

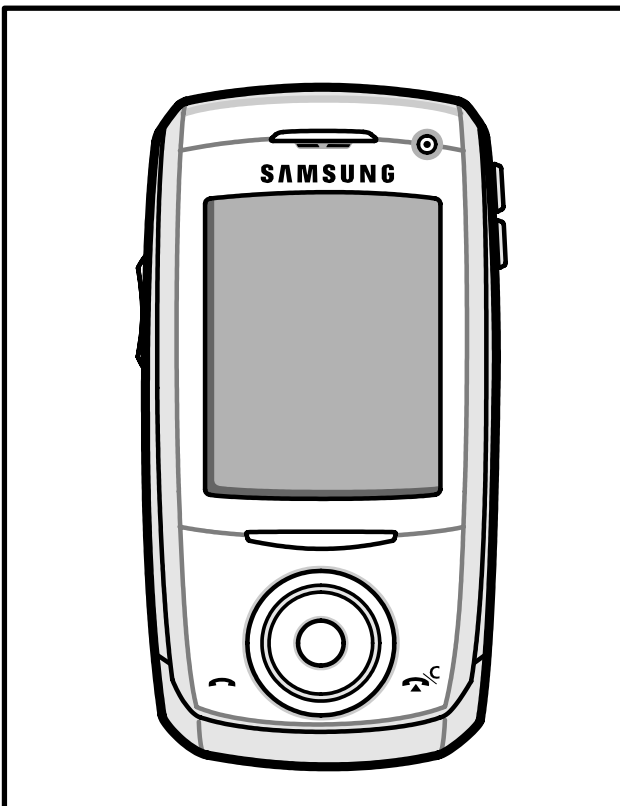
**SAMSUNG**

# GSM TELEPHONE

## SGH-Z650i

# **SERVICE** *Manual*

### GSM TELEPHONE



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**SAMSUNG  
ELECTRONICS**



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## 10. Reference data

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# 1. Safety Precautions

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## 1-1. Repair Precaution

- Repair in Shield Box, during detailed tuning.  
Take specially care of tuning or test,  
because specipicty of cellular phone is sensitive for surrounding interference(RF noise).
- Be careful to use a kind of magnetic object or tool,  
because performance of parts is damaged by the influence of manetic force.
- Surely use a standard screwdriver when you disassemble this product,  
otherwise screw will be worn away.
- Use a thicken twisted wire when you measure level.  
A thicken twisted wire has low resistance, therefore error of measurement is few.
- Repair after separate Test Pack and Set because for short danger (for example an  
overcurrent and furious flames of parts etc) when you repair board in condition of  
connecting Test Pack and tuning on.
- Take specially care of soldering, because Land of PCB is small and weak in heat.
- Surely tune on/off while using AC power plug, because a repair of battery charger is  
dangerous when tuning ON/OFF PBA and Connector after disassembling charger.
- Don't use as you pleases after change other material than replacement registered on SEC  
System.  
Otherwise engineer in charge isn't charged with problem that you don't keep this rules.

## **1-2. ESD(Electrostatically Sensitive Devices) Precaution**

Several semiconductor may be damaged easilly by static electricity. Such parts are called by ESD(Electrostatically Sensitive Devices), for example IC,BGA chip etc. Read Precaution below. You can prevent from ESD damage by static electricity.

- Remove static electricity remained your body before you touch semiconductor or parts with semiconductor. There are ways that you touch an earthed place or wear static electricity prevention string on wrist.
- Use earthed soldering steel when you connect or disconnect ESD.
- Use soldering removing tool to break static electricity. , otherwise ESD will be damaged by static electricity.
- Don't unpack until you set up ESD on product. Because most of ESD are packed by box and aluminum plate to have conductive power,they are prevented from static electricity.
- You must maintain electric contact between ESD and place due to be set up until ESD is connected completely to the proper place or a circuit board.

## 2. Specification

### 2-1. GSM/WCDMA General Specification

		<b>EGSM 900 Phase 2</b>	<b>DCS1800 Phase 1</b>	<b>PCS1900</b>	<b>WCDMA</b>
Freq. Band[MHz] Uplink/Downlink		880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990	1920~1980 2110~2170
ARFCN range		0~124 & 975~1023	512~885	512~810	10562~10838
Tx/Rx spacing		45 MHz	95 MHz	80 MHz	190 MHz
Mod. Bit rate/ Bit Period	GPRS	270.833 kbps 3.692 us	270.833 kbps 3.692 us	270.833 kbps 3.692 us	3.84 Mcps/s
	EDGE	812.5 Kbps 3.692 us	812.5 Kbps 3.692 us	812.5 Kbps 3.692 us	
Time Slot Period/Frame Period		576.9 us 4.615 ms	576.9 us 4.615 ms	576.9 us 4.615 ms	10 ms
Modulation	GPRS	0.3 GMSK	0.3 GMSK	0.3 GMSK	UL:2BPSk DL:QPSK
	EDGE	8 PSK	8 PSK	8 PSK	
MS Power	GPRS	33 dBm~5 dBm	30 dBm~0 dBm	30 dBm~0 dBm	MAX:24(+1,-3) dBm MIN:<-50 dBm
	EDGE	27~5 dBm	26~0 dBm	26~0 dBm	
Power Class	GPRS	5 pcl ~ 19 pcl	0 pcl ~ 15 pcl	0 pcl ~ 15 pcl	CLASS3
	EDGE	8~19(class E2)	2~15(class E2)	2~15(class E2)	
Sensitivity		-102 dBm	-100 dBm	-102 dBm	-106.7 dBm
TDMA Mux		8	8	8	-
Cell Radius		35 Km	2 Km	2 Km	-

## 2-2. GMSK TX power Level

<b>TX Power control level</b>	<b>GSM900</b>	<b>TX Power control level</b>	<b>DCS1800</b>	<b>TX Power control level</b>	<b>PCS1900</b>
5	33±2 dBm	0	30±2 dBm	0	30±2 dBm
6	31±3 dBm	1	28±3 dBm	1	28±3 dBm
7	29±3 dBm	2	26±3 dBm	2	26±3 dBm
8	27±3 dBm	3	24±3 dBm	3	24±3 dBm
9	25±3 dBm	4	22±3 dBm	4	22±3 dBm
10	23±3 dBm	5	20±3 dBm	5	20±3 dBm
11	21±3 dBm	6	18±3 dBm	6	18±3 dBm
12	19±3 dBm	7	16±3 dBm	7	16±3 dBm
13	17±3 dBm	8	14±3 dBm	8	14±3 dBm
14	15±3 dBm	9	12±4 dBm	9	12±4 dBm
15	13±3 dBm	10	10±4 dBm	10	10±4 dBm
16	11±5 dBm	11	8±4 dBm	11	8±4 dBm
17	9±5 dBm	12	6±4 dBm	12	6±4 dBm
18	7±5 dBm	13	4±4 dBm	13	4±4 dBm
19	5±5 dBm	14	2±5 dBm	14	2±5 dBm
		15	0±5 dBm	15	0±5 dBm



### 2-3. EDGE TX Power Level

<b>TX Power control level</b>	<b>GSM850</b>	<b>TX Power control level</b>	<b>DCS1800</b>	<b>TX Power control level</b>	<b>PCS1900</b>
8	27±3 dBm	2	26±3 dBm	2	26±3 dBm
9	25±3 dBm	3	24±3 dBm	3	24±3 dBm
10	23±3 dBm	4	22±3 dBm	4	22±3 dBm
11	21±3 dBm	5	20±3 dBm	5	20±3 dBm
12	19±3 dBm	6	18±3 dBm	6	18±3 dBm
13	17±3 dBm	7	16±3 dBm	7	16±3 dBm
14	15±3 dBm	8	14±3 dBm	8	14±3 dBm
15	13±3 dBm	9	12±4 dBm	9	12±4 dBm
16	11±5 dBm	10	10±4 dBm	10	10±4 dBm
17	9±5 dBm	11	8±4 dBm	11	8±4d Bm
18	7±5 dBm	12	6±4 dBm	12	6±4 dBm
19	5±5 dBm	13	4±4 dBm	13	4±4 dBm
		14	2±5 dBm	14	2±5 dBm
		15	0±5 dBm	15	0±5 dBm

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## 3. Product Function

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### Main Function

- 3G
- Camera and camcorder
- Media player
- Bluetooth
- File viewer
- Web browser
- Name card
- Multimedia Message Service(MMS)
- Email
- Java
- Calendar
- Voice recorder

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## 4. Array course control

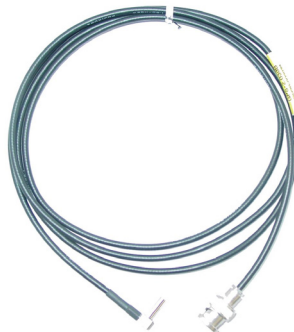
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**Test Jig (GH80-03308A)**



**Test Cable (GH39-00478A)**



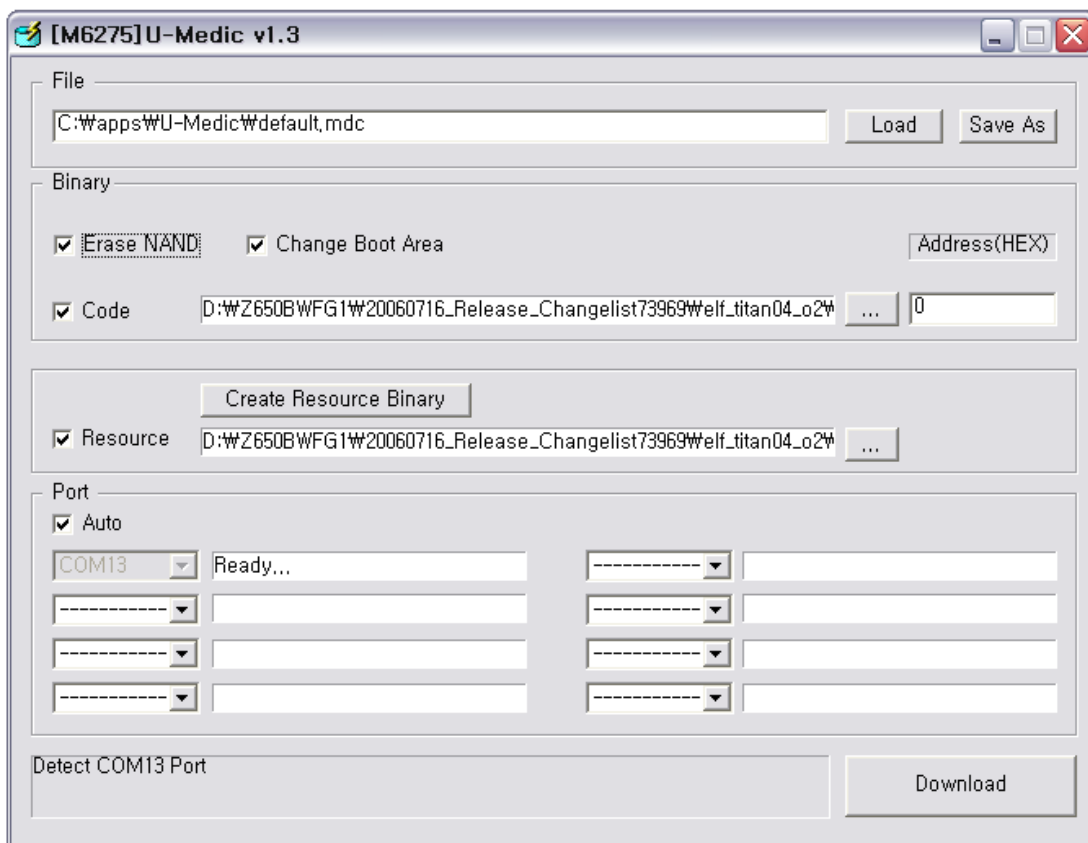
**RF Test Cable (GH39-00397A)**

#### 4-1. Pre-requisite for Downloading

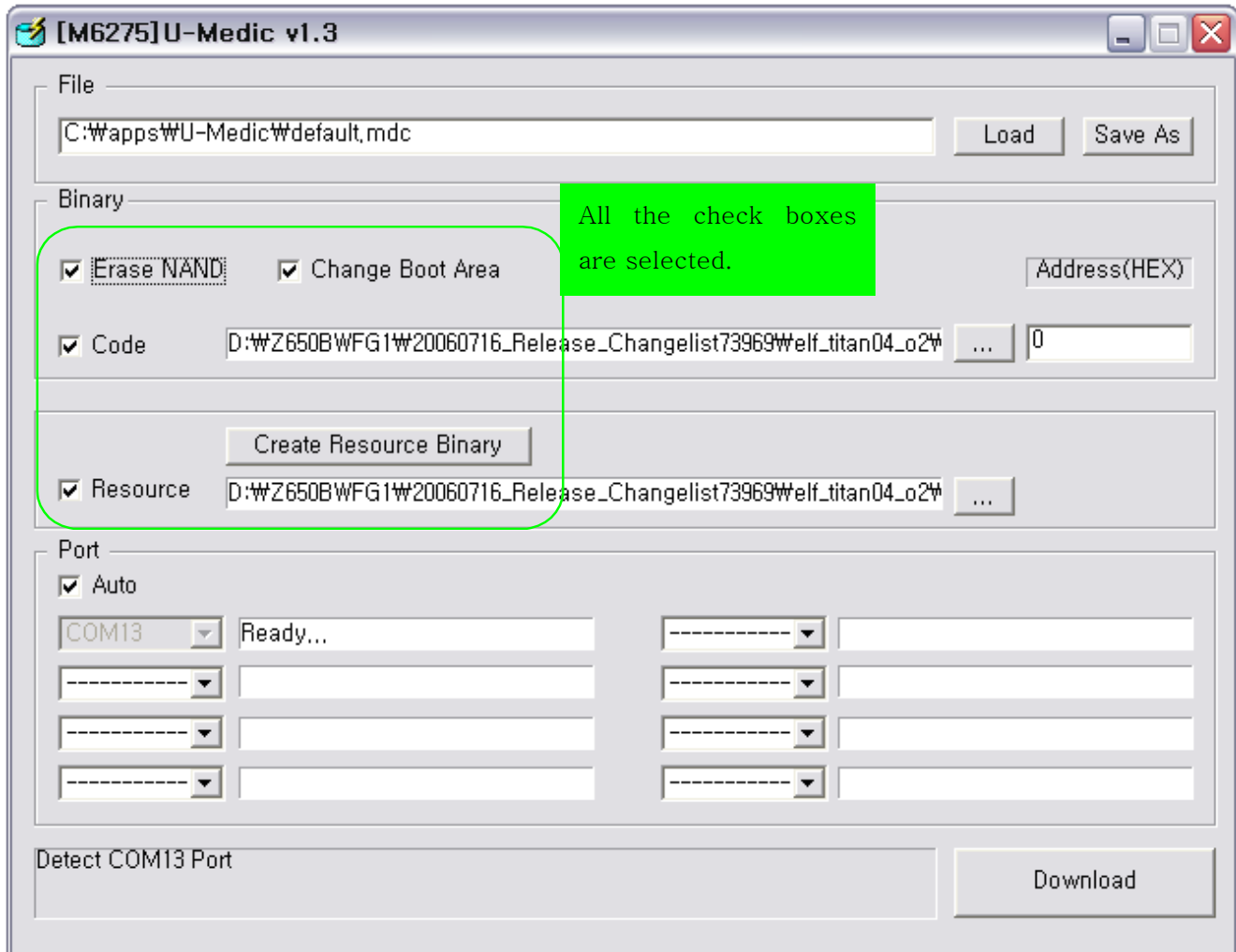
- 1) One binary directory and one resource files for SGH-Z650i  
TITAN\_BOUSEC - main binary directory for BOUYGTEL  
SECUMTS\_rsc.bin - resource file
  
- 2) Download program for SGH-Z650ii  
SGH-Z650i download program([M6275]U-Medic\_V1[1].3.exe )
  
- 3) Mobile phone (SGH-Z650i )
  
- 4) USB Data cable for SGH-Z650i

#### 4-2. Download binary files

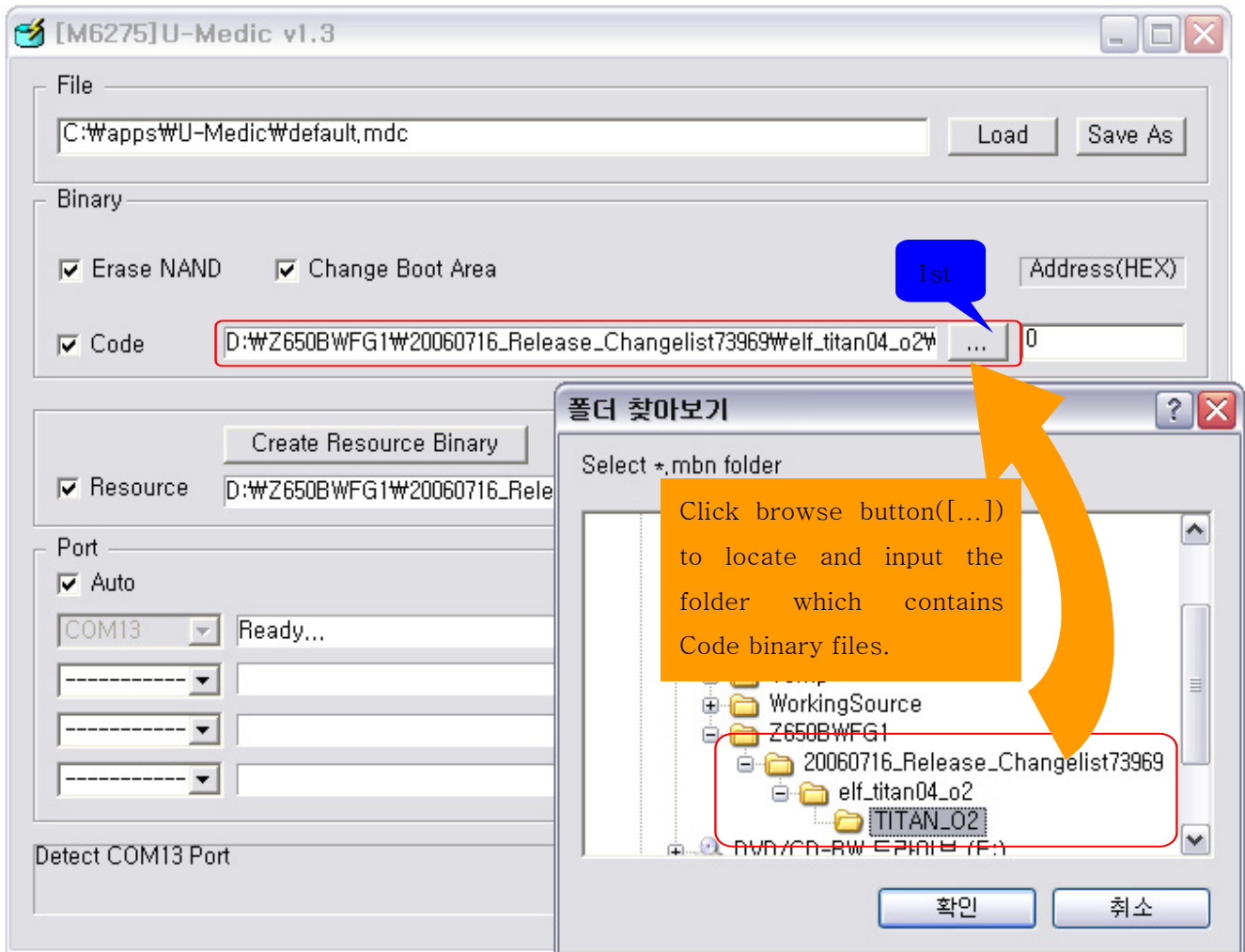
- 1) Run download program



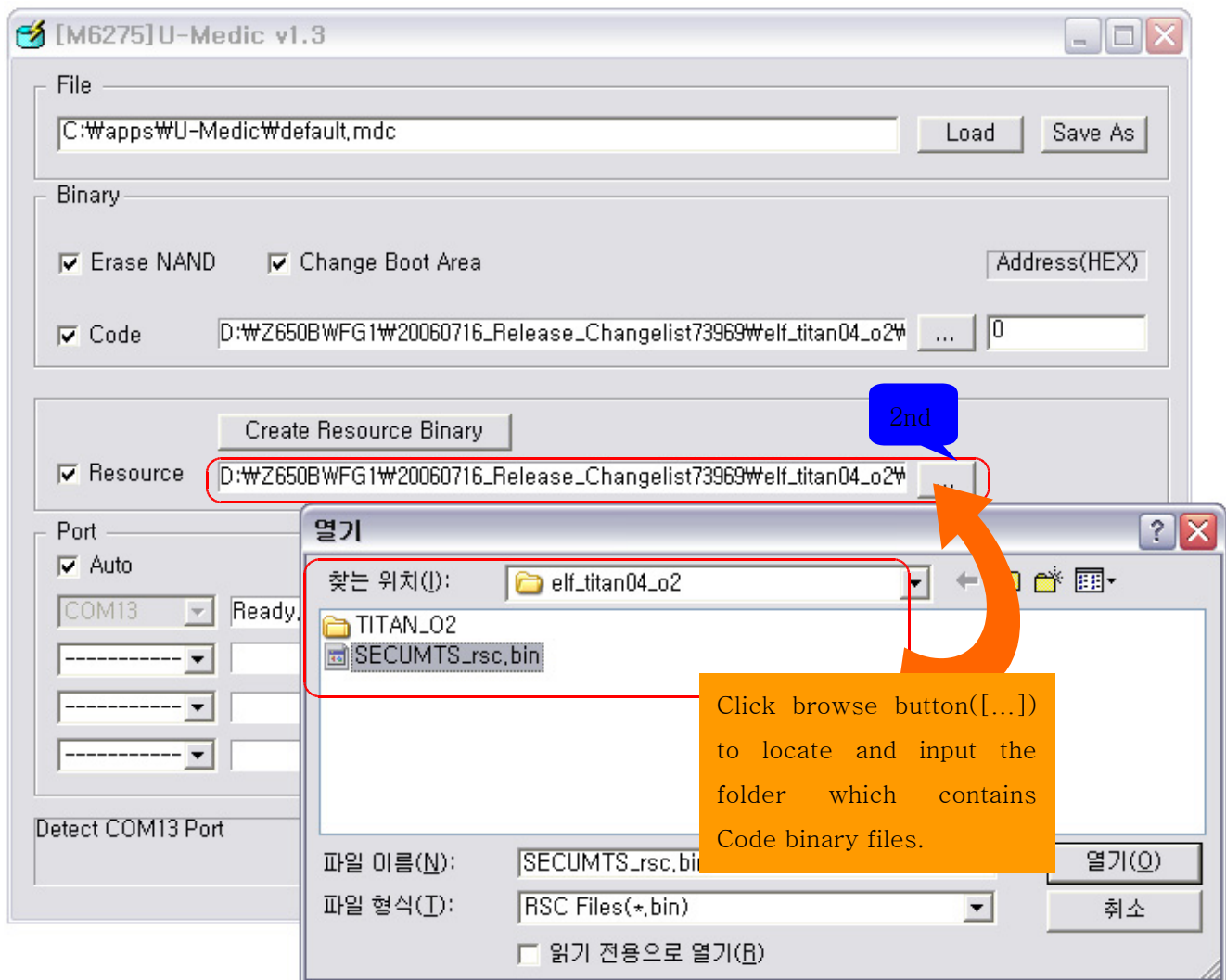
2) Select the check boxes which you want to download.[check the green box below.] Select all the check boxes to download boot-loader, code binary and resources all at once.



3) Click [...] button to locate binary. Click [**1st**] button to locate the folder which contains code binary files.(Also contains boot-loader)



4) Please click [...] button to locate resource binary. Click [**2nd**] button to locate the resource binary file.



5) Connect USB cable to the handset which is in USB download mode. (To enter the USB download mode, keep "keypad 4 Key" pressed when you press "power key" to turn on SGH-Z650i.)

Make sure the port is detected and ready to download, connect the handset to usb cable after you run U-Medic application.

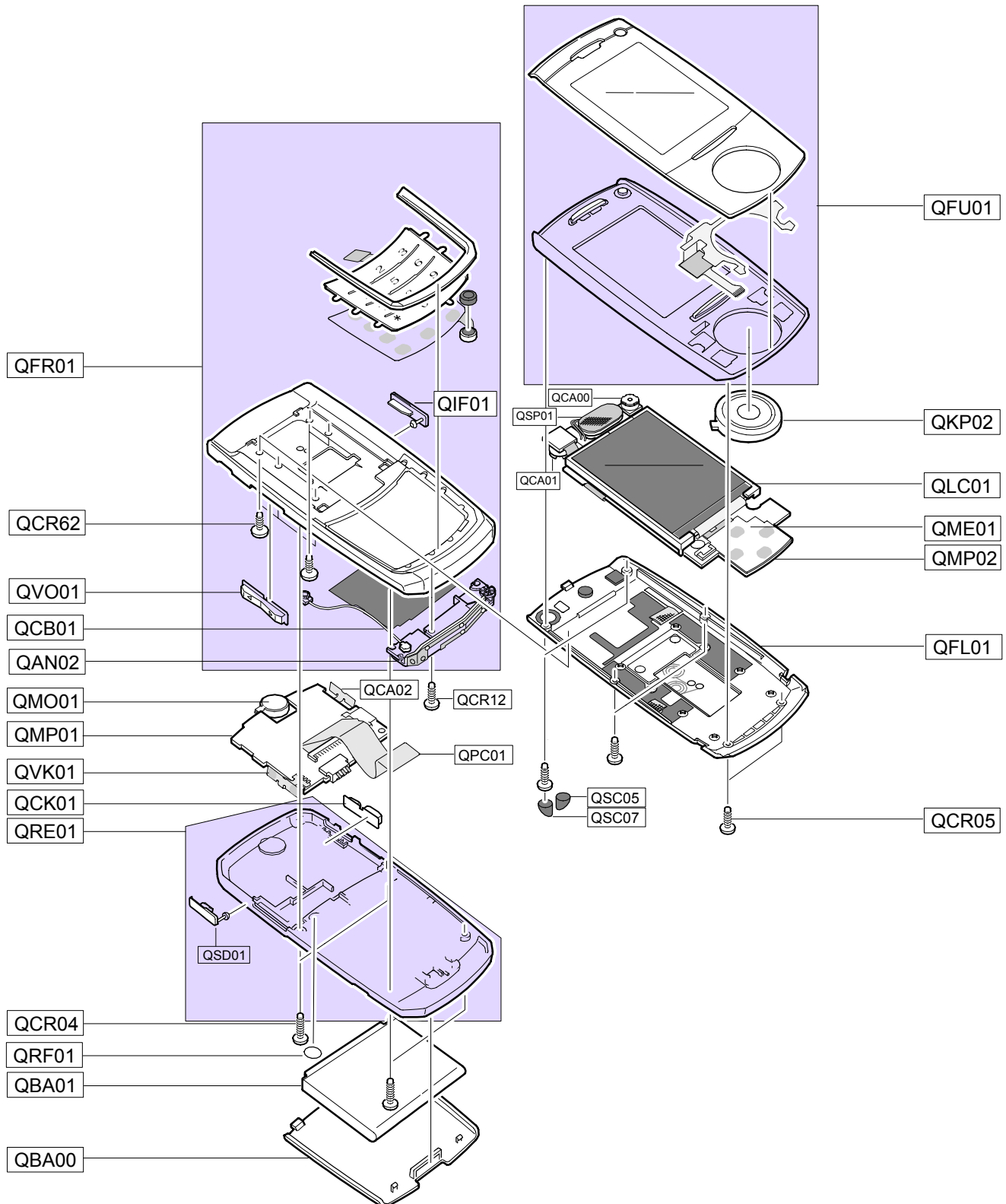
This is the start point of download, When you select the check box of “Change Boot Area”, the value will be changed from 70000 to 0 automatically.

- 5) Click “Download” button to start downloading all the binary
- 6) If download finished successfully, phone is rebuild automatically.
- 7) After boot up, you should perform ‘Full Service Reset’
  - Full SVC Reset
    - . Press the buttons ‘\*2767\*3855#’ in the idle state, then press 1.
    - . The phone will be reset automatically and rebooted
  - Factory Pre-configuration
    - . For O2 : Press the buttons ‘\*#01010522#’ in the idle state, then press 1 for UK, 2 for IR
    - . For BOUYGTEL : Press the buttons ‘\*#01010522#’ in the idle state, then press 1
  - The phone will be reset automatically, and you’ve done all steps.



# 5. Exploded View and Parts List

## 5-1. Cellular phone Exploded View



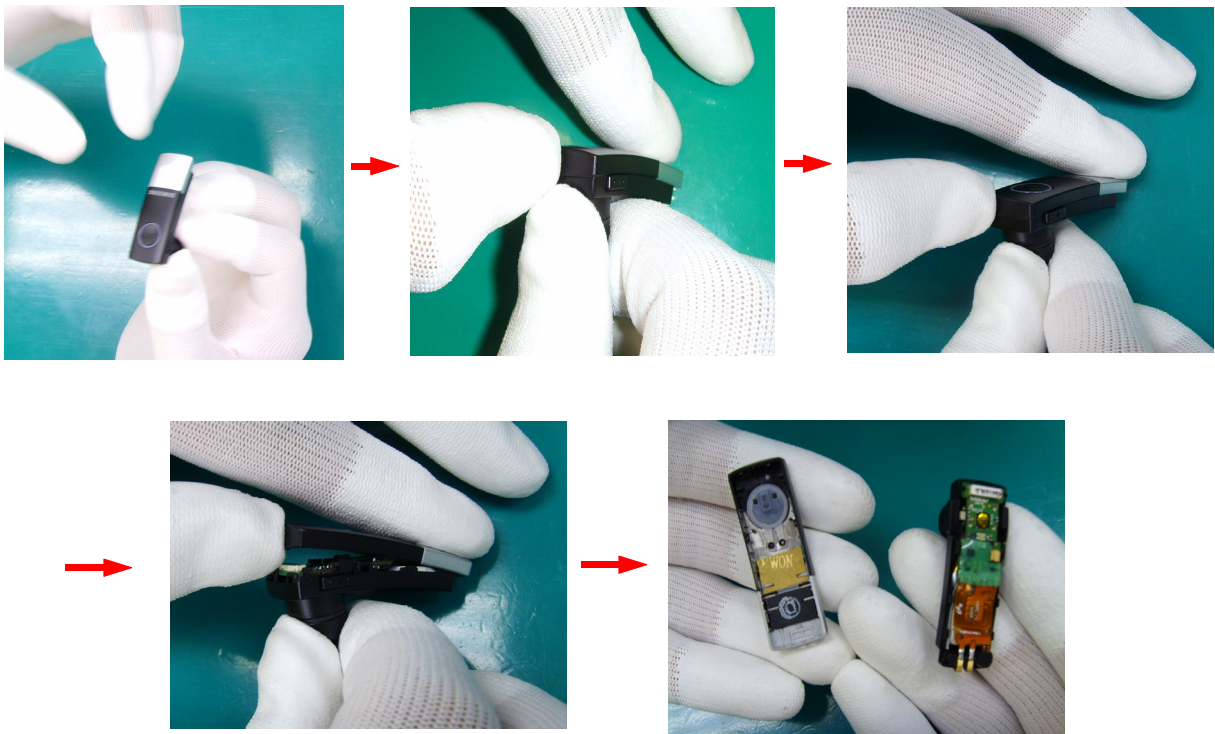
**5-2. Cellular phone Parts list**

Design LOC		Description	SEC CODE
QAN02		INTENNA-SGHZ650I	GH42-00971A
QBA00		PMO-CASE BATT	GH72-33724A
QBA01		INNER BATTERY PACK-900MAH	GH43-02398A
QCA00		UNIT-SGHZ650I VGA CAMERA(SELF)	GH59-03582A
QCA01		UNIT-SGHZ650I 2M CAMERA(REC)	GH59-03594A
QCA02		UNIT-SGHZ650I CAMERA KEY	GH59-03583A
QCB01		CBF COAXIAL CABLE-SGHZ650I	GH39-00668A
QCK01		PMO-POWER KEY	GH72-33722A
QCR04		SCREW-MACHINE	6001-001479
QCR05		SCREW-MACHINE	6001-001478
QCR12		SCREW-MACHINE	6001-001530
QCR62		SCREW-MACHINE	6001-002023
QFU01		MEA-SLIDE UPPER ASSY	GH97-06683A
QKP02		ASSY KEYPAD-SUB(XEF/TGI)	GH98-02062A
QLC01		ELA UNIT-SGHZ650I LCD MODULE	GH96-02255A
QME01		UNIT-SGHZ650I METAL DOME	GH59-03609A
QMO01		MOTOR DC-SPHM500	GH31-00242A
QMP01		PBA MAIN-SGHZ650I	GH92-03058A
QMP02		PBA SUB-SGHZ650I	GH92-03119A
QPC01		MEA-SLIDE FPCB KIT	GH97-06678A
QRF01		MPR-TAPE RF	GH74-27671A
QSC05		RMO-RUBBER SCREW SLIDE L	GH73-07872A
QSC07		RMO-RUBBER SCREW SLIDE R	GH73-07871A
QSP01		SPEAKER	3001-001965
QVK01		UNIT-SGHZ650I VOLUMEKEY	GH59-03600A
QVO01		PMO-VOLUME KEY	GH72-33723A
QFL01		ASSY CASE-SLIDE LOWER	GH98-02059A
	QCR62	SCREW-MACHINE	6001-002023
QFR01		MEA-FRONT ASSY	GH97-06682A
	QIF01	PMO-COVER EAR IF	GH72-33737A
QRE01		ASSY CASE-REAR	GH98-02069A
	QSD01	PMO-COVER MS CARD	GH72-33725A

Discription	SEC CODE
BAG PE	6902-000297
CBF INTERFACE-DATA LINK CABLE	GH39-00444A
ADAPTOR-SGHD800 TA(EU)	GH44-01060A
S/W CD-SGHZ650I PC STUDIO 3.0	GH46-00334A
UNIT-EARPHONE(BLK)	GH59-02499A
LABEL(P)-WATER SOAK	GH68-02026A
LABEL(P)-WATER SOAK	GH68-02026A
LABEL(P)-WATER SOAK	GH68-02026A
LABEL(P)-BOG MP3	GH68-11247A
MANUAL USERS-BOG FRENCH	GH68-12627A
LABEL(R)-MAIN(FRAN)	GH68-12711B
BOX(P)-UNIT MAIN TA3(EU)	GH69-04537A
CUSHION-CASE TA2 MA4	GH69-04542A
MPR-REMOVE TAPE LCD	GH74-13804A
MPR-TAPE LED	GH74-17926A
MPR-TAPE REMOVE LCD	GH74-18286A
MPR-TAPE IF COVER	GH74-24740A
MPR-TAPE GASKET SLIDE CONN	GH74-26241A
MPR-TAPE GASKET LCD FPCB	GH74-26244A
MPR-TAPE SLIDE CONN	GH74-26245A
MPR-TAPE SLIDE CONN	GH74-26245A
MPR-TAPE LCD SUB	GH74-26246A
MPR-TAPE INSULATION CONN	GH74-26247A
MPR-TAPE FRONT BLACK	GH74-26248A
MPR-INSU TAPE TOUCH CONN	GH74-27252A
MPR-INSU TAPE SUB A	GH74-27253A
MPR-INSU TAPE PCB CONN	GH74-27258A
MPR-TAPE CAM CONN	GH74-27259A
MPR-TAPE LCD CONN	GH74-27260A
MPR-INSU TAPE PCB A	GH74-27263A
MPR-VINYL BOHO SLIDE UPPER	GH74-27336A
MPR-VINYL BOHO LCD WIN	GH74-27337A
MPR-INSU TAPE LCD A	GH74-27438A
MPR-GASK TAPE LCD A	GH74-27439A
MPR-INSU TAPE PCB B	GH74-27440A
MPR-GASK TAPE INTENNA	GH74-28221A
MPR-VINYL BOHO UPPER B	GH74-28222A
MPR-GASK TAPE FRONT A	GH74-28330A
MPR-INSU TAPE PBA C	GH74-28826A
MPR-INSU TAPE PBA D	GH74-28827A
MPR-GASK TAPE PBA B	GH74-28828A
MPR-GASK TAPE PBA C	GH74-28829A
MPR-SPONGE SLIDE	GH74-28830A
MPR-INSU TAPE REAR A	GH74-28890A
MPR-INSU TAPE PBA E	GH74-28900A
MPR-VINYL BOHO MAIN	GH74-28952A
MPR-GASK TAPE REAR	GH74-28977A

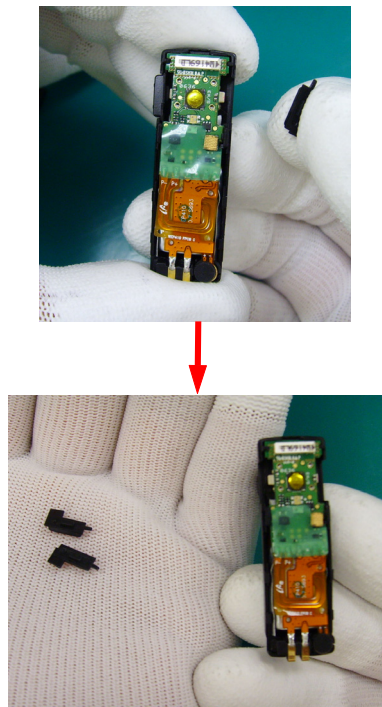
## Disassembly

1



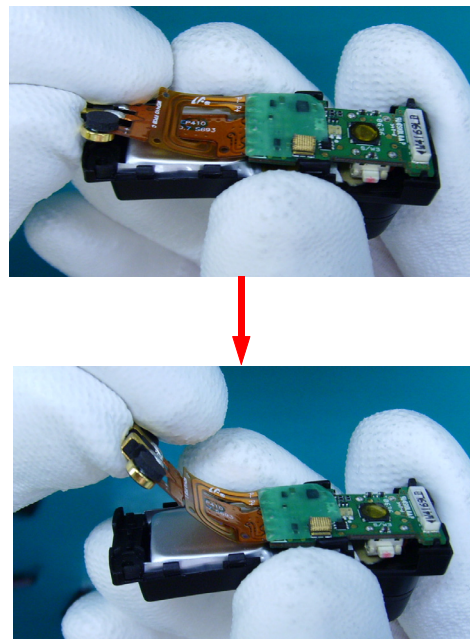
1. Take apart a front case and a rear case from the top of the headset.

2



1. Take apart volume + and - key from the headset.

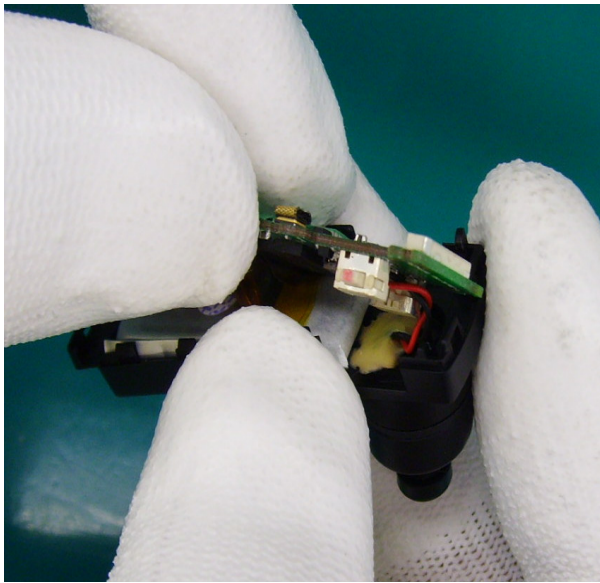
3



1. Take apart a plastic housing of MIC as the method of lifting up from the MIC side to the left side.

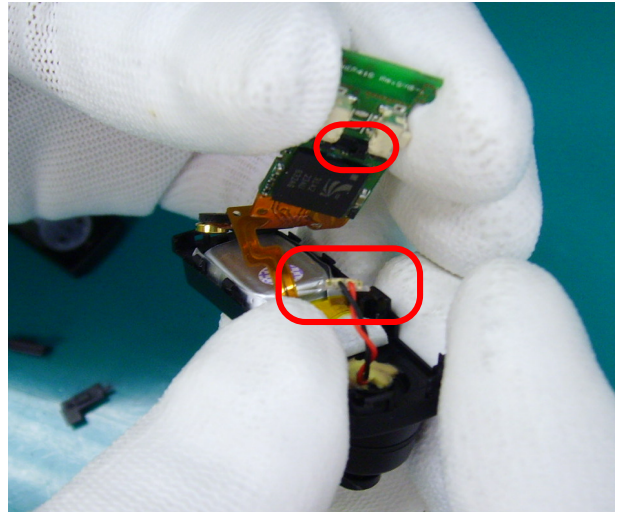


4



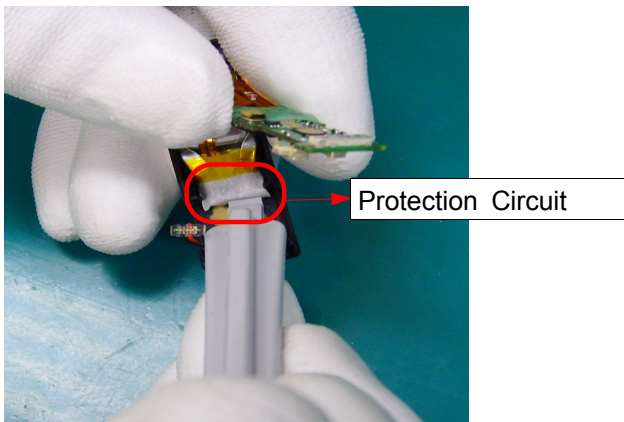
1. Take apart a PBA as lifting up the right side of the PBA from the hook of a front case.

5



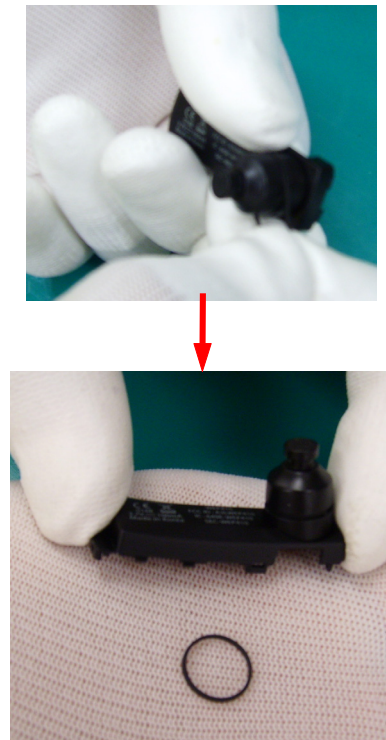
1. Take off the speaker connector from the PBA.

6



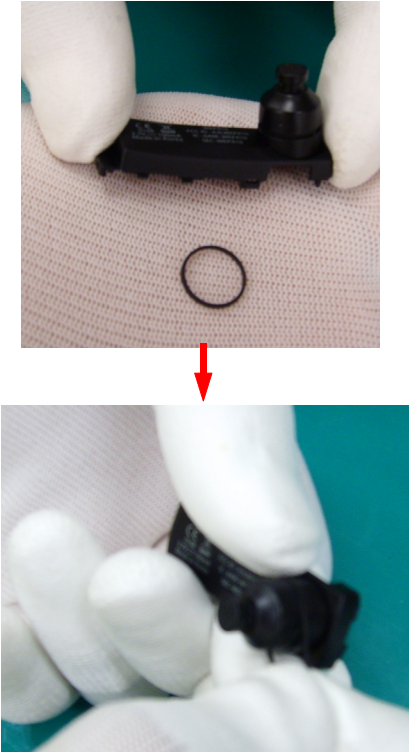
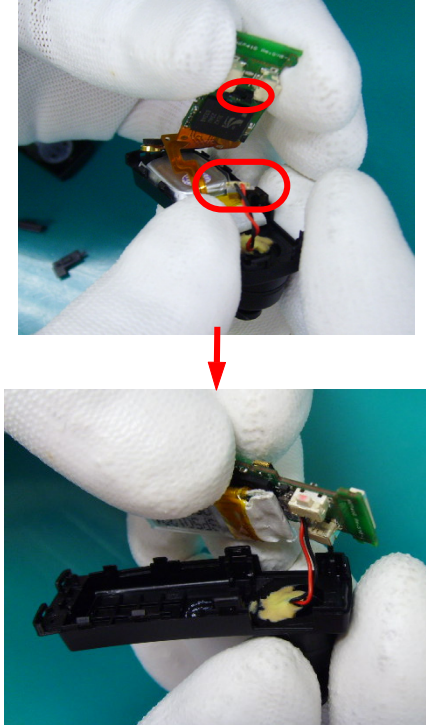
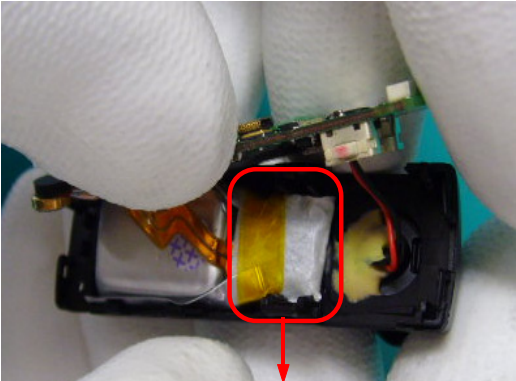
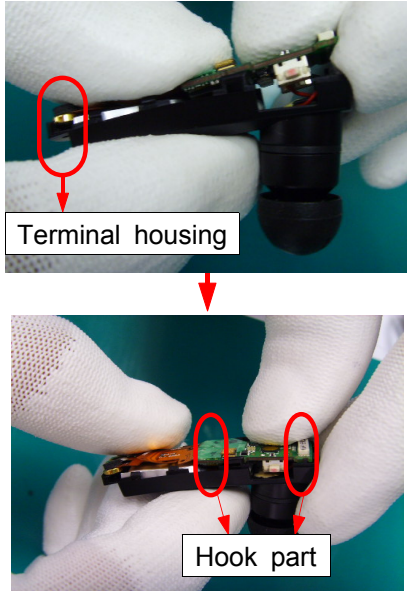
1. Lift up the battery from the PBA as inserting and lifting up the protection circuit from the front case.

7



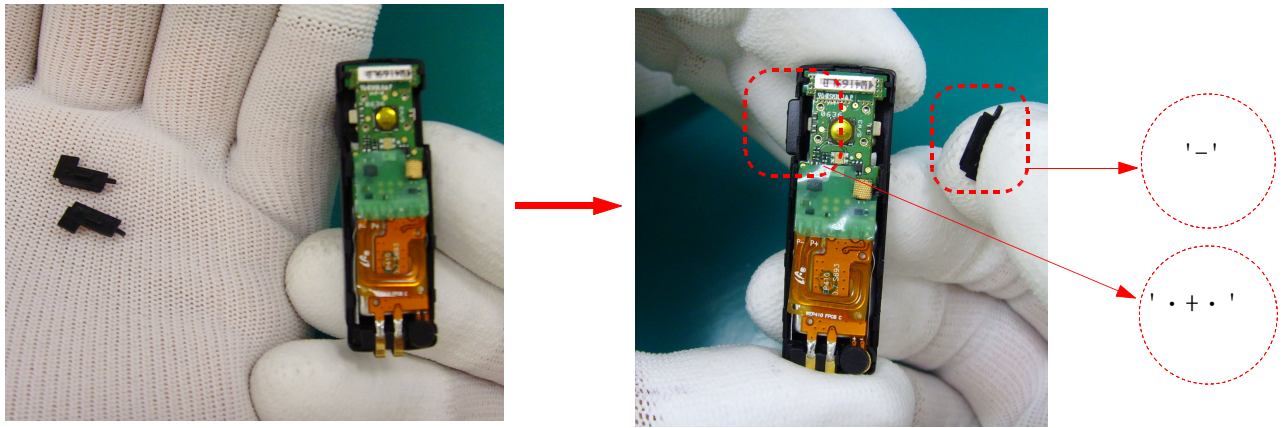
1. Take apart an ear ring from the front case ass'y

## Assembly

<p><b>1</b></p> 	<p><b>2</b></p>  <p>1. Insert the speaker connector to the receptacle of PBA.</p>
<p><b>3</b></p>  <p>Protection circuit part of a battery</p>	<p><b>4</b></p>  <p>Terminal housing</p> <p>Hook part</p>
<p>1. Assemble the protection circuit part of a battery to the front case after attaching the battery cell taken off the sticky tape.</p>	<p>1. Assemble a PBA to the middle and top hook of the front case after fixing the terminal housing to low part of the front case.</p>

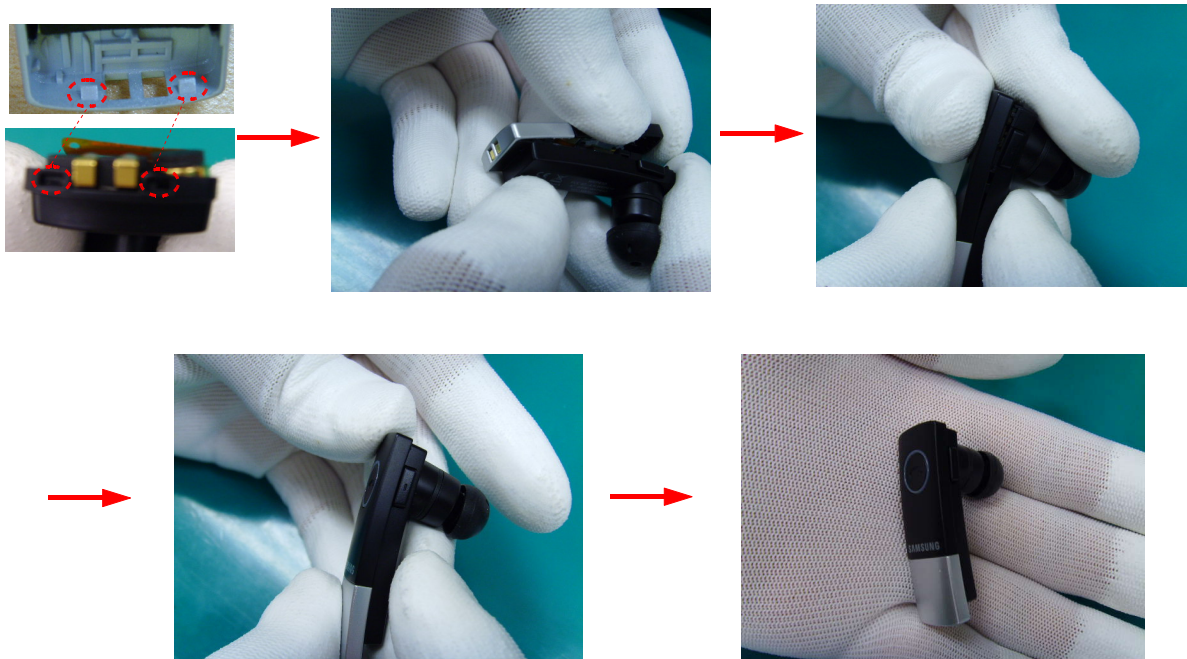


5



1. Assemble the +,- volume key to the both side.  
( '-' key to the right side, ' + + +' key to the left side)

6



1. Assemble the front case and the rear case upward after fixing a hook of the rear case and a hole of the front case together.

## 6. MAIN Electrical Parts List

SEC CODE	Design LOC	Discription	STATUS
0403-001547	ZD200	DIODE-ZENER	SA
0404-001172	D100	DIODE-SCHOTTKY	SA
0404-001172	D101	DIODE-SCHOTTKY	SA
0404-001172	D102	DIODE-SCHOTTKY	SA
0404-001172	D502	DIODE-SCHOTTKY	SA
0406-001208	ZD201	DIODE-TVS	SA
0406-001208	ZD203	DIODE-TVS	SA
0406-001223	ZD204	DIODE-TVS	SA
0406-001223	ZD205	DIODE-TVS	SA
0406-001223	ZD206	DIODE-TVS	SA
0406-001223	ZD207	DIODE-TVS	SA
0406-001223	ZD208	DIODE-TVS	SA
0406-001223	ZD209	DIODE-TVS	SA
0406-001223	ZD210	DIODE-TVS	SA
0406-001223	ZD211	DIODE-TVS	SA
0406-001223	ZD212	DIODE-TVS	SA
0406-001223	ZD213	DIODE-TVS	SA
0406-001223	ZD214	DIODE-TVS	SA
0406-001223	ZD215	DIODE-TVS	SA
0406-001223	ZD400	DIODE-TVS	SA
0406-001223	ZD401	DIODE-TVS	SA
0406-001223	ZD100	DIODE-TVS	SA
0406-001223	ZD101	DIODE-TVS	SA
0407-001002	D501	DIODE-ARRAY	SA
0504-001113	TR100	TR-DIGITAL	SA
0504-001113	TR504	TR-DIGITAL	SA
0505-001889	U509	FET-SILICON	SA
0601-002132	LED1	LED	SA
0801-002529	U15	IC-CMOS LOGIC	SA
0801-002995	U402	IC-CMOS LOGIC	SA
1001-001354	U302	IC-ANALOG SWITCH	SA
1006-001322	U102	IC-LINE TRANSCEIVER	SA
1006-001322	U14	IC-LINE TRANSCEIVER	SA
1009-001023	U103	IC-HALL EFFECT S/W	SA
1108-000035	UME400	IC-MCP	SA
1201-002195	U303	IC-AUDIO AMP	SA
1201-002304	U304	IC-AUDIO AMP	SA



Main Electrical Parts List

SEC CODE	Design LOC	Discription	STATUS
1201-002426	PAM700	IC-POWER AMP	SA
1203-003275	U11	IC-MULTI REG.	SA
1203-003340	U13	IC-POSI.FIXED REG.	SA
1203-003728	U508	IC-VOL. DETECTOR	SA
1203-003737	U503	IC-POSI.FIXED REG.	SA
1203-003737	U504	IC-POSI.FIXED REG.	SA
1203-003742	U408	IC-BATTERY	SA
1203-003787	U301	IC-POSI.FIXED REG.	SA
1203-003787	U401	IC-POSI.FIXED REG.	SA
1203-004102	U501	IC-POWER SUPERVISOR	SA
1203-004155	U10	IC-DC/DC CONVERTER	SA
1204-002138	U300	IC-MELODY	SA
1205-002568	U505	IC-SWITCH	SA
1205-002645	U600	IC-TRANSCEIVER	SA
1205-002781	U700	IC-RECEIVER	SA
1205-002790	UCP100	IC-MODEM	SA
1404-001224	U101	THERMISTOR-NTC	SA
1405-001082	VR200	VARISTOR	SA
1405-001082	VR300	VARISTOR	SA
1405-001082	VR301	VARISTOR	SA
1405-001082	D1	VARISTOR	SA
1405-001082	D11	VARISTOR	SA
1405-001082	D2	VARISTOR	SA
1405-001082	D3	VARISTOR	SA
1405-001082	D4	VARISTOR	SA
1405-001082	D5	VARISTOR	SA
1405-001110	D6	VARISTOR	SA
1405-001110	D7	VARISTOR	SA
1405-001110	D8	VARISTOR	SA
2007-000138	R610	R-CHIP	SA
2007-000145	R615	R-CHIP	SA
2007-000148	R305	R-CHIP	SA
2007-000148	R306	R-CHIP	SA
2007-000162	R510	R-CHIP	SA
2007-000162	R1	R-CHIP	SA
2007-000165	R25	R-CHIP	SA
2007-000171	R201	R-CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2007-000171	R202	R-CHIP	SA
2007-000171	R323	R-CHIP	SA
2007-000171	R324	R-CHIP	SA
2007-000171	R607	R-CHIP	SA
2007-000171	R700	R-CHIP	SA
2007-000171	R710	R-CHIP	SA
2007-000171	R12	R-CHIP	SA
2007-000172	R330	R-CHIP	SA
2007-000172	R331	R-CHIP	SA
2007-000242	R10	R-CHIP	SA
2007-000242	R11	R-CHIP	SA
2007-001292	R611	R-CHIP	SA
2007-001301	R18	R-CHIP	SA
2007-001323	R507	R-CHIP	SA
2007-003001	R129	R-CHIP	SA
2007-003001	R130	R-CHIP	SA
2007-003001	R322	R-CHIP	SA
2007-003001	R325	R-CHIP	SA
2007-007132	R14	R-CHIP	SA
2007-007136	R600	R-CHIP	SA
2007-007310	R15	R-CHIP	SA
2007-007316	R612	R-CHIP	SA
2007-007317	R701	R-CHIP	SA
2007-007318	R110	R-CHIP	SA
2007-007318	R604	R-CHIP	SA
2007-007468	R509	R-CHIP	SA
2007-007491	R603	R-CHIP	SA
2007-007491	R703	R-CHIP	SA
2007-007741	R504	R-CHIP	SA
2007-007766	R111	R-CHIP	SA
2007-008045	R152	R-CHIP	SA
2007-008045	R153	R-CHIP	SA
2007-008045	R154	R-CHIP	SA
2007-008045	R155	R-CHIP	SA
2007-008045	R157	R-CHIP	SA
2007-008045	R158	R-CHIP	SA
2007-008045	R159	R-CHIP	SA

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SEC CODE	Design LOC	Discription	STATUS
2007-008045	R160	R-CHIP	SA
2007-008045	R161	R-CHIP	SA
2007-008045	R162	R-CHIP	SA
2007-008045	R227	R-CHIP	SA
2007-008045	R235	R-CHIP	SA
2007-008045	R571	R-CHIP	SA
2007-008045	R602	R-CHIP	SA
2007-008045	R616	R-CHIP	SA
2007-008045	R619	R-CHIP	SA
2007-008045	R702	R-CHIP	SA
2007-008045	R802	R-CHIP	SA
2007-008051	R327	R-CHIP	SA
2007-008053	R301	R-CHIP	SA
2007-008053	R512	R-CHIP	SA
2007-008054	R133	R-CHIP	SA
2007-008054	R207	R-CHIP	SA
2007-008055	R148	R-CHIP	SA
2007-008055	R211	R-CHIP	SA
2007-008055	R224	R-CHIP	SA
2007-008055	R309	R-CHIP	SA
2007-008055	R417	R-CHIP	SA
2007-008055	R428	R-CHIP	SA
2007-008055	R429	R-CHIP	SA
2007-008055	R568	R-CHIP	SA
2007-008055	R569	R-CHIP	SA
2007-008213	R601	R-CHIP	SA
2007-008419	R132	R-CHIP	SA
2007-008419	R204	R-CHIP	SA
2007-008419	R205	R-CHIP	SA
2007-008419	R225	R-CHIP	SA
2007-008419	R226	R-CHIP	SA
2007-008419	R231	R-CHIP	SA
2007-008419	R430	R-CHIP	SA
2007-008478	R3	R-CHIP	SA
2007-008478	R4	R-CHIP	SA
2007-008483	R105	R-CHIP	SA
2007-008483	R120	R-CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2007-008483	R421	R-CHIP	SA
2007-008483	R422	R-CHIP	SA
2007-008483	R423	R-CHIP	SA
2007-008483	R424	R-CHIP	SA
2007-008483	R425	R-CHIP	SA
2007-008483	R502	R-CHIP	SA
2007-008483	R806	R-CHIP	SA
2007-008483	R24	R-CHIP	SA
2007-008486	R212	R-CHIP	SA
2007-008516	R101	R-CHIP	SA
2007-008516	R115	R-CHIP	SA
2007-008516	R117	R-CHIP	SA
2007-008516	R150	R-CHIP	SA
2007-008516	R332	R-CHIP	SA
2007-008516	R333	R-CHIP	SA
2007-008516	R402	R-CHIP	SA
2007-008516	R28	R-CHIP	SA
2007-008531	R113	R-CHIP	SA
2007-008531	R114	R-CHIP	SA
2007-008531	R228	R-CHIP	SA
2007-008531	R229	R-CHIP	SA
2007-008531	R618	R-CHIP	SA
2007-008531	R705	R-CHIP	SA
2007-008531	R706	R-CHIP	SA
2007-008542	R116	R-CHIP	SA
2007-008542	R164	R-CHIP	SA
2007-008542	R230	R-CHIP	SA
2007-008542	R238	R-CHIP	SA
2007-008542	R307	R-CHIP	SA
2007-008542	R308	R-CHIP	SA
2007-008542	R320	R-CHIP	SA
2007-008542	R321	R-CHIP	SA
2007-008542	R328	R-CHIP	SA
2007-008542	R407	R-CHIP	SA
2007-008542	R416	R-CHIP	SA
2007-008542	R431	R-CHIP	SA
2007-008542	R620	R-CHIP	SA

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SEC CODE	Design LOC	Discription	STATUS
2007-008542	R621	R-CHIP	SA
2007-008542	R704	R-CHIP	SA
2007-008542	R708	R-CHIP	SA
2007-008542	R29	R-CHIP	SA
2007-008544	R232	R-CHIP	SA
2007-008548	R223	R-CHIP	SA
2007-008579	R613	R-CHIP	SA
2007-008579	R614	R-CHIP	SA
2007-008581	R605	R-CHIP	SNA
2007-008581	R606	R-CHIP	SNA
2007-008588	R233	R-CHIP	SA
2007-008588	R234	R-CHIP	SA
2007-008588	R303	R-CHIP	SA
2007-008588	R310	R-CHIP	SA
2007-008647	R220	R-CHIP	SA
2007-008648	R27	R-CHIP	SA
2007-008785	R608	R-CHIP	SNA
2007-008806	R508	R-CHIP	SA
2007-008806	R617	R-CHIP	SA
2007-008964	R108	R-CHIP	SA
2007-008964	R109	R-CHIP	SA
2007-009108	R415	R-CHIP	SA
2007-009166	R134	R-CHIP	SA
2007-009169	R405	R-CHIP	SA
2007-009170	R112	R-CHIP	SA
2007-009170	R118	R-CHIP	SA
2007-009170	R210	R-CHIP	SA
2007-009171	R170	R-CHIP	SA
2007-009171	R180	R-CHIP	SA
2007-009171	R181	R-CHIP	SA
2007-009171	R182	R-CHIP	SA
2007-009171	R183	R-CHIP	SA
2007-009171	R184	R-CHIP	SA
2007-009194	R406	R-CHIP	SNA
2007-009201	R609	R-CHIP	SA
2007-009233	R400	R-CHIP	SA
2007-009233	R409	R-CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2007-009233	R414	R-CHIP	SA
2007-009314	R426	R-CHIP	SA
2203-000254	C127	C-CER,CHIP	SA
2203-000254	C702	C-CER,CHIP	SA
2203-000254	C18	C-CER,CHIP	SA
2203-000254	C24	C-CER,CHIP	SA
2203-000254	C29	C-CER,CHIP	SA
2203-000278	C303	C-CER,CHIP	SA
2203-000278	C307	C-CER,CHIP	SA
2203-000311	C621	C-CER,CHIP	SA
2203-000330	C721	C-CER,CHIP	SA
2203-000359	C547	C-CER,CHIP	SA
2203-000386	C220	C-CER,CHIP	SA
2203-000386	C221	C-CER,CHIP	SA
2203-000489	C124	C-CER,CHIP	SA
2203-000643	C736	C-CER,CHIP	SA
2203-000679	C731	C-CER,CHIP	SA
2203-000679	C737	C-CER,CHIP	SA
2203-000696	C633	C-CER,CHIP	SA
2203-000812	C212	C-CER,CHIP	SA
2203-000812	C213	C-CER,CHIP	SA
2203-000812	C217	C-CER,CHIP	SA
2203-000812	C305	C-CER,CHIP	SA
2203-000812	C40	C-CER,CHIP	SA
2203-000812	C41	C-CER,CHIP	SA
2203-000836	C544	C-CER,CHIP	SA
2203-000836	C624	C-CER,CHIP	SA
2203-000854	C304	C-CER,CHIP	SA
2203-000854	C308	C-CER,CHIP	SA
2203-001072	C706	C-CER,CHIP	SA
2203-001072	C732	C-CER,CHIP	SA
2203-001124	C724	C-CER,CHIP	DNA
2203-001153	C546	C-CER,CHIP	SA
2203-002443	C619	C-CER,CHIP	SA
2203-002677	C707	C-CER,CHIP	SA
2203-002709	C551	C-CER,CHIP	SA
2203-002759	C39	C-CER,CHIP	SA

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SEC CODE	Design LOC	Discription	STATUS
2203-005053	C715	C-CER,CHIP	SA
2203-005053	C722	C-CER,CHIP	SA
2203-005281	C723	C-CER,CHIP	SA
2203-005344	C309	C-CER,CHIP	SA
2203-005344	C310	C-CER,CHIP	SA
2203-005480	C126	C-CER,CHIP	SA
2203-005682	C205	C-CER,CHIP	SA
2203-005682	C206	C-CER,CHIP	SA
2203-005682	C542	C-CER,CHIP	SA
2203-005682	C543	C-CER,CHIP	SA
2203-005682	C607	C-CER,CHIP	SA
2203-005682	C617	C-CER,CHIP	SA
2203-005682	C703	C-CER,CHIP	SA
2203-005682	C708	C-CER,CHIP	SA
2203-005682	C734	C-CER,CHIP	SA
2203-005682	C800	C-CER,CHIP	SA
2203-005682	C804	C-CER,CHIP	SA
2203-005682	C805	C-CER,CHIP	SA
2203-005682	C806	C-CER,CHIP	SA
2203-005682	C807	C-CER,CHIP	SA
2203-005682	C28	C-CER,CHIP	SA
2203-005723	C611	C-CER,CHIP	SA
2203-005723	C612	C-CER,CHIP	SA
2203-005729	C122	C-CER,CHIP	SA
2203-005729	C123	C-CER,CHIP	SA
2203-005729	C162	C-CER,CHIP	SA
2203-005729	C605	C-CER,CHIP	SA
2203-005729	C630	C-CER,CHIP	SA
2203-005729	C632	C-CER,CHIP	SA
2203-005729	C738	C-CER,CHIP	SA
2203-005731	C524	C-CER,CHIP	SA
2203-005731	C525	C-CER,CHIP	SA
2203-005736	C214	C-CER,CHIP	SA
2203-005736	C514	C-CER,CHIP	SA
2203-005736	C515	C-CER,CHIP	SA
2203-005736	C629	C-CER,CHIP	SA
2203-005736	C711	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-005736	C713	C-CER,CHIP	SA
2203-005736	C716	C-CER,CHIP	SA
2203-005736	C718	C-CER,CHIP	SA
2203-005736	C726	C-CER,CHIP	SA
2203-005736	C728	C-CER,CHIP	SA
2203-005777	C626	C-CER,CHIP	SA
2203-005806	C102	C-CER,CHIP	SNA
2203-005806	C103	C-CER,CHIP	SNA
2203-005806	C105	C-CER,CHIP	SNA
2203-005806	C106	C-CER,CHIP	SNA
2203-005806	C109	C-CER,CHIP	SNA
2203-005806	C110	C-CER,CHIP	SNA
2203-005806	C115	C-CER,CHIP	SNA
2203-005806	C116	C-CER,CHIP	SNA
2203-005806	C118	C-CER,CHIP	SNA
2203-005806	C119	C-CER,CHIP	SNA
2203-005806	C144	C-CER,CHIP	SNA
2203-005806	C311	C-CER,CHIP	SNA
2203-005806	C312	C-CER,CHIP	SNA
2203-005806	C338	C-CER,CHIP	SNA
2203-005806	C402	C-CER,CHIP	SNA
2203-005806	C510	C-CER,CHIP	SNA
2203-005806	C511	C-CER,CHIP	SNA
2203-005806	C613	C-CER,CHIP	SNA
2203-005806	C616	C-CER,CHIP	SNA
2203-005806	C627	C-CER,CHIP	SNA
2203-005806	C714	C-CER,CHIP	SNA
2203-005806	C739	C-CER,CHIP	SNA
2203-005806	C32	C-CER,CHIP	SNA
2203-005808	C561	C-CER,CHIP	SA
2203-005808	C603	C-CER,CHIP	SA
2203-005808	C606	C-CER,CHIP	SA
2203-005808	C608	C-CER,CHIP	SA
2203-005808	C620	C-CER,CHIP	SA
2203-005808	C710	C-CER,CHIP	SA
2203-006048	C313	C-CER,CHIP	SA
2203-006048	C321	C-CER,CHIP	SA



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SEC CODE	Design LOC	Discription	STATUS
2203-006048	C340	C-CER,CHIP	SA
2203-006048	C341	C-CER,CHIP	SA
2203-006048	C500	C-CER,CHIP	SA
2203-006048	C504	C-CER,CHIP	SA
2203-006048	C528	C-CER,CHIP	SA
2203-006048	C529	C-CER,CHIP	SA
2203-006048	C530	C-CER,CHIP	SA
2203-006048	C539	C-CER,CHIP	SA
2203-006048	C541	C-CER,CHIP	SA
2203-006093	C615	C-CER,CHIP	SA
2203-006093	C628	C-CER,CHIP	SA
2203-006093	C631	C-CER,CHIP	SA
2203-006093	C725	C-CER,CHIP	SA
2203-006093	C727	C-CER,CHIP	SA
2203-006165	TA204	C-CER,CHIP	SA
2203-006190	C414	C-CER,CHIP	SA
2203-006194	C143	C-CER,CHIP	SA
2203-006194	C211	C-CER,CHIP	SA
2203-006194	C400	C-CER,CHIP	SA
2203-006194	C401	C-CER,CHIP	SA
2203-006194	C404	C-CER,CHIP	SA
2203-006194	C704	C-CER,CHIP	SA
2203-006194	C705	C-CER,CHIP	SA
2203-006194	C729	C-CER,CHIP	SA
2203-006194	C814	C-CER,CHIP	SA
2203-006208	C407	C-CER,CHIP	SA
2203-006208	C517	C-CER,CHIP	SA
2203-006208	C518	C-CER,CHIP	SA
2203-006208	C521	C-CER,CHIP	SA
2203-006208	C523	C-CER,CHIP	SA
2203-006208	C545	C-CER,CHIP	SA
2203-006260	C540	C-CER,CHIP	SA
2203-006305	C150	C-CER,CHIP	SA
2203-006324	C533	C-CER,CHIP	SA
2203-006324	C534	C-CER,CHIP	SA
2203-006324	C535	C-CER,CHIP	SA
2203-006324	C701	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-006324	C816	C-CER,CHIP	SA
2203-006324	C817	C-CER,CHIP	SA
2203-006324	C21	C-CER,CHIP	SA
2203-006324	C25	C-CER,CHIP	SA
2203-006379	C610	C-CER,CHIP	SA
2203-006423	C100	C-CER,CHIP	SA
2203-006423	C101	C-CER,CHIP	SA
2203-006423	C107	C-CER,CHIP	SA
2203-006423	C108	C-CER,CHIP	SA
2203-006423	C111	C-CER,CHIP	SA
2203-006423	C112	C-CER,CHIP	SA
2203-006423	C113	C-CER,CHIP	SA
2203-006423	C120	C-CER,CHIP	SA
2203-006423	C121	C-CER,CHIP	SA
2203-006423	C128	C-CER,CHIP	SA
2203-006423	C133	C-CER,CHIP	SA
2203-006423	C134	C-CER,CHIP	SA
2203-006423	C136	C-CER,CHIP	SA
2203-006423	C137	C-CER,CHIP	SA
2203-006423	C142	C-CER,CHIP	SA
2203-006423	C151	C-CER,CHIP	SA
2203-006423	C160	C-CER,CHIP	SA
2203-006423	C161	C-CER,CHIP	SA
2203-006423	C216	C-CER,CHIP	SA
2203-006423	C301	C-CER,CHIP	SA
2203-006423	C302	C-CER,CHIP	SA
2203-006423	C337	C-CER,CHIP	SA
2203-006423	C339	C-CER,CHIP	SA
2203-006423	C403	C-CER,CHIP	SA
2203-006423	C405	C-CER,CHIP	SA
2203-006423	C406	C-CER,CHIP	SA
2203-006423	C408	C-CER,CHIP	SA
2203-006423	C516	C-CER,CHIP	SA
2203-006423	C526	C-CER,CHIP	SA
2203-006423	C609	C-CER,CHIP	SA
2203-006423	C614	C-CER,CHIP	SA
2203-006423	C625	C-CER,CHIP	SA

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SEC CODE	Design LOC	Discription	STATUS
2203-006423	C712	C-CER,CHIP	SA
2203-006423	C717	C-CER,CHIP	SA
2203-006423	C719	C-CER,CHIP	SA
2203-006423	C720	C-CER,CHIP	SA
2203-006423	C803	C-CER,CHIP	SA
2203-006423	C810	C-CER,CHIP	SA
2203-006423	C811	C-CER,CHIP	SA
2203-006423	C813	C-CER,CHIP	SA
2203-006423	C36	C-CER,CHIP	SA
2203-006423	C37	C-CER,CHIP	SA
2203-006423	C38	C-CER,CHIP	SA
2203-006556	C700	C-CER,CHIP	SA
2203-006556	C45	C-CER,CHIP	SA
2203-006556	C46	C-CER,CHIP	SA
2203-006556	C47	C-CER,CHIP	SA
2203-006556	C48	C-CER,CHIP	SA
2203-006556	C49	C-CER,CHIP	SA
2203-006556	C50	C-CER,CHIP	SA
2203-006556	C51	C-CER,CHIP	SA
2203-006556	C52	C-CER,CHIP	SA
2203-006562	C104	C-CER,CHIP	SA
2203-006562	C114	C-CER,CHIP	SA
2203-006562	C117	C-CER,CHIP	SA
2203-006562	C315	C-CER,CHIP	SA
2203-006562	C316	C-CER,CHIP	SA
2203-006562	C317	C-CER,CHIP	SA
2203-006562	C322	C-CER,CHIP	SA
2203-006562	C331	C-CER,CHIP	SA
2203-006562	C332	C-CER,CHIP	SA
2203-006562	C333	C-CER,CHIP	SA
2203-006562	C335	C-CER,CHIP	SA
2203-006562	C512	C-CER,CHIP	SA
2203-006562	C536	C-CER,CHIP	SA
2203-006562	C537	C-CER,CHIP	SA
2203-006562	C618	C-CER,CHIP	SA
2203-006562	C815	C-CER,CHIP	SA
2203-006562	C11	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-006562	C13	C-CER,CHIP	SA
2203-006562	C14	C-CER,CHIP	SA
2203-006562	C23	C-CER,CHIP	SA
2203-006562	C33	C-CER,CHIP	SA
2203-006562	C34	C-CER,CHIP	SA
2203-006562	C35	C-CER,CHIP	SA
2203-006562	C42	C-CER,CHIP	SA
2203-006562	C43	C-CER,CHIP	SA
2203-006562	C44	C-CER,CHIP	SA
2203-006617	C132	C-CER,CHIP	SA
2203-006617	C135	C-CER,CHIP	SA
2203-006648	C125	C-CER,CHIP	SA
2203-006648	C129	C-CER,CHIP	SA
2203-006648	C130	C-CER,CHIP	SA
2203-006648	C131	C-CER,CHIP	SA
2203-006648	C215	C-CER,CHIP	SA
2203-006648	C730	C-CER,CHIP	SA
2203-006674	C601	C-CER,CHIP	SNA
2203-006674	C604	C-CER,CHIP	SNA
2203-006681	C208	C-CER,CHIP	SA
2203-006824	C531	C-CER,CHIP	SA
2203-006824	C532	C-CER,CHIP	SA
2203-006824	C22	C-CER,CHIP	SA
2203-006824	C26	C-CER,CHIP	SA
2203-006838	C519	C-CER,CHIP	SA
2203-006838	C520	C-CER,CHIP	SA
2203-006838	C522	C-CER,CHIP	SA
2203-006838	C819	C-CER,CHIP	SA
2203-006838	C27	C-CER,CHIP	SA
2203-006890	C15	C-CER,CHIP	SA
2203-006890	C16	C-CER,CHIP	SA
2203-006890	C17	C-CER,CHIP	SA
2203-006963	C428	C-CER,CHIP	SA
2203-006963	C19	C-CER,CHIP	SA
2203-006963	C20	C-CER,CHIP	SA
2301-001200	C622	C-FILM,SMD-PPS	SA
2301-001213	C602	C-FILM,SMD-PPS	SA

Main Electrical Parts List

SEC CODE	Design LOC	Discription	STATUS
2301-001735	C600	C-FILM,SMD	SA
2301-001807	C623	C-FILM,SMD	SA
2404-001225	TA600	C-TA,CHIP	SA
2404-001339	TA500	C-TA,CHIP	SA
2404-001339	C10	C-TA,CHIP	SA
2404-001352	TA300	C-TA,CHIP	SA
2404-001352	TA302	C-TA,CHIP	SA
2404-001380	TA203	C-TA,CHIP	SA
2404-001381	TA301	C-TA,CHIP	SA
2404-001381	TA502	C-TA,CHIP	SA
2404-001381	TA503	C-TA,CHIP	SA
2404-001406	TA200	C-TA,CHIP	SA
2404-001406	TA206	C-TA,CHIP	SA
2404-001411	TA700	C-TA,CHIP	SA
2404-001413	TA205	C-TA,CHIP	SA
2404-001414	C318	C-TA,CHIP	SA
2404-001414	C319	C-TA,CHIP	SA
2404-001414	C323	C-TA,CHIP	SA
2404-001414	C324	C-TA,CHIP	SA
2404-001414	C330	C-TA,CHIP	SA
2404-001414	C334	C-TA,CHIP	SA
2703-001180	L706	INDUCTOR-SMD	SA
2703-001750	L703	INDUCTOR-SMD	SA
2703-001751	L702	INDUCTOR-SMD	SA
2703-001786	L801	INDUCTOR-SMD	SA
2703-001786	L803	INDUCTOR-SMD	SA
2703-002176	L807	INDUCTOR-SMD	SA
2703-002176	L809	INDUCTOR-SMD	SA
2703-002202	L707	INDUCTOR-SMD	SA
2703-002203	L805	INDUCTOR-SMD	SA
2703-002204	L802	INDUCTOR-SMD	SA
2703-002205	L804	INDUCTOR-SMD	SA
2703-002205	L806	INDUCTOR-SMD	SA
2703-002207	L808	INDUCTOR-SMD	SA
2703-002269	C735	INDUCTOR-SMD	SA
2703-002313	L705	INDUCTOR-SMD	SA
2703-002320	L200	INDUCTOR-SMD	SA

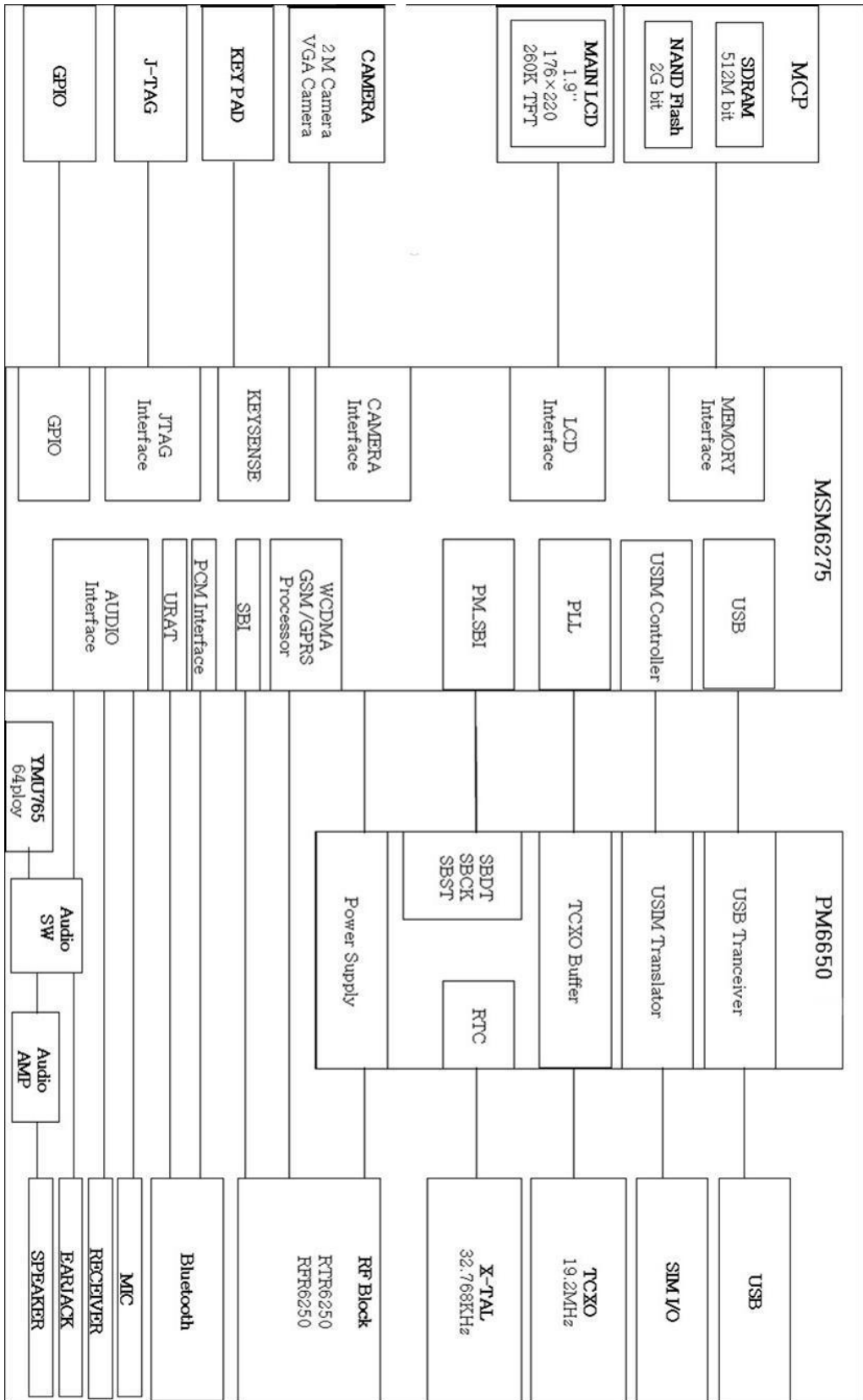
SEC CODE	Design LOC	Discription	STATUS
2703-002320	L201	INDUCTOR-SMD	SA
2703-002320	L304	INDUCTOR-SMD	SA
2703-002320	L305	INDUCTOR-SMD	SA
2703-002649	L709	INDUCTOR-SMD	SNA
2703-002782	L502	INDUCTOR-SMD	SA
2703-002782	L503	INDUCTOR-SMD	SA
2703-002793	L608	INDUCTOR-SMD	SA
2703-002795	L701	INDUCTOR-SMD	SNA
2703-002795	L704	INDUCTOR-SMD	SNA
2703-002819	L604	INDUCTOR-SMD	SA
2703-002819	L605	INDUCTOR-SMD	SA
2703-002819	L606	INDUCTOR-SMD	SA
2703-002819	L607	INDUCTOR-SMD	SA
2703-002870	L600	INDUCTOR-SMD	SA
2703-003004	L800	INDUCTOR-SMD	SA
2801-004466	OSC501	CRYSTAL-SMD	SA
2802-001182	OSC101	RESONATOR-CERAMIC	SA
2804-001647	OSC1	OSCILLATOR-CLOCK	SA
2806-001380	VCO600	OSCILLATOR-VCO	SA
2809-001280	TCX800	OSCILLATOR-VCTCXO	SA
2901-001409	F200	FILTER-EMI SMD	SA
2901-001409	F201	FILTER-EMI SMD	SA
2901-001409	F202	FILTER-EMI SMD	SA
2901-001409	F203	FILTER-EMI SMD	SA
2901-001409	F204	FILTER-EMI SMD	SA
2901-001409	F205	FILTER-EMI SMD	SA
2901-001409	F206	FILTER-EMI SMD	SA
2901-001409	F207	FILTER-EMI SMD	SA
2904-001658	F600	FILTER-SAW	SA
2904-001702	F702	FILTER-SAW	SA
2910-000010	DUF700	DUPLEXER-SAW	SA
2911-000048	DUF800	DUPLEXER-FEM	SA
3301-001158	L300	BEAD-SMD	SA
3301-001158	L301	BEAD-SMD	SA
3301-001342	F100	BEAD-SMD	SA
3301-001342	L10	BEAD-SMD	SA
3301-001810	R240	BEAD-SMD	SA

Main Electrical Parts List

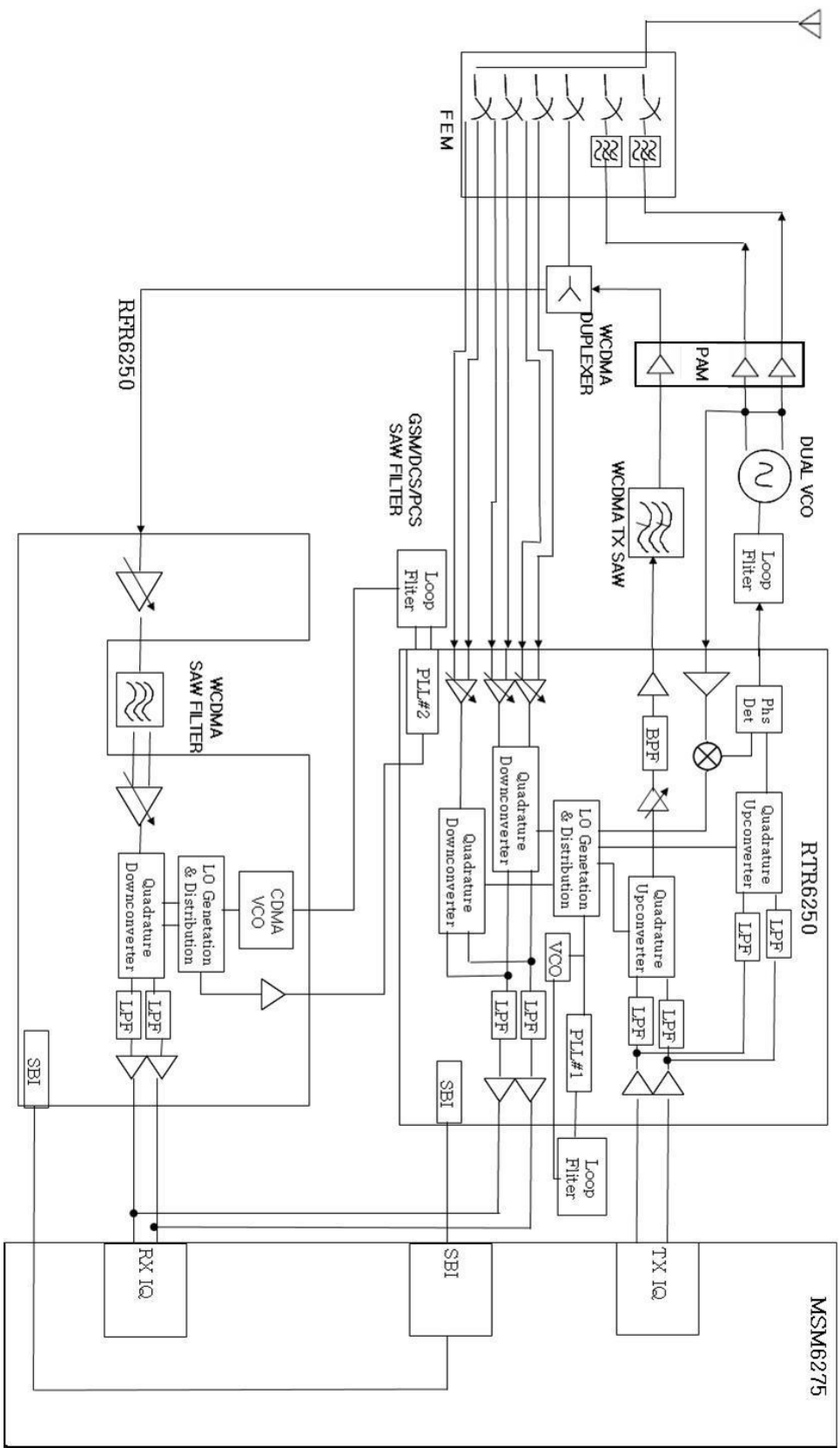
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SEC CODE	Design LOC	Discription	STATUS
3301-001810	R241	BEAD-SMD	SA
3705-001339	RFS801	CONNECTOR-COAXIAL	SNA
3705-001358	RFS800	CONNECTOR-COAXIAL	SA
3708-002127	HDC104	CONNECTOR-FPC/FFC/PIC	SA
3708-002170	HDC200	CONNECTOR-FPC/FFC/PIC	SA
3708-002170	HDC100	CONNECTOR-FPC/FFC/PIC	SA
3708-002171	HDC102	CONNECTOR-FPC/FFC/PIC	SA
3708-002171	HDC103	CONNECTOR-FPC/FFC/PIC	SA
3708-002207	HDC101	CONNECTOR-FPC/FFC/PIC	SA
3709-001391	SIM500	CONNECTOR-CARD EDGE	SA
3709-001448	CD401	CONNECTOR-CARD EDGE	SA
3710-002306	IFC200	SOCKET-INTERFACE	SA
3711-005976	HDC201	HEADER-BOARD TO BOARD	SA
3711-006003	BTC200	CONNECTOR-BATTERY	SA
4202-001227	ANT801	ANTENNA-CHIP	SA
4302-001130	BAT500	BATTERY-LI(2ND)	SA
4709-001460	U800	BLUETOOTH MODULE	SA

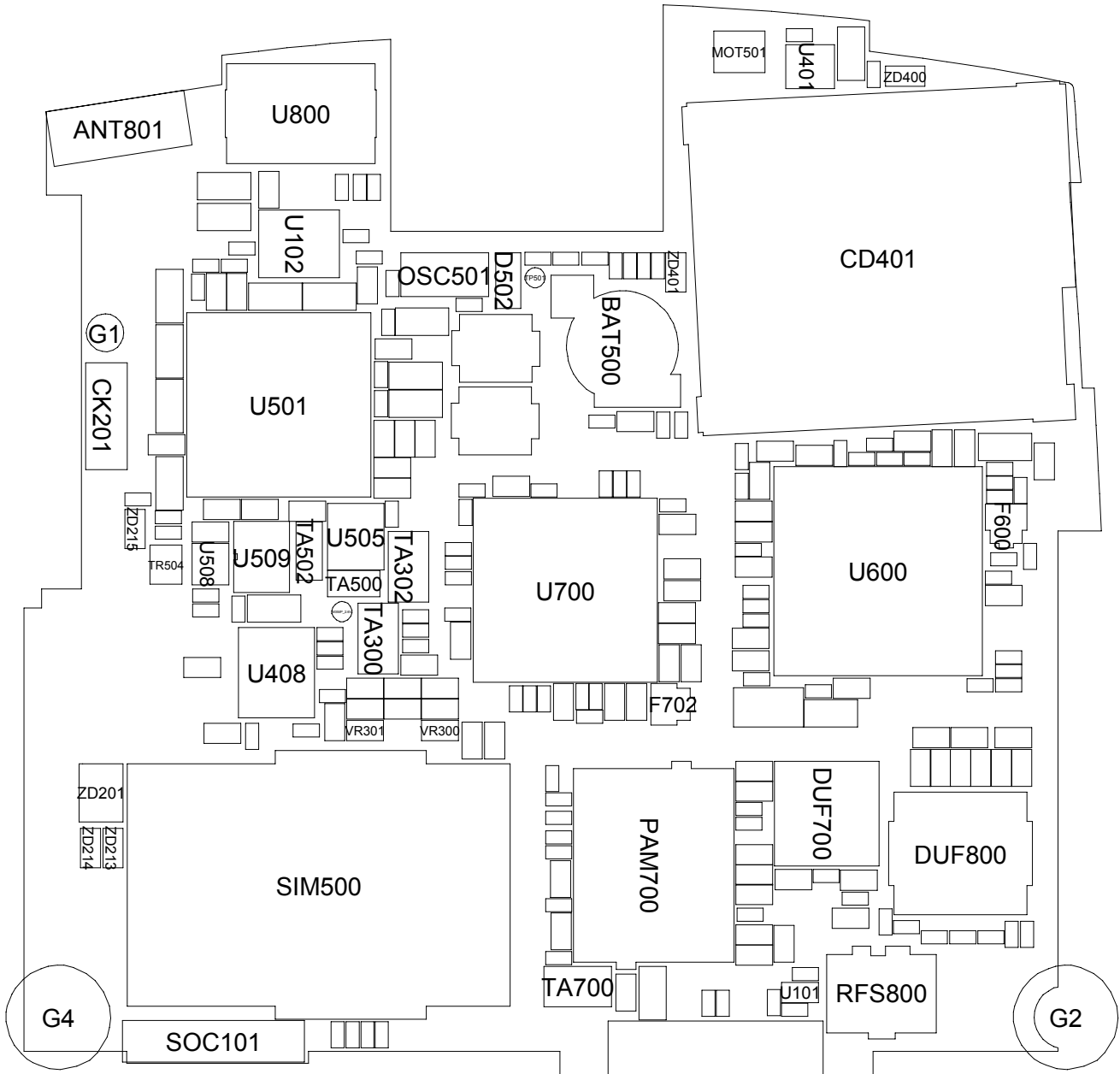
# 7. Block Diagrams

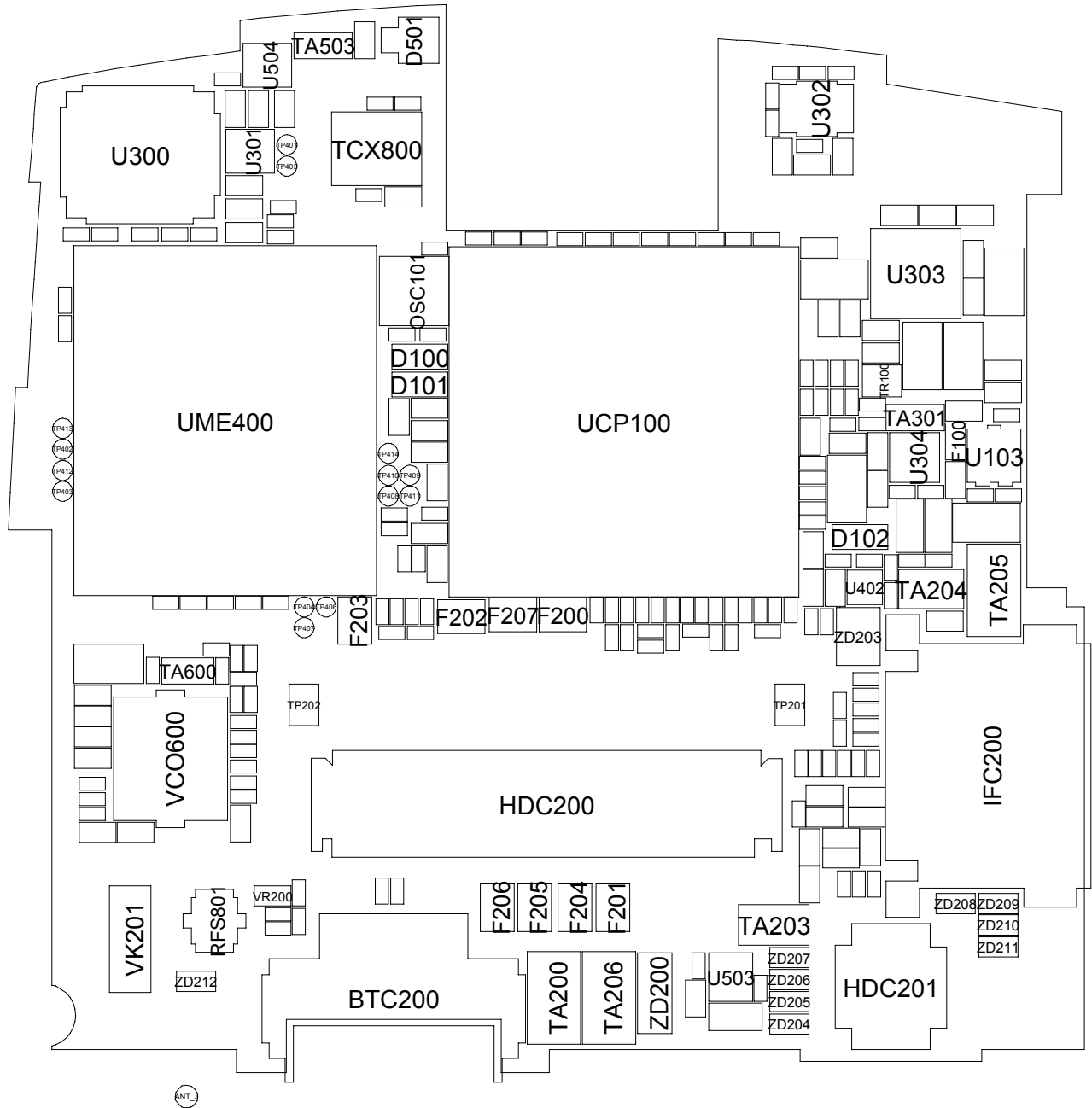






# 8. PCB Diagrams

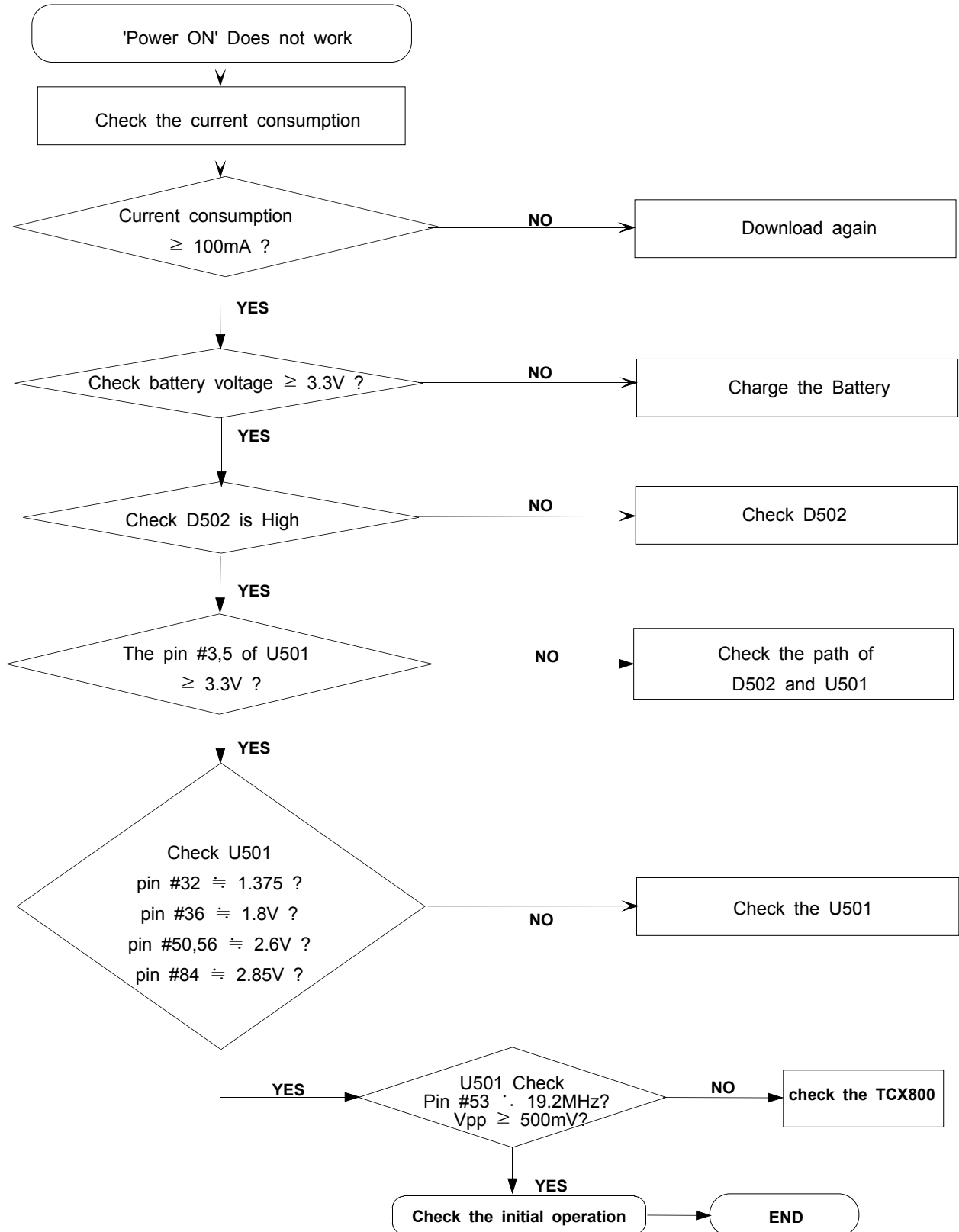


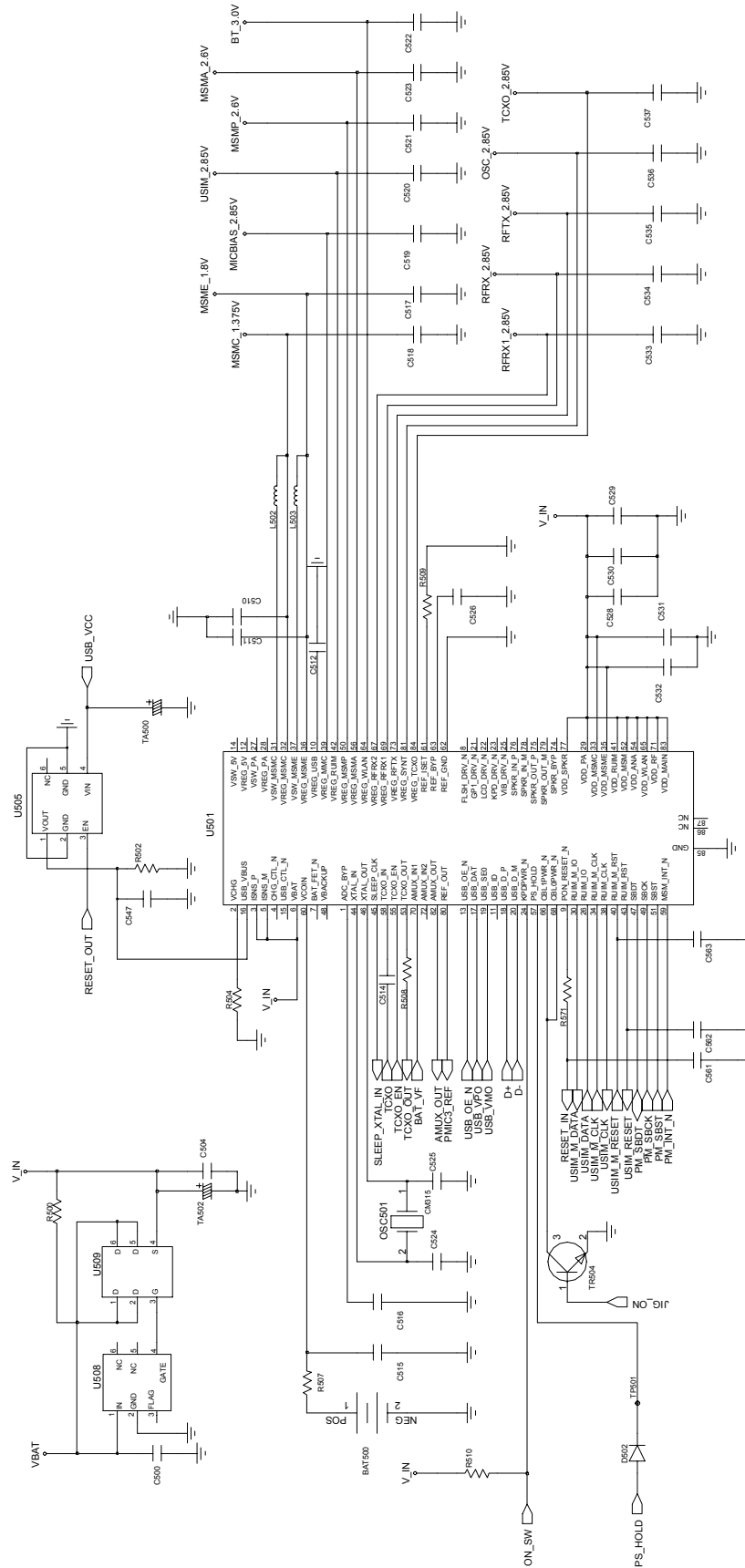


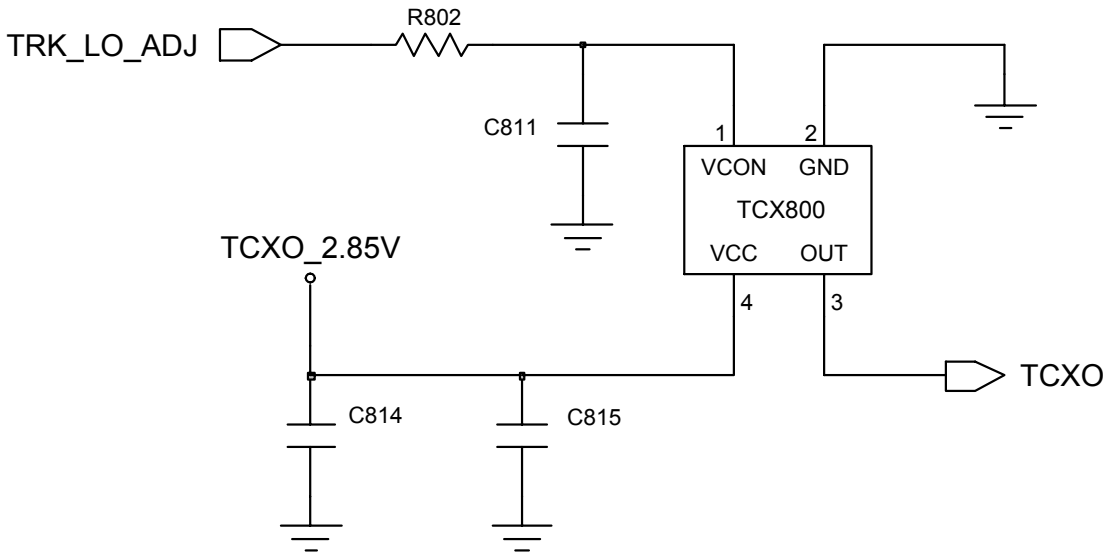
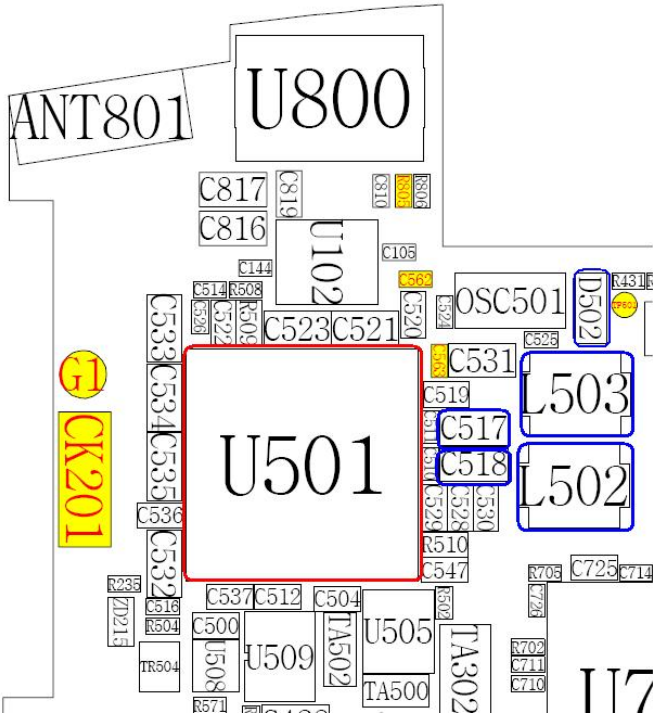
# 9. Flow Chart of Troubleshooting

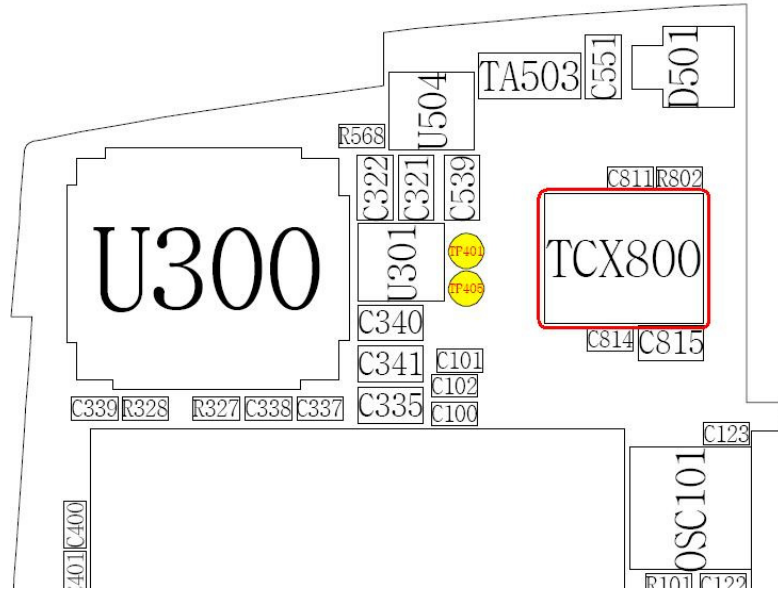
## 9-1. Baseband

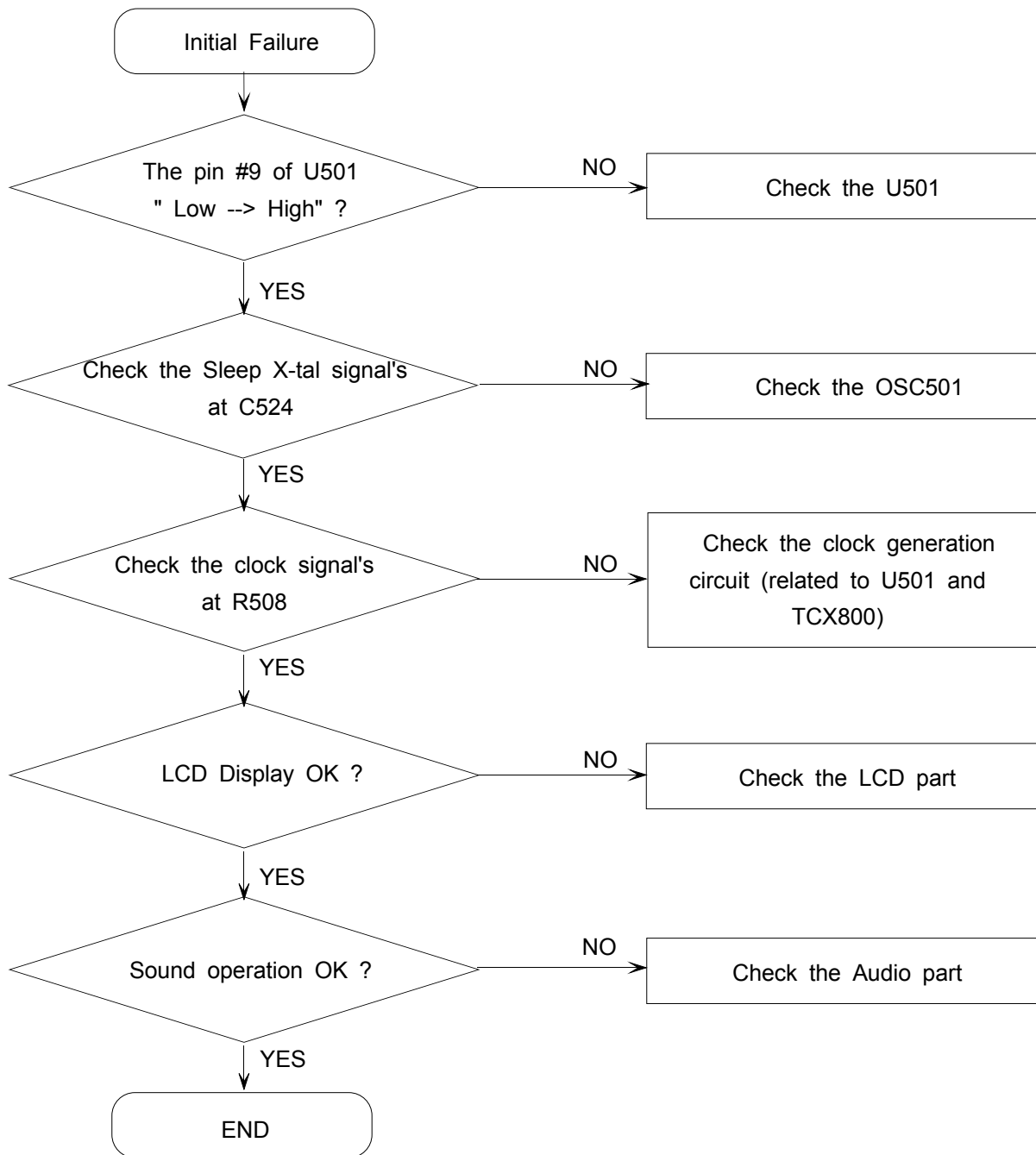
### 9-1-1. Power ON





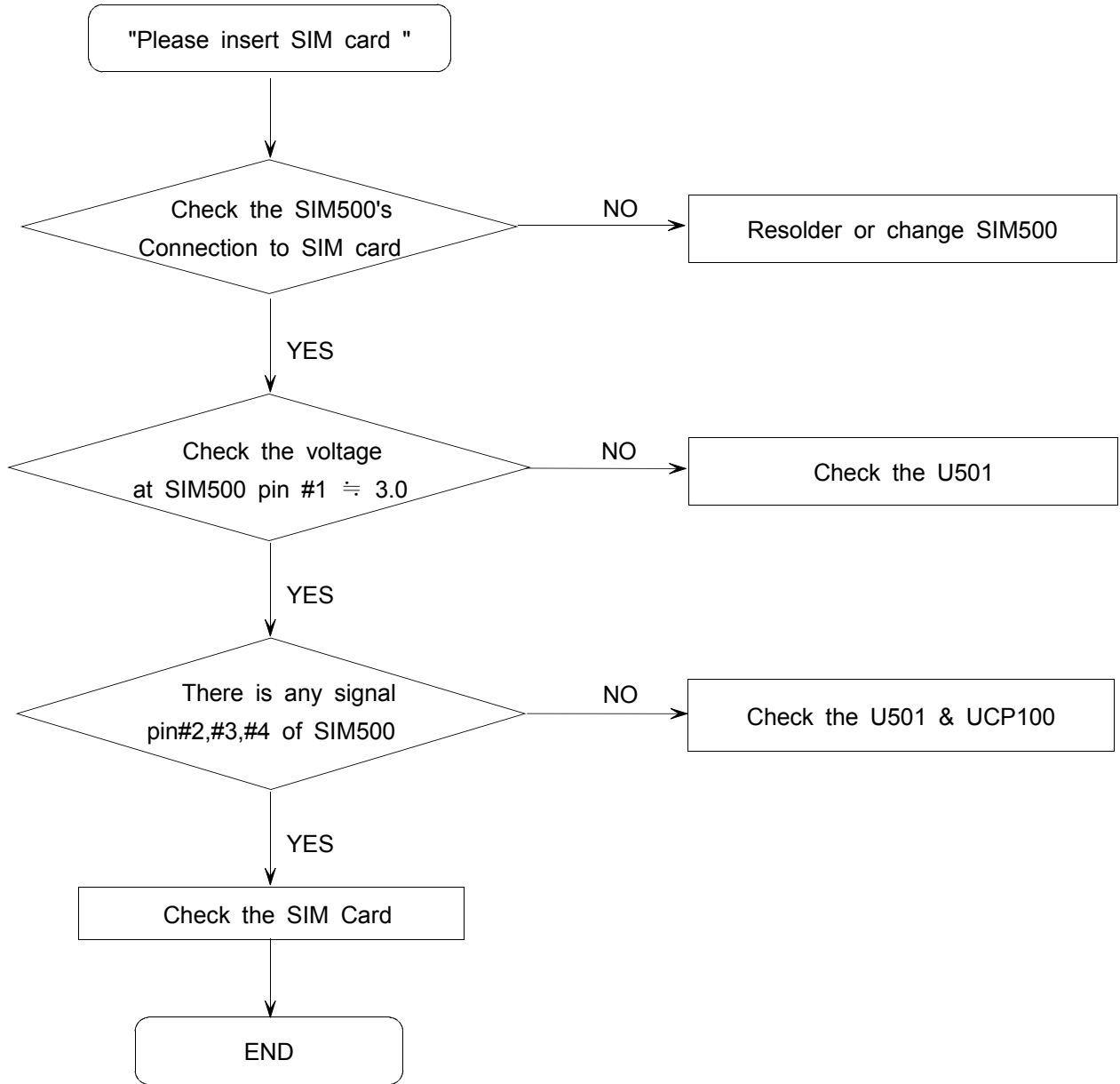


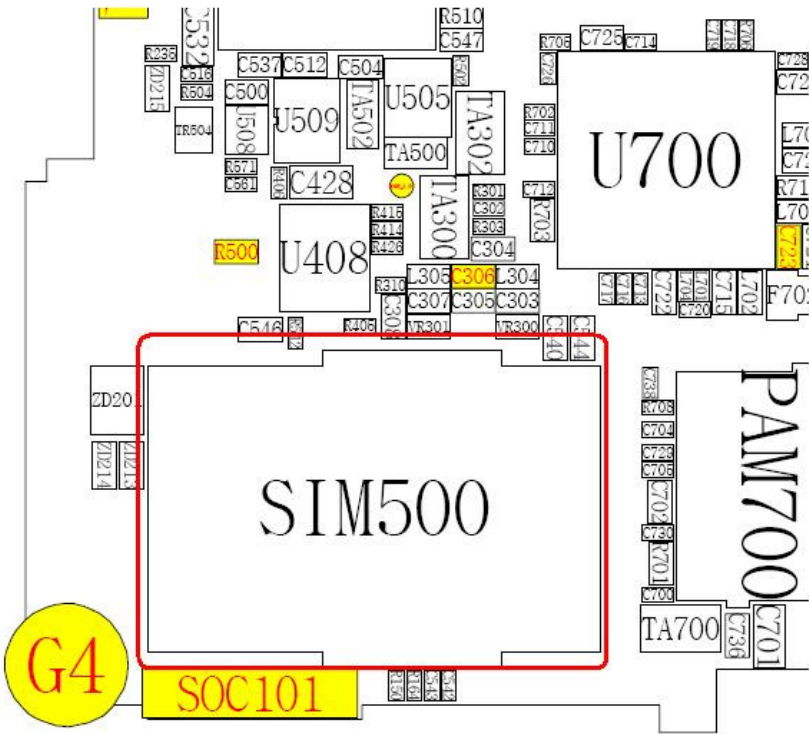
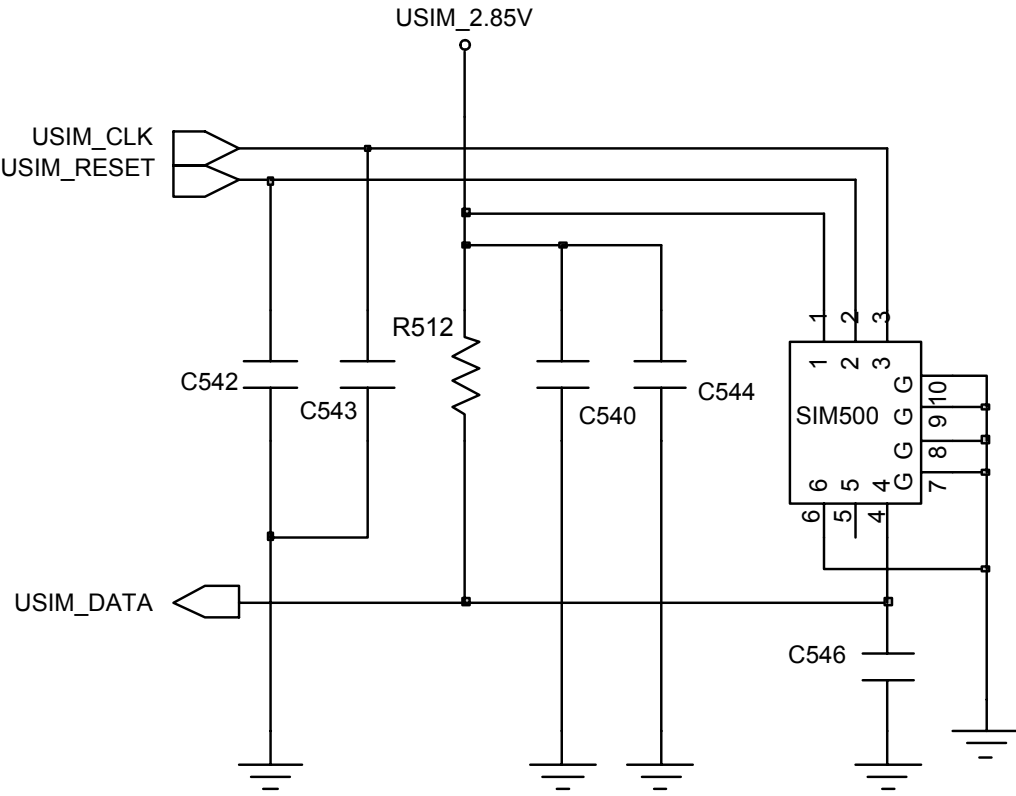


**9-1-2. Initial**

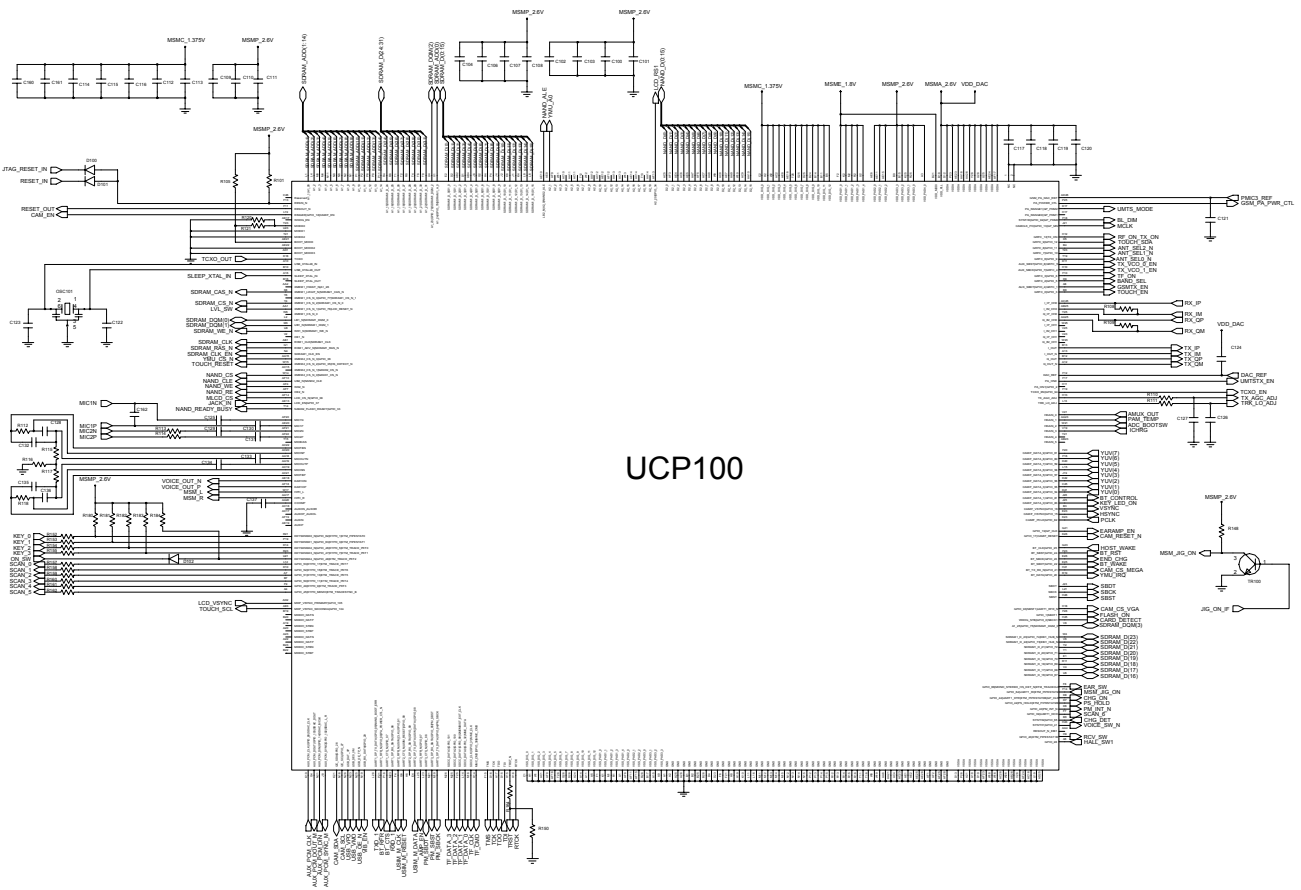


### 9-1-3. Sim Part

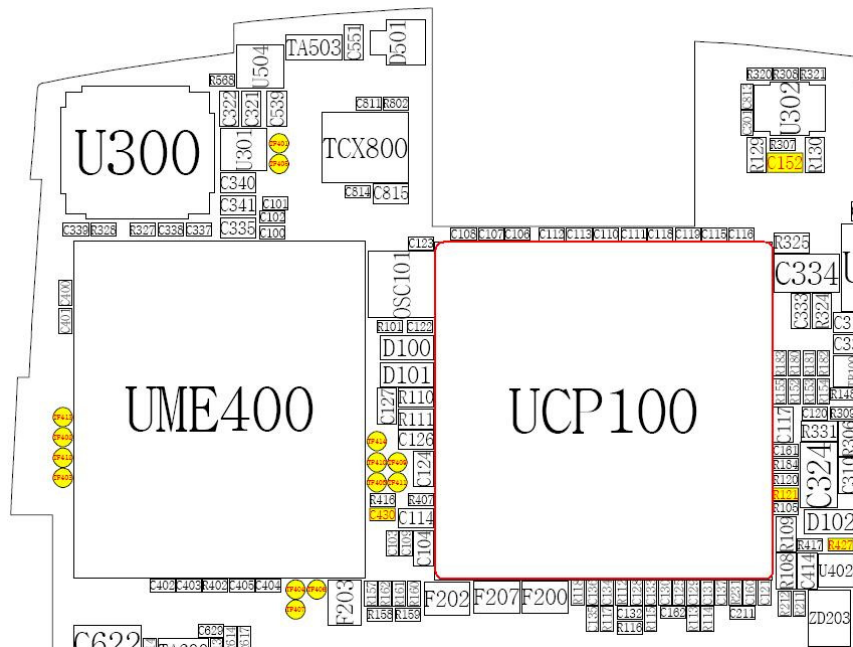




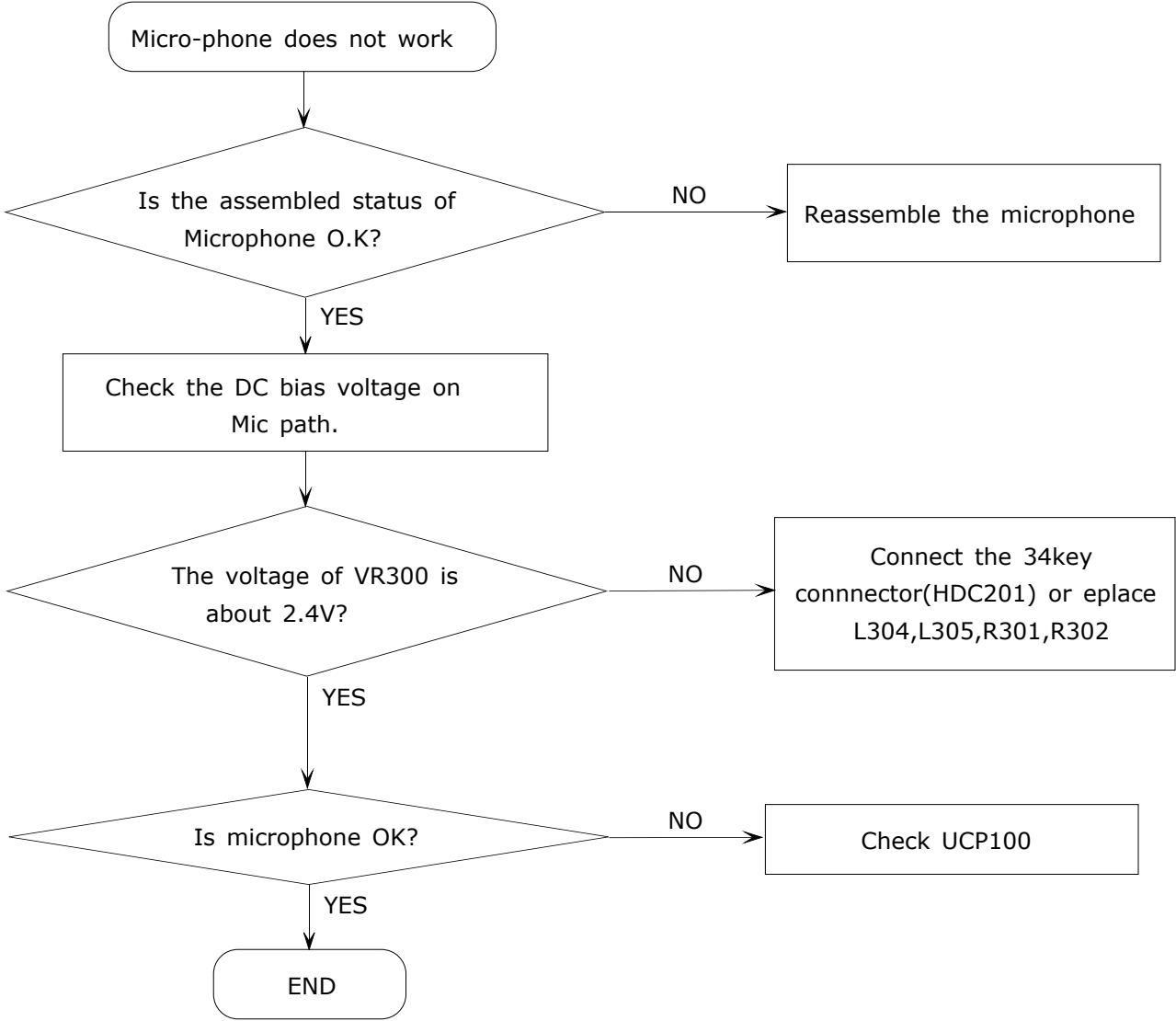
Flow Chart of Troubleshooting

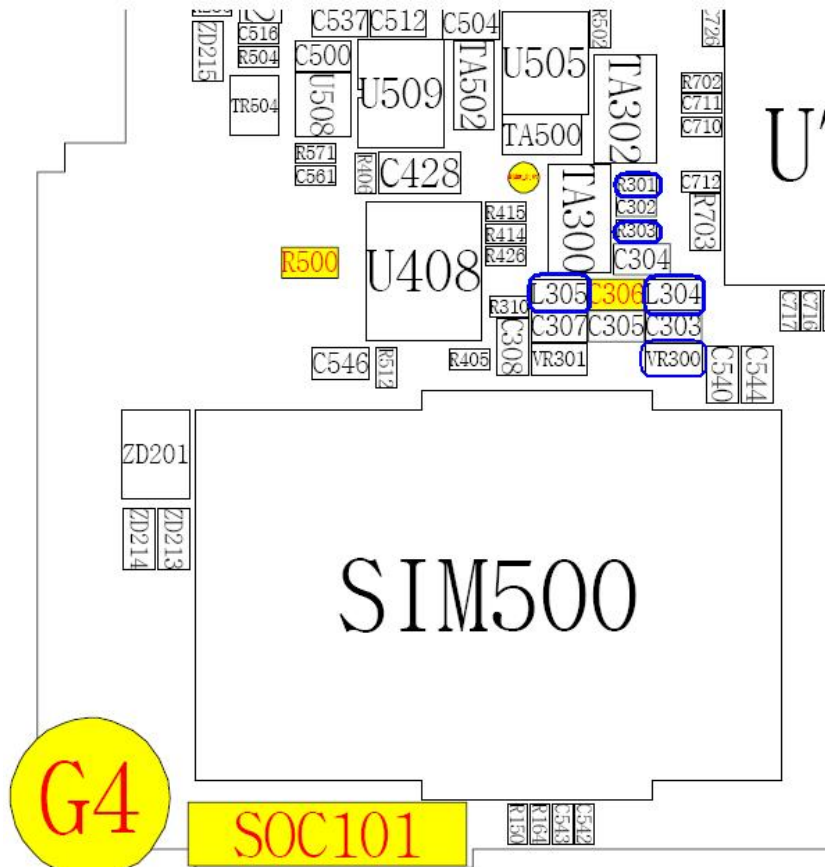
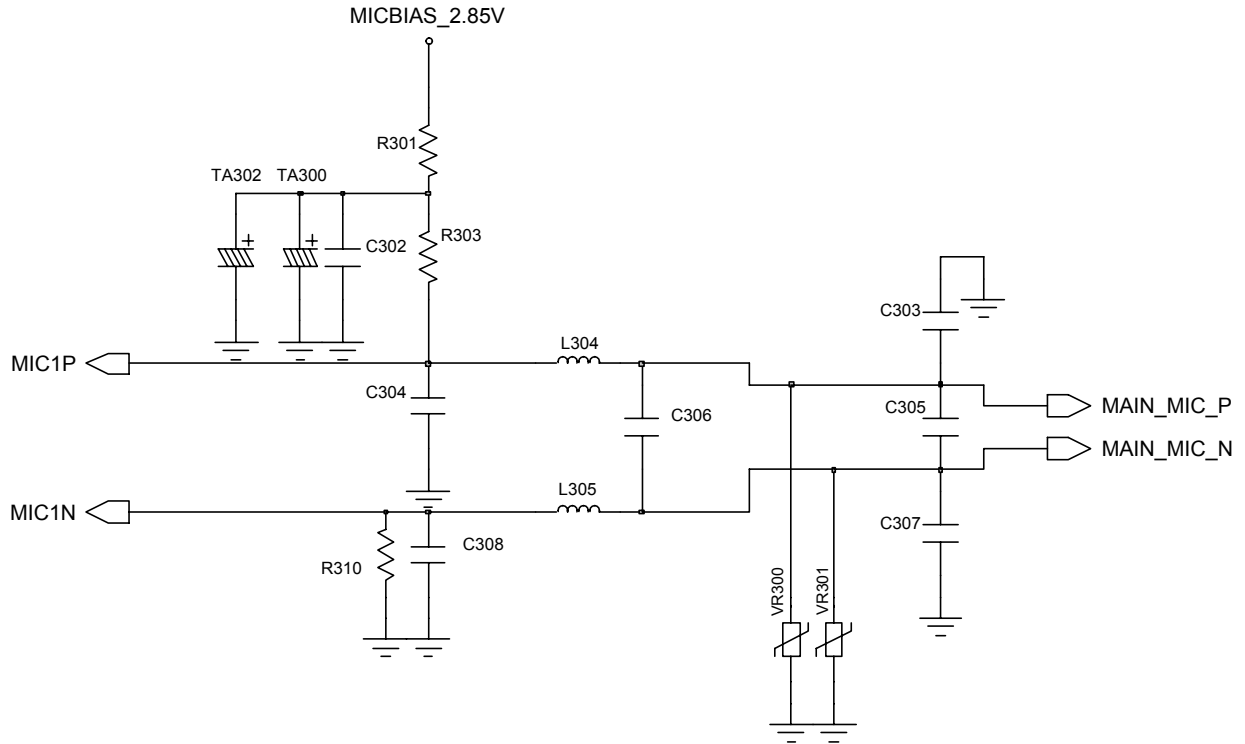


UCP100

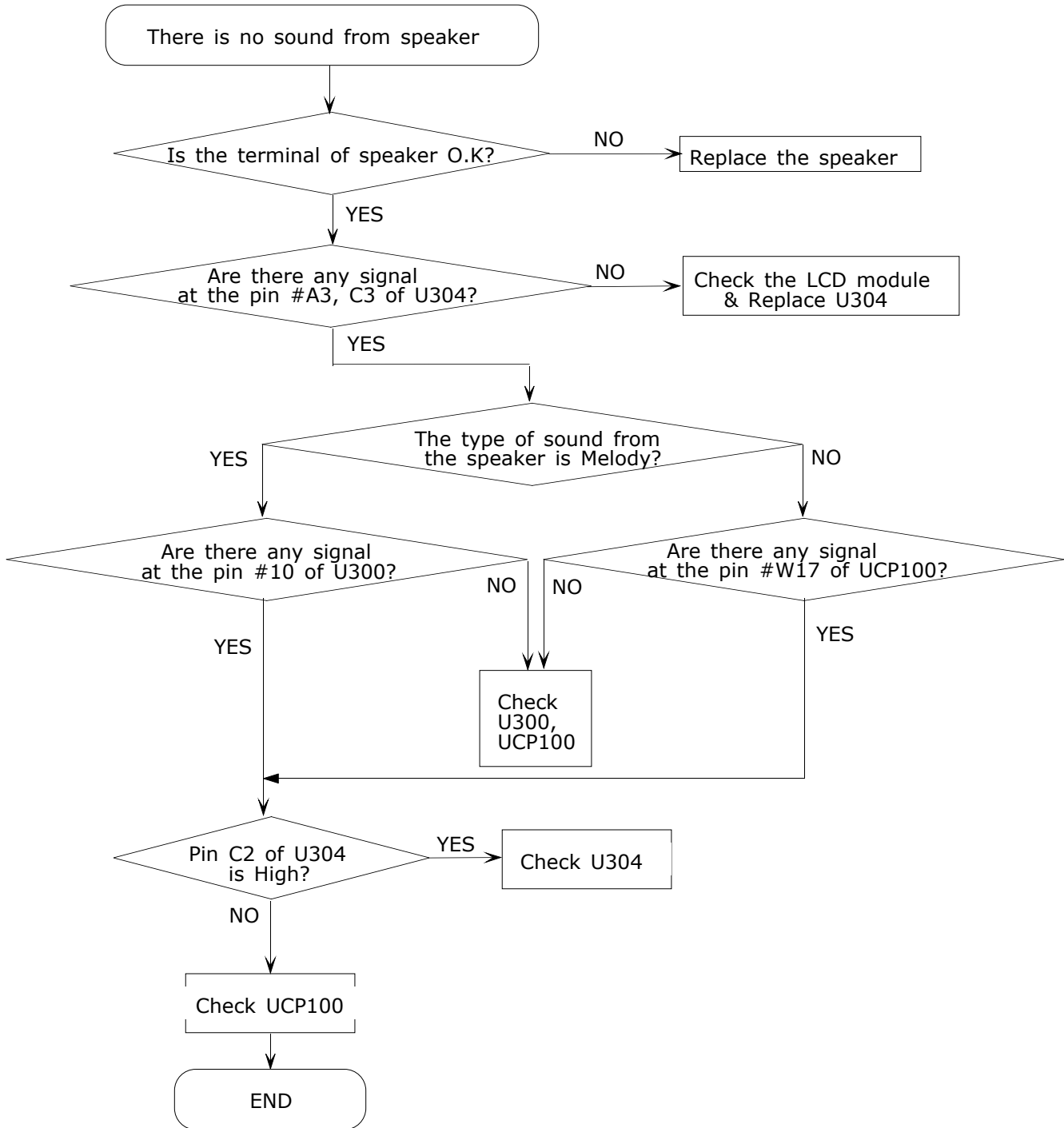


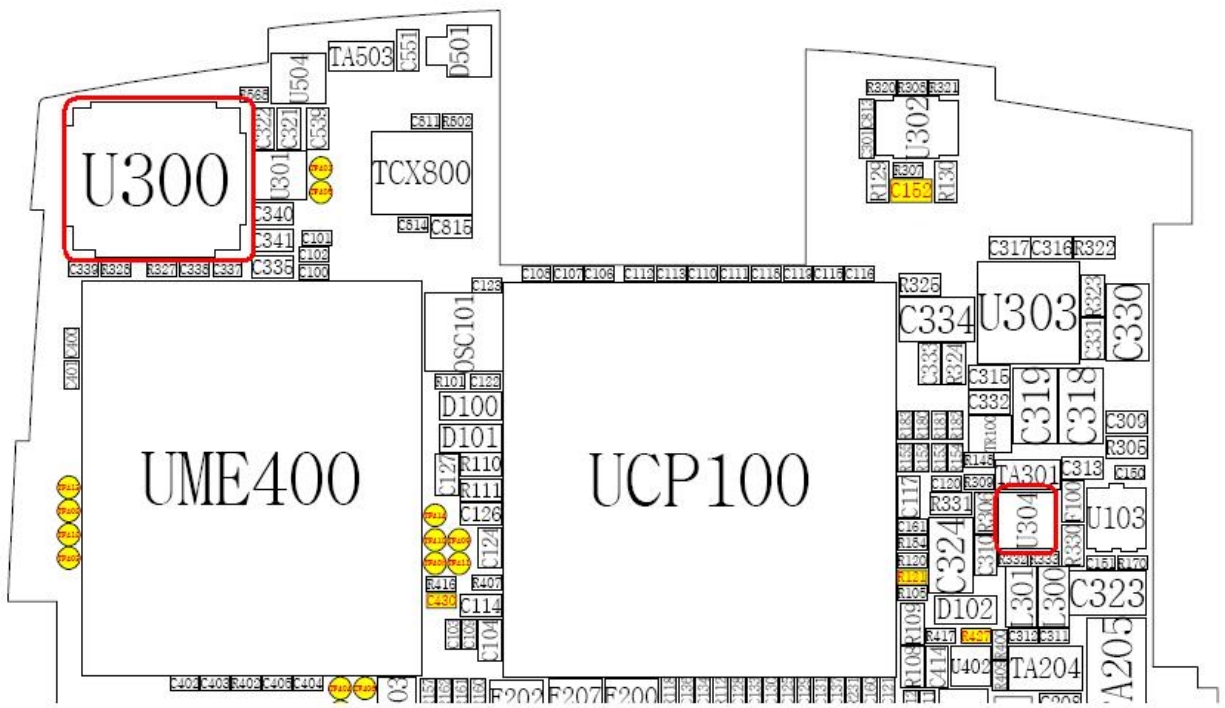
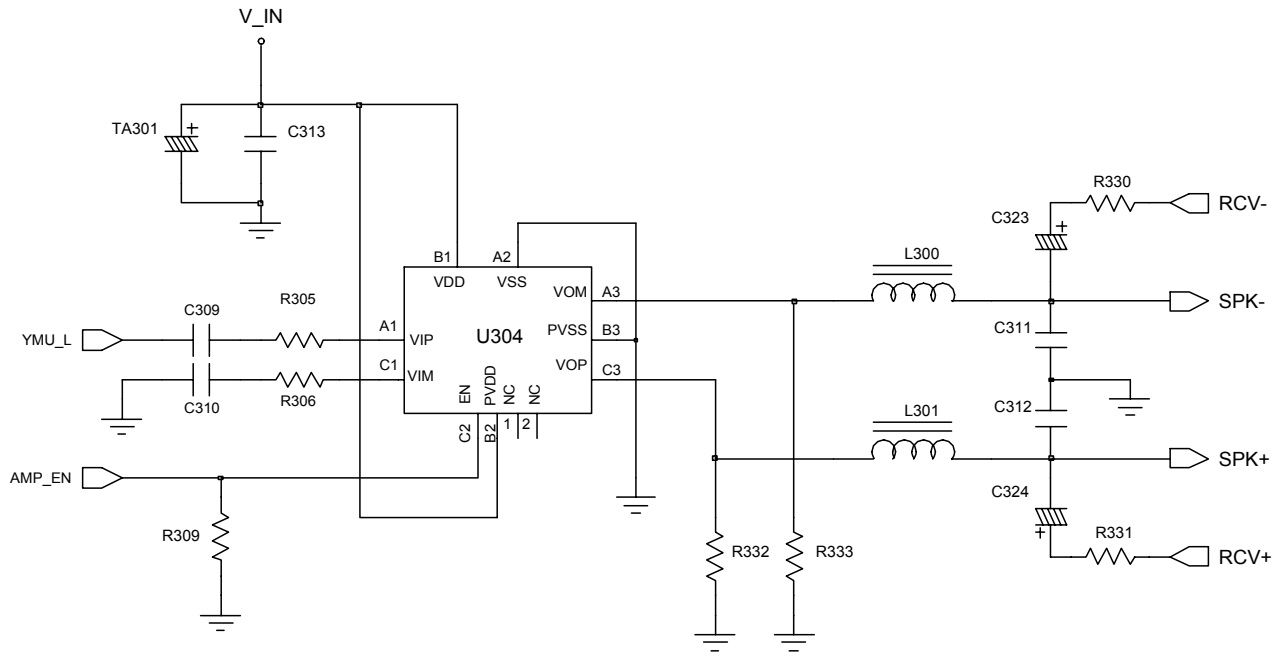
### 9-1-4. Microphone Part

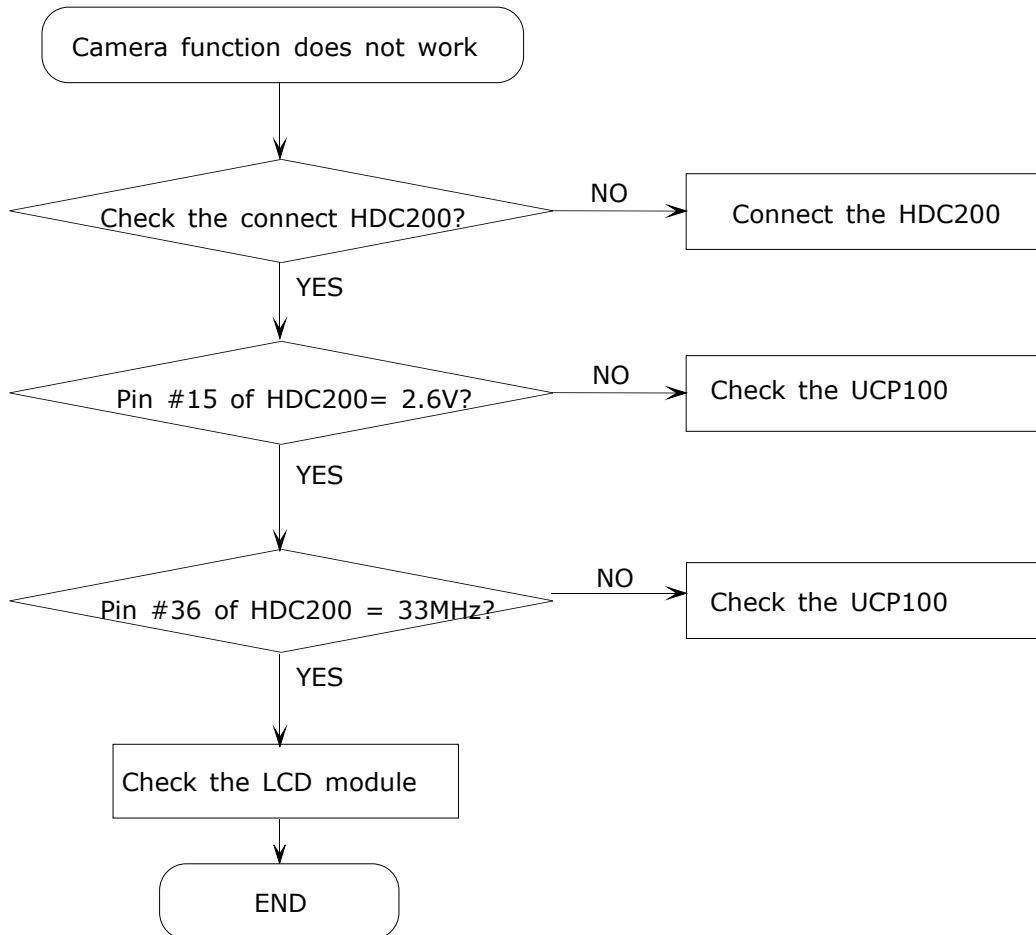




### 9-1-5. Speaker Part

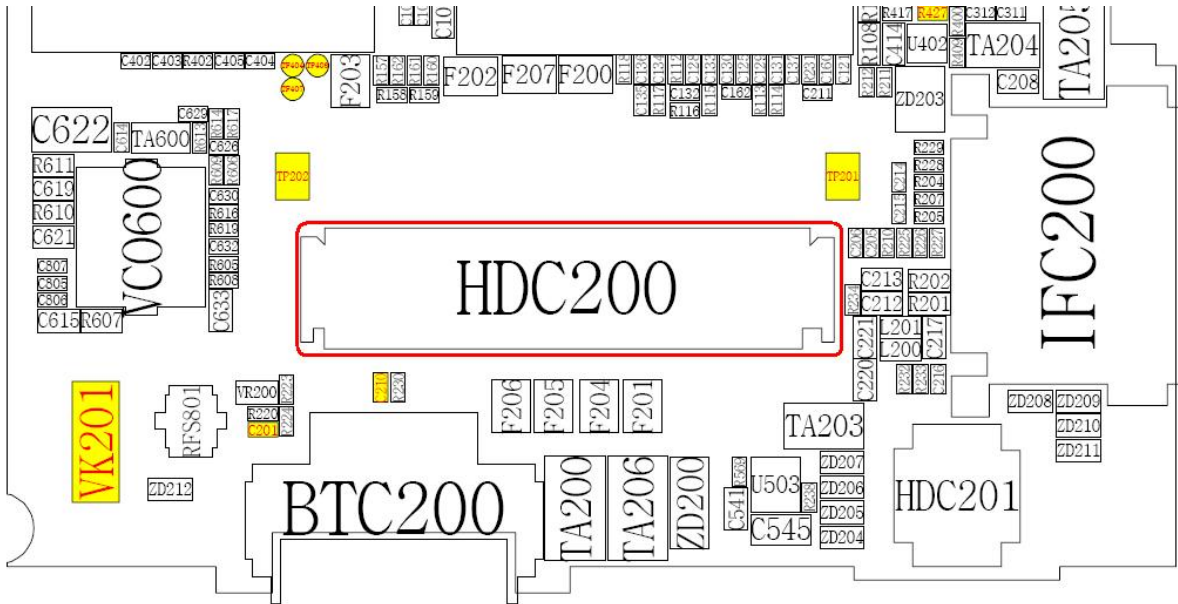
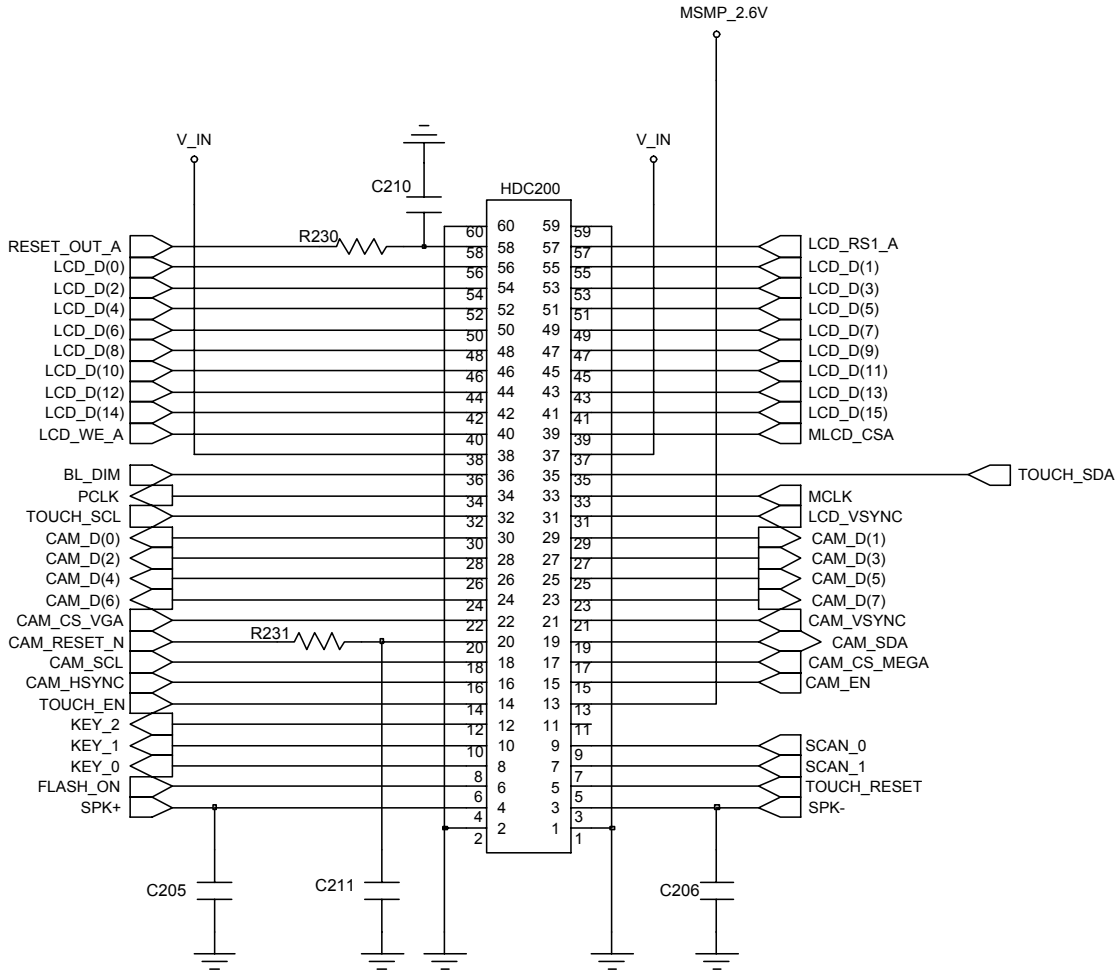




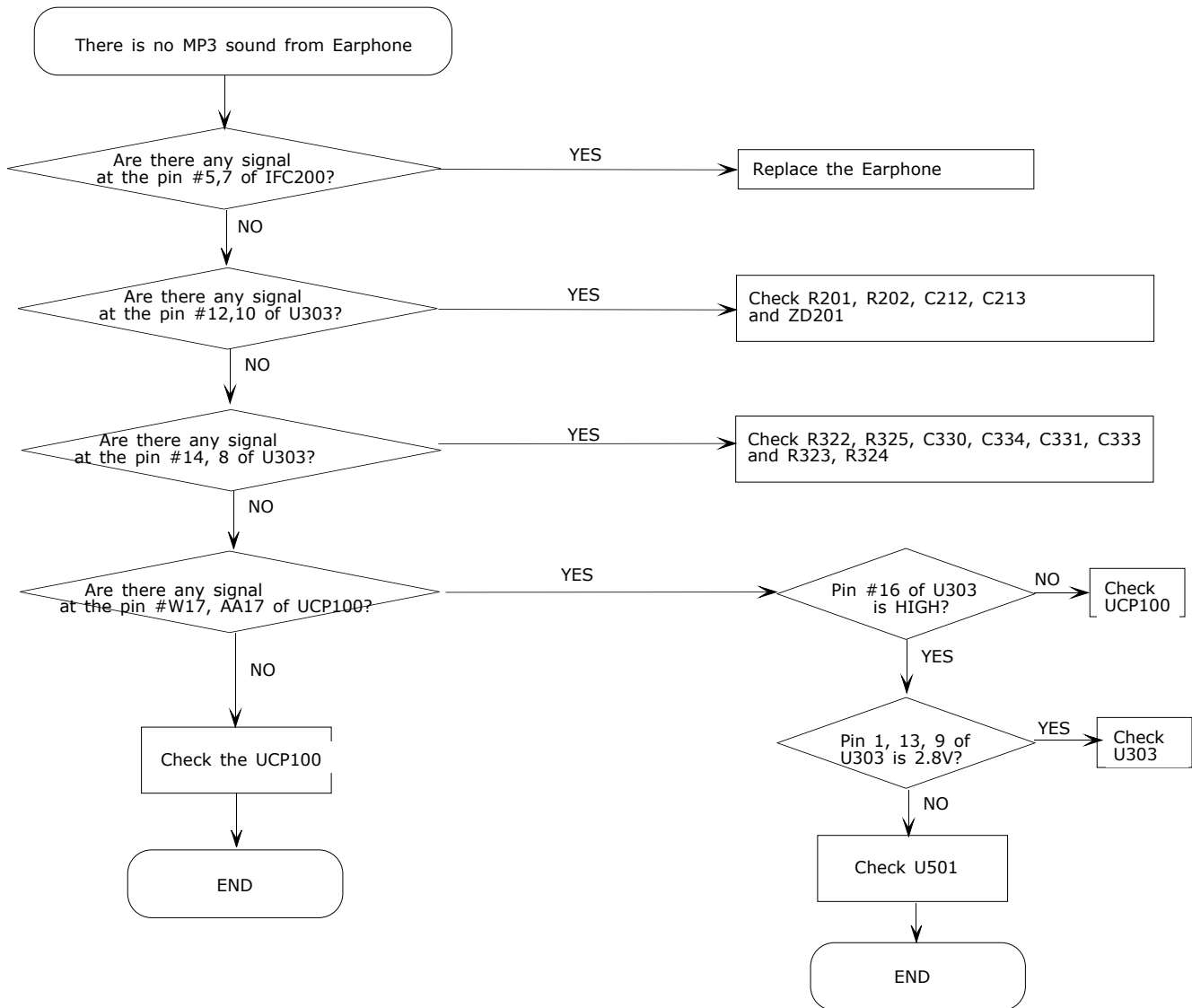
**9-1-6. Camera Part**



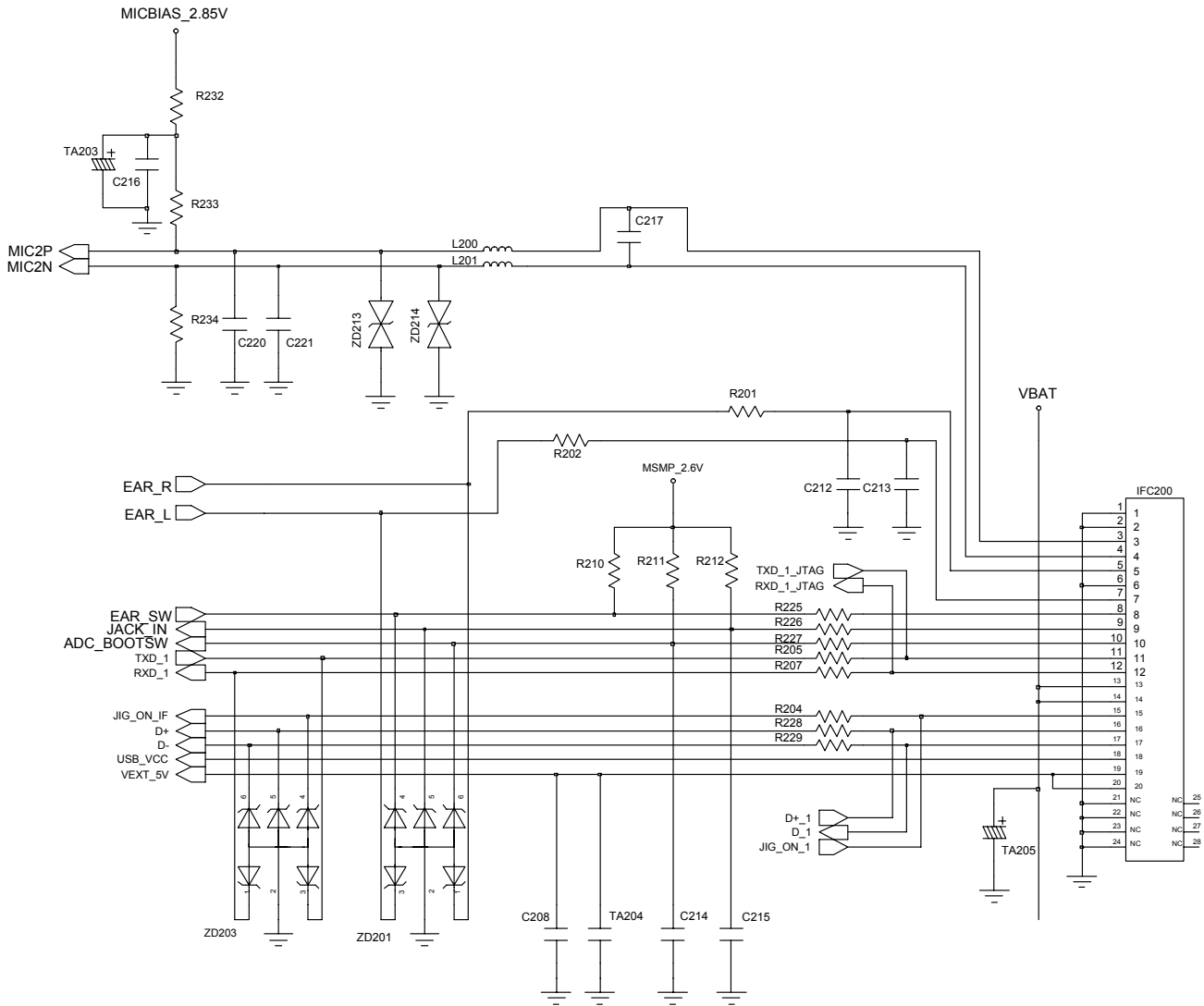
Flow Chart of Troubleshooting

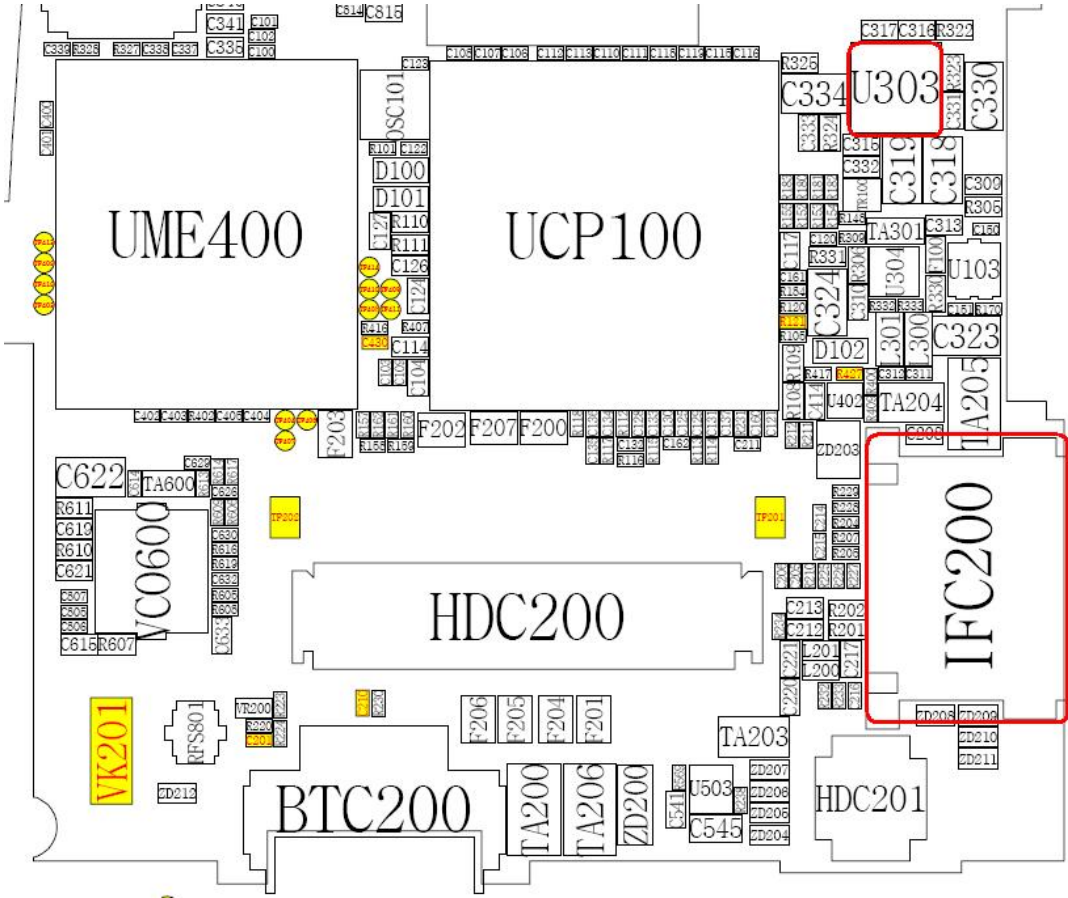
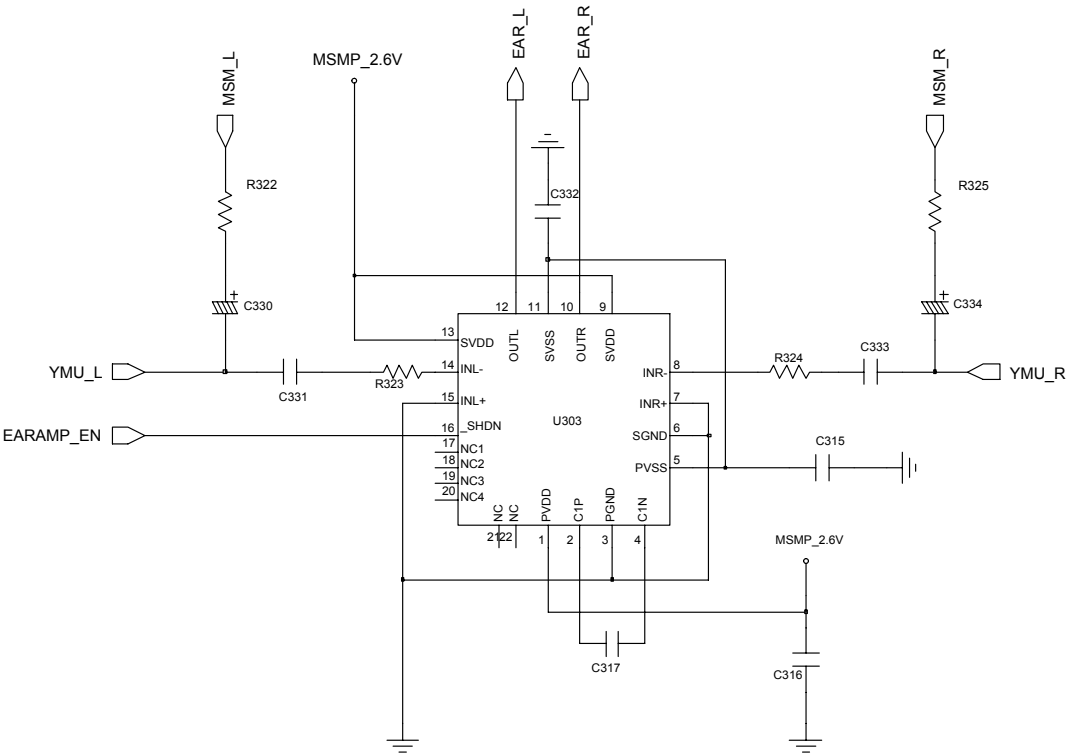


## 9-1-7. Mp3 Display Part



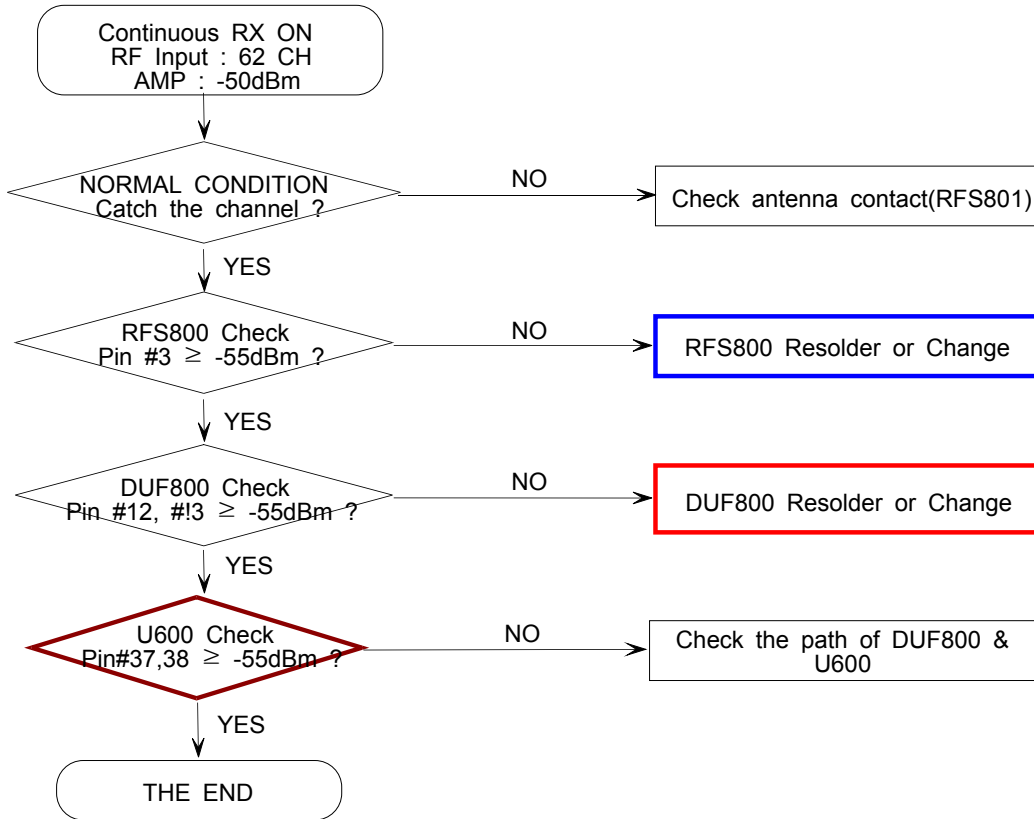
# Flow Chart of Troubleshooting

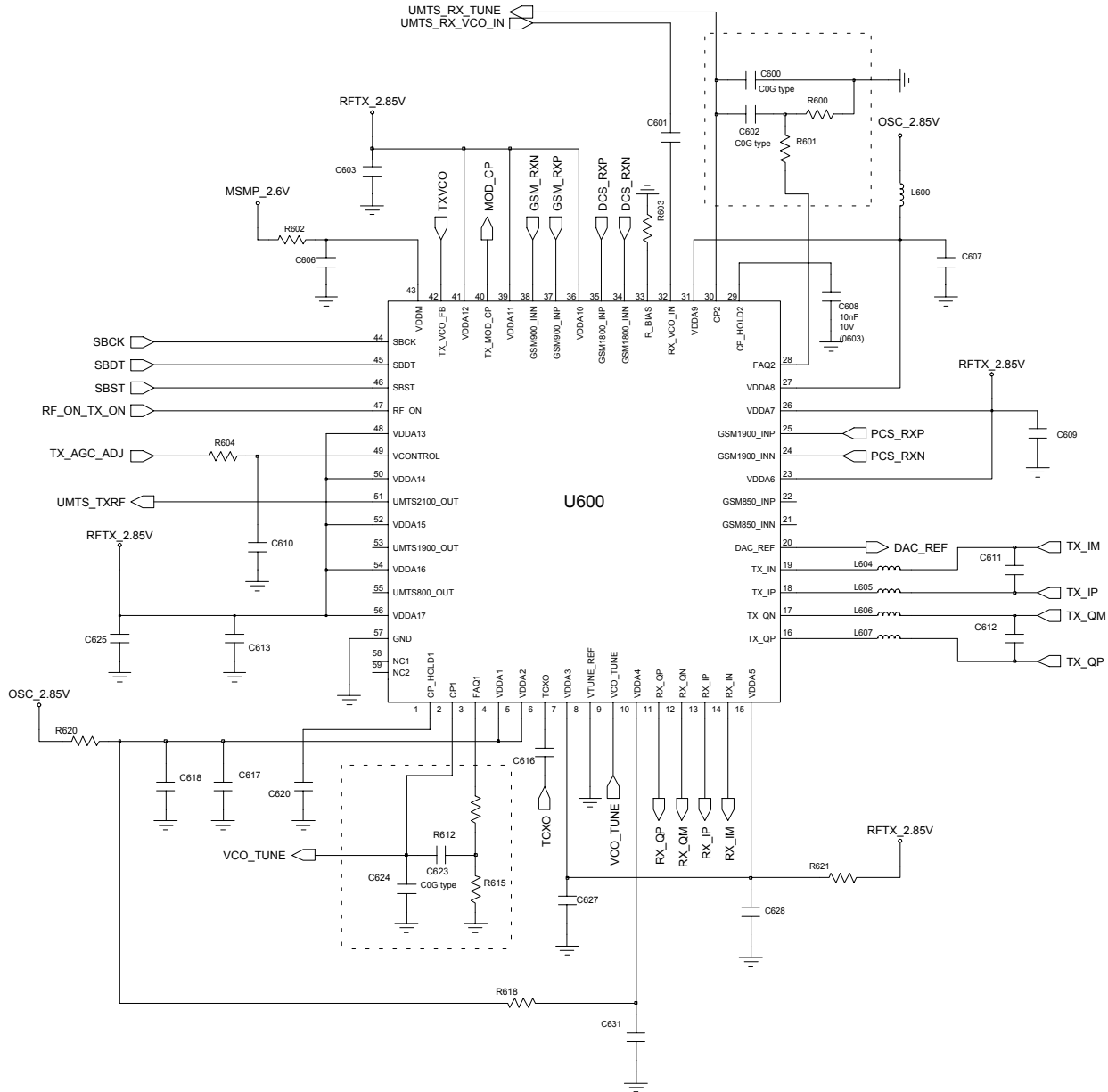
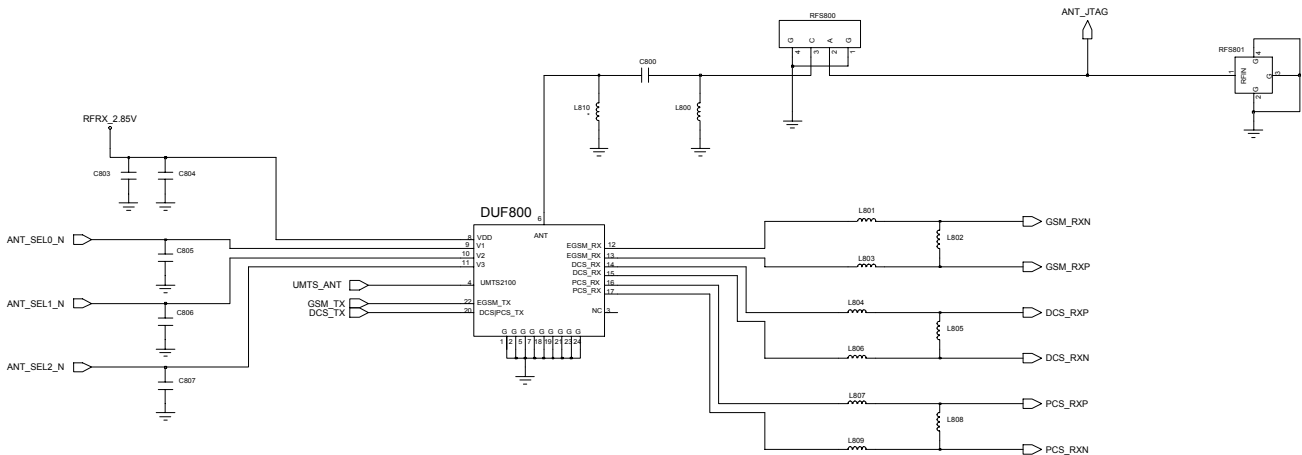


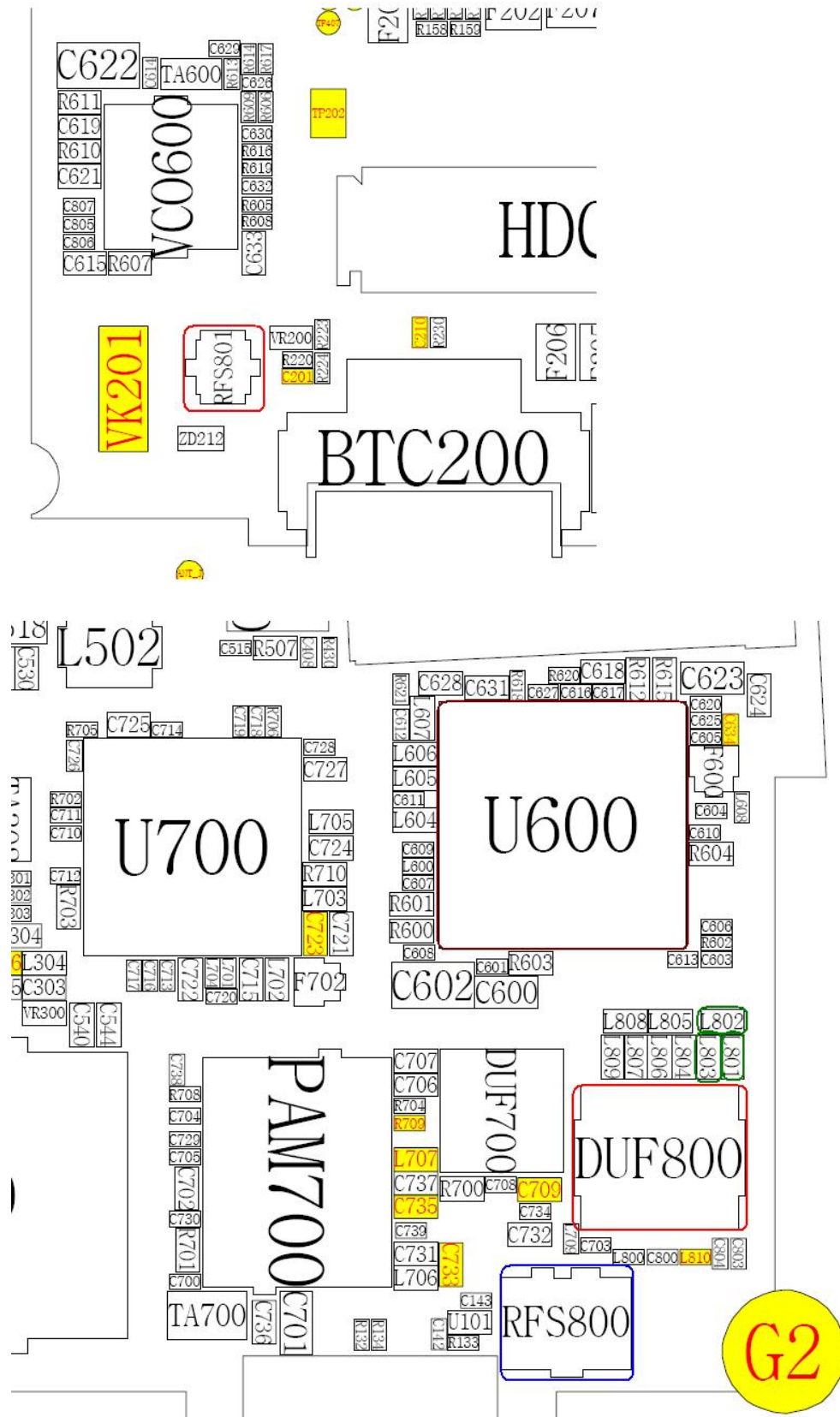


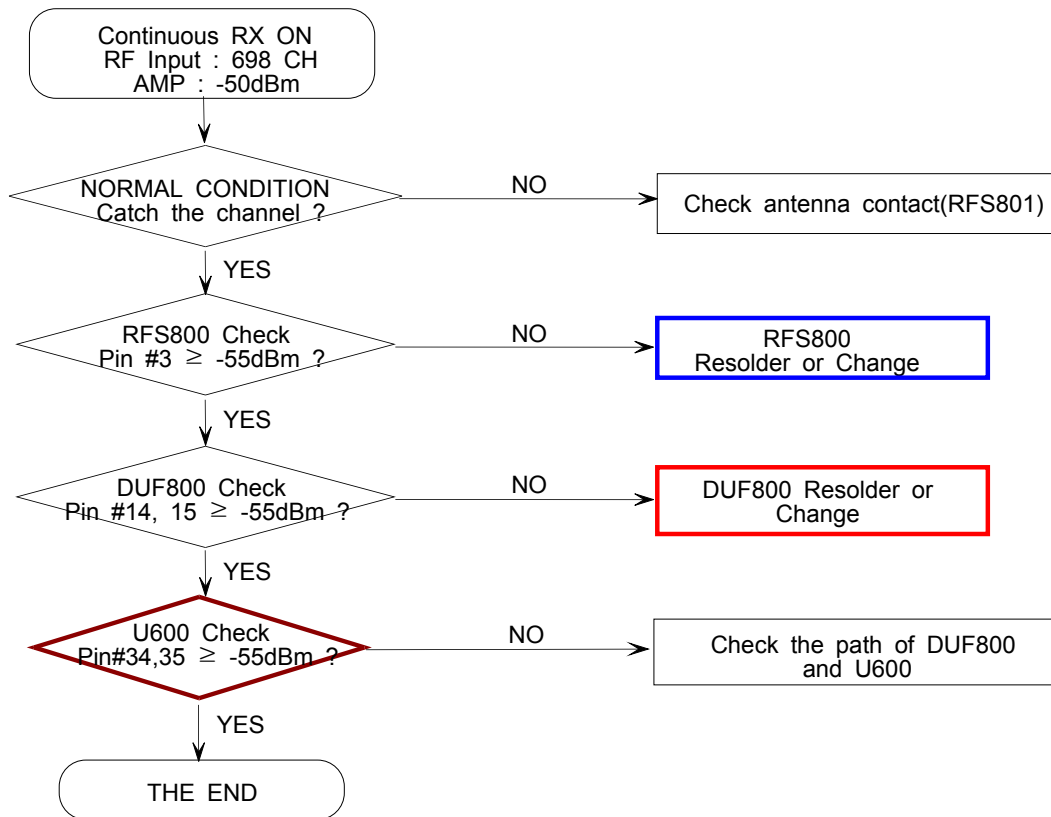
## 9-2.RF

### 9-2-1. EGSM RX



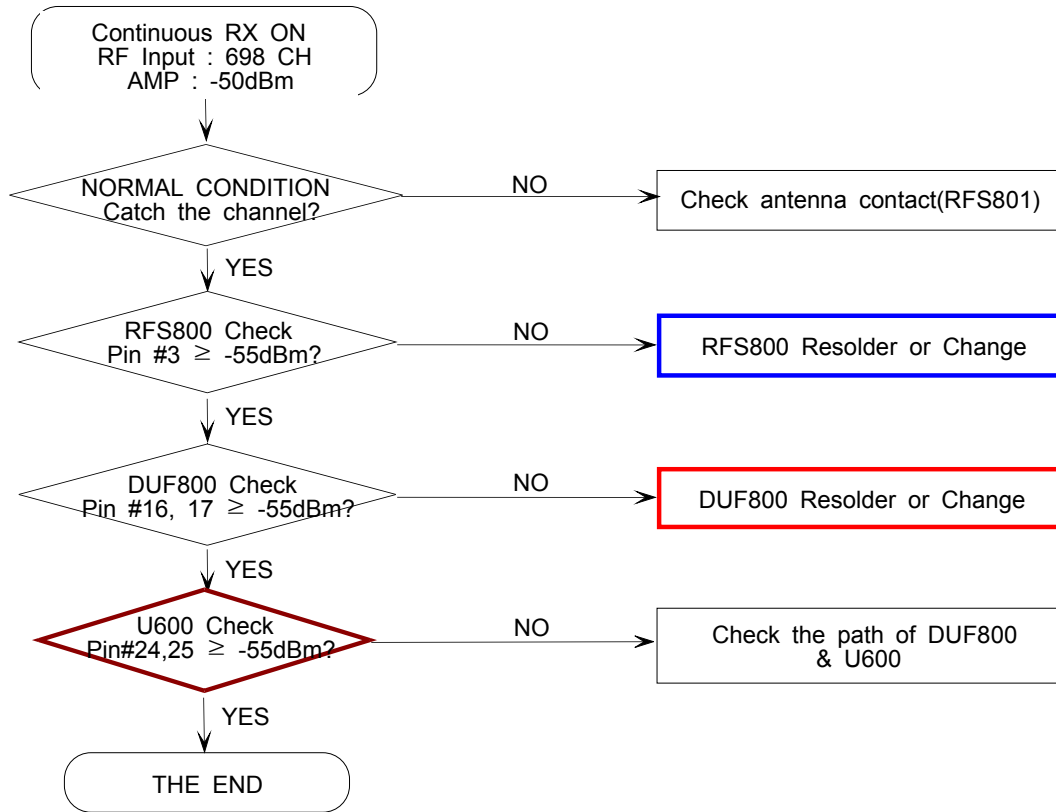




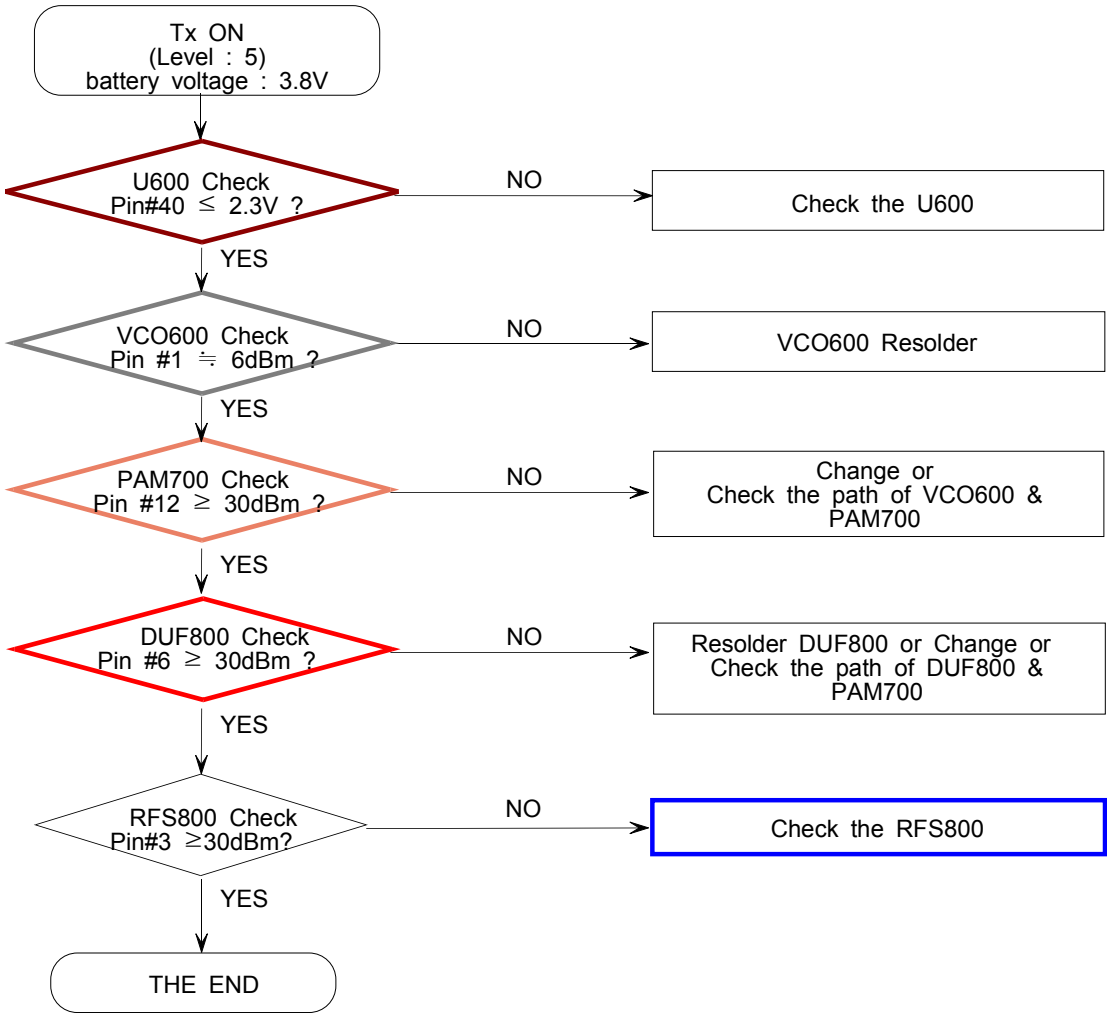
**9-2-2. DCS RX**



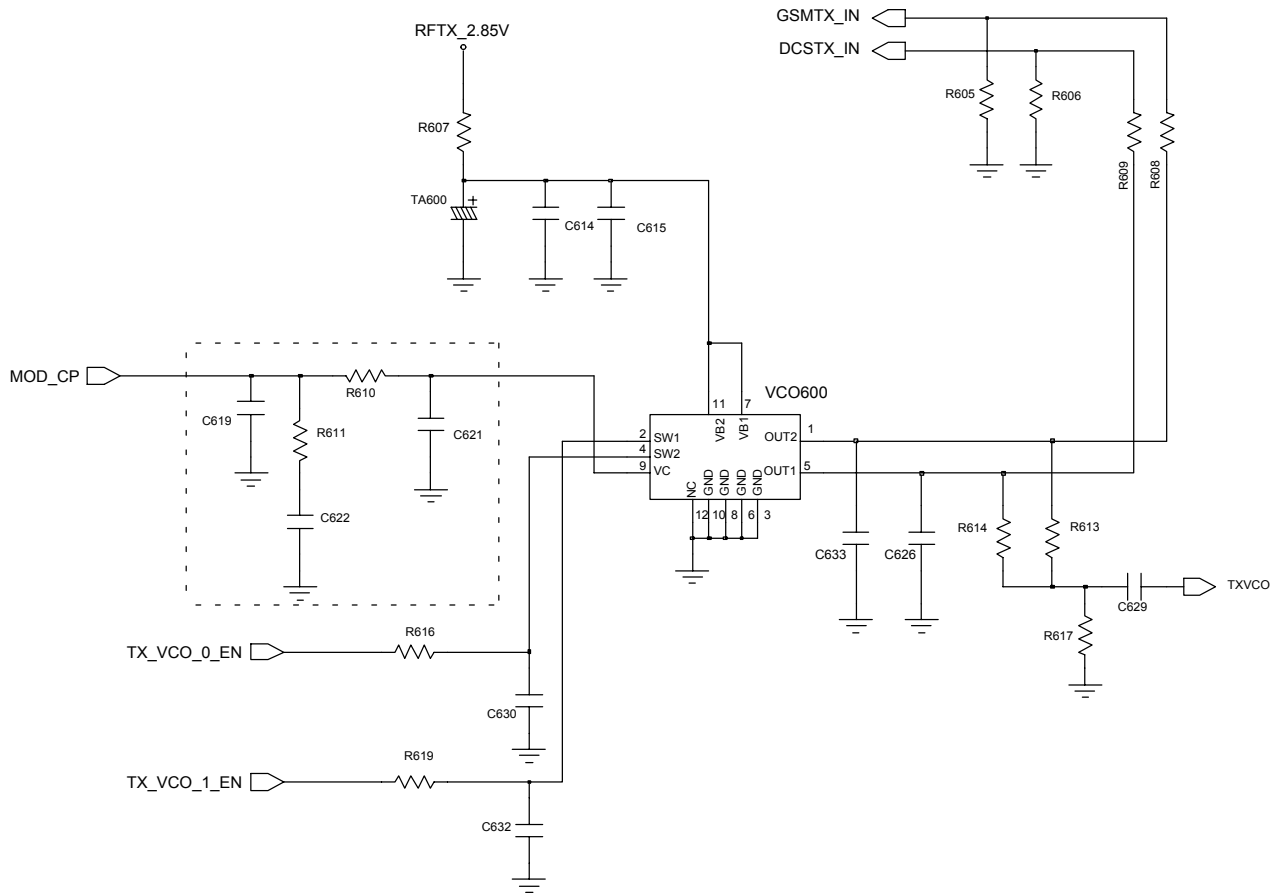
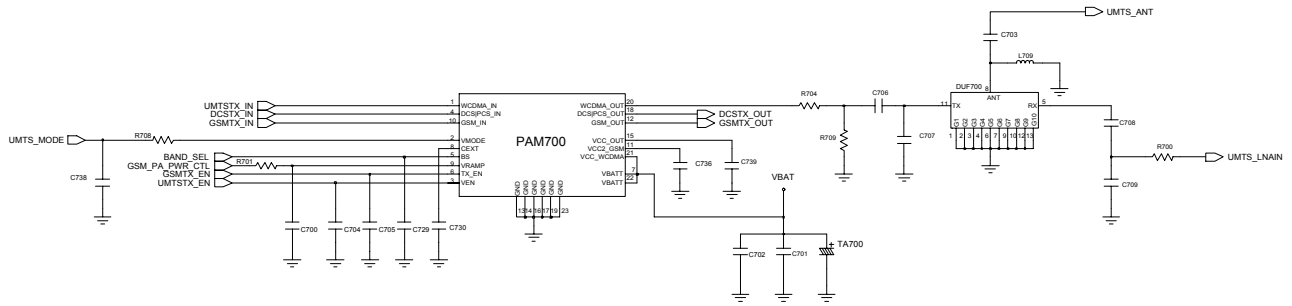
### 9-2-3. PCS RX

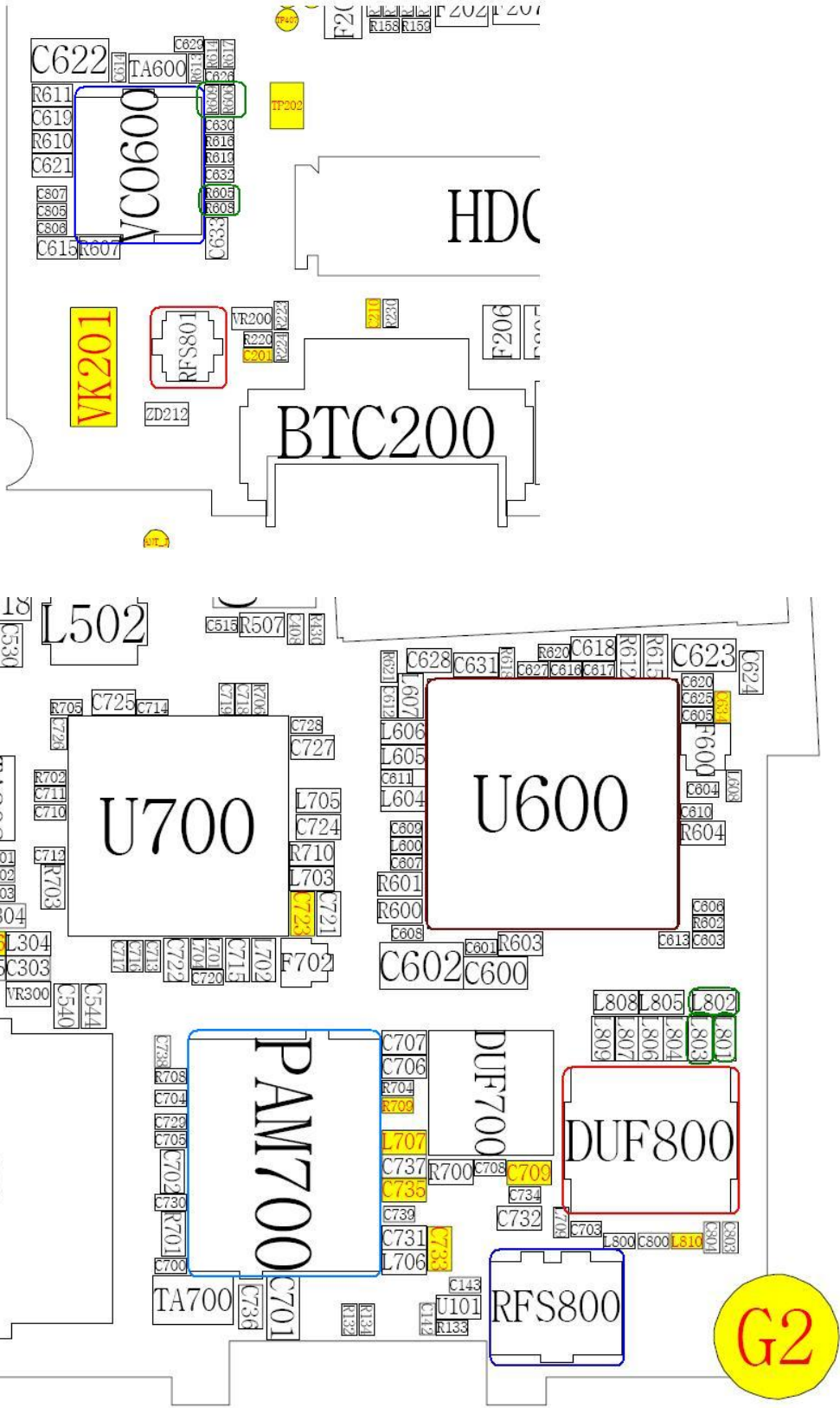


9-2-4. EGSM TX

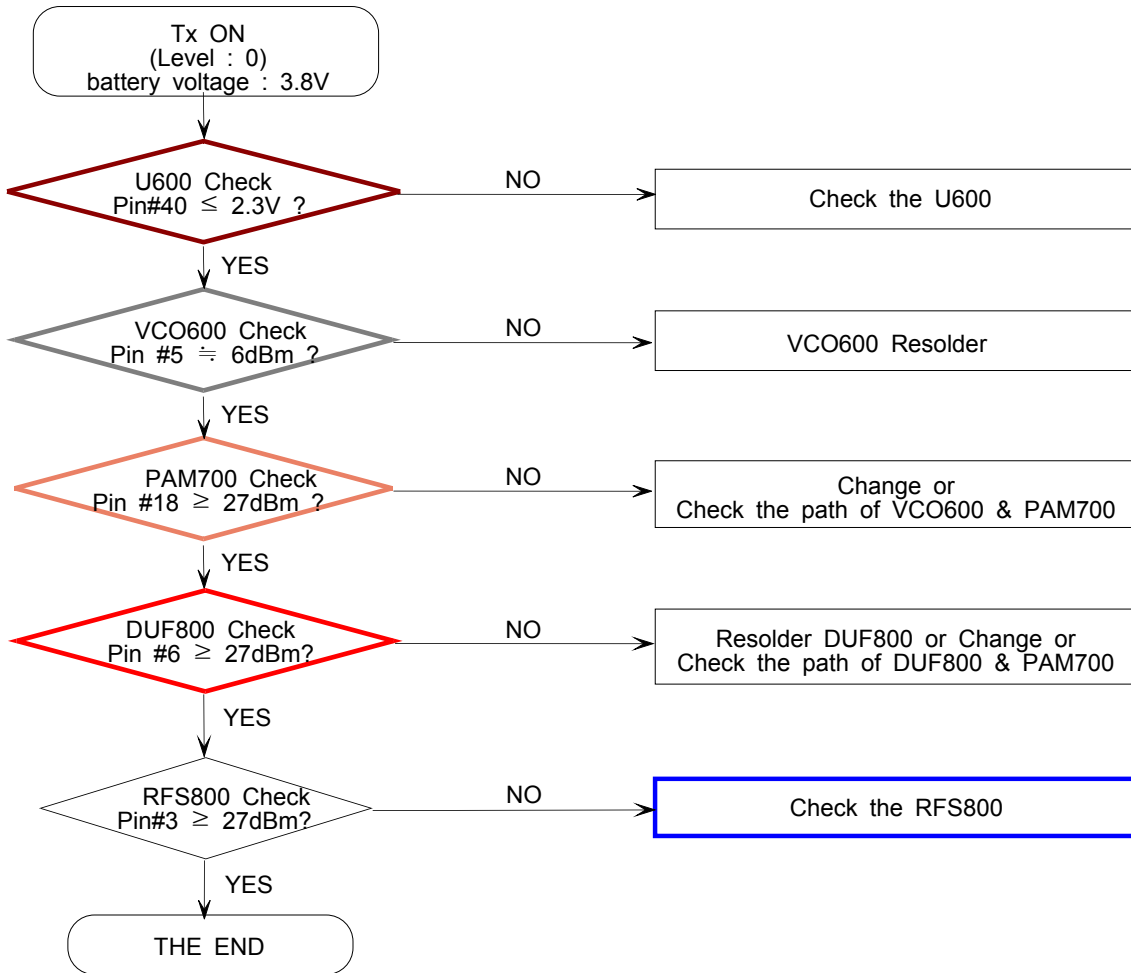


# Flow Chart of Troubleshooting





### 9-2-5. DCS/PCS TX



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## 10. Reference data

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### 10-1. Reference Abbreviate

**AAC**: Advanced Audio Coding.  
**AVC** : Advanced Video Coding.  
**BER** : Bit Error Rate  
**BPSK**: Binary Phase Shift Keying  
**CA** : Conditional Access  
**CDM** : Code Division Multiplexing  
**C/I** : Carrier to Interference  
**DMB** : Digital Multimedia Broadcasting  
**EN** : European Standard  
**ES** : Elementary Stream  
**ETSI**: European Telecommunications Standards Institute  
**MPEG**: Moving Picture Experts Group  
**PN** : Pseudo-random Noise  
**PS** : Pilot Symbol  
**QPSK**: Quadrature Phase Shift Keying  
**RS** : Reed-Solomon  
**SI** : Service Information  
**TDM** : Time Division Multiplexing  
**TS** : Transport Stream