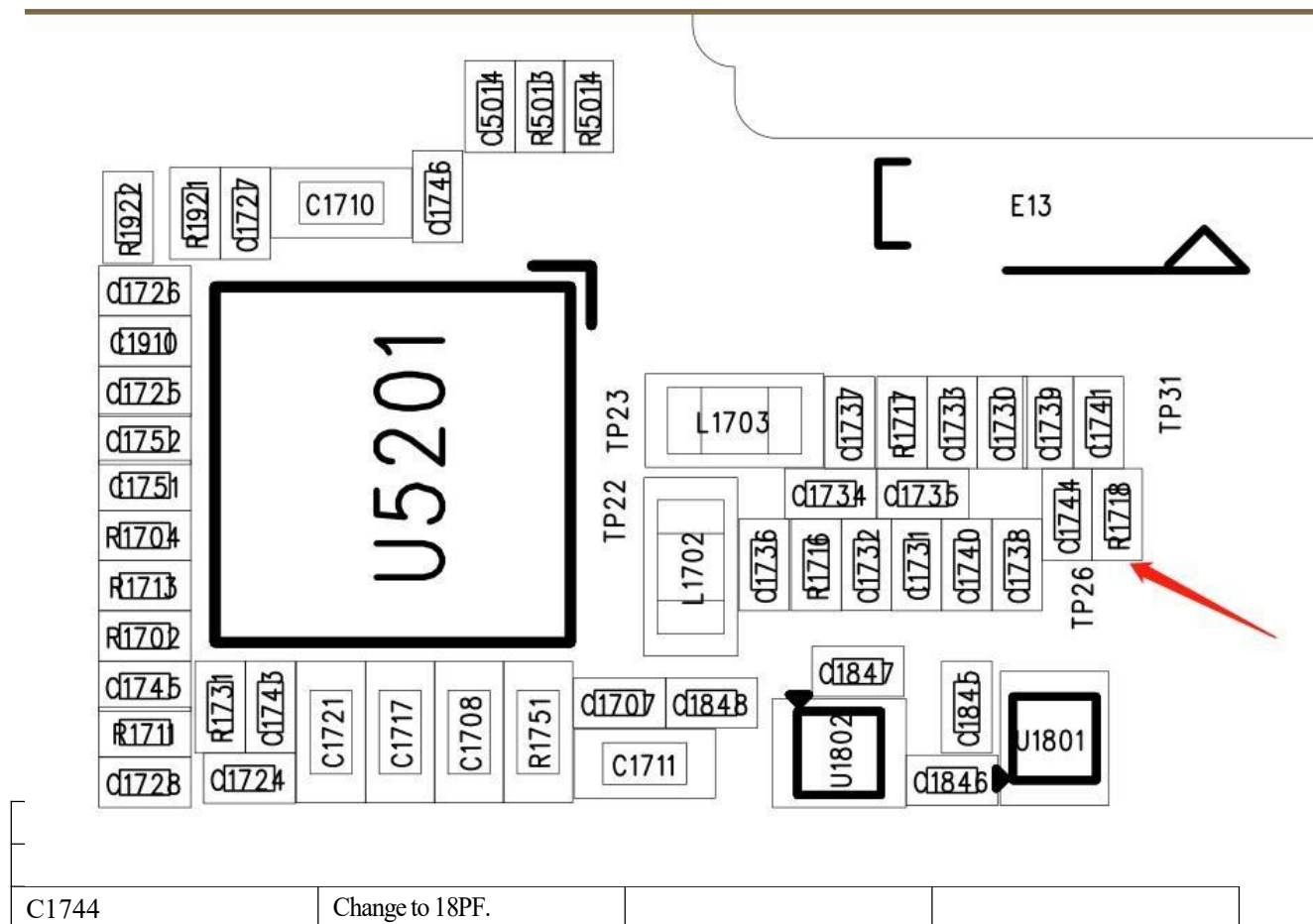
G900:-0.8dbi
G850:-0.9dbi
DCS1800:0.2dbi
PCS1900:0.3dbi
W850:-0.9dbi
W1700:0.3dbi
W1900:0.2dbi
LTE-B2:0.3dbi
LTE-B4:0.2dbi
LTE-B5:-0.9dbi
LTE-B7:0.6dbi
LTE-B12:-
1.1dbi LTE-
B13:-1.3dbi
LTE-B17:-
1.1dbi LTE-
B28:-1.1dbi
LTE-B30:-
0.9dbi LTE-
B66:0.2dbi LTE-
B71:-1.3dbi
GPS: 0.8dbi
2.4G WiFi: 0.6dbi
BT:0.6dbi
5G WIFI: 1.0dbi
NFC:0dbi

NFC debugging:

S11 parameter:



Matching changes:



Reading distance of various cards:

TYPE-1	35mm	TYPE-2A	15mm
TYPE-2	25mm	TYPE-3	25mm
TYPE-4A	15mm	TYPE-4B	10mm
TYPE-5	20mm		

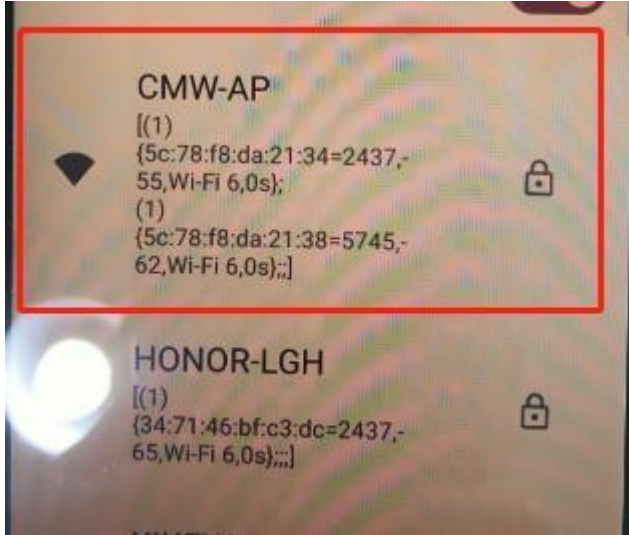
GPS measurement:

SAT EL LITES CNR	SAT EL LITES LOC	INFO RMAT ION	NMEA LOG	GPS TEST	MPE STAT US
G:GPS R:GLN B:BD E:GAL Q:QZS L:L1S I:IRNSS S:SBAS					
Average CNR					
G:38.6/-/-/-/-/- R:27.5/-/-/-/-/- B:31.2/-/-/-/-/- E:20.1/-/-/-/-/-					
Q:34.3/-/-/-/-/- S:27.0/-/-/-/-/-					
☒ Show in single page					
ID	CNR	ID	CNR	ID	CNR
G5	33.7/-/-/-/-/-	G6	42.4/-/-/-/-/-	G9	44.4/-/-/-/-/-
G11	43.4/-/-/-/-/-	G12	37.1/-/-/-/-/-	G17	35.4/-/-/-/-/-
G19	34.0/-/-/-/-/-	G20	37.2/-/-/-/-/-	G25	39.5/-/-/-/-/-
R69	33.2/-/-/-/-/-	R74	0.0/-/-/-/-/-	R75	21.7/-/-/-/-/-
R85	0.0/-/-/-/-/-	B3	31.5/-/-/-/-/-	B4	29.2/-/-/-/-/-
B6	27.1/-/-/-/-/-	B7	30.6/-/-/-/-/-	B8	31.2/-/-/-/-/-
B13	0.0/-/-/-/-/-	B20	25.6/-/-/-/-/-	B27	37.4/-/-/-/-/-
B28	32.9/-/-/-/-/-	B30	41.0/-/-/-/-/-	B37	25.6/-/-/-/-/-
E5	20.1/-/-/-/-/-	Q2	31.0/-/-/-/-/-	Q3	37.0/-/-/-/-/-
Q4	35.0/-/-/-/-/-	S35	0.0/-/-/-/-/-		

SAT EL LITES CNR	SAT EL LITES LOC	INFO RMAT ION	NMEA LOG	GPS TEST	MPE STAT US
Provider: gps enabled					
Status: SPS Fix					
TTFF: 29085 ms					
Date: GMT+10:00 2023/02/20					
Time: 23:29:55					
First Latitude: 22.693620000000003					
First Longitude: 113.97865500000002					

Description: the results of the company's roof test and GPS star search are shown in the above picture.

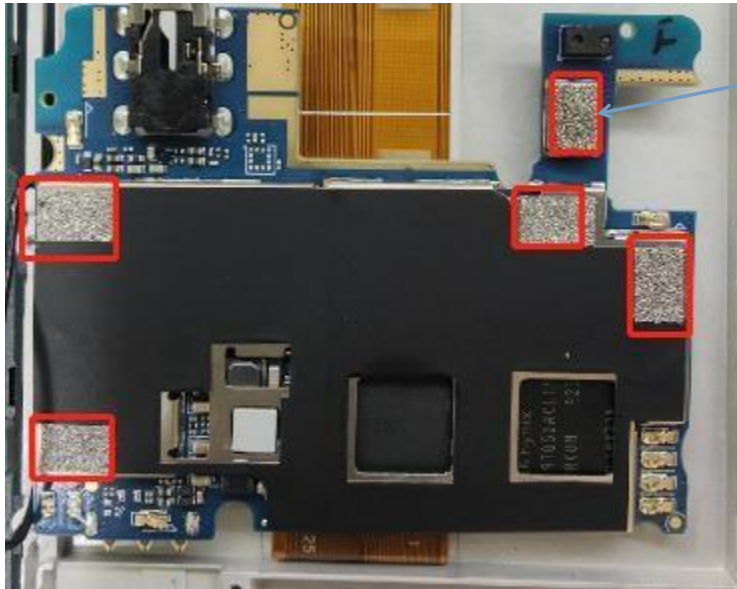
WiFi measurement:



Note: The hot spot in the red box in the above picture is our WiFi, and the test distance is about 12M. The test results of two glass walls in the middle are shown in the above picture.

Environmental treatment of the whole machine:

Please carefully check whether the following environmental treatment is feasible. If you have any questions, please bring them up as soon as possible to communicate and negotiate the feasibility plan together!

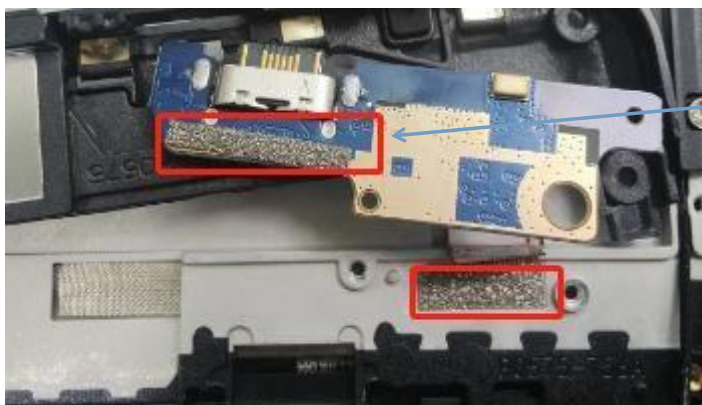


There is no conductive sponge attached to the prototype of this trial production,

In the picture, the red box of the motherboard shield is pasted with electricity.



Stick a conductive sponge on the horn and do grounding treatment as shown in the



There is no conductive sponge attached to the prototype of this trial production,

A conductive sponge is attached to the exposed copper area of the

Note: For all grounding treatment, please use materials with good electrical conductivity to ensure adequate grounding and consistent antenna performance.

The environmental treatment in the screen has not been changed.

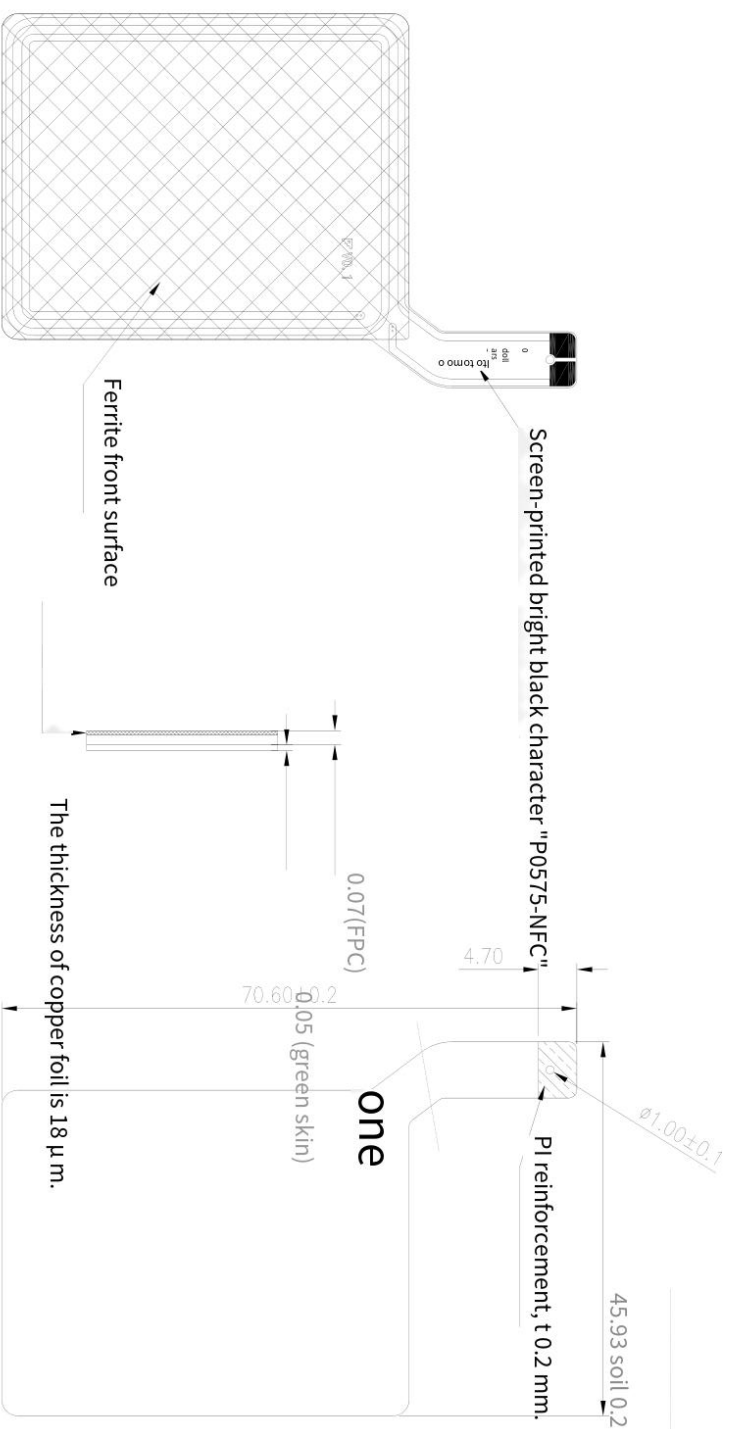


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Precautions:

1. This antenna is only suitable for debugging the prototype. Material changes of the motherboard PCB or RF circuit, mobile phone accessories (such as camera, screen, speaker, motor, battery, casing technology) and other changes must be tested and verified by our company before use.
2. If you want to verify this project by a third party or a solution company, please send the prototype to our company at least one working day in advance for re-testing and then send it for testing, because the motherboard and environmental treatment will affect the antenna performance, so as to avoid delaying the project progress by sending it for two or more times!



Tearing hand position

KIE

Ferrite front surface

The thickness of copper foil is 18 μm .

one

Product front matte black oil

Glue on the back of product

field Autodesk 教 版产品制

Note:

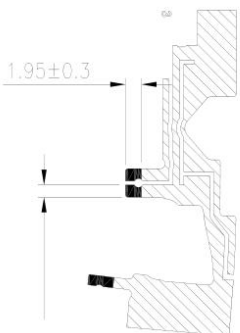
- | | |
|----|---|
| 1、 | The adhesive is 3M 467, the viscosity is more than 200MP, the shape of the adhesive is the same as that of the base material, it is covered on the back of the base material, and the adhesive is half-cut; |
| 2、 | Double-sided version of material, half-to-half base material, good flexibility; |
| 3、 | Is a copper foil region, |
| 4、 | After the product is covered with oil, there is no crack on the surface after 180 bending, and the flexibility is good; |
| 5、 | The surface of the gold finger is plated with gold for 1-3μ", and there should be no oxidation phenomenon. There is no crack or non-oxidation phenomenon at the junction of copper foil after 180 bending. |
| 6、 | The precise tolerance range of wiring and holes: ±0.03mm, and the tolerance of overall dimensions is controlled within ±0.1mm; |
| 7、 | The dimension marked with ★ is strictly controlled, the dimension marked with * is the key dimension, and the dimension not marked is measured according to the CAD electronic drawing file 1_1; |
| 8、 | Surface printing, specific content and location as shown in the figure; |
| 9、 | After the non-appearance is cut, the sample will be sent to our company. |

		Shenzhen Anfute Electronics Co., Ltd. Shanghai Leixun Electronic Technology Co., Ltd.					
	The third method	Models	P0575	date	2023-03-22	draft	Du
0~10	±0.10	○	0.02	name of an article	NFC天线		
10~20	Soil 0.12	◎	C0.03	material	P-CG5-24A-G-I-4A	design	check

Shenzhen Anfute Electronics Co., Ltd.
Shanghai Leixun Electronic Technology
Co., Ltd.

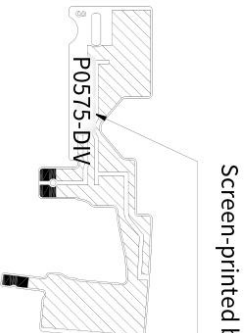
7、The dimension marked with ★ is strictly controlled, the dimension marked with * is the key dimension, and the dimension not marked is measured according to the CAD electronic drawing file 1:1;									
8、Surface printing, specific content and location as shown in the figure;									
9、After the non-appearance is cut, the sample will be sent to our company.									
serial number	date	Modify the content	version	remarks	four	five	six	seven	eight
one		two	three						
					location	Models	P0575	date	check and ratify
					Please do not measure the drawings.	name of an article	NFC天线	2023-03-22	page number
						material	P-C65-24A-G-1-4A	draft	4 of 5
						code		design	
					40~	texture of wood		check	
						Die surface treatment		Du Qiang	
						radio frequency		unit	
						Appearance treatment		mm	
								proportion	
								1:1	version
									REV:A

12threefourfive six seven eight



1.50 0.2

Conductive region

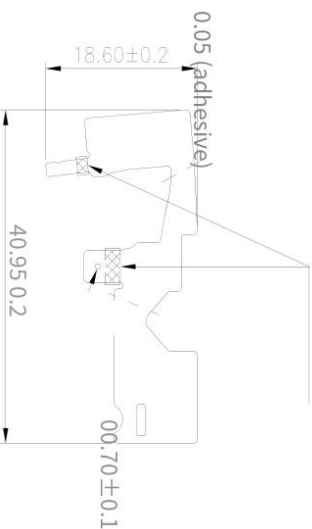


Screen-printed bright black character "P0575-DIV"

0.07 (FPC)

Product front (matte black)

The thickness of copper foil is 12 μ m.



Backglue hollowing

Product back (adhesive)

Autodesk 教育版产品制作

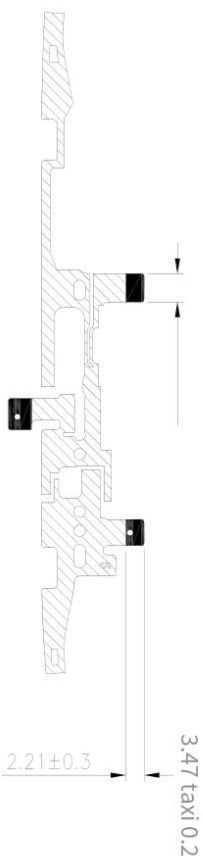
Note:

- 1、The adhesive is 3M300LSE, the viscosity is over 300MP, the shape of the adhesive is the same as that of the substrate, it is covered on the back of the substrate, and the adhesive is half-cut;
- 2、One-sided version of the material, half-to-half base material, good flexibility;
- 3、 Is a gold-plated area,  Is a copper foil region,
- 4、After the product is covered with oil, there is no crack on the surface after 180 bending, and the flexibility is good;
- 5、The surface of the gold finger is plated with gold for 1-3u ", and there is no oxidation phenomenon, and there is no crack or non-conducting phenomenon at the junction of copper foil after 180 bending;
- 6、The precise tolerance range of wiring and notes: ±0.03mm, and the tolerance of overall dimensions is controlled within 0.1mm;
- 7、The dimension marked with ★ is strictly controlled, the dimension marked with * is the key dimension, and the dimension not marked is measured according to the CAD electronic drawing file 1:1;
- 8、Surface printing, specific content and location as shown in the figure;
- 9、After the non-appearance is cut, the sample will be sent to our company.

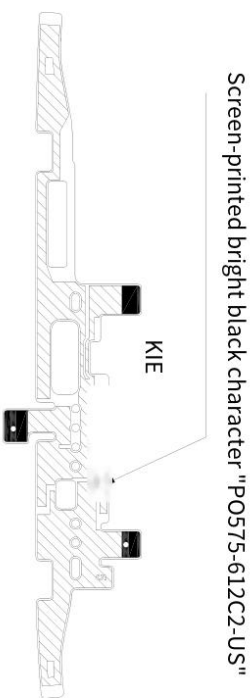


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Shanghai Leixun Electronic Technology Co., Ltd.

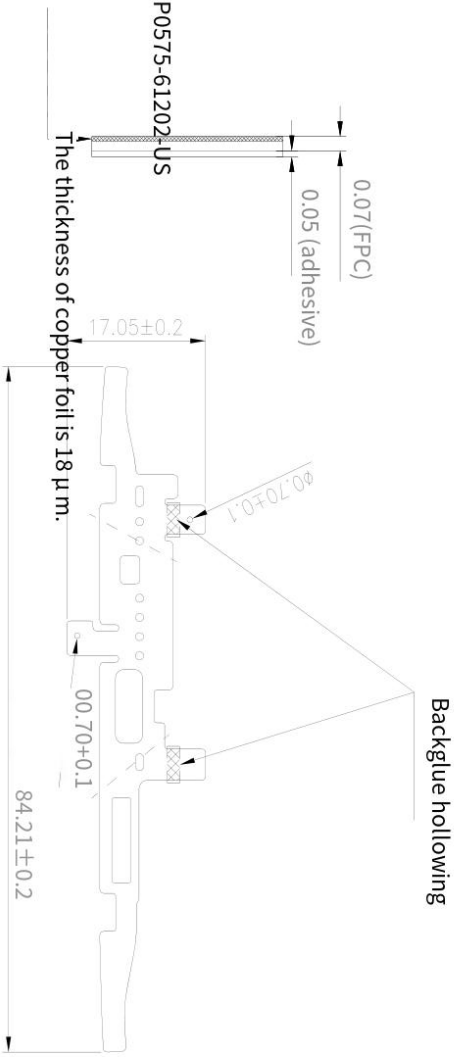
D	7、The dimension marked with ★ is strictly controlled, the dimension marked with * is the key dimension, and the dimension not marked is measured according to the CAD electronic drawing file 1. 1;												The third method		Models		P0575 American	version	diversity antenna	date	2023-03-13	draft	DuQiang	page number	1 of 2	
	8、Surface printing, specific content and location as shown in the figure;												0~10		±0.10		0.02		name of an article material		P-C65-24A-F-1-3A	structure	DuQiang	design	check	check and ratify
	9、After the non-appearance is cut, the sample will be sent to our company.												10~20		Soil 0.12		0.03		code		FPC+3M9471	radio frequency				
													20~40		Soil 0.15		0.02		texture of wood		Die surface treatment					
													40~		±0.20		0.04		0.02							



Conductive region



Screen-printed bright black character "P0575-612C2-US"



Backglue hollowing

Product front (matte black)

Product back (adhesive)

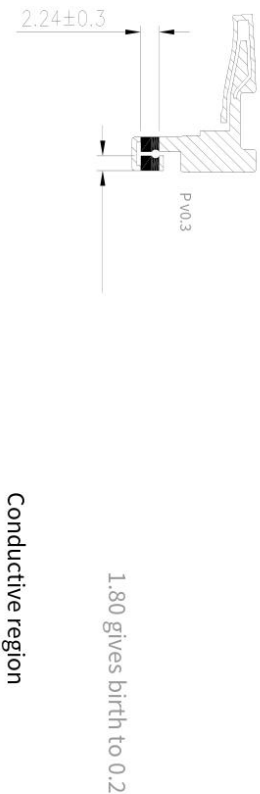
- Note:
- 1、The adhesive is 3M300LSE, the viscosity is over 300MP, the shape of the adhesive is the same as that of the substrate, it is covered on the back of the substrate, and the adhesive is half-cut;
 - 2、One-sided version of the material, half-to-half base material, good flexibility;
 - 3、 Is a gold-plated area,  Is a copper foil region;
 - 4、After the product is covered with oil, there is no crack on the surface after 180 bending, and the flexibility is good;
 - 5、The surface of the gold finger is plated with gold for 1-3u ", and there is no oxidation phenomenon. After 180 bending, there is no crack non-conduction phenomenon at the junction of copper foil.
 - 6、The precise tolerance range of wiring and holes: ±0.03mm, and the tolerance of overall dimensions is controlled within 0.1mm;
 - 7、The dimension marked with ★ is strictly controlled, the dimension marked with * is the key dimension, and the dimension not marked is measured according to the CAD electronic drawing file 1:1;
 - 8、Surface printing, specific content and location as shown in the figure;
 - 9、After the non-appearance is cut, the sample will be sent to our company.



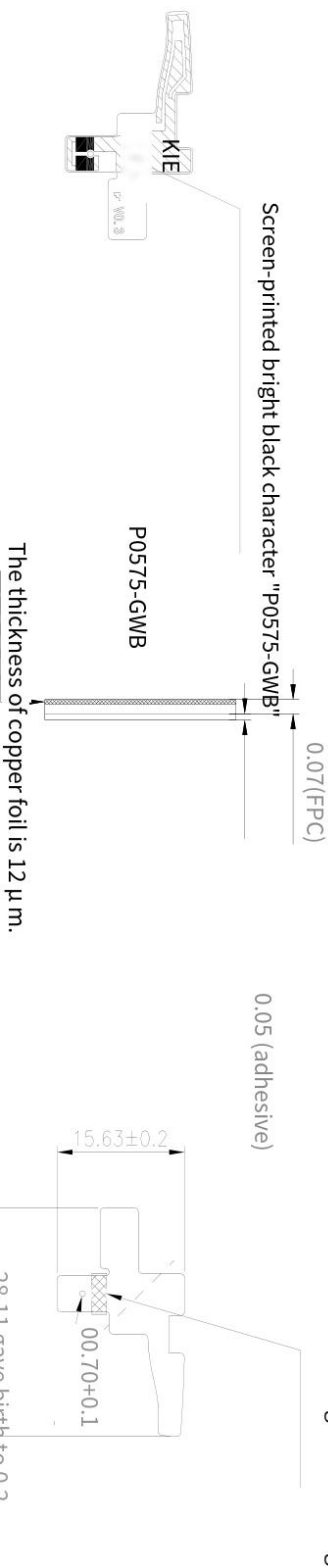
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Shanghai Leixun Electronic Technology Co., Ltd.

					The third method					Models		P0575 American version		Main antenna		date		2023-03-22		draft		DuQiang		page number		1 of 5	
										name of an article		P-G65-24A-A-1-1A		structure		DuQiang		design				check		check and ratify			
										material																	
										code texture of wood		FPC+3M9471															
										Die surface treatment				radio frequency													
										0.02																	
										0.04																	
										0.02																	
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Tearing hand position



Conductive region



Product front (matte black)

Product back (adhesive)

Note:

- 1、The adhesive is 3M300LSE, the viscosity is over 300MP, the shape of the adhesive is the same as that of the substrate, it is covered on the back of the substrate, and the adhesive is half-cut;
- 2、One-sided version of the material, half-to-half base material, good flexibility;
- 3、 Is a gold-plated area,  Is a copper foil region;
- 4、After the product is covered with oil, there is no crack on the surface after 180 bending, and the flexibility is good;
- 5、The surface of the gold finger is plated with gold for 1-3u ", and there is no oxidation phenomenon. After 180 bending, there is no crack non-conduction phenomenon at the junction of copper foil.
- 6、The precise tolerance range of wiring and holes: $\pm 0.03mm$, and the tolerance of overall dimensions is controlled within $0.1mm$.
- 7、The dimension marked with $\star$ is strictly controlled, the dimension marked with $*$ is the key dimension, and the dimension not marked is measured according to the CAD electronic drawing file 1.1;
- 8、Surface printing, specific content and location as shown in the figure;
- 9、After the non-appearance is cut, the sample will be sent to our company.



Shenzhen Anfute Electronics Co., Ltd.
Shanghai Leixun Electronic Technology Co., Ltd.

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serial number	date	Modify the content	version	remarks
one	2	three	four	

0~10	± 0.10	0.02
10~20	Soil 0.12	C0.03
20~40	Soil 0.15	0.02
40~	± 0.20	0.04

Models	P0575 American
name of an article	Three-in-one antenna
material	P-665-24A-E-1-2A
code	FPC+3M9471
texture of wood	Die surface treatment

date	2023-03-22
design	DuQiang
check	
radio frequency	

page number	2 of 5
check and ratify	

Please do not measure the drawings.	location	five	six	seven	eight