

SAMSUNG

GSM TELEPHONE

SGH-E870

SERVICE *Manual*

GSM TELEPHONE



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1. Safety Precautions

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 easily 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 General Specification

		GSM 900	DCS1800	PCS1900
Freq. Band[MHz] Uplink/Downlink		880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range		0~124 & 975~1023	512~885	512~810
Tx/Rx spacing		45 MHz	95 MHz	80 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
	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
Modulation	GPRS	0.3 GMSK	0.3 GMSK	0.3 GMSK
	EDGE	8 PSK	8 PSK	8 PSK
MS Power	GPRS	33 dBm~5 dBm	30 dBm~0 dBm	30 dBm~0 dBm
	EDGE	27~5 dBm	26~0 dBm	26~0 dBm
Power Level	GPRS	5 pcl~19 pcl	0 pcl~15 pcl	0 pcl~15 pcl
	EDGE	8~19(class E2)	2~15(class E2)	2~15(class E2)
Sensitivity		-102 dBm	-100 dBm	-102 dBm
TDMA Mux		8	8	8
Cell Radius		35 Km	2 Km	2 Km

2-2. GMSK TX power Level

TX Power control level	GSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
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

TX Power control level	GSM850	TX Power control level	DCS1800	TX Power control level	PCS1900
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±4 dBm
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

3. Product Function

Main Function

-Camera and camcorder

Use the camera module on your phone to take a photo or record a video.

-Music player

Play music files using your phone as a music player.

-Web browser

Access the wireless web to get up-to-the-minute information and a wide variety of media content.

-Image editor

Crop, resize, rotate, and decorate your photos.

-Voice commands

Experience a new level of voice command capability that allows for easy hands-free use. You can select menus, control camera settings, as well as make phone calls without any key presses.

-Bluetooth

Transfer media files and personal data and connect to other devices using free, wireless Bluetooth technology.

-Photo printing

Print your photos to preserve your best moments forever.

-Multimedia Message Service (MMS)

Send and receive MMS messages with a combination of text, image, video, and audio.

-E-mail

Send and receive e-mails with image, video, and audio attachments.

-Get personal with photo/video caller ID

See who's calling you when their very own photo or video displays.

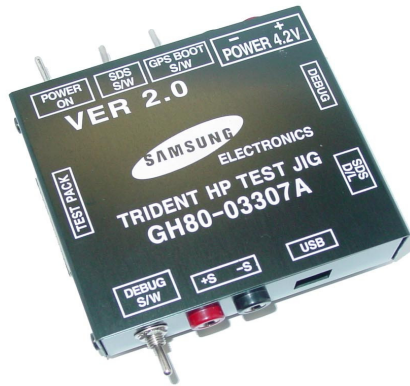
-Phone to TV

View photos and video clips captured with the phone on your TV screen.

-Java

Enjoy Java™-based embedded games and download new games.

4. Array course control



Test Jig (GH80-03307A)



Test Cable (GH39-00127A)



RF Test Cable (GH39-00397A)

Software Downloading

4-1. Downloading Binary Files

- Two binary files for downloading E870.
 - E870XXYY.s3 : Main source code binary.
 - E870XXYY.cts : Default Contents binary.

4-2. Pre-requisite for Downloading

- Downloader Program([OptiFlash.exe](#))
- E870 Mobile Phone
- Data Cable
- Binary files
- CTS files

4-3. S/W Downloader Program

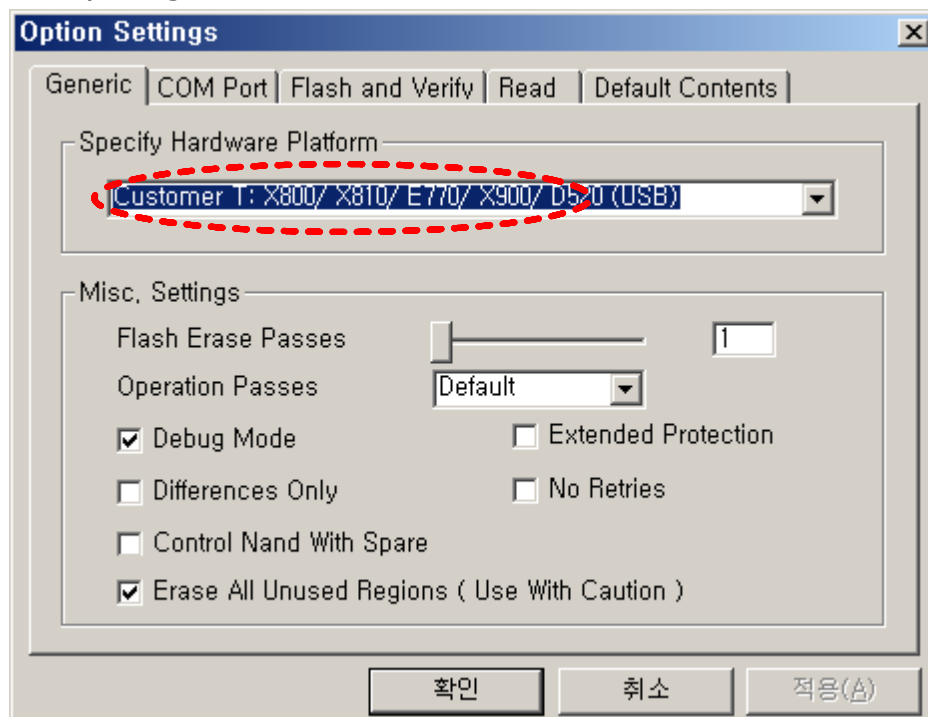
1. Load the binary download program by executing the **"OptiFlash.exe"**



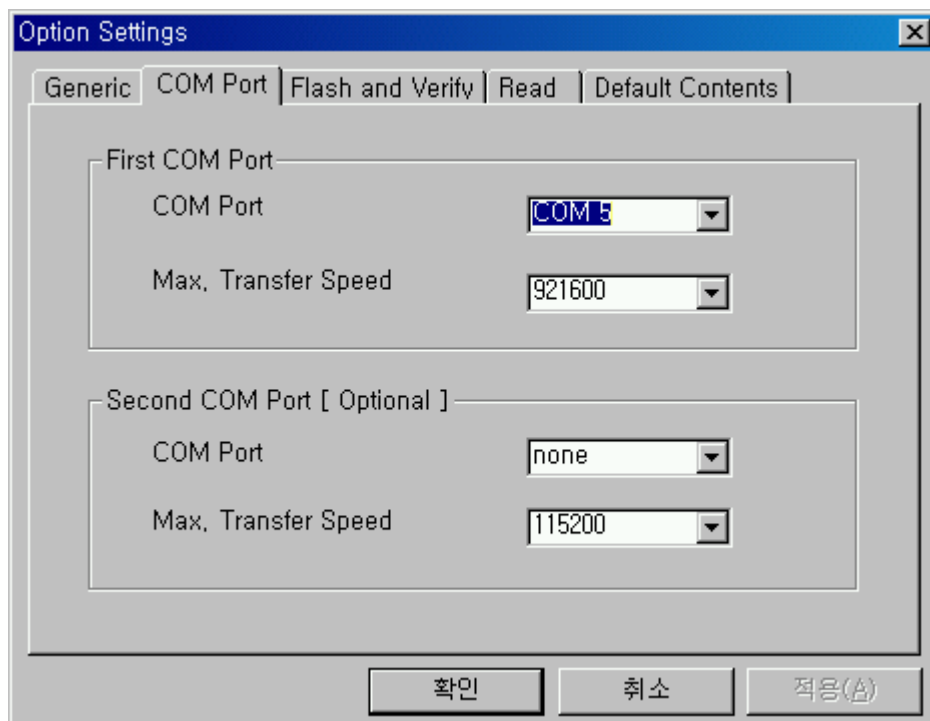
2. Select the **"Options" -> "Settings" -> "Generic" -> "Specify hardware platform"**.

Choose hardware platform for the downloader file setting.

Set the everything else as the default values which are shown below



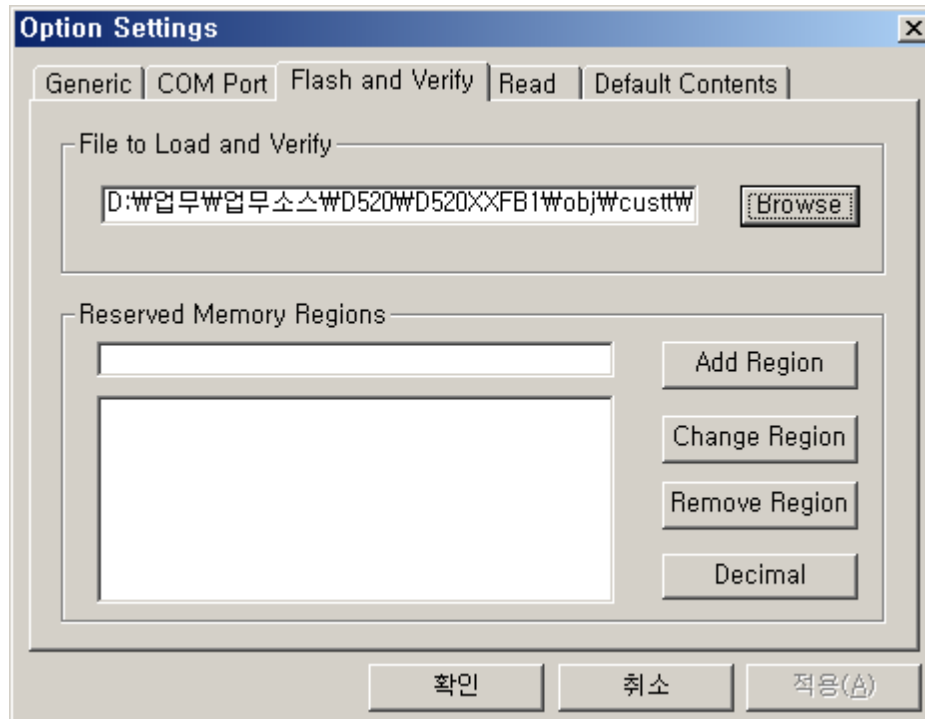
3. Select the **COM port** when the download cable is connected



Up to 64 ports are supported. Additionally you can select the maximum transfer speed OptiFlash will use to communicate with the phone. However, OptiFlash will use a slower speed if either the PC's or the phone's serial hardware is incapable of handling the selected speed

4. Select the **"Flash&Verify"** -> **"Browse"**

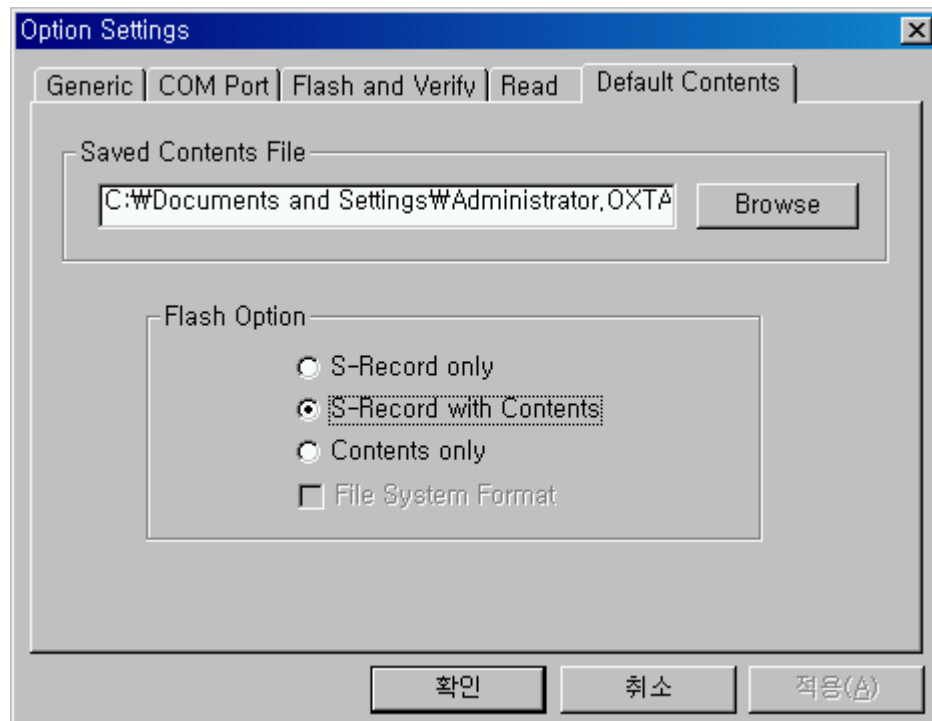
Set the directory path and choose the latest s/w binary, for example "E870XXYY.s3", for the downloader binary setting.



In case of E870 the reserved regions are not a necessity.
(It is defined in platform.def file)

5. Select the **"Default Contents"** -> **"Browse"**

Set the directory path and choose the CTS file, for example
"E870XXYY.cts", for the downloader binary setting.



Function of Flash option

S-Record only : download binary only

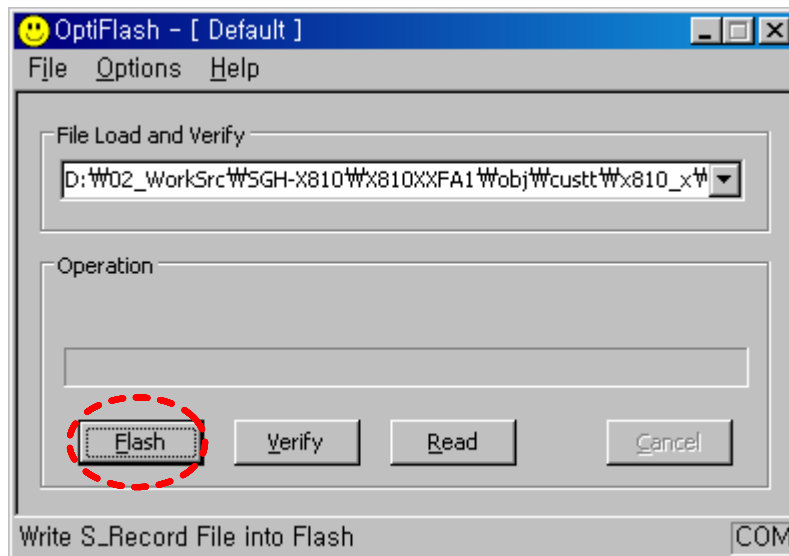
S-Record with Contents : download binary with default contents

Contents only : download default contents

6. Click "OK" button then press "Flash".♪

(Before pressing 'Flash' button, push the button '*' and 'END' at the same time. Then press 'Flash'.))

Downloader will upload the binary file as below for the downloading. ♪



7. When downloading is finished successfully, there is a "All is well" message. ♪

8. After finishing downloading, Certain memory resets should be done to guarantee the normal performance.♪

9. Confirm the downloaded version name and etc. :♪

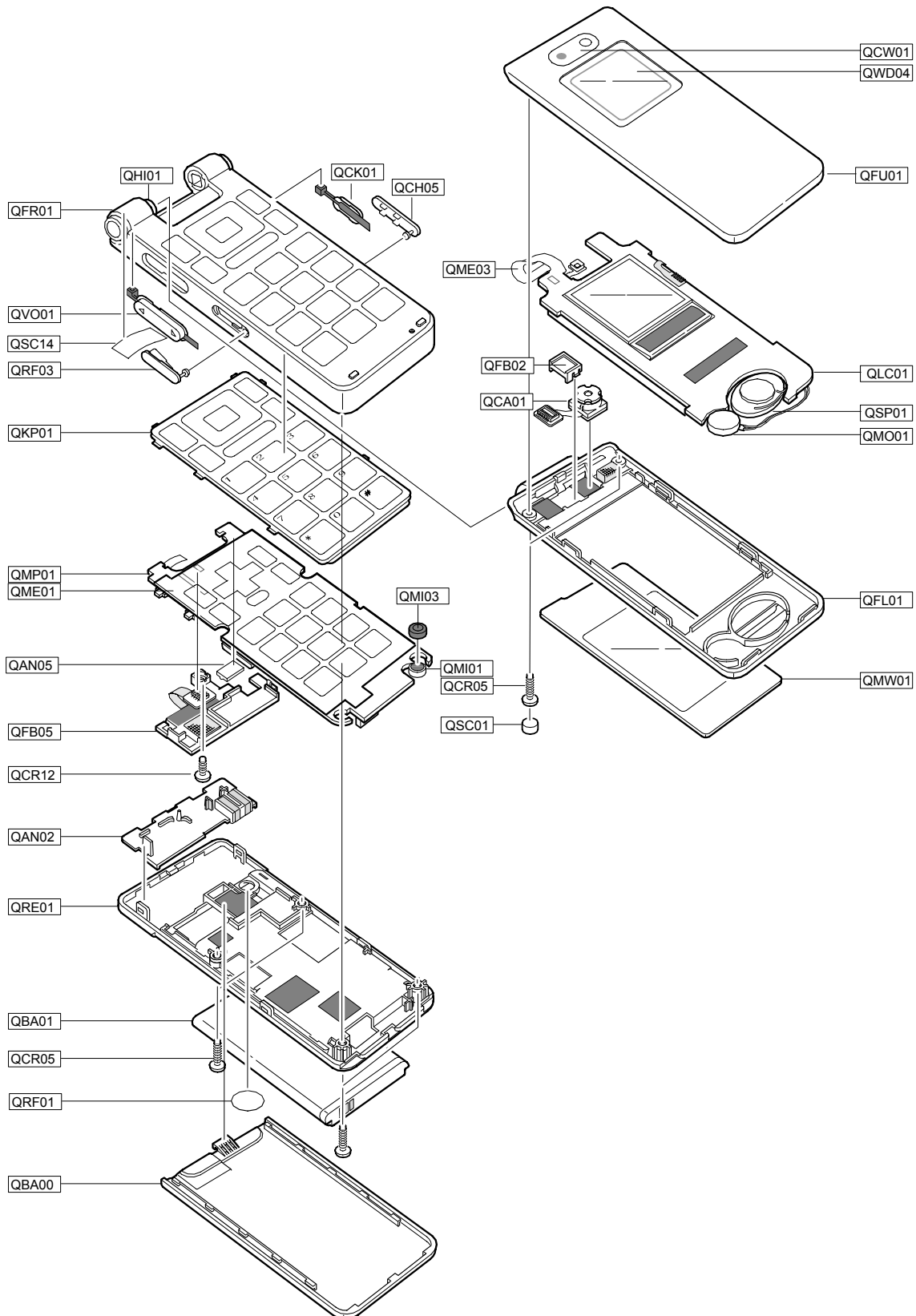
***#5002*8376263#**♪

Full Reset : ♪

***2767*3855#**

5. Exploded View and Parts List

5-1. Cellular phone Exploded View



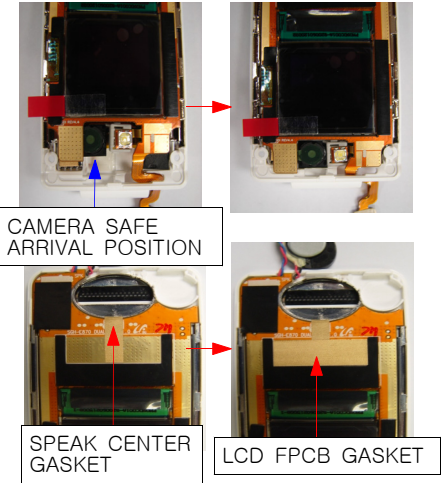
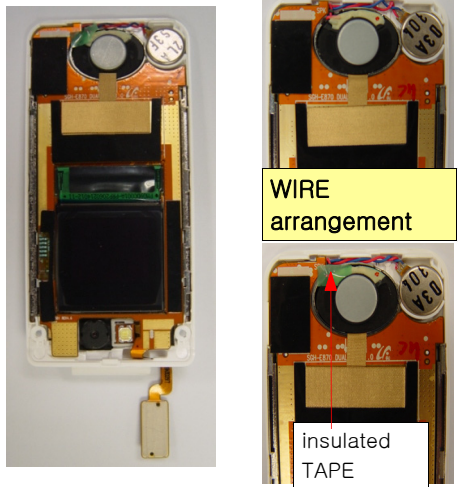
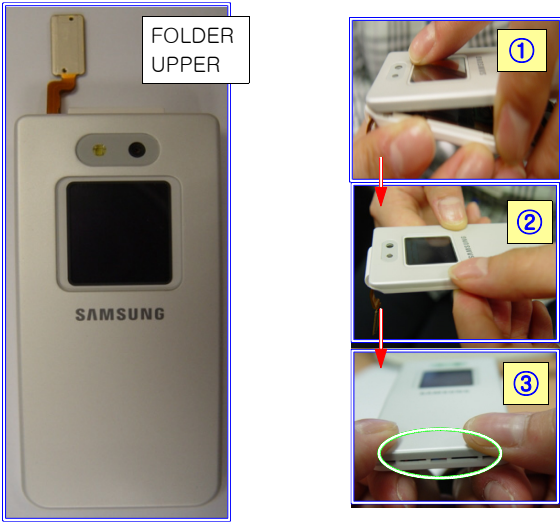
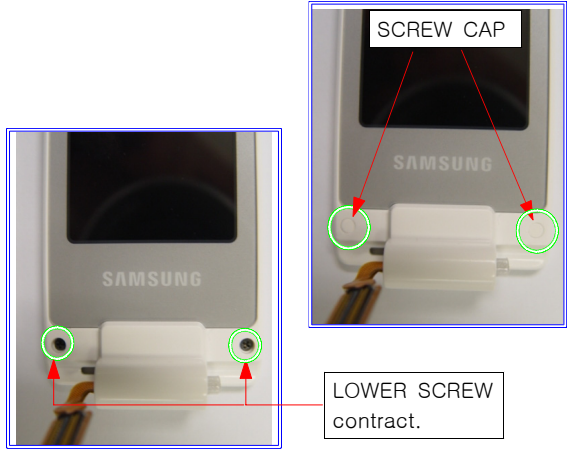
5-2. Cellular phone Parts list

Design LOC		Discription	SEC CODE
QAN02		INTENNA-SGHE870	GH42-00720A
QAN05		MEC-INTENNA CONTACT	GH75-08168A
QBA00		ASSY-COVER-BATTERY	GH98-01110A
QBA01		INNER BATTERY PACK-800MAH,BLK,	GH43-01850A
QCA01		UNIT-CAMERA	GH59-02696A
QCR05		SCREW-MACHINE	6001-001478
QCR12		SCREW-MACHINE	6001-001530
QCW01		PMO-COVER CAMERA WINDOW	GH72-27823A
QFB02		MEC-FLASH BRACKET	GH75-08830A
QFB05		MEC-BRACKET SIM	GH75-08832A
QFU01		MEC-FOLDER UPPER	GH75-08827A
QKP01		MEC-KEYPAD MAIN(SER/WS)	GH75-09168A
QLC01		MEA-LCD MODULE KIT	GH97-05621A
QME01		UNIT-METAL DOME	GH59-02688A
QME03		UNIT-CON TO CON ASS'Y	GH59-02705A
QMI01		MICROPHONE-ASSY-5.25MM	GH30-00177C
QMI03		RMO-MIC HOLDER	GH73-06697A
QMO01		MOTOR DC-SGHZ130	GH31-00155G
QMP01		PBA MAIN-SGHE870	GH92-02475A
QMW01		MEC-COVER MAIN WINDOW	GH75-08833A
QRE01		MEC-COVER REAR	GH75-08831A
QRF01		MPR-RF SHEET	GH74-19987A
QSC01		RMO-FOLDER SCREW COVER	GH73-05771A
QSC14		MPR-TAPE FRONT HOLE	GH74-19983A
QSP01		SPEAKER	3001-001864
QWD04		PMO-COVER DUAL WINDOW	GH72-27822A
QFL01		MEC-FOLDER LOWER	GH75-08828A
	QHI01	MEC-HINGE	GH75-09605A
QFR01		MEC-COVER FRONT	GH75-08829A
	QCH05	PMO-T FLASH COVER	GH72-26489A
	QCK01	MEC-CAMERA KEY	GH75-08835A
	QRF03	PMO-EAR COVER	GH72-26490A
	QVO01	MEC-VOLUME KEY	GH75-08836A

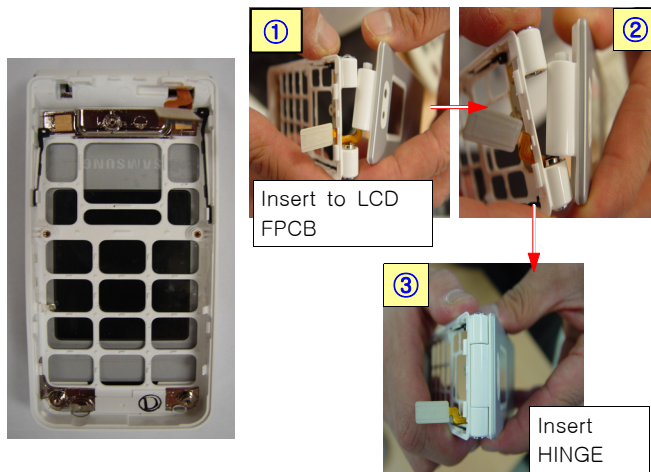
Discription	SEC CODE
BAG PE	6902-000297
CBF INTERFACE-DATA LINK CABLE	GH39-00444B
ADAPTOR-SGHD800 TA(EU)	GH44-01060B
S/W CD-SAMSUNG PC STUDIO	GH46-00225A
UNIT-EARPHONE	GH59-02499B
LABEL(P)-WATER SOAK	GH68-02026A
LABEL(P)-WATER SOAK	GH68-02026A
MANUAL-WARRANTY CARD	GH68-02623A
MANUAL-SFC	GH68-04336A
LABEL(P)-BARCODE RUSSIA	GH68-08494A
LABEL(R)-MAIN (SER)	GH68-09068B
MANUAL USERS-EU RUSSIAN	GH68-09119A
CUSHION-CASE TA2 MA2	GH69-03580A
BOX(P)-UNIT MAIN (SER)	GH69-03583B
RMO-SUB LCD RUBBER A	GH73-06699A
RMO-SUB LCD RUBBER B	GH73-06700A
RMO-LCD CENTER RUBBER	GH73-06701A
RMO-SPEAK RUBBER	GH73-06707A
MPR-BOHO VINYL LCD CONN	GH74-15350A
MPR-BOHO VINYL DUAL WIN	GH74-17800A
MPR-BOHO VINYL DUAL WIN	GH74-17800A
MPR-CUSHION DUAL	GH74-19870A
MPR-LCD FPCB GASKET	GH74-19873A
MPR-PCB GASKET	GH74-19988A
MPR-TAPE EL CON	GH74-19989A
MPR-TAPE CAM GASKET LCD	GH74-20636A
MPR-VINYL BOHO UPPER OUT	GH74-21780A
MPR-VINYL BOHO MAIN WINDOW	GH74-21781A
MPR-TAPE EL SHEET LABEL A	GH74-21835A
MPR-TAPE EL SHEET LABEL B	GH74-21836A
MPR-TAPE HOLE IC	GH74-21837A
MPR-TAPE MIC FPCB	GH74-21838A
MPR-SPEAK CENTER GASKET	GH74-21840A
MPR-TAPE SPEAK WIRE MASKING	GH74-21841A
MPR-VINYL BOHO REAR	GH74-23610A
MEC-HANGER ROPE	GH75-00223T

6. Disassembly and Assembly instructions

6-1. Assembly

1  CAMERA SAFE ARRIVAL POSITION SPEAK CENTER GASKET LCD FPCB GASKET 1. Insert LCD F-PCB at FOLDER LOWER. 2. Safe arrival in turn CAMERA / FLASH BRACKET. 3. Attach in turn SPEAK CENTER GASKET or LCD FPCB GASKET at LCD(SUB LCD). * caution 1. When safe arrival the FLASH BRACKET, Take care. 2. Perfectly safe arrival CAMERA or FLASH BRACKET.	2  WIRE arrangement Insulated TAPE 1. Safe arrival in turn MOTOR / SPEAK. 2. Attach an insulate TAPE at SPEAK BONDING left portion. * caution 1. Arrive safe MOTOR WIRE after twist four or five times. 2. Arrange the wire, Do not jump out.
3  FOLDER UPPER 1. Assemble FOLDER UPPER. * caution 1. Do not damage , when combine the FOLDER UPPER.	4  SCREW CAP LOWER SCREW contract. 1. SCREW the LOWER . (2 POINT) 2. Insert to the SCREW CAP. * caution 1. Check SCREW CAP condition. 2. Press SCREW CAP by cotton bud, to do not take off assembly.

5

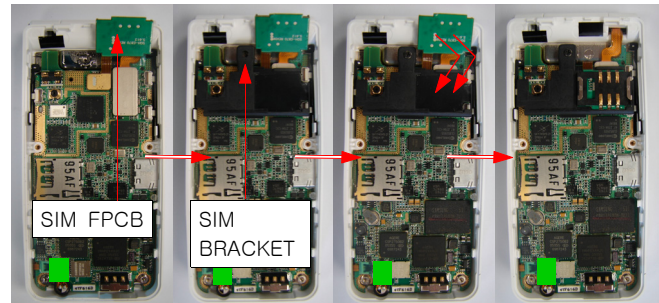


1. Put the PBA.
2. Assemble LCD CONNECTOR.

*** caution**

1. Do not damage to put the PBA.
2. Connect LCD CONNECTOR perfectly.
3. NO dust should be inside.

6



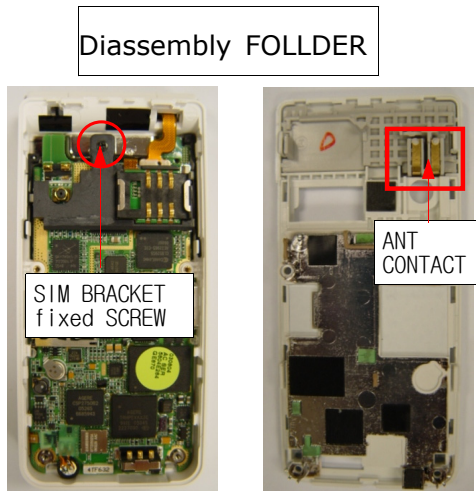
1. Assemble the SIM CONNECTOR.
2. Put the SIM BRACKET.
3. Remove the paper at SIM BRACKET.
4. Assemble SIM FPCB at SIM BRACKET.

*** caution**

1. Connect SIM CONNECTOR perfectly.
2. Fix into HOLE, when put the SIM BRACKET.
3. Check to come off the SIM FPCB at SIM BRACKET.

6-2. Disassembly

1



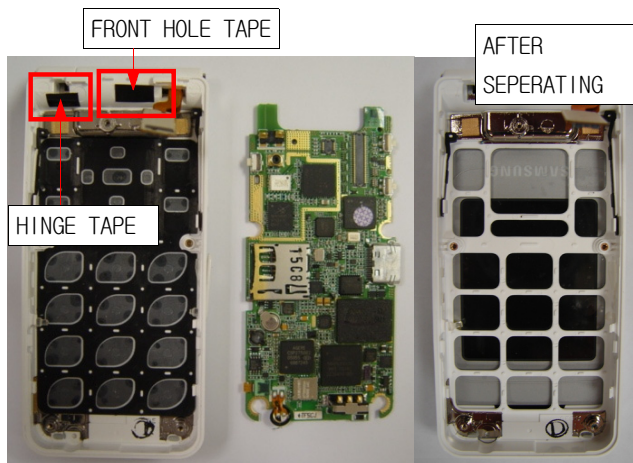
1. Loose the four screws at the rear cover.
 2. Open the rear cover from bottom-side hook.
- ※ **caution**
1. Do not scratch at rear cover & front.

2



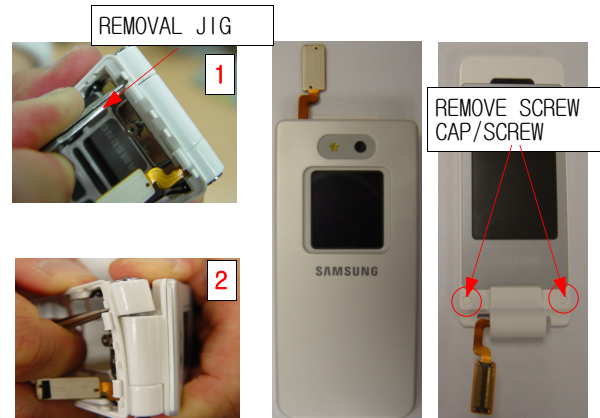
1. Loose the fixed screw at sim braket.
 2. Separate the sim Assay at B'D.
 3. Disconnect the LCD connector at B'D.
- ※ **caution**
1. Handle with care SIM F-PCB & LCD F-PCB.
 2. Do not come off SIM BRACKET EMI metalization.

3



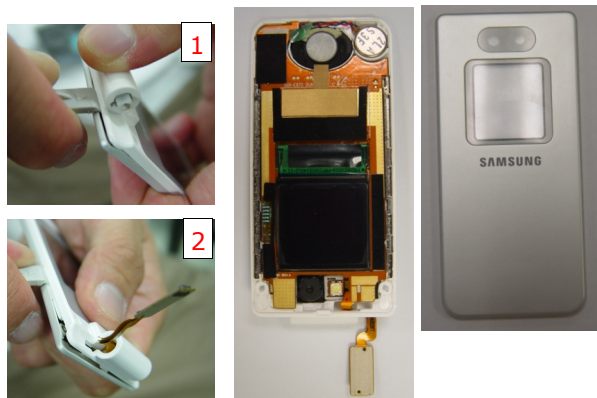
1. Seperate the PBA at front.
 2. Take off KEYPAD.
 3. Remove the FRONT HOLE TAPE/ HINGE TAPE.
- ※ **caution**
1. Do not scratch at rear cover & front.
 2. Handle the PBA scratch or crack with care.

4



1. Insert the removal JIG at HINGE HOLE.
 2. Seperate front & hinge after opening the left front, Drawing out LCD FPCB to front hole gap.
 3. Remove the screw cap by tweezers.
 4. Taking to pieces screw of folder lower.
- (2 POINT)
- ※ **caution**
1. Do not damage the hinge hole by removal JIG.
 2. When separate the front & folder, Check NO bending.

5

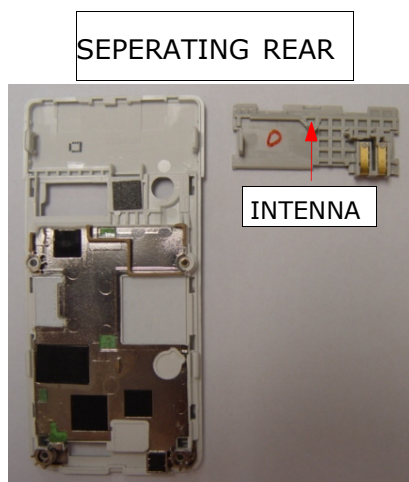


1. Open a groove of FOLDER UPPER of the right top portion by JIG, separating folder upper.

※ **caution**

1. Do not scratch at folder upper & lower.
2. Handle the hook of FOLDER UPPER / LOWER with care.

7

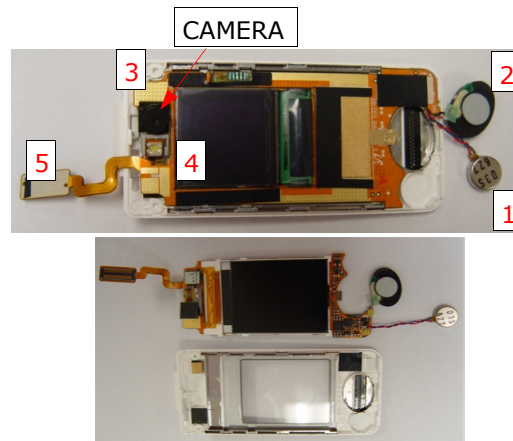


1. Seperate the INTENNA at REAR.

※ **caution**

1. Do not scratch.
2. Don't be stained a fingerprint at INTENNA PATTERN.

6



1. In turn MOTOR/SPEAKER/CAMERA/FLASH BRACKET/

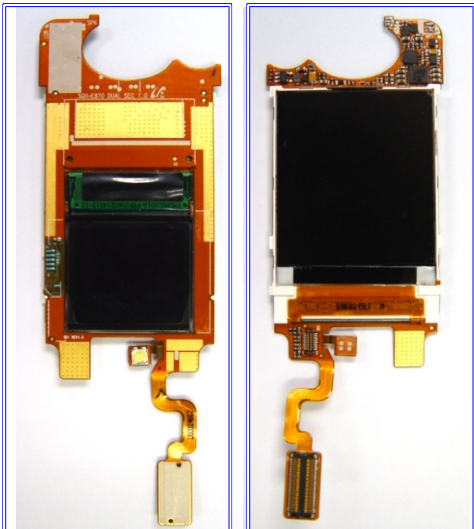
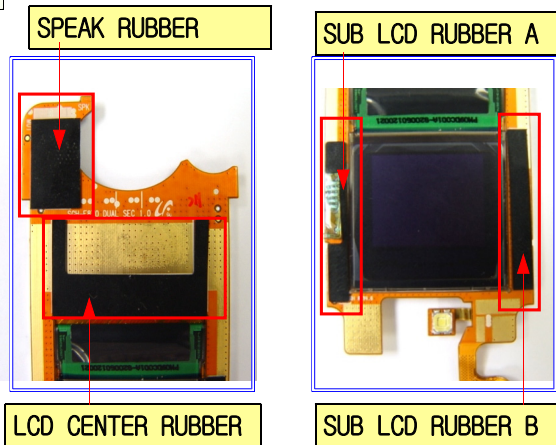
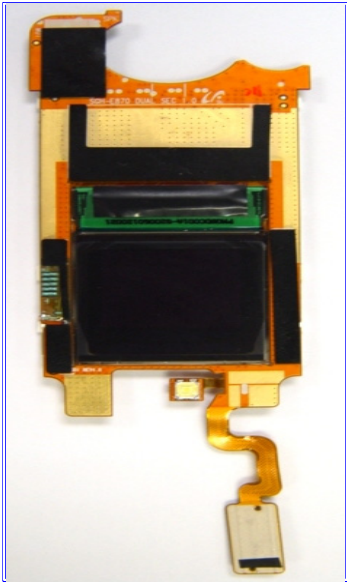
LCD F-PCB, separate to folder lower.

2. Seperate the LCD at folder lower.

※ **caution**

1. Do not damage when removed CAMERA or FLASH BRACKET. 2. Take care of LCD F-PCB.

6-3. KIT Assembly

1 	2  SPEAK RUBBER SUB LCD RUBBER A LCD CENTER RUBBER SUB LCD RUBBER B
1. Check the LCD MODULE appearance condition. 2. Check the LCD CONNECTOR condition. ※ caution 1. Do not touch front side of the LCD. (fingerprint)	1. Attach to SPEAK RUBBER / LCD CENTER RUBBER. 2. Attach to SUB LCD RUBBER A / B. ※ caution 1. Do not touch front side of LCD (fingerprint) 2. Do not scratch LCD F-PCB by tweezers when attach the PORON.
3 	
1. Check the extraneous matter condition. ※ caution 1. Do not touch front side of the LCD. (fingerprint)	

7. MAIN Electrical Parts List

SEC CODE	Design LOC	Discription	STATUS
4202-001105	ANT101	ANTENNA-CHIP	SA
2203-000386	C101	C-CER,CHIP	SA
2203-006194	C103	C-CER,CHIP	SA
2203-006194	C104	C-CER,CHIP	SA
2203-006194	C105	C-CER,CHIP	SA
2203-006562	C106	C-CER,CHIP	SA
2203-006305	C107	C-CER,CHIP	SA
2203-005682	C108	C-CER,CHIP	SA
2203-006194	C109	C-CER,CHIP	SA
2203-006423	C110	C-CER,CHIP	SA
2203-006423	C111	C-CER,CHIP	SA
2203-005736	C112	C-CER,CHIP	SA
2203-006423	C113	C-CER,CHIP	SA
2203-006194	C114	C-CER,CHIP	SA
2203-006194	C115	C-CER,CHIP	SA
2203-001124	C116	C-CER,CHIP	SA
2203-000585	C117	C-CER,CHIP	SA
2203-006423	C118	C-CER,CHIP	SA
2203-005806	C119	C-CER,CHIP	SA
2203-006423	C120	C-CER,CHIP	SA
2203-006194	C121	C-CER,CHIP	SA
2203-003019	C122	C-CER,CHIP	SNA
2203-006305	C123	C-CER,CHIP	SA
2203-005682	C124	C-CER,CHIP	SA
2203-001437	C127	C-CER,CHIP	SA
2203-006194	C128	C-CER,CHIP	SA
2203-000854	C129	C-CER,CHIP	SA
2203-000725	C130	C-CER,CHIP	SA
2203-006847	C131	C-CER,CHIP	SA
2203-006847	C132	C-CER,CHIP	SA
2203-006123	C133	C-CER,CHIP	SA
2203-006194	C135	C-CER,CHIP	SA
2203-000233	C136	C-CER,CHIP	SA
2203-006194	C137	C-CER,CHIP	SA
2203-006194	C138	C-CER,CHIP	SA
2203-006361	C139	C-CER,CHIP	SA
2203-000254	C140	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
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2203-006048	C142	C-CER,CHIP	SA
2203-006562	C143	C-CER,CHIP	SA
2203-000311	C144	C-CER,CHIP	SA
2203-006048	C145	C-CER,CHIP	SA
2203-006562	C148	C-CER,CHIP	SA
2203-006562	C149	C-CER,CHIP	SA
2203-006194	C152	C-CER,CHIP	SA
2203-006194	C201	C-CER,CHIP	SA
2203-006194	C202	C-CER,CHIP	SA
2203-006423	C203	C-CER,CHIP	SA
2203-006423	C204	C-CER,CHIP	SA
2203-006423	C205	C-CER,CHIP	SA
2203-006194	C206	C-CER,CHIP	SA
2203-006423	C207	C-CER,CHIP	SA
2203-006194	C208	C-CER,CHIP	SA
2203-006423	C209	C-CER,CHIP	SA
2203-002709	C210	C-CER,CHIP	SNA
2203-002709	C211	C-CER,CHIP	SNA
2203-006423	C213	C-CER,CHIP	SA
2203-005729	C214	C-CER,CHIP	SA
2203-005729	C215	C-CER,CHIP	SA
2203-006423	C216	C-CER,CHIP	SA
2203-006194	C217	C-CER,CHIP	SA
2203-006194	C301	C-CER,CHIP	SA
2203-002709	C302	C-CER,CHIP	SNA
2203-000254	C303	C-CER,CHIP	SA
2203-006423	C304	C-CER,CHIP	SA
2203-006562	C305	C-CER,CHIP	SA
2203-006048	C306	C-CER,CHIP	SA
2203-000812	C307	C-CER,CHIP	SA
2203-000812	C308	C-CER,CHIP	SA
2203-000812	C309	C-CER,CHIP	SA
2203-006324	C310	C-CER,CHIP	SA
2203-001153	C311	C-CER,CHIP	SA
2203-000254	C312	C-CER,CHIP	SA
2203-006048	C313	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
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2203-006562	C319	C-CER,CHIP	SA
2203-000233	C320	C-CER,CHIP	SA
2203-005344	C321	C-CER,CHIP	SA
2203-001405	C322	C-CER,CHIP	SA
2203-000254	C323	C-CER,CHIP	SA
2203-006257	C324	C-CER,CHIP	SA
2203-006562	C325	C-CER,CHIP	SA
2203-002709	C326	C-CER,CHIP	SNA
2203-006423	C327	C-CER,CHIP	SA
2203-006562	C328	C-CER,CHIP	SA
2203-006048	C329	C-CER,CHIP	SA
2203-006423	C330	C-CER,CHIP	SA
2203-006825	C331	C-CER,CHIP	SA
2203-006825	C332	C-CER,CHIP	SA
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2404-001381	C334	C-TA,CHIP	SA
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2203-006562	C401	C-CER,CHIP	SA
2203-006562	C402	C-CER,CHIP	SA
2203-002709	C403	C-CER,CHIP	SNA
2203-006562	C404	C-CER,CHIP	SA
2203-002709	C405	C-CER,CHIP	SNA
2203-006562	C406	C-CER,CHIP	SA
2203-006562	C407	C-CER,CHIP	SA
2203-006562	C408	C-CER,CHIP	SA
2203-006562	C409	C-CER,CHIP	SA
2203-002982	C410	C-CER,CHIP	SNA
2203-002982	C411	C-CER,CHIP	SNA
2203-000854	C413	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-002982	C414	C-CER,CHIP	SNA
2203-002982	C415	C-CER,CHIP	SNA
2203-000854	C417	C-CER,CHIP	SA
2203-006324	C418	C-CER,CHIP	SA
2203-006562	C419	C-CER,CHIP	SA
2203-000278	C420	C-CER,CHIP	SA
2203-000278	C421	C-CER,CHIP	SA
2404-001352	C422	C-TA,CHIP	SA
2203-006257	C423	C-CER,CHIP	SA
2203-006562	C424	C-CER,CHIP	SA
2203-002709	C425	C-CER,CHIP	SNA
2203-002709	C426	C-CER,CHIP	SNA
2203-006626	C427	C-CER,CHIP	SA
2203-005682	C428	C-CER,CHIP	SA
2203-000812	C429	C-CER,CHIP	SA
2203-001259	C430	C-CER,CHIP	SA
2203-006626	C431	C-CER,CHIP	SA
2203-005682	C432	C-CER,CHIP	SA
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2404-001381	C435	C-TA,CHIP	SA
2203-006260	C436	C-CER,CHIP	SA
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2203-006423	C439	C-CER,CHIP	SA
2203-000654	C440	C-CER,CHIP	SA
2203-001405	C441	C-CER,CHIP	SA
2404-001339	C442	C-TA,CHIP	SA
2203-006423	C443	C-CER,CHIP	SA
2203-006257	C444	C-CER,CHIP	SA
2203-006257	C445	C-CER,CHIP	SA
2203-006048	C446	C-CER,CHIP	SA
2203-005819	C448	C-CER,CHIP	SA
2203-000438	C449	C-CER,CHIP	SA
2203-006562	C450	C-CER,CHIP	SA
2203-006562	C451	C-CER,CHIP	SA
2203-006324	C452	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-006423	C453	C-CER,CHIP	SA
2203-006423	C454	C-CER,CHIP	SA
2203-006379	C455	C-CER,CHIP	SA
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2203-006562	C457	C-CER,CHIP	SA
2203-006048	C458	C-CER,CHIP	SA
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2203-006257	C502	C-CER,CHIP	SA
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2203-006562	C521	C-CER,CHIP	SA
2203-000254	C522	C-CER,CHIP	SA
2203-006562	C523	C-CER,CHIP	SA
2404-001406	C524	C-TA,CHIP	SA
2404-001411	C525	C-TA,CHIP	SA
2404-001411	C526	C-TA,CHIP	SA
2404-001352	C527	C-TA,CHIP	SA
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2203-006626	C530	C-CER,CHIP	SA
2203-006423	C531	C-CER,CHIP	SA
2203-006423	C532	C-CER,CHIP	SA
2203-006423	C533	C-CER,CHIP	SA
2203-006562	C534	C-CER,CHIP	SA
2203-000854	C535	C-CER,CHIP	SA
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2203-006562	C537	C-CER,CHIP	SA
2203-002709	C538	C-CER,CHIP	SNA
2203-005344	C539	C-CER,CHIP	SA
2203-006562	C540	C-CER,CHIP	SA
2203-006562	C541	C-CER,CHIP	SA
2203-006048	C542	C-CER,CHIP	SA
2203-005736	C543	C-CER,CHIP	SA
2203-000854	C544	C-CER,CHIP	SA
2203-000854	C545	C-CER,CHIP	SA
2203-006562	C546	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
3705-001358	CN101	CONNECTOR-COAXIAL	SA
3711-005550	CN302	HEADER-BOARD TO BOARD	SA
3711-006138	CN504	HEADER-BATTERY	SA
3710-002306	CN506	SOCKET-INTERFACE	SA
3708-001956	CN507	CONNECTOR-FPC/FFC/PIC	SA
3301-001342	F201	BEAD-SMD	SA
2901-001256	F301	FILTER-EMI SMD	SA
2901-001320	F501	FILTER-EMI/ESD	SA
2901-001320	F502	FILTER-EMI/ESD	SA
2901-001320	F503	FILTER-EMI/ESD	SA
2901-001320	F504	FILTER-EMI/ESD	SA
2901-001320	F505	FILTER-EMI/ESD	SA
2901-001317	F506	FILTER-EMI SMD	SA
2901-001317	F507	FILTER-EMI SMD	SA
GH71-05666A	L101	NPR-ANTENNA CONTACT	SNA
GH71-05666A	L102	NPR-ANTENNA CONTACT	SNA
2703-001752	L103	INDUCTOR-SMD	SA
2703-002870	L105	INDUCTOR-SMD	SA
2703-002176	L106	INDUCTOR-SMD	SA
2703-002176	L107	INDUCTOR-SMD	SA
2703-002597	L108	INDUCTOR-SMD	SA
2703-001722	L109	INDUCTOR-SMD	SA
3301-001342	L201	BEAD-SMD	SA
2703-002931	L300	INDUCTOR-SMD	SA
2703-001229	L301	INDUCTOR-SMD	SA
2703-002734	L302	INDUCTOR-SMD	SA
3301-001534	L401	BEAD-SMD	SA
3301-001342	L402	BEAD-SMD	SA
4302-001158	M301	BATTERY-LI(2ND)	SA
2809-001295	OSC101	OSCILLATOR-VCTCXO	SA
2801-004373	OSC200	CRYSTAL-SMD	SA
2801-004340	OSC401	CRYSTAL-SMD	SA
2703-001178	R101	INDUCTOR-SMD	SA
2007-008531	R102	R-CHIP	SA
2007-008516	R103	R-CHIP	SA
2007-008045	R104	R-CHIP	SA
2007-000982	R105	R-CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
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2007-008587	R107	R-CHIP	SA
2007-008045	R108	R-CHIP	SA
2007-009223	R109	R-CHIP	SA
2007-000138	R110	R-CHIP	SA
2007-007095	R111	R-CHIP	SA
2007-007134	R112	R-CHIP	SA
2007-009199	R113	R-CHIP	SA
2007-008483	R114	R-CHIP	SA
2007-007142	R115	R-CHIP	SA
2007-000171	R116	R-CHIP	SA
2007-000157	R117	R-CHIP	SA
2007-000171	R118	R-CHIP	SA
2007-009111	R119	R-CHIP	SA
2007-008516	R201	R-CHIP	SA
2007-000162	R202	R-CHIP	SA
2007-008483	R204	R-CHIP	SA
2007-008055	R205	R-CHIP	SA
2007-008055	R206	R-CHIP	SA
2007-008542	R207	R-CHIP	SA
2007-008055	R209	R-CHIP	SA
2007-008542	R211	R-CHIP	SA
2007-000159	R302	R-CHIP	SA
2007-003013	R303	R-CHIP	SA
2007-008516	R307	R-CHIP	SA
2007-008045	R308	R-CHIP	SA
2007-000775	R309	R-CHIP	SA
2007-000143	R310	R-CHIP	SA
2007-000982	R311	R-CHIP	SA
2007-008483	R314	R-CHIP	SA
2007-008478	R315	R-CHIP	SA
2007-009115	R316	R-CHIP	SA
2007-009115	R317	R-CHIP	SA
2007-008542	R318	R-CHIP	SA
2007-000171	R319	R-CHIP	SA
2007-000831	R320	R-CHIP	SA
2007-007311	R403	R-CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2007-000171	R404	R-CHIP	SA
2007-008672	R405	R-CHIP	SA
2007-007311	R406	R-CHIP	SA
2007-008542	R407	R-CHIP	SA
2007-008542	R408	R-CHIP	SA
2007-007311	R409	R-CHIP	SA
2007-007311	R410	R-CHIP	SA
2007-000171	R411	R-CHIP	SA
2007-008672	R412	R-CHIP	SA
2007-000170	R414	R-CHIP	SA
2007-008544	R415	R-CHIP	SA
2007-000152	R418	R-CHIP	SA
2007-008478	R420	R-CHIP	SA
2007-008478	R421	R-CHIP	SA
2007-000141	R422	R-CHIP	SA
2007-000141	R423	R-CHIP	SA
2007-007588	R424	R-CHIP	SA
2007-007142	R425	R-CHIP	SA
2007-001306	R426	R-CHIP	SA
2007-007009	R427	R-CHIP	SA
2007-007741	R428	R-CHIP	SA
2007-008808	R429	R-CHIP	SA
2007-007741	R430	R-CHIP	SA
2007-008808	R431	R-CHIP	SA
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2007-008419	R446	R-CHIP	SA
2007-008483	R447	R-CHIP	SA
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2007-008420	R450	R-CHIP	SA
2007-008542	R451	R-CHIP	SA
2007-008542	R453	R-CHIP	SA
2007-000142	R505	R-CHIP	SNA
2007-000157	R506	R-CHIP	SA
2007-000162	R507	R-CHIP	SA
2007-008486	R509	R-CHIP	SA
2007-008483	R510	R-CHIP	SA
2007-008483	R511	R-CHIP	SA
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2007-008544	R514	R-CHIP	SA
2007-001290	R515	R-CHIP	SA
2007-001290	R516	R-CHIP	SA
2007-008478	R517	R-CHIP	SA
2007-009157	R518	R-CHIP	SA
2007-000140	R520	R-CHIP	SA
2007-007741	R521	R-CHIP	SA
2007-000140	R522	R-CHIP	SA
2007-007741	R523	R-CHIP	SA
2007-009157	R524	R-CHIP	SA
2007-008478	R525	R-CHIP	SA
2007-007588	R526	R-CHIP	SA
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2007-007741	R530	R-CHIP	SA
2007-007741	R531	R-CHIP	SA
2007-000831	R532	R-CHIP	SA
2007-000140	R533	R-CHIP	SA
2007-000140	R534	R-CHIP	SA
2007-001290	R544	R-CHIP	SA
2007-001290	R545	R-CHIP	SA
2007-001339	R546	R-CHIP	SA
2007-008055	R547	R-CHIP	SA
2007-008419	R548	R-CHIP	SA
2007-000690	R549	R-CHIP	SA

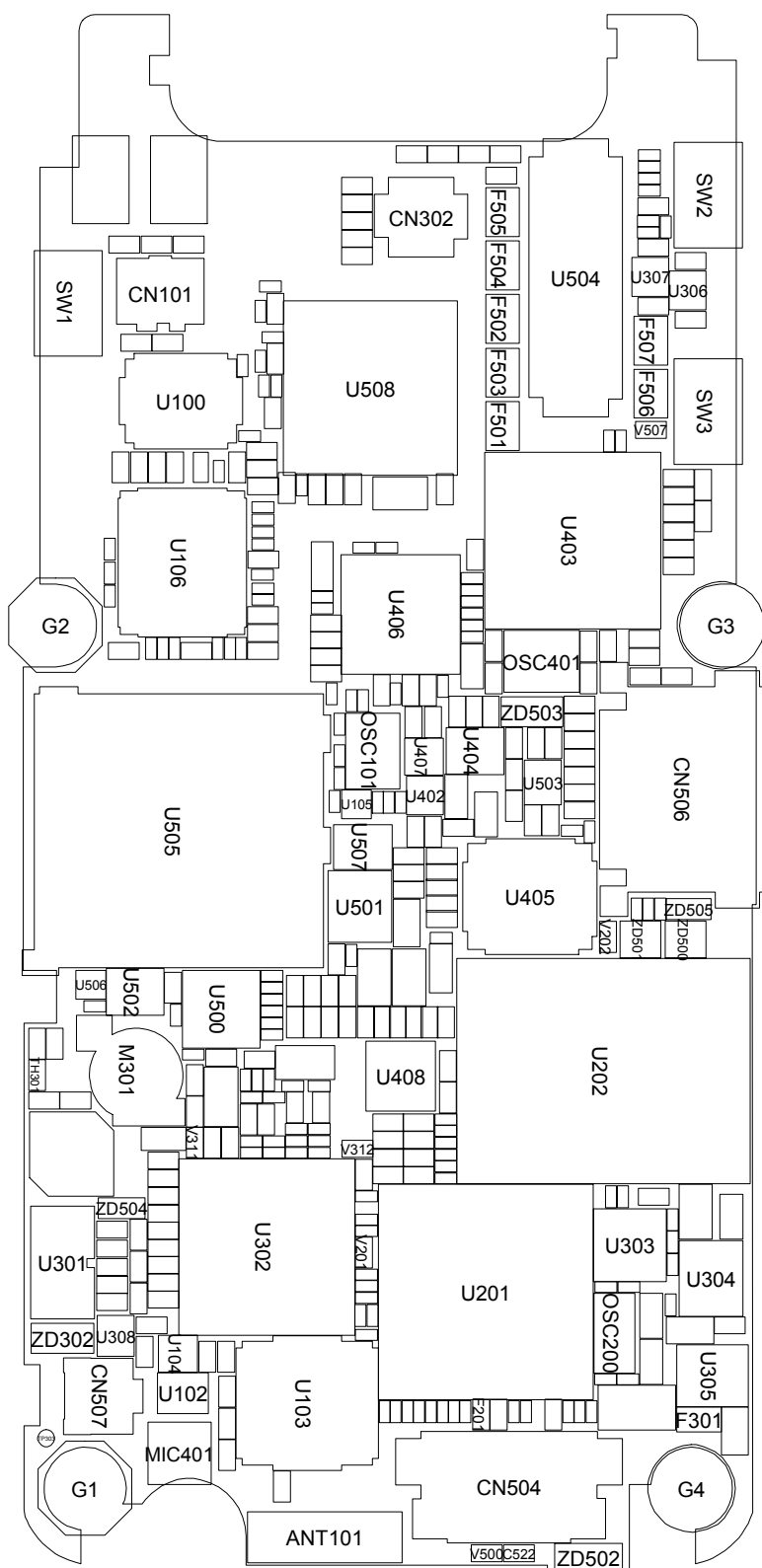
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3404-001152	SW2	SWITCH-TACT	SA
3404-001152	SW3	SWITCH-TACT	SA
1404-001165	TH301	THERMISTOR-NTC	SA
2911-000021	U100	DUPLEXER-FEM	SA
1001-001336	U102	IC-ANALOG SWITCH	SA
4709-001374	U103	BLUETOOTH MODULE	SA
1203-003432	U104	IC-POSI.FIXED REG.	SA
0801-002958	U105	IC-CMOS LOGIC	SA
1205-002821	U106	IC-TRANSCEIVER	SA
GH09-00038A	U201	IC MICOM	SA
1108-000024	U202	IC-MCP	SA
1009-001023	U203	IC-HALL EFFECT S/W	SA
1003-001716	U301	IC-EL DRIVER	SA
1203-003565	U302	IC-POWER SUPERVISOR	SA
1205-002272	U303	IC-TRANSCEIVER	SA
1203-003612	U304	IC-DC/DC CONVERTER	SA
1203-003428	U305	IC-DC/DC CONVERTER	SA
1203-003523	U306	IC-POSI.FIXED REG.	SA
1203-003432	U307	IC-POSI.FIXED REG.	SA
1203-003737	U308	IC-POSI.FIXED REG.	SA
1203-003737	U402	IC-POSI.FIXED REG.	SA
1205-002834	U403	IC-CODEC	SA
1201-002147	U404	IC-VIDEO AMP	SA
1204-002138	U405	IC-MELODY	SA
1205-002681	U406	IC-CODEC	SA
1203-003523	U407	IC-POSI.FIXED REG.	SA
1001-001306	U408	IC-ANALOG MULTIPLEX	SA
1203-003789	U500	IC-POWER SUPERVISOR	SA
1203-003109	U501	IC-BATTERY	SA
0406-001200	U502	DIODE-TVS	SA
1001-001231	U503	IC-ANALOG SWITCH	SA
3711-005933	U504	HEADER-BOARD TO BOARD	SA
3709-001344	U505	CONNECTOR-CARD EDGE	SA
0801-002958	U506	IC-CMOS LOGIC	SA

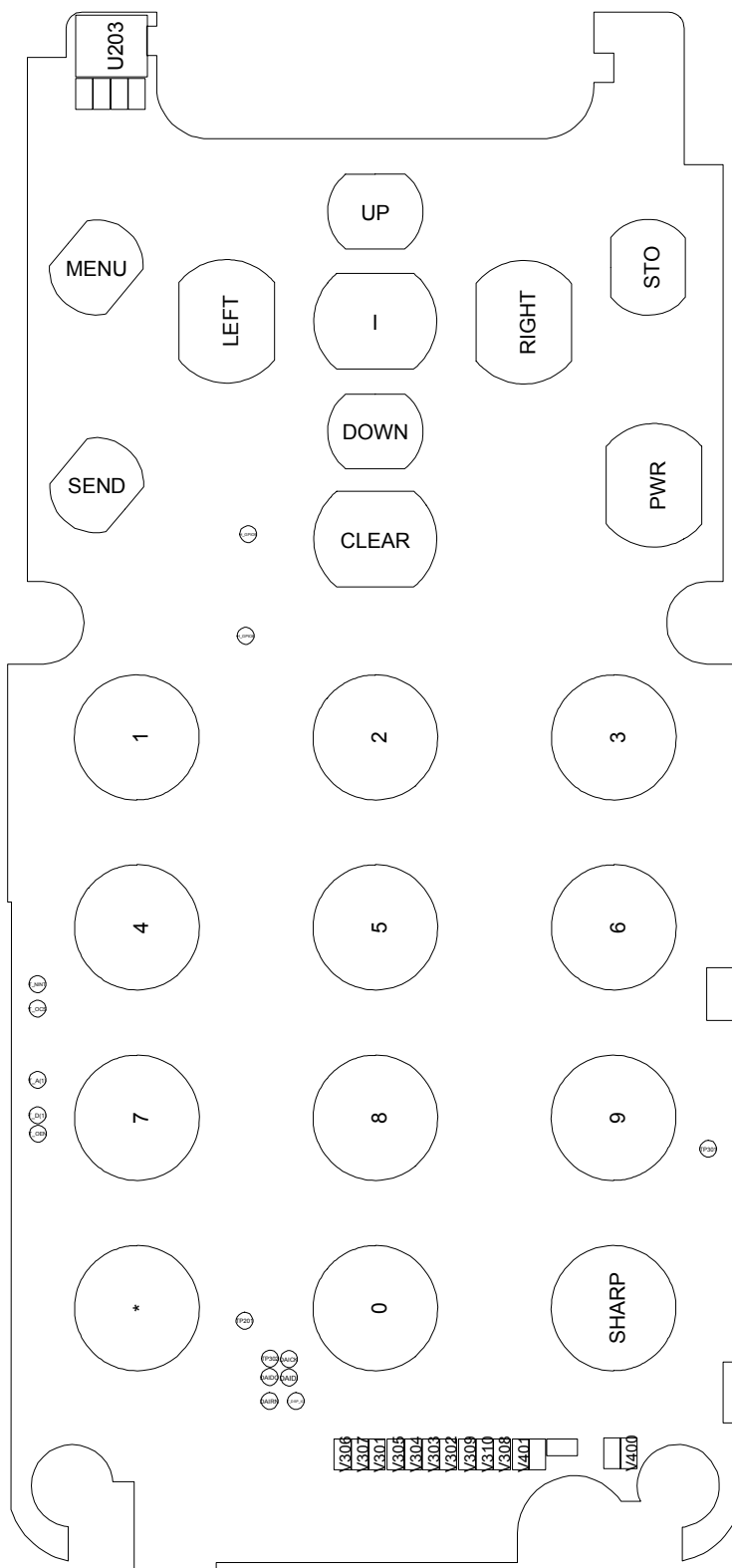
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1201-002294	U508	IC-POWER AMP	SA
1405-001082	V201	VARISTOR	SA
1405-001082	V301	VARISTOR	SA
1405-001082	V302	VARISTOR	SA
1405-001082	V303	VARISTOR	SA
1405-001082	V304	VARISTOR	SA
1405-001082	V305	VARISTOR	SA
1405-001082	V306	VARISTOR	SA
1405-001082	V307	VARISTOR	SA
1405-001082	V308	VARISTOR	SA
1405-001082	V309	VARISTOR	SA
1405-001082	V310	VARISTOR	SA
1405-001082	V311	VARISTOR	SA
1405-001082	V312	VARISTOR	SA
1405-001082	V400	VARISTOR	SA
1405-001082	V401	VARISTOR	SA
1405-001082	V500	VARISTOR	SA
2203-006260	V507	C-CER,CHIP	SA
0403-001511	ZD302	DIODE-ZENER	SA
0406-001190	ZD500	DIODE-TVS	SA
0406-001190	ZD501	DIODE-TVS	SA
0403-001547	ZD502	DIODE-ZENER	SA
0403-001427	ZD503	DIODE-ZENER	SA
0406-001150	ZD504	DIODE-TVS	SA
0406-001201	ZD505	DIODE-TVS	SA
0406-001201	ZD506	DIODE-TVS	SA

8-1. RF Solution Block Diagram



9. PCB Diagrams

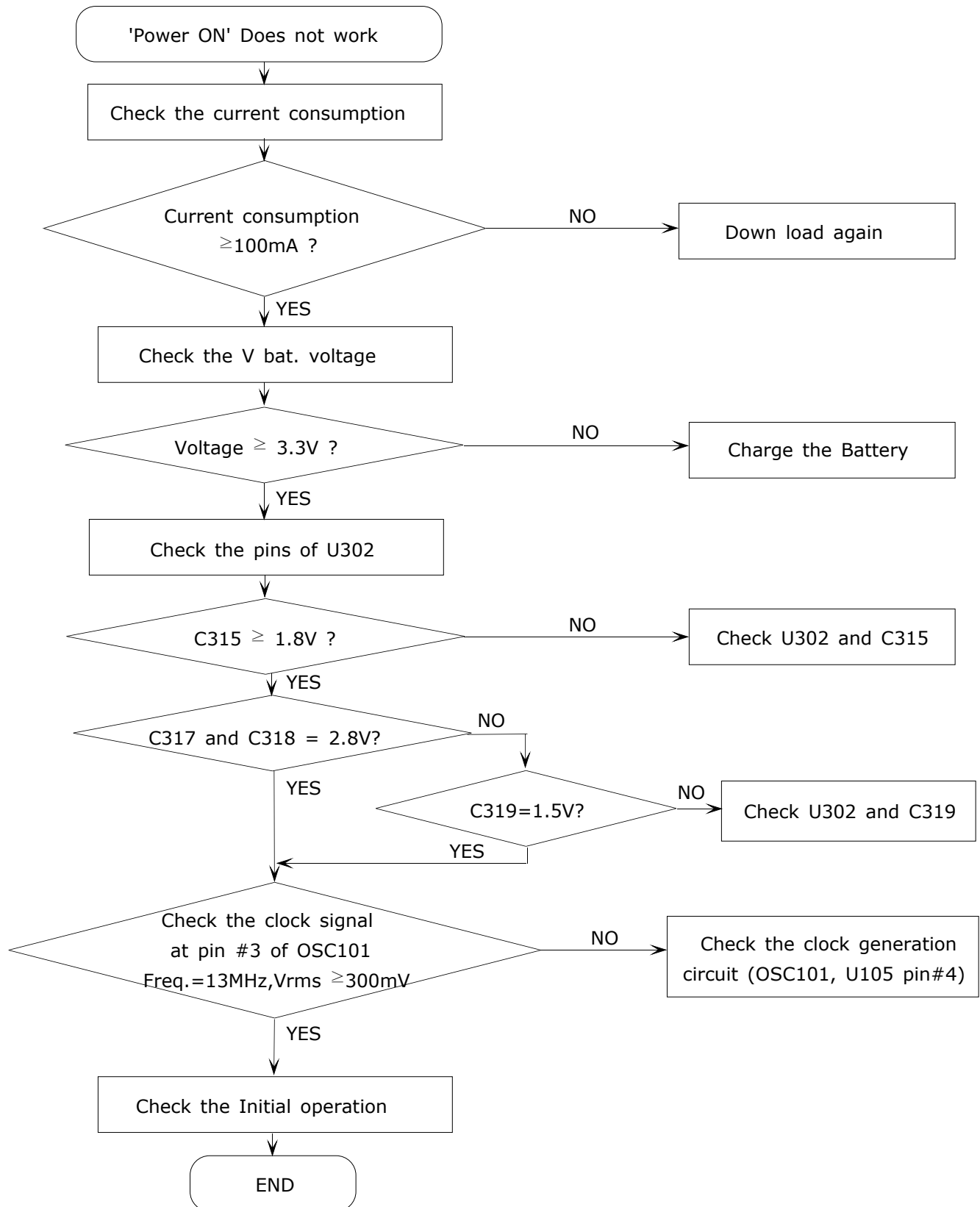


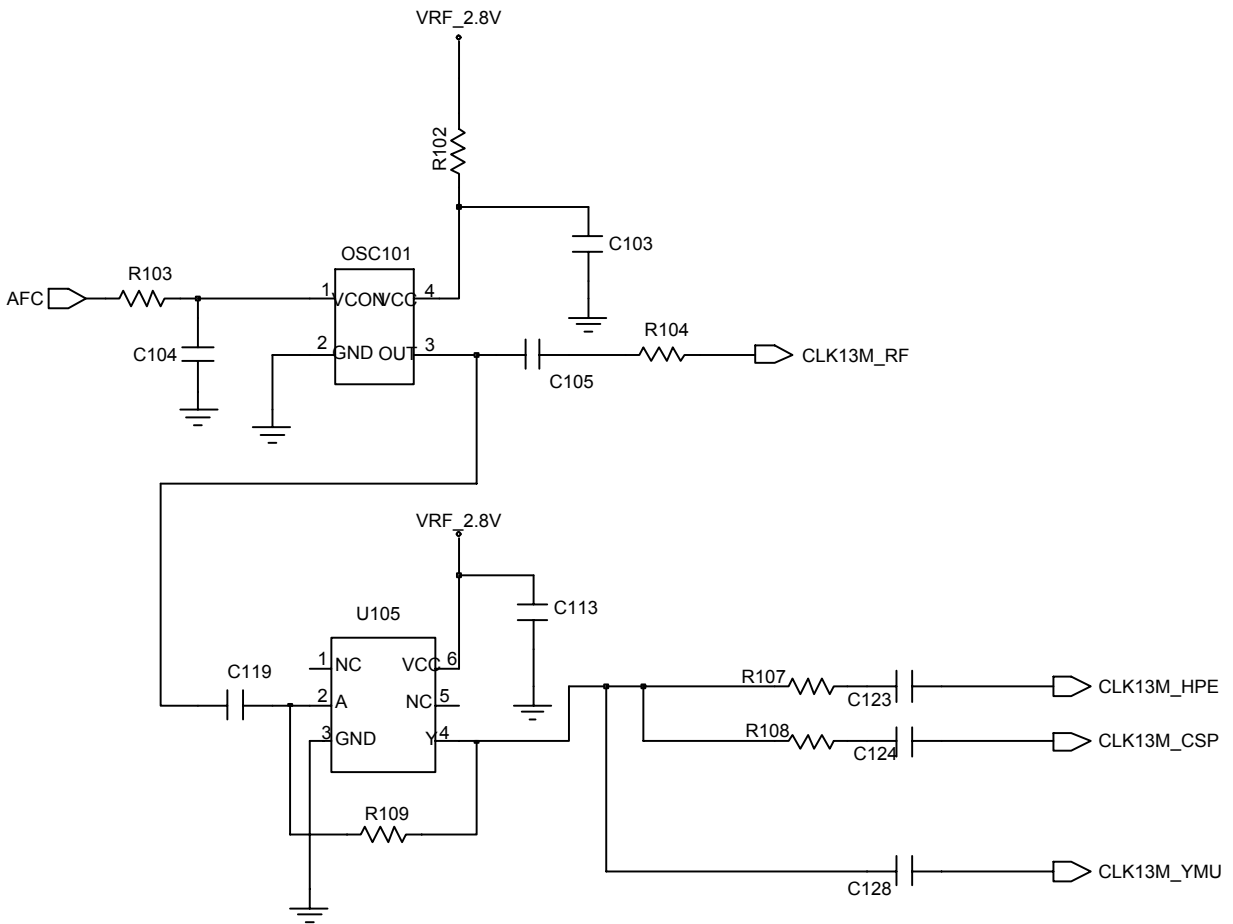


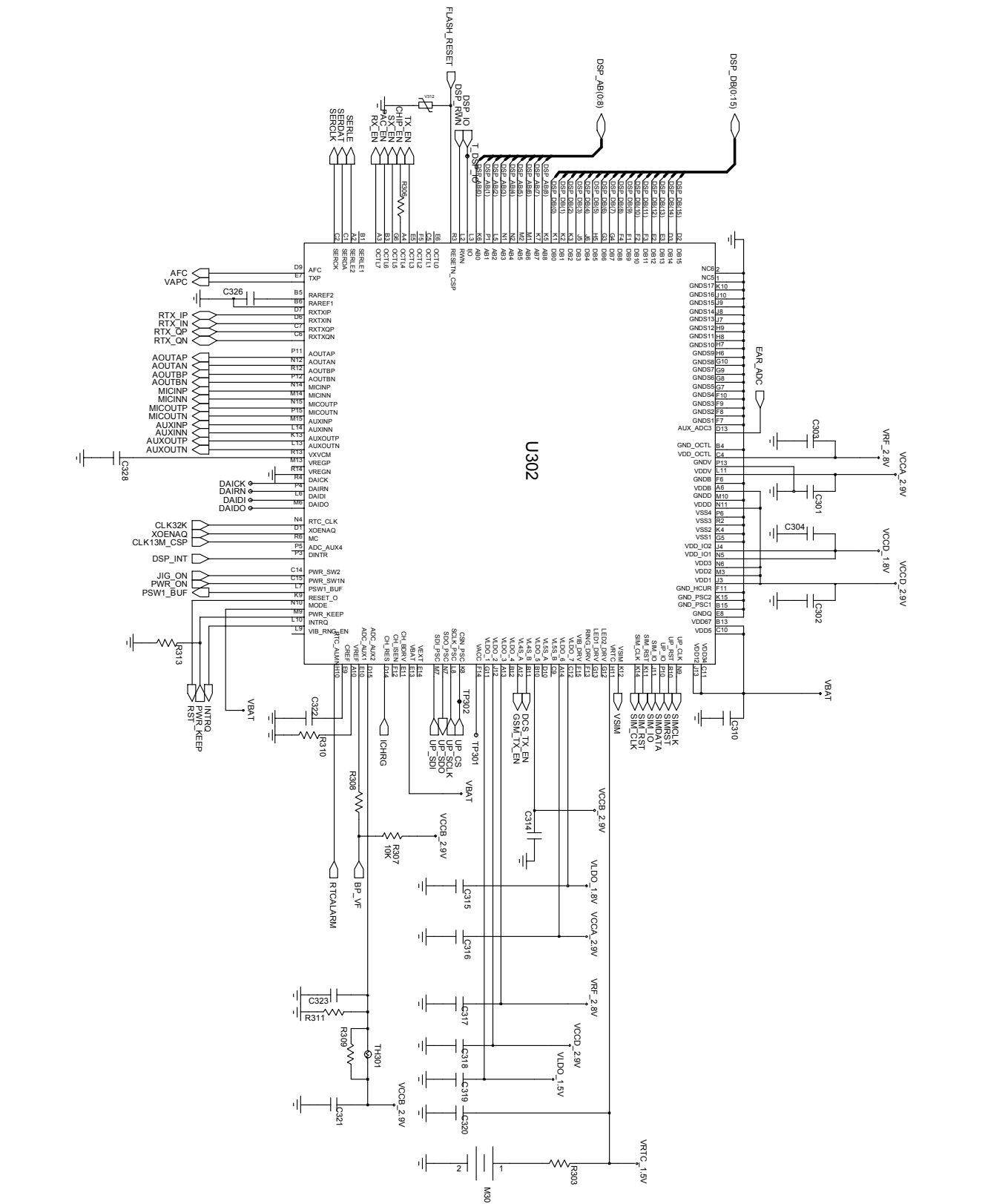
10. Flow Chart of Troubleshooting

10-1.Baseband

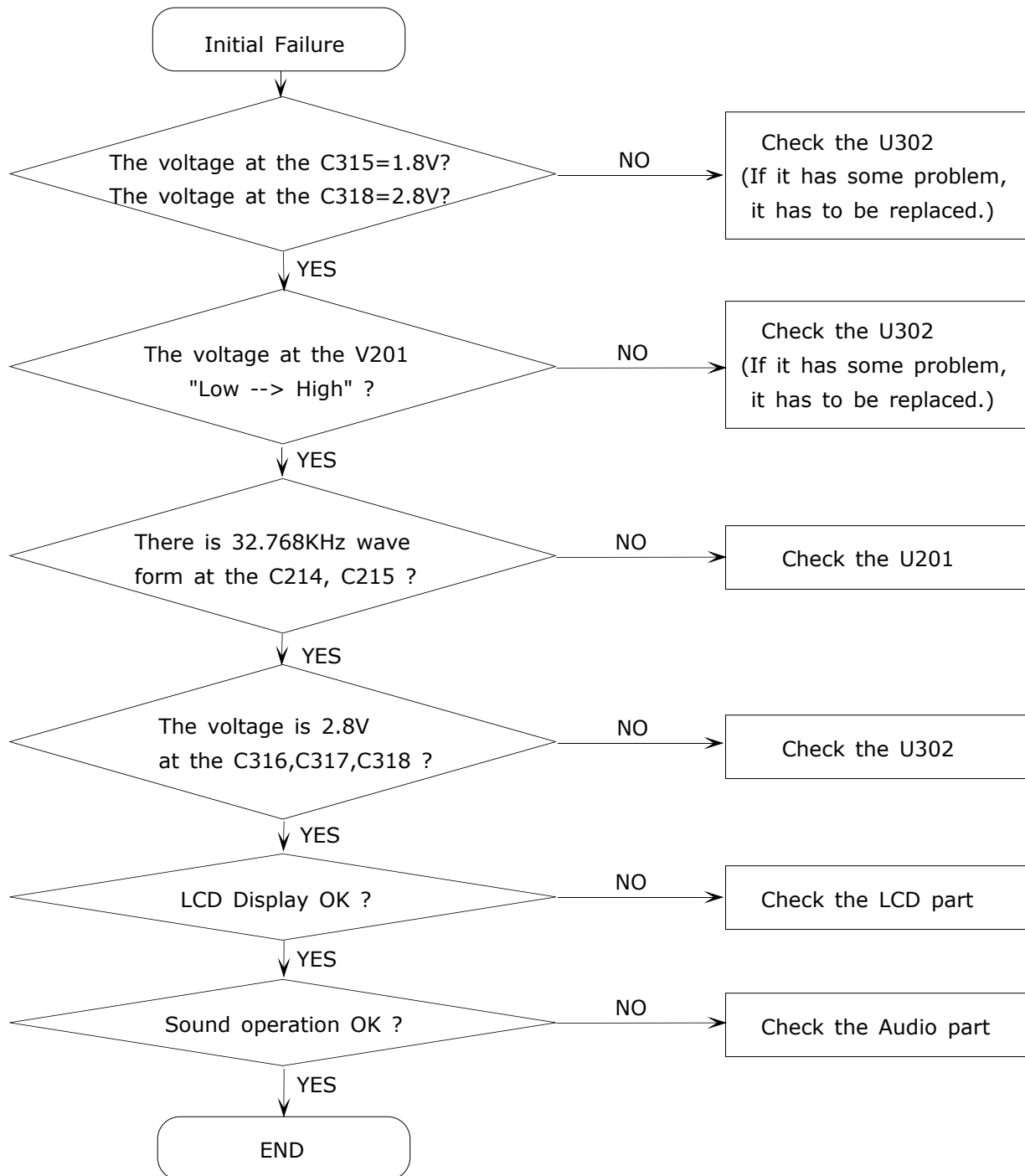
10-1-1. Power ON

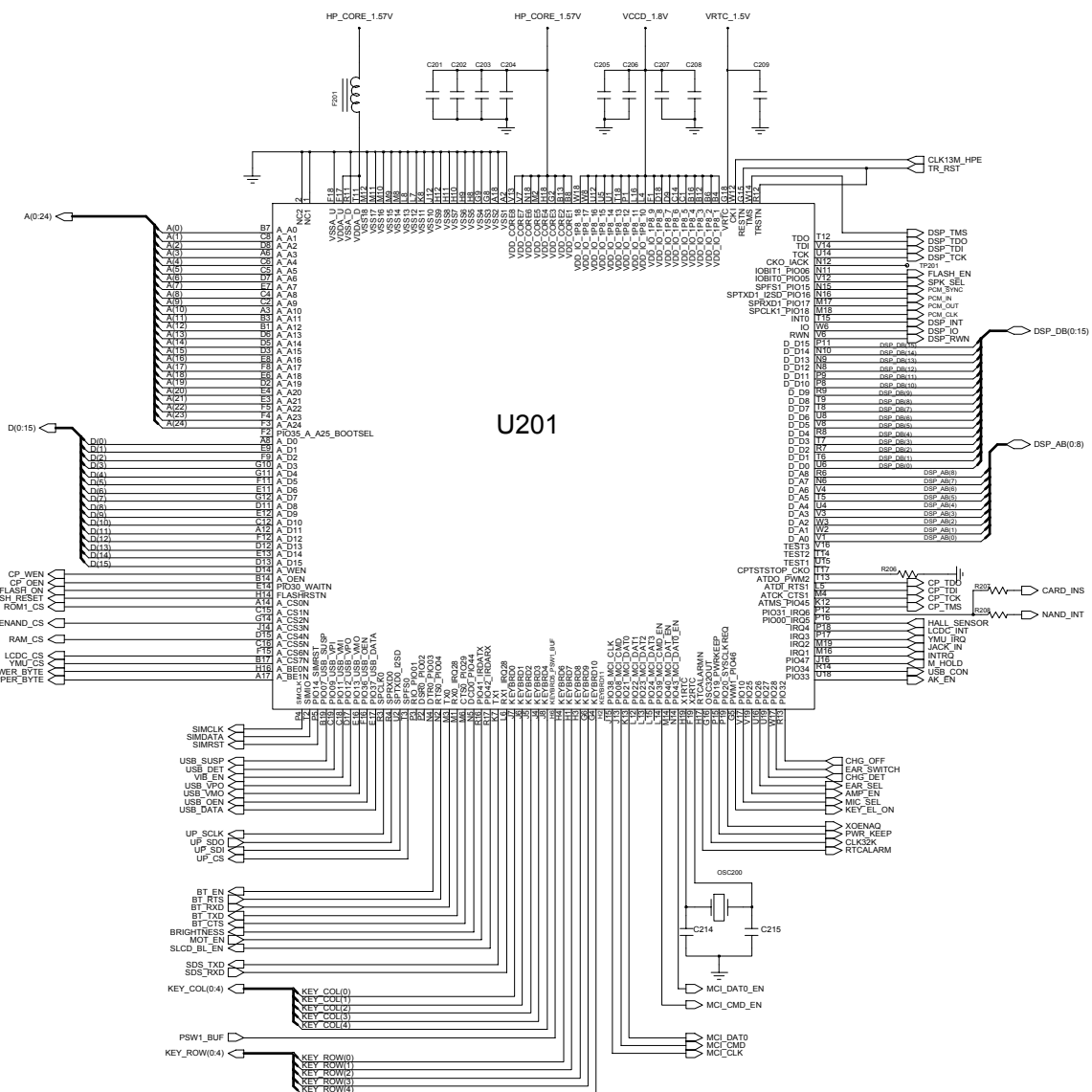
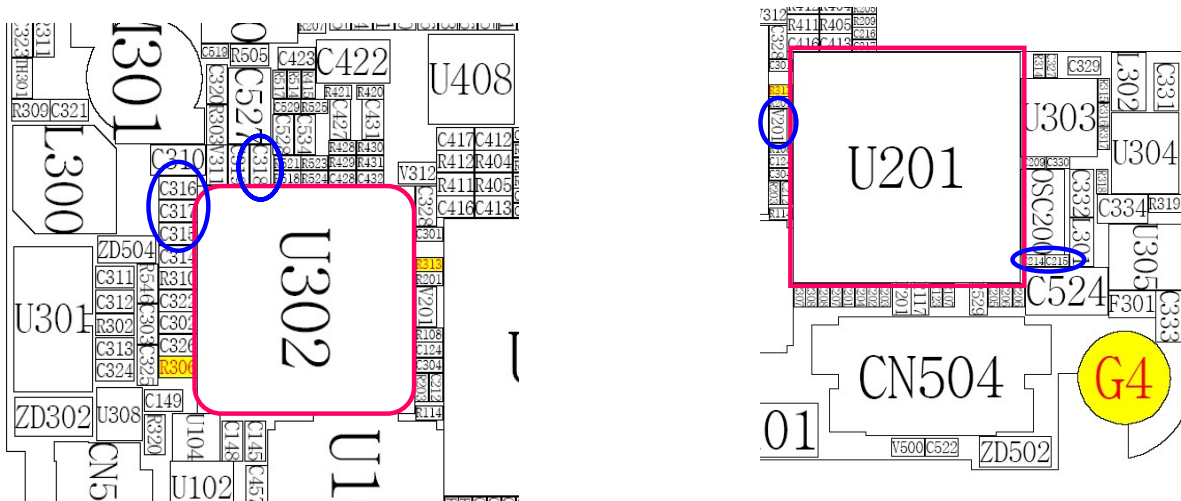




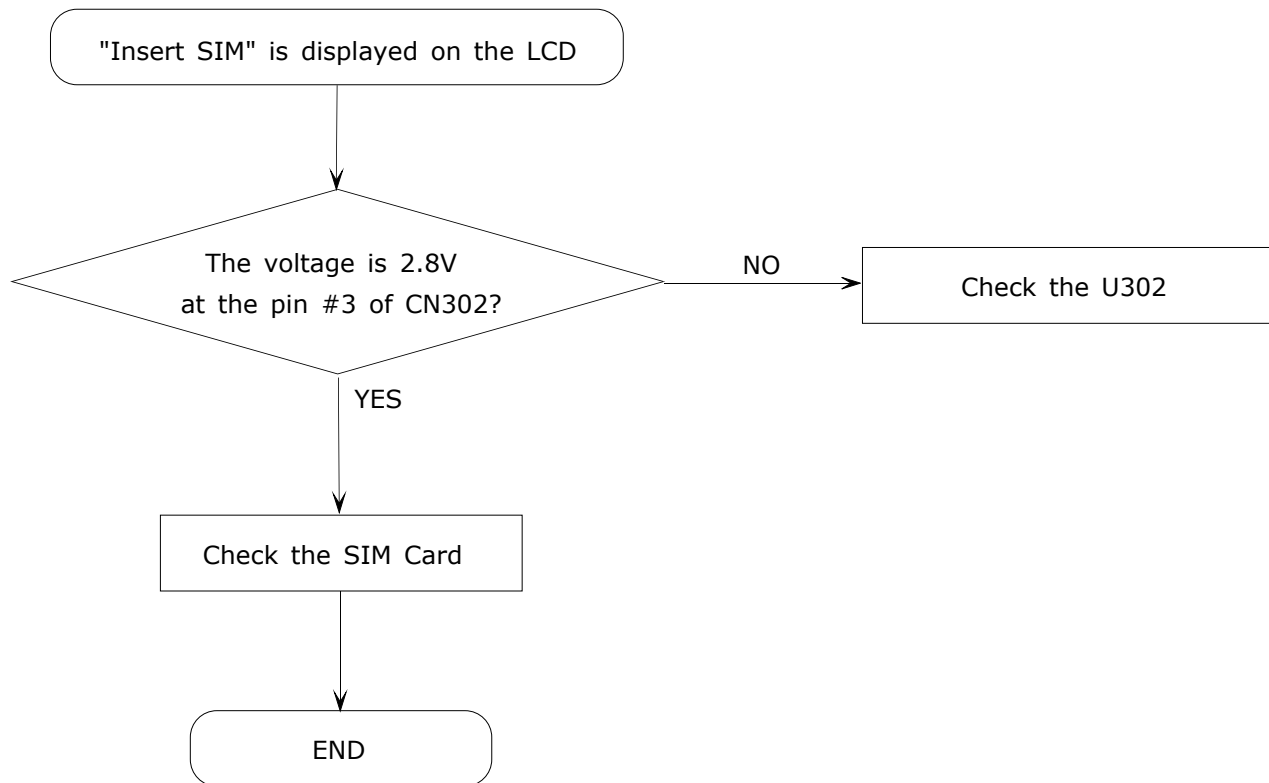


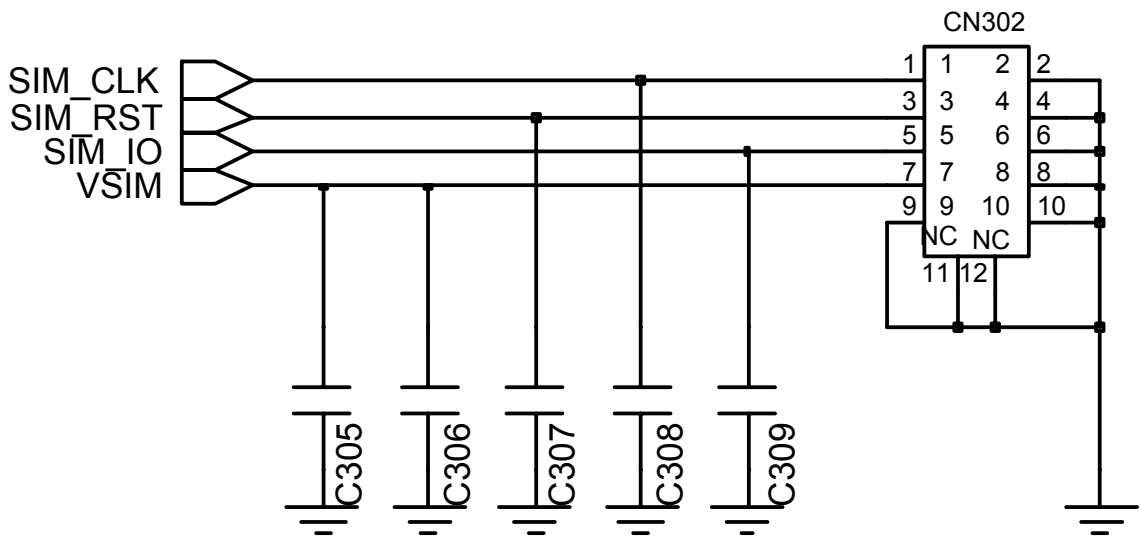
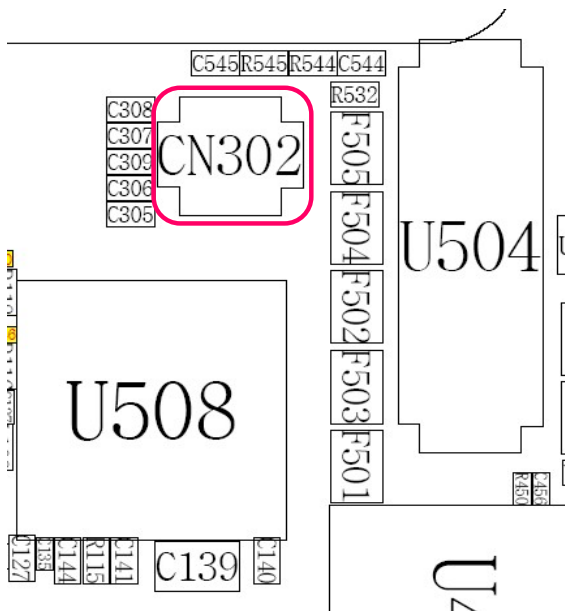
10-1-2. Initial



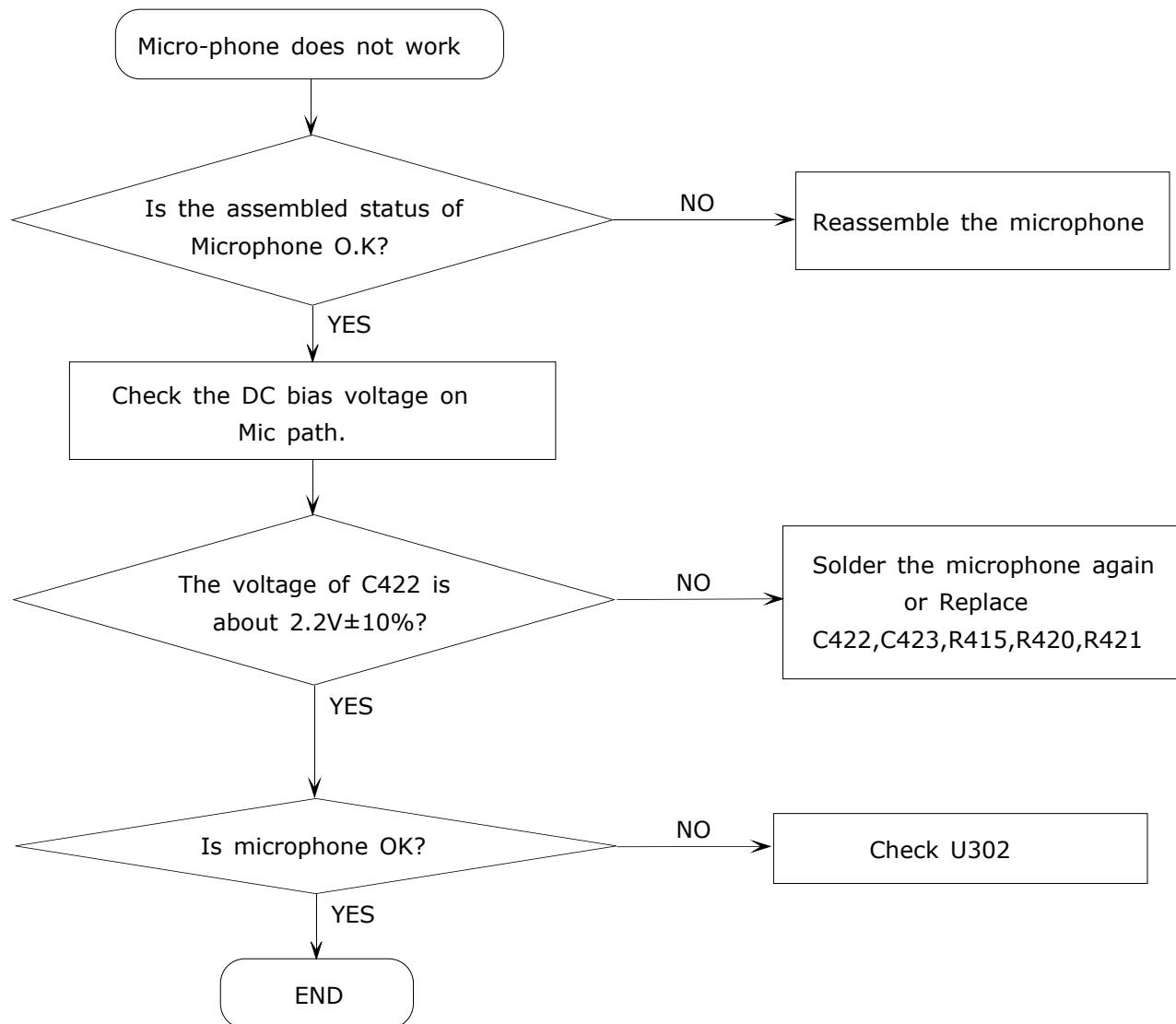


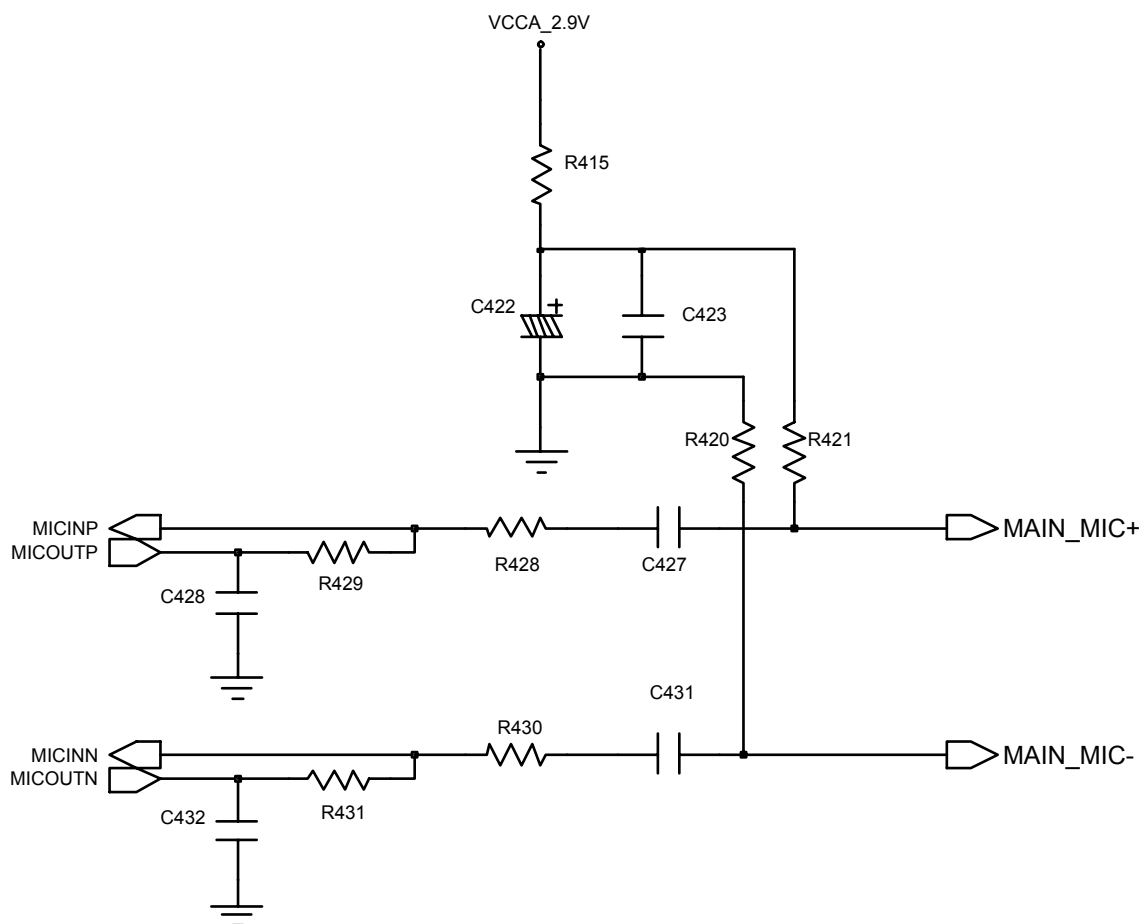
10-1-3. Sim Part



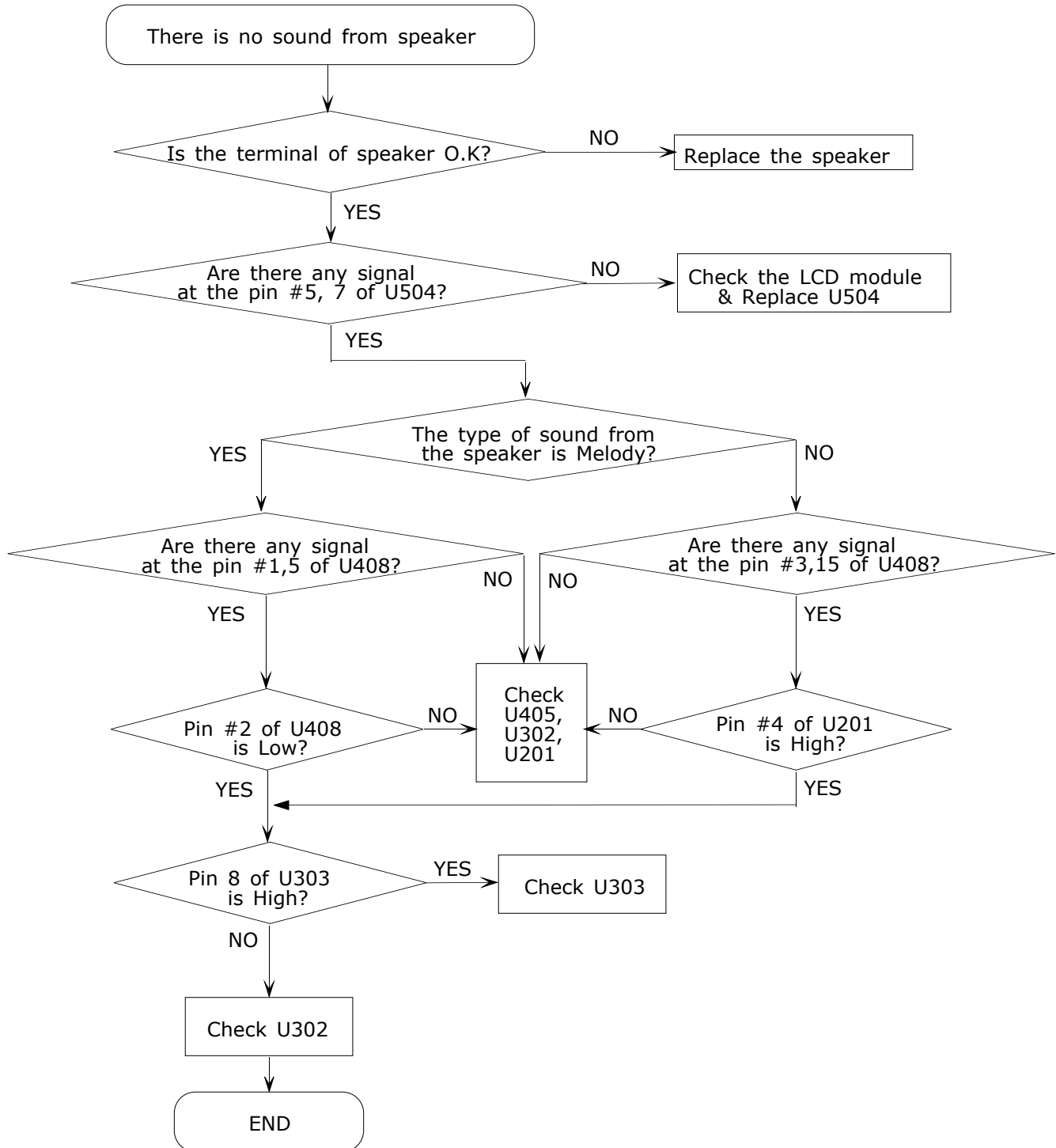


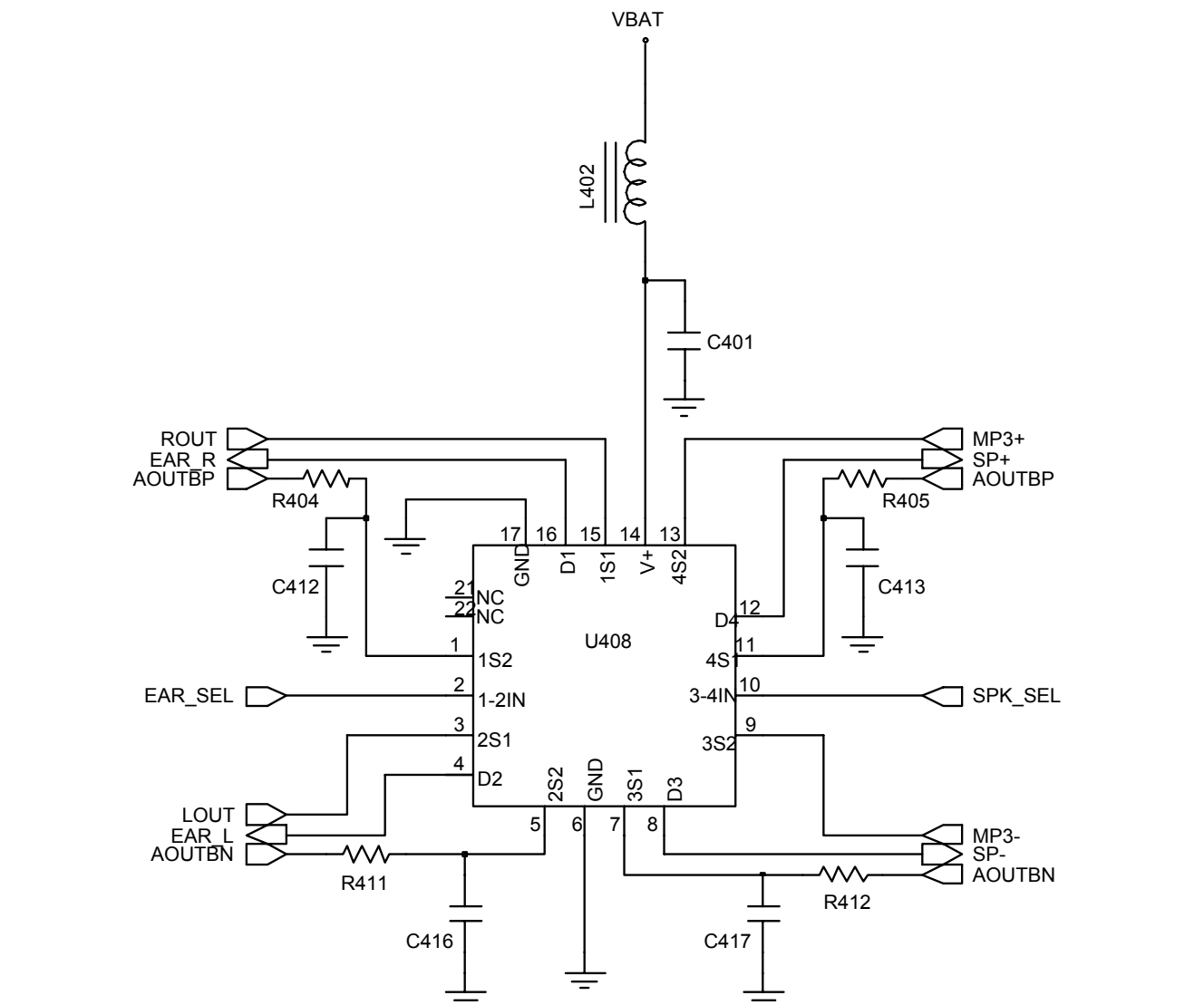
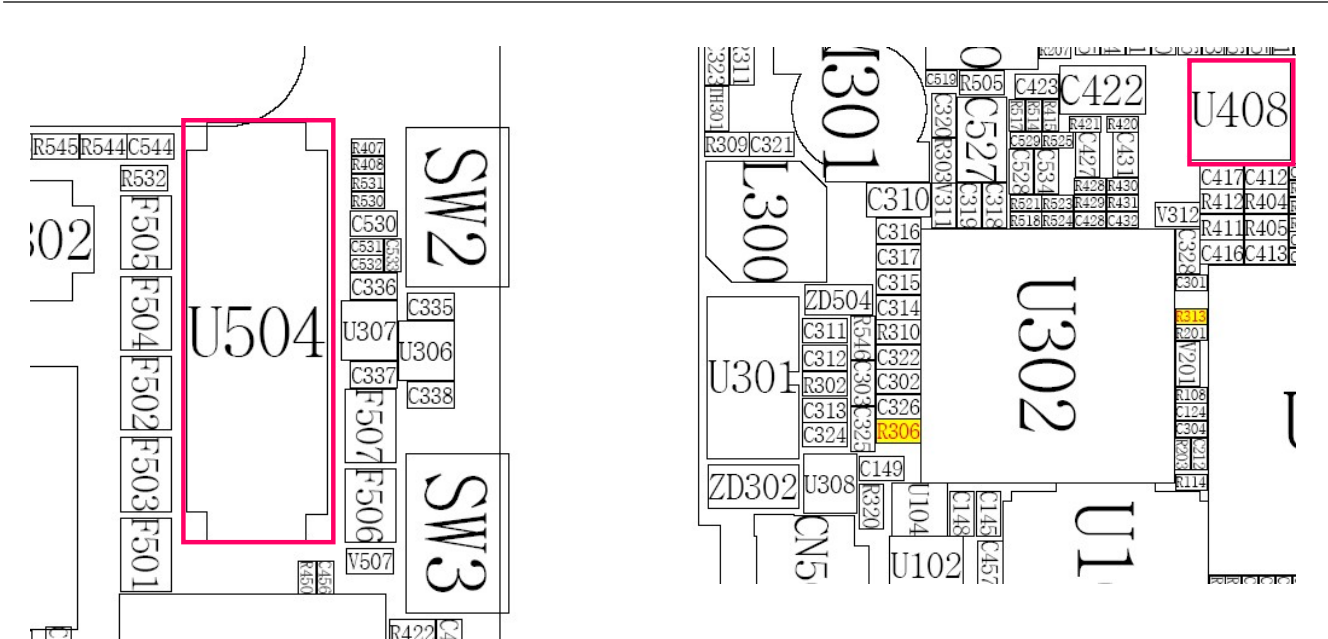
10-1-4. Microphone Part



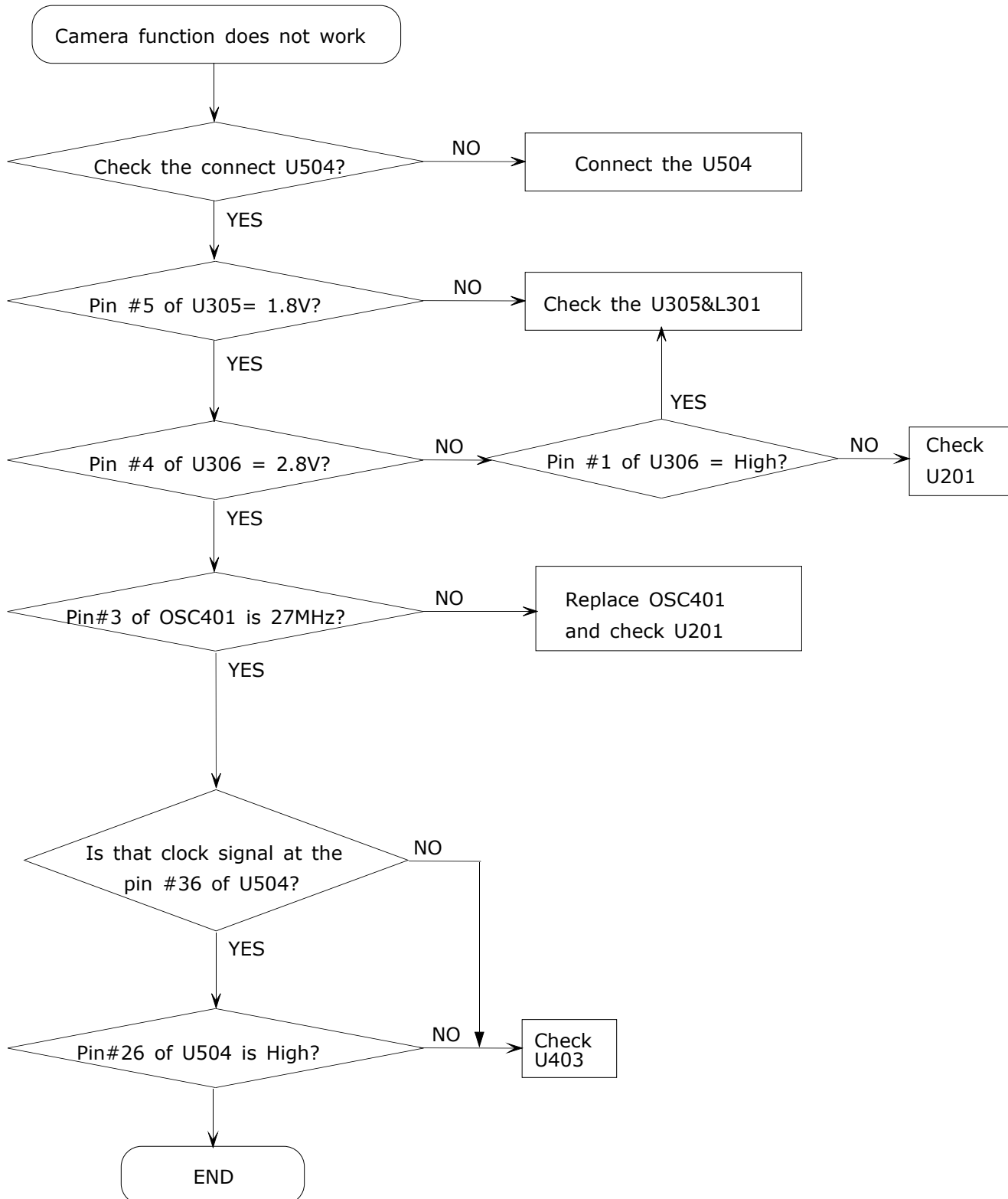


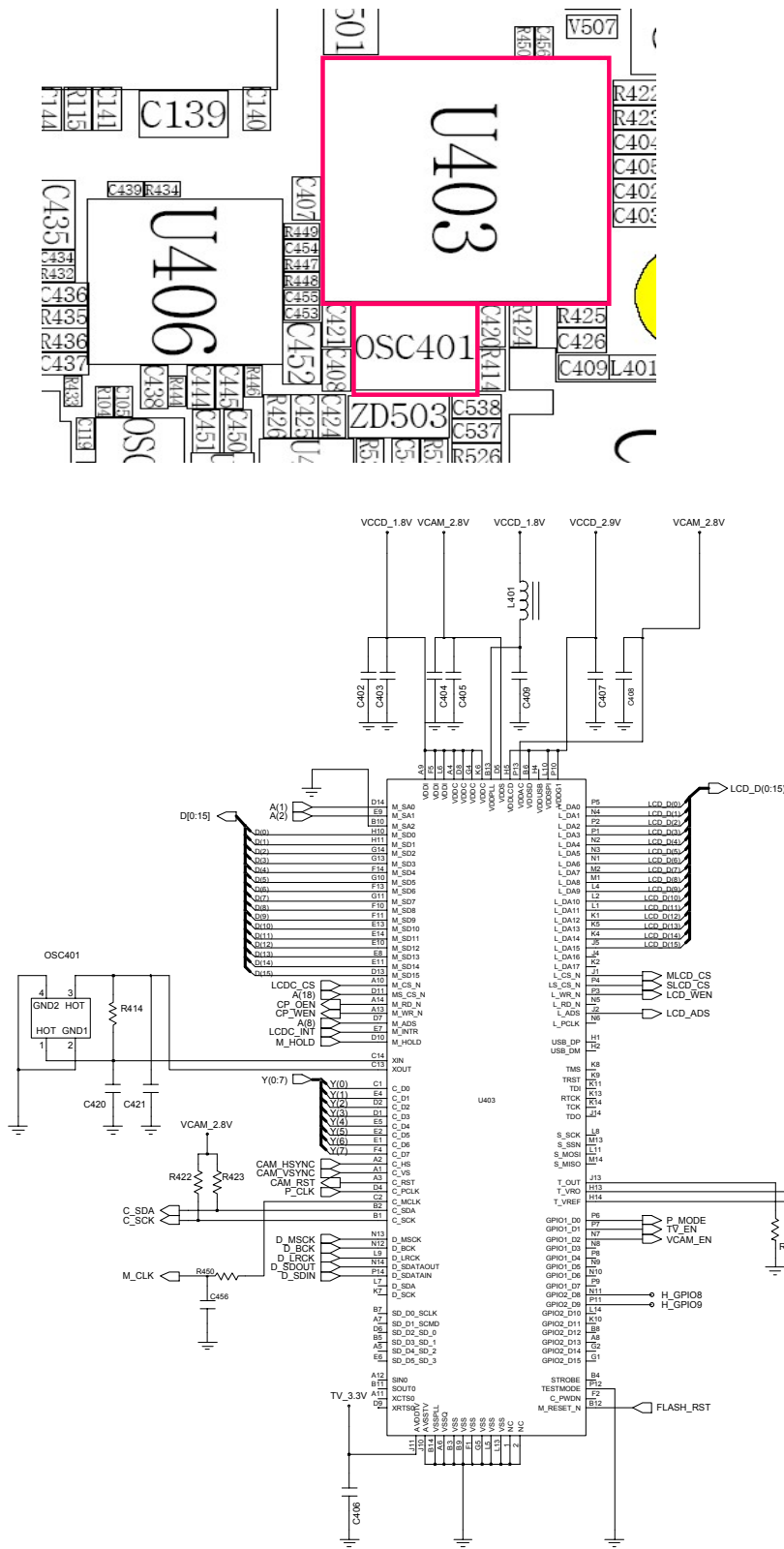
10-1-5. Speaker Part



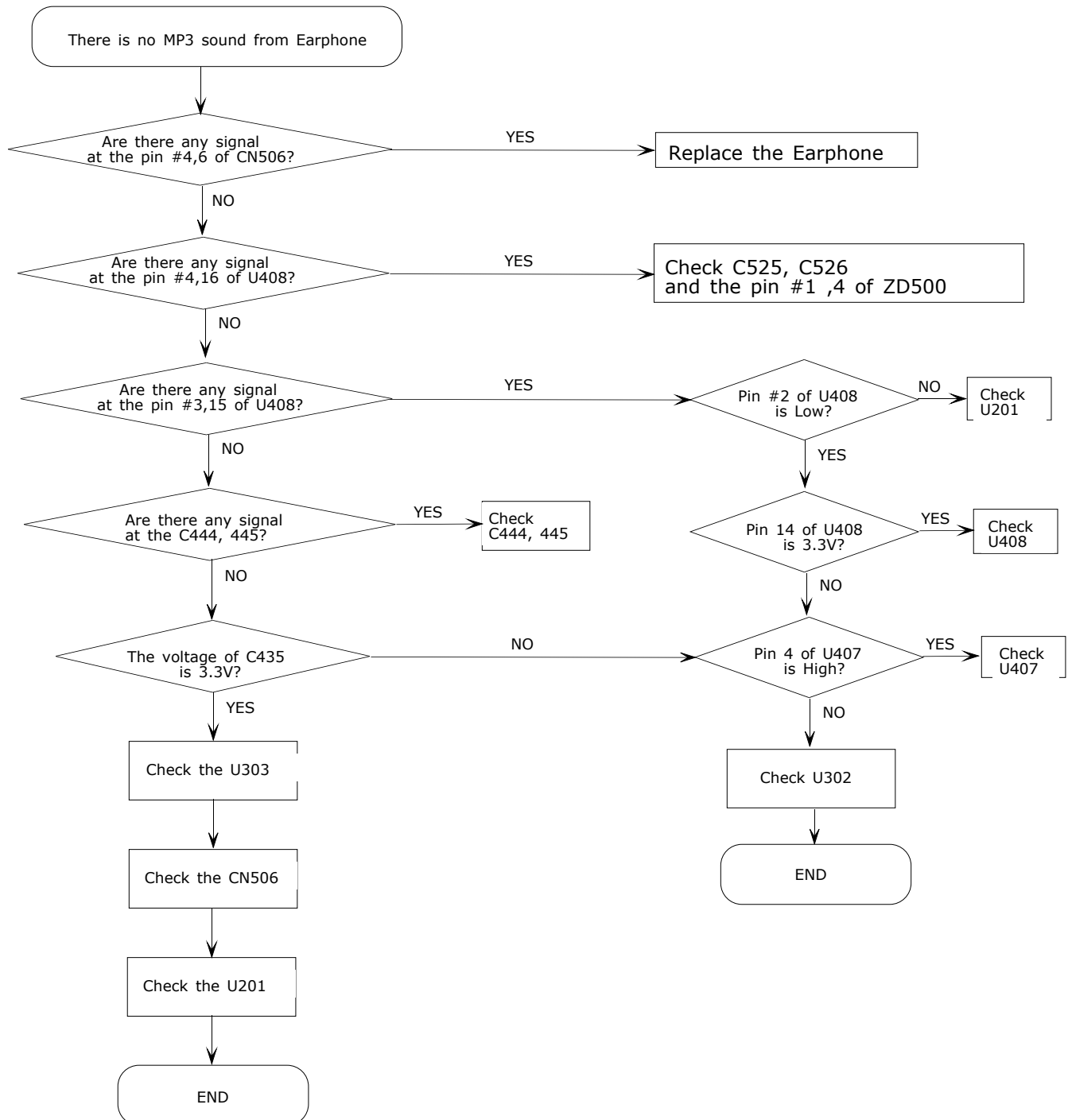


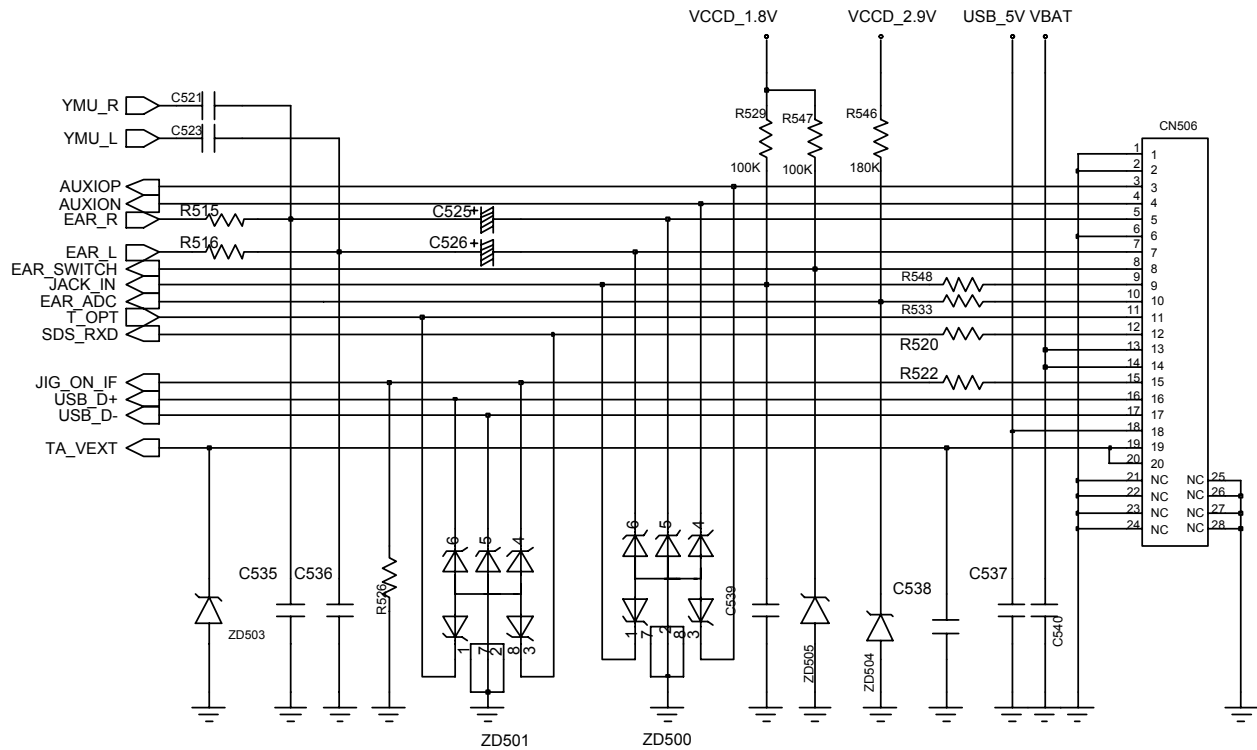
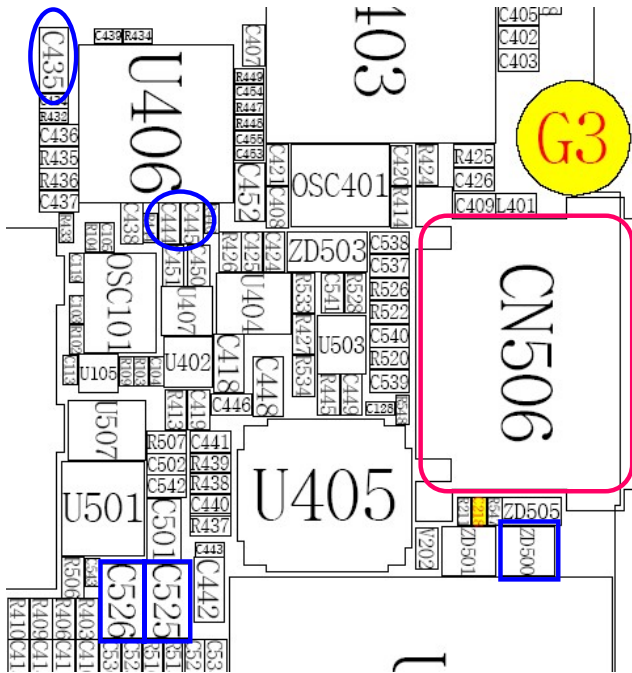
10-1-6. Camera Part





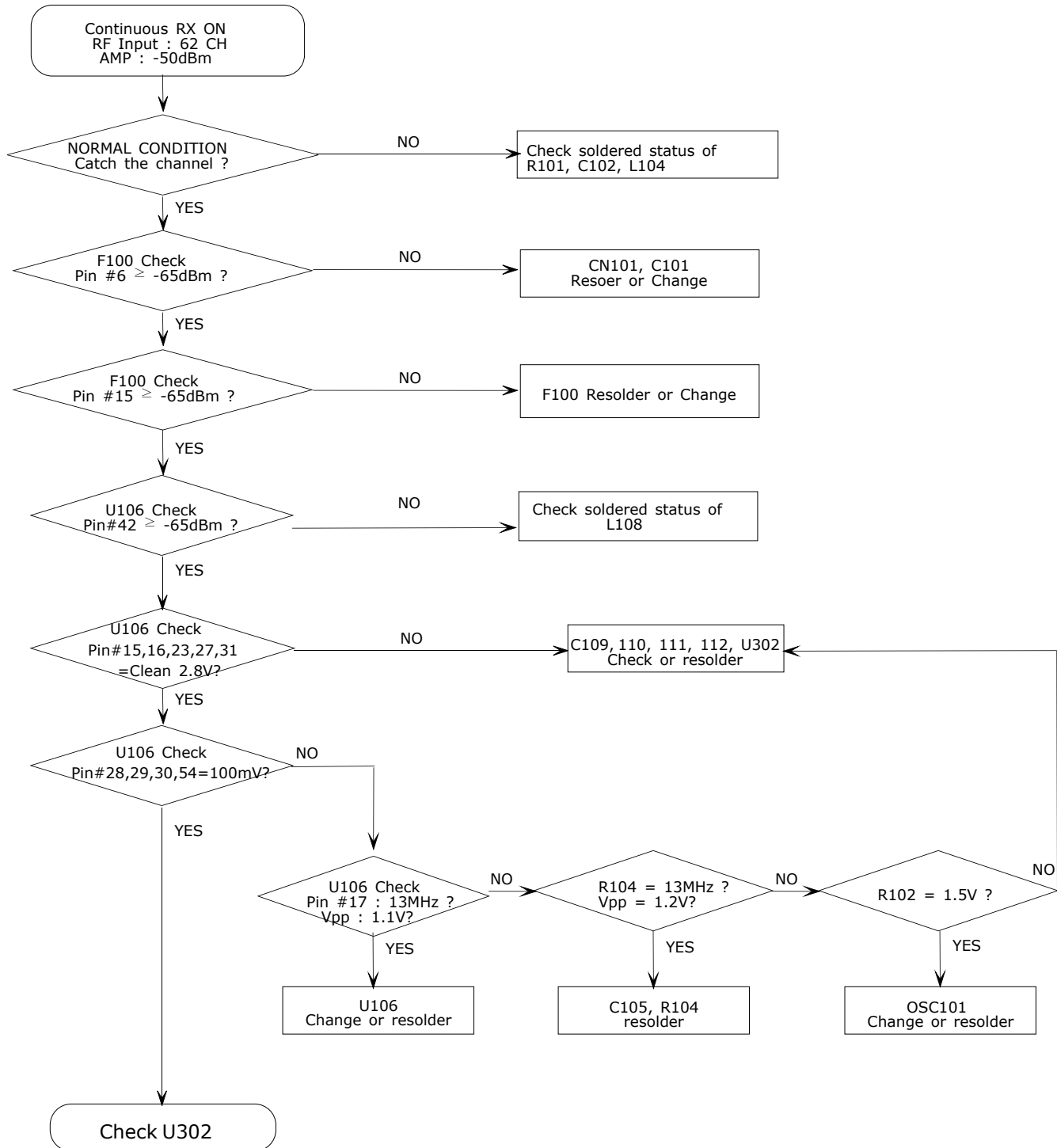
10-1-7. Mp3 Display Part

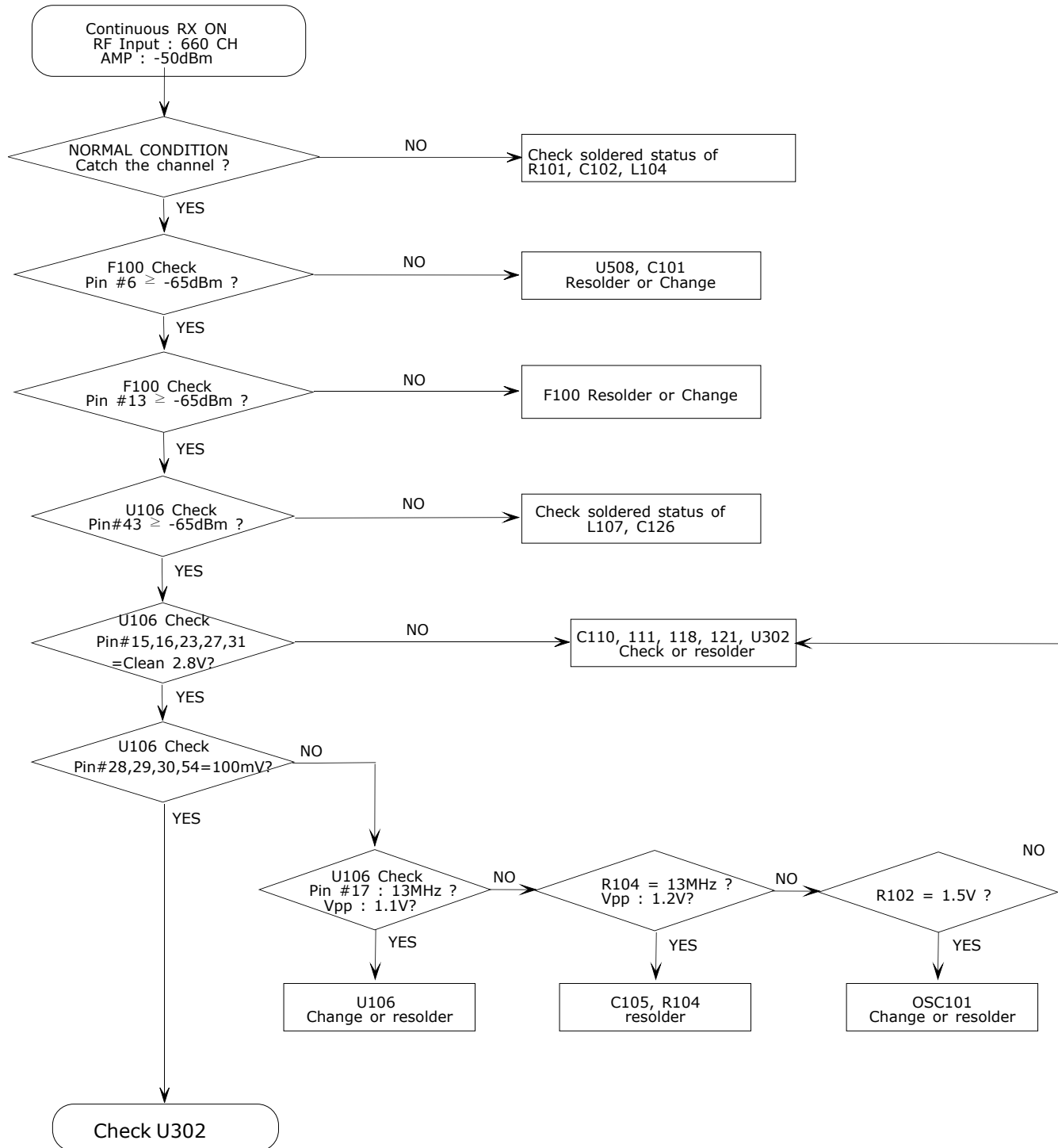




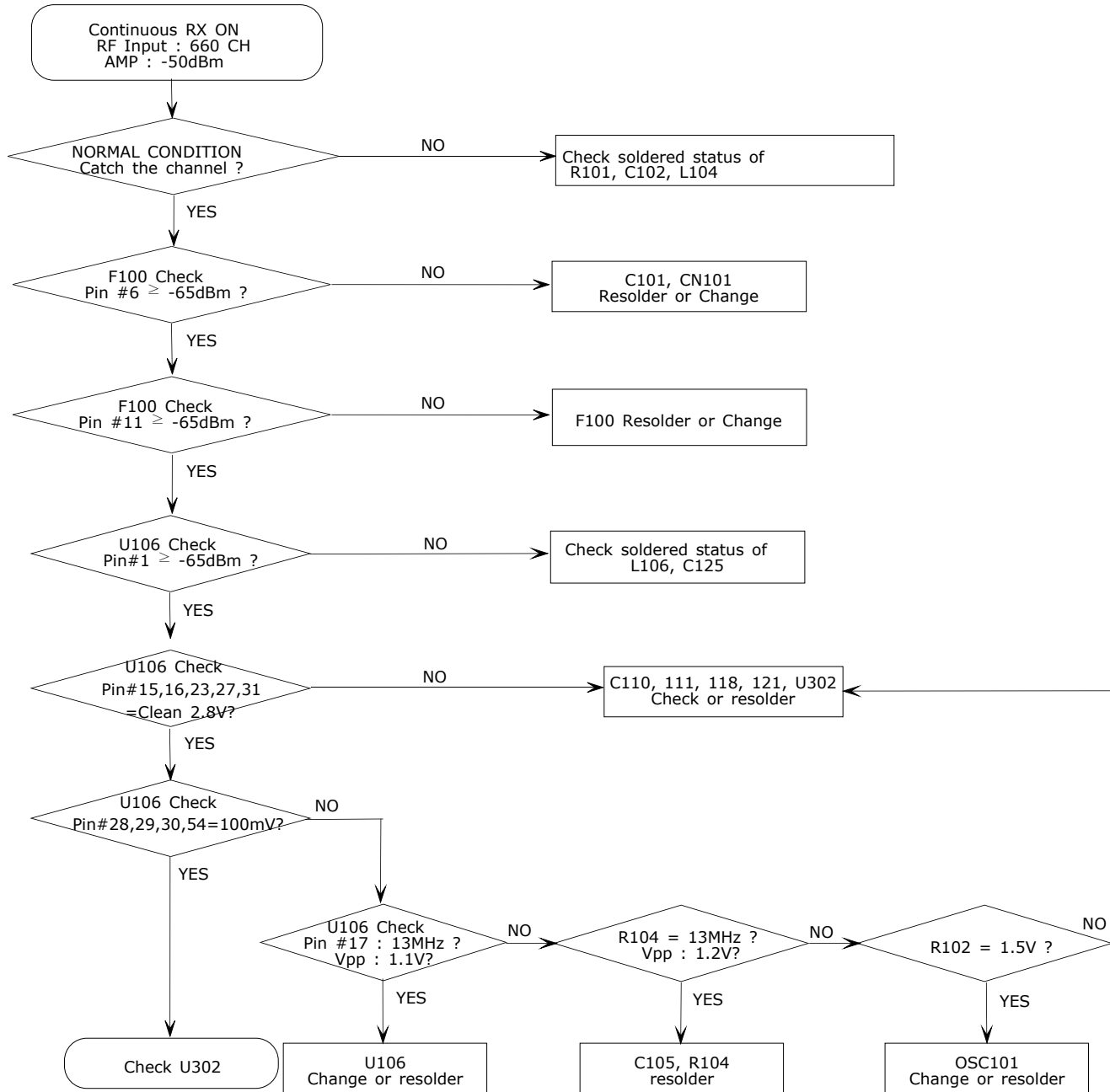
10-2.RF

10-2-1. EGSM RX

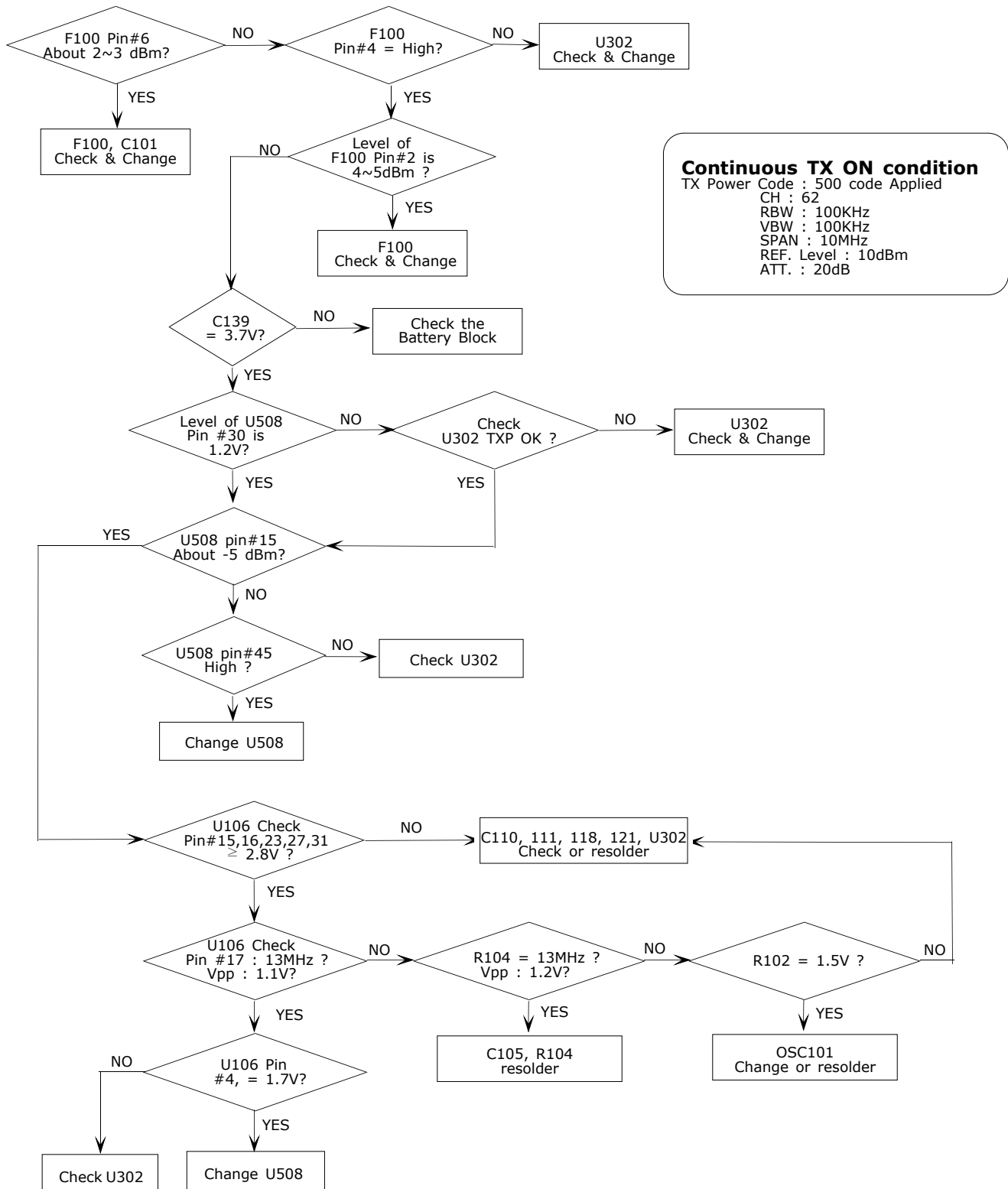


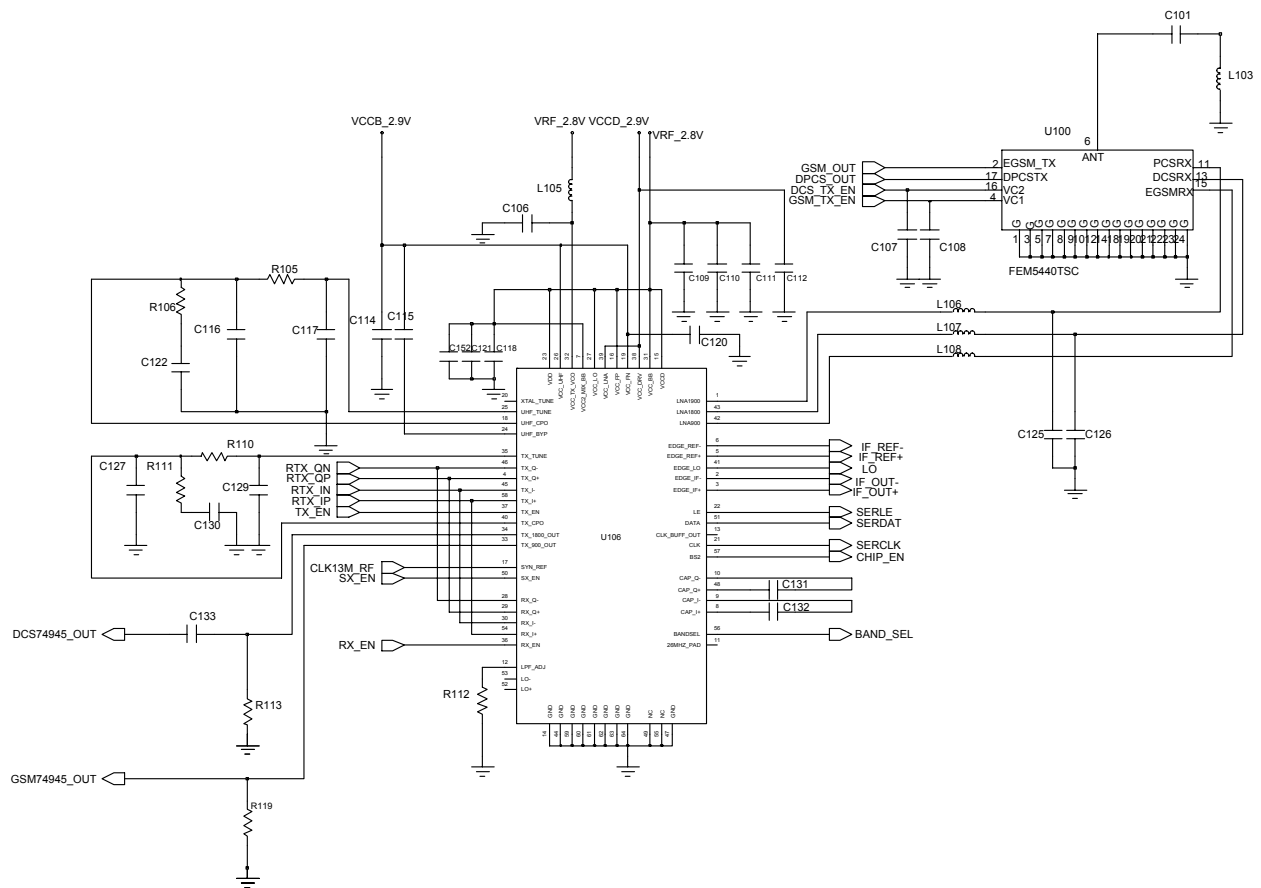
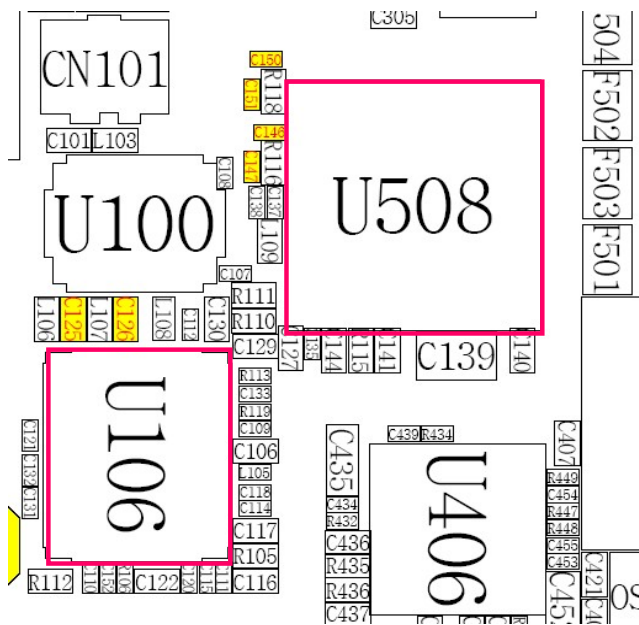
10-2-2. DCS RX

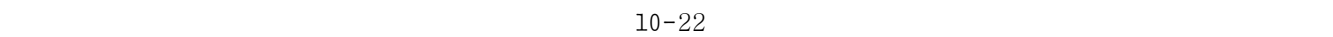
10-2-3. PCS RX



10-2-4. EGSM TX







11. Reference data

11-1. 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

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