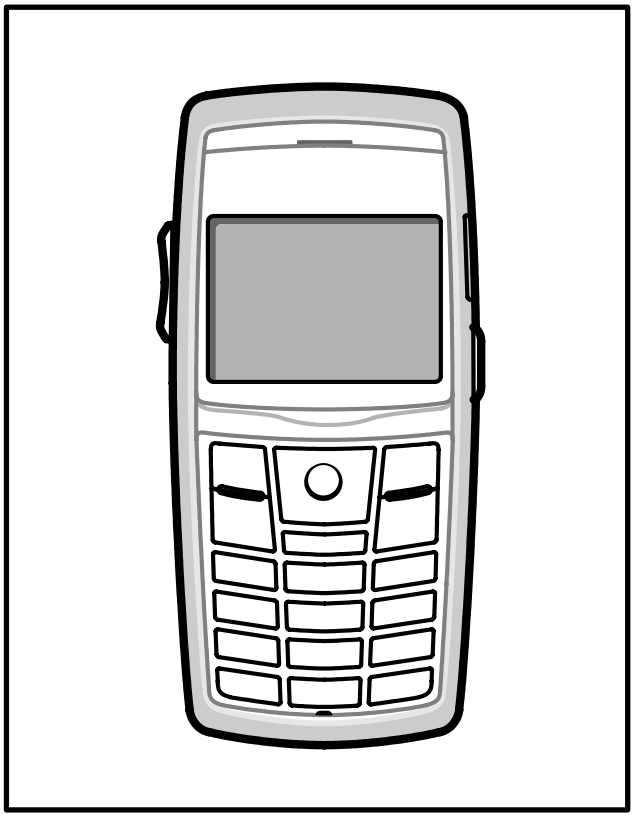
SAMSUNG

GSM TELEPHONE
SGH-X820

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 disassembing 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 General Specification

	GSM900 Phase 1	EGSM 900 Phase 2	DCS1800 Phase 1	PCS1900
Freq. Band[MHz] Uplink/Downlink	890~915 935~960	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range	1~124	0~124 & 975~1023	512~885	512~810
Tx/Rx spacing	45 MHz	45 MHz	95 MHz	80 MHz
Mod. Bit rate/ Bit Period	270.833 kbps 3.692 us	270.833 kbps 3.692 us	270.833 kbps 3.692 us	270.833 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	576.9 us 4.615 ms
Modulation	0.3 GMSK	0.3 GMSK	0.3 GMSK	0.3 GMSK
MS Power	33 dBm~13 dBm	33 dBm~5 dBm	30 dBm~0 dBm	30 dBm~0 dBm
Power Class	5 pcl ~ 15 pcl	5 pcl ~ 19 pcl	0 pcl ~ 15 pcl	0 pcl ~ 15 pcl
Sensitivity	-102 dBm	-102 dBm	-100 dBm	-100 dBm
TDMA Mux	8	8	8	8
Cell Radius	35 Km	35 Km	2 Km	-

2-2. GSM Tx Power Class

TX Power control level	GSM900
5	33±2 dBm
6	31±2 dBm
7	29±2 dBm
8	27±2 dBm
9	25±2 dBm
10	23±2 dBm
11	21±2 dBm
12	19±2 dBm
13	17±2 dBm
14	15±2 dBm
15	13±2 dBm
16	11±3 dBm
17	9±3 dBm
18	7±3 dBm
19	5±3 dBm

TX Power control level	DCS1800
0	30±3 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4 dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

TX Power control level	PCS1900
0	30±3 dBm
1	28±3 dBm
2	26±3 dBm
3	24±3 dBm
4	22±3 dBm
5	20±3 dBm
6	18±3 dBm
7	16±3 dBm
8	14±3 dBm
9	12±4 dBm
10	10±4 dBm
11	8±4 dBm
12	6±4 dBm
13	4±4 dBm
14	2±5 dBm
15	0±5 dBm

3. Product Function

Main Function

-Camera and camcorder
-Image editor
-Music player
-Bluetooth
-Photo printing
-Phone to TV
-Image editor
-File viewer
-Web browser
-Java
-Offline mode
-Multimedia Message Service (MMS)
-E-mail

4. Array course control

Test Jig (GH80-03307A)

Test Cable (GH39-00478A)

RF Test Cable (GH39-00182A)

Software Downloading

4-1. Downloading Binary Files

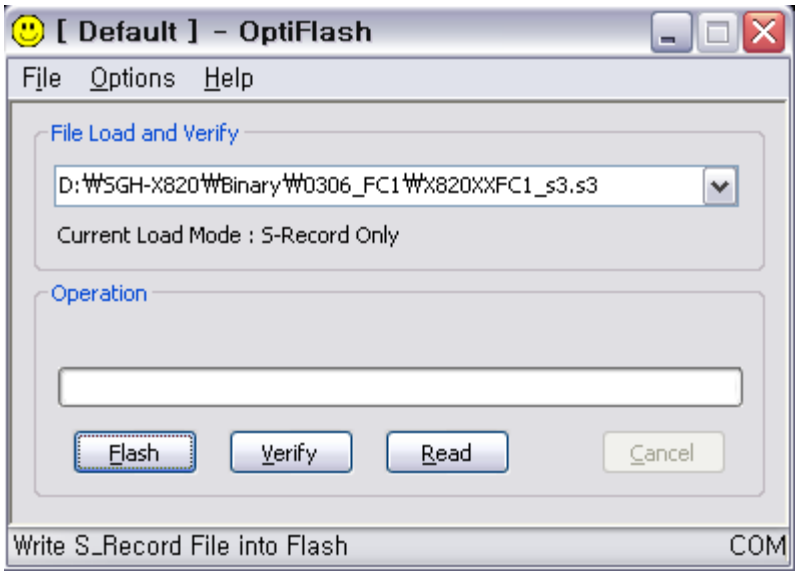
- Three binary files for downloading X820.
  – X820XXYY.s3 : Main source code binary.

4-2. Pre-requsite for Downloading

- Downloader Program(OptiFlash.exe)
- X820 Mobile Phone
- Data Cable
- Binary files

4-3. S/W Downloader Program

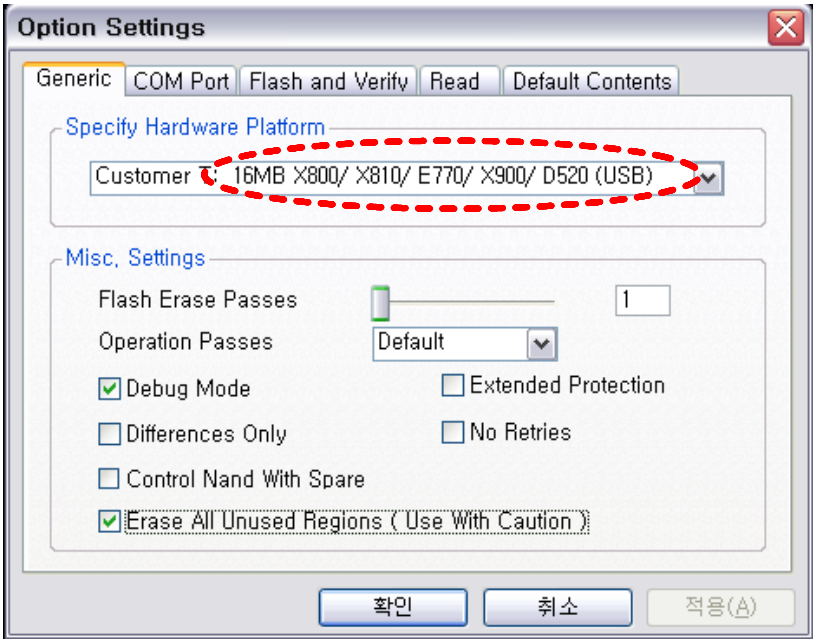
1. Load the binary download program♪by executing the "**OptiFlash.exe**"



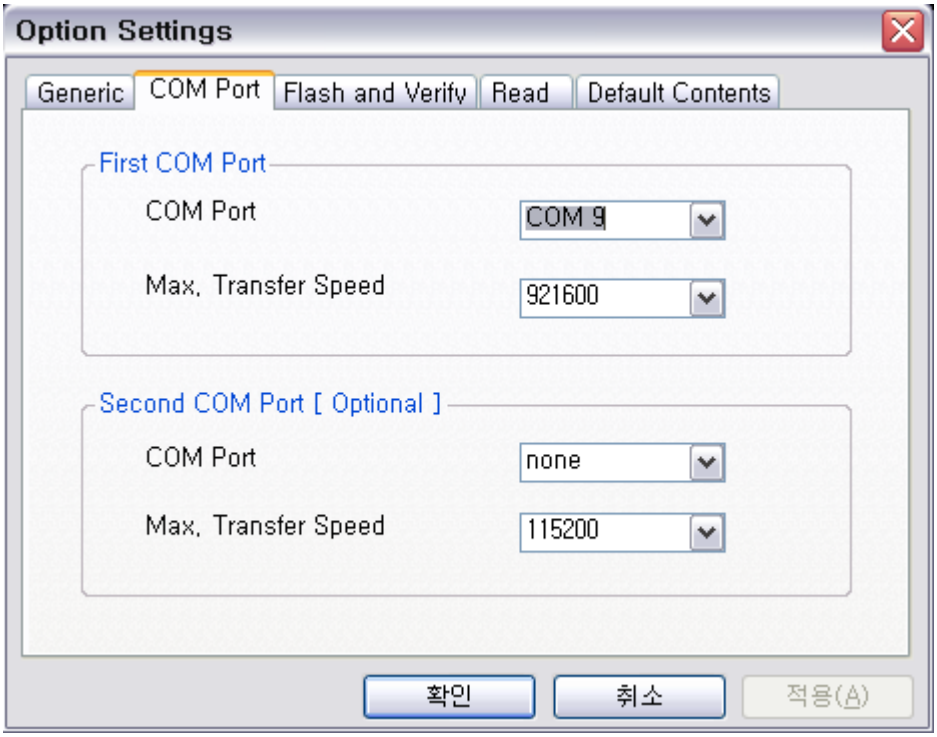
2. Select the **"Options" -> "Settings" -> "Generic" -> "Specify hardware platform"**.♪

Choose hardware platform for the downloader file setting.♪

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

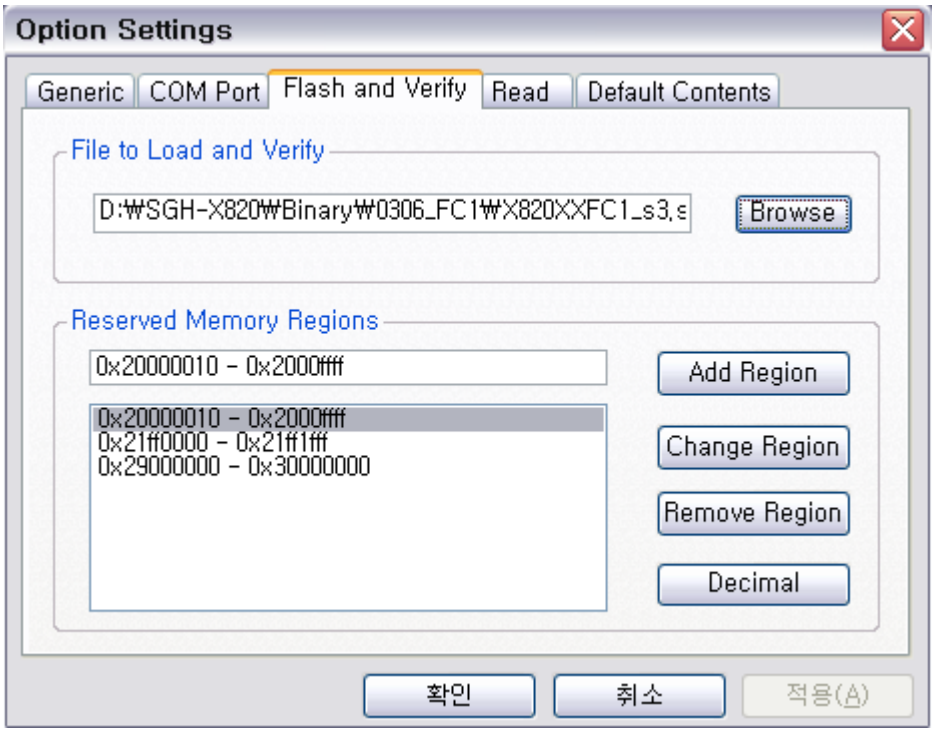


3. Select the **COM port** when the download cable is connected



Up to twelve 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 "X820XXYY.s3",♪for the downloader binary setting.



Make sure that not to change the reserved memory regions.♪

In case of X820 the reserved regions are :♪

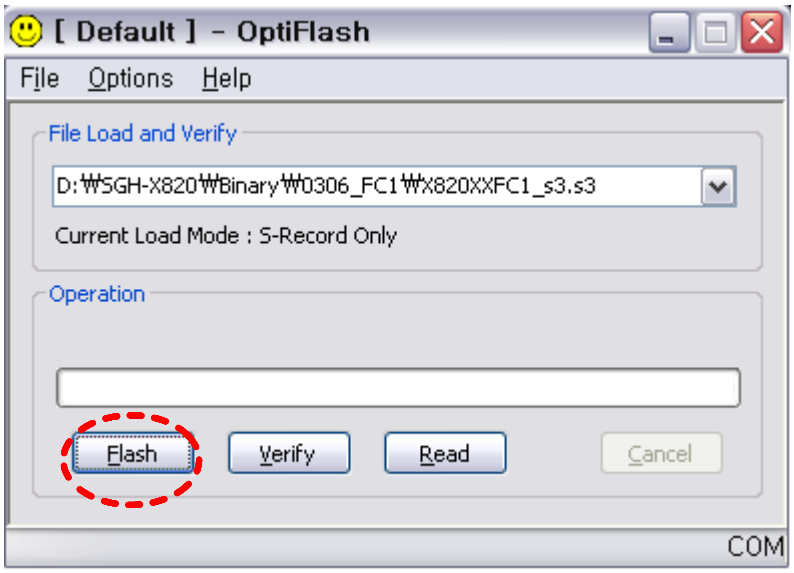
-0x20000010 – 0x2000ffff♪

-0x21ff0000– 0x21ff1fff♪

-0x29000000 – 0x30000000♪

5. 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. ♪



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

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

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

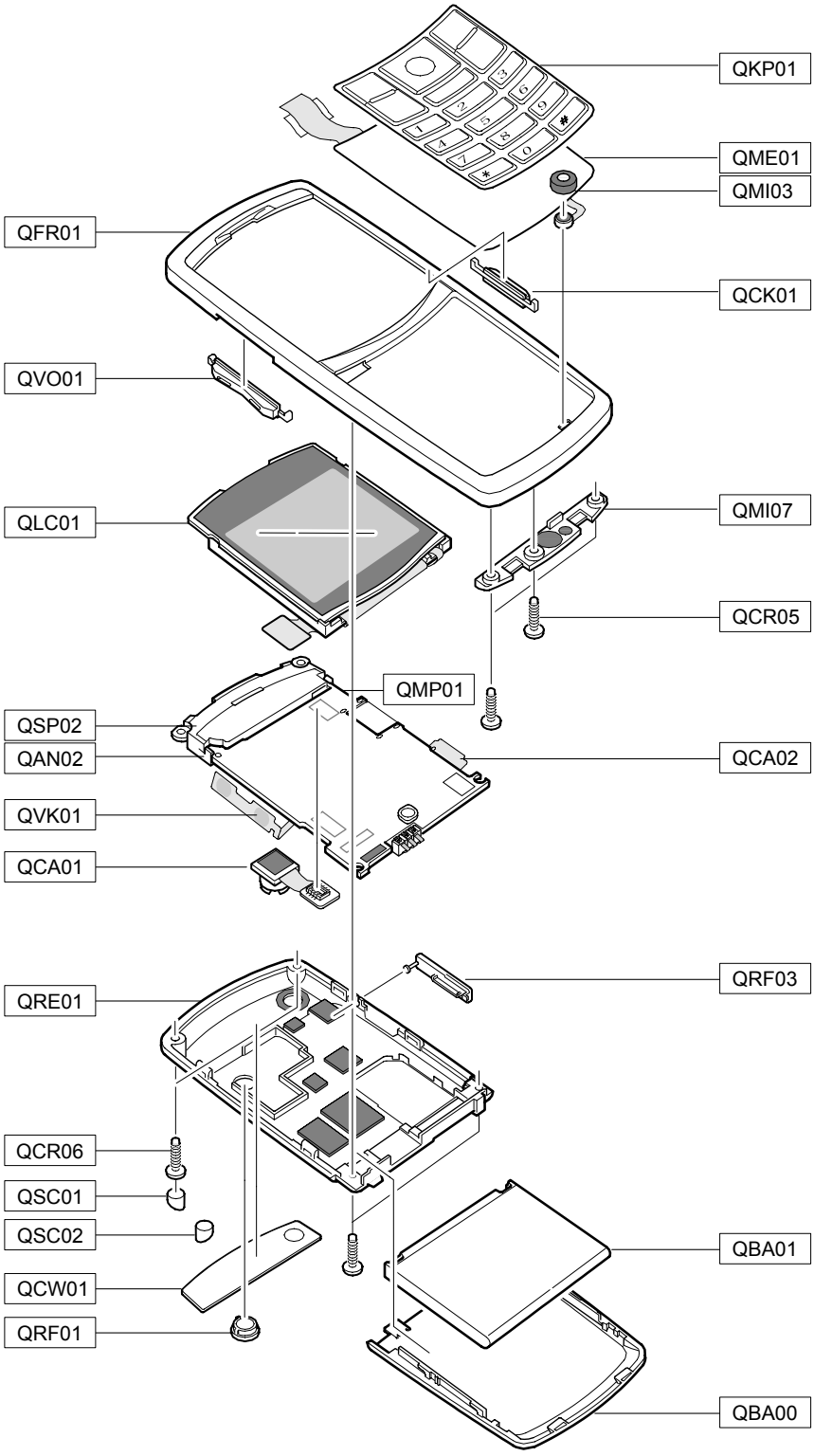
***#1234#♪**

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-SGHX820	GH42-00791A
QBA00		PMO-CASE BATTERY	GH72-29063A
QBA01		INNER BATTERY PACK-630MAH,BLK,	GH43-02386A
QCA01		UNIT-CAMERA	GH59-02950A
QCA02		UNIT-CAMERA KEY	GH59-03026A
QCK01		MEC-CAM KEY	GH75-09582A
QCR05		SCREW-MACHINE	6001-001478
QCR06		SCREW-MACHINE	6001-001155
QCW01		PMO-COVER WINDOW CAMERA	GH72-29074A
QKP01		MEC-KEYPAD(ZKA/XEF)	GH75-09583A
QLC01		LCD-SGHX820 MODULE	GH07-00882A
QME01		UNIT-EL KEY PBA	GH59-02966A
QMI07		ASSY-CASE-MIC SUB	GH98-01045A
QMP01		PBA MAIN-SGH-X820	GH92-02621A
QRF01		PMO-COVER RF	GH72-29064A
QSC01		PMO-COVER SCREW L	GH72-29065A
QSC02		PMO-COVER SCREW R	GH72-29066A
QSP02		UNIT-SPK MODULE	GH59-02958A
QVK01		UNIT-VOLUMEKEY	GH59-03027A
QVO01		MEC-VOLUME KEY	GH75-09581A
QFR01		MEC-CASE FRONT	GH75-09579A
	QMI03	RMO-COVER MIC HOLDER	GH73-06452A
QRE01		MEC-CASE REAR	GH75-09580A
	QRF03	PMO-COVER EAR JACK	GH72-29073A

Discription	SEC CODE
BAG PE	6902-000297
ADAPTOR-SGHD800 TA(EU)	GH44-01060A
UNIT-EARPHONE(BLK)	GH59-02499A
LABEL(P)-IMEI	GH68-01335D
LABEL(P)-WATER SOAK	GH68-02026A
LABEL(P)-WATER SOAK	GH68-02026A
MANUAL USERS-EU FRENCH	GH68-10846A
LABEL(R)-MAIN(FRANCE)	GH68-10850A
BOX(P)-UNIT MAIN(EU)	GH69-03932A
CUSHION-CASE TA2 MA4	GH69-03934A
RMO-CHSHION INDUCTOR-2	GH73-07097A
MPR-TAPE LCD FPCB	GH74-20633A
MPR-CUSHION INDUCTOR-1	GH74-21005A
MPR-VINYL BOHO REAR	GH74-21012A
MPR-VINYL BOHO MAIN WINDOW	GH74-21905A
MPR-TAPE SPK CONN	GH74-22095A
MPR-TAPE SPK CONN	GH74-22095A
MPR-TAPE KEYPAD CONN	GH74-22098A
MPR-VINYL BOHO KEYPAD	GH74-22928A
MPR-CUSHION INDUCTOR-3	GH74-23850A
MPR-VINYL BOHO LCD	GH74-24623A
MPR-VINYL BOHO REAR-2	GH74-25033A
MPR-VINYL BOHO EAR DECO	GH74-25298A
AS-LCD WINDOW	GH81-03179A
AS-TAPEKEYPAD	GH81-04637A
AS-LCD TAPE	GH81-04638A

6. Disassembly and Assembly instructions

6-1. Disassembly

1

1) Remove SCREW CAP
2) release the screws(4 point)

※ **caution**

1) Handle with care. No scratch

2

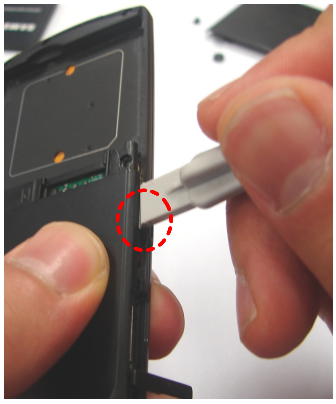
-Please use dismantle tool to open
-REAR case is too soft to be broken

1) Press the Rear Camera Hook side with the dismantle tool to release the locker

※ **caution**

1) Handle the HOOK with care, and check No bending the board and front/rear cover

3



1) Press the rear sim connector Hook side with the dismantle tool to release the locker

※ **caution**

1) Handle with care. No scratch
2) Handle the HOOK with care, and check No bending the board and front/rear cover

4

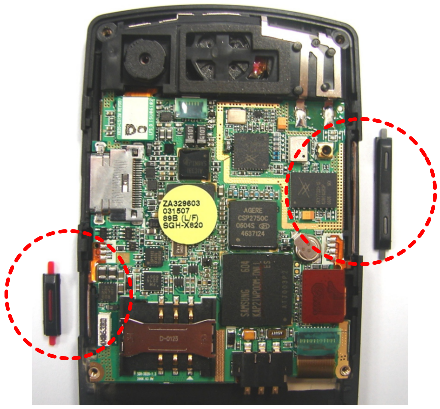
1) Press the Rear volume key side (upper and lower) with the dismantle tool to release the locker

2) Open the rear cover

※ **caution**

1) Handle with care. No scratch
2) Handle the HOOK with care, and check No bending the board and front/rear cover

5

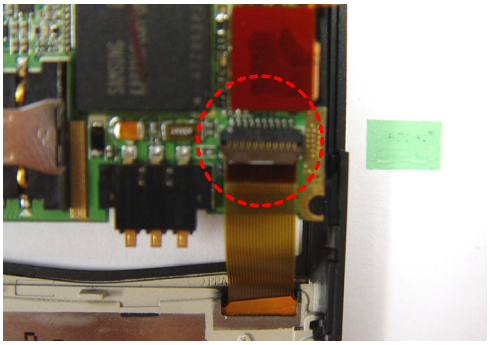


1) Separate CAMERA KEY and VOLUME KEY from the cover

※ **caution**

1) FPCB is easy to break and crack

6

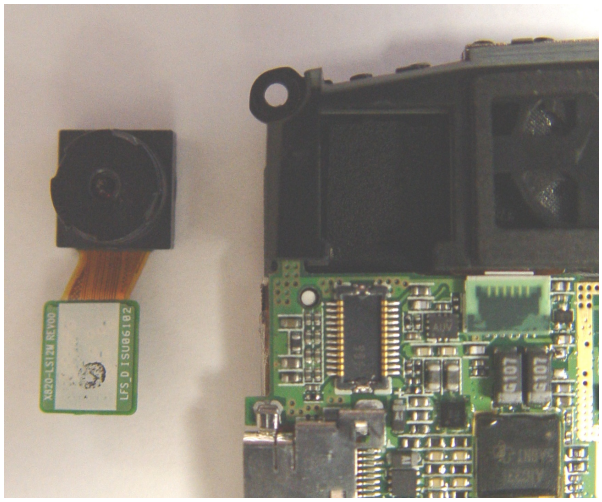


1) remove EL SHEET F-PCB CONNECTOR TAPE
2) unlock the connector LOCKER and separate key F-PC

※ **caution**

1) FPCB is easy to break and crack
2) Connector is easy to break

7

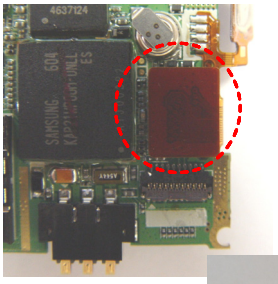


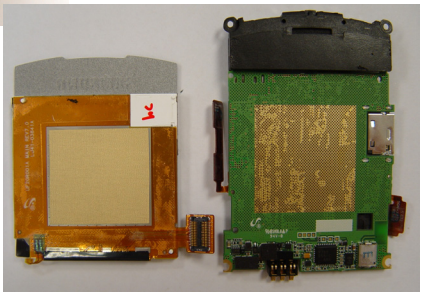
1) take off the CAMERA CONNECTOR
2) Separate CAMERA MODULE

※ **caution**

1) Camera FPCB is easy to break

8





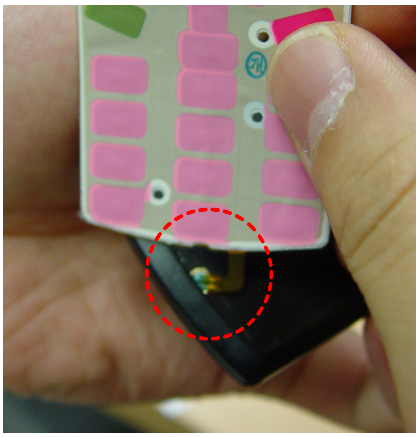
1) Take off LCD CONNECTOR
2) Separate LCD MODULE

※ **caution**

1) LCD glass and LDI are easy to break. Separate LCD module slowly with care

6-2. Assembly

1

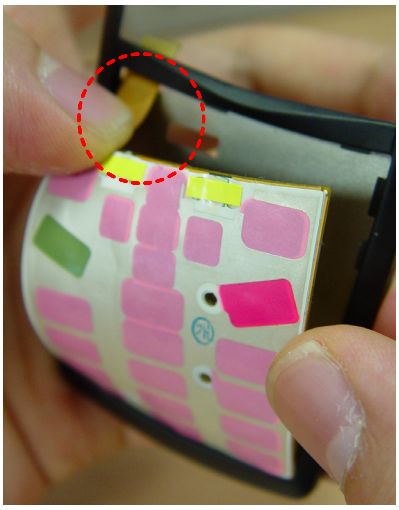


1) Prepare the EL KEY SHEET
2) Remove the release paper
3) Insert the MIC into the hole of FRONT lower hole

※ **caution**

1) Handle the MIC F-PCB with care. This FPCB tears easily.

2

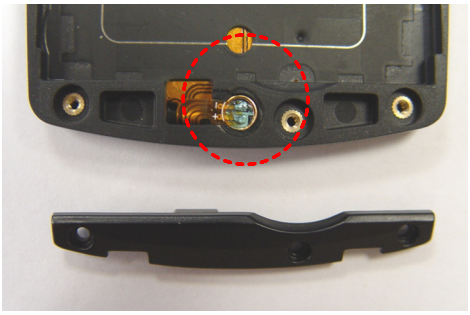


1) Insert KEY FPCB into the FRONT upper hole
2) attach a EL KEY PAD to the Front cover

※ **caution**

1) KEY FPCB has to be inserted before the sheet attached.
2) Handle the KEY F-PCB with care. This FPCB tears easily.

3

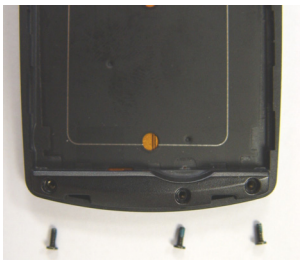


1) Place the MIC as the picture below

※ **caution**

1) Check the MIC FPCB is OK

4

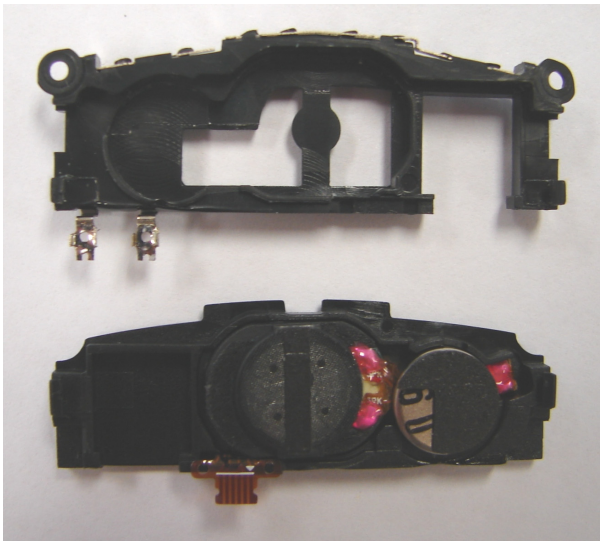


1) Put the MIC COVER and CREW
2) Attach KEYPAD
3) Press the KEYPAD not to be detached

※ **caution**

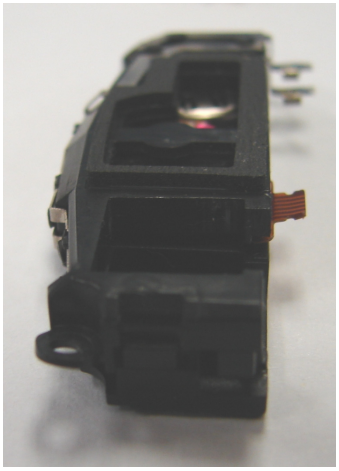
1) Check the KEY PAD is OK

5



1) Separated INTENNA ASS'Y and SPEAKER MOTOR MODULE

6

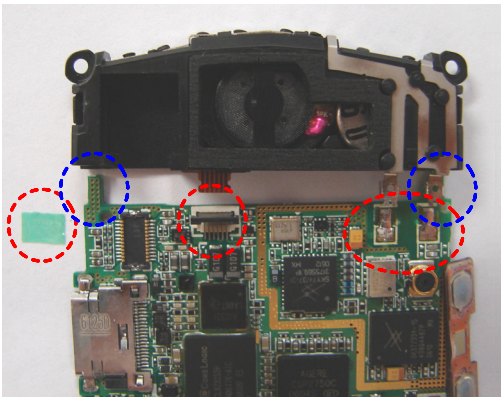


1) Combine the module.

※ **caution**

1) Make sure the FPCB place

7

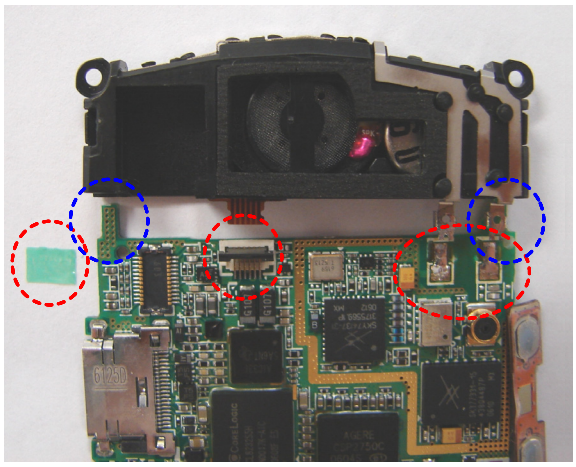


1) Open the INTENNA ASS'Y F-PCB CONNECTOR LOCKER
2) put the module on the board with checking the PCB guide and FPCB at the same time

※ **caution**

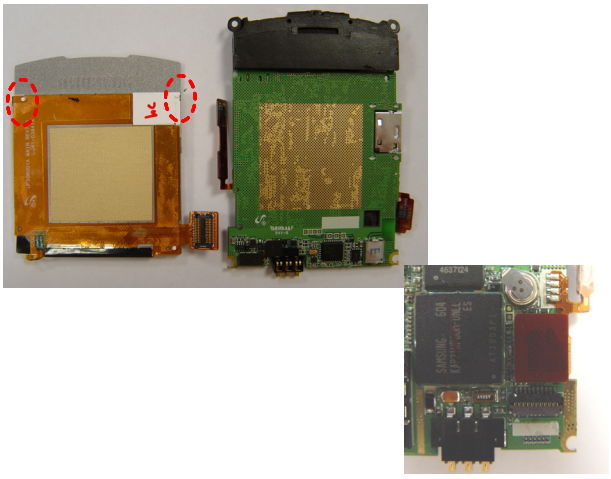
1) SPK FPCB has to be inserted to the SILK line

8



1)Solder INTENNA pad.
2) Put the blue tape on the connector

9

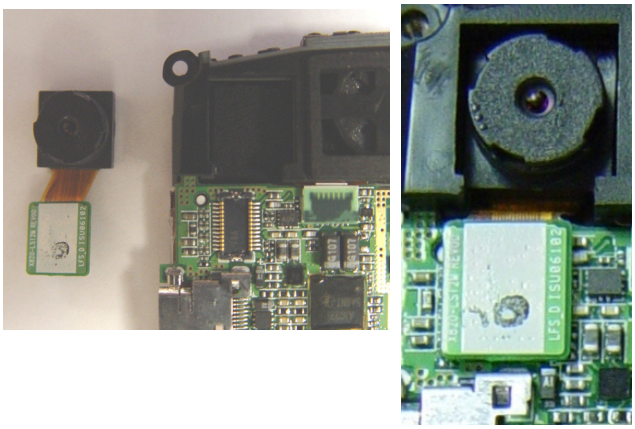


1) Attach the LCD module to the Main PBA(use the LCD Guide)
2) combine LCD CONNECTOR

※ **caution**

1) Check the Connector is correct

10

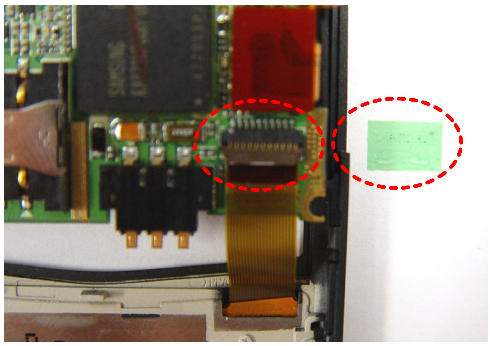


1) PUT THE CAMEA MODULE and connector on

※ **caution**

1) Check the Connector is correct
2) Check the Camera doesn't tilt

11

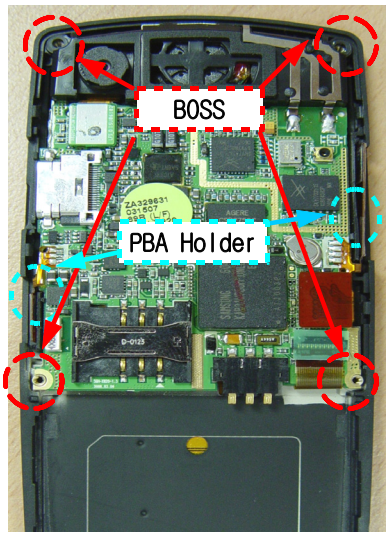


1) Insert EL SHEET F-PCB to the connector on the MAIN PBA
2) Check the silk line on F-PCB and lock the CONNECTOR LOCKER
3) Put the insulated tape on the CONNECTOR

※ **caution**

1) Handle the MIC F-PCB with care. This FPCB tears easily.

12

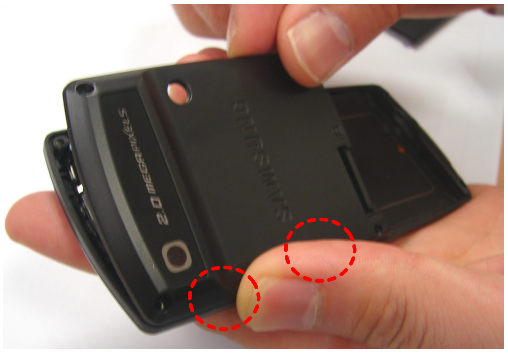


1) Put the Main PBA in the Front cover with caring the Bosses and the Holders

※ **caution**

1) Check everything is proper place

13

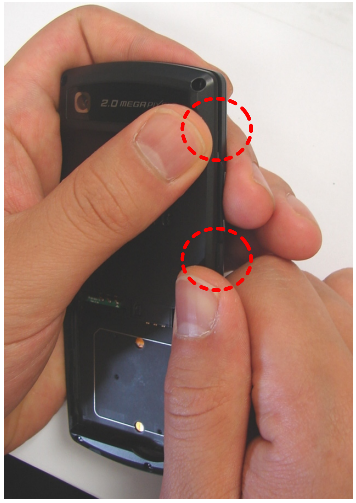


1) Put the Rear cover with tilting

※ **caution**

1) Check all lockers correct

14



1) Press the right side locker with hand

※ **caution**

1) Do not press too hard, Rear case is easy to break

15

1) Press the lower locker with hands

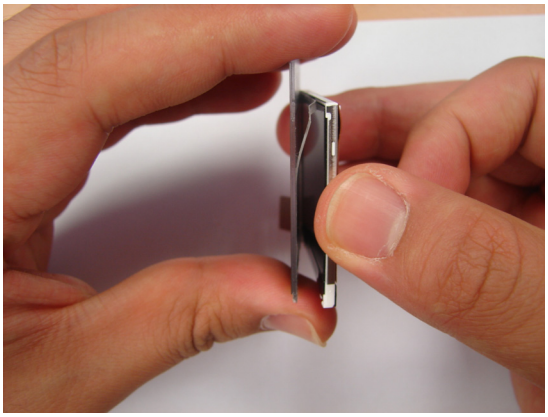
※ **caution**

1) Check there is no gap between Front and rear case

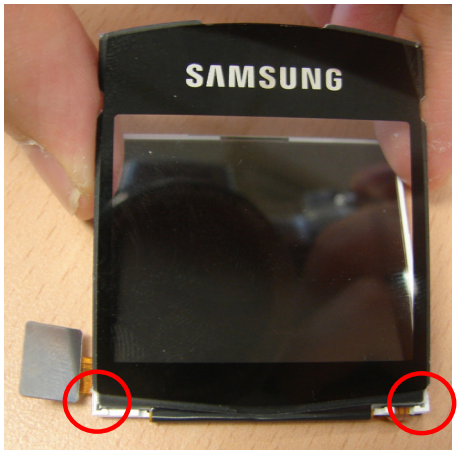
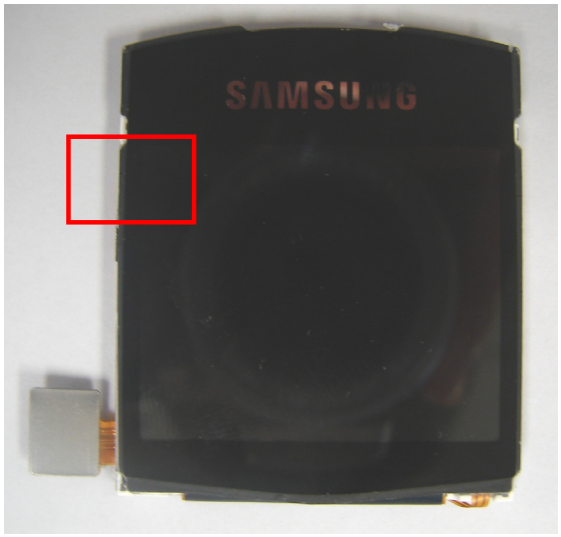
16

1) Tighten the REAR SCREWS (4 POINT)
2) Put the SCREW CAPS
3) PUT the RF COVER

6-3. LCD KIT Disassembly

1	2
	
1) Separate LCD and Main window as the picture ※ **caution** 1) Handle with care. No scratch	1) DONE

6-4. LCD KIT Assembly

1  1) Assemble the WINDOW on the LCD as the picture with checking the lower guide ※ **caution** 1) Handle with care LCD CONN itself and dust.	2  1) Finish the placement with checking the upper guide ※ **caution** 1) Handle with care LCD CONN itself and dust.
3  1) DONE	4

7. MAIN Electrical Parts List

SEC CODE	Design LOC	Discription	STATUS
4202-001151	ANT102	ANTENNA-CHIP	SA
4302-001158	BAT300	BATTERY-LI(2ND)	SA
3711-006217	BTC400	HEADER-BATTERY	SA
2203-005725	C101	C-CER,CHIP	SA
2203-000696	C102	C-CER,CHIP	SA
2203-006305	C105	C-CER,CHIP	SA
2203-006305	C106	C-CER,CHIP	SA
2203-005725	C109	C-CER,CHIP	SA
2203-005736	C111	C-CER,CHIP	SA
2203-006194	C112	C-CER,CHIP	SA
2203-006194	C113	C-CER,CHIP	SA
2203-006423	C115	C-CER,CHIP	SA
2203-005736	C118	C-CER,CHIP	SA
2203-006121	C121	C-CER,CHIP	SA
2203-000311	C122	C-CER,CHIP	SA
2203-002677	C131	C-CER,CHIP	SA
2203-000854	C135	C-CER,CHIP	SA
2203-000995	C136	C-CER,CHIP	SA
2203-006423	C142	C-CER,CHIP	SA
2203-006305	C143	C-CER,CHIP	SA
2203-005682	C145	C-CER,CHIP	SA
2203-006423	C147	C-CER,CHIP	SA
2203-006838	C148	C-CER,CHIP	SA
2203-006626	C149	C-CER,CHIP	SA
2203-006423	C150	C-CER,CHIP	SA
2203-006423	C158	C-CER,CHIP	SA
2203-005682	C160	C-CER,CHIP	SA
2203-006846	C161	C-CER,CHIP	SNA
2203-005682	C163	C-CER,CHIP	SA
2203-006194	C167	C-CER,CHIP	SA
2203-006305	C169	C-CER,CHIP	SA
2203-006194	C200	C-CER,CHIP	SA
2203-006423	C201	C-CER,CHIP	SA
2203-006423	C202	C-CER,CHIP	SA
2203-006194	C203	C-CER,CHIP	SA
2203-006423	C204	C-CER,CHIP	SA
2203-006194	C205	C-CER,CHIP	SA
2203-006423	C206	C-CER,CHIP	SA
2203-006194	C207	C-CER,CHIP	SA
2203-006194	C208	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-006423	C210	C-CER,CHIP	SA
2203-006194	C211	C-CER,CHIP	SA
2203-000278	C212	C-CER,CHIP	SA
2203-000278	C213	C-CER,CHIP	SA
2203-006348	C214	C-CER,CHIP	SA
2203-006257	C215	C-CER,CHIP	SA
2203-005682	C216	C-CER,CHIP	SA
2203-006423	C300	C-CER,CHIP	SA
2203-006194	C301	C-CER,CHIP	SA
2203-006194	C302	C-CER,CHIP	SA
2203-006423	C303	C-CER,CHIP	SA
2203-006305	C304	C-CER,CHIP	SA
2203-006121	C305	C-CER,CHIP	SA
2203-006423	C306	C-CER,CHIP	SA
2203-005682	C307	C-CER,CHIP	SA
2203-005682	C308	C-CER,CHIP	SA
2203-006048	C310	C-CER,CHIP	SA
2203-006562	C311	C-CER,CHIP	SA
2203-006562	C312	C-CER,CHIP	SA
2203-006562	C313	C-CER,CHIP	SA
2203-006562	C314	C-CER,CHIP	SA
2203-006562	C315	C-CER,CHIP	SA
2203-005736	C316	C-CER,CHIP	SA
2203-005732	C318	C-CER,CHIP	SA
2203-002982	C319	C-CER,CHIP	SNA
2203-006260	C320	C-CER,CHIP	SA
2203-006562	C321	C-CER,CHIP	SA
2203-006048	C322	C-CER,CHIP	SA
2203-006423	C323	C-CER,CHIP	SA
2203-001405	C324	C-CER,CHIP	SA
2203-006194	C325	C-CER,CHIP	SA
2203-006194	C326	C-CER,CHIP	SA
2203-006423	C327	C-CER,CHIP	SA
2203-002709	C331	C-CER,CHIP	SNA
2203-006838	C332	C-CER,CHIP	SA
2203-006423	C333	C-CER,CHIP	SA
2203-006562	C334	C-CER,CHIP	SA
2203-006562	C335	C-CER,CHIP	SA
2203-006257	C336	C-CER,CHIP	SA
2203-006423	C337	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-006423	C338	C-CER,CHIP	SA
2203-006838	C339	C-CER,CHIP	SA
2203-001405	C340	C-CER,CHIP	SA
2203-006838	C341	C-CER,CHIP	SA
2203-006838	C342	C-CER,CHIP	SA
2203-006825	C343	C-CER,CHIP	SA
2203-006825	C345	C-CER,CHIP	SA
2203-006838	C348	C-CER,CHIP	SA
2203-006626	C351	C-CER,CHIP	SA
2203-005682	C355	C-CER,CHIP	SA
2203-005682	C356	C-CER,CHIP	SA
2203-005682	C357	C-CER,CHIP	SA
2203-005682	C358	C-CER,CHIP	SA
2203-005682	C359	C-CER,CHIP	SA
2203-005682	C360	C-CER,CHIP	SA
2203-005682	C361	C-CER,CHIP	SA
2203-005682	C362	C-CER,CHIP	SA
2203-005682	C363	C-CER,CHIP	SA
2203-005682	C364	C-CER,CHIP	SA
2203-005682	C365	C-CER,CHIP	SA
2203-005682	C366	C-CER,CHIP	SA
2203-005682	C367	C-CER,CHIP	SA
2203-005682	C368	C-CER,CHIP	SA
2203-005682	C369	C-CER,CHIP	SA
2203-005682	C370	C-CER,CHIP	SA
2203-005682	C371	C-CER,CHIP	SA
2203-005682	C372	C-CER,CHIP	SA
2203-005682	C373	C-CER,CHIP	SA
2203-005682	C374	C-CER,CHIP	SA
2203-005682	C375	C-CER,CHIP	SA
2203-005682	C376	C-CER,CHIP	SA
2203-005682	C377	C-CER,CHIP	SA
2203-005682	C378	C-CER,CHIP	SA
2203-005682	C379	C-CER,CHIP	SA
2203-005682	C380	C-CER,CHIP	SA
2203-005482	C384	C-CER,CHIP	SA
2203-006642	C388	C-CER,CHIP	SN
2203-006642	C389	C-CER,CHIP	SN
2203-006194	C391	C-CER,CHIP	SA
2203-006562	C394	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-006626	C395	C-CER,CHIP	SA
2203-006838	C396	C-CER,CHIP	SA
2203-002709	C397	C-CER,CHIP	SNA
2203-006838	C398	C-CER,CHIP	SA
2203-006562	C399	C-CER,CHIP	SA
2203-006423	C400	C-CER,CHIP	SA
2203-006647	C401	C-CER,CHIP	SA
2203-006647	C402	C-CER,CHIP	SA
2203-006423	C403	C-CER,CHIP	SA
2203-006824	C404	C-CER,CHIP	SA
2203-006466	C405	C-CER,CHIP	SA
2203-006824	C406	C-CER,CHIP	SA
2203-005719	C407	C-CER,CHIP	SA
2203-005719	C408	C-CER,CHIP	SA
2203-006648	C409	C-CER,CHIP	SA
2203-006423	C412	C-CER,CHIP	SA
2203-006626	C420	C-CER,CHIP	SA
2203-006626	C421	C-CER,CHIP	SA
2203-006305	C425	C-CER,CHIP	SA
2203-006305	C426	C-CER,CHIP	SA
2203-005682	C427	C-CER,CHIP	SA
2203-006423	C428	C-CER,CHIP	SA
2203-000189	C430	C-CER,CHIP	SA
2203-006260	C434	C-CER,CHIP	SA
2203-000812	C436	C-CER,CHIP	SA
2203-006260	C439	C-CER,CHIP	SA
2203-000254	C442	C-CER,CHIP	SA
2203-000438	C443	C-CER,CHIP	SA
2203-000254	C444	C-CER,CHIP	SA
2203-000438	C447	C-CER,CHIP	SA
2203-002709	C450	C-CER,CHIP	SNA
2203-006423	C454	C-CER,CHIP	SA
2203-006257	C455	C-CER,CHIP	SA
2203-005719	C459	C-CER,CHIP	SA
2203-002709	C460	C-CER,CHIP	SNA
2203-005481	C461	C-CER,CHIP	SA
2203-000812	C462	C-CER,CHIP	SA
2203-005719	C463	C-CER,CHIP	SA
2203-005481	C464	C-CER,CHIP	SA
2203-000812	C465	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-002709	C467	C-CER,CHIP	SNA
2203-002709	C468	C-CER,CHIP	SNA
2203-005736	C469	C-CER,CHIP	SA
2203-006562	C470	C-CER,CHIP	SA
2203-006838	C471	C-CER,CHIP	SA
2203-006838	C473	C-CER,CHIP	SA
2203-000386	C475	C-CER,CHIP	SA
2203-006838	C476	C-CER,CHIP	SA
2203-006626	C477	C-CER,CHIP	SA
2203-006423	C480	C-CER,CHIP	SA
2203-006423	C481	C-CER,CHIP	SA
2203-006562	C482	C-CER,CHIP	SA
2203-006423	C483	C-CER,CHIP	SA
2203-006423	C484	C-CER,CHIP	SA
2203-006838	C485	C-CER,CHIP	SA
2203-005736	C488	C-CER,CHIP	SA
2203-006257	C489	C-CER,CHIP	SA
2203-006399	C490	C-CER,CHIP	SA
2203-006399	C491	C-CER,CHIP	SA
2203-006423	C492	C-CER,CHIP	SA
2203-000438	C493	C-CER,CHIP	SA
2203-006423	C494	C-CER,CHIP	SA
2203-000359	C495	C-CER,CHIP	SA
2203-000254	C496	C-CER,CHIP	SA
2203-006423	C498	C-CER,CHIP	SA
2203-002709	C499	C-CER,CHIP	SNA
3711-005643	CN301	HEADER-BOARD TO BOARD	SA
3708-002222	CN303	CONNECTOR-FPC/FFC/PIC	SA
3711-005728	CN305	HEADER-BOARD TO BOARD	SA
3708-002015	CN401	CONNECTOR-FPC/FFC/PIC	SA
3705-001421	CON101	CONNECTOR-COAXIAL	SA
0401-000164	D301	DIODE-SWITCHING	SA
0404-001262	D302	DIODE-SCHOTTKY	SA
3710-002363	IFC402	SOCKET-INTERFACE	SA
2703-002910	L101	INDUCTOR-SMD	SA
2703-002200	L102	INDUCTOR-SMD	SA
2703-002793	L103	INDUCTOR-SMD	SA
2703-002198	L107	INDUCTOR-SMD	SA
2703-002597	L108	INDUCTOR-SMD	SA
2703-002597	L109	INDUCTOR-SMD	SA

SEC CODE	Design LOC	Discription	STATUS
2703-002586	L110	INDUCTOR-SMD	SA
2703-002586	L111	INDUCTOR-SMD	SA
2703-002700	L112	INDUCTOR-SMD	SA
2703-002700	L113	INDUCTOR-SMD	SA
2007-000171	L115	R-CHIP	SA
2007-000171	L116	R-CHIP	SA
2703-002824	L201	INDUCTOR-SMD	SA
3301-001342	L301	BEAD-SMD	SA
2703-002734	L302	INDUCTOR-SMD	SA
2703-002749	L303	INDUCTOR-SMD	SA
2703-002709	L304	INDUCTOR-SMD	SA
3301-001342	L400	BEAD-SMD	SA
3301-001158	L402	BEAD-SMD	SA
3301-001158	L403	BEAD-SMD	SA
2703-001868	L404	INDUCTOR-SMD	SA
2703-001868	L405	INDUCTOR-SMD	SA
2703-002200	L406	INDUCTOR-SMD	SA
2703-002200	L407	INDUCTOR-SMD	SA
3301-001342	L408	BEAD-SMD	SA
2801-004552	OSC101	CRYSTAL-SMD	SA
2801-004339	OSC200	CRYSTAL-SMD	SA
2801-004340	OSC400	CRYSTAL-SMD	SA
1201-002368	PAM101	IC-POWER AMP	SA
2007-001290	R101	R-CHIP	SA
2007-000139	R102	R-CHIP	SA
2007-000139	R103	R-CHIP	SA
2007-008542	R104	R-CHIP	SA
2007-007134	R105	R-CHIP	SA
2007-008588	R108	R-CHIP	SA
2007-007741	R109	R-CHIP	SA
2007-008587	R115	R-CHIP	SA
2007-008045	R116	R-CHIP	SA
2007-009314	R118	R-CHIP	SA
2007-008483	R124	R-CHIP	SA
2007-008542	R126	R-CHIP	SA
2007-008045	R130	R-CHIP	SA
2007-008045	R131	R-CHIP	SA
2007-008542	R134	R-CHIP	SA
2007-008516	R136	R-CHIP	SA
2007-008542	R142	R-CHIP	SA

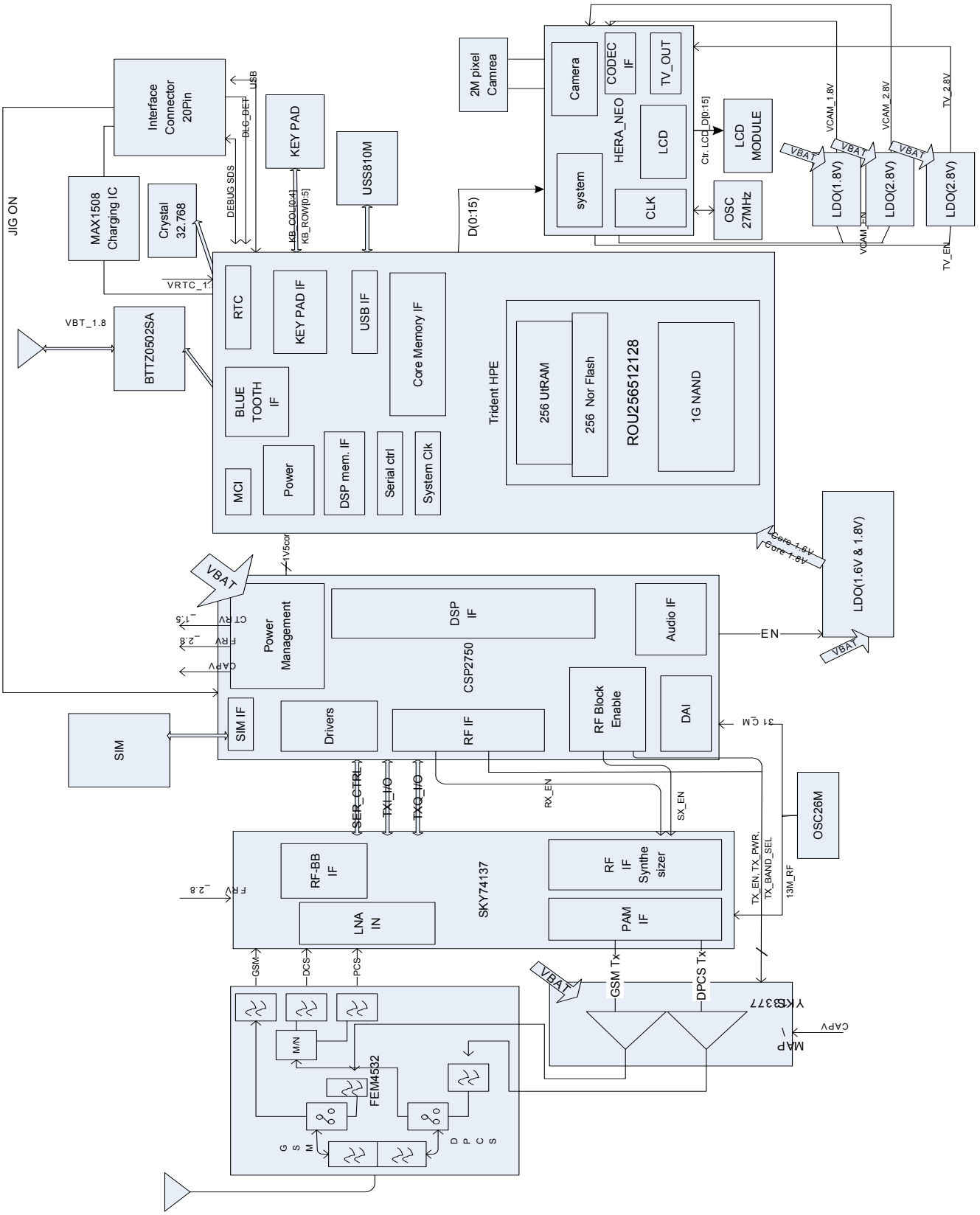
SEC CODE	Design LOC	Discription	STATUS
2007-008542	R143	R-CHIP	SA
2007-008542	R146	R-CHIP	SA
2007-008516	R200	R-CHIP	SA
2007-008055	R202	R-CHIP	SA
2007-008055	R203	R-CHIP	SA
2007-008055	R204	R-CHIP	SA
2007-007741	R206	R-CHIP	SA
2007-007798	R207	R-CHIP	SA
2007-007308	R210	R-CHIP	SA
2007-008483	R218	R-CHIP	SA
2007-008483	R219	R-CHIP	SA
2007-008053	R300	R-CHIP	SA
2007-008483	R301	R-CHIP	SA
2007-008478	R302	R-CHIP	SA
2007-008483	R303	R-CHIP	SA
2007-008420	R304	R-CHIP	SA
2007-008420	R305	R-CHIP	SA
2007-009166	R306	R-CHIP	SA
2007-008052	R307	R-CHIP	SA
2007-009167	R308	R-CHIP	SA
2007-009160	R310	R-CHIP	SA
2007-008137	R311	R-CHIP	SA
2007-007741	R312	R-CHIP	SA
2007-008055	R314	R-CHIP	SA
2007-008483	R315	R-CHIP	SA
2007-008483	R319	R-CHIP	SA
2007-007590	R322	R-CHIP	SA
2007-008483	R323	R-CHIP	SA
2007-000690	R324	R-CHIP	SA
2007-008055	R326	R-CHIP	SA
2007-008483	R327	R-CHIP	SA
2007-008542	R328	R-CHIP	SA
2007-008483	R331	R-CHIP	SA
2007-008055	R332	R-CHIP	SA
2007-000171	R409	R-CHIP	SA
2007-000171	R410	R-CHIP	SA
2007-008588	R412	R-CHIP	SA
2007-008588	R413	R-CHIP	SA
2007-009084	R415	R-CHIP	SA
2007-008419	R418	R-CHIP	SA

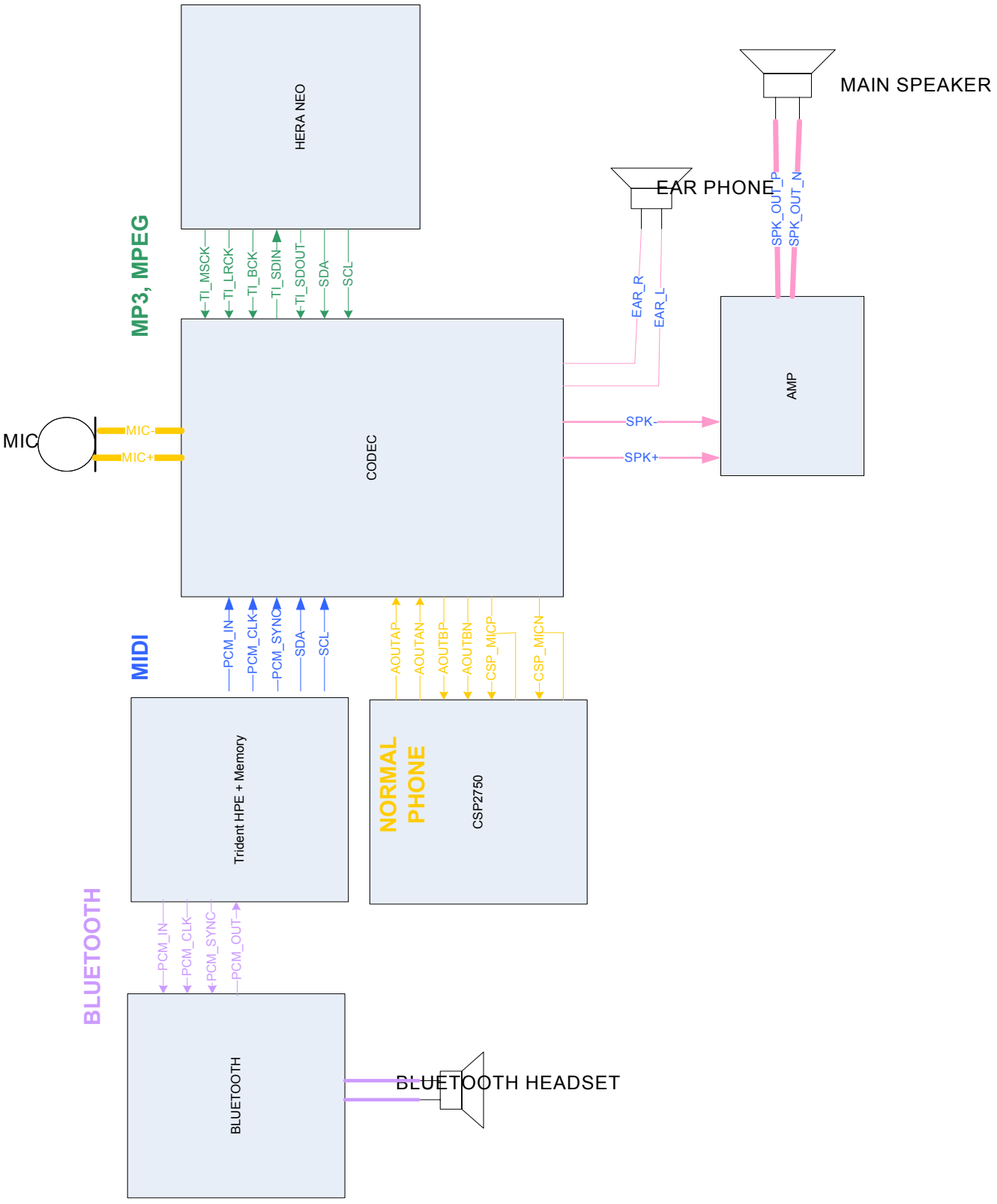
SEC CODE	Design LOC	Discription	STATUS
2007-001119	R419	R-CHIP	SA
2007-008483	R420	R-CHIP	SA
2007-000141	R421	R-CHIP	SA
2007-007590	R422	R-CHIP	SA
2007-007741	R423	R-CHIP	SA
2007-007590	R428	R-CHIP	SA
2007-007741	R429	R-CHIP	SA
2007-008419	R430	R-CHIP	SA
2007-008419	R432	R-CHIP	SA
2007-007134	R433	R-CHIP	SA
2007-007134	R435	R-CHIP	SA
2007-000141	R436	R-CHIP	SA
2007-008419	R437	R-CHIP	SA
2007-008483	R441	R-CHIP	SA
2007-001119	R442	R-CHIP	SA
2007-009111	R443	R-CHIP	SA
2007-007528	R444	R-CHIP	SA
2007-007528	R445	R-CHIP	SA
2007-007741	R446	R-CHIP	SA
2007-007590	R447	R-CHIP	SA
2007-007741	R448	R-CHIP	SA
2007-009111	R449	R-CHIP	SA
2007-007590	R450	R-CHIP	SA
2007-008055	R457	R-CHIP	SA
2007-008483	R462	R-CHIP	SA
2007-008483	R463	R-CHIP	SA
2007-008052	R464	R-CHIP	SA
2007-008057	R465	R-CHIP	SA
2007-007009	R466	R-CHIP	SA
2007-007142	R468	R-CHIP	SA
2007-001325	R471	R-CHIP	SA
2007-008588	R472	R-CHIP	SA
2007-008588	R473	R-CHIP	SA
2007-007489	R474	R-CHIP	SA
2007-007590	R475	R-CHIP	SA
2007-007014	R476	R-CHIP	SA
2007-000173	R479	R-CHIP	SA
2007-000173	R480	R-CHIP	SA
2007-008542	R481	R-CHIP	SA
2007-000171	R482	R-CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
3709-001447	SIM301	CONNECTOR-CARD EDGE	SA
2203-006361	TA101	C-CER,CHIP	SA
2203-006361	TA102	C-CER,CHIP	SA
2404-001240	TA103	C-TA,CHIP	SA
2404-001381	TA201	C-TA,CHIP	SA
2404-001226	TA301	C-TA,CHIP	SA
2404-001381	TA302	C-TA,CHIP	SA
2404-001381	TA303	C-TA,CHIP	SA
2404-001381	TA401	C-TA,CHIP	SA
2404-001339	TA402	C-TA,CHIP	SA
2404-001353	TA415	C-TA,CHIP	SA
2404-001353	TA416	C-TA,CHIP	SA
2203-005819	TA448	C-CER,CHIP	SA
2404-001381	TA449	C-TA,CHIP	SA
2404-001352	TA456	C-TA,CHIP	SA
2404-001406	TA457	C-TA,CHIP	SA
1404-001165	TH300	THERMISTOR-NTC	SA
1205-002944	U100	IC-TRANSCEIVER	SA
4709-001451	U101	BLUETOOTH MODULE	SA
2911-000034	U102	DUPLEXER-FEM	SA
0801-002958	U104	IC-CMOS LOGIC	SA
1203-003432	U105	IC-POSI.FIXED REG.	SA
1203-004172	U201	IC-DC/DC CONVERTER	SA
1203-004119	U300	IC-POWER SUPERVISOR	SA
1205-002272	U301	IC-TRANSCEIVER	SA
1003-001716	U302	IC-EL DRIVER	SA
1203-003663	U303	IC-BATTERY	SA
0801-002529	U304	IC-CMOS LOGIC	SA
1203-004164	U305	IC-DC/DC CONVERTER	SA
1203-003432	U307	IC-POSI.FIXED REG.	SA
1203-003754	U309	IC-POSI.FIXED REG.	SA
1203-003517	U311	IC-MULTI REG.	SA
1203-003754	U312	IC-POSI.FIXED REG.	SA
1205-002943	U401	IC-CODEC	SA
1201-002233	U402	IC-AUDIO AMP	SA
1203-003523	U403	IC-POSI.FIXED REG.	SA
1201-002147	U404	IC-VIDEO AMP	SA
1001-001231	U405	IC-ANALOG SWITCH	SA
1001-001410	U406	IC-ANALOG SWITCH	SA
1204-002138	U407	IC-MELODY	SA

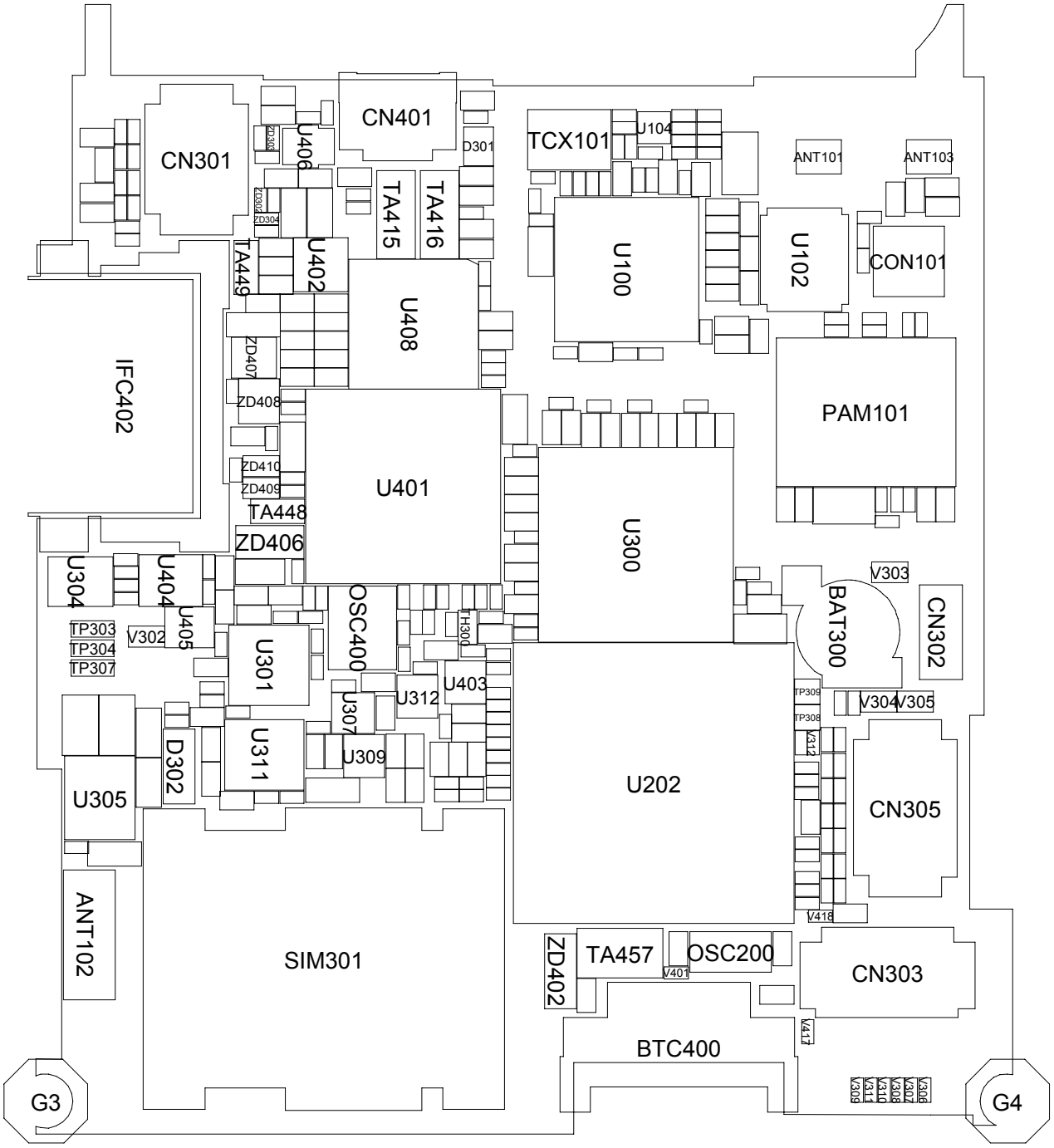
SEC CODE	Design LOC	Discription	STATUS
1205-002946	U408	IC-CODEC	SA
1108-000063	UCP202	IC-MCP	SA
GH09-00045A	UCP202	IC MICOM	SA
1405-001177	V306	VARISTOR	SA
1405-001177	V307	VARISTOR	SA
1405-001177	V308	VARISTOR	SA
1405-001177	V309	VARISTOR	SA
1405-001177	V310	VARISTOR	SA
1405-001177	V311	VARISTOR	SA
1405-001082	V312	VARISTOR	SA
1405-001177	V401	VARISTOR	SA
0403-001511	ZD301	DIODE-ZENER	SA
1405-001177	ZD302	VARISTOR	SA
1405-001177	ZD303	VARISTOR	SA
1405-001177	ZD304	VARISTOR	SA
0406-001254	ZD305	DIODE-TVS	SA
0406-001254	ZD306	DIODE-TVS	SA
0406-001254	ZD307	DIODE-TVS	SA
0406-001254	ZD308	DIODE-TVS	SA
0406-001223	ZD309	DIODE-TVS	SA
0406-001223	ZD310	DIODE-TVS	SA
0403-001547	ZD402	DIODE-ZENER	SA
0403-001411	ZD406	DIODE-ZENER	SA
0406-001190	ZD407	DIODE-TVS	SA
0406-001190	ZD408	DIODE-TVS	SA
0406-001254	ZD409	DIODE-TVS	SA
0406-001254	ZD410	DIODE-TVS	SA

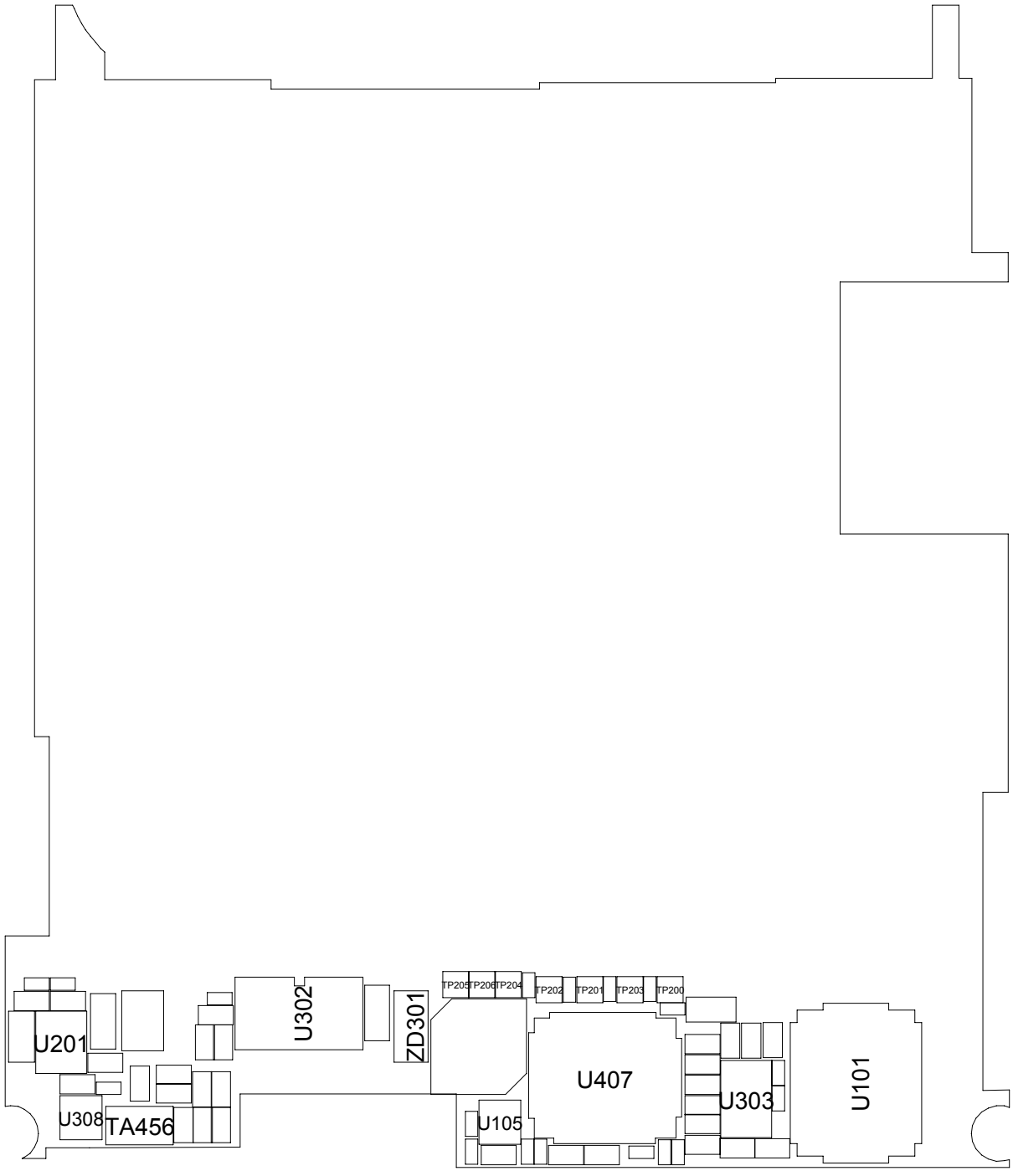
8. Block Diagrams





9. PCB Diagrams

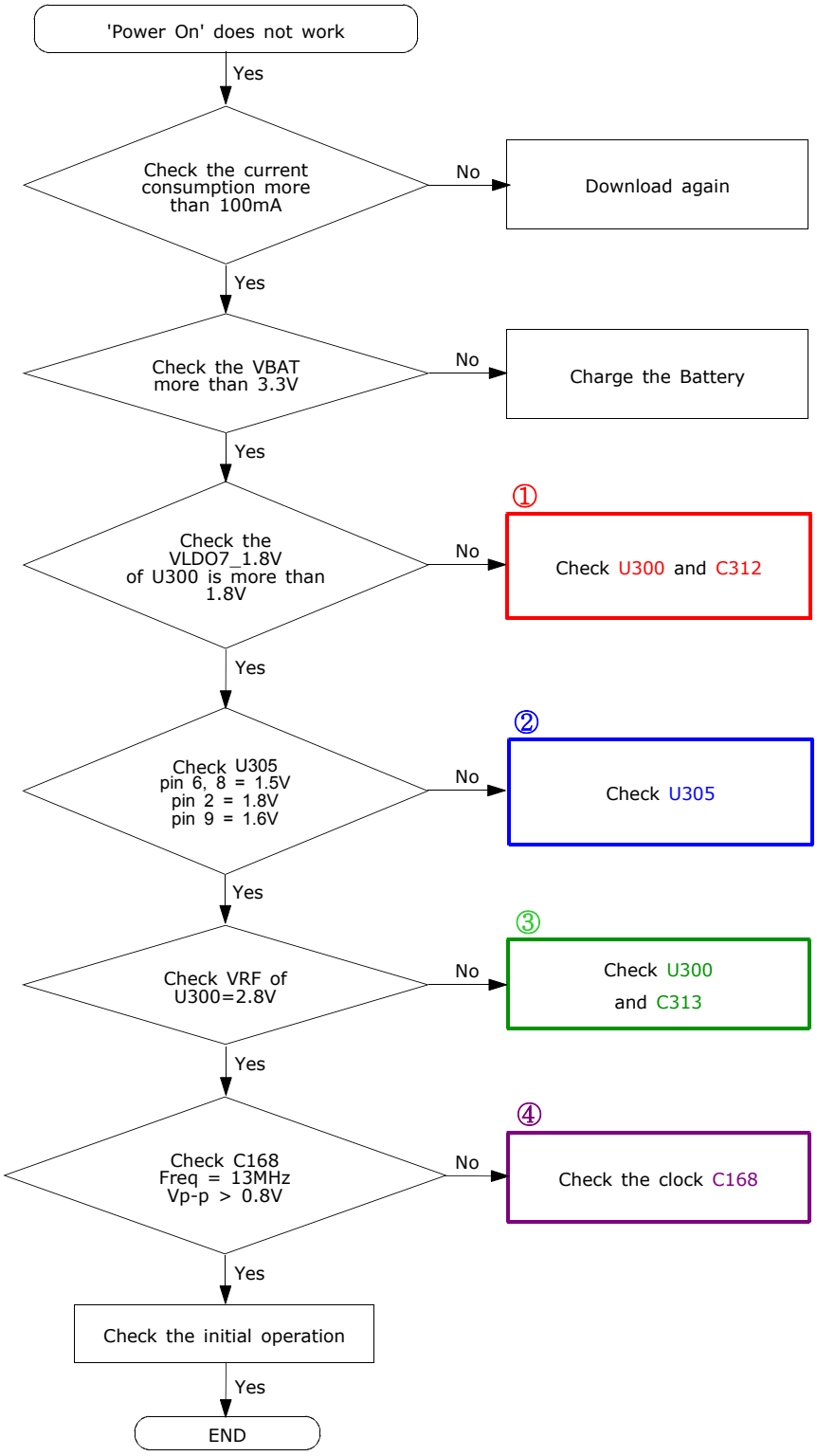


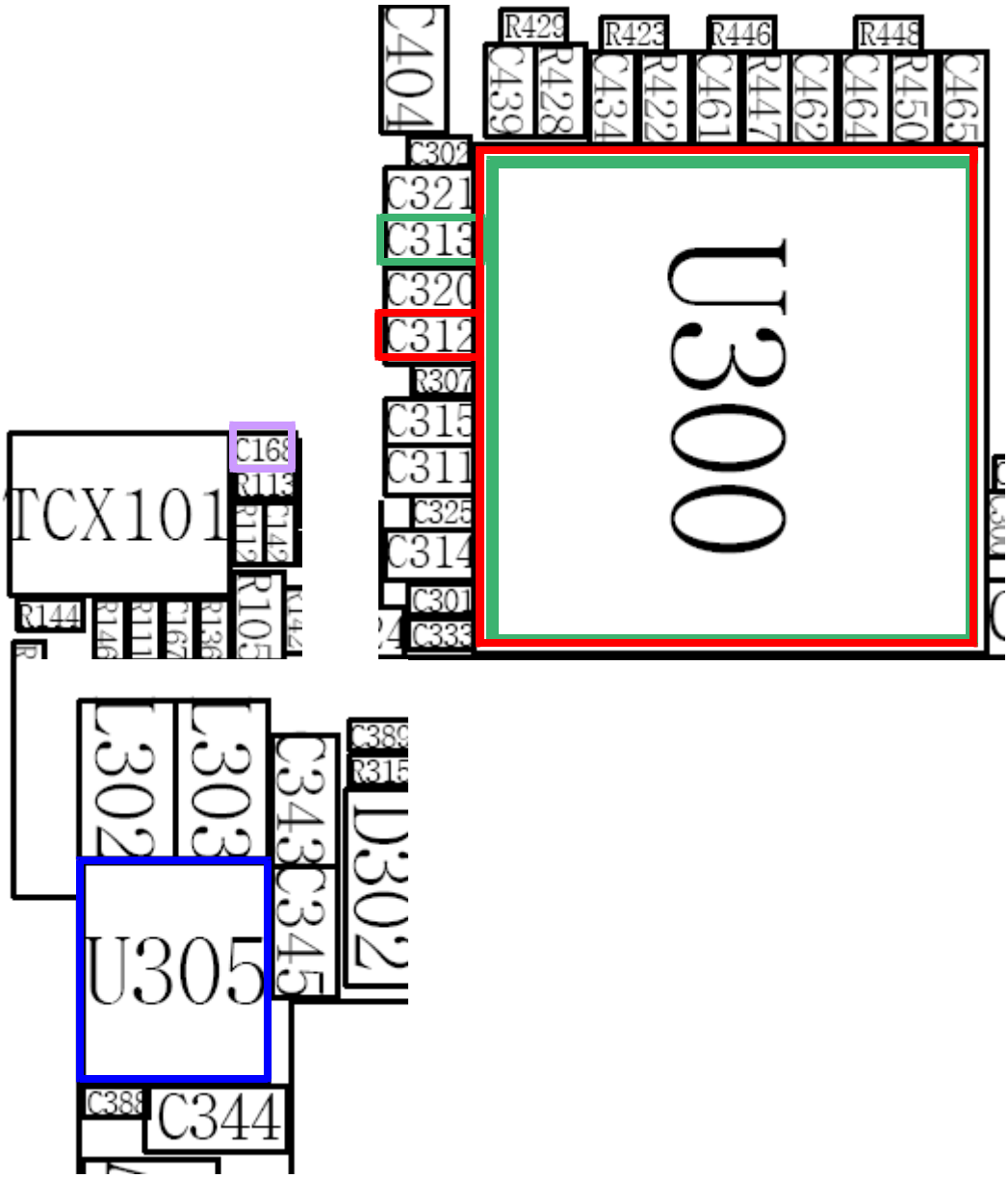


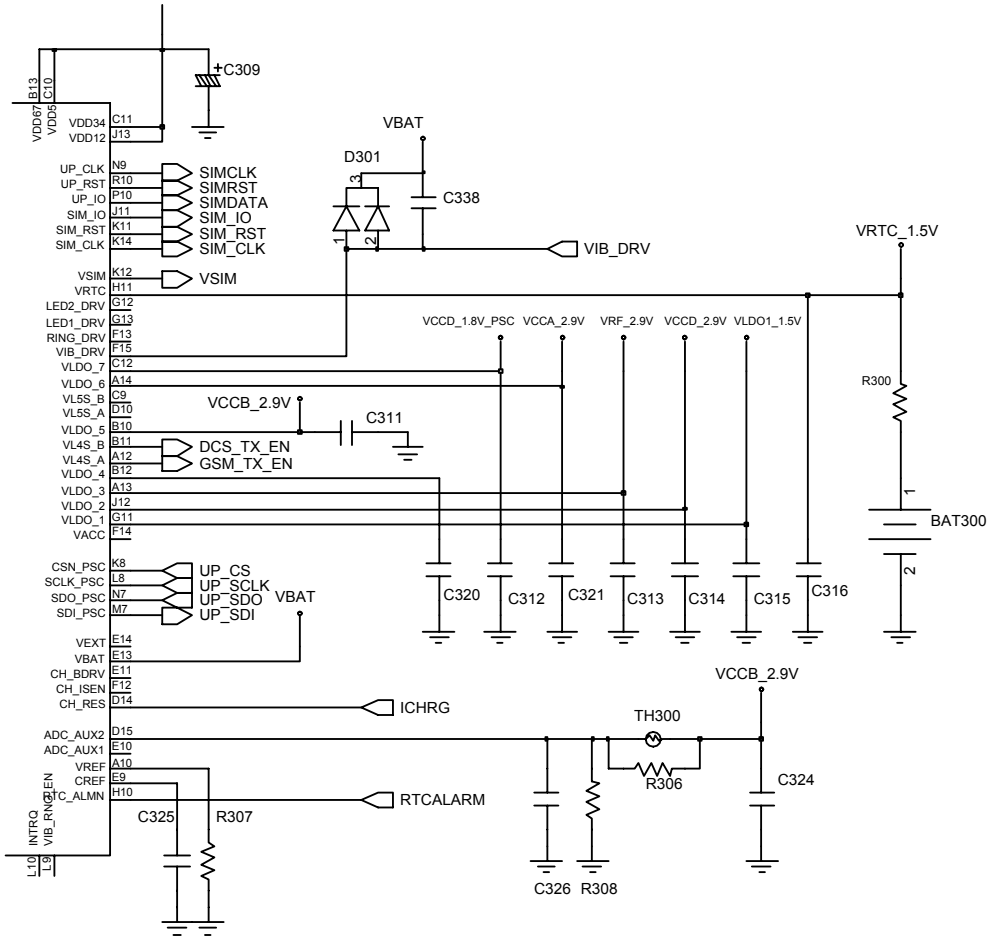
10. Flow Chart of Troubleshooting

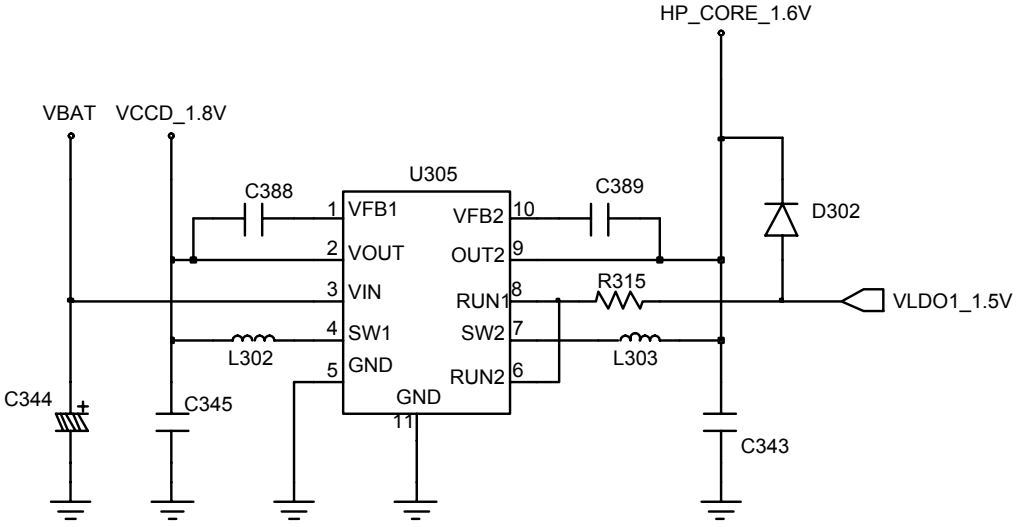
10-1 BASEBAND

10-1-1. Power ON

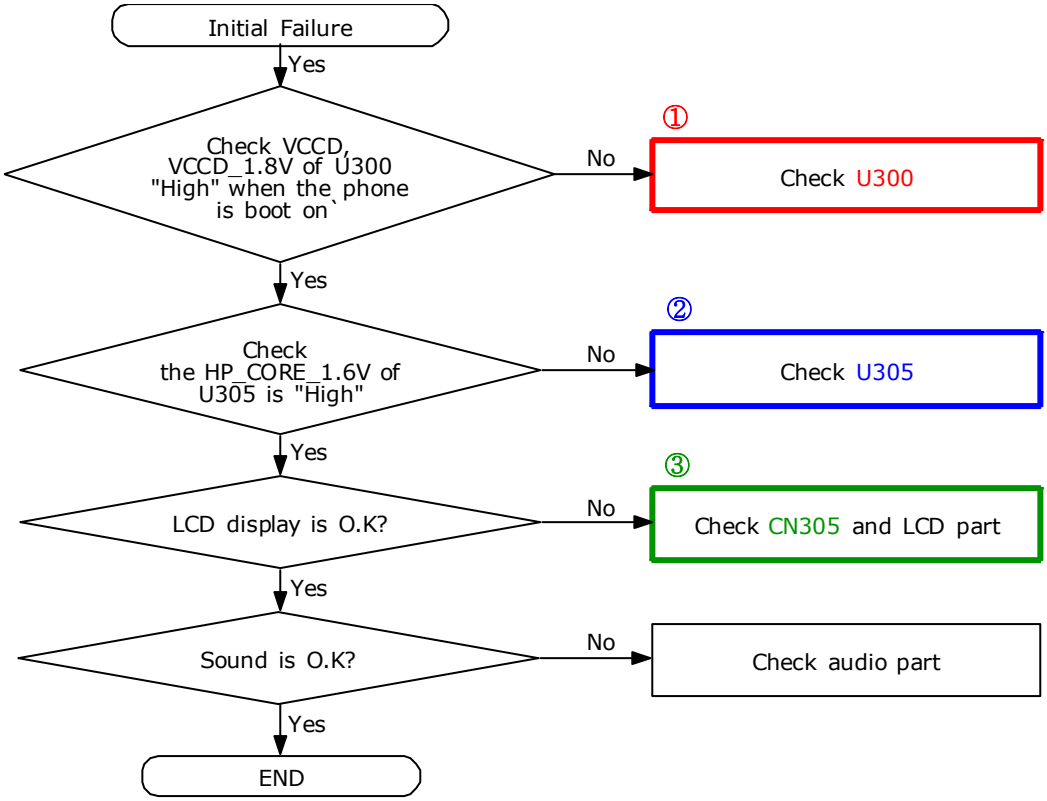


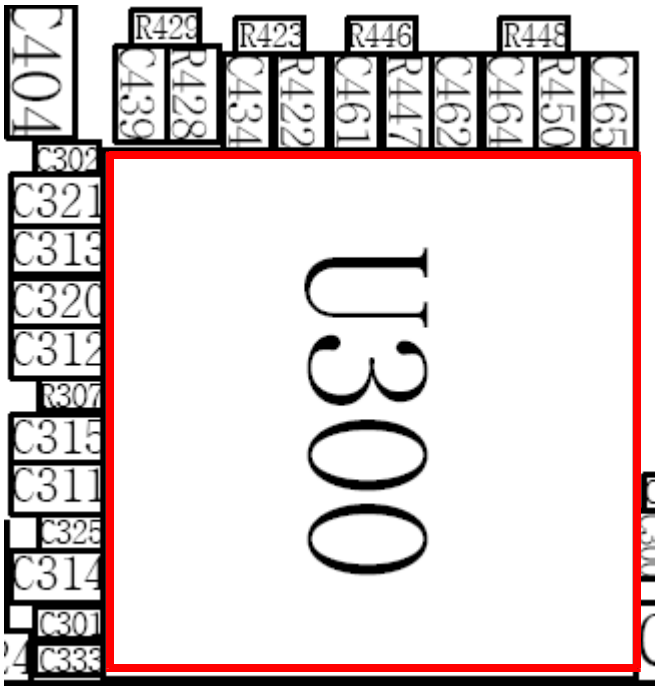


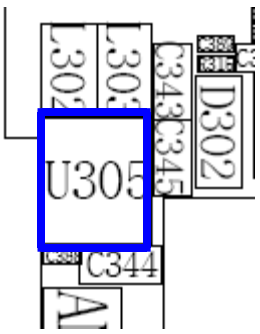


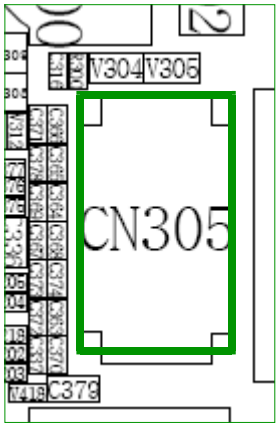


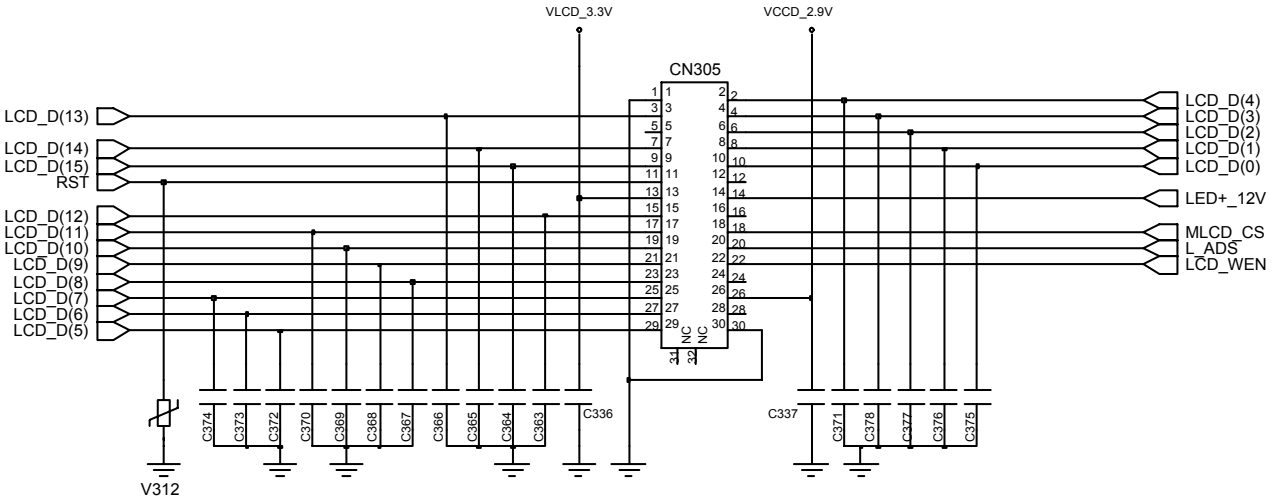
10-1-2. Initial



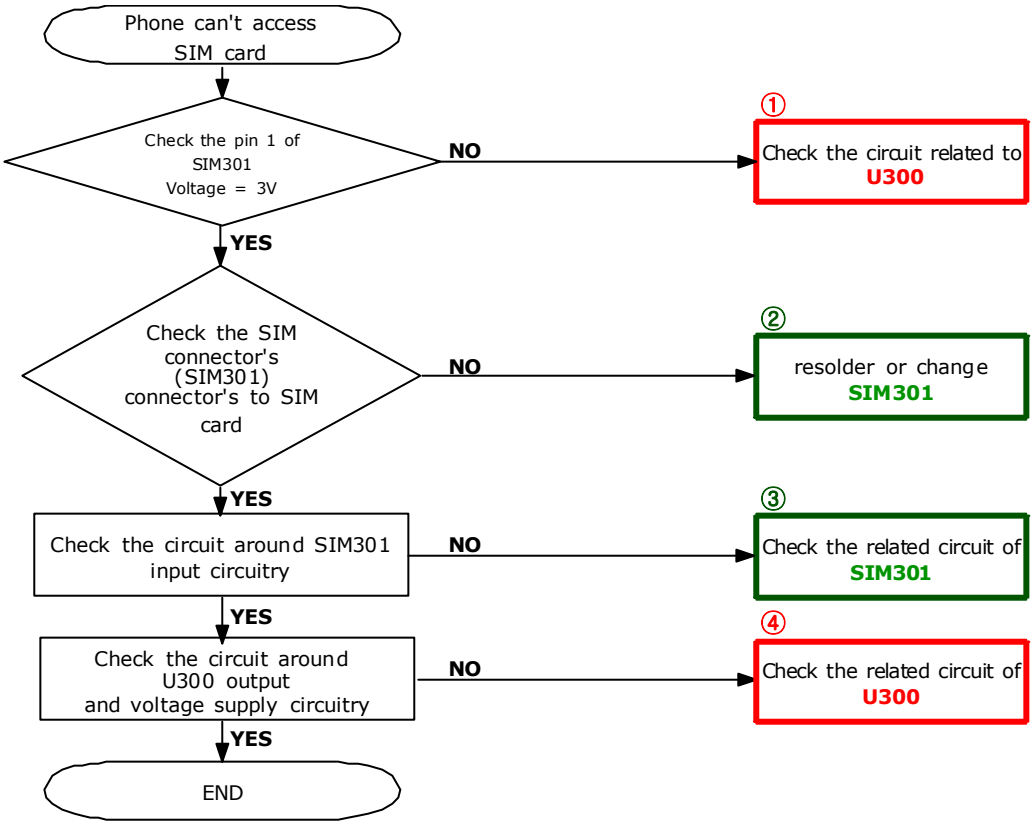


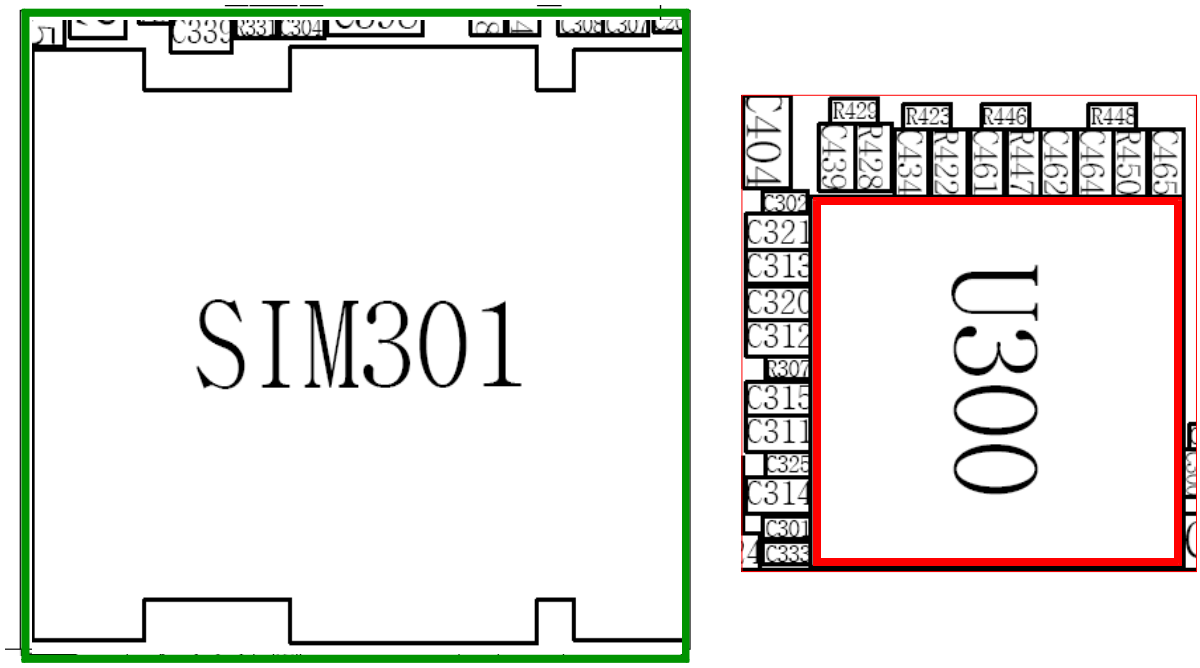


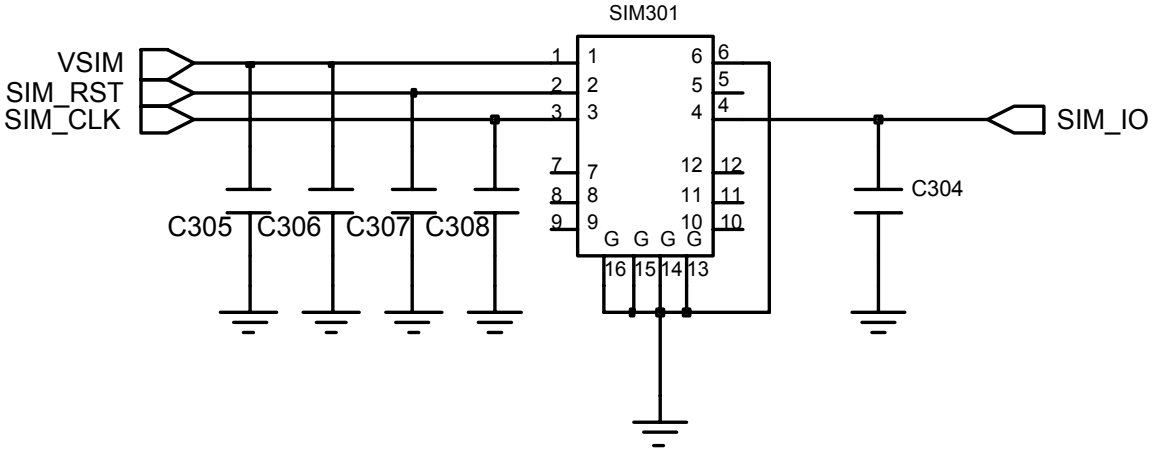




10-1-3. Sim Part







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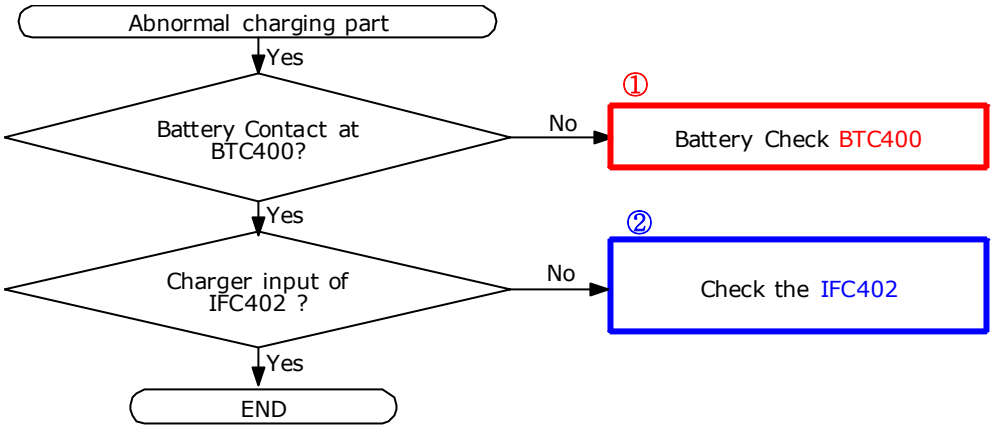

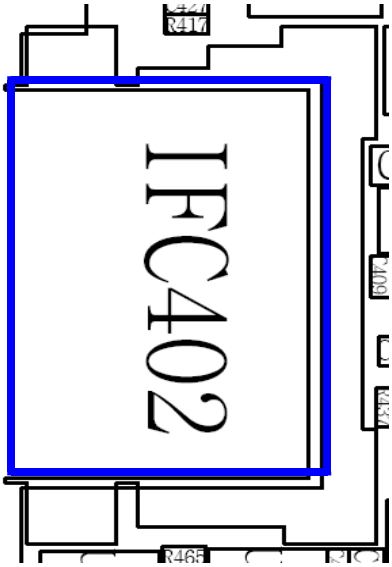

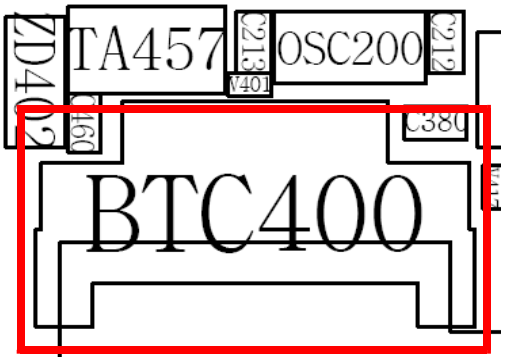

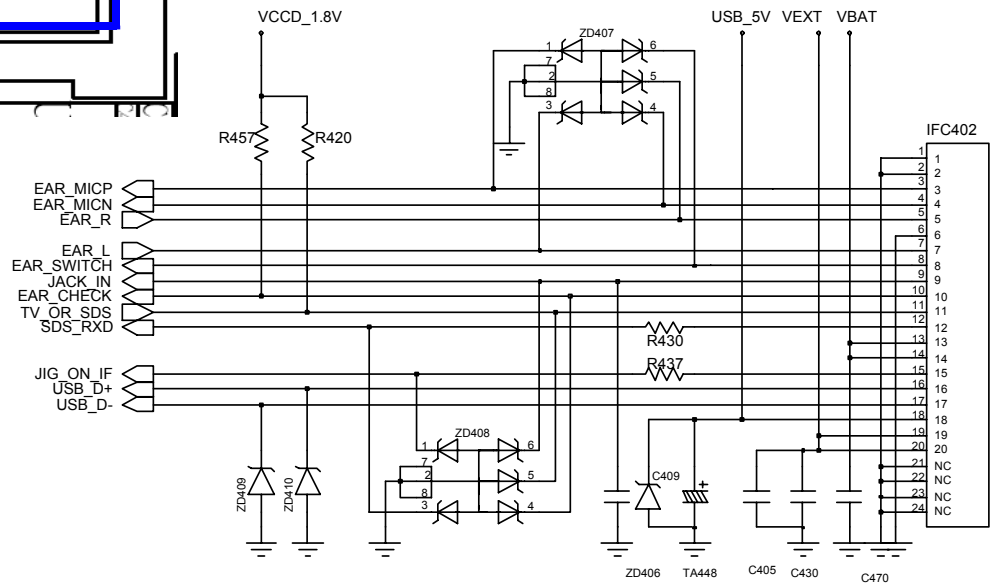

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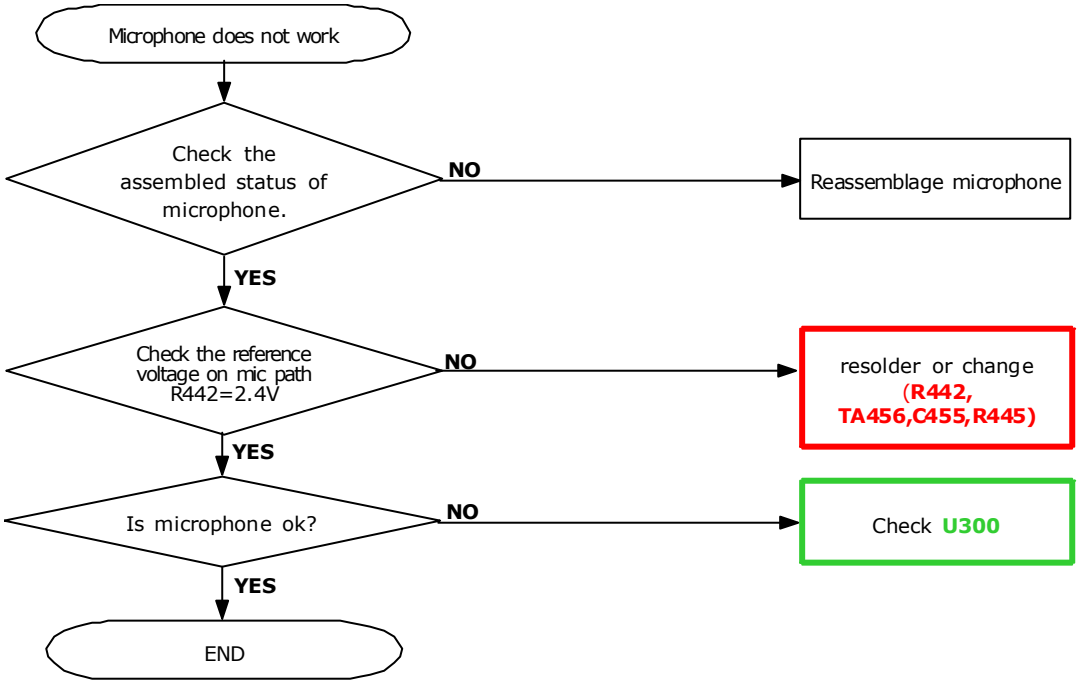

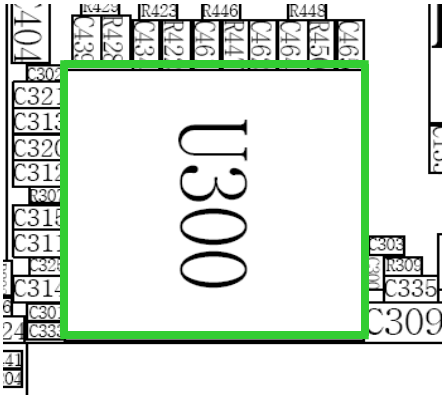

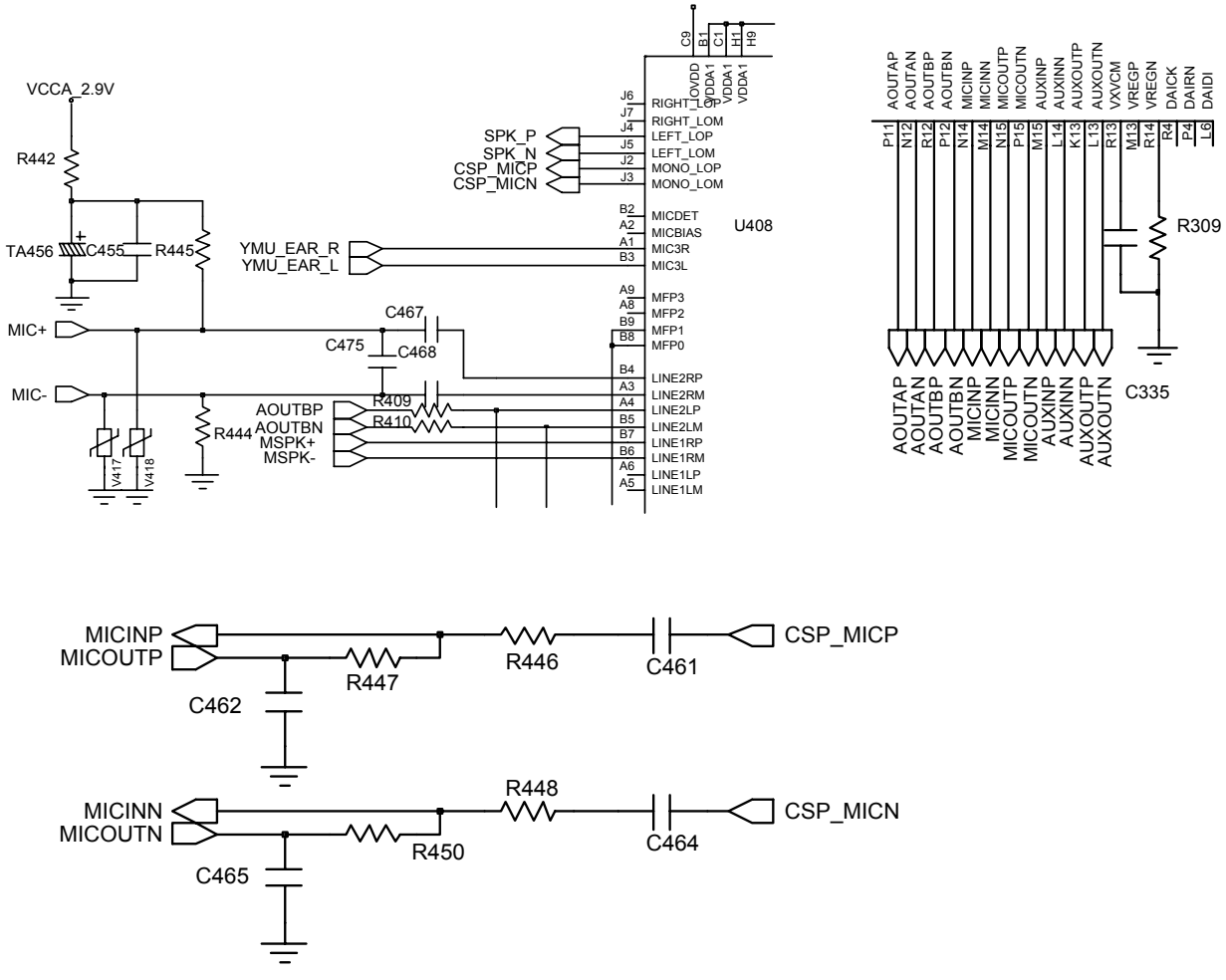

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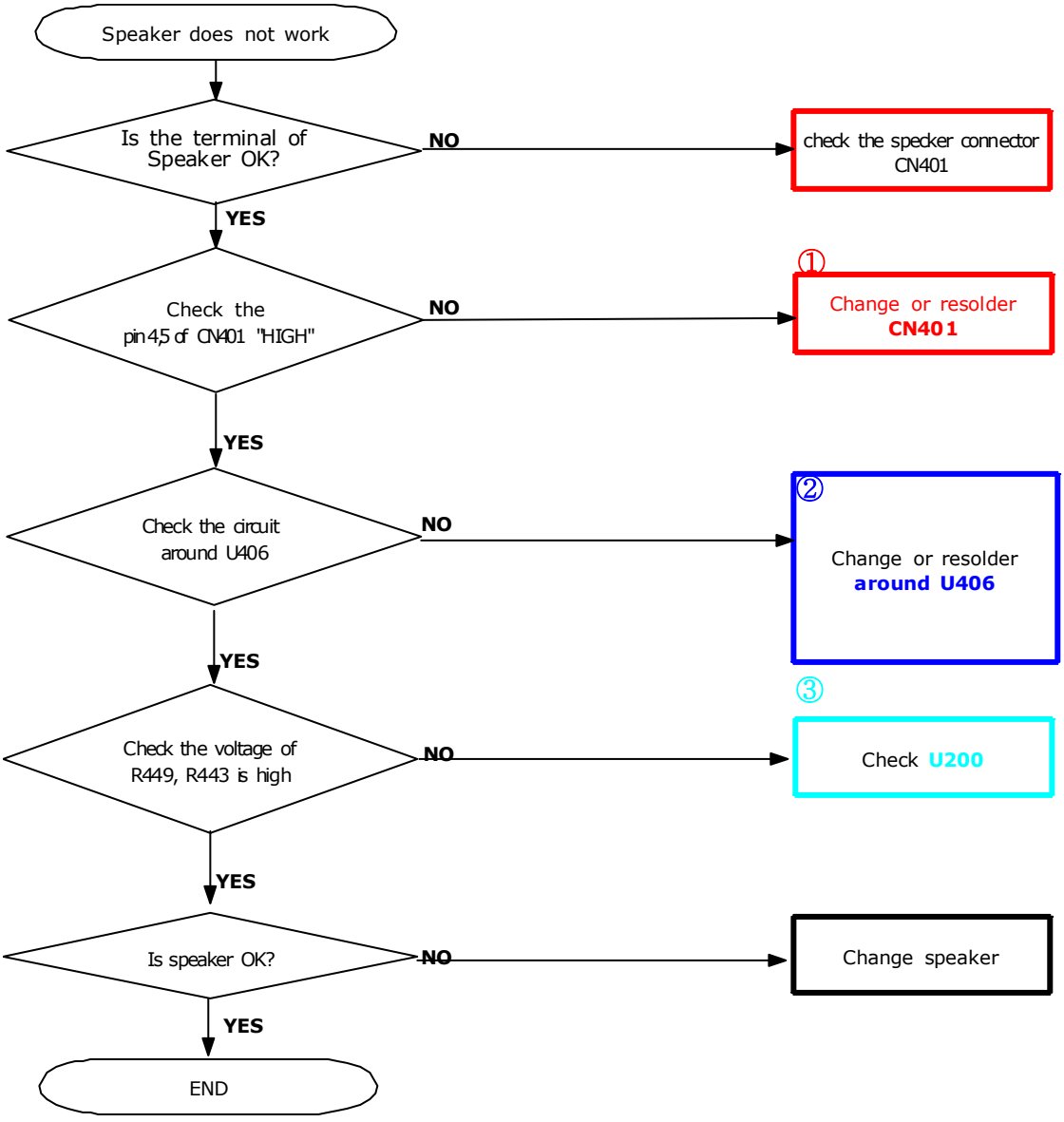

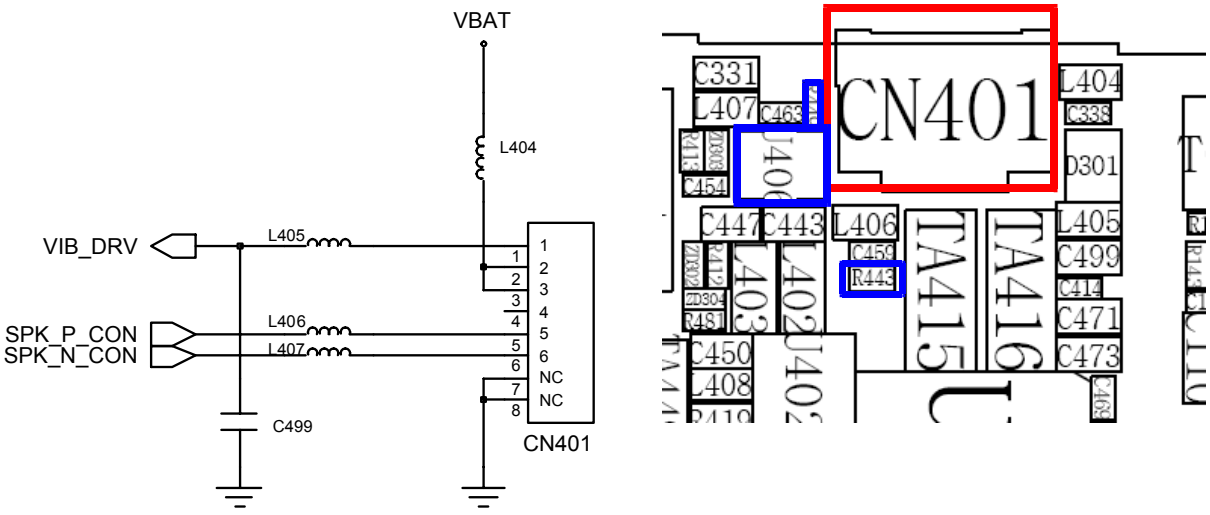

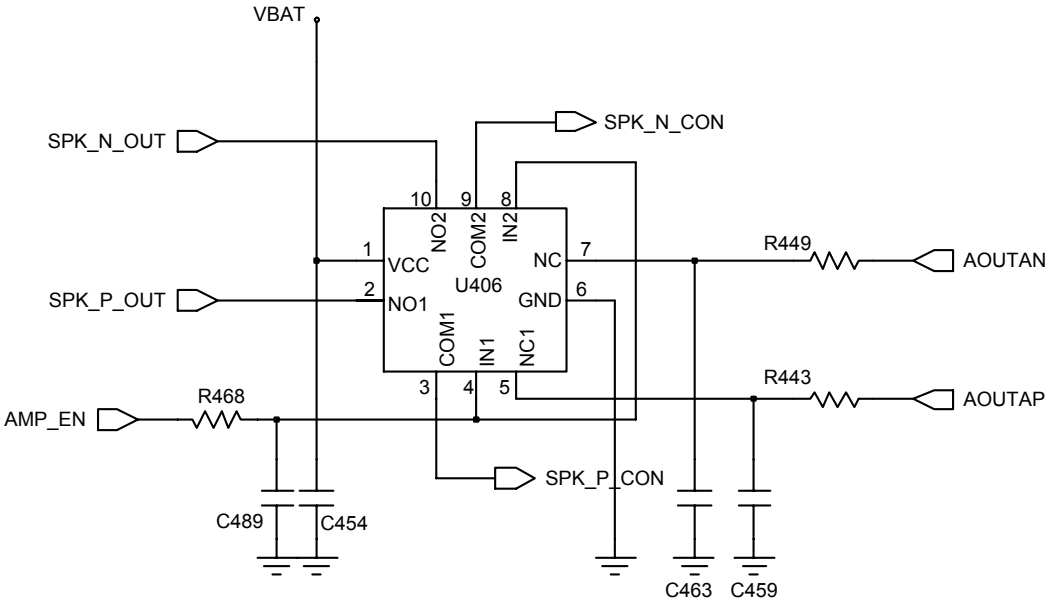

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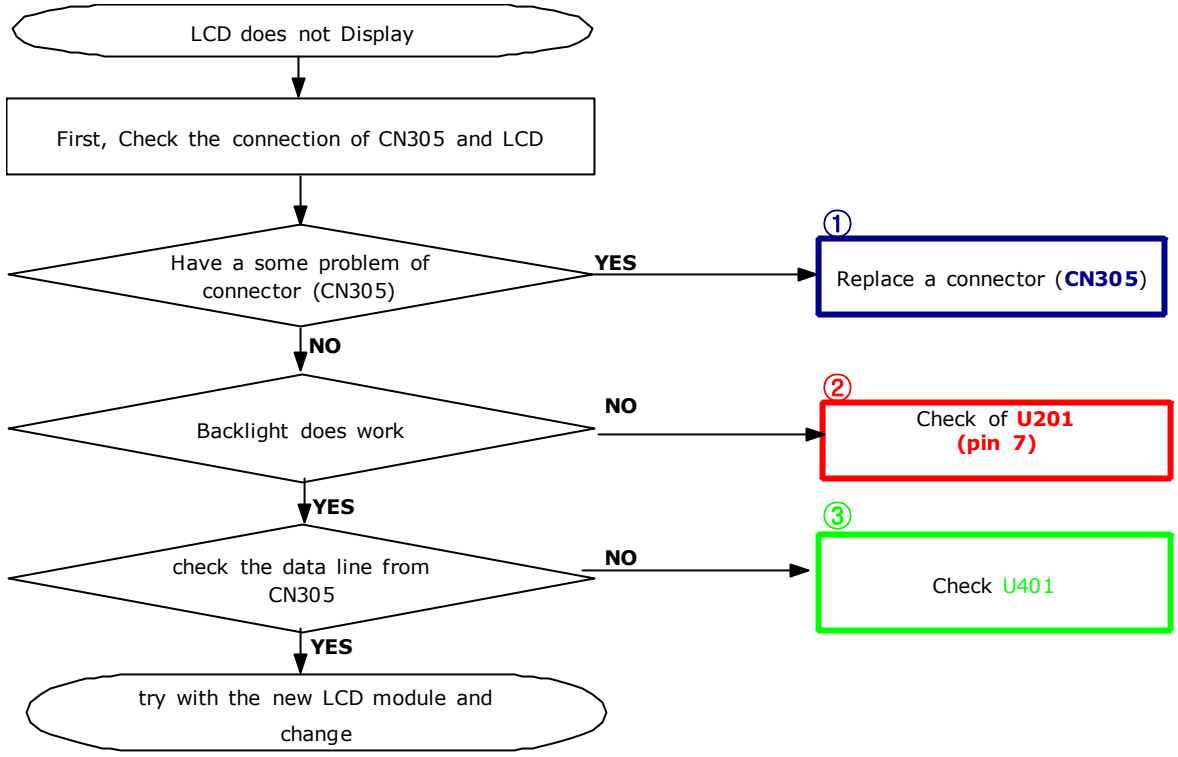
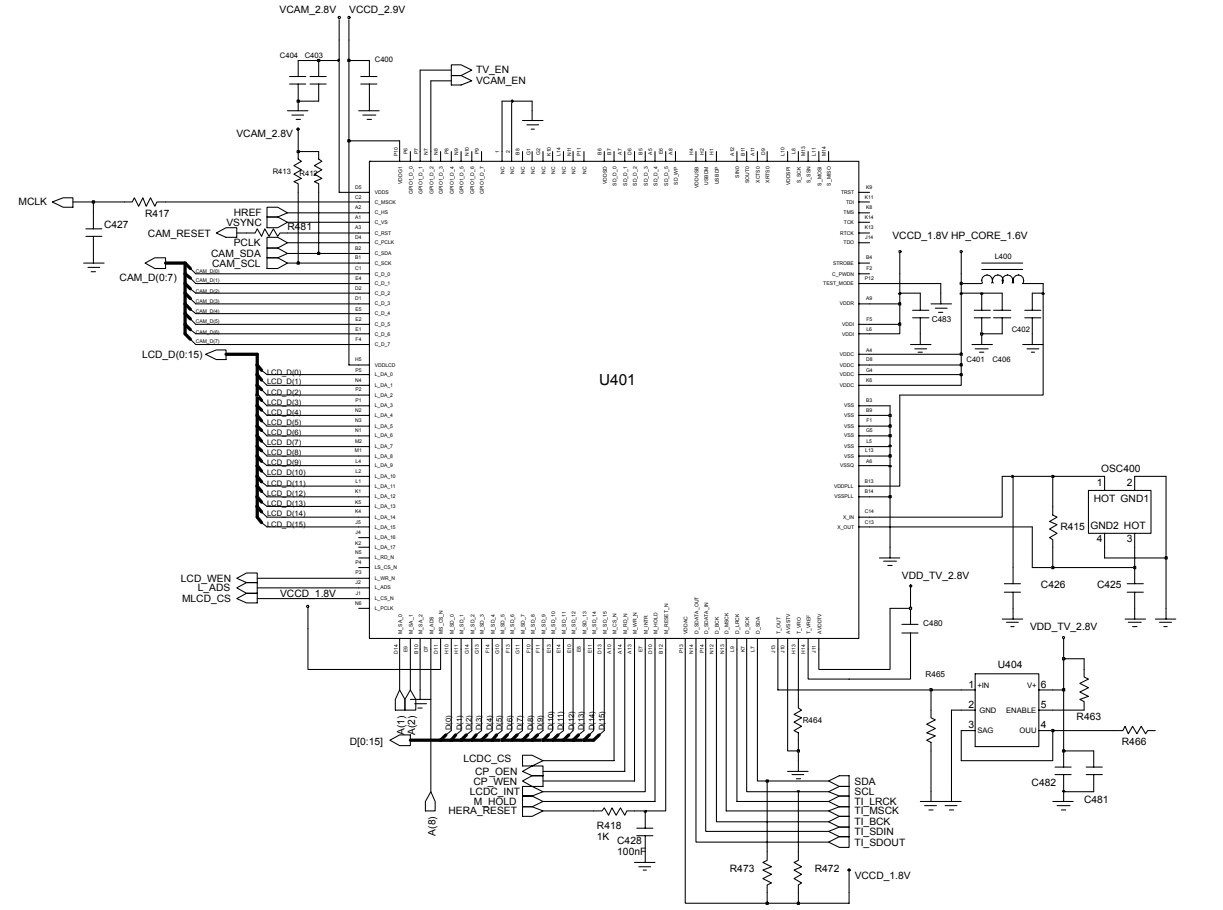
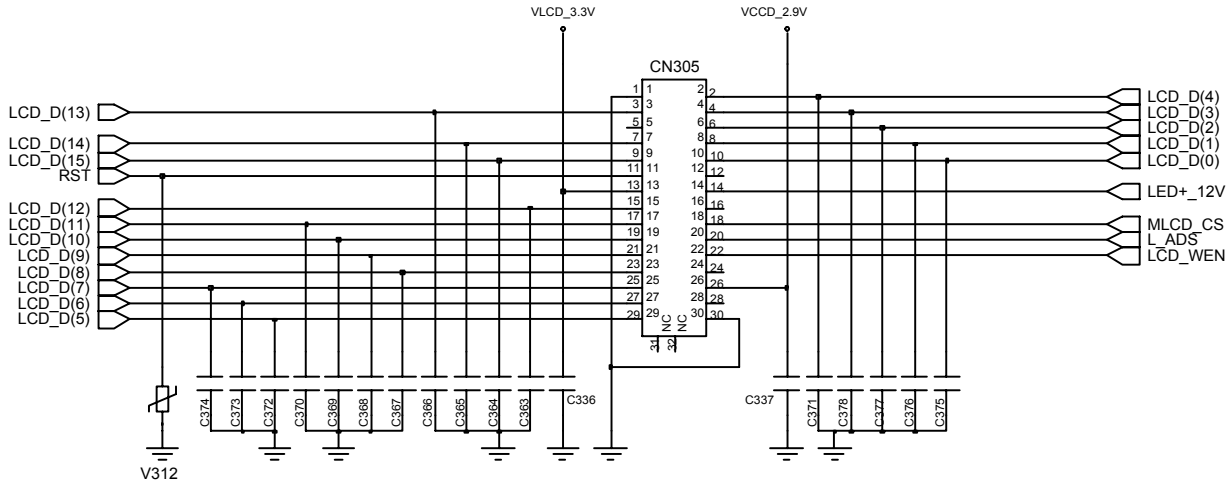
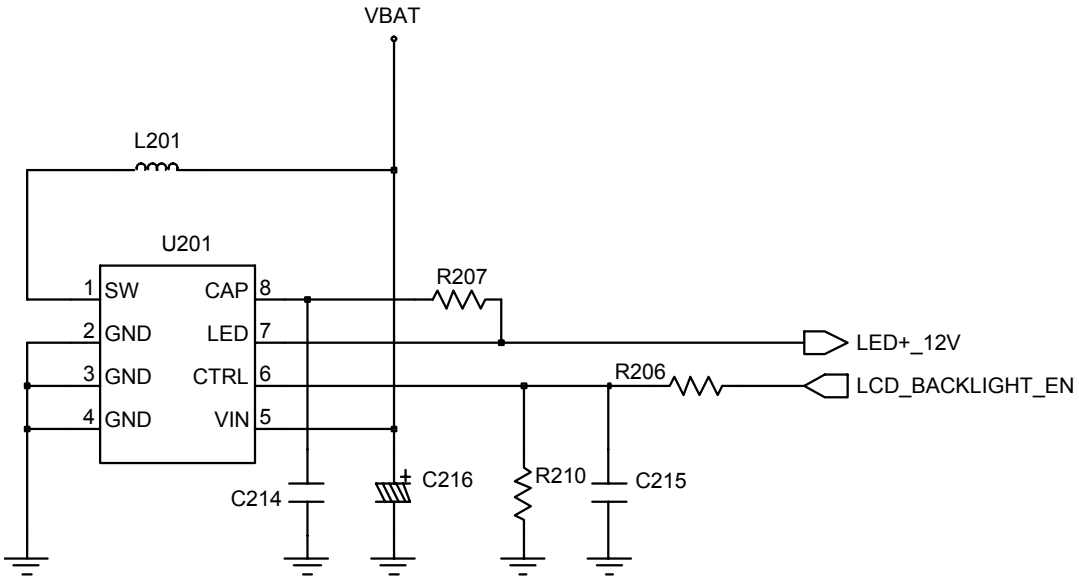
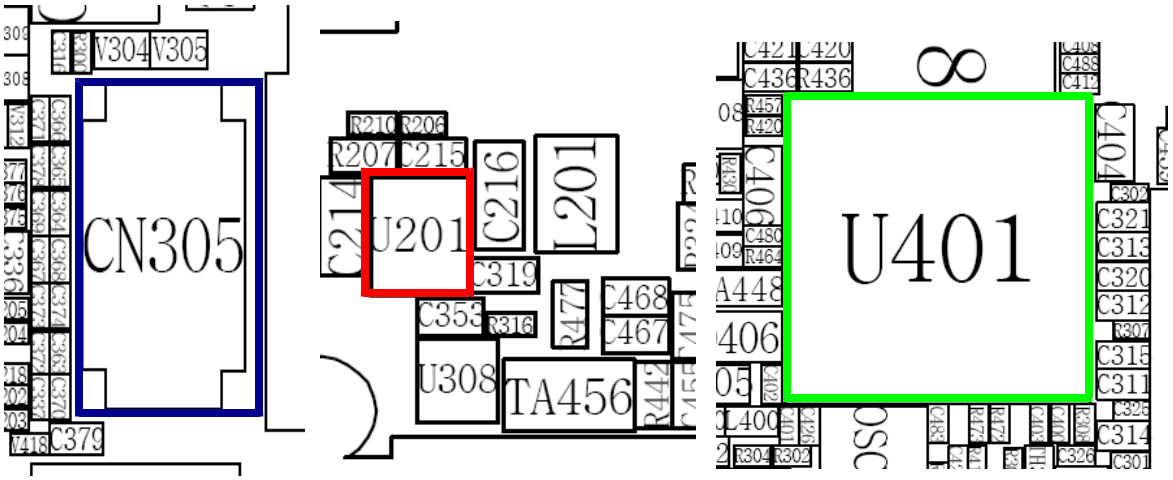


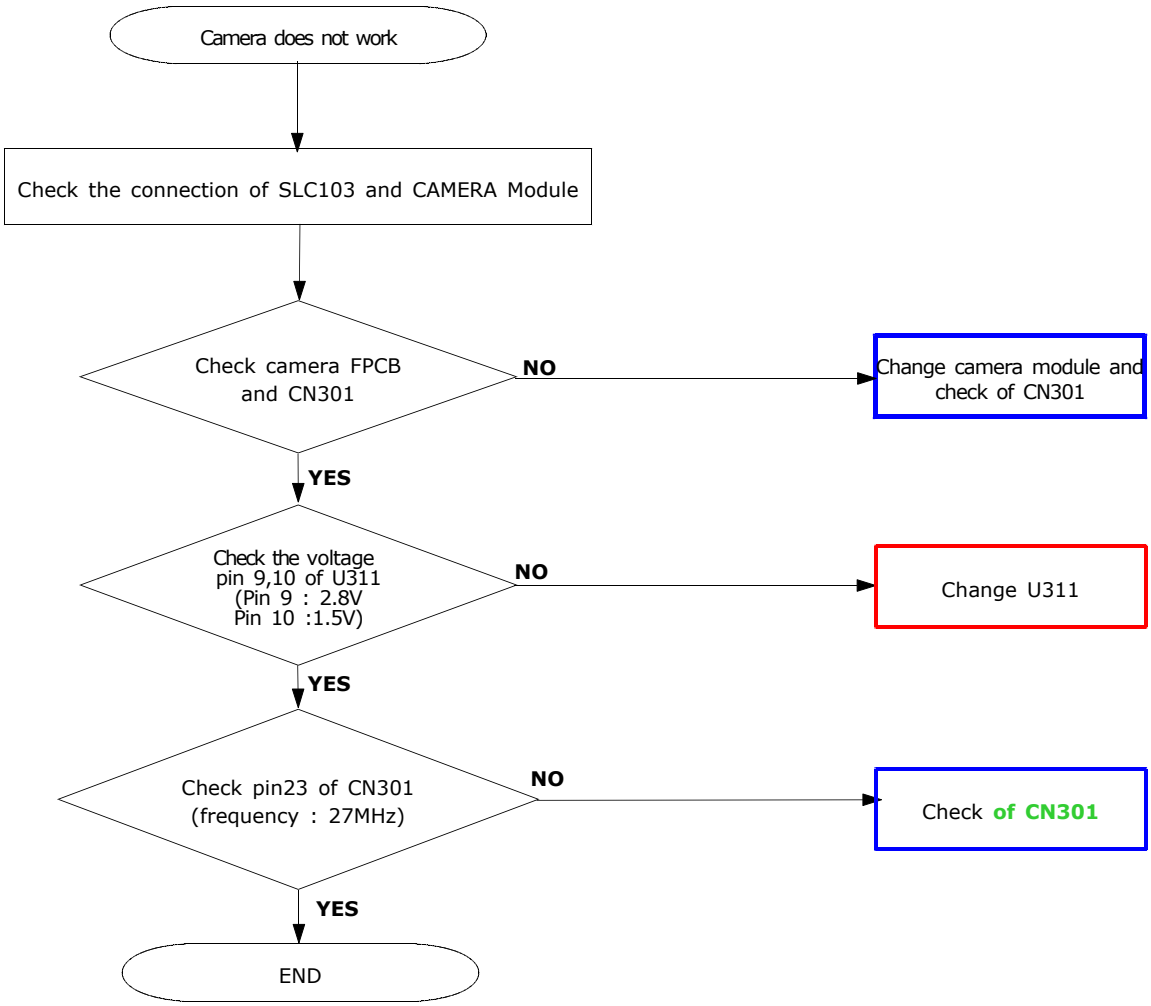


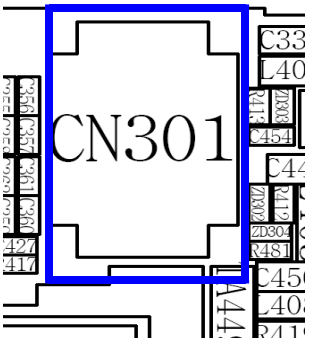


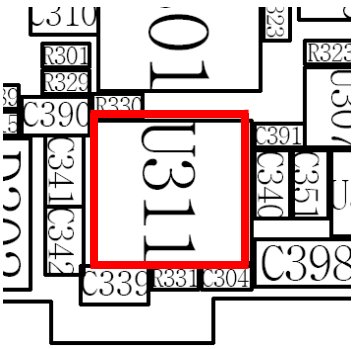


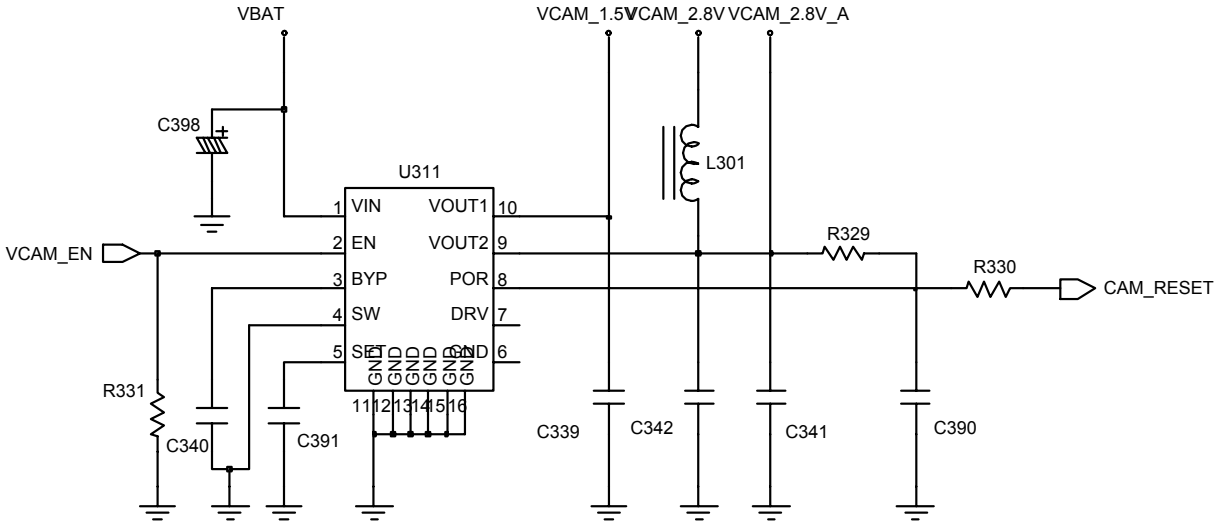


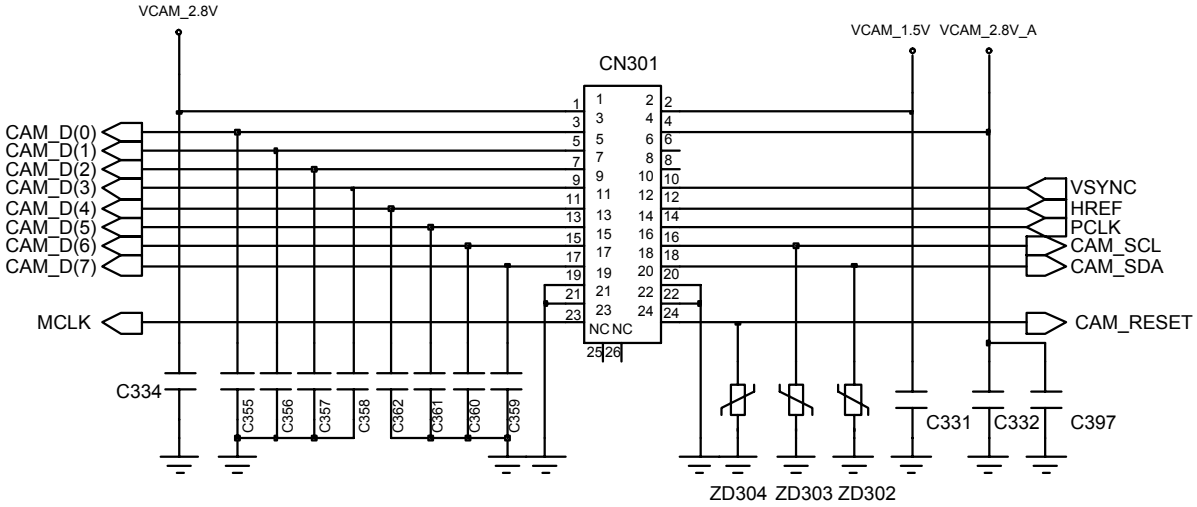
10-1-8. Camera





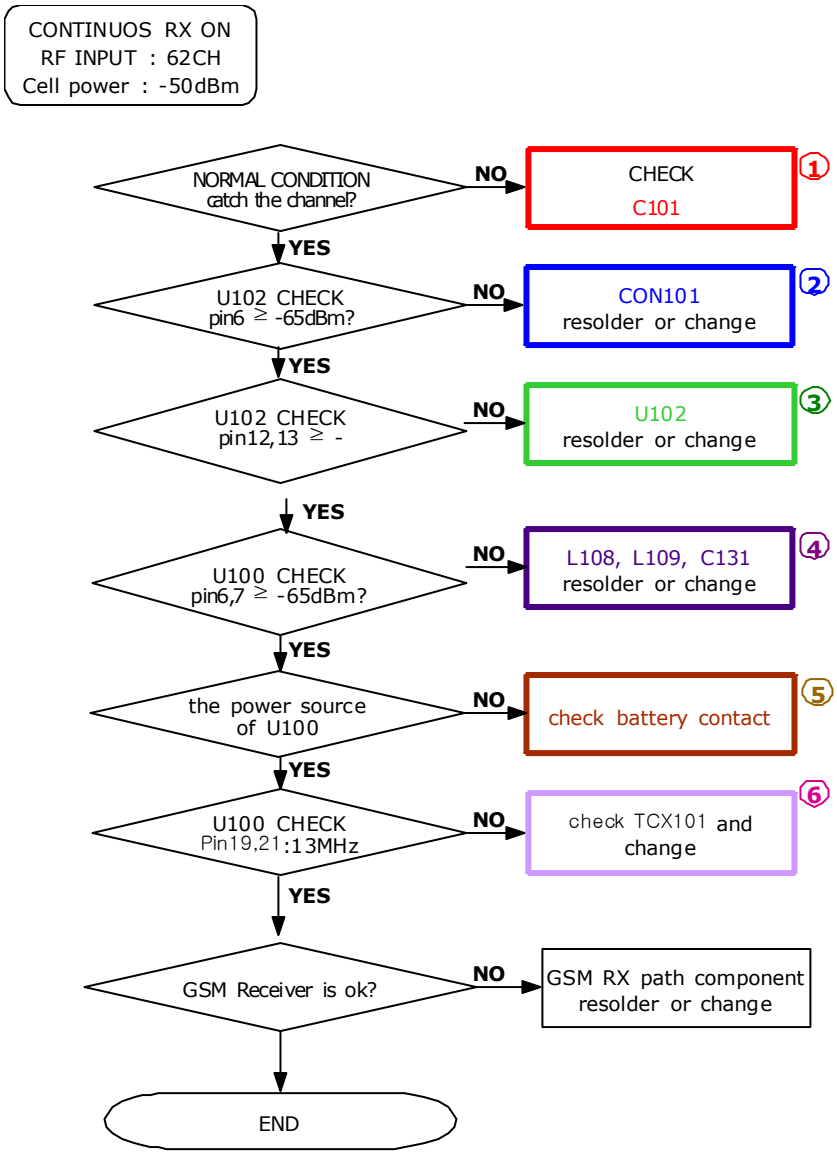






10-2. RF

10-2-1. GSM Receiver



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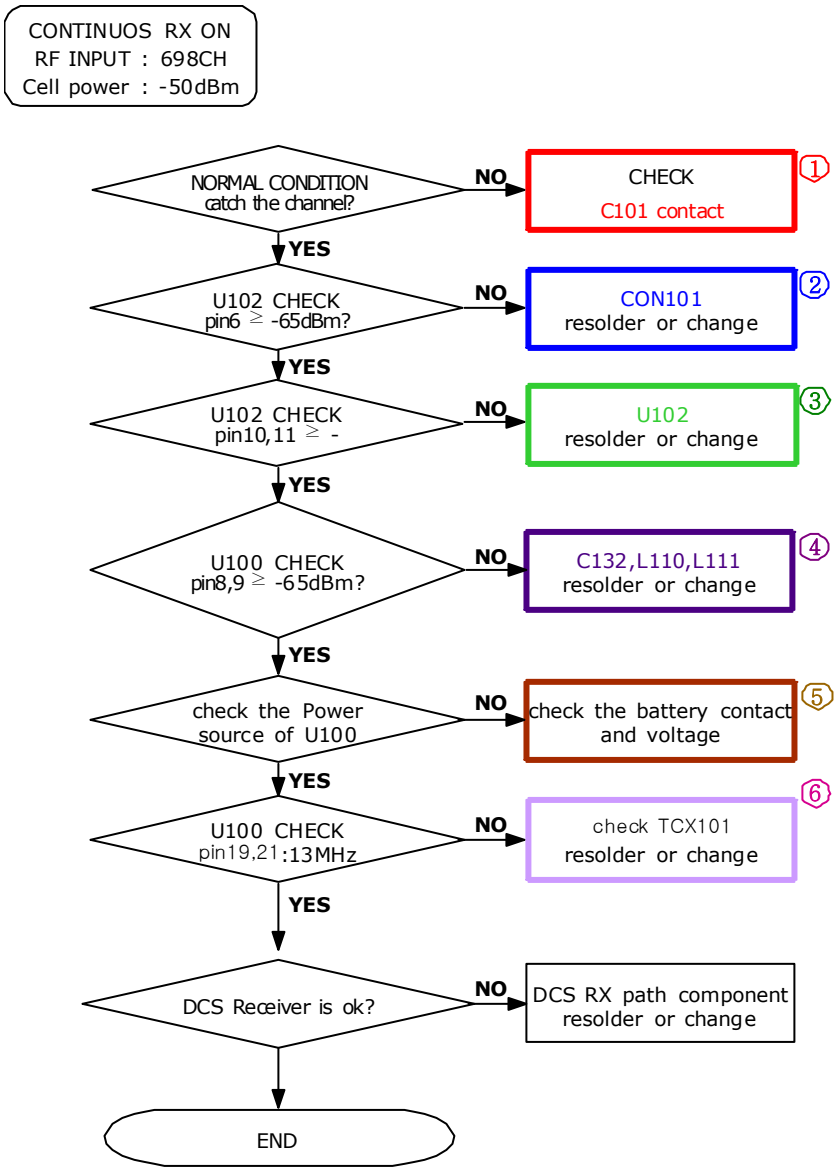
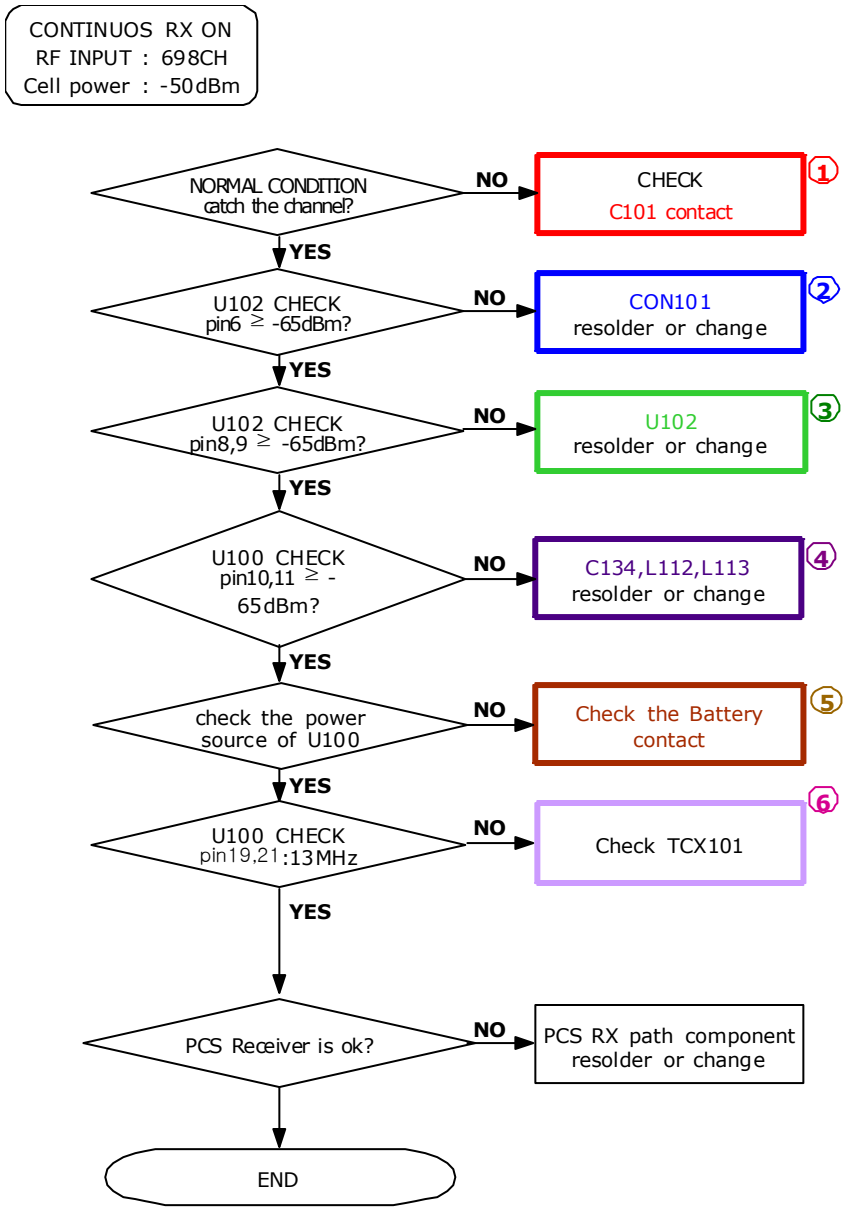
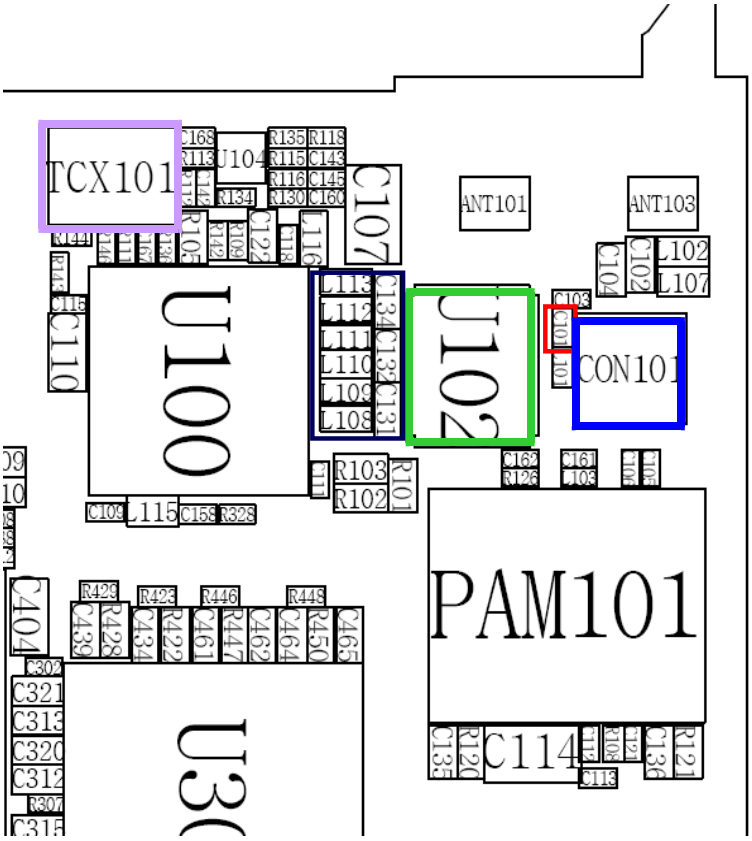
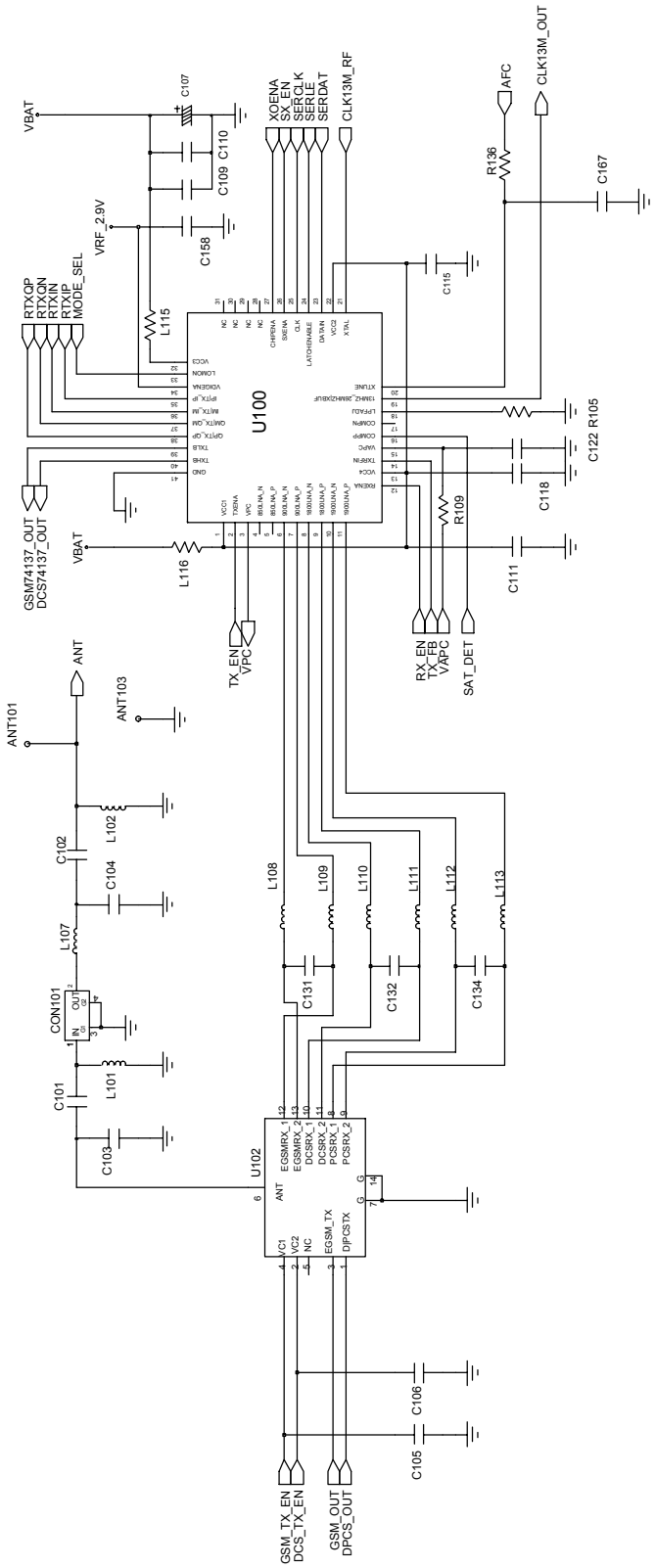


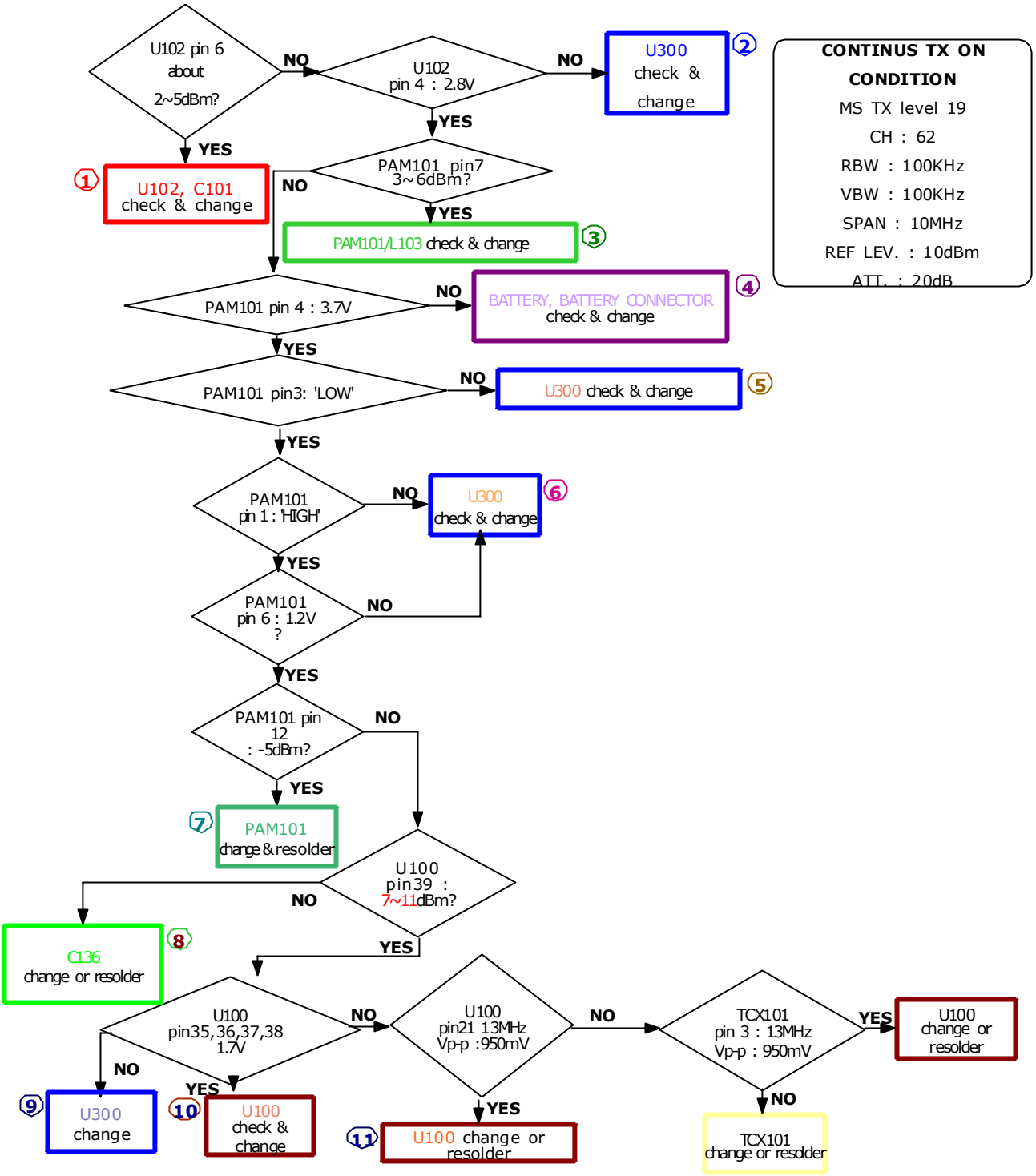
10-2-3. PCS Receiver







10-2-4. GSM Transmitter



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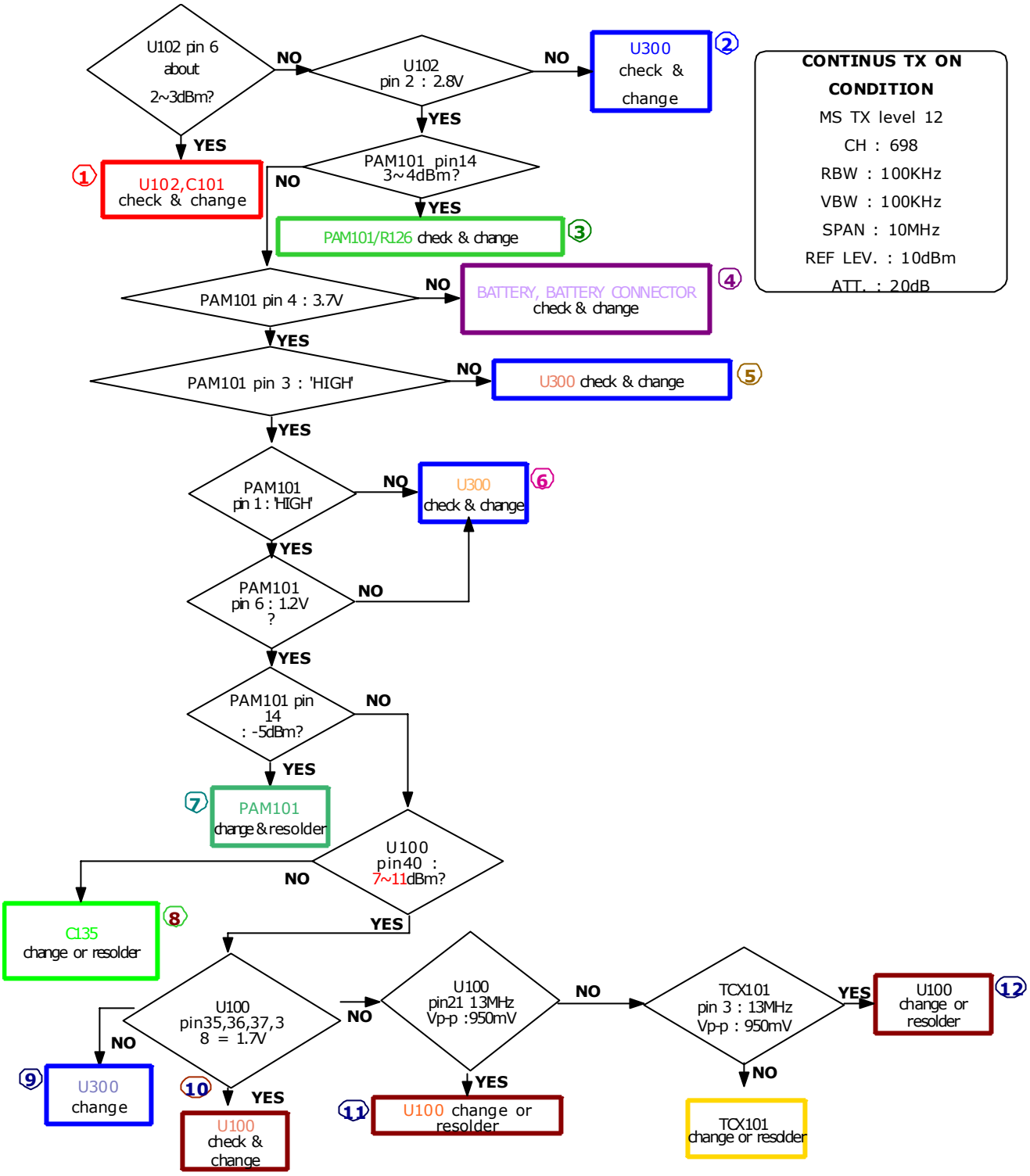

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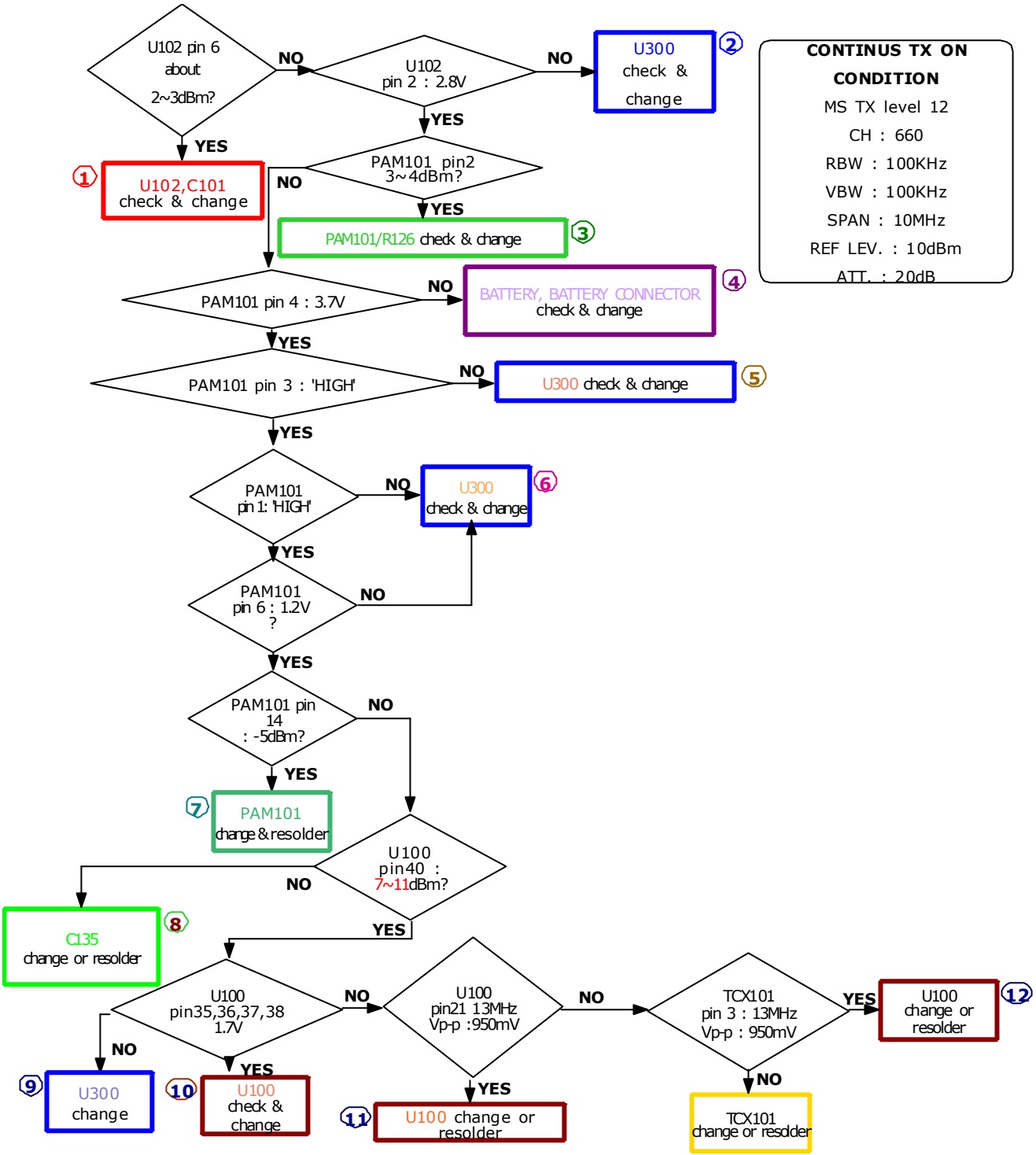
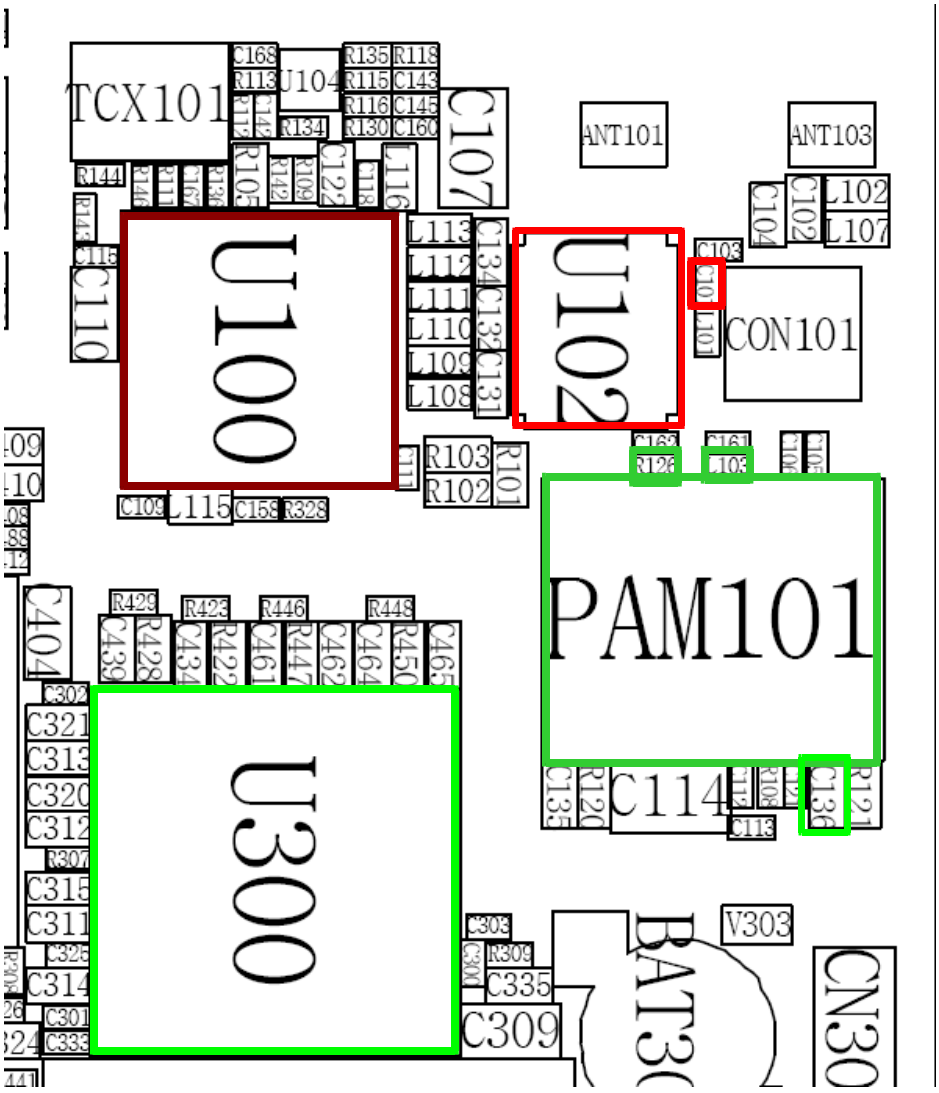
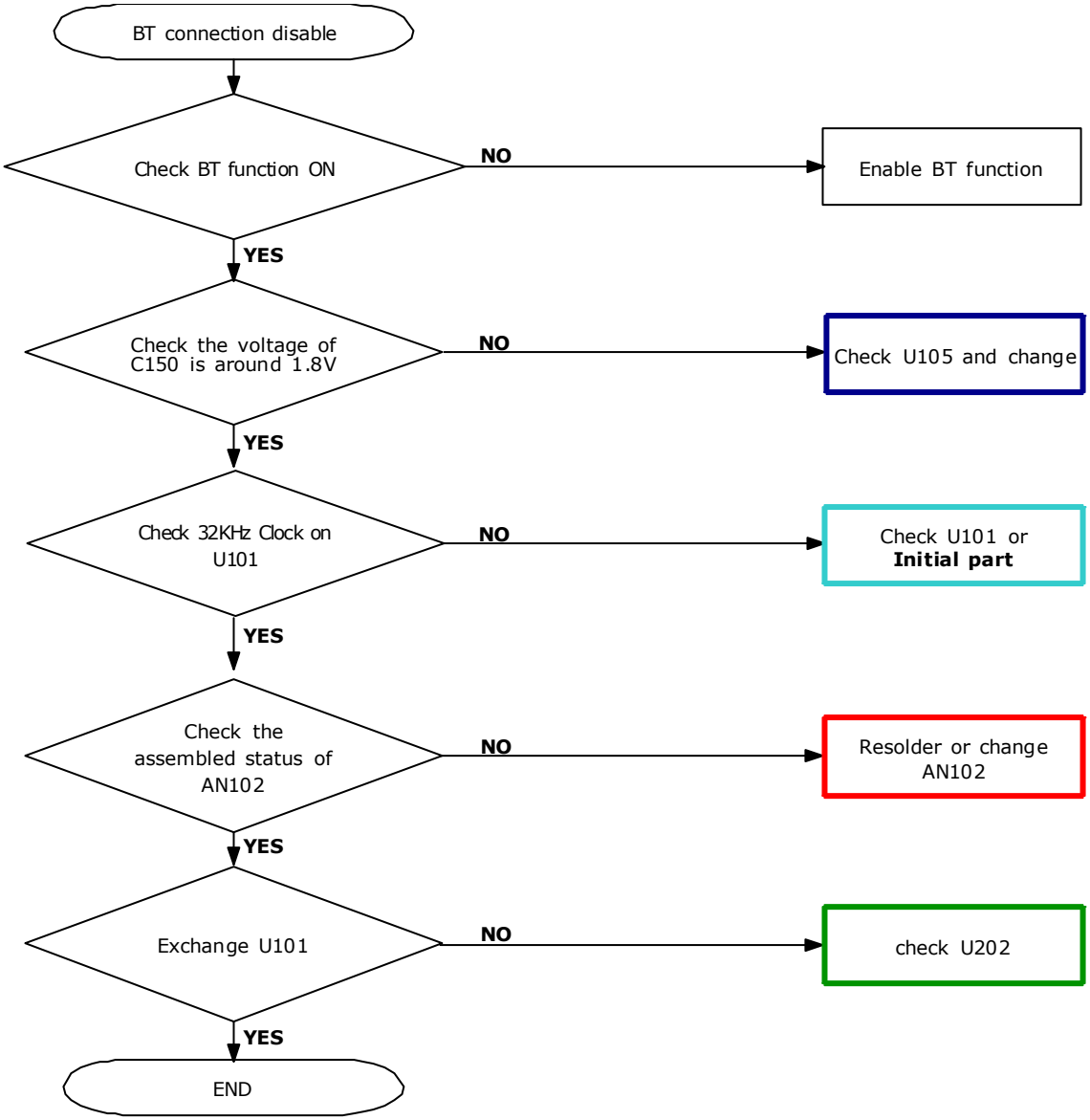
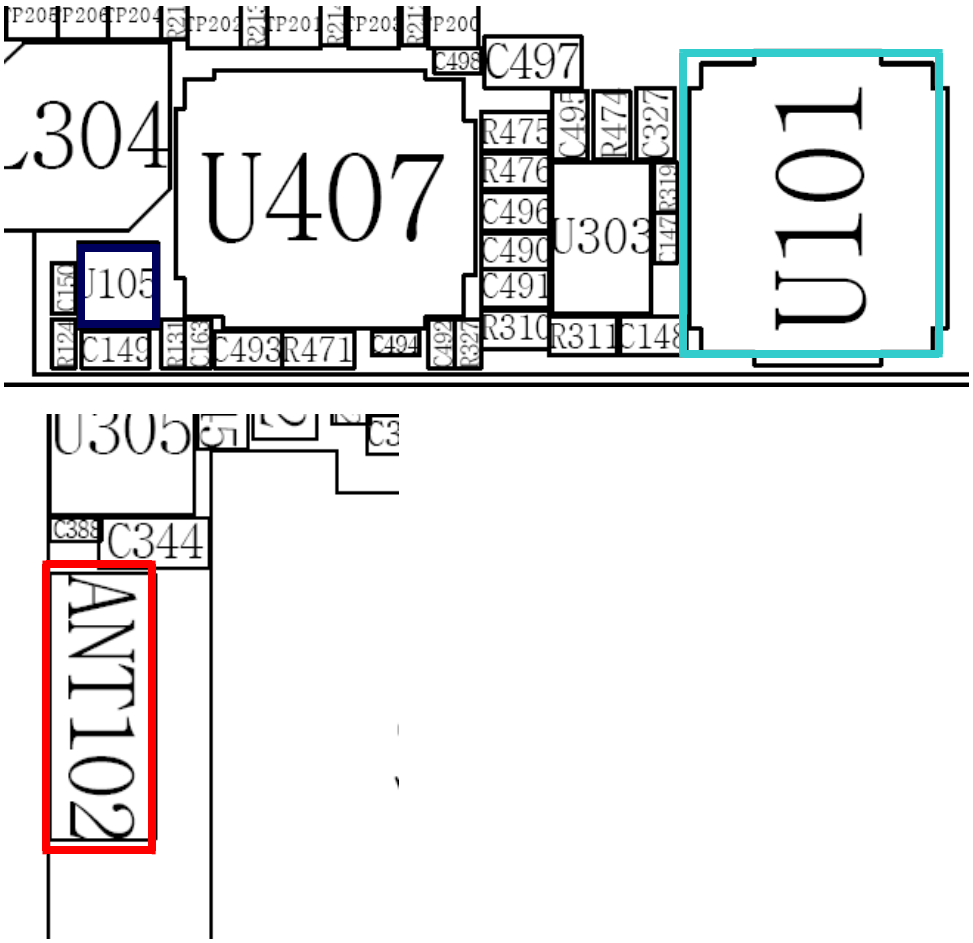
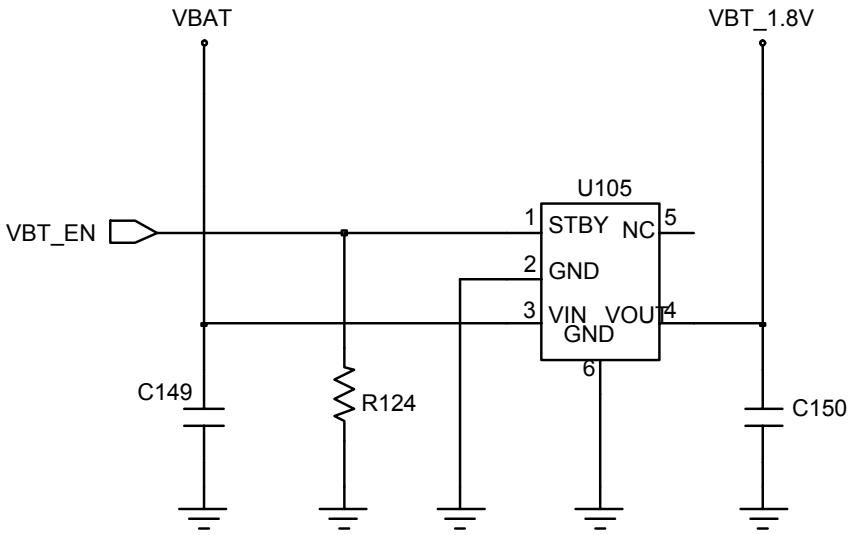


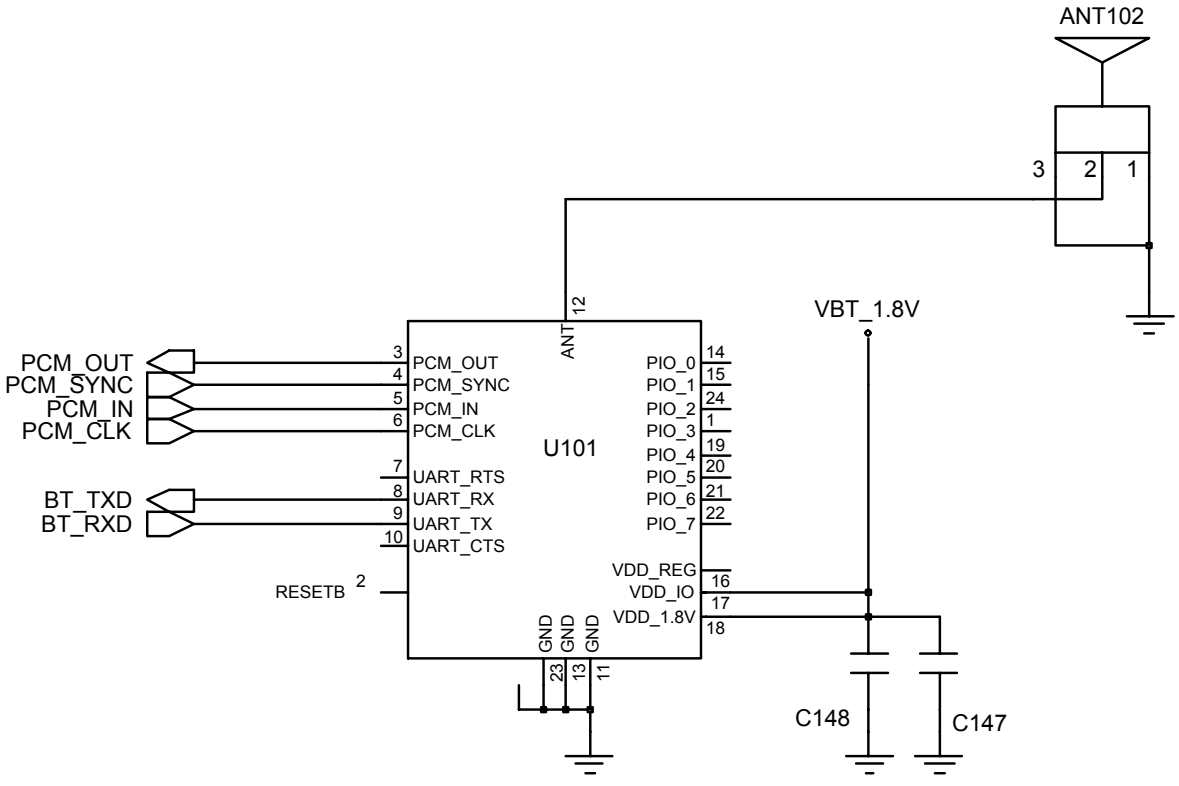


10-2-7. Bluetooth Part









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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Code No.: GH68-10799A
2006. 06. Rev.1.0