SAMSUNG

GSM TELEPHONE
SGH-X210

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

Feature	Description	Select
Find a contact	Search for contacts in Phonebook.	Phonebook > Search
Add a new contact	Add a new contact to Phonebook.	Phonebook > New entry
Search group	Search for Phonebook contacts in caller groups.	Phonebook > Group search
Change properties of a caller group	Select a ringtone for incoming calls and messages from members of a group. Also change the group name.	Phonebook > Edit group
Speed dial	Assign speed dial numbers (2 to 9) for eight of your most frequently dialled numbers.	Phonebook > Speed dial
Delete Phonebook contacts	Delete all Phonebook contacts stored in the phone's memory, on the SIM card, or both.	Phonebook > Delete all
Phonebook memory status	View the total number of Phonebook contacts in the phone's memory or on the SIM card.	Phonebook > Memory status
View recent calls	View the most recent calls you have dialled, received, or missed.	Menu > Call records > Missed calls, Received calls, Dialled calls

4. Array course control

Test Jig (GH80-00865A)

Test Cable (GH39-00127A)

RF Test Cable (GH39-00397A)

Software Downloading

4-1. Downloading Binary Files

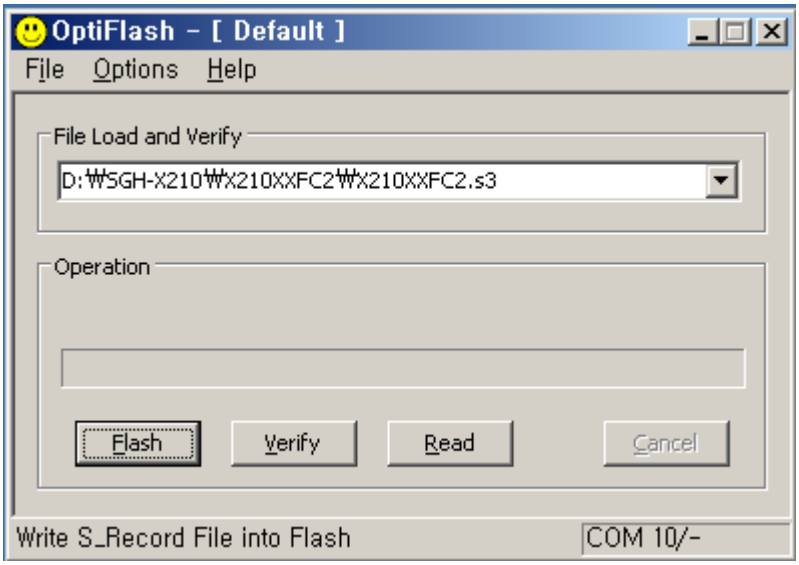
- Three binary files for downloading X210.
  – X210XXYY.s3 : Main source code binary.

4-2. Pre-requsite for Downloading

- Downloader Program(OptiFlash.exe)
- X210 Mobile Phone
- Data Cable
- Binary files

4-3. S/W Downloader Program

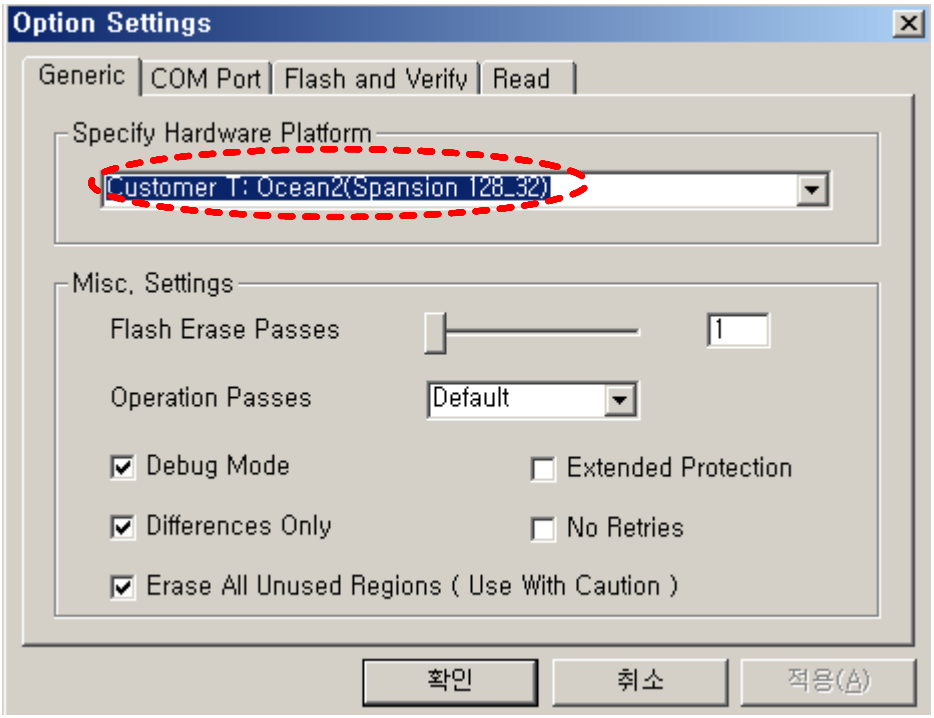
1. Load the binary download program♪by executing the "**OptiFlash.exe**"



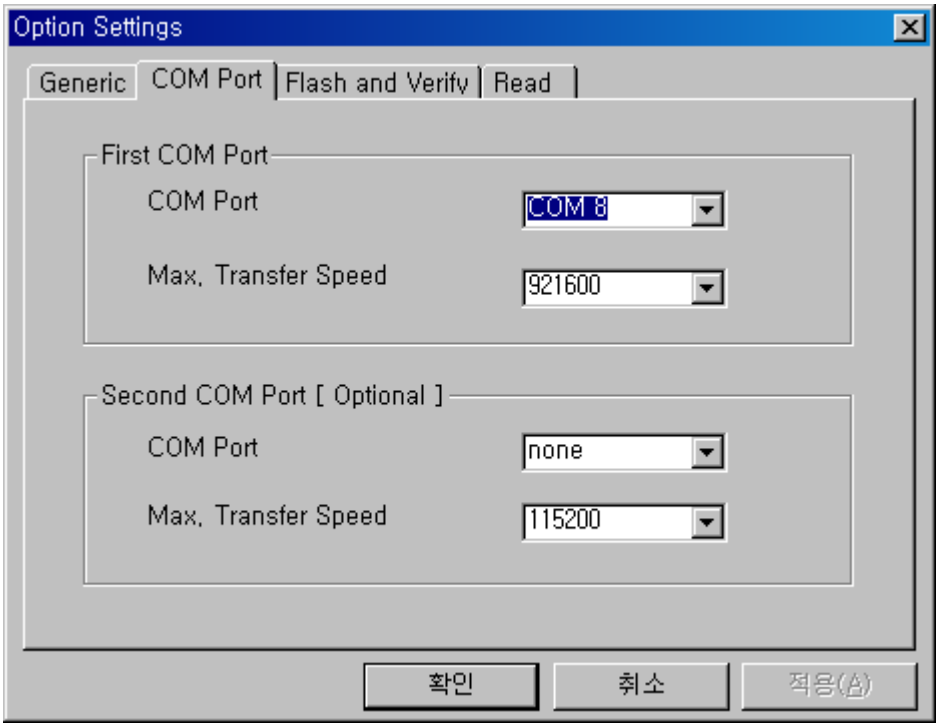
2. Select the **"Options" -> "Settings" -> "Generic" -> "Specify hardware platform"**.♪

Choose hardware platform for the downloader file setting.♪

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

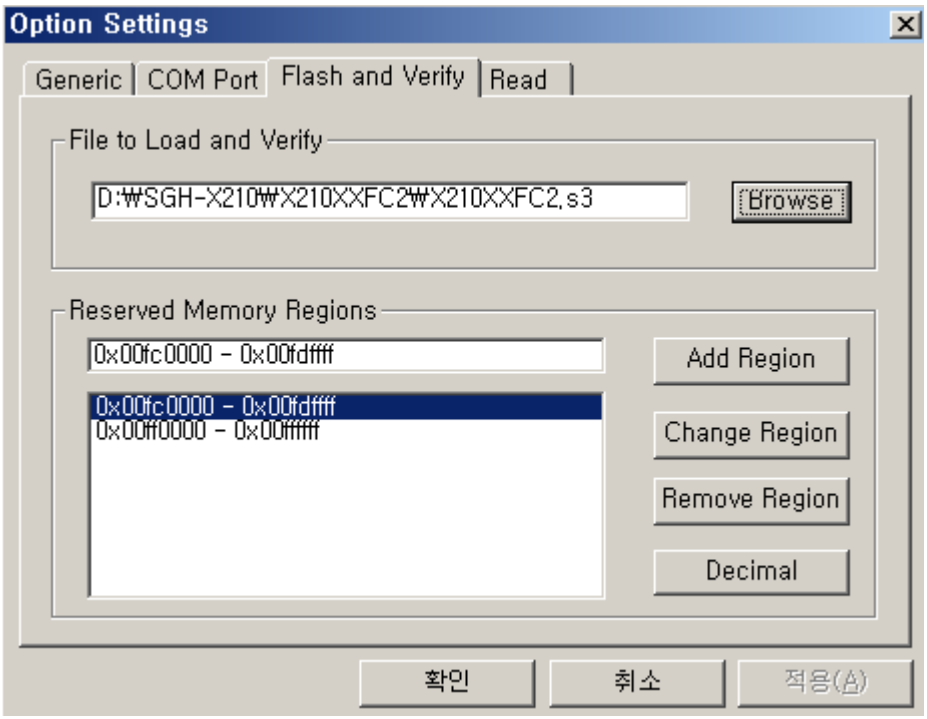


3. Select the **COM port** when the download cable is connected



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 "X210XXYY.s3",♪for the downloader binary setting.



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

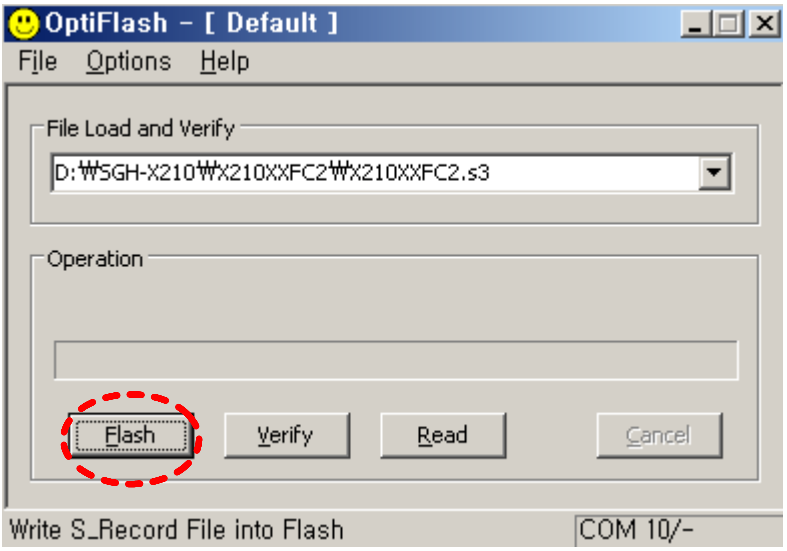
In case of X210 the reserved memory regions are :♪

-0x00fc0000 – 0x00fdffff

-0x00ff0000– 0x00ffffff

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. :♪

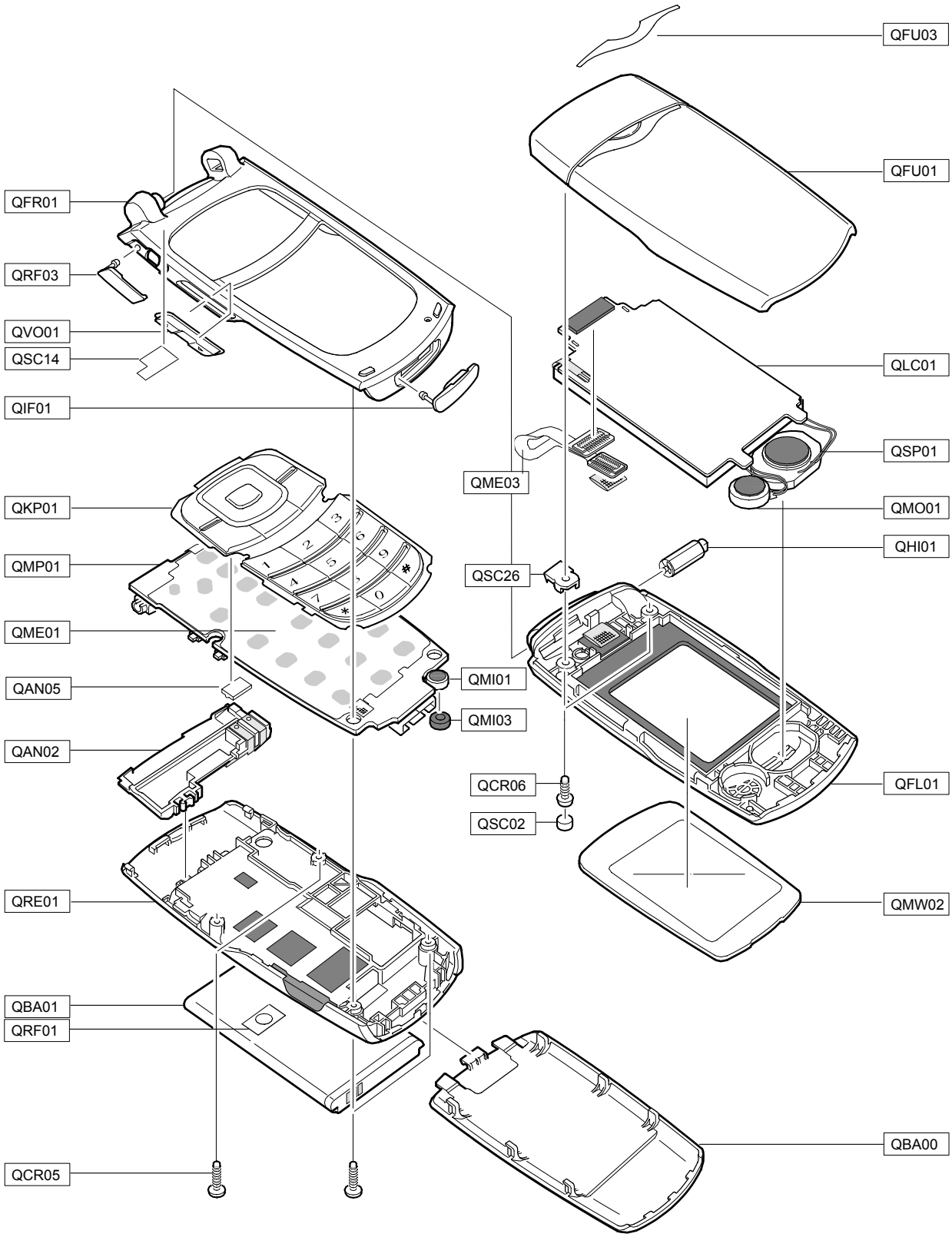
***#5002*8376263#♪**

Full Reset : ♪

***2767*3855#**

5. Exploded View and Parts List

5-1. Cellular phone Exploded View



5-2. Cellular phone Parts list

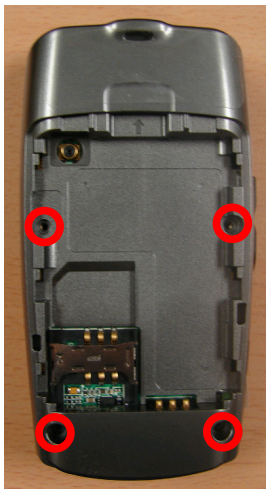
Design LOC		Discription	SEC CODE
QAN02		INTENNA-SGHX160	GH42-00819A
QAN05		MEC-INTENNA CONN RUBBER	GH75-08200A
QBA00		MEC-COVER BATT	GH75-09621B
QBA01		INNER BATTERY PACK-750MAH,BLK,	GH43-02483A
QCR05		SCREW-MACHINE	6001-001478
QCR06		SCREW-MACHINE	6001-001155
QKP01		ASSY KEYPAD-MAIN((SER/ZK)	GH98-01108A
QME01		UNIT-METAL DOME	GH59-03135A
QMI01		MICROPHONE-ASSY-6.25MM	GH30-00177F
QMI03		RMO-MIC HOLDER	GH73-05342A
QMO01		MOTOR DC-SGHZ130	GH31-00154A
QMP01		PBA MAIN-SGHX210	GH92-02683A
QMW02		PMO-COVER MAIN WINDOW	GH72-30084A
QRE01		MEC-CASE REAR	GH75-09620B
QRF01		MPR-RF SHEET	GH74-17894B
QSC02		RMO-FOLDER SCREW COVER	GH73-05511A
QSC14		MPR-TAPE FRONT HOLE	GH74-23661A
QSC26		PMO-COVER FPCB HOLE	GH72-30082A
QSP01		SPEAKER	3001-001954
QVO01		MEC-VOLUME KEY	GH75-09622A
QFU01		MEC-CASE FOLDER UPPER	GH75-09617B
	QFU03	ASSY-DECO-UPPER	GH98-00972A
QFL01		MEC-CASE FODLER LOWER	GH75-09618A
	QHI01	MEC-HINGE (CAN TYPE)	GH75-09075A
QFR01		MEC-CASE FRONT	GH75-09619A
	QIF01	PMO-COVER IF	GH72-30078A
	QRF03	PMO-COVER EAR	GH72-30077A
QLC01		ELA UNIT-SGHX210 LCD MODULE	GH96-02173A
	QME03	UNIT-CON TO CON	GH59-03136A

Discription	SEC CODE
BAG PE	6902-000297
ADAPTOR-SGHN288 TAD	GH44-00184A
UNIT-EARPHONE(BLK)	GH59-02472A
LABEL(P)-WATER SOAK	GH68-02026A
MANUAL-WARRANTY CARD	GH68-02623A
MANUAL-SFC	GH68-04336A
LABEL(P)-BARCODE RUSSIA	GH68-08494A
MANUAL USERS-EU RUSSIAN	GH68-10955A
LABEL(R)-MAIN(SER)	GH68-11190A
CUSHION-CASE (EU)	GH69-03548A
BOX(P)-UNIT MAIN(SER)	GH69-03970A
IPR-MAGNETIC	GH70-01448A
RMO-BGA RUBBER T	GH73-05471A
RMO-BGA RUBBER M	GH73-05472A
RMO-BGA RUBBER B	GH73-05473A
RMO-YAMAHA RUUBBER	GH73-05641A
RMO-CUSHION B2B CON	GH73-06773A
MPR-MAIN LCD BOHO VINYL(S)	GH74-05008A
MPR-REMOVE TAPE LCD	GH74-13804A
MPR-BOHO VINYL LCD CONN	GH74-15350A
MPR-MAIN CON GASKET	GH74-17892A
MPR-BOHO VINYL UPPER	GH74-18028A
MPR-BOHO VINYL UPPER	GH74-18028A
MPR-TAPE REMOVE LCD	GH74-18286A
MPR-FPCB PORON	GH74-18593A
MPR-BOHO VINYL LCD	GH74-19127A
MPR-TAPE DOME SHEET	GH74-22759A
MPR-TAPE J TAG MASKING	GH74-22760A
MPR-TAPE MAIN LDI	GH74-23620A
MPR-TAPE MAIN FPCB FIXATION	GH74-23621A
MPR-TAPE DOME SHEET TOP	GH74-23945A
MPR-TAPE MAIN FPCB INSULATION	GH74-24736A
MPR-TAPE IF COVER	GH74-24740A

6. Disassembly and Assembly instructions

6-1. Disassembly

1

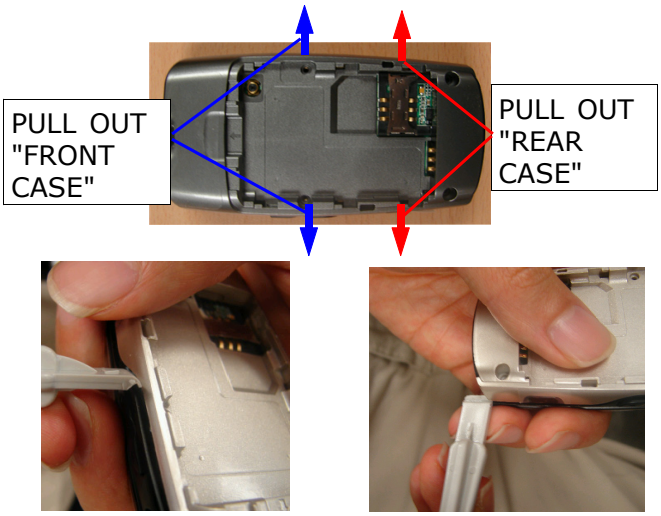


1) Unscrew the REAR at the four points.
2) Disassemble the IF COVER
3) Disassemble the EAR COVER

※ **caution**

1) Be careful not to make scratch and molding damage!

2

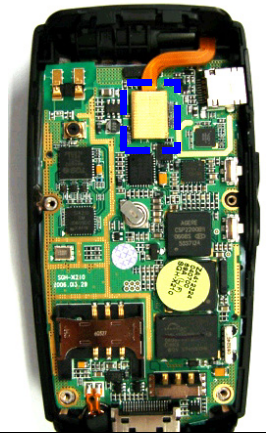


1) Disassemble the Rear from the bottom side to the upper side.

※ **caution**

1) Be careful not to make scratch and molding damage!

3



1) Disassemble the LCD CONNECTOR
2) Disassemble the PBA from the FRONT ASS'Y
3) Remove the DUST TAPE
4) Disassemble the Keypad.

※ **caution**

1) When PBA is separated from LCD Connector, Be careful not to damage!
2) Be careful not to damage LCD FPCB!

4

1) Push the hinge between Folder Upper and lower, And Disassemble Front from Folder.

※ **caution**

1) Be careful not to make scratch and molding damage!
2) Be careful not to damage LCD FPCB!

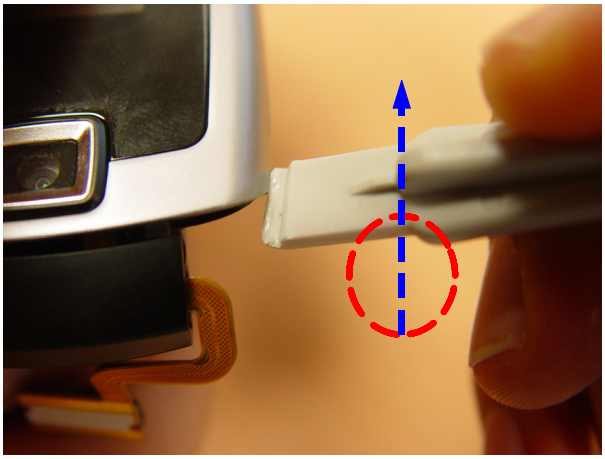
5

1) Remove screw caps.
2) Unscrew the FOLDER Upper.

※ **caution**

1) Be careful not to make scratch and molding damage!
2) Be careful not to damage LCD FPCB!

6

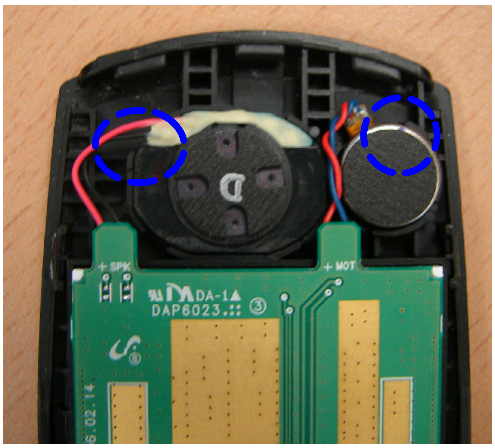


1) By using an assembly stick, Disassemble Folder Upper from Folder lower (Right and Left are the same process)

※ **caution**

1) Be careful not to make scratch and molding damage!

7

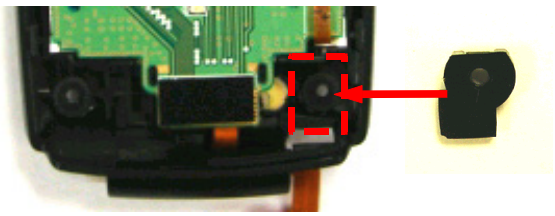


1) Disassemble the MOTOR and the SPEAKER from FOLDER LOWER by using a pincette.

※ **caution**

1) Be careful not to make scratch and molding damage!
2) Do not use the speaker bonding part at disassembling speaker (Only use marking point)

8



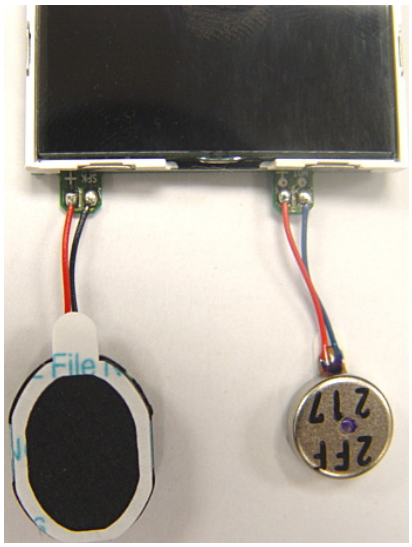
1) Disassemble FPCB HOLE COVER

※ **caution**

1) Be careful not to damage the LCD FPCB.

6-2. Assembly

1

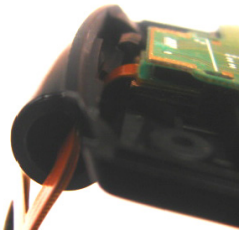


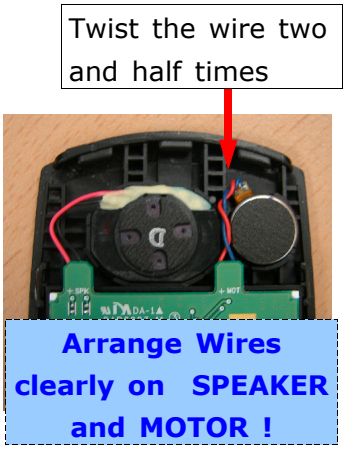
1) Solder SPEAKER & MOTOR to LCD.
2) Bond on the soldering place

※ **caution**

1) Be careful not to make scratch and molding damage!

2



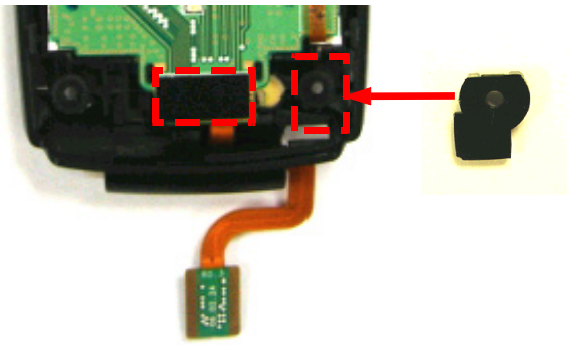


1) Insert FPCB into FOLDER LOWER.
2) Assemble "Con to Con" to LCD
3) Attach Speaker and Motor.

※ **caution**

1) Be careful not to make scratch and molding damage!
2) Be careful not to damage LCD FPCB!

3



1)Attach LCD connector rubber.
2)Assemble FPCB hole cover.

※ **caution**

1. Arrange the motor wire after assembling the speaker.
2. First assemble the motor wire, next the speaker wire.

4

<1>

<3>

<2>

1) Assemble FOLDER UPPER with FOLDER LOWER following the orders as above picture is shown.

※ **caution**

1) Be careful not to make scratch and molding damage!

5

1) Screw up the FOLDER UPPER at the above two points.(M1.4xL3.5)
1) Be careful not to make scratch and molding damage!
2) Torque 1.0 ± 0.1 Kgf.cm!

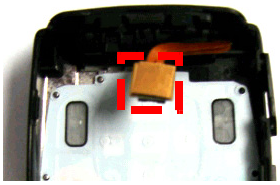
6

1) Attach Screw rubber caps on the screws by using a pincette.

※ **caution**

1) Be careful not to make scratch and molding damage!
2) Be sure to push the rubbers.

7



1) Insert LCD FPCB[which is connected to FOLDER] into the bottom of FRONT Hinge.
2) The FOLDER's projection inserts the FRONT'S hole when Projection is pushed
3) Assemble FOLDER with FRONT
4) Attach Gasket tape.

※ **caution**

1) Be careful not to make scratch and molding damage!

8

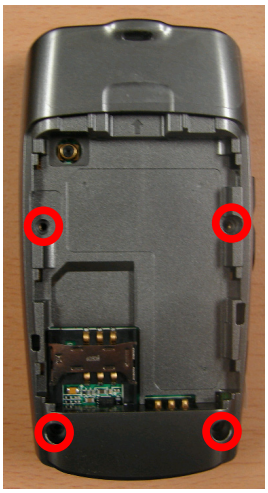
1) Attach FRONT Dust TAPE as a above picture is shown.

※ **caution**

1) Be careful not to make scratch and molding damage!

9	10
	
1) Insert the KEYPAD. ※ **caution** 1) Be careful not to insert keypad into FRONT incorrectly![Put KEYPAD Holes into FRONT Projection correctly!] 2) Be careful not to damage LCD FPCB!	1) Insult the Side key as the above picture is shown. 2) Attach the Sponge. ※ **caution** 1) Be sure the direction of side key
11	**12**
	 
1) Insert PBA into FRONT. 2) Connect LCD FPCB to PBA CONNECTOR. ※ **caution** 1) Be careful not to damage LCD FPCB! 2) Be careful not to damage PBA	1)Assemble the rear from 1 direction to 2 direction as the above picture is shown. ※ **caution** 1) Be careful not to make scratch and molding damage!

13



1) Screw up the REAR at 4 Points.
   [M1.4* L3]

※ caution

1) Torque 0.8 ± 0.1 Kgf/㎠
2) Be careful not to make scratch and molding damage!

7. MAIN Electrical Parts List

SEC CODE	Design LOC	Discription	STATUS
0403-001547	ZD302	DIODE-ZENER	SA
0406-001083	ZD303	DIODE-TVS	SA
0406-001083	ZD304	DIODE-TVS	SA
0406-001083	ZD305	DIODE-TVS	SA
0406-001150	ZD307	DIODE-TVS	SA
0504-000168	Q103	TR-DIGITAL	SA
0601-002070	LED200	LED	SA
0601-002070	LED201	LED	SA
0601-002070	LED202	LED	SA
0601-002070	LED204	LED	SA
0601-002070	LED205	LED	SA
0601-002070	LED206	LED	SA
0601-002070	LED213	LED	SA
0601-002070	LED214	LED	SA
0601-002070	LED215	LED	SA
0601-002070	LED217	LED	SA
0601-002070	LED219	LED	SA
0601-002070	LED220	LED	SA
0601-002070	LED227	LED	SA
0601-002070	LED228	LED	SA
0604-001306	U205	PHOTO-IRDA	SA
0801-002529	U109	IC-CMOS LOGIC	SA
1001-001294	U302	IC-ANALOG SWITCH	SA
1009-001020	U203	IC-HALL EFFECT S/W	SA
1108-000070	UME201	IC-MCP	SA
1201-002278	PAM100	IC-POWER AMP	SA
1201-002356	U301	IC-AUDIO AMP	SA
1203-003304	UCD107	IC-POWER SUPERVISOR	SA
1203-003663	U105	IC-BATTERY	SA
1203-004172	U204	IC-DC/DC CONVERTER	SA
1204-002161	UCD106	IC-MELODY	SA
1204-002398	U303	IC-DEMODULATOR	SA
1205-002683	UCD101	IC-TRANSCEIVER	SA
1209-001219	U202	IC-SENSOR	SA
1405-001082	VR313	VARISTOR	SA
1405-001082	VR314	VARISTOR	SA
1405-001082	VR315	VARISTOR	SA
1405-001082	VR316	VARISTOR	SA

SEC CODE	Design LOC	Discription	STATUS
1405-001082	VR317	VARISTOR	SA
1405-001082	VR318	VARISTOR	SA
1405-001082	ZD202	VARISTOR	SA
1405-001082	ZD203	VARISTOR	SA
1405-001082	ZD204	VARISTOR	SA
1405-001082	ZD205	VARISTOR	SA
1405-001082	ZD206	VARISTOR	SA
1405-001082	ZD208	VARISTOR	SA
1405-001082	ZD209	VARISTOR	SA
1405-001082	ZD210	VARISTOR	SA
1405-001082	ZD211	VARISTOR	SA
1405-001082	ZD212	VARISTOR	SA
1405-001082	ZD213	VARISTOR	SA
2007-000140	R101	R-CHIP	SA
2007-000140	R183	R-CHIP	SA
2007-000140	R306	R-CHIP	SA
2007-000140	R307	R-CHIP	SA
2007-000140	R308	R-CHIP	SA
2007-000140	R309	R-CHIP	SA
2007-000140	R310	R-CHIP	SA
2007-000140	R311	R-CHIP	SA
2007-000140	R312	R-CHIP	SA
2007-000140	R313	R-CHIP	SA
2007-000140	R314	R-CHIP	SA
2007-000140	R315	R-CHIP	SA
2007-000140	R316	R-CHIP	SA
2007-000140	R317	R-CHIP	SA
2007-000140	R330	R-CHIP	SA
2007-000140	R363	R-CHIP	SA
2007-000148	R157	R-CHIP	SA
2007-000148	R325	R-CHIP	SA
2007-000148	R328	R-CHIP	SA
2007-000148	R338	R-CHIP	SA
2007-000148	R340	R-CHIP	SA
2007-000153	R117	R-CHIP	SA
2007-000157	R188	R-CHIP	SA
2007-000157	R204	R-CHIP	SA
2007-000157	R260	R-CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2007-000161	R327	R-CHIP	SA
2007-000161	R329	R-CHIP	SA
2007-000161	R339	R-CHIP	SA
2007-000161	R341	R-CHIP	SA
2007-000162	R172	R-CHIP	SA
2007-000162	R182	R-CHIP	SA
2007-000162	R209	R-CHIP	SA
2007-000162	R213	R-CHIP	SA
2007-000162	R318	R-CHIP	SA
2007-000164	R155	R-CHIP	SA
2007-000170	R214	R-CHIP	SA
2007-000171	R166	R-CHIP	SA
2007-000171	R177	R-CHIP	SA
2007-000171	R178	R-CHIP	SA
2007-000171	R187	R-CHIP	SA
2007-000171	R342	R-CHIP	SA
2007-000171	R343	R-CHIP	SA
2007-000171	R344	R-CHIP	SA
2007-000171	R347	R-CHIP	SA
2007-000171	R358	R-CHIP	SA
2007-000171	R359	R-CHIP	SA
2007-000172	R200	R-CHIP	SA
2007-000172	R201	R-CHIP	SA
2007-000173	R345	R-CHIP	SA
2007-000173	R349	R-CHIP	SA
2007-000242	R336	R-CHIP	SA
2007-000242	R337	R-CHIP	SA
2007-000566	R301	R-CHIP	SA
2007-000566	R302	R-CHIP	SA
2007-000566	R303	R-CHIP	SA
2007-000566	R304	R-CHIP	SA
2007-000566	R305	R-CHIP	SA
2007-000775	R156	R-CHIP	SA
2007-000775	R158	R-CHIP	SA
2007-001119	R332	R-CHIP	SA
2007-001119	R335	R-CHIP	SA
2007-001284	R250	R-CHIP	SA
2007-001292	R244	R-CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2007-001292	R247	R-CHIP	SA
2007-001292	R248	R-CHIP	SA
2007-001292	R249	R-CHIP	SA
2007-001301	R227	R-CHIP	SA
2007-001301	R229	R-CHIP	SA
2007-001301	R230	R-CHIP	SA
2007-001301	R231	R-CHIP	SA
2007-001301	R235	R-CHIP	SA
2007-001307	R234	R-CHIP	SA
2007-001307	R237	R-CHIP	SA
2007-001307	R238	R-CHIP	SA
2007-001307	R262	R-CHIP	SA
2007-001307	R263	R-CHIP	SA
2007-001308	R133	R-CHIP	SA
2007-001325	R159	R-CHIP	SA
2007-002797	R131	R-CHIP	SA
2007-007308	R257	R-CHIP	SA
2007-007528	R360	R-CHIP	SA
2007-007573	R207	R-CHIP	SA
2007-007573	R216	R-CHIP	SA
2007-007741	R242	R-CHIP	SA
2007-007798	R241	R-CHIP	SA
2007-008051	R353	R-CHIP	SA
2007-008052	R346	R-CHIP	SA
2007-008052	R348	R-CHIP	SA
2007-008055	R357	R-CHIP	SA
2007-008137	R170	R-CHIP	SA
2007-008483	R258	R-CHIP	SA
2007-008516	R118	R-CHIP	SA
2007-008516	R143	R-CHIP	SA
2007-008786	R352	R-CHIP	SA
2007-009154	R362	R-CHIP	SNA
2007-009154	R366	R-CHIP	SNA
2007-009160	R171	R-CHIP	SA
2203-000233	C175	C-CER,CHIP	SA
2203-000233	C220	C-CER,CHIP	SA
2203-000233	C308	C-CER,CHIP	SA
2203-000233	C310	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-000233	L102	C-CER,CHIP	SA
2203-000254	C152	C-CER,CHIP	SA
2203-000254	C153	C-CER,CHIP	SA
2203-000254	C165	C-CER,CHIP	SA
2203-000254	C201	C-CER,CHIP	SA
2203-000254	C204	C-CER,CHIP	SA
2203-000254	C206	C-CER,CHIP	SA
2203-000254	C207	C-CER,CHIP	SA
2203-000254	C208	C-CER,CHIP	SA
2203-000254	C210	C-CER,CHIP	SA
2203-000254	C212	C-CER,CHIP	SA
2203-000278	C216	C-CER,CHIP	SA
2203-000278	C217	C-CER,CHIP	SA
2203-000278	C320	C-CER,CHIP	SA
2203-000359	C322	C-CER,CHIP	SA
2203-000359	C323	C-CER,CHIP	SA
2203-000386	C127	C-CER,CHIP	SA
2203-000386	C368	C-CER,CHIP	SA
2203-000438	C166	C-CER,CHIP	SA
2203-000438	C176	C-CER,CHIP	SA
2203-000438	C336	C-CER,CHIP	SA
2203-000438	C337	C-CER,CHIP	SA
2203-000679	C200	C-CER,CHIP	SA
2203-000812	C140	C-CER,CHIP	SA
2203-000812	C141	C-CER,CHIP	SA
2203-000812	C142	C-CER,CHIP	SA
2203-000940	C138	C-CER,CHIP	SA
2203-000995	C219	C-CER,CHIP	SA
2203-000995	C307	C-CER,CHIP	SA
2203-000995	C309	C-CER,CHIP	SA
2203-001412	C129	C-CER,CHIP	SA
2203-002709	C366	C-CER,CHIP	SNA
2203-005065	C168	C-CER,CHIP	SA
2203-005065	C170	C-CER,CHIP	SA
2203-005065	C171	C-CER,CHIP	SA
2203-005065	C173	C-CER,CHIP	SA
2203-005234	C126	C-CER,CHIP	SA
2203-005249	C188	C-CER,CHIP	SA

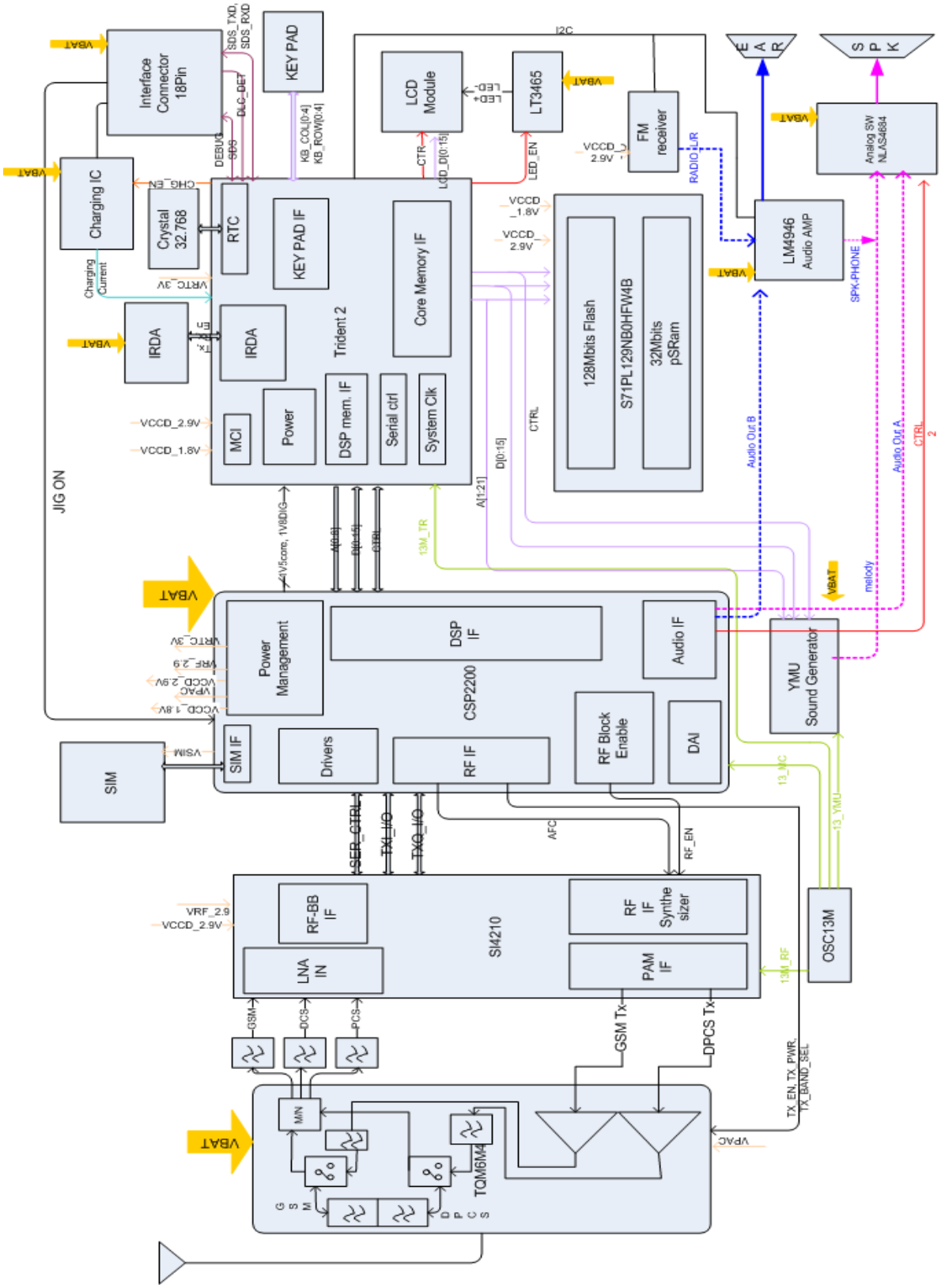
SEC CODE	Design LOC	Discription	STATUS
2203-005482	C139	C-CER,CHIP	SA
2203-005482	C155	C-CER,CHIP	SA
2203-005482	C164	C-CER,CHIP	SA
2203-005482	C167	C-CER,CHIP	SA
2203-005482	C178	C-CER,CHIP	SA
2203-005482	C180	C-CER,CHIP	SA
2203-005482	C203	C-CER,CHIP	SA
2203-005482	C211	C-CER,CHIP	SA
2203-005482	C213	C-CER,CHIP	SA
2203-005482	C215	C-CER,CHIP	SA
2203-005482	C218	C-CER,CHIP	SA
2203-005482	C221	C-CER,CHIP	SA
2203-005482	C239	C-CER,CHIP	SA
2203-005482	C318	C-CER,CHIP	SA
2203-005482	C321	C-CER,CHIP	SA
2203-005482	C352	C-CER,CHIP	SA
2203-005482	C353	C-CER,CHIP	SA
2203-005482	C355	C-CER,CHIP	SA
2203-005482	C369	C-CER,CHIP	SA
2203-005482	U304	C-CER,CHIP	SA
2203-005682	C113	C-CER,CHIP	SA
2203-005682	C114	C-CER,CHIP	SA
2203-005682	C115	C-CER,CHIP	SA
2203-005682	C116	C-CER,CHIP	SA
2203-005682	C120	C-CER,CHIP	SA
2203-005682	C225	C-CER,CHIP	SA
2203-005717	C350	C-CER,CHIP	SA
2203-005727	C367	C-CER,CHIP	SA
2203-005736	C106	C-CER,CHIP	SA
2203-005736	C107	C-CER,CHIP	SA
2203-005736	C108	C-CER,CHIP	SA
2203-005736	C110	C-CER,CHIP	SA
2203-005736	C349	C-CER,CHIP	SA
2203-005792	C105	C-CER,CHIP	SA
2203-005792	C109	C-CER,CHIP	SA
2203-005792	C122	C-CER,CHIP	SA
2203-005792	C125	C-CER,CHIP	SA
2203-006137	C179	C-CER,CHIP	SA

SEC CODE	Design LOC	Discription	STATUS
2203-006137	C202	C-CER,CHIP	SA
2203-006137	C306	C-CER,CHIP	SA
2203-006137	C331	C-CER,CHIP	SA
2203-006137	C332	C-CER,CHIP	SA
2203-006190	C338	C-CER,CHIP	SA
2203-006190	C339	C-CER,CHIP	SA
2203-006194	C101	C-CER,CHIP	SA
2203-006194	C146	C-CER,CHIP	SA
2203-006194	C345	C-CER,CHIP	SA
2203-006201	C162	C-CER,CHIP	SA
2203-006201	C335	C-CER,CHIP	SA
2203-006208	C241	C-CER,CHIP	SA
2203-006257	C230	C-CER,CHIP	SA
2203-006257	C317	C-CER,CHIP	SA
2203-006257	C333	C-CER,CHIP	SA
2203-006257	C334	C-CER,CHIP	SA
2203-006260	C205	C-CER,CHIP	SA
2203-006260	C209	C-CER,CHIP	SA
2203-006260	C214	C-CER,CHIP	SA
2203-006318	C102	C-CER,CHIP	SA
2203-006318	C117	C-CER,CHIP	SA
2203-006318	C118	C-CER,CHIP	SA
2203-006348	C224	C-CER,CHIP	SA
2203-006423	C100	C-CER,CHIP	SA
2203-006423	C112	C-CER,CHIP	SA
2203-006423	C150	C-CER,CHIP	SA
2203-006423	C151	C-CER,CHIP	SA
2203-006423	C347	C-CER,CHIP	SA
2203-006438	C222	C-CER,CHIP	SA
2203-006462	C342	C-CER,CHIP	SA
2203-006462	C343	C-CER,CHIP	SA
2203-006462	C344	C-CER,CHIP	SA
2203-006462	C351	C-CER,CHIP	SA
2203-006466	C363	C-CER,CHIP	SA
2203-006556	C119	C-CER,CHIP	SA
2203-006556	C199	C-CER,CHIP	SA
2203-006556	C348	C-CER,CHIP	SA
2203-006562	C182	C-CER,CHIP	SA

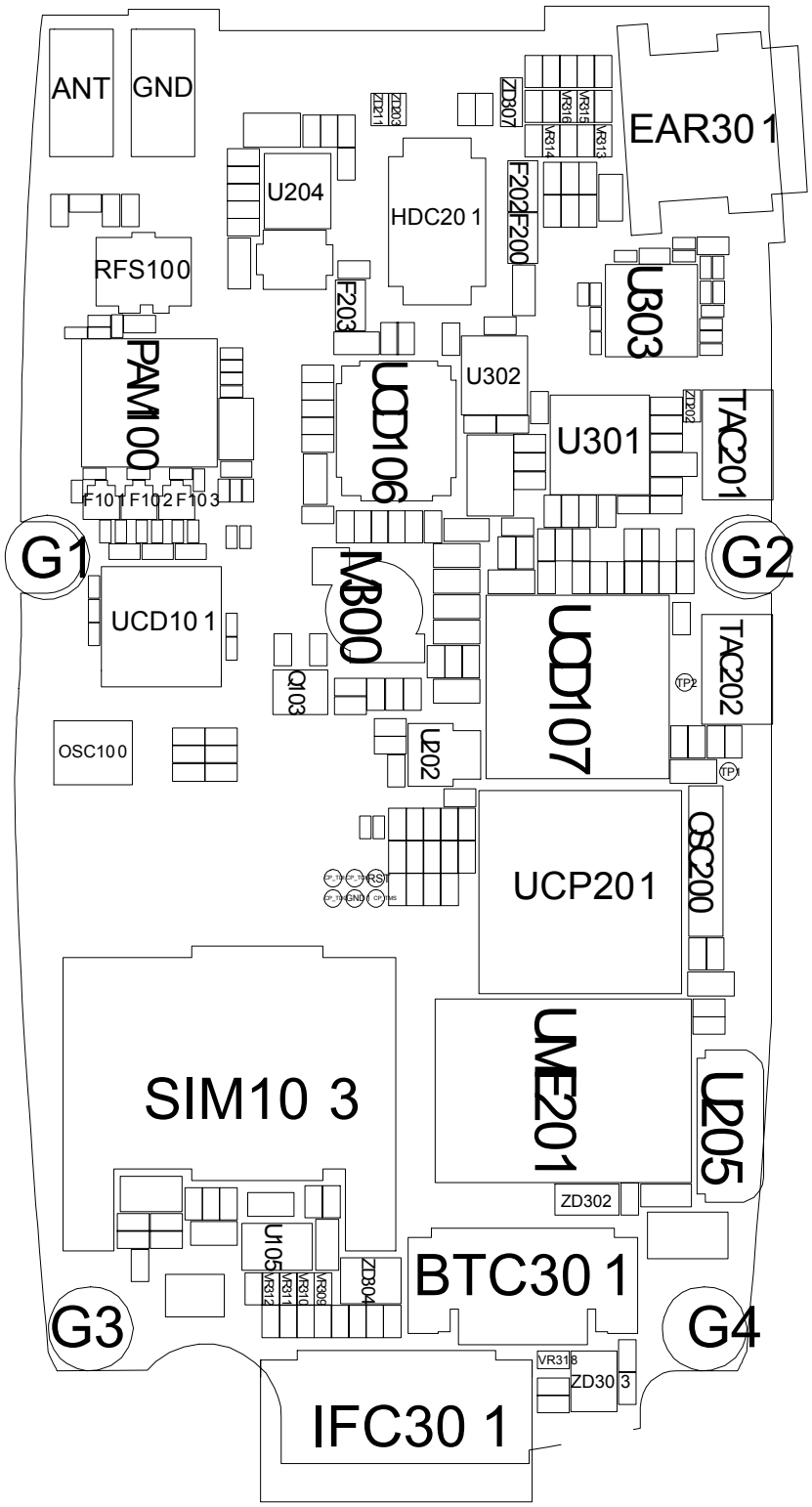
SEC CODE	Design LOC	Discription	STATUS
2203-006562	C346	C-CER,CHIP	SA
2203-006626	C305	C-CER,CHIP	SA
2203-006626	C311	C-CER,CHIP	SA
2203-006648	C147	C-CER,CHIP	SA
2203-006708	C172	C-CER,CHIP	SA
2203-006708	C174	C-CER,CHIP	SA
2404-001225	C364	C-TA,CHIP	SA
2404-001225	C365	C-TA,CHIP	SA
2404-001274	C360	C-TA,CHIP	SA
2404-001339	C163	C-TA,CHIP	SA
2404-001339	C357	C-TA,CHIP	SA
2404-001343	C177	C-TA,CHIP	SA
2404-001352	C361	C-TA,CHIP	SA
2404-001352	C370	C-TA,CHIP	SA
2404-001374	C111	C-TA,CHIP	SA
2404-001381	C186	C-TA,CHIP	SA
2404-001381	C223	C-TA,CHIP	SA
2404-001381	C240	C-TA,CHIP	SA
2404-001381	C356	C-TA,CHIP	SA
2404-001406	C362	C-TA,CHIP	SA
2703-001231	L310	INDUCTOR-SMD	SA
2703-001722	L113	INDUCTOR-SMD	SA
2703-002313	L101	INDUCTOR-SMD	SA
2703-002484	L106	INDUCTOR-SMD	SA
2703-002485	L104	INDUCTOR-SMD	SA
2703-002558	L110	INDUCTOR-SMD	SA
2703-002603	L105	INDUCTOR-SMD	SA
2703-002824	L201	INDUCTOR-SMD	SA
2703-002842	L100	INDUCTOR-SMD	SA
2703-002842	L111	INDUCTOR-SMD	SA
2703-002910	L306	INDUCTOR-SMD	SA
2703-002989	L307	INDUCTOR-SMD	SA
2801-003856	OSC200	CRYSTAL-SMD	SA
2801-004339	OSC301	CRYSTAL-SMD	SA
2801-004426	OSC100	CRYSTAL-SMD	SA
2901-001296	F200	FILTER-EMI SMD	SA
2901-001296	F202	FILTER-EMI SMD	SA
2901-001296	F203	FILTER-EMI SMD	SA

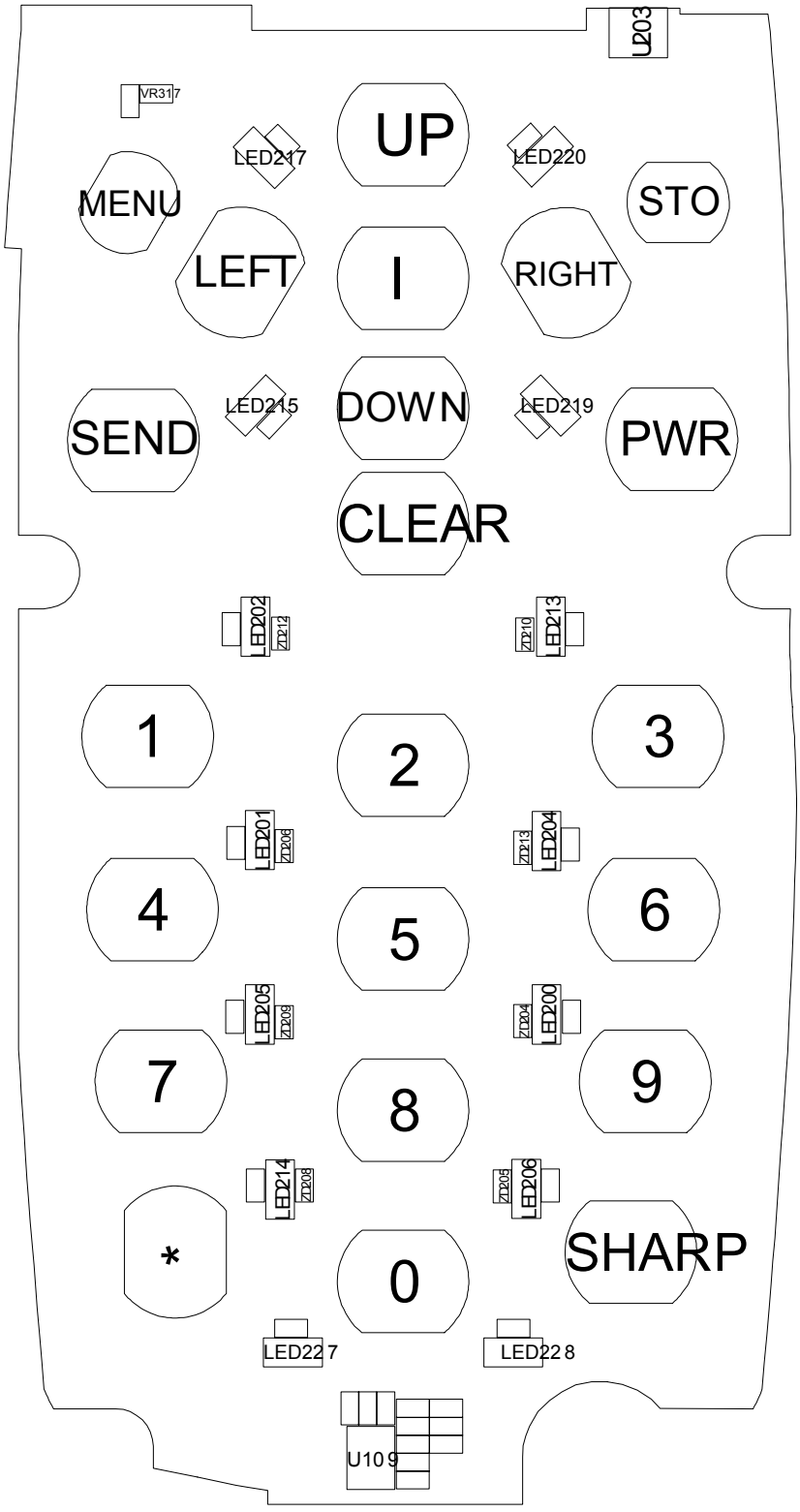
SEC CODE	Design LOC	Discription	STATUS
2904-001592	F101	FILTER-SAW	SA
2904-001599	F102	FILTER-SAW	SA
2904-001600	F103	FILTER-SAW	SA
3301-001342	L200	BEAD-SMD	SA
3301-001756	R365	BEAD-SMD	SA
3404-001152	TAC201	SWITCH-TACT	SA
3404-001152	TAC202	SWITCH-TACT	SA
3705-001358	RFS100	CONNECTOR-COAXIAL	SA
3709-001384	SIM103	CONNECTOR-CARD EDGE	SA
3710-001611	IFC301	CONNECTOR-INTERFACE	SA
3711-005728	HDC201	HEADER-BOARD TO BOARD	SA
3711-006228	BTC301	HEADER-BATTERY	SA
3722-002257	EAR301	JACK-PHONE	SA
4302-001130	M300	BATTERY-LI(2ND)	SA
GH09-00036A	UCP201	IC MICOM-SGHX480	SA
GH71-04813A	ANT	NPR-ANTENNA CONTACT	SA
GH71-04813A	GND	NPR-ANTENNA CONTACT	SA

8. Block Diagrams



9. PCB Diagrams

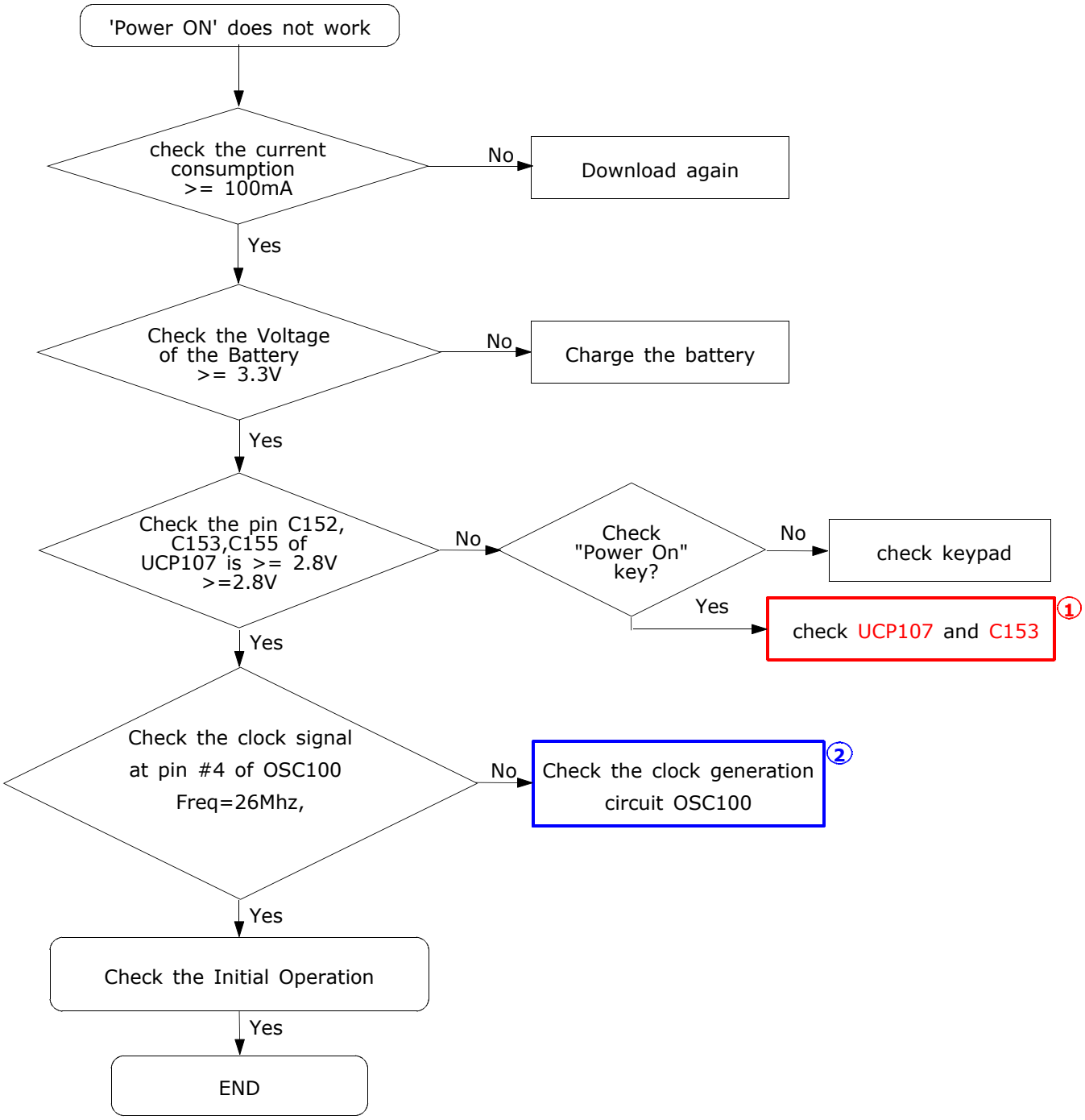


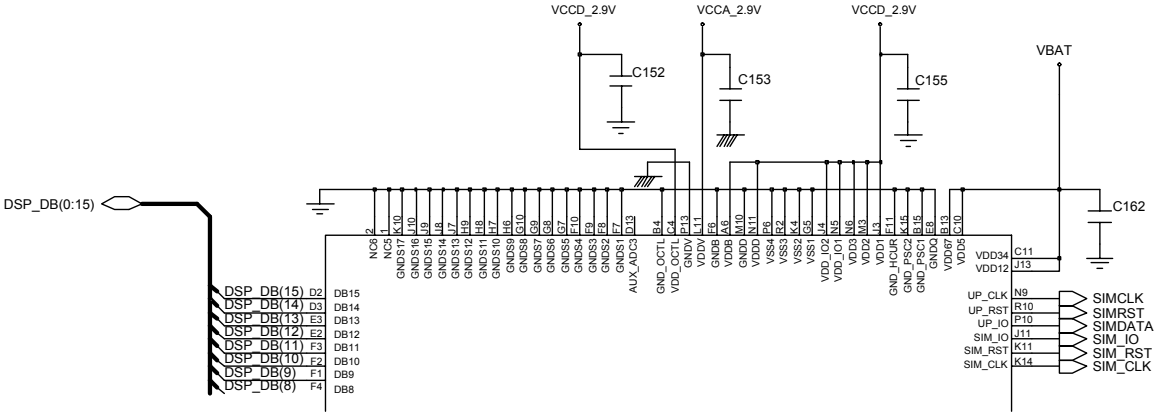


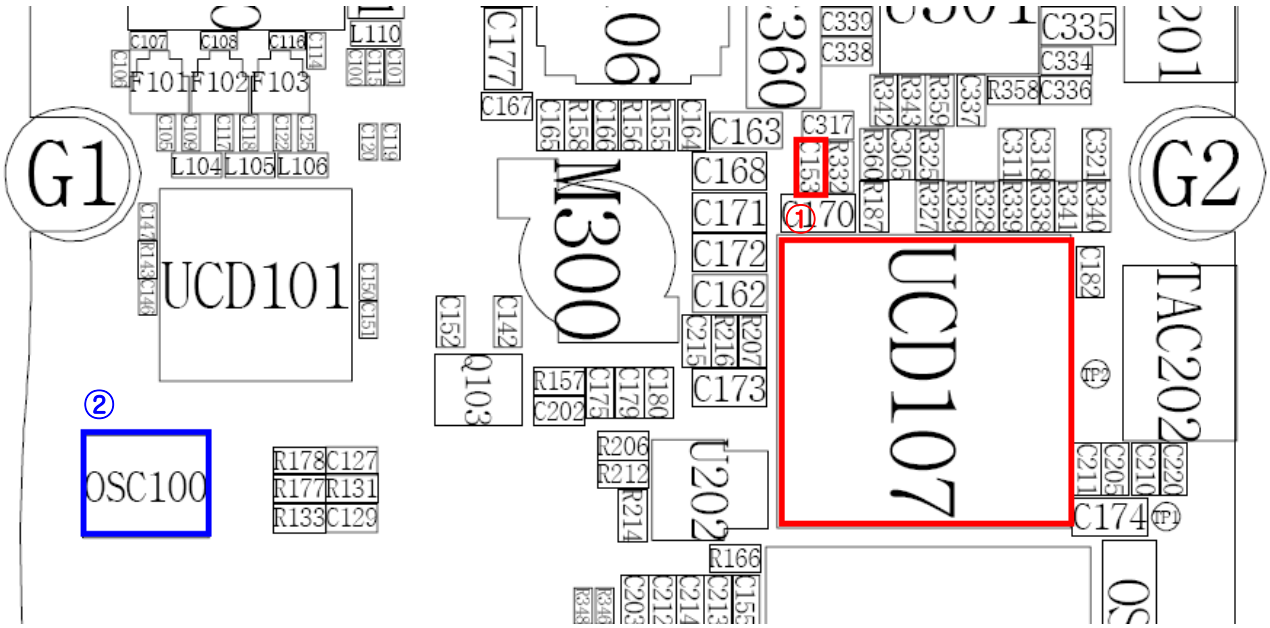
10. Flow Chart of Troubleshooting

10-1. Baseband

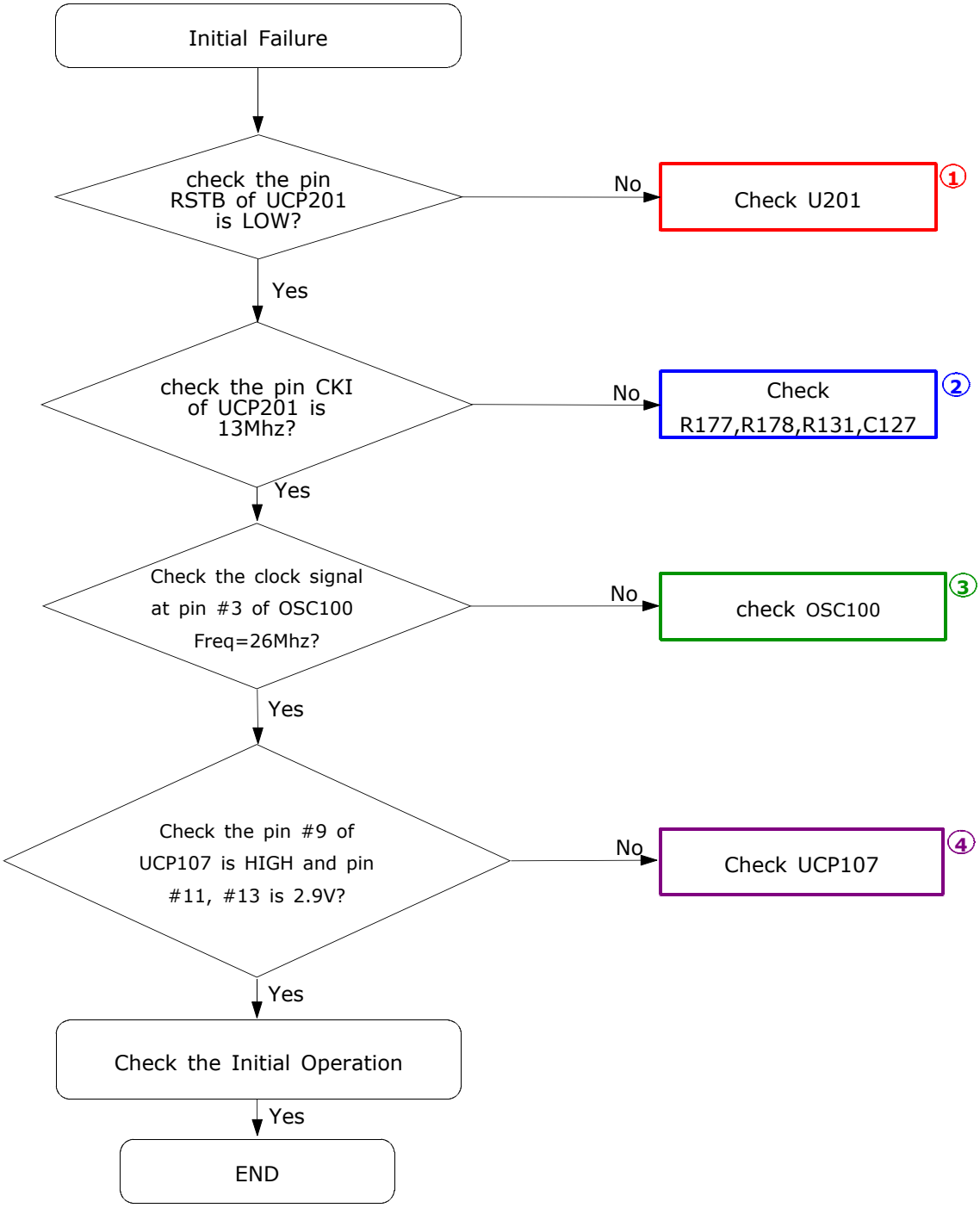
10-1-1. Power ON

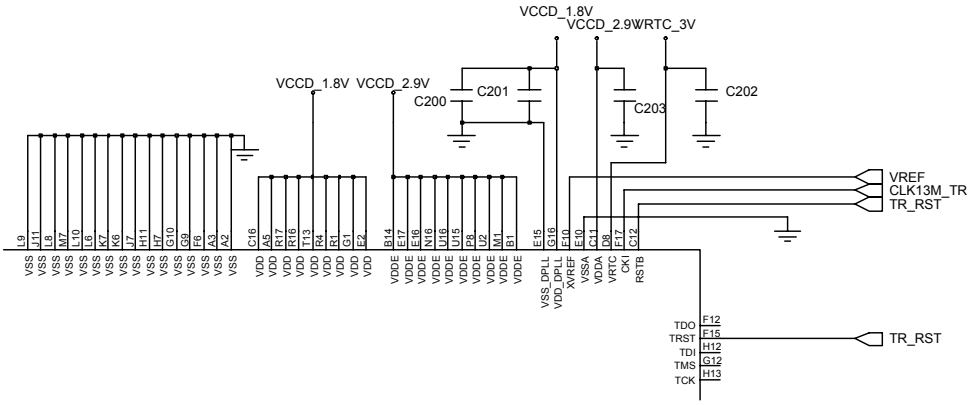


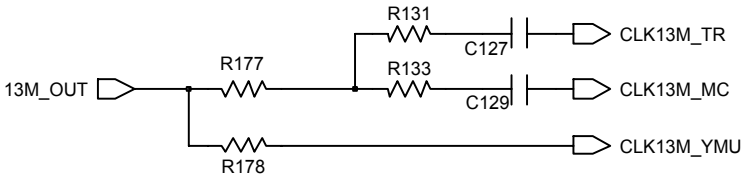


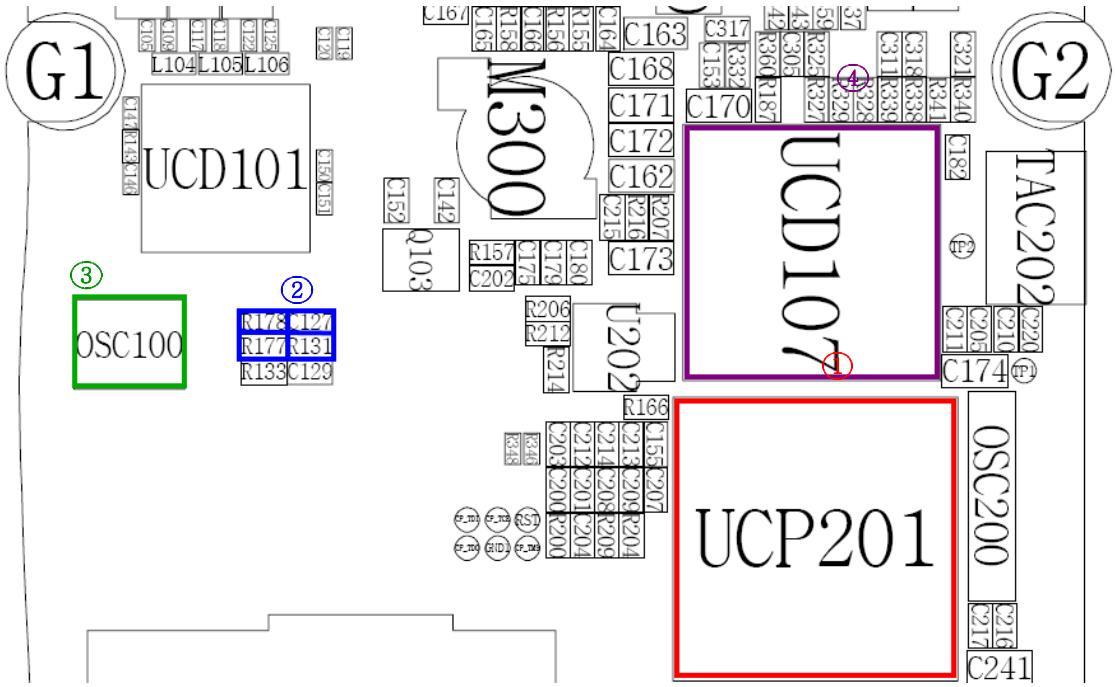


10-1-2. Initial

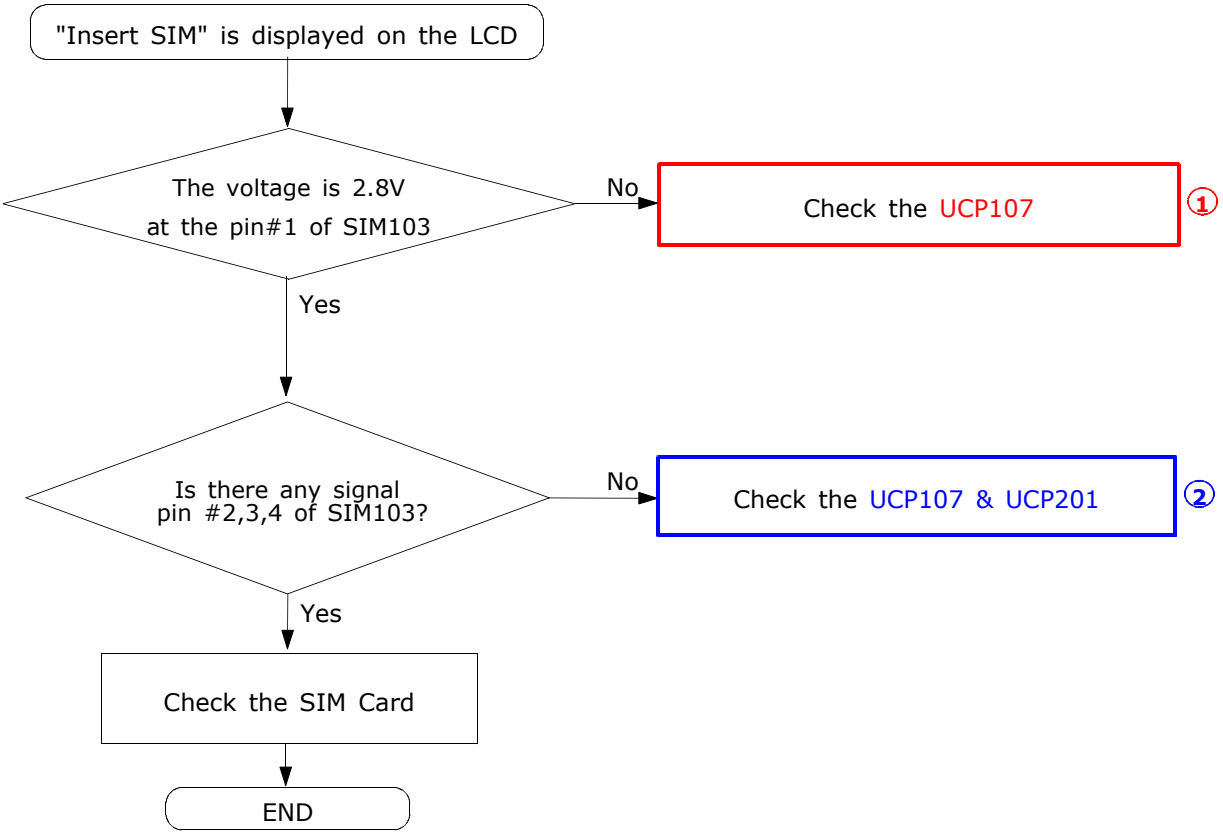


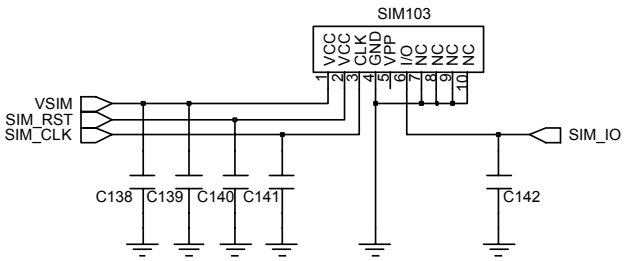


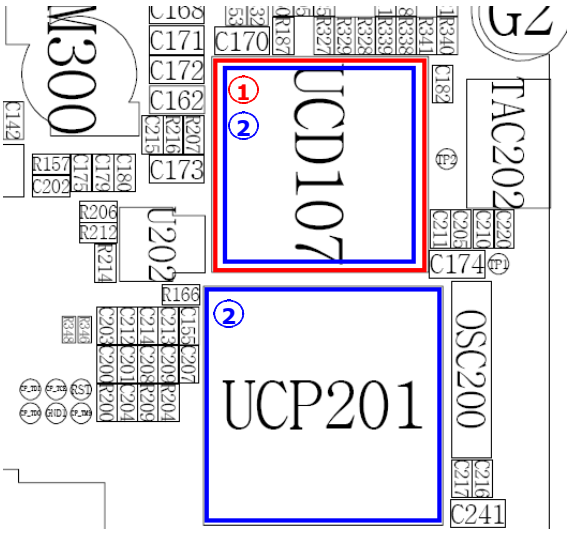




10-1-3. Sim Part

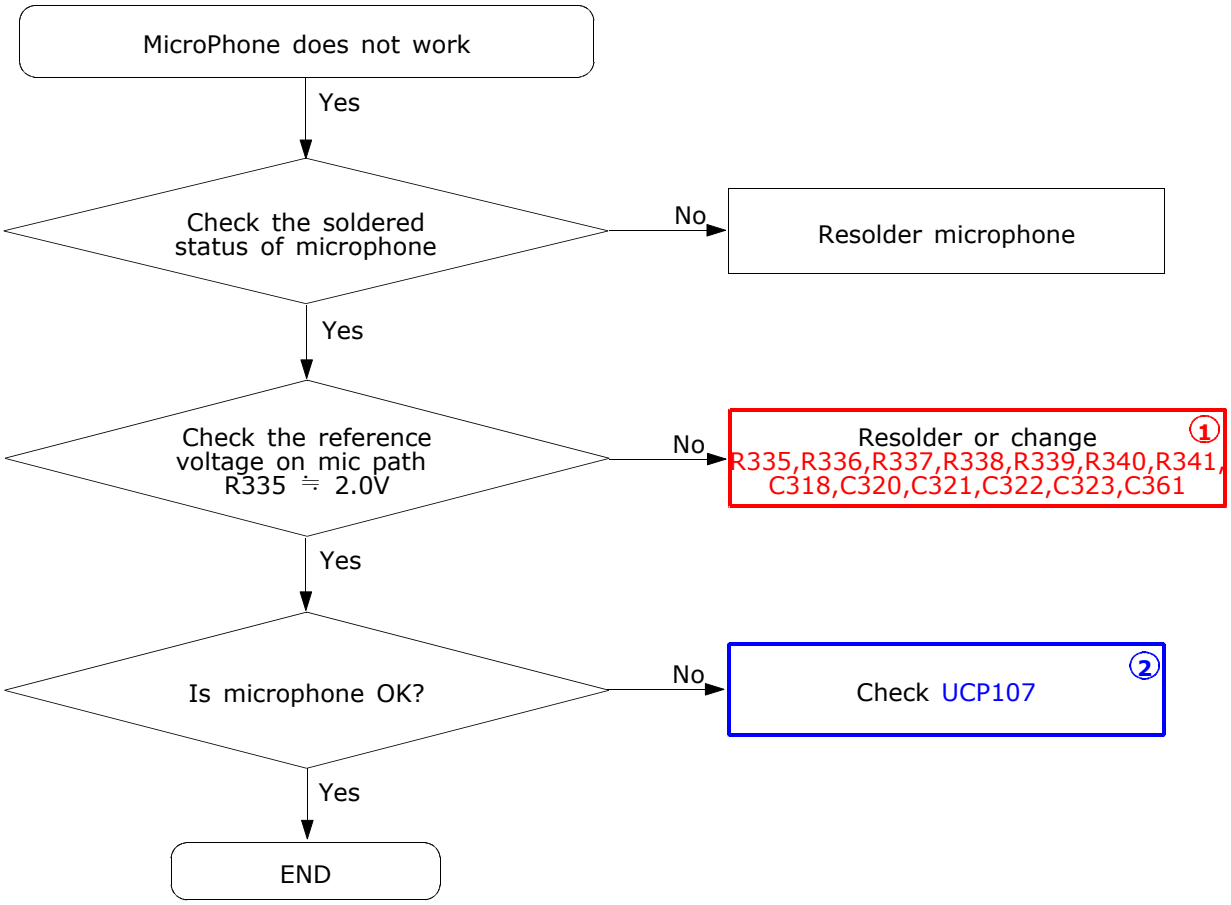


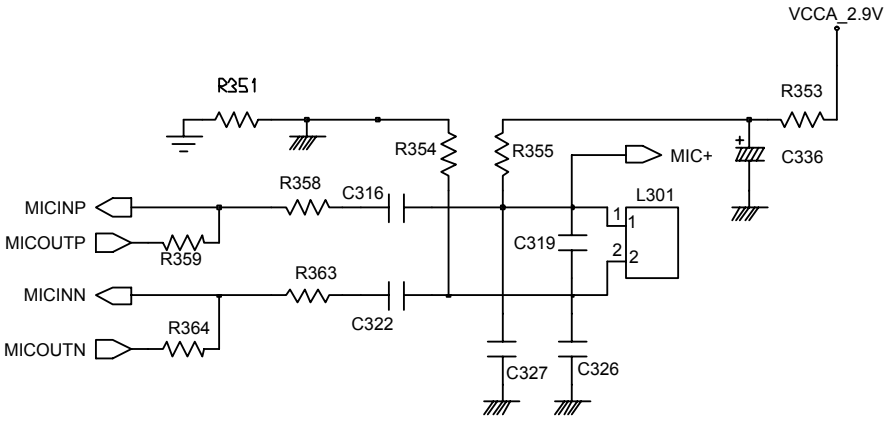


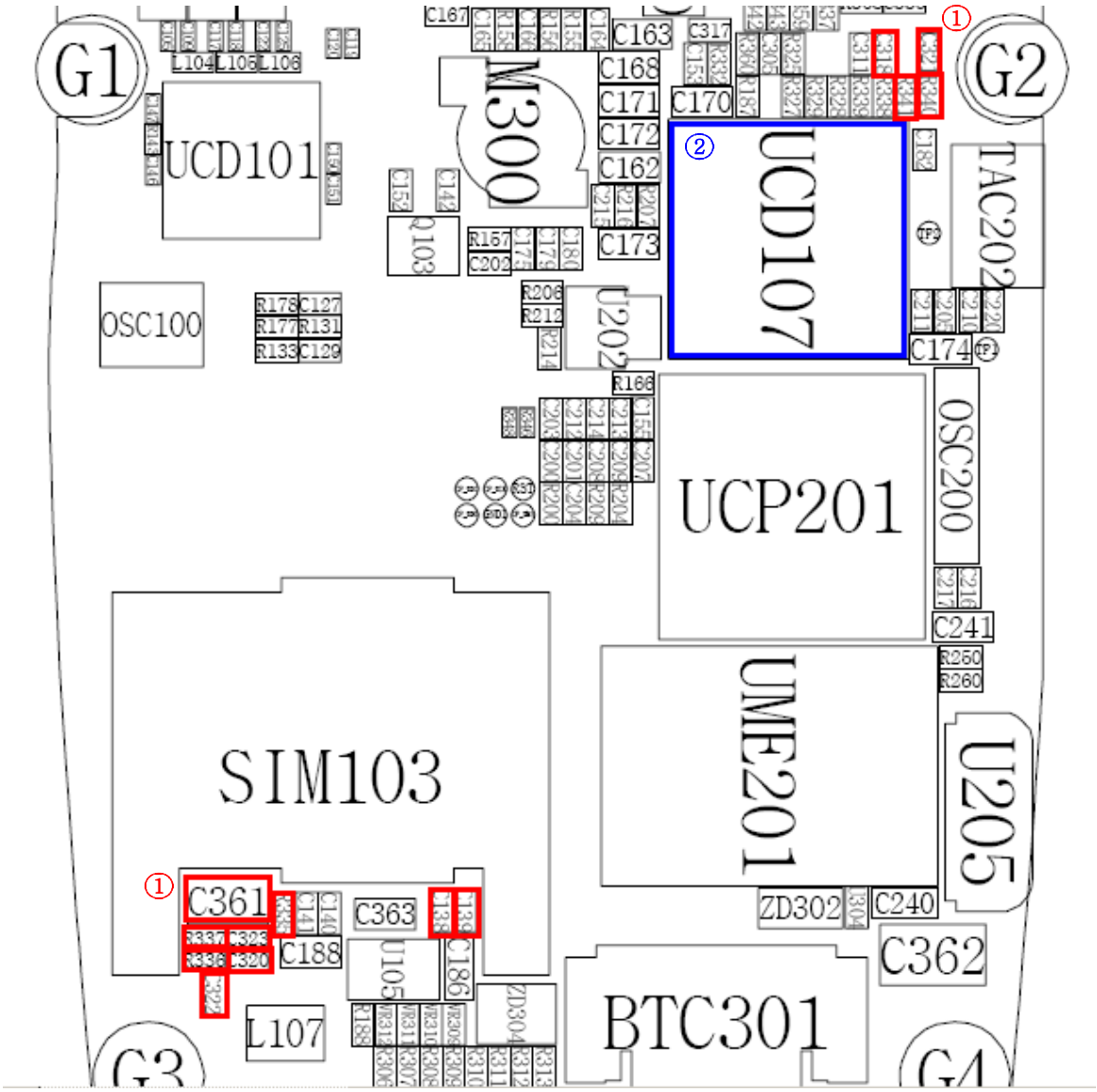


10-1-4.Microphone Part

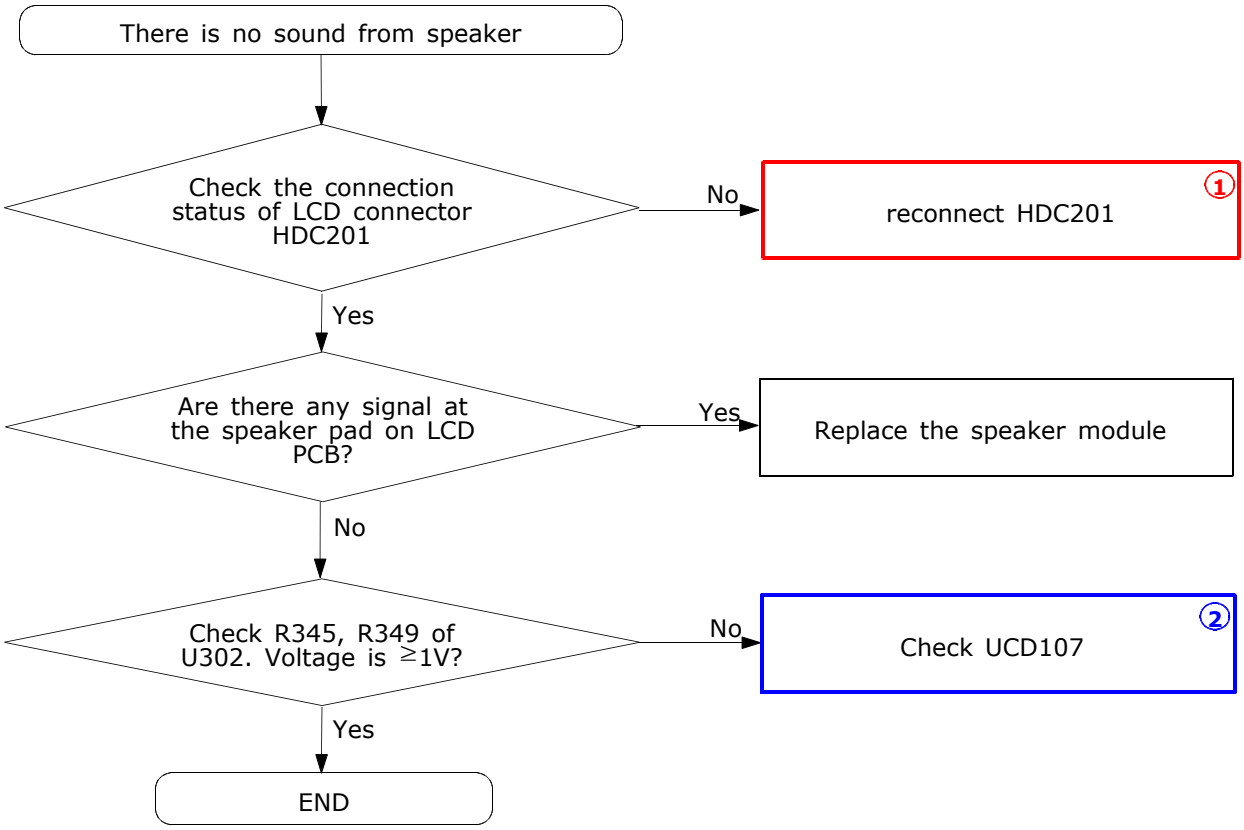
* Call with Sim before testing.

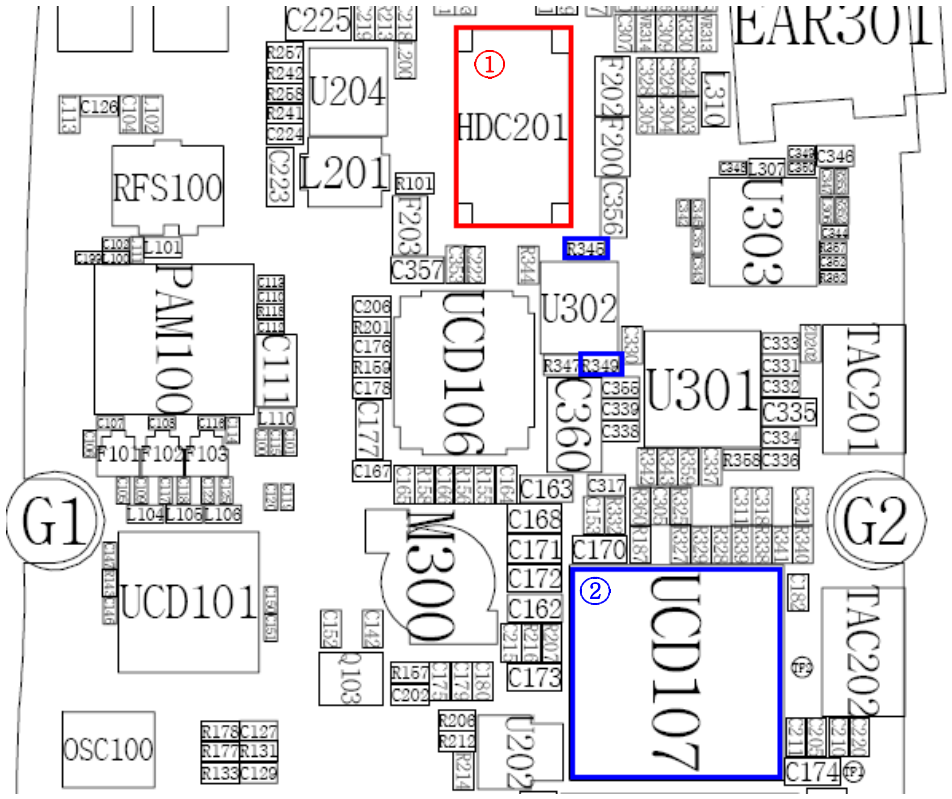




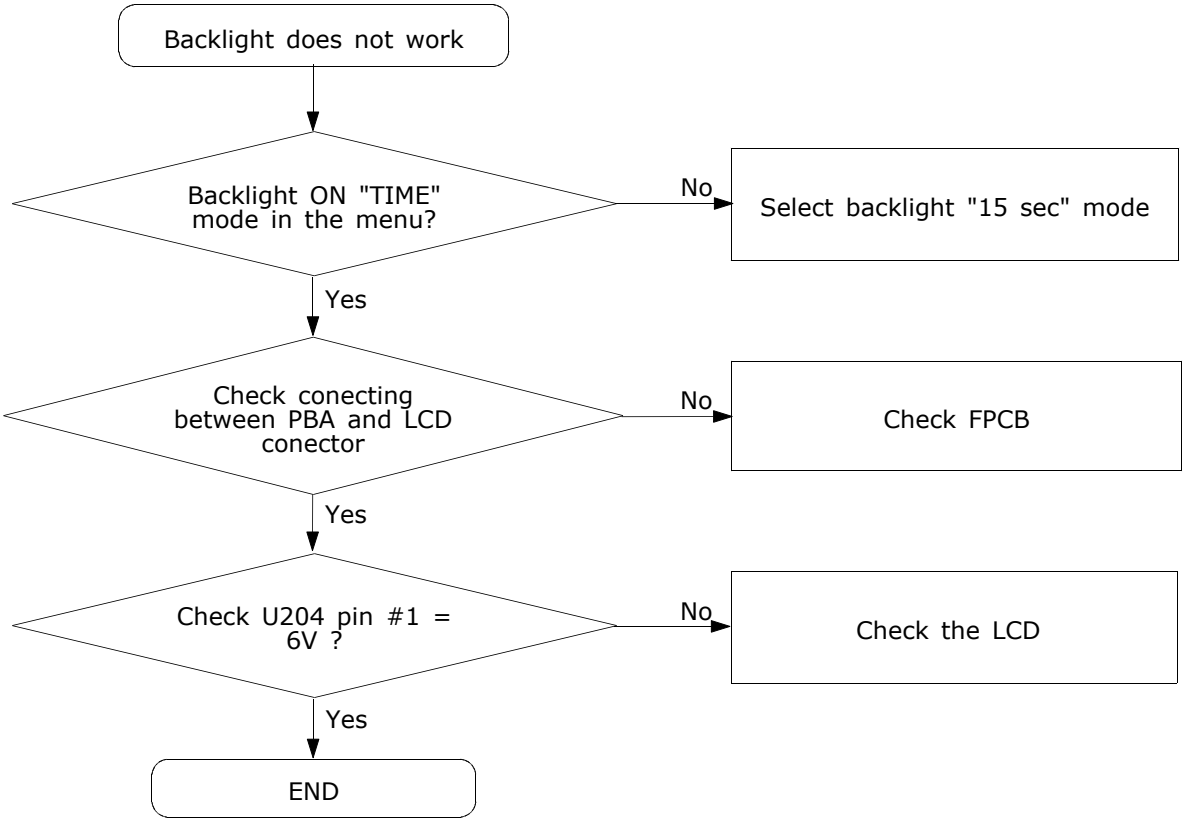


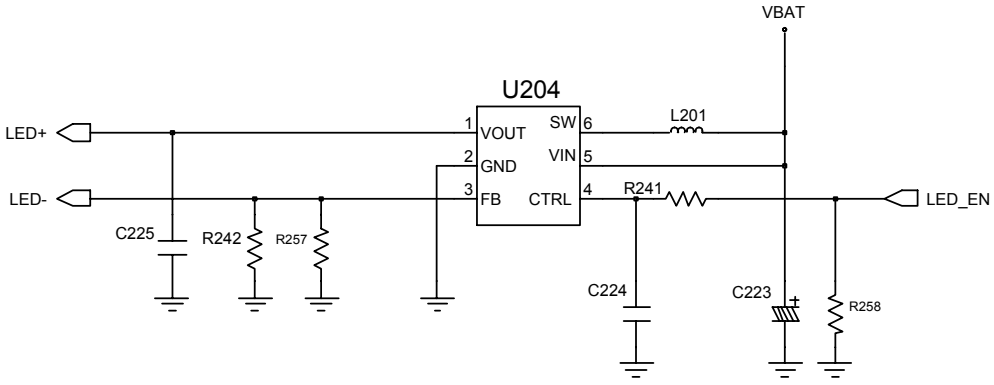
10-1-5. Speaker Part





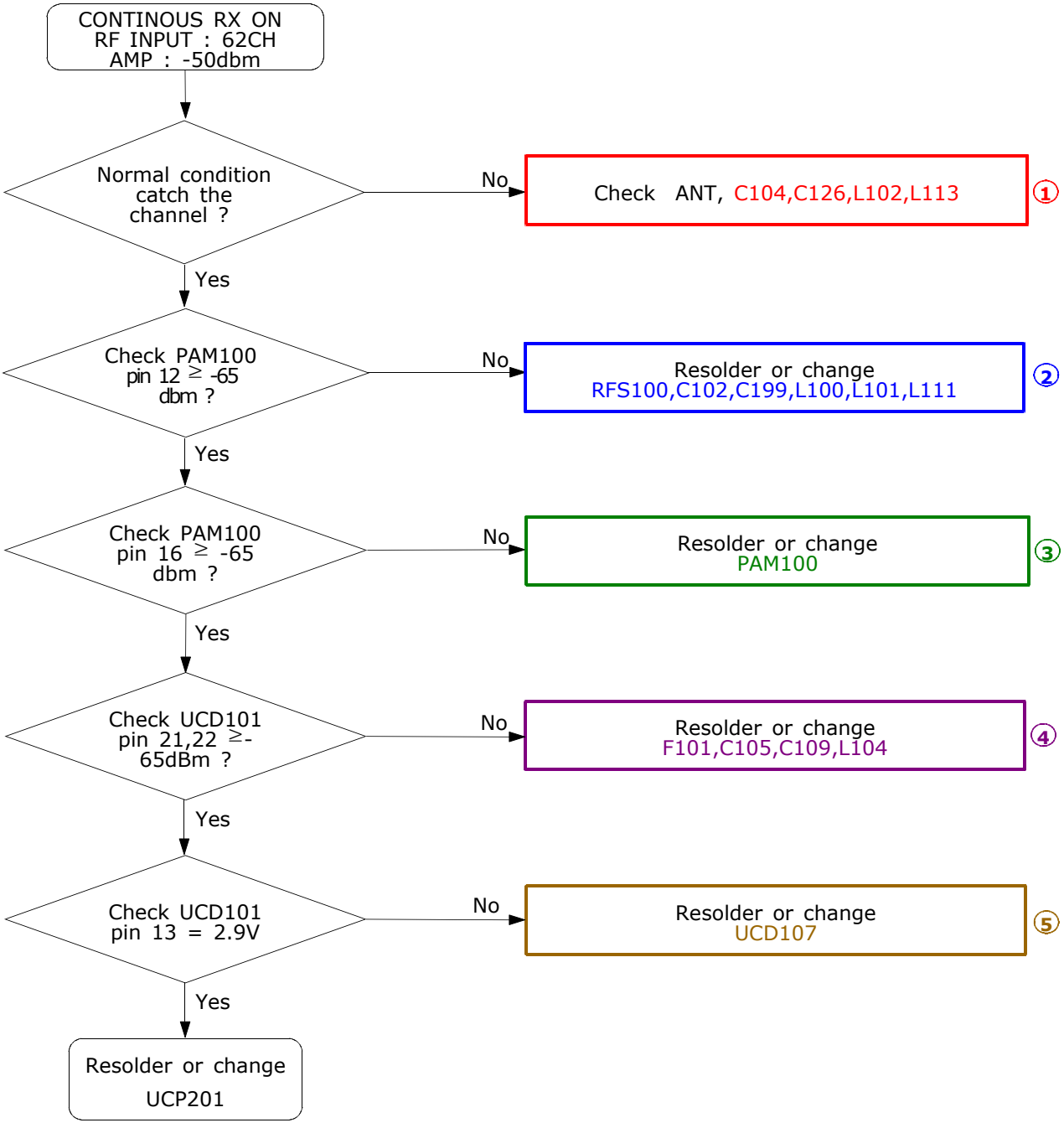
10-1-6. LCD backlight

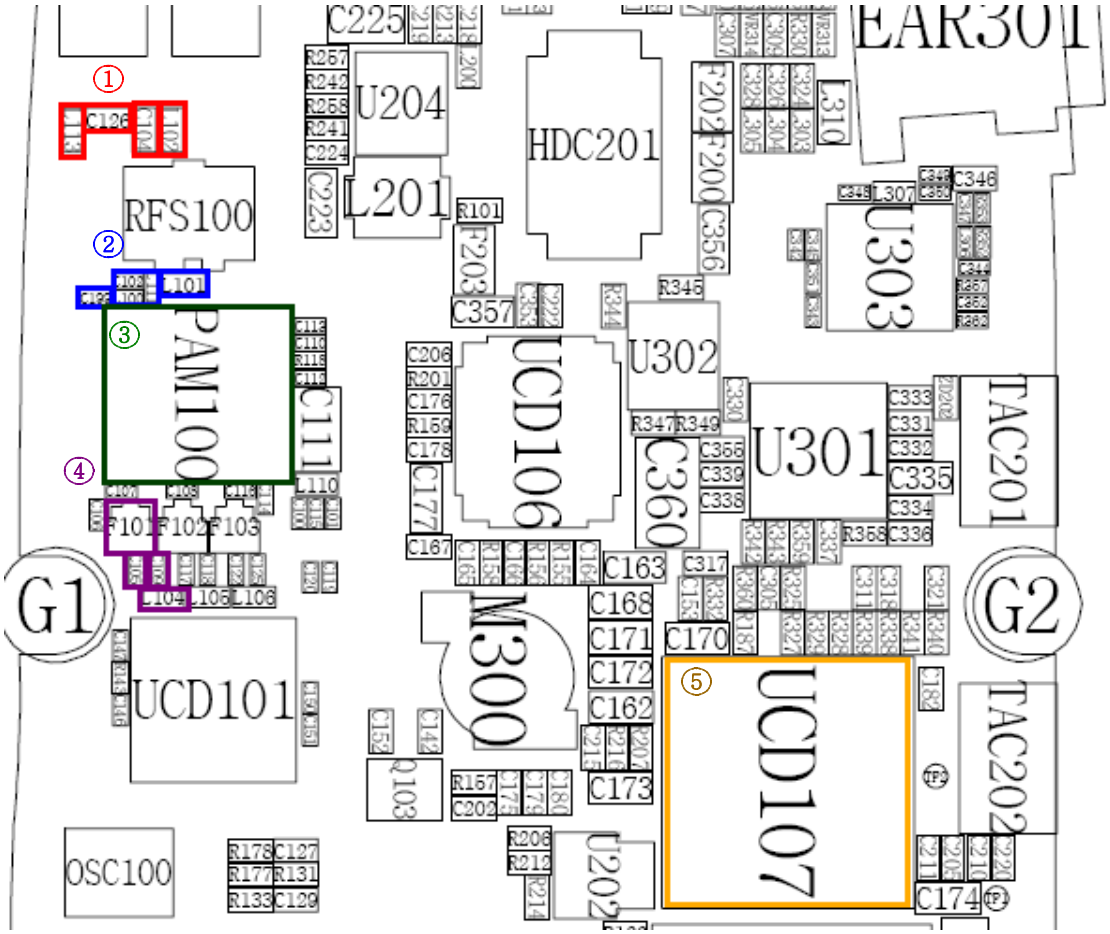




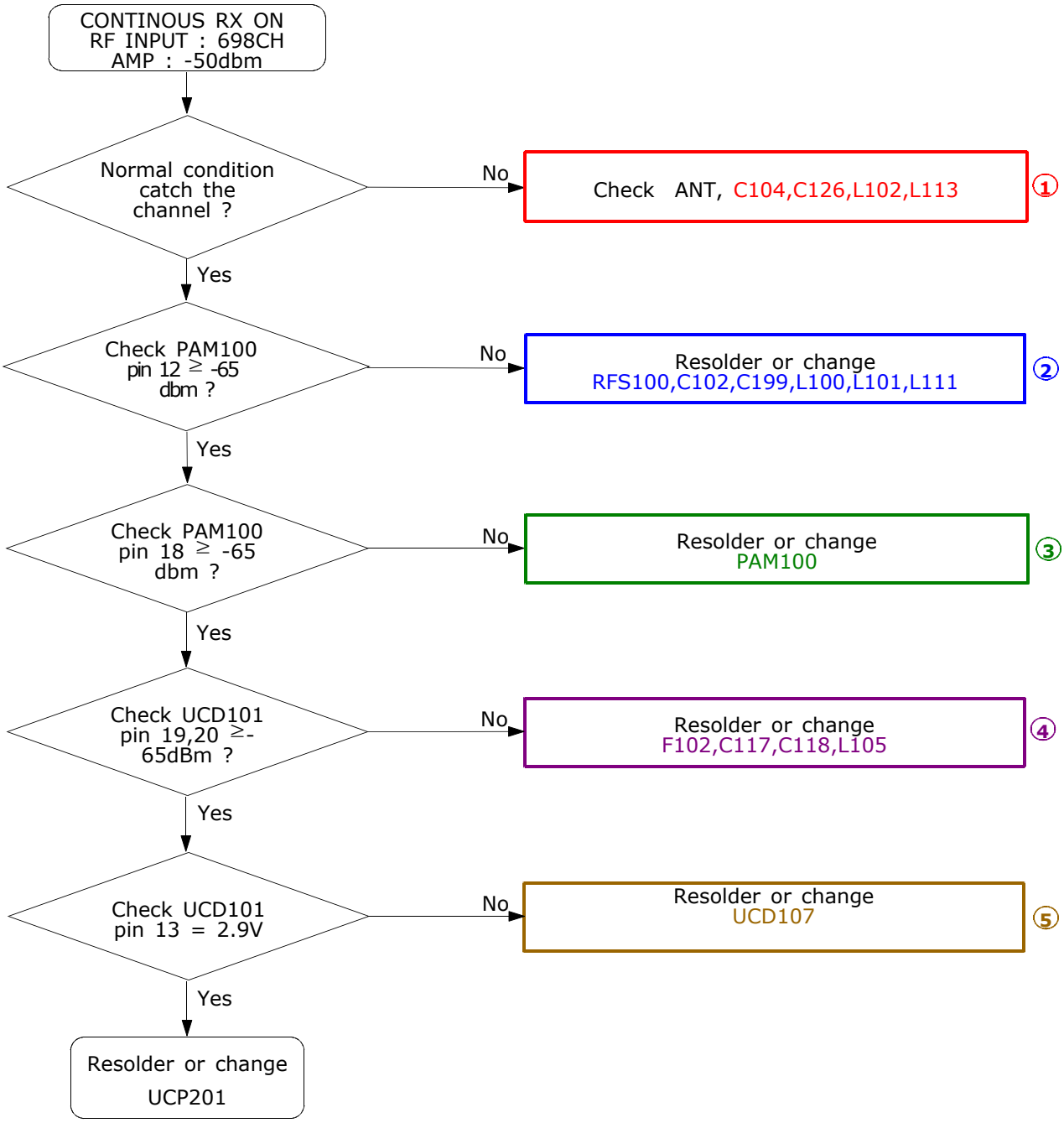
10-2. RF

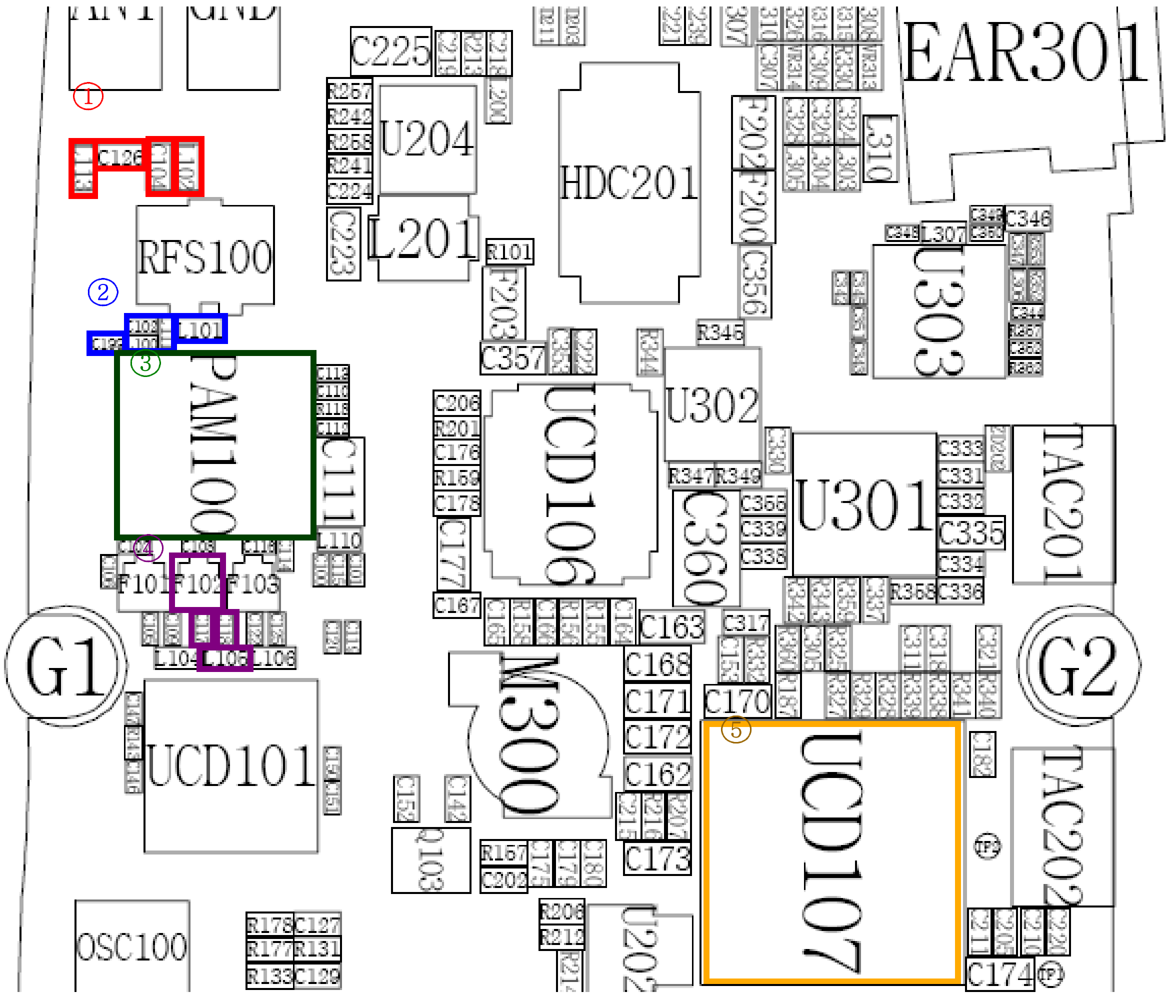
10-2-1. GSM Rx





10-2-2. DCS Rx





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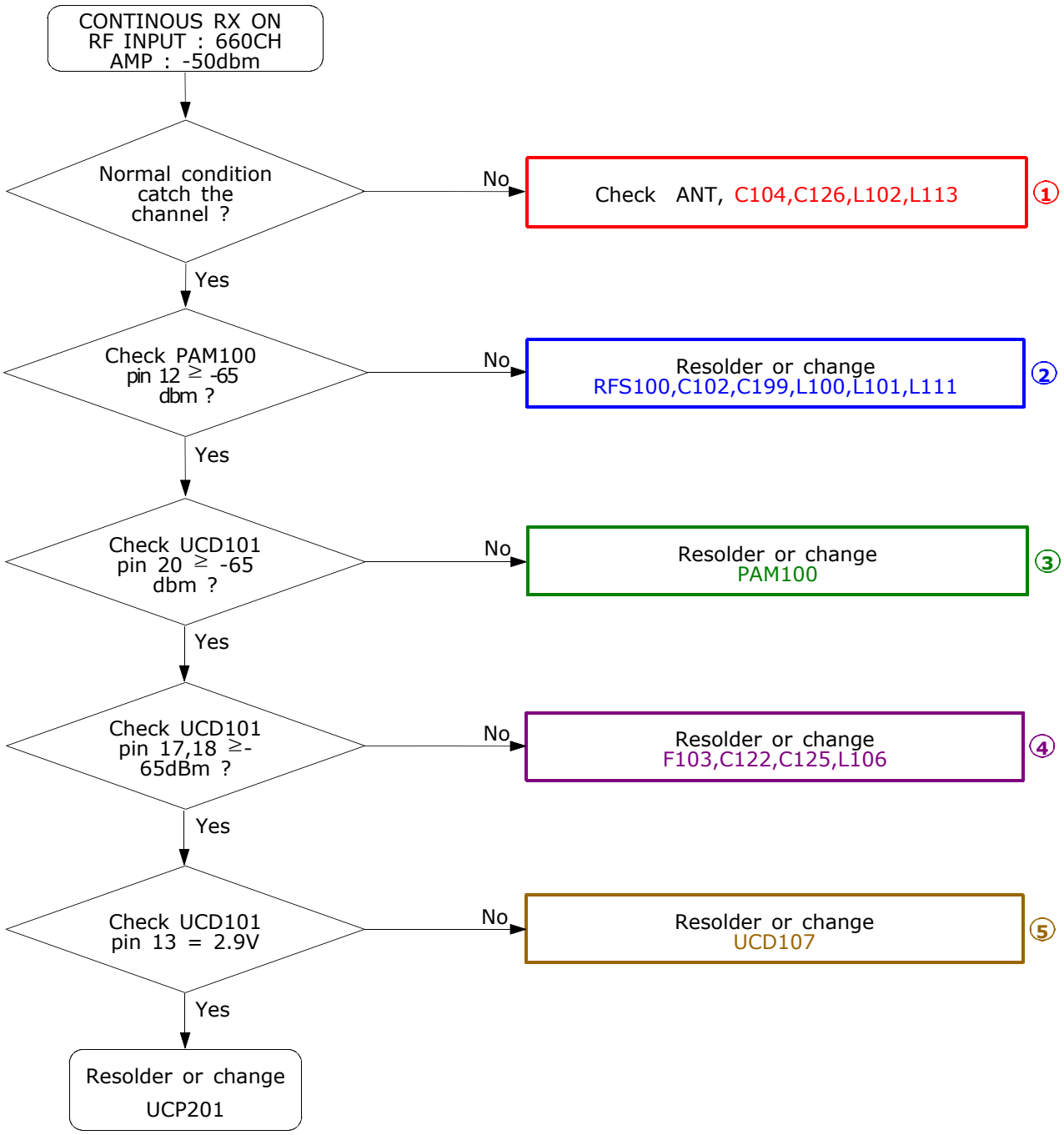
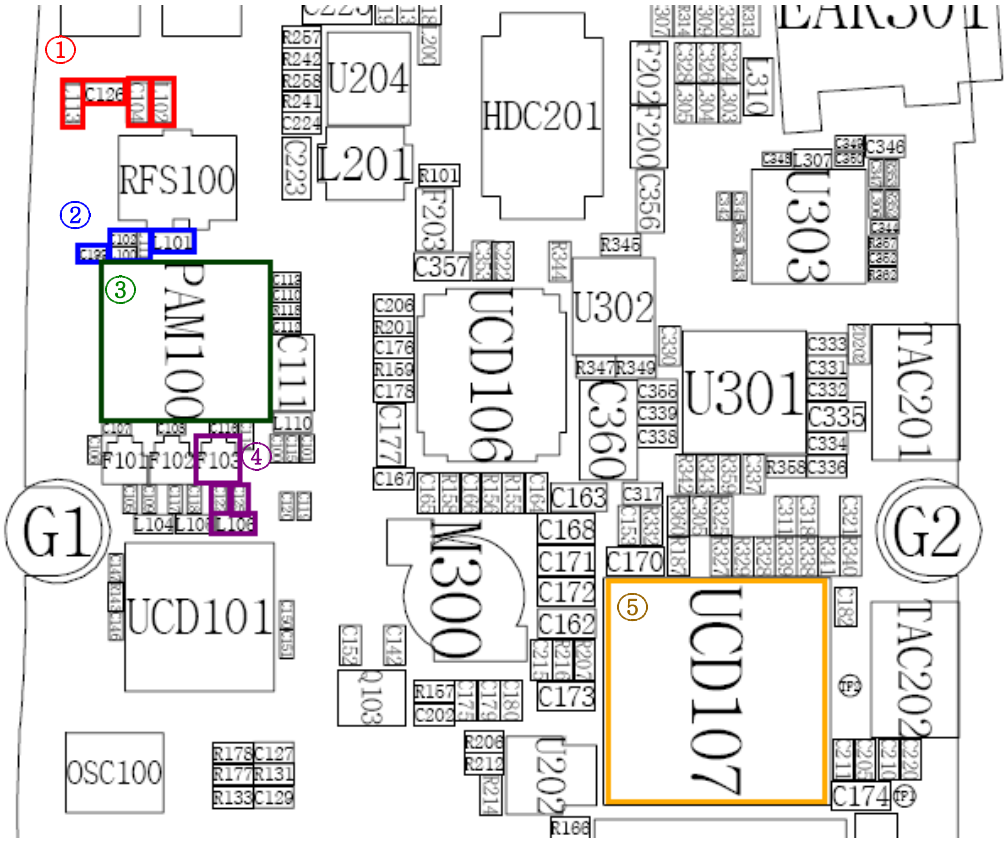
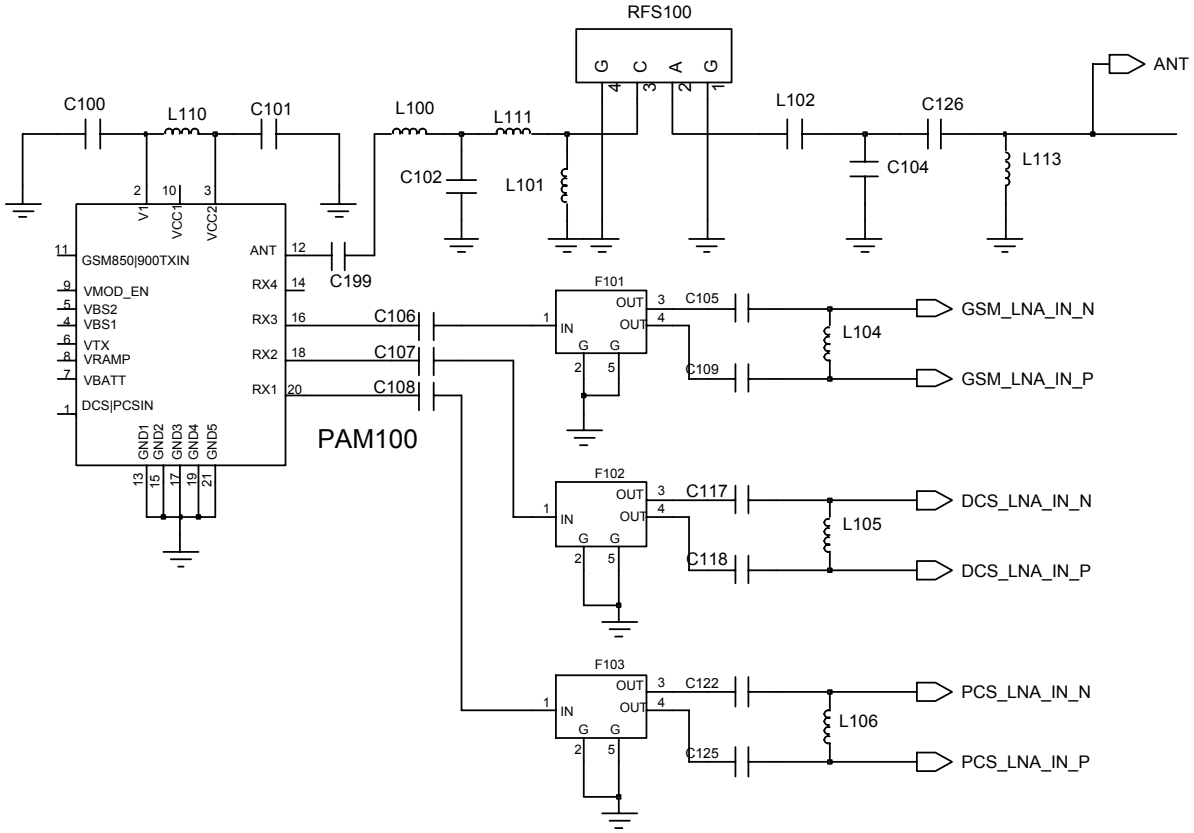
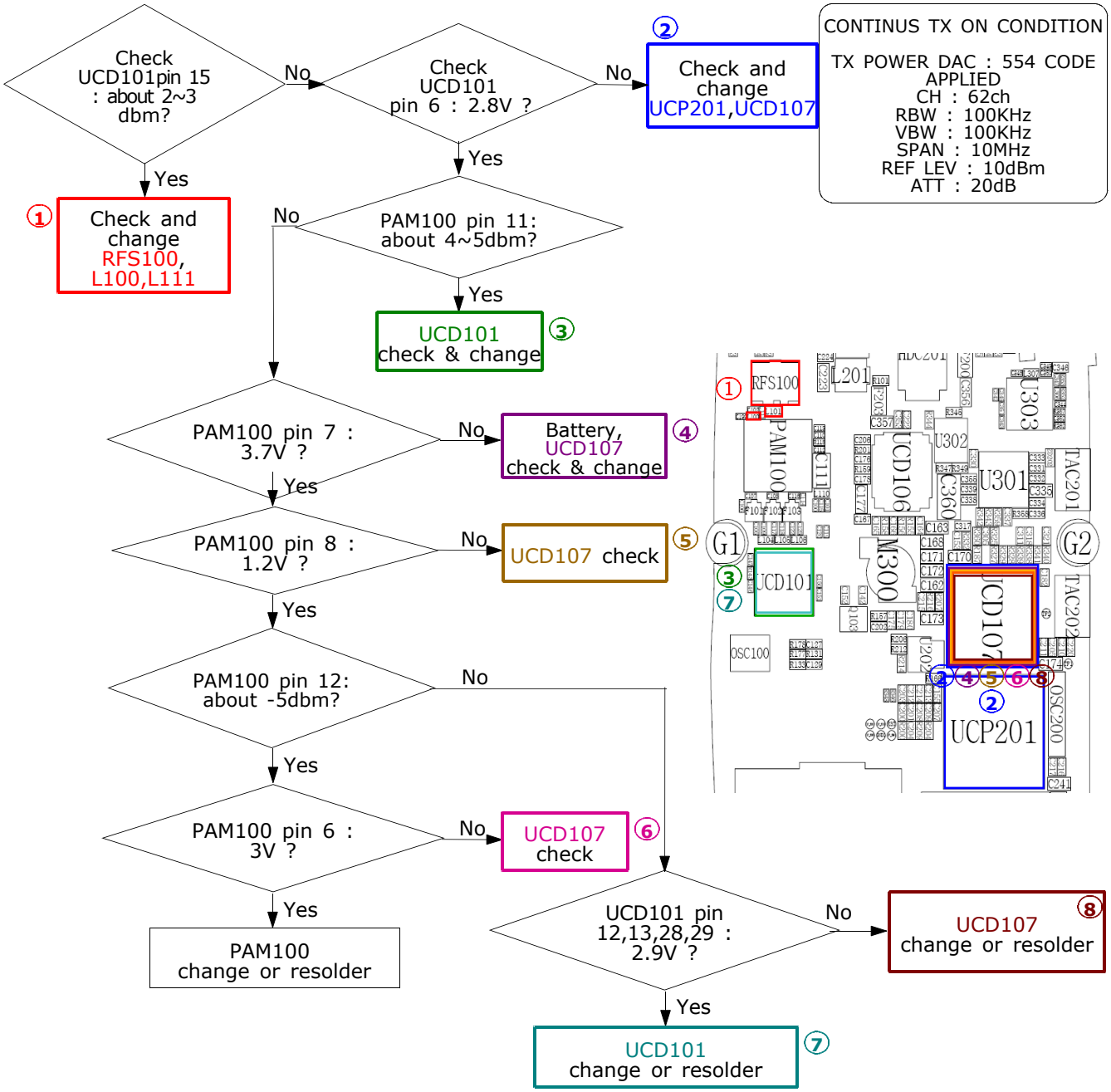


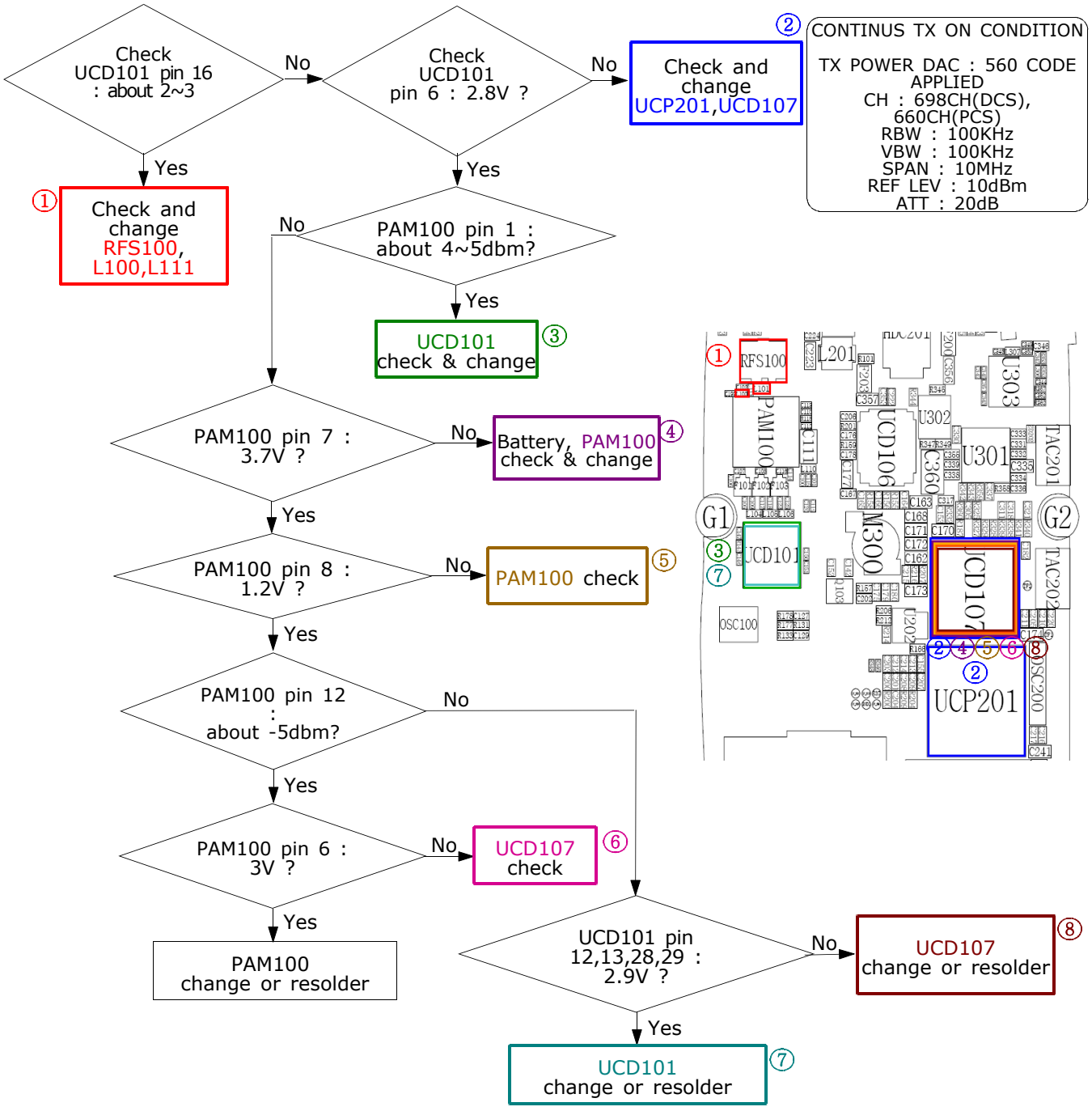




10-2-4. GSM Tx



10-2-5. DCS/PCS 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