

SAMSUNG

GSM TELEPHONE

GT-C3322

SERVICE *Manual*

GSM TELEPHONE

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Notice :

All functionality, features, specifications and other product information provided in this document including, but not limited to, the benefits, design, pricing, components, performance, availability, and capabilities of the product are subject to change without notice or obligation. Samsung reserves the right to make changes to this document and the product described herein, at anytime, without obligation on Samsung to provide notification of such change.

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 magnetic 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 850	EGSM 900	DCS1800	PCS1900
Freq. Band[MHz] Uplink/Downlink	824~849 869~894	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range	128~25	0~124 & 975~1023	512~885	512~810
Tx/Rx spacing	45MHz	45MHz	95MHz	80MHz
Mod. Bit rate/ Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us
Time Slot Period/Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK
MS Power	33dBm ~5dBm	33dBm ~5dBm	30dBm ~0dBm	30dBm ~0dBm
Power Class	4 (max +33dBm)	4 (max +33dBm)	1 (max +30dBm)	1 (max +30dBm)
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm
TDMA Mux	8	8	8	8
Cell Radius	35Km	35Km	2Km	2Km

2-2. GSM Tx Power Class

TX Power control level	GSM850 GSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
5	33±2 dBm	0	30±3 dBm	0	30±3 dBm
6	31±2 dBm	1	28±3 dBm	1	28±3 dBm
7	29±2 dBm	2	26±3 dBm	2	26±3 dBm
8	27±2 dBm	3	24±3 dBm	3	24±3 dBm
9	25±2 dBm	4	22±3 dBm	4	22±3 dBm
10	23±2 dBm	5	20±3 dBm	5	20±3 dBm
11	21±2 dBm	6	18±3 dBm	6	18±3 dBm
12	19±2 dBm	7	16±3 dBm	7	16±3 dBm
13	17±2 dBm	8	14±3 dBm	8	14±3 dBm
14	15±2 dBm	9	12±4 dBm	9	12±4 dBm
15	13±2 dBm	10	10±4 dBm	10	10±4 dBm
16	11±3 dBm	11	8±4 dBm	11	8±4 dBm
17	9±3 dBm	12	6±4 dBm	12	6±4 dBm
18	7±3 dBm	13	4±4 dBm	13	4±4 dBm
19	5±3 dBm	14	2±5 dBm	14	2±5 dBm
		15	0±5 dBm	15	0±5 dBm

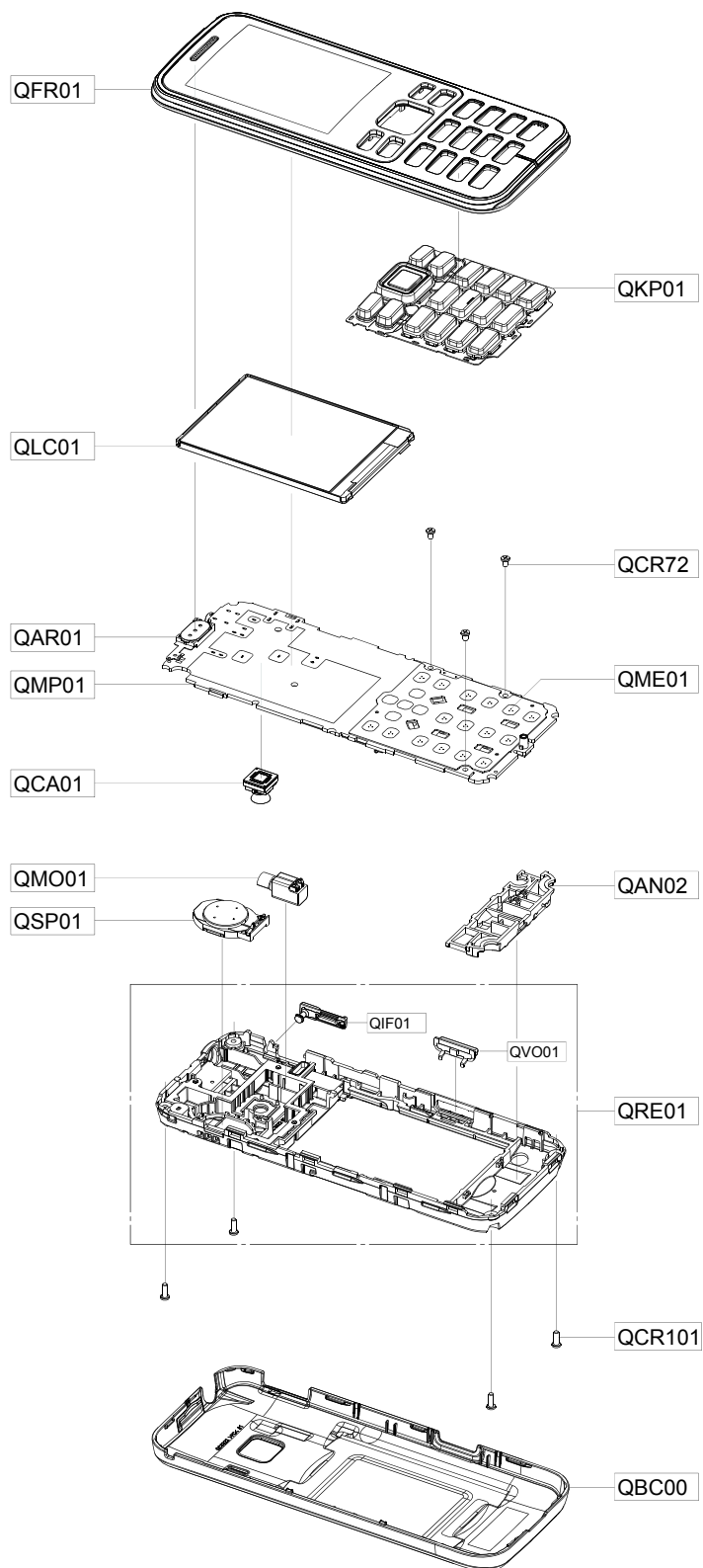
3. Operation Instruction and Installation

Main Function

- Dual SIM Function
- 2G Quad band (GSM850/EGSM900/DCS1800/PCS1900)
- BT 2.1 + EDR
- USB 2.0
- WAP 2.0, JAVA
- MMS, SMS
- Camera : 2MP (HNT/SF)
- LCD : 2.2" QVGA
- Battery : 1000mAh
- Size : 14×48×13.6 mm (mm)
- MicroSD Card Support
- FM Radio Support

4. Exploded View and Parts List

4-1. Cellular phone Exploded View



4-2. Cellular phone Parts list

Design LOC		Description	SEC CODE
QSP01		SPEAKER	3001-002670
QAR01		AUDIO-RECEIVER	3009-001552
QCR101		SCREW-MACHINE	6001-002005
QCR72		SCREW-MACHINE	6001-002051
QMO01		MOTOR DC-GT-E2152	GH31-00521A
QAN02		INTENNA-GT_C3322 MAIN	GH42-03073A
QCA01		CAMERA MODULE-SF 1/5" 2M SOCKET MODULE	GH59-09909A
QME01		DOME SHEET-GT_C3322	GH59-10852A
QMP01		A/S ASSY-PBA MAIN(COMM)GT_C3322	GH82-05777A
QLC01		ELA MODULE-GT_C3322 LCD	GH96-05063A
QBC00		ASSY COVER-BATT	GH98-20038A
QFR01		ASSY CASE-FRONT	GH98-20040A
QKP01		ASSY KEYPAD-MAIN(CIS/HK)	GH98-20414A
QRE01		ASSY CASE-REAR	GH98-20039A
	QIF01	PMO COVER-IF	GH72-63770A
	QVO01	PMO KEY-SIDE	GH72-64095A

5. MAIN Electrical Parts List

SEC CODE	Design LOC	Discription
0403-001688	ZD313	USFZ5.6V-RTK/H
0404-001172	D300	RB520S-30
0406-001286	ZD316	PESD5V0L5UV
0406-001413	ZD300,ZD301,ZD302	PESD5V0F1BL
0406-001413	ZD303,ZD304	PESD5V0F1BL
0406-001446	ZD305,ZD306,ZD309	RD1301
0406-001446	ZD310,ZD314,ZD322	RD1301
0406-001446	ZD324	RD1301
0505-001325	Q300	2SK3019
0505-002384	Q301	PMR280UN
0601-002846	LED300,LED301,LED302	19-217UTD/S759/TR8
0601-002846	LED303,LED304,LED305	19-217UTD/S759/TR8
1001-001677	U301	MAX14577EEWA-T
1003-001440	TR300	MDC3105LT1
1108-000355	UME200	KAP202N00M-BWEW
1201-003190	PAM100	RF7174
1203-006050	U303	RP152L002B-TR
1203-006772	U100	RP109L281D-TR
1203-006814	U302	RP109L331D-TR
1204-003260	U104	AR1211
1205-003517	U103	BC63B239A04-IYB-E4S
1205-004205	UCP200	E4908ET2UM
1404-001221	TH200	NCP15WB473J04RC
1405-001298	ZD317,ZD318,ZD319	LXES15AAA1-075
1405-001298	ZD320,ZD321	LXES15AAA1-075
2007-000141	R213,R214,R301	RC1005J222CS
2007-000143	R202,R205,R316	RC1005J472CS
2007-000148	R201,R203,R204,R224	RC1005J103CS
2007-000148	R313	RC1005J103CS
2007-000149	R211,R212	RC1005J123CS
2007-000151	R318,R319	RC1005J153CS
2007-000157	R216,R217	RC1005J473CS
2007-000160	R314	RC1005J683CS
2007-000162	R104,R105,R108,R208	RC1005J104CS
2007-000162	R209,R210	RC1005J104CS
2007-000165	R309	RC1005J204CS

SEC CODE	Design LOC	Discription
2007-000170	R300	RC1005J105CS
2007-000172	R302,R304	RC1005J100CS
2007-000758	R312	RC1005J334CS
2007-001305	R303,R324,R325,R327	RC1005J121CS
2007-001305	R328	RC1005J121CS
2007-003015	R101,R107	MCR01MZIP5J2R2
2007-003025	R320	RMC16S-6R8J-TP
2007-007009	R323,R326	MCR01MZIP5J750
2007-007156	R218,R330	RC1005J1R0CS
2007-007538	R215	RK73H1ETP5602F
2007-008766	R206	ERJ2RKF6041X
2203-000233	C117,C345,C347,C348	GRP1555C1H101J
2203-000254	C125,C228,C235	GRP155R71C103K
2203-000330	C356	GRP1555C1H120J
2203-000386	C104,C363	GRP1555C1H150J
2203-000425	C314	GRP1555C1H180J
2203-000438	C119,C146,C236	GRP155R71H102K
2203-000489	C305,C306	GRP155R71H222K
2203-000812	C135,C142,C149,C238	GRP1555C1H330J
2203-000812	C239	GRP1555C1H330J
2203-000995	C312	GRP1555C1H470J
2203-001017	C120	GRP1555C1H4R0C
2203-001153	C300,C361	GRP1555C1H680J
2203-001385	C124,C133,C134,C136	GRP1555C1H1R5CZ01E
2203-001385	C138,C144,C145	GRP1555C1H1R5CZ01E
2203-002443	C318,C323	GRP155R71H331KD01E
2203-005234	C139,C143	GRP1555C1H1R2CZ01E
2203-005288	C127	GRP1555C1H1R0BZ01E
2203-005344	C103,C301	GRM155R71E223KA61D
2203-006048	C100,C141,C148,C203	GRM155R71A104K
2203-006048	C204,C205,C206,C208	GRM155R71A104K
2203-006048	C211,C212,C213,C218	GRM155R71A104K
2203-006048	C230,C233,C234,C311	GRM155R71A104K
2203-006048	C322,C343,C344,C355	GRM155R71A104K
2203-006048	C359	GRM155R71A104K
2203-006190	C241	GRM155R60J224KE01E

SEC CODE	Design LOC	Discription
2203-006208	C207,C217,C219,C220	CM105X5R475M06AT
2203-006208	C308,C313	CM105X5R475M06AT
2203-006260	C229	GRM155R61A224KE19E
2203-006324	C302	GRM188R61A225KE19D
2203-006348	C310	CV105X5R105K25AT
2203-006399	C109,C200,C201,C202	GRM155R60J105KE19D
2203-006399	C210,C214,C215,C216	GRM155R60J105KE19D
2203-006399	C222,C224,C225,C226	GRM155R60J105KE19D
2203-006399	C227,C237,C307,C325	GRM155R60J105KE19D
2203-006399	C328,C342,C346,C350	GRM155R60J105KE19D
2203-006399	C352,C353,C358,C360	GRM155R60J105KE19D
2203-006399	C362	GRM155R60J105KE19D
2203-006562	C240,C309,C315,C349	CV05X5R105K10AH
2203-006681	C317	GRM155F51E104ZA01D
2203-006872	C102,C107,C115,C209	GRM155R60J225ME15D
2203-006890	C221	CV105X5R106M06AT
2203-007240	C223	CL10A226MQ8NRNE
2203-007781	C128,C321	CL10A226MP8NUNE
2703-001708	L105,L110	HK1005-5N6K-T
2703-001723	L309	LL1005-FH33NJ
2703-001737	L109,L115	LL1005-FH2N7S
2703-001749	L100	LL1005-FH1N0S
2703-002170	L108,L112	CIH05T6N8JNC
2703-002202	L111	CIH05T27NJNC
2703-002204	L103,L113	CIH05T22NJNC
2703-002313	L310	CIH05TR10JNC
2703-002314	L102,L104	CIH05T47NJNC
2703-002365	L114	CIH05T1N2SNC
2703-002367	L101	CIH05T1N0SNC
2703-003297	L202	APIS08G4R7MT
2703-003476	L304	LQG15HSR27J02D
2703-003485	L306	CIG22L100MNE
2801-004805	OSC201	SQ3D02600C2LJA
2801-004902	OSC200	ST3215SB32768E0HPWBB
2901-001435	F300,F301,F302,F303	AVRC-14S-03Q-030-200R
2901-001435	F304	AVRC-14S-03Q-030-200R

Main Electrical Parts List

SEC CODE	Design LOC	Discription
2903-001424	F100	TBB-2012-245-C1E
2904-001920	F101	SFRG42MY002
2904-001980	F102	SAWEN881MCB0F00
3003-001138	MIC300	SPU0410LR5H-QB
3301-001659	L200,L307,L308	BLM15AG601SN1
3301-001729	L301,L302	BLM15AG102SN1D
3301-001901	L201	BLM18EG221SN1D
3301-001917	L305	BLM15BD182SN1
3301-002063	L311	BLM18HE152SN1D
3301-002065	L300,L303	MMZ1005A182ET
3404-001303	TACT300	LS12K2-T
3705-001731	RFS100	KMS-560-002-BEF
3709-001605	CD300	104070-0811
3709-001645	SIM300,SIM301	5000-6P-1.5SB
3710-003306	SOC300	3D1201087-ST32-7H
3711-006882	HDC300	AXT630124AW1
3711-007437	BTC300	KQ03SB1-3R-BEF
3712-001348	ANT102	HJ-ICT-05Y
3722-003115	IF300	KQ20AX-7P-4D
3722-003173	EAR300	IJAN4-92

Please consult the GSPN website (Samsung Portal) for the most recent version of the product's part list.

6. Level 1 Repair

6-1. Software Download

6-1-1. Pre-requisite for Download

- Download Program (there are 2 ways to download.)
 - [Flash loader 7.4.7_SSG_v0.1_Lite.exe](#) : [Flash loader 7.4.7_SSG_v0.1_Lite](#)
- USB Driver
 - [Samsung USB Modem driver](#)
- GT-C3222 Mobile Device
- Data Cable
- JIG BOX (GH99-36900B)
- RF Test Cable (GH39-00985A)
- JIG Cable (GH39-01290A)
- Adapter (GH99-38251A)
- Binary files
- ActiveSync Setting
- Driver Installation.

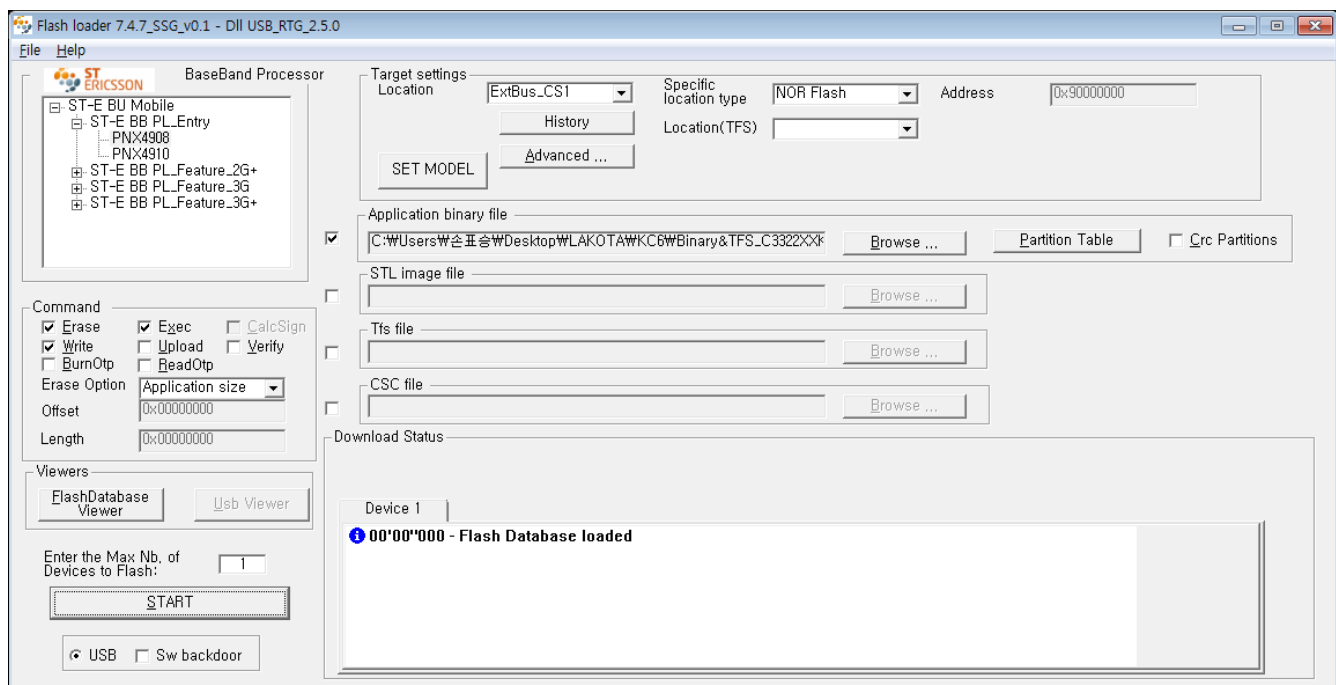
6-1-2. Driver Installation

- Make sure that you install the driver for a phone.
- You have to install the driver of Samsung USB Modem of downloading a phone image
- **Restart your host PC after you install the phone driver.**

6-1-3. S/W Download Process

1) Execute the downloader

Execute the 'Flash loader 7.4.7_SSG_v0.1_Lite.exe' program.

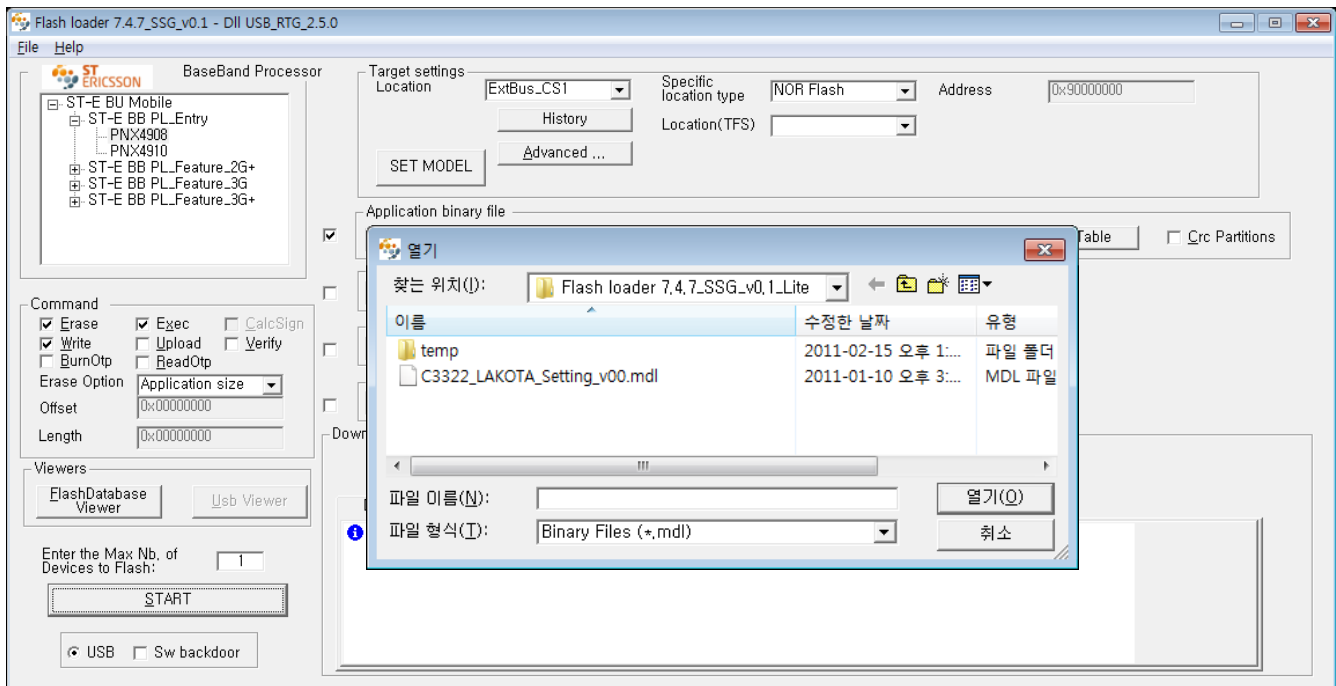


(Notice : Flash loader supports only Single-CSC.)

2) Set Model

Click "SET MODEL", and you can select appropriate model.

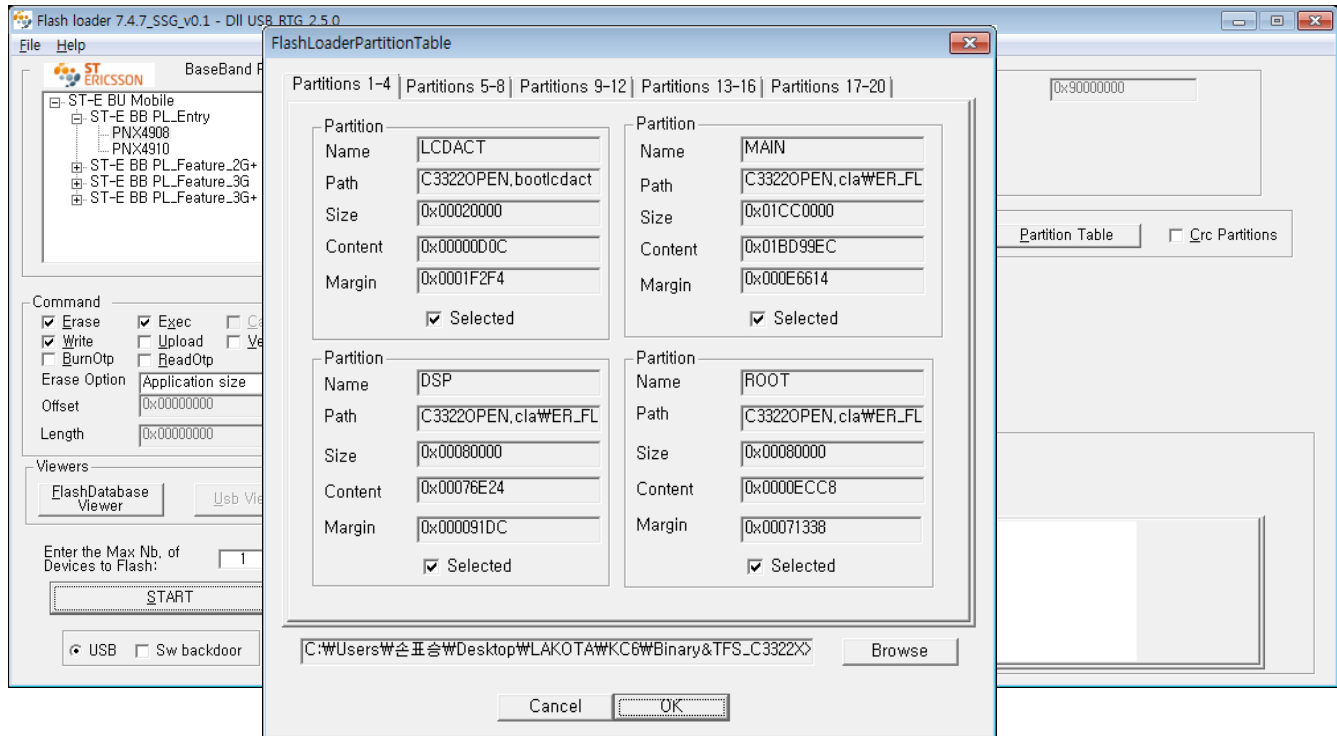
You should choice "C3322_LAKOTA_Setting_v00.mdl" for further advance.



3) Select the binary, TFS, and CSC files

Click "Partition Table", and you can select a certain binary.

With browsing files, you can choice appropriate Flash-loader partition table all at once.



After that, you should activate TFS, CSC.

Also you can select the TFS files, and CSC files.

(Notice : The buttons of TFS and CSC need to be activated not only after phone image is added first)

4) Select the download mode

Click "START" to ready to download binary.

(Notice : In this step, the mobile device actually don't download the binary yet.)

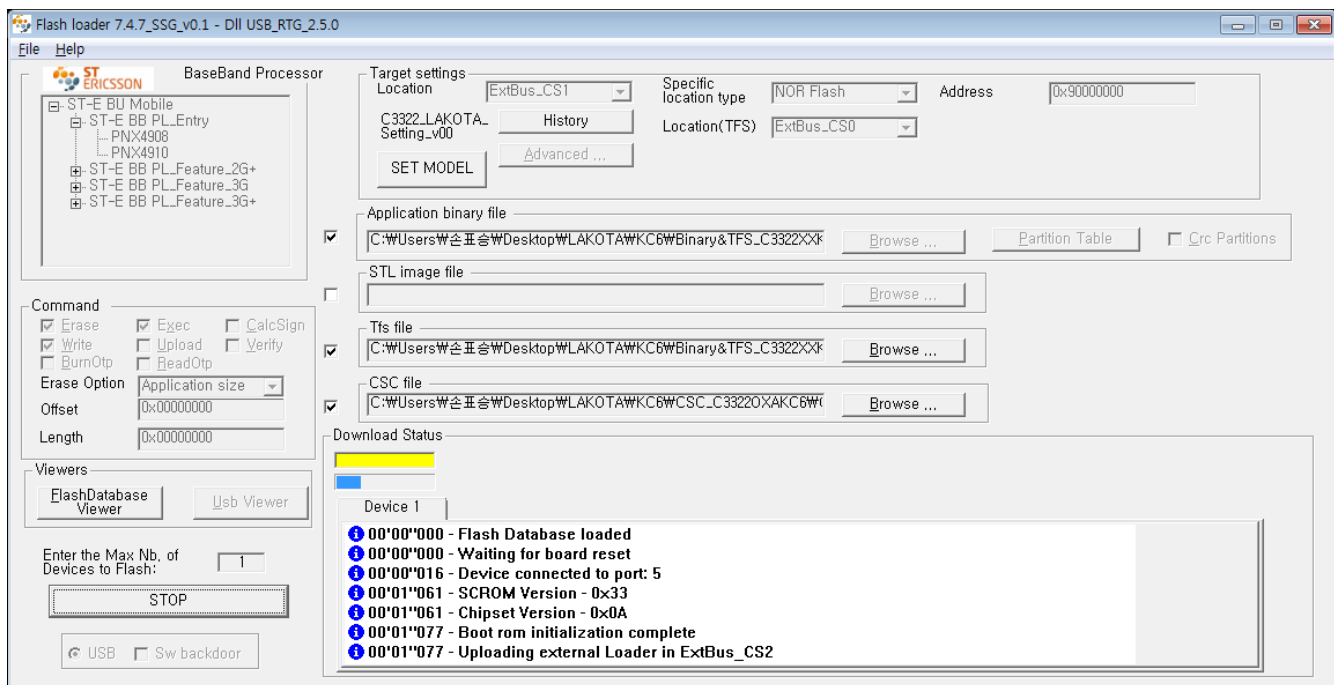
5) Connect the device

First, power off the device with battery.

After that, connect PC with device using USB cable.

(Don't detach your finger from two keys.)

In that case the device will power on and downloader recognize the device automatically



6) Complete download

The download process is automatically executed.

If "Slot freed for new download" message was shown without any problems, you now download the binary successfully.

(Notice : After download process is completed, take care of the abnormal power off situation(ex. mount/demount battery) within the first booting time. It may causes malfunction)

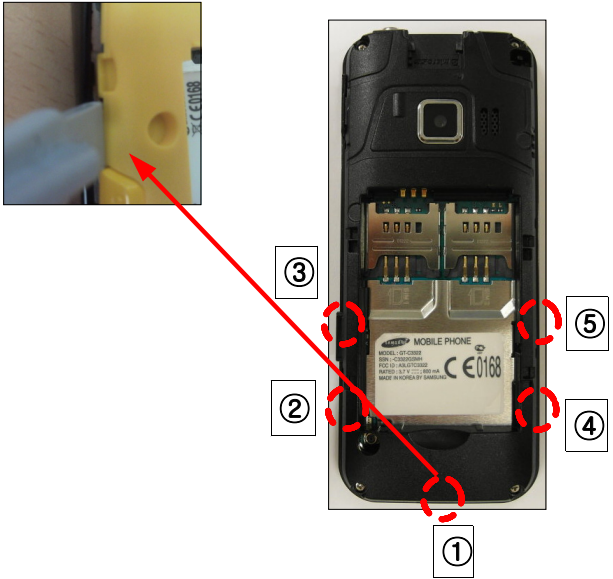
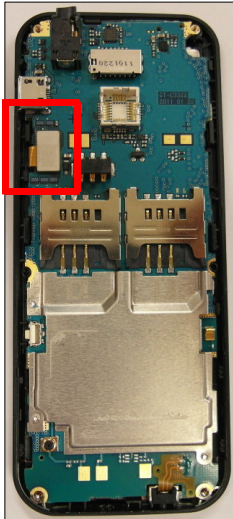
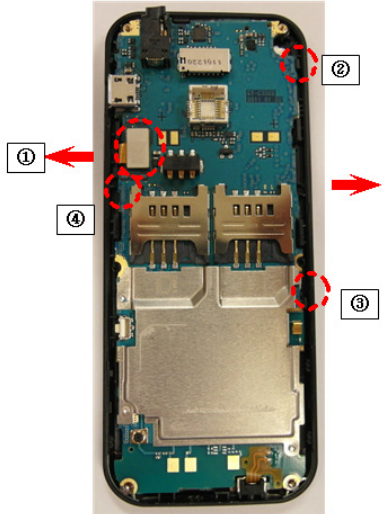
7) Confirm Download

- Reboot the device and confirm whether the device do normal operation.
- When completing download, downloader is automatically initialized and ready for connecting next device.

7. Level 2 Repair

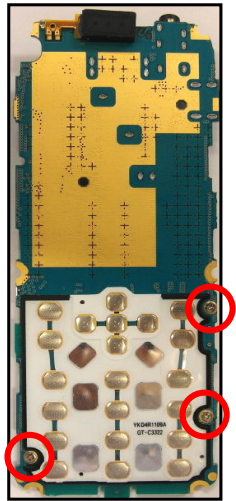
7-1. Disassembly and Assembly Instructions

7-1-1. Disassembly

1 Unscrew Rear Case 	2 Separate the Rear Case 
Unscrew 4 points on Rear Case.	Separate Rear part corner using a decomposition tool.
3 Separate 1 connectors. 	4 Separate the PBA from Front Ass'y. 
Separate 2 connectors from the PBA with care.	Lift the Hook & Separate the PBA from Front Ass'y.

5

Unscrew PBA



Unscrew 3 points on the PBA.

6

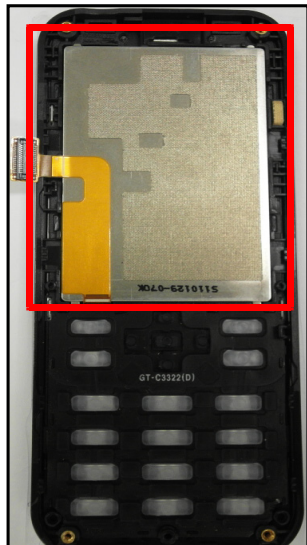
Separate Shield Can



Separate the Shield Can.

7

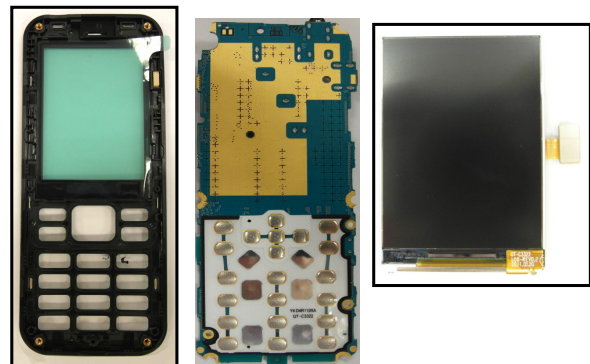
Separate the LCD from Front.



Separate the LCD from Front and Keypad.

8

Check Front Ass'y, PBA, LCD.



Check Front Ass'y, PBA, LCD.

7-1-2. Assembly

1

Check Front and Window.



Check a Gold Sponge in Front Ass'y.

2

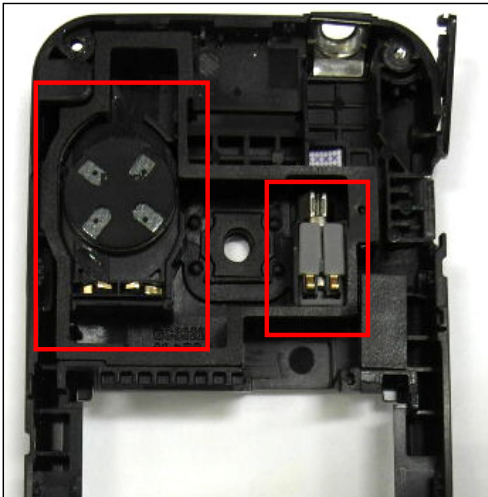
Assemble the LCD & Keypad to Front.



Assemble the LCD to Front. Be careful LCD crack.

3

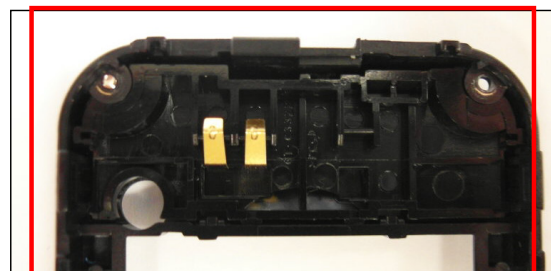
Assemble the Speaker and motor module.



Assemble the speaker and motor to Rear Ass'y.

4

Assemble the Antenna.

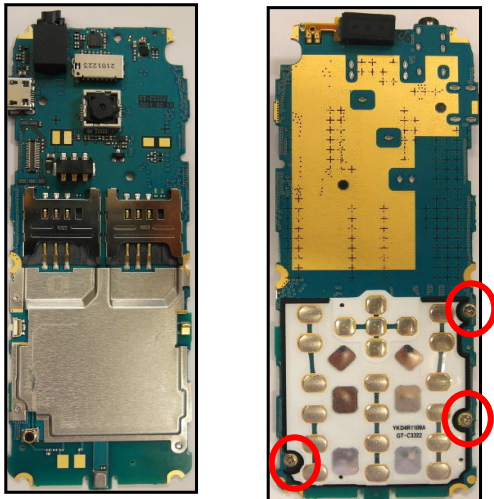


Assemble the antenna to Rear.

5

Assemble the Shield-Can & Screw 3-point

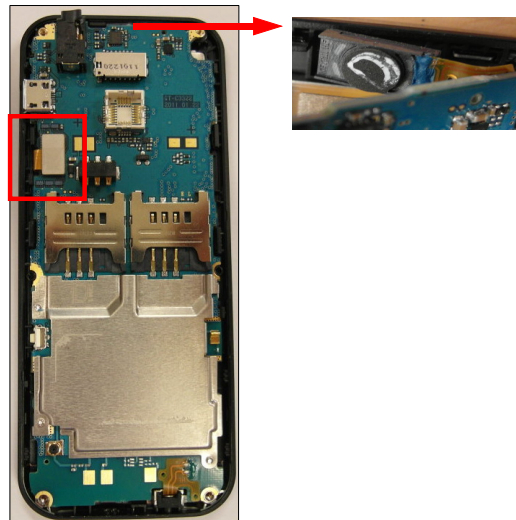
- Torque : 1.0 ~ 1.2 kgf.cm
- Size : M1.4 * L2.5



Attach the Shield-Can and screw 3 points on the PBA.

6

Assemble the PBA to FRONT Ass'y.



Place PBA carefully on hook and Receiver.

7

Assemble the Rear Case



1)Upper

2)Middle

3)Lower

Assemble the Rear Case to FRONT Ass'y.

8

Screw REAR 4-point.

- Torque : 1.0 ~ 1.2 kgf.cm
- Size : M1.4 * L4

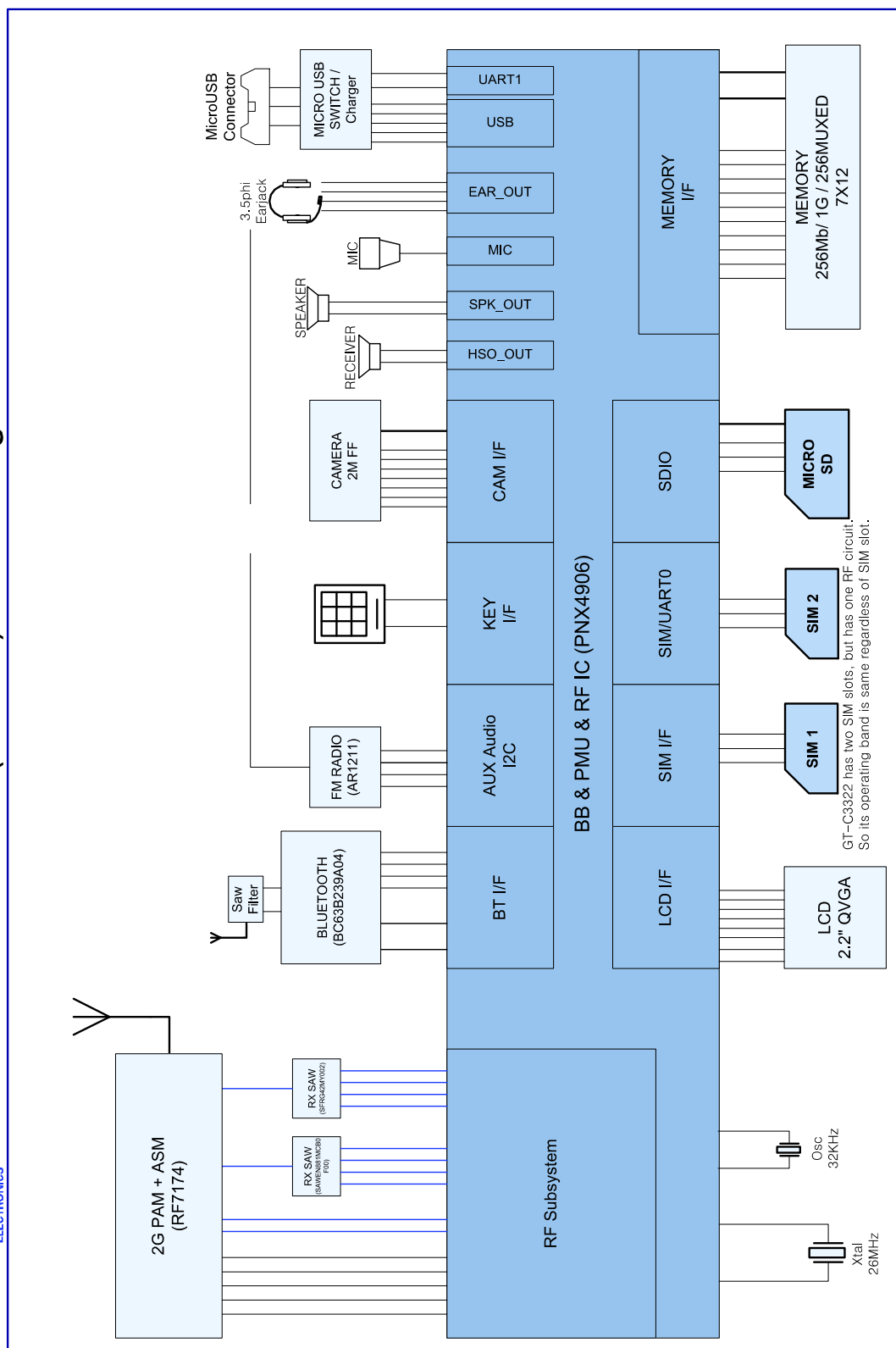


Land REAR on PBA and screw REAR 4-point.

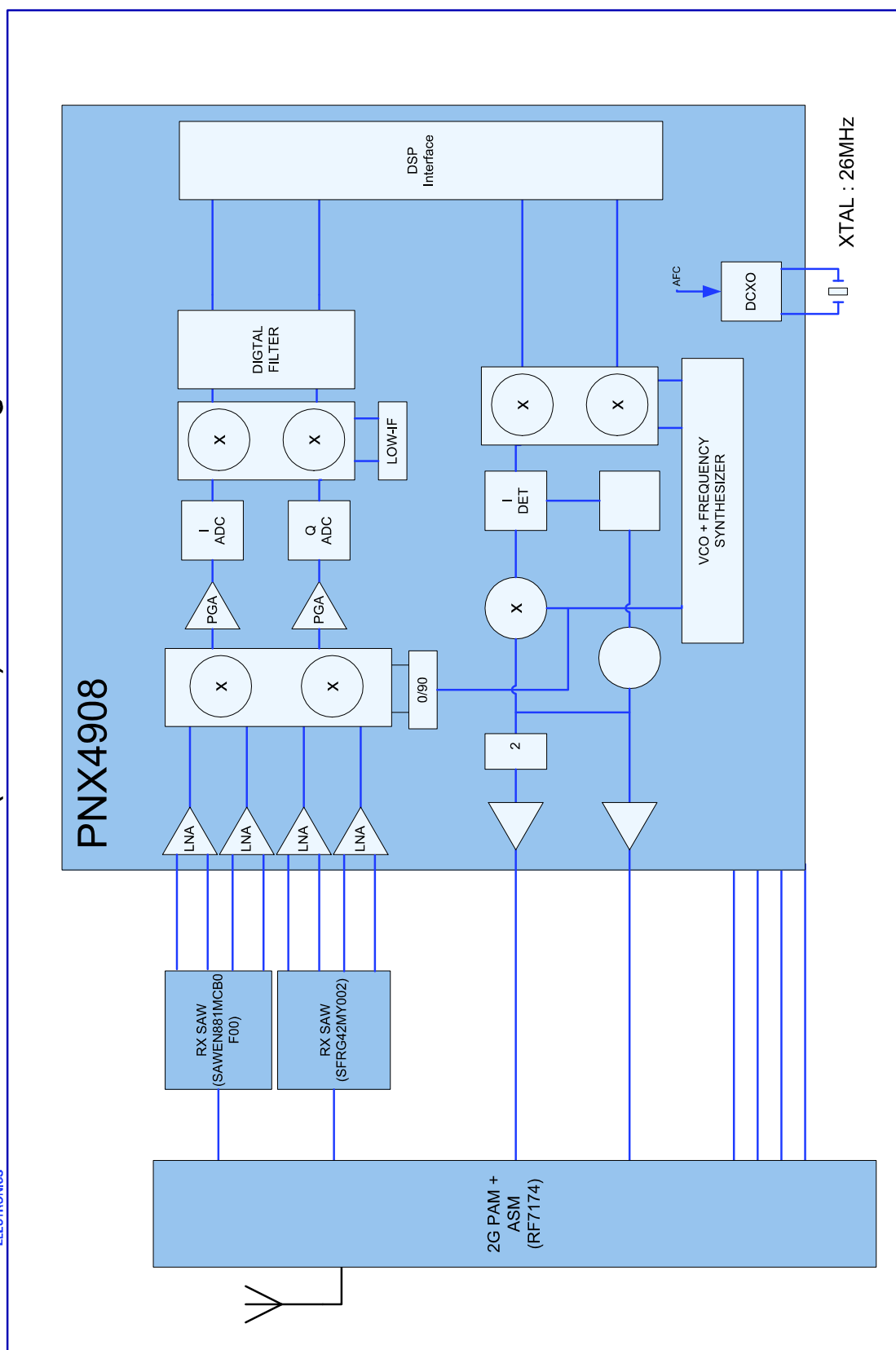
8. Level 3 Repair

8-1. Block Diagram

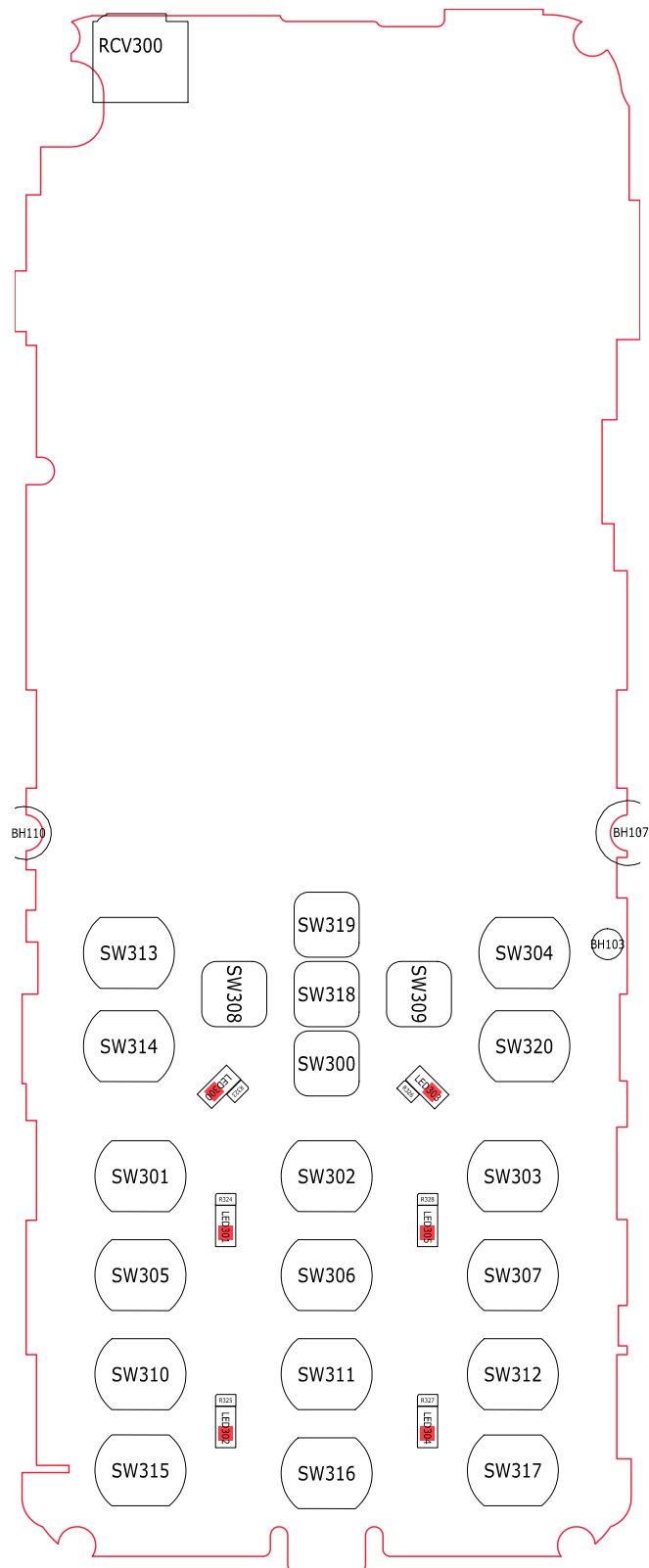
GT-C3322(Lakota) Block Diagram



GT-C3322(Lakota) RF Block Diagram



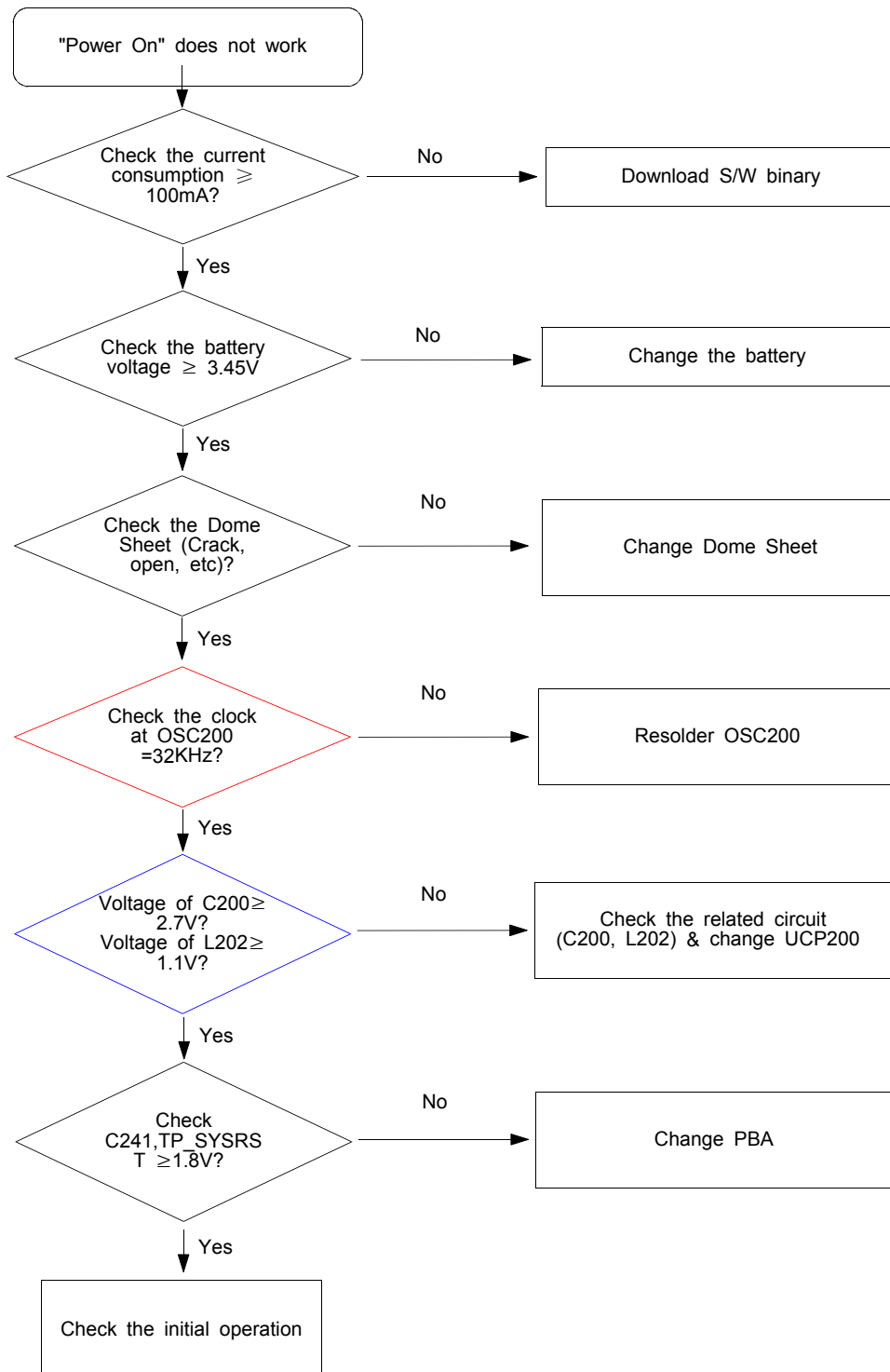
8-2-2. Bottom



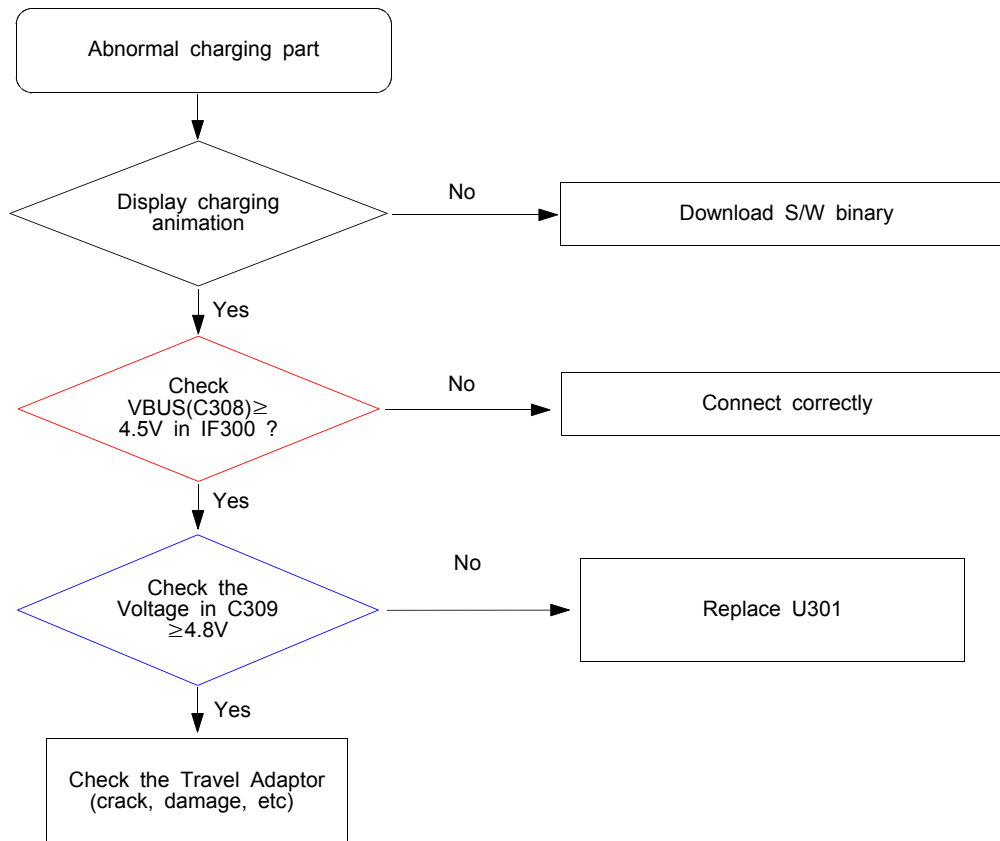
8-3. Troubleshooting

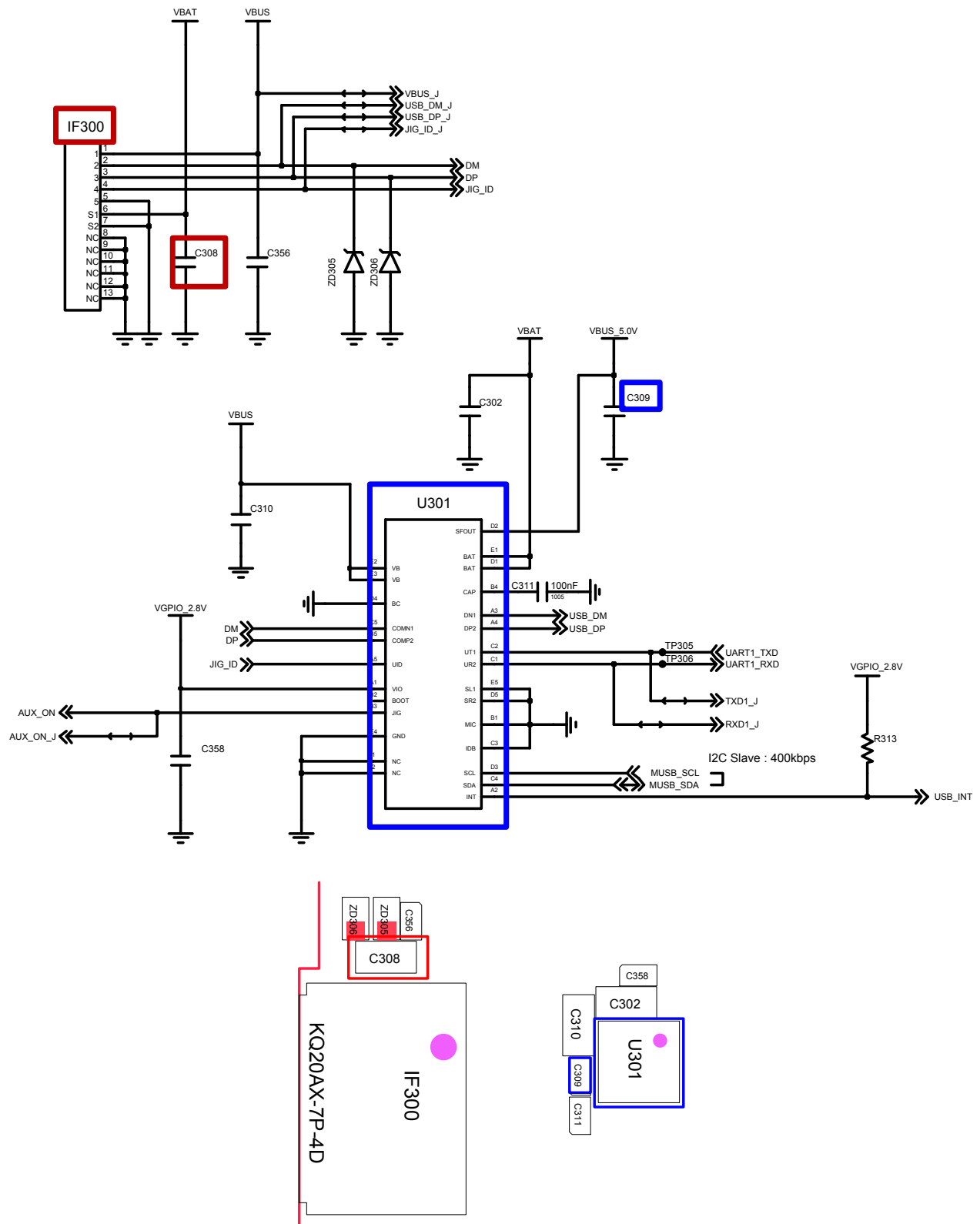
8-3-1. LOGIC part

8-3-1-1. POWER ON

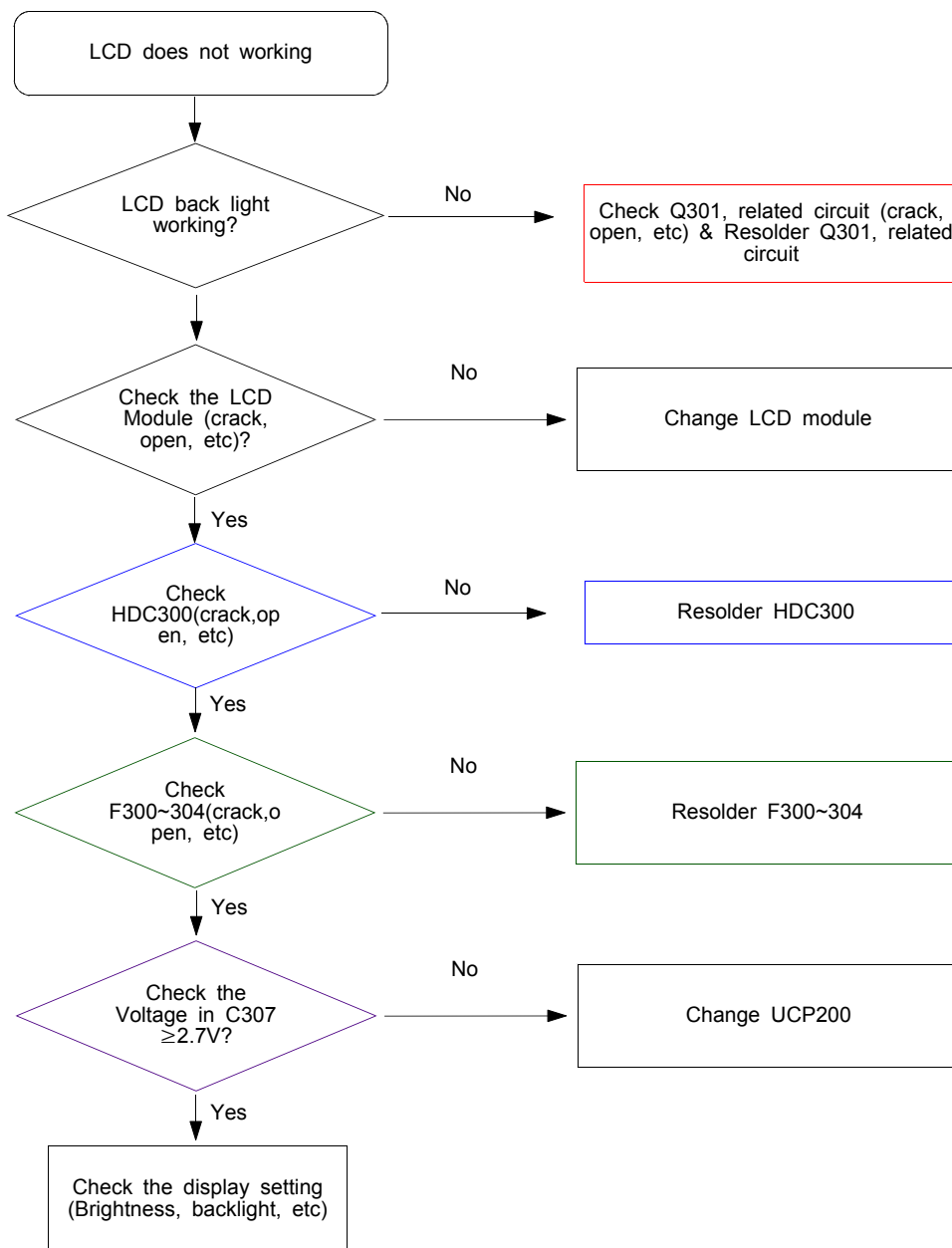


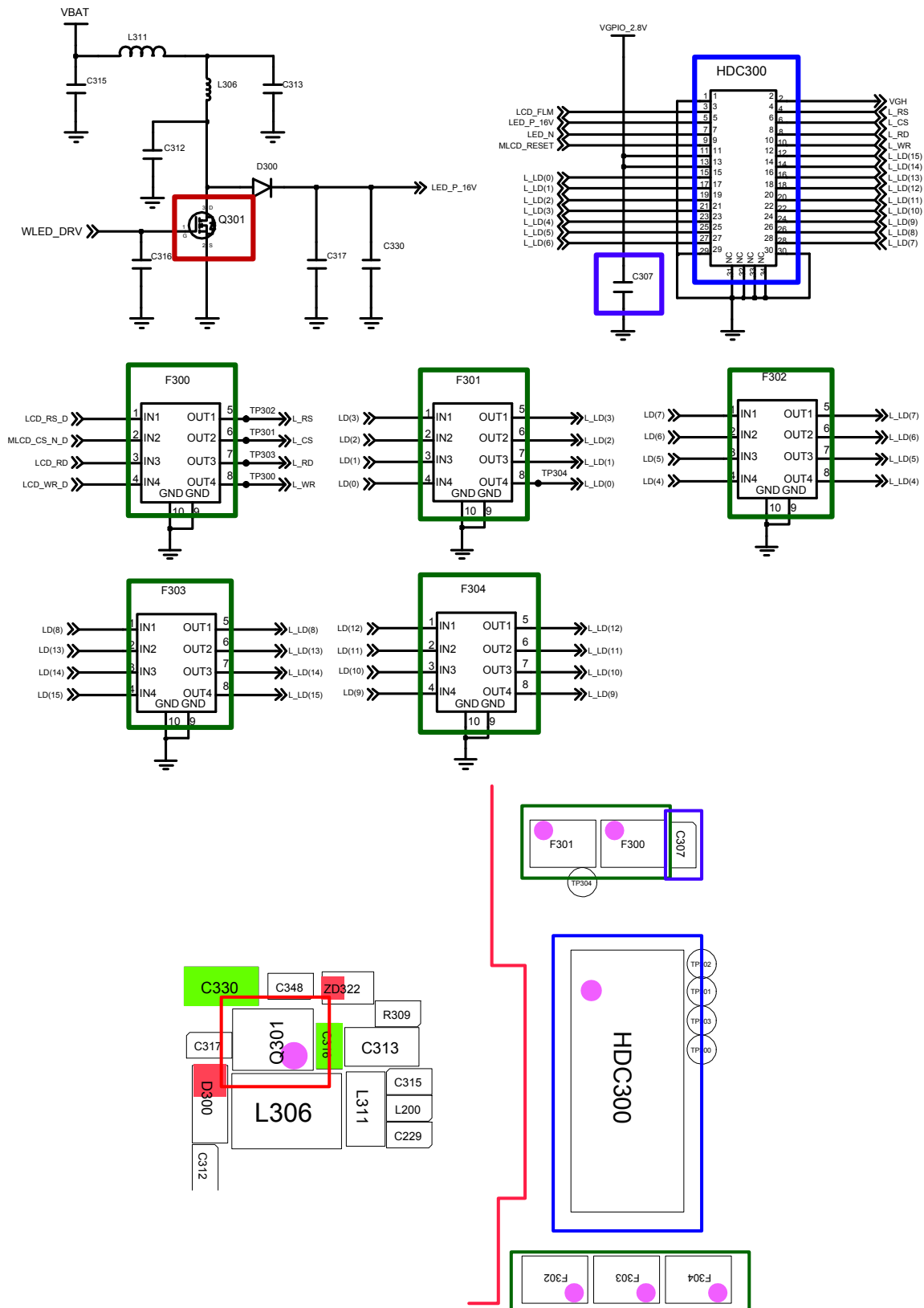
8-3-1-2. Charging Part



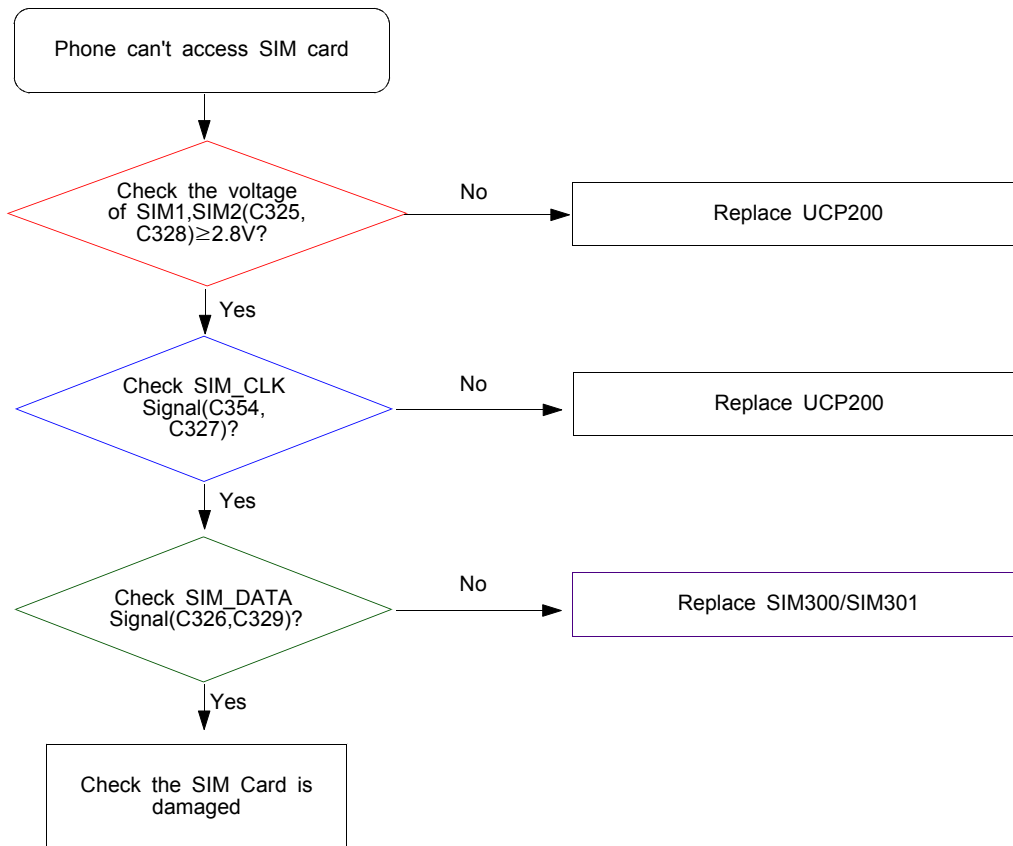


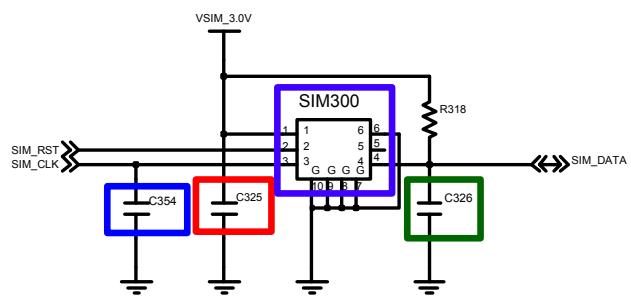
8-3-1-3. LCD Part



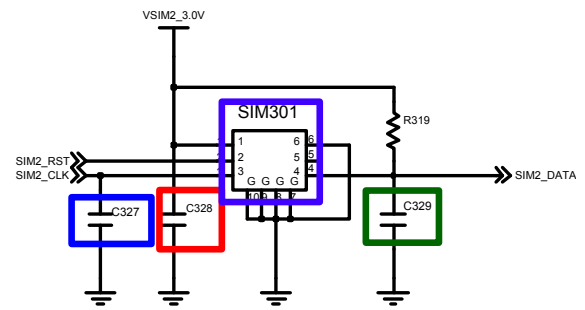


8-3-1-4. SIM Part

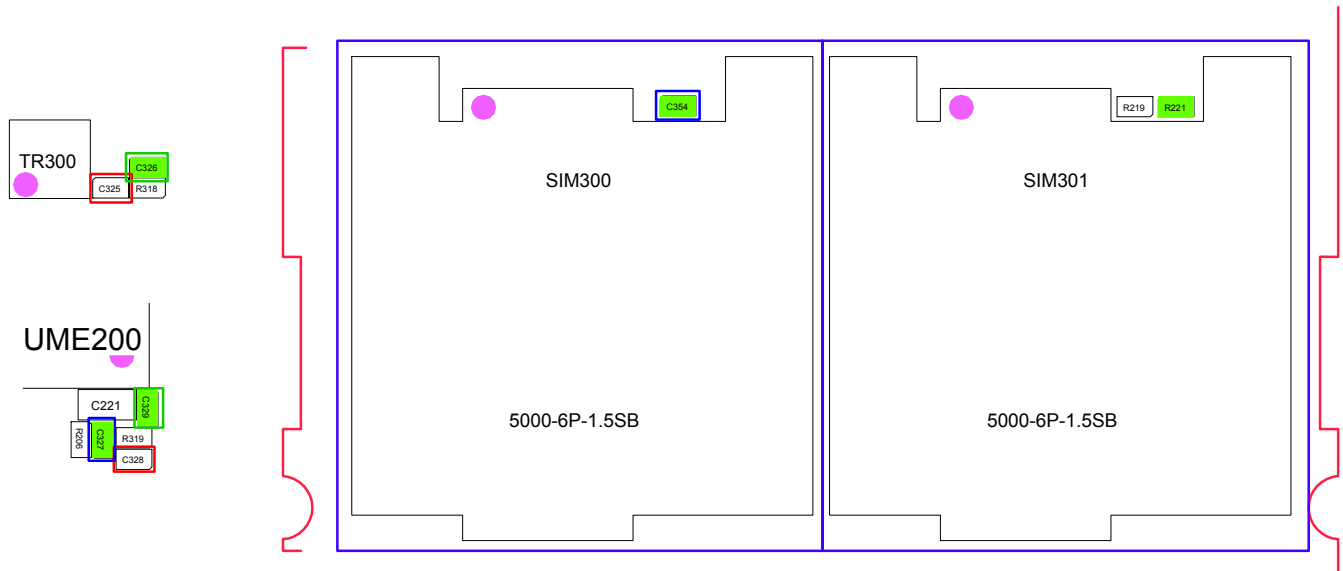




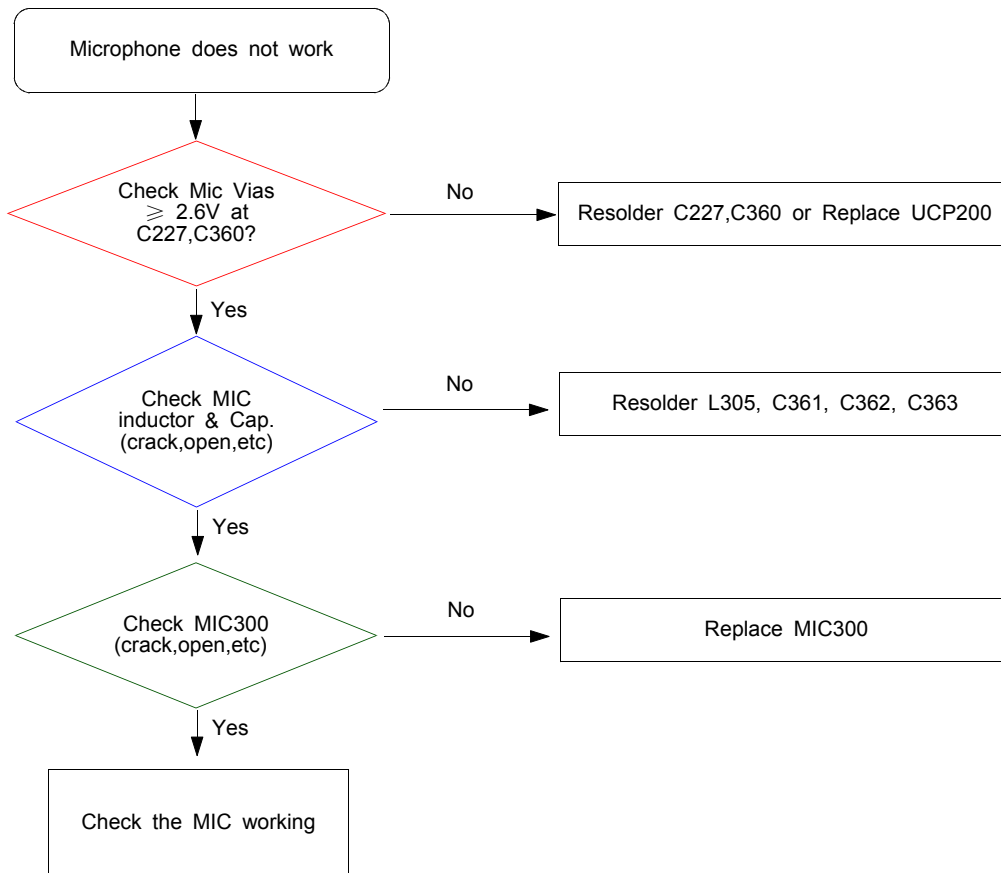
SIM 1

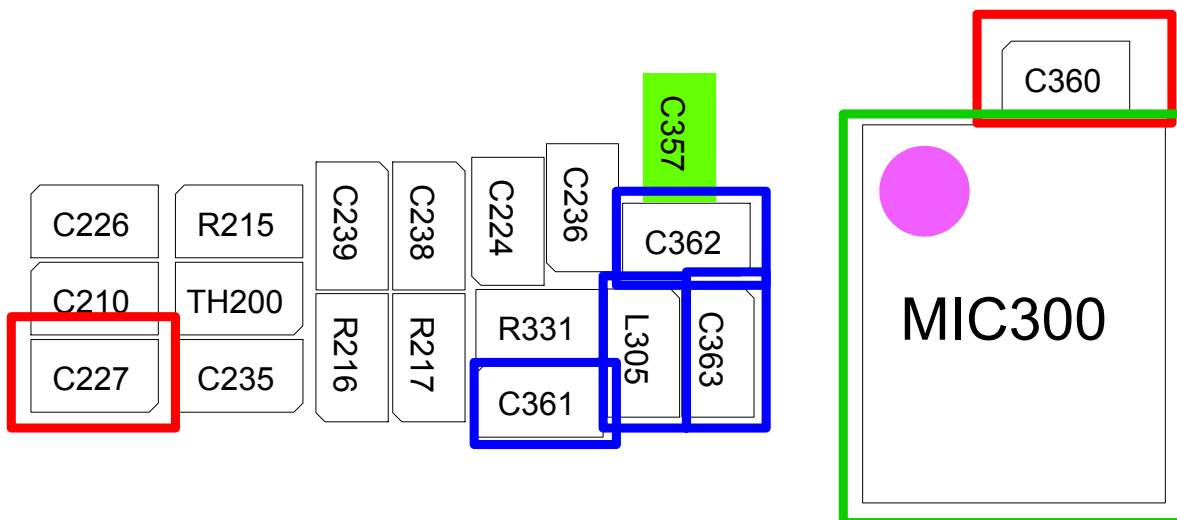
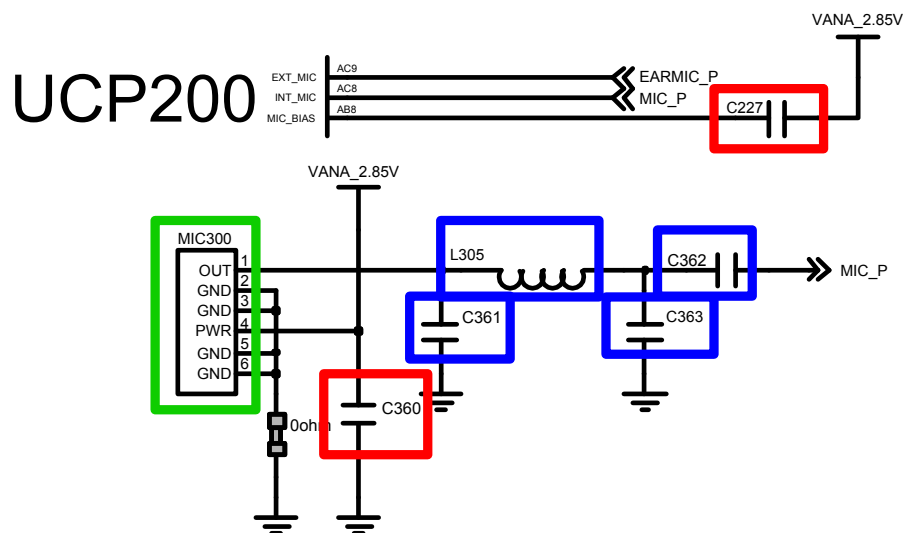


SIM 2

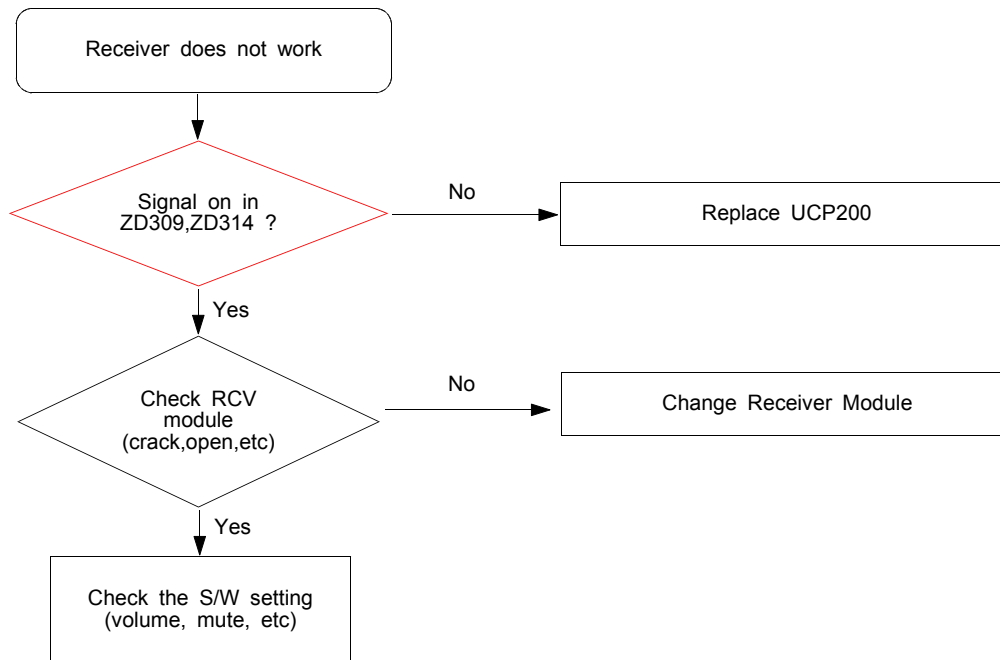


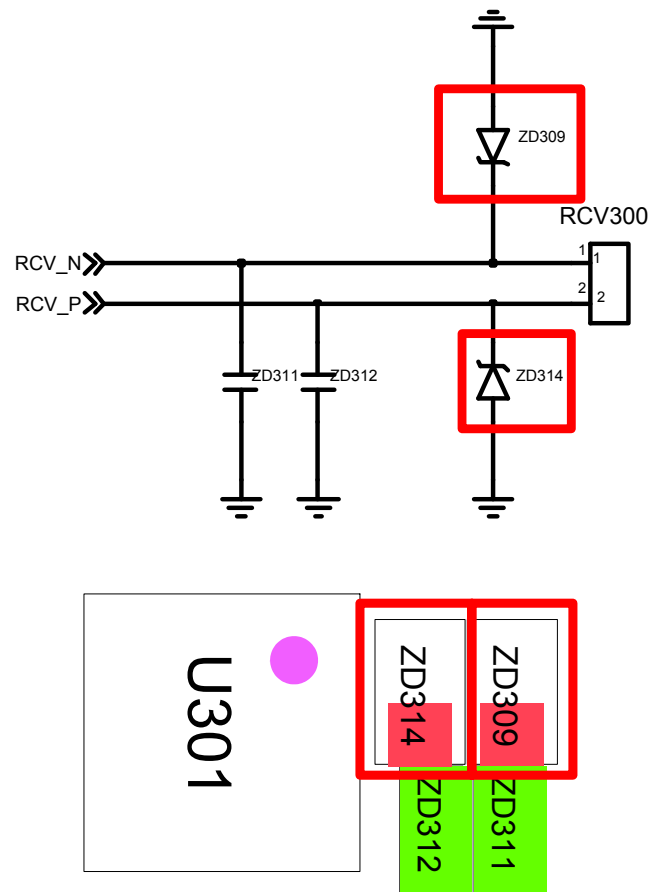
8-3-1-5. Microphone Part



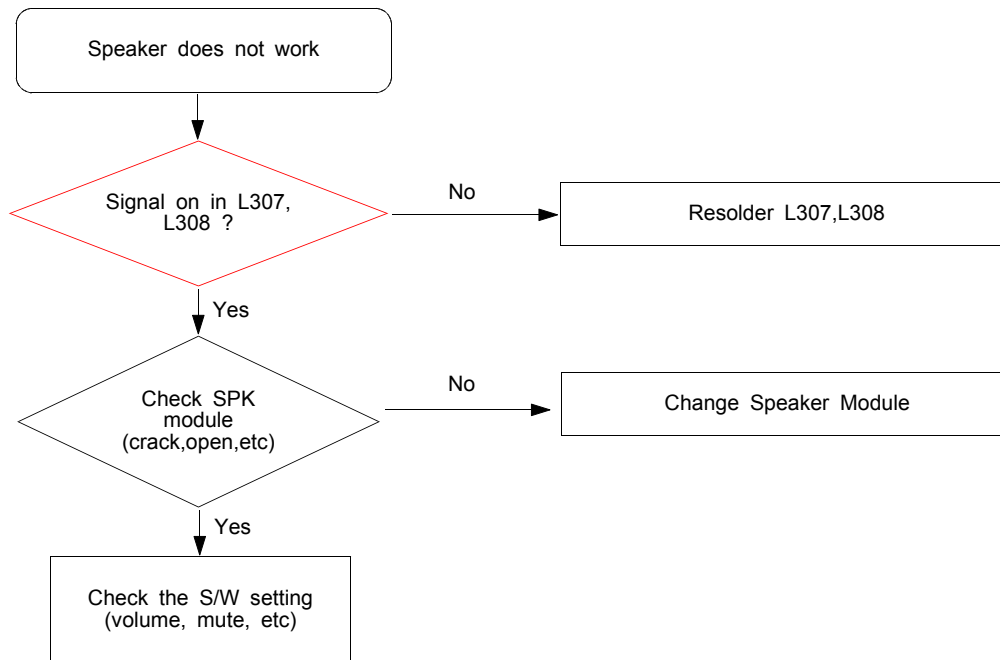


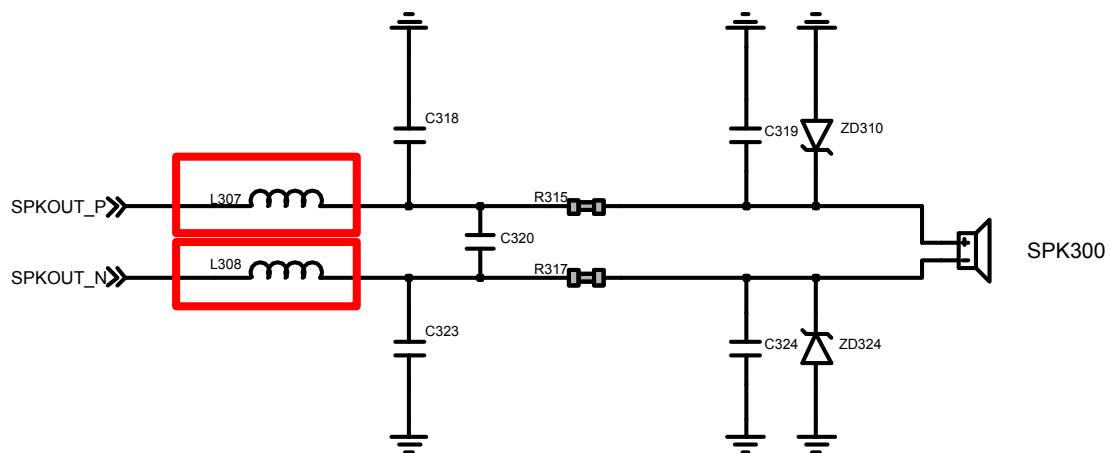
8-3-1-6. Receiver Part



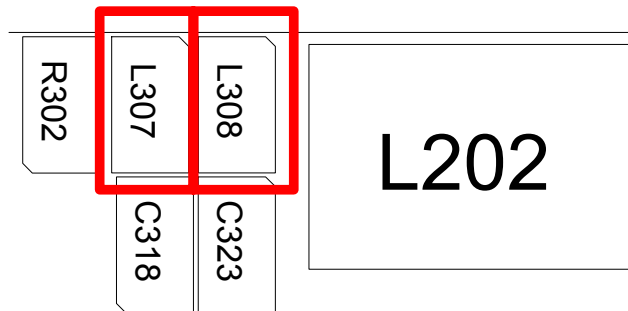


8-3-1-7. Speaker Part

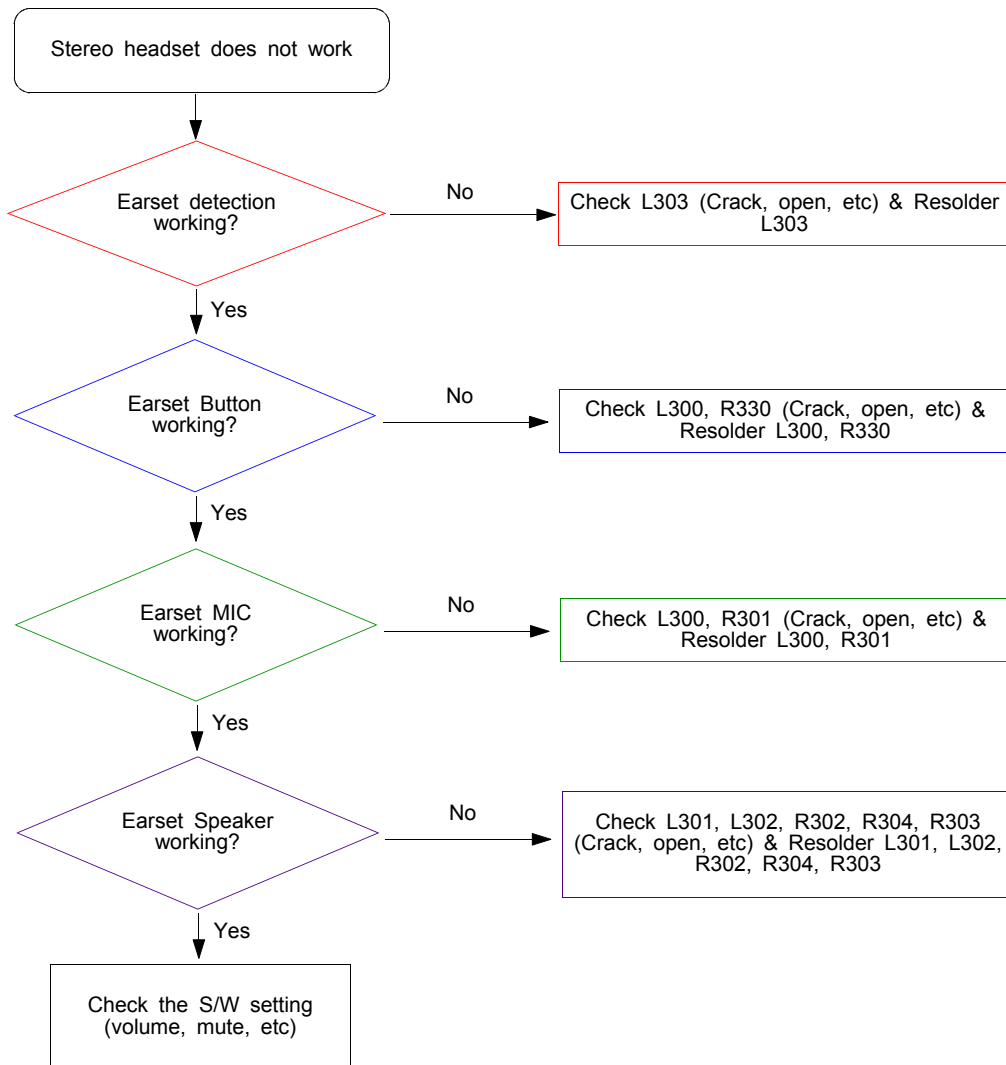


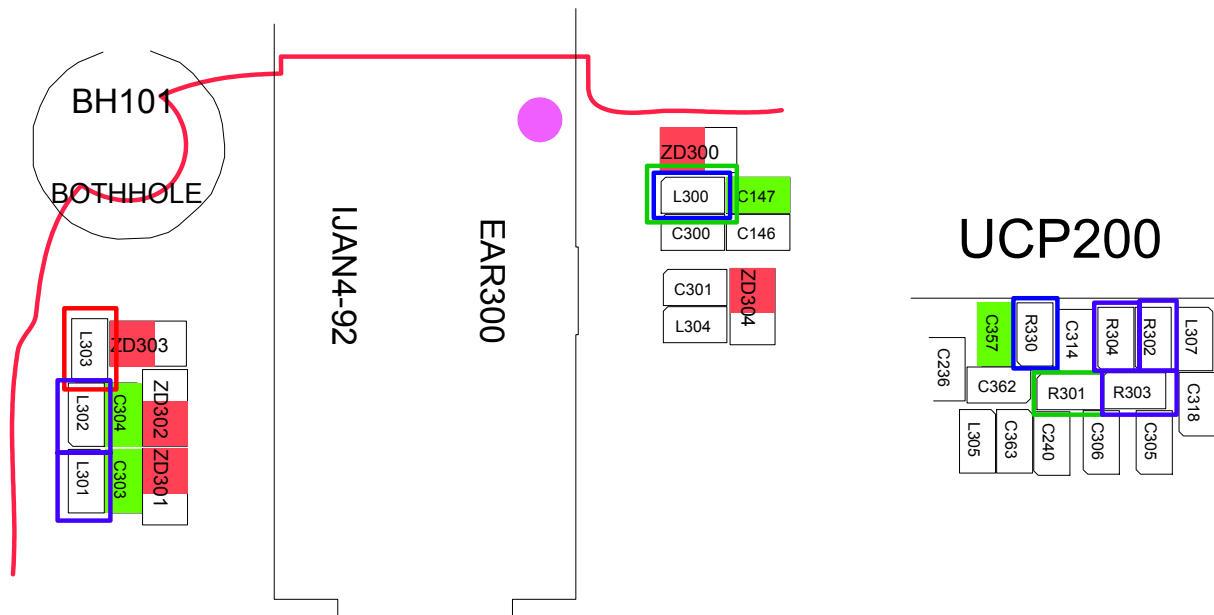
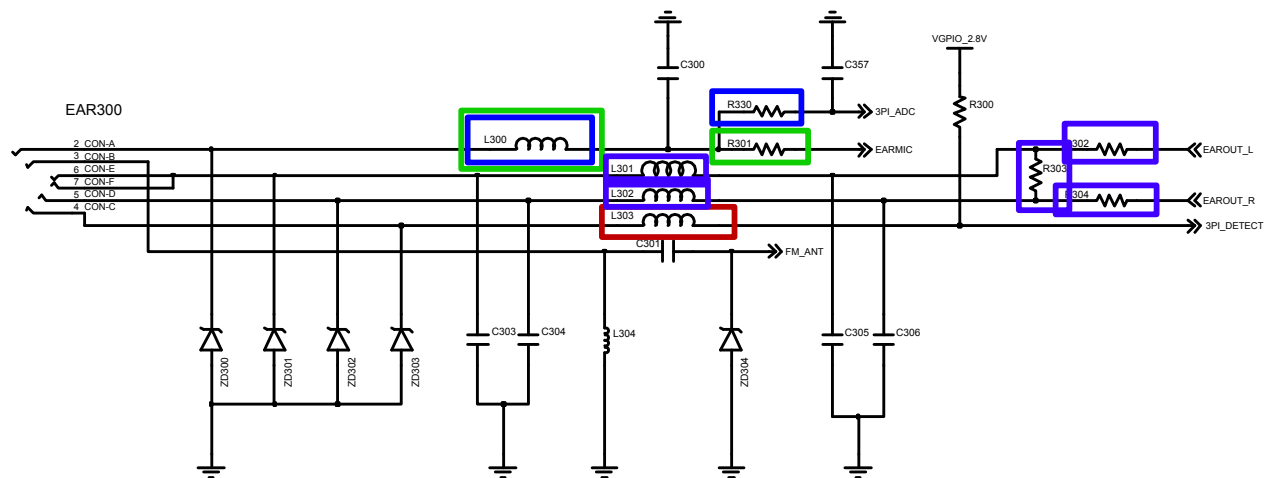


UCP200

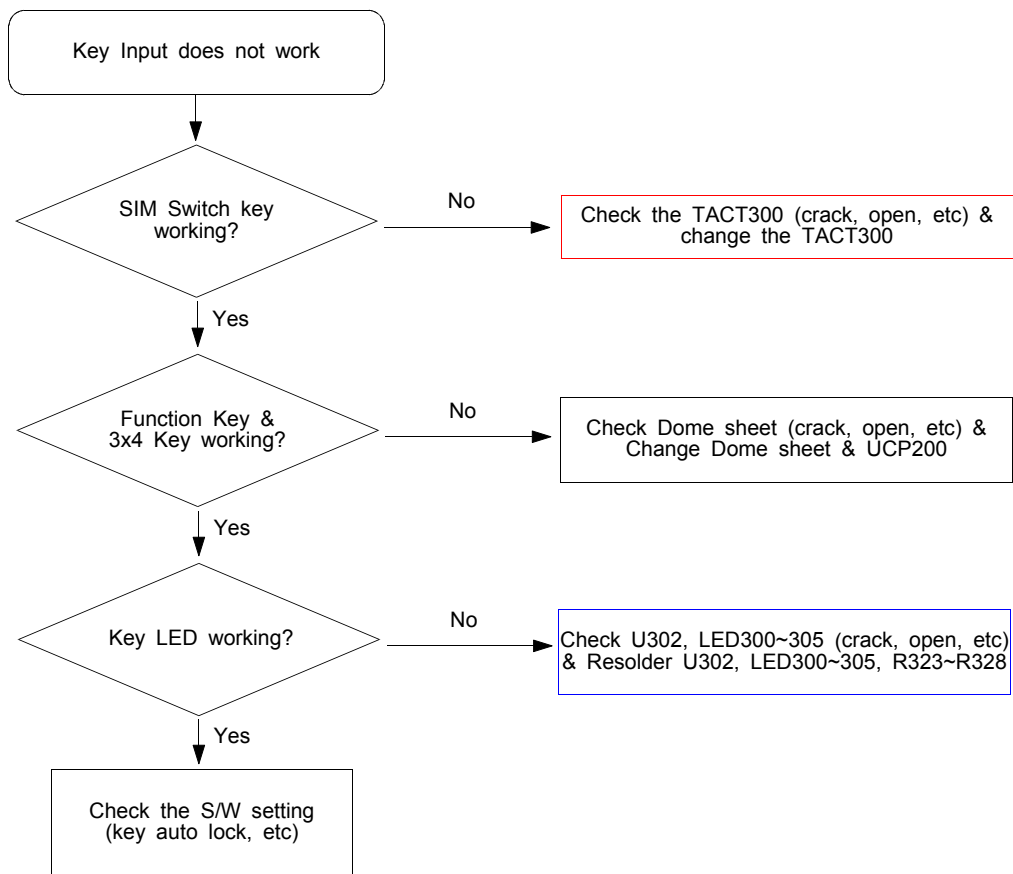


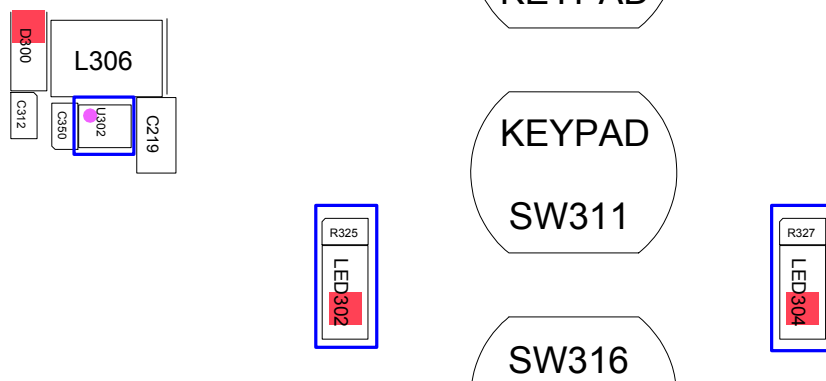
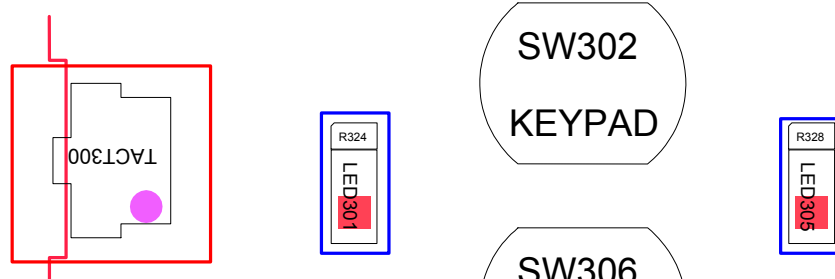
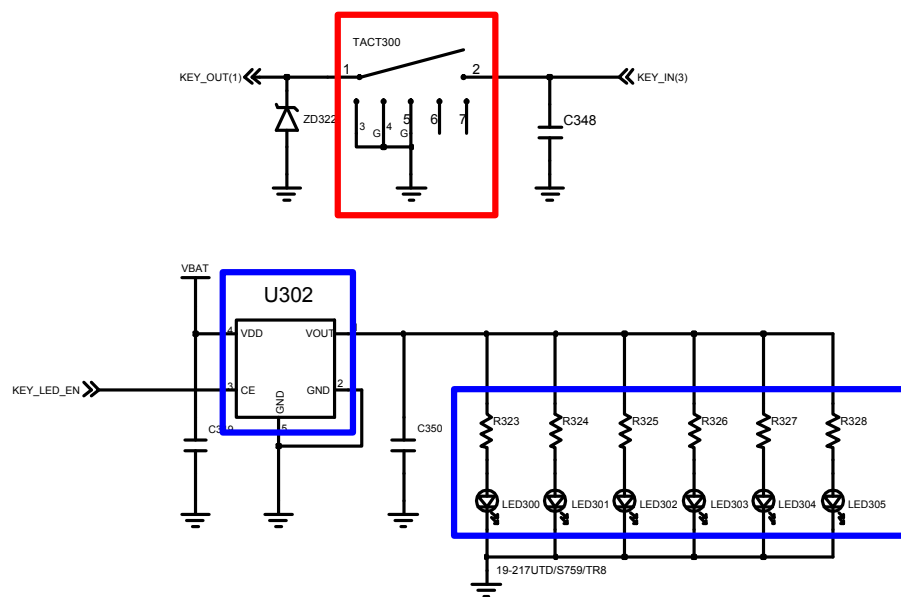
8-3-1-8. Stereo Headset Part



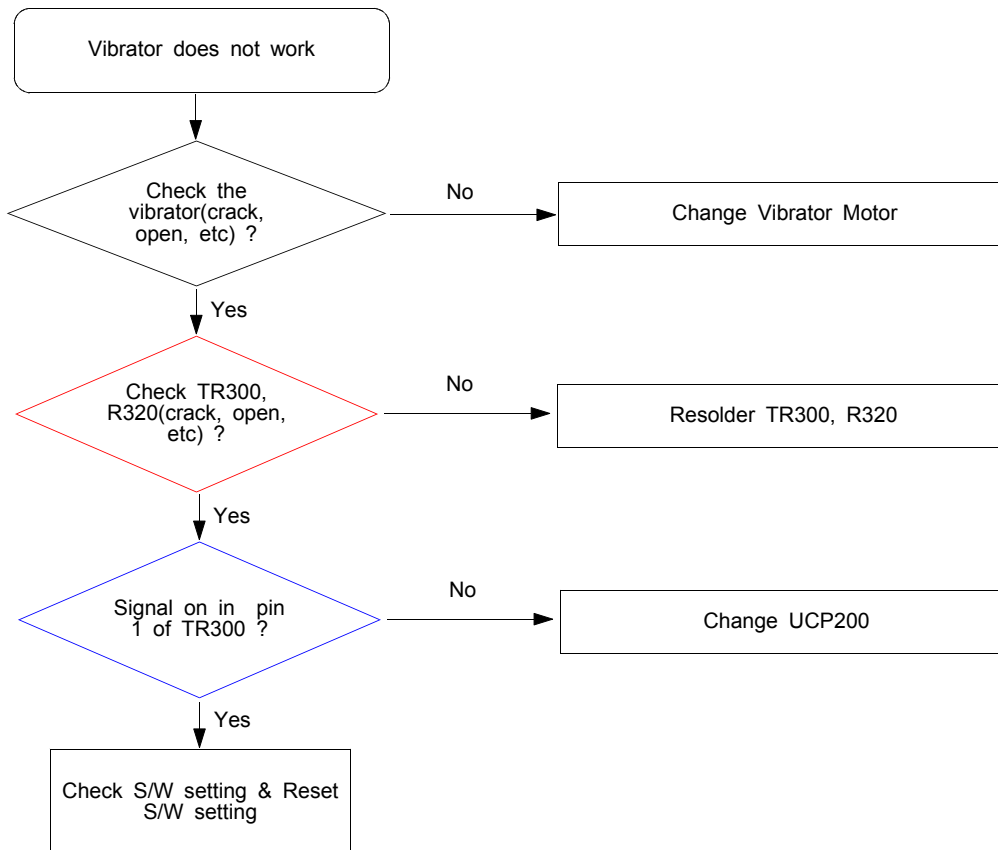


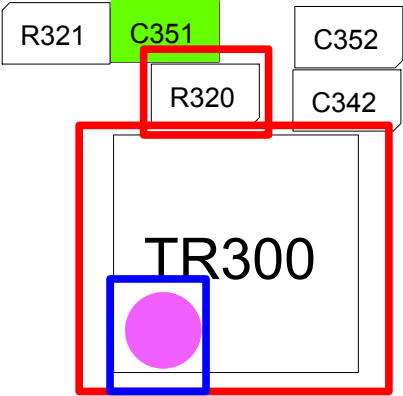
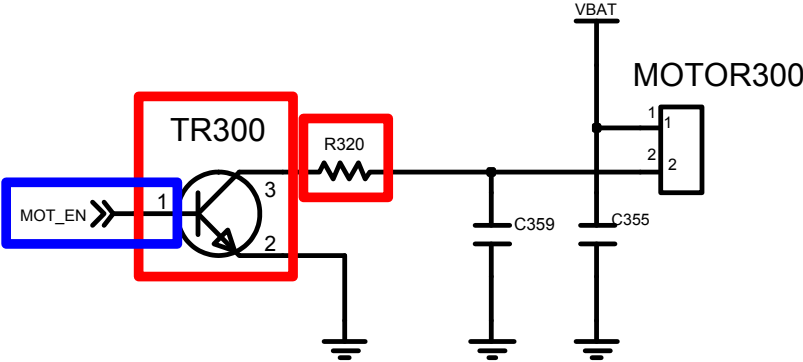
8-3-1-9. Key Input Part



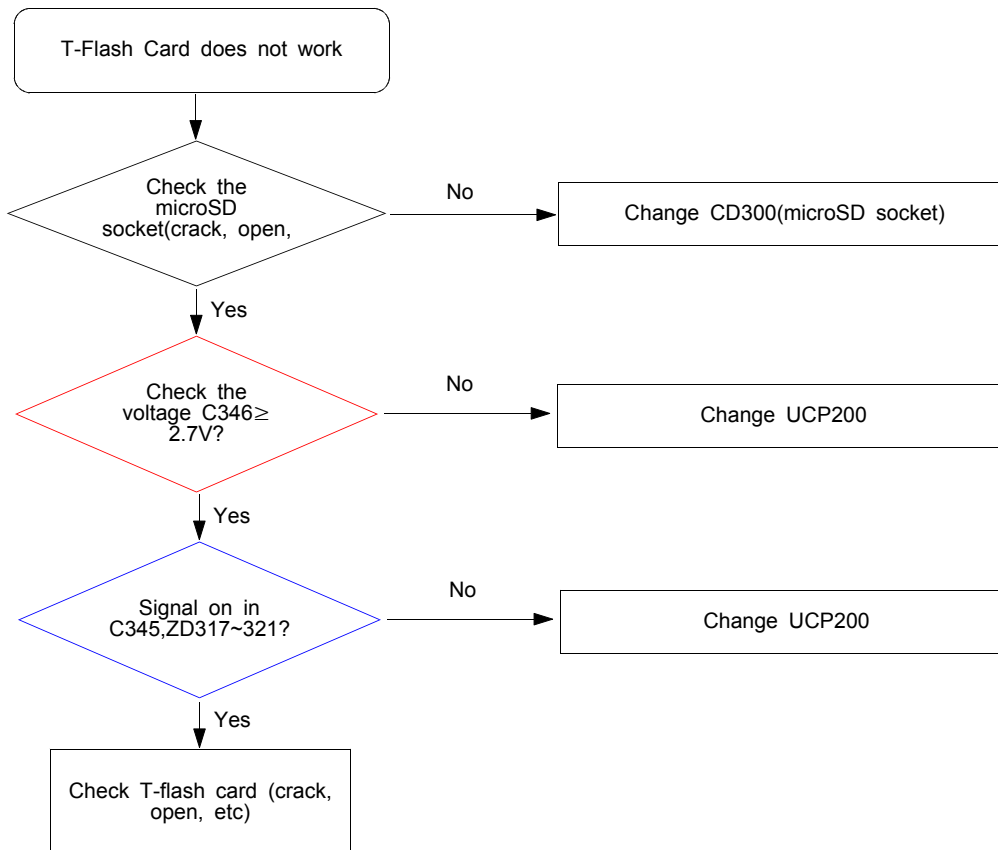


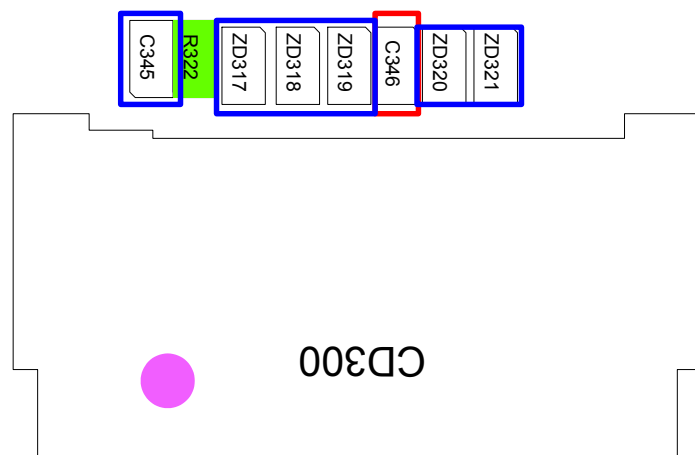
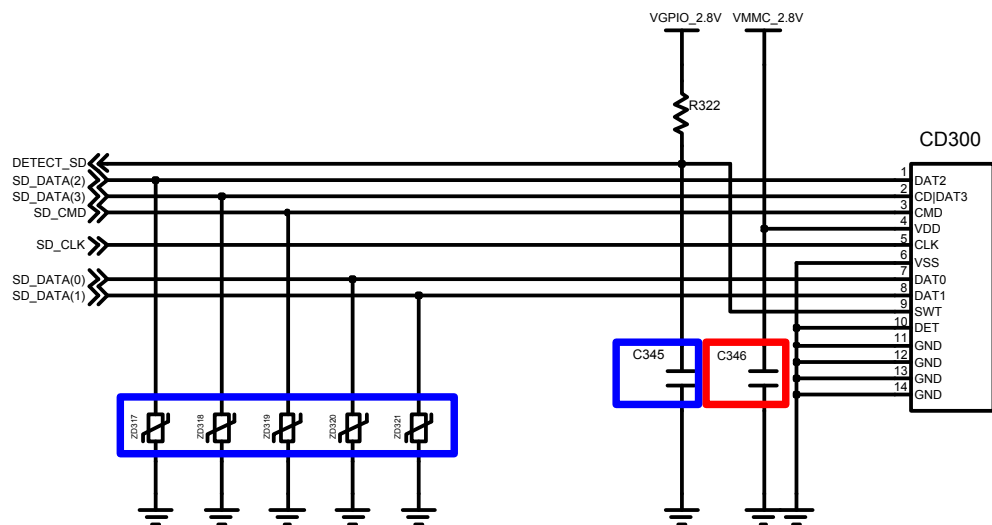
8-3-1-10. Vibrator Part



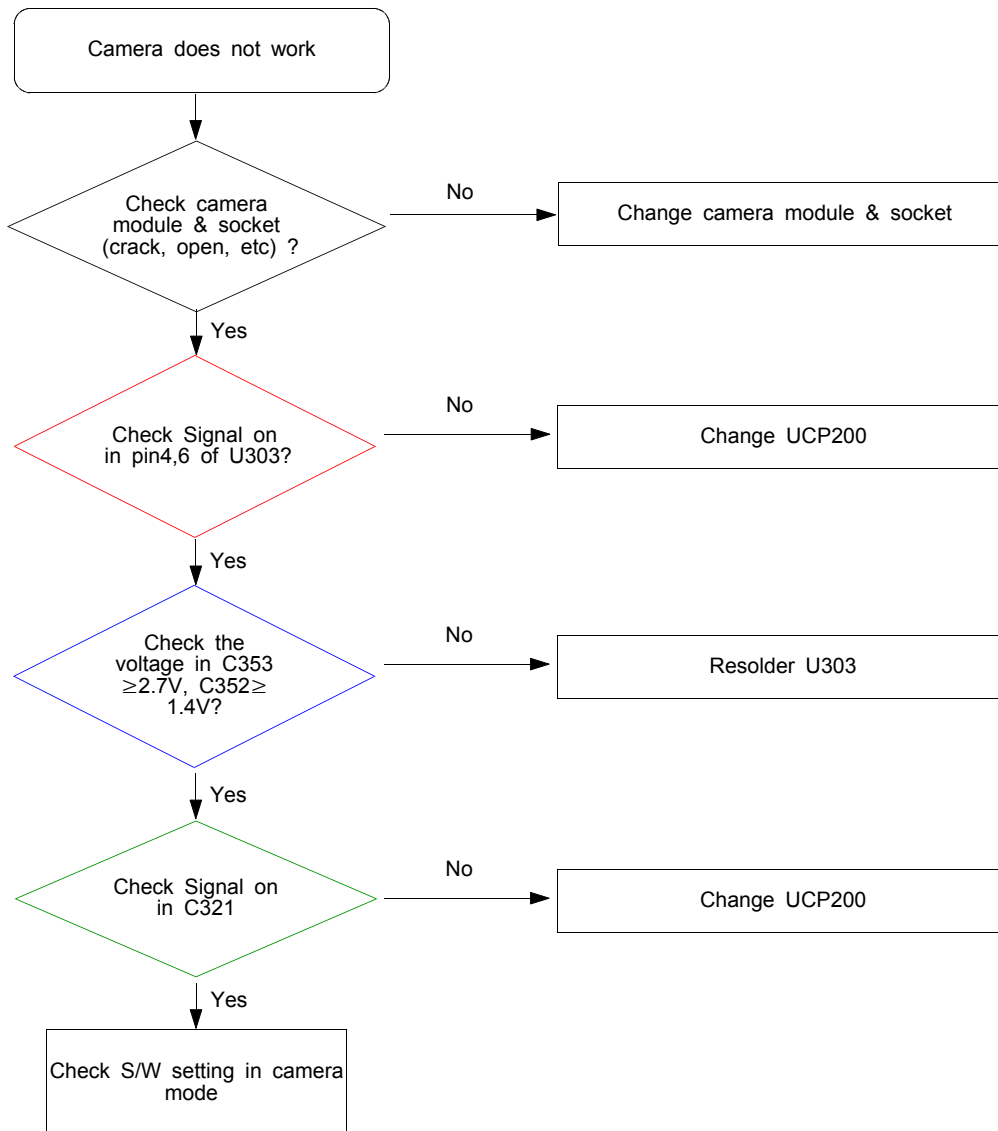


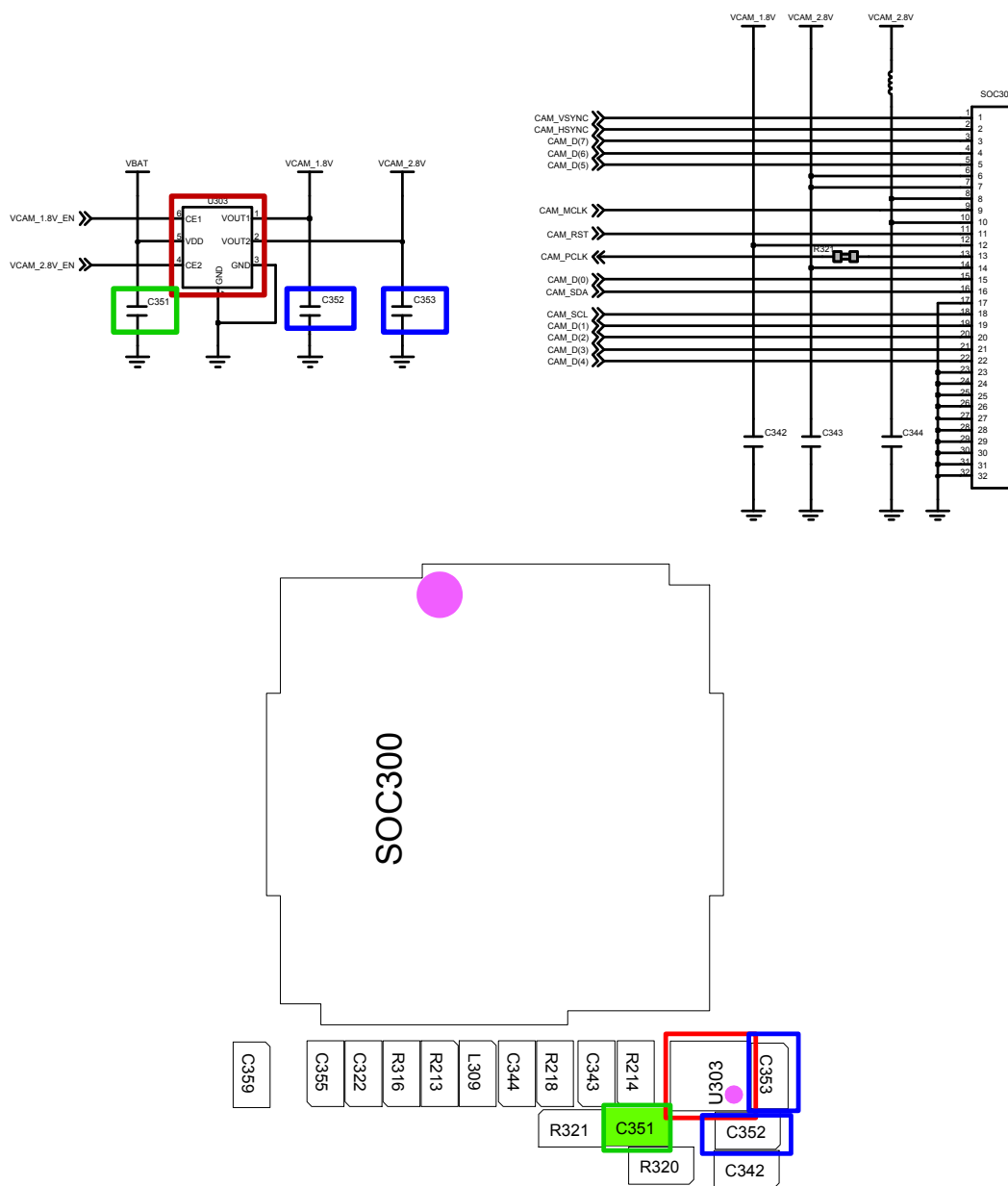
8-3-1-11. T-Flash Card Part





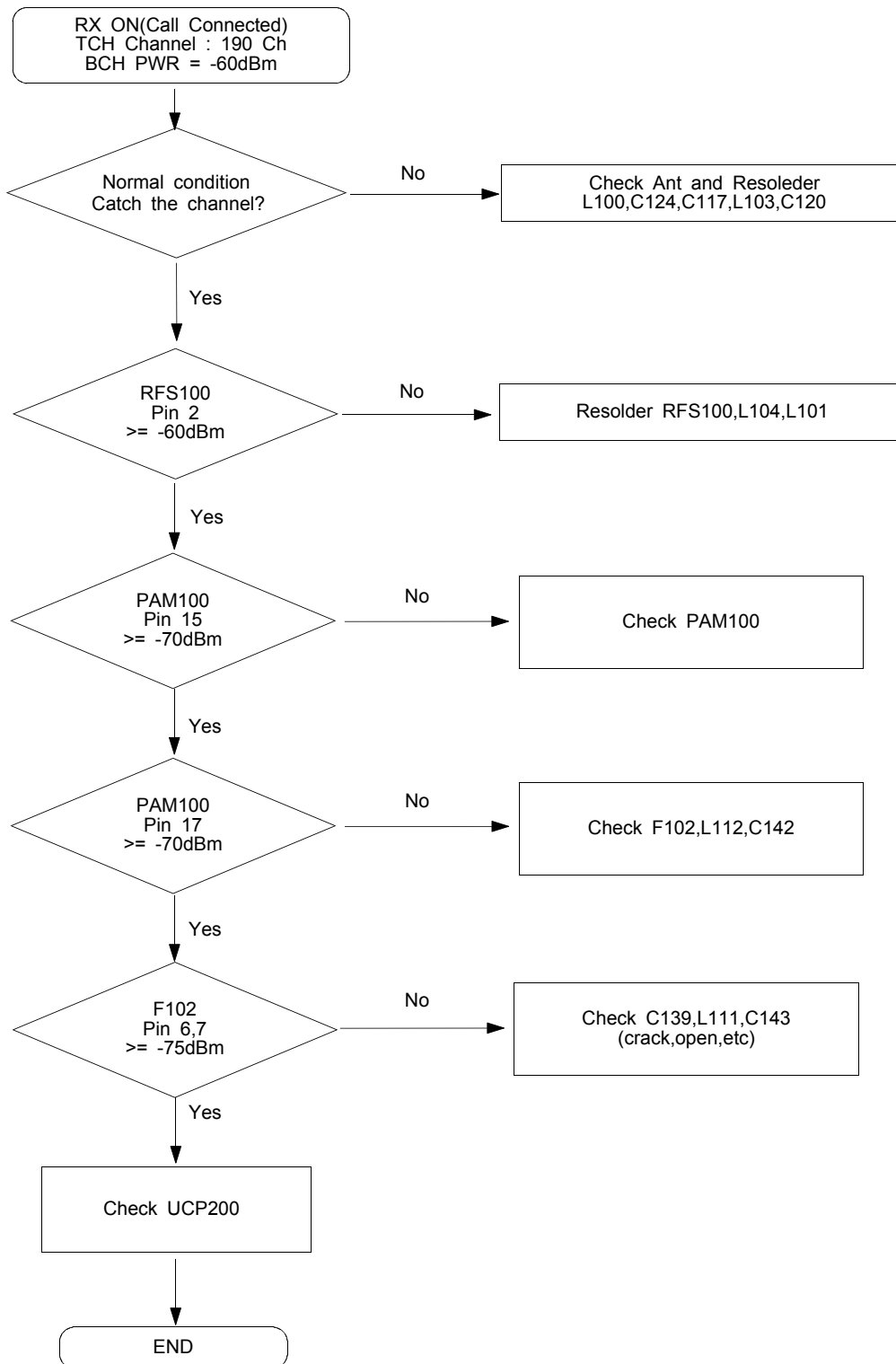
8-3-1-12. Camera Part

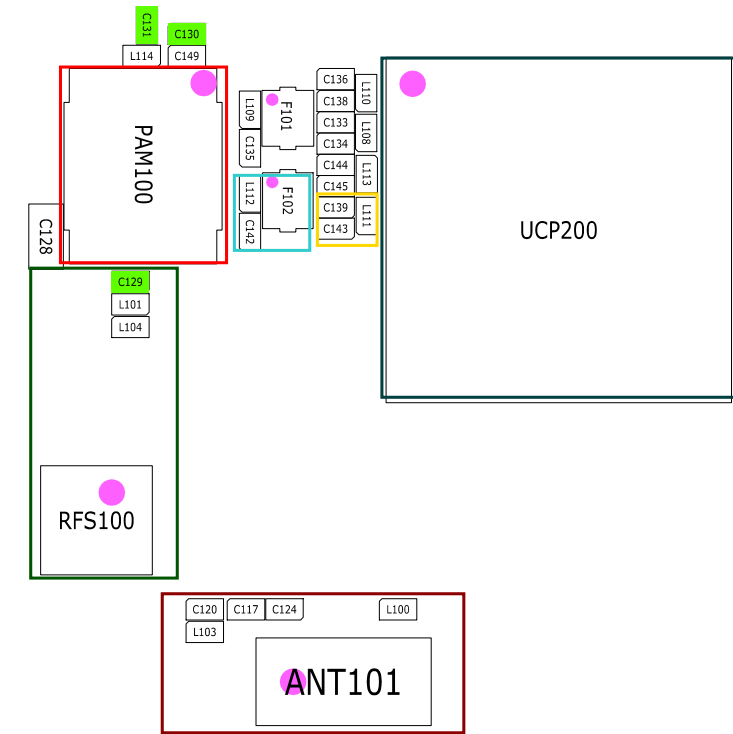




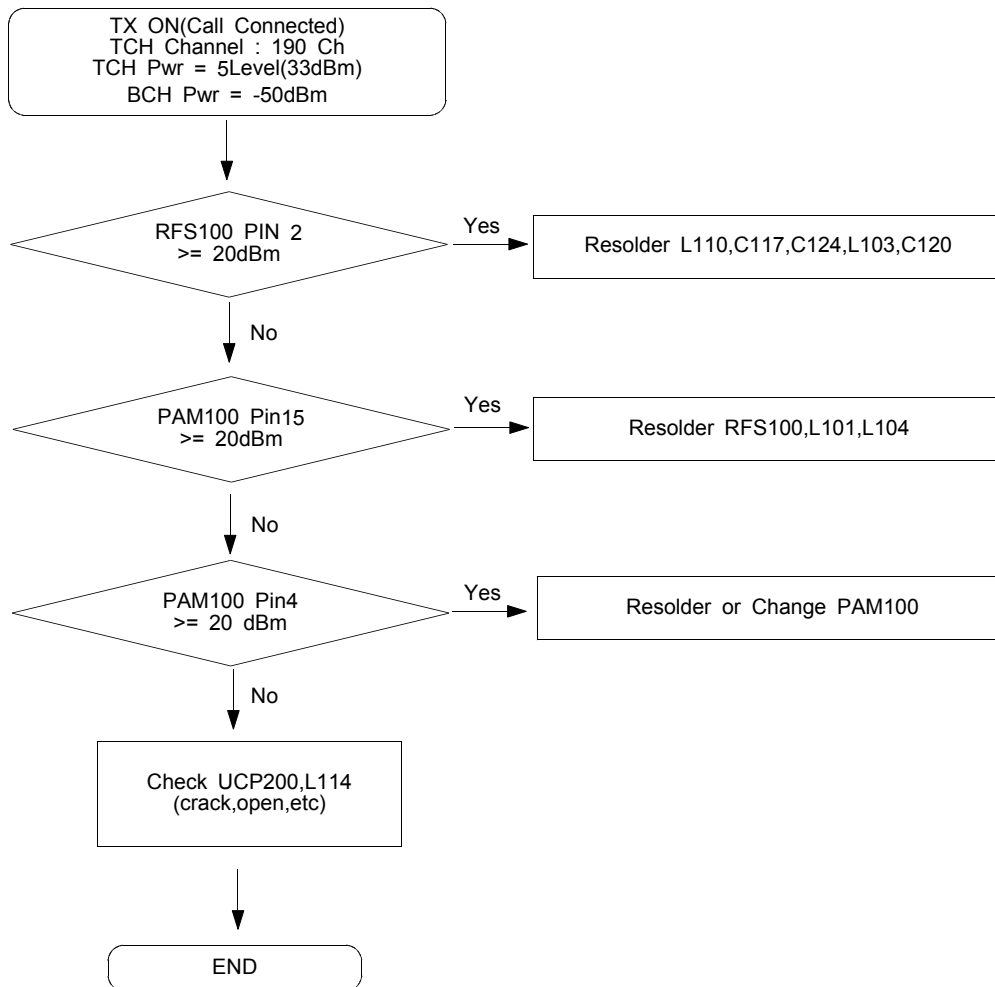
8-3-2. RF part

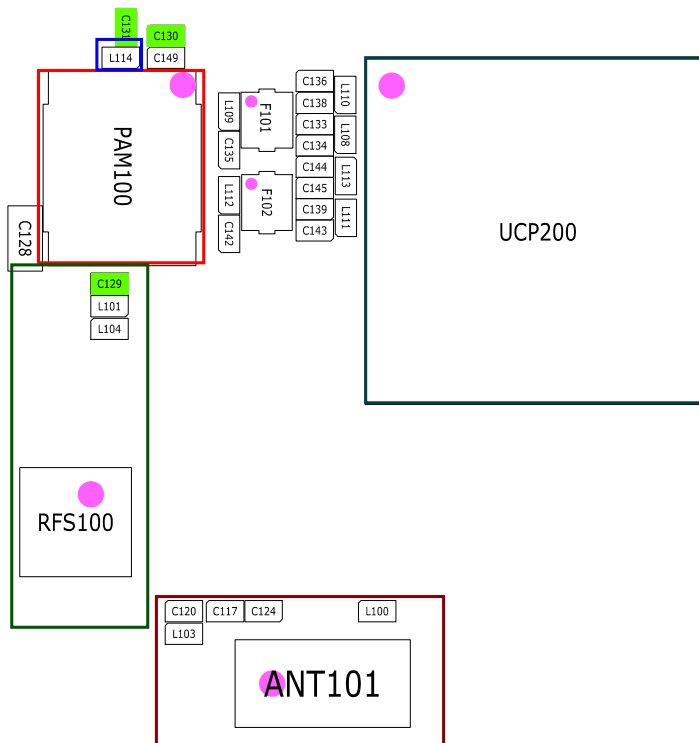
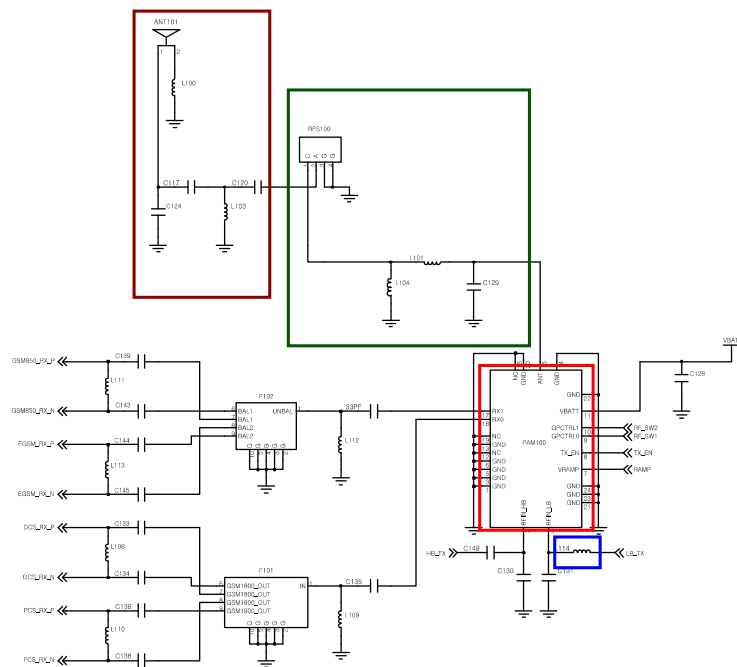
8-3-2-1. GSM850 Receiver



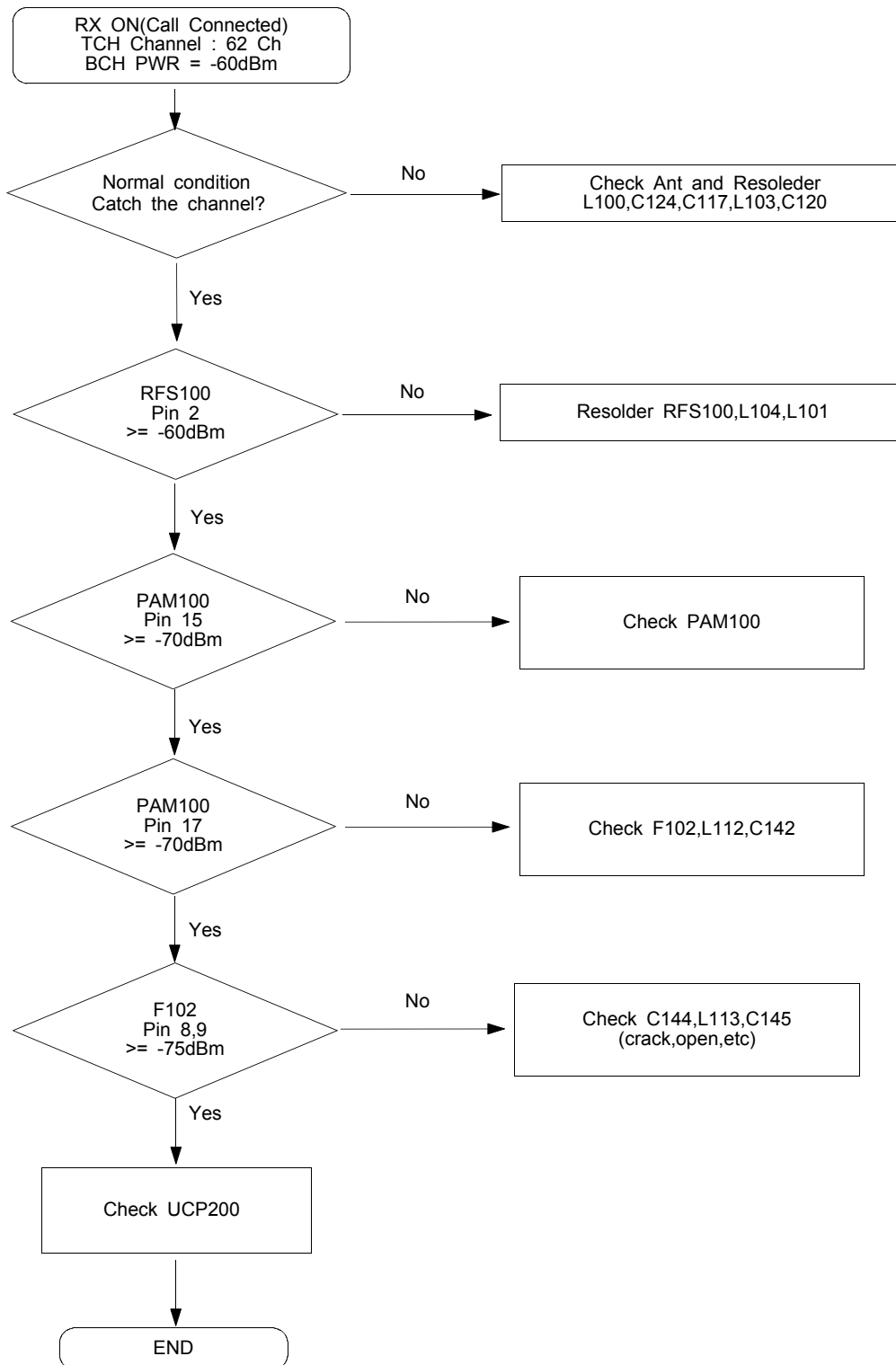


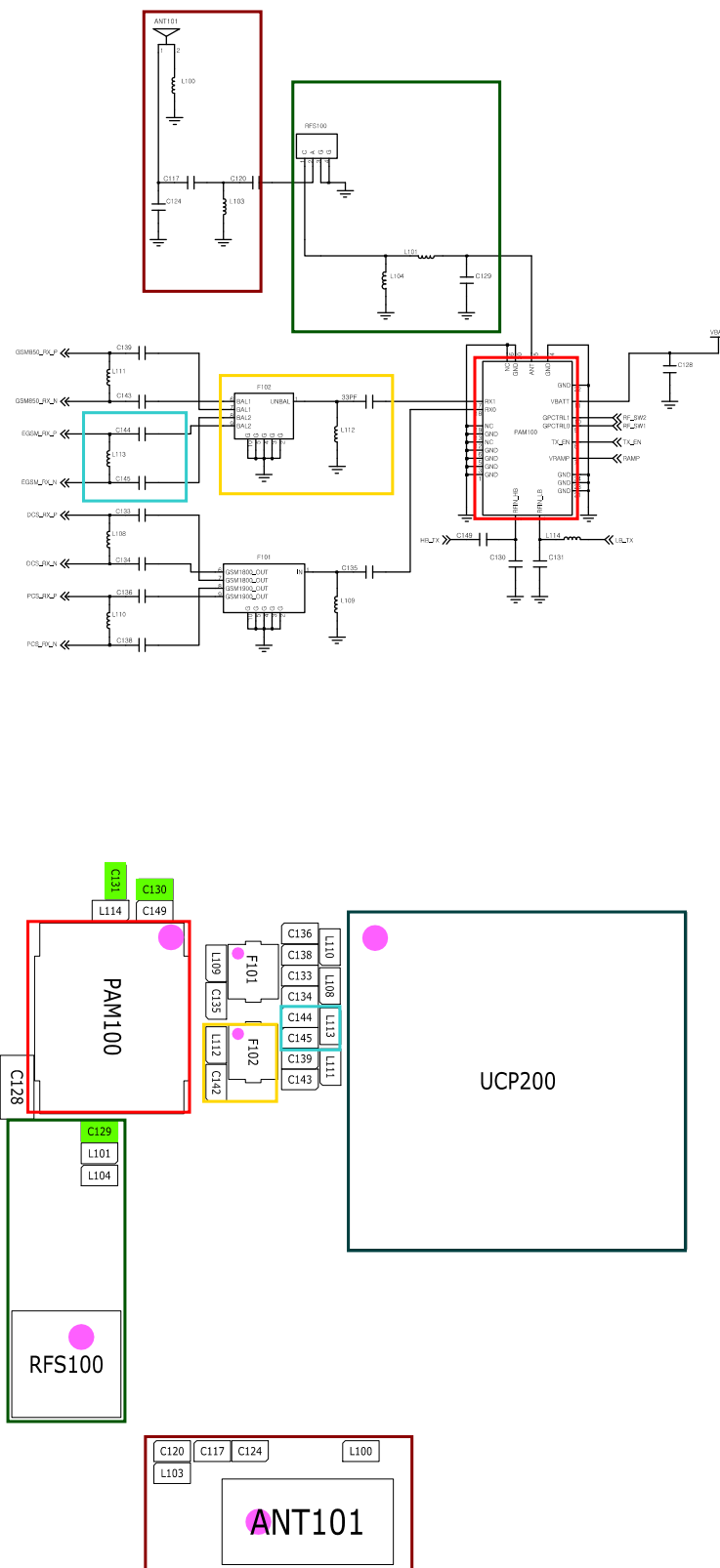
8-3-2-2. GSM850 Transmitter



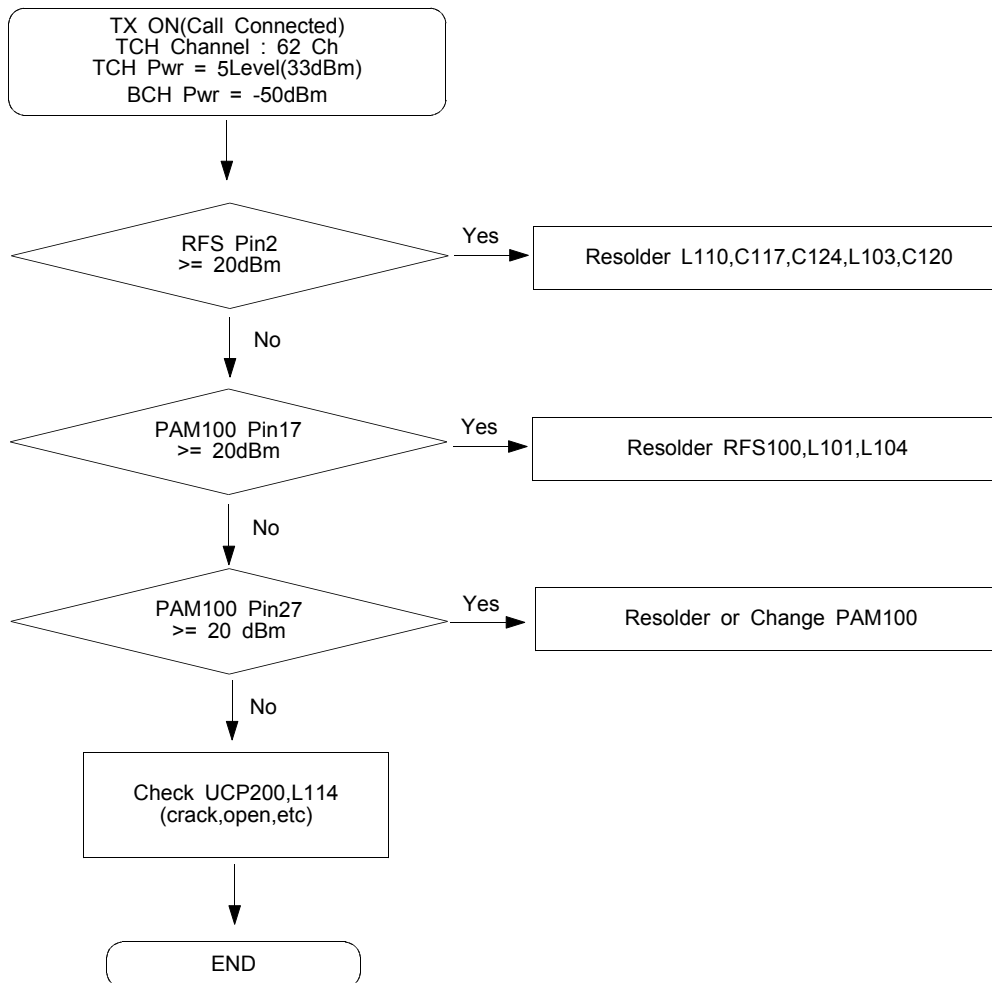


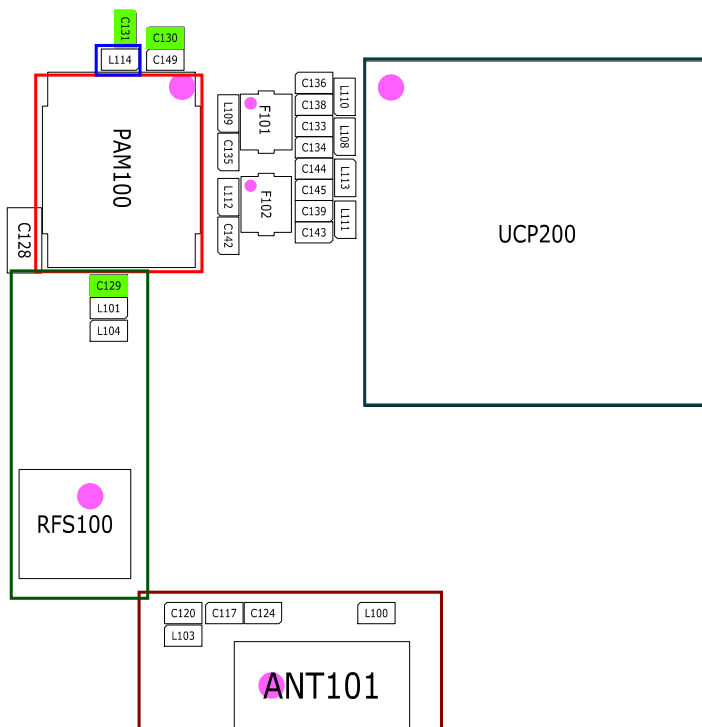
8-3-2-3. GSM900 Receiver



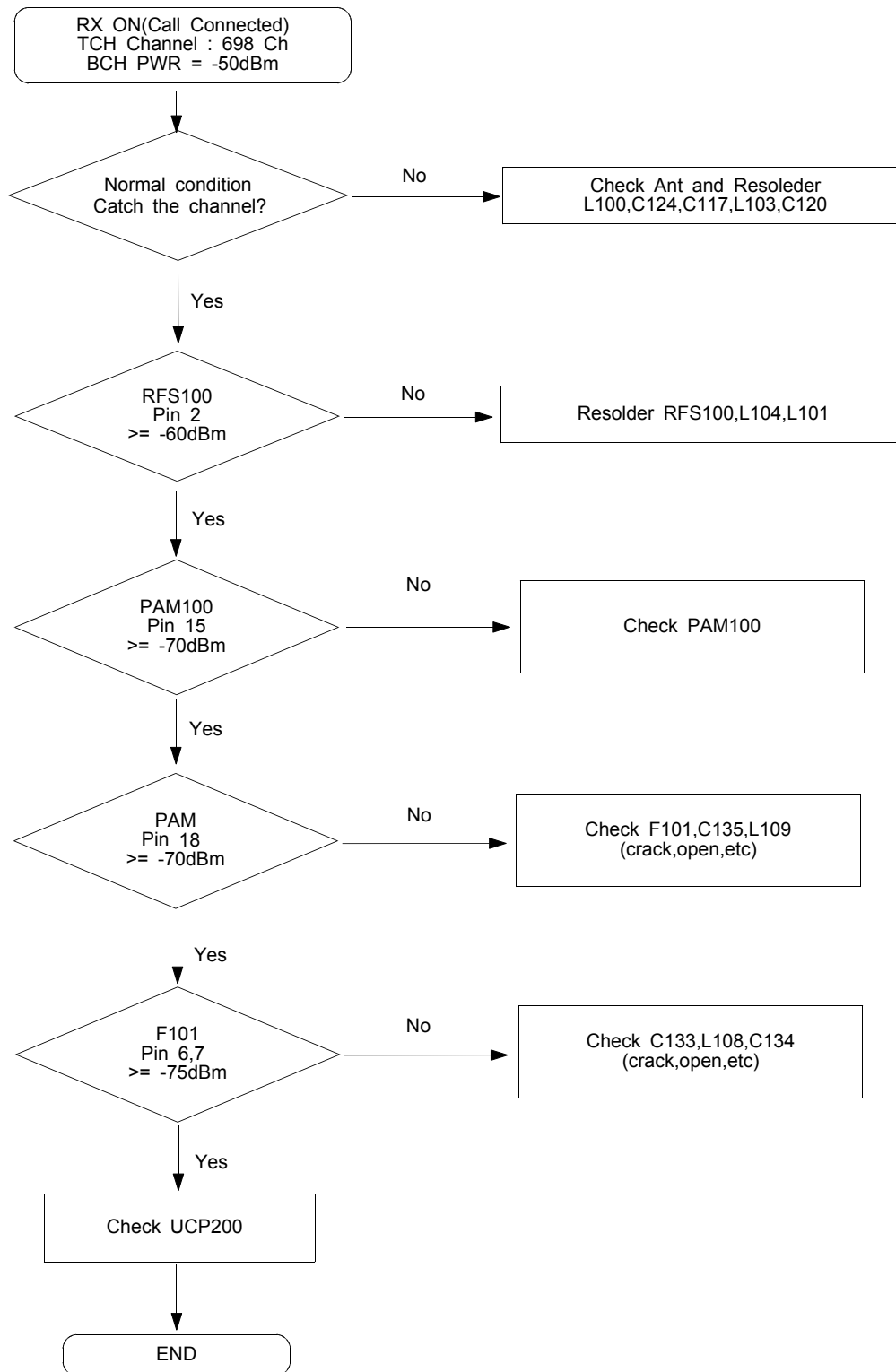


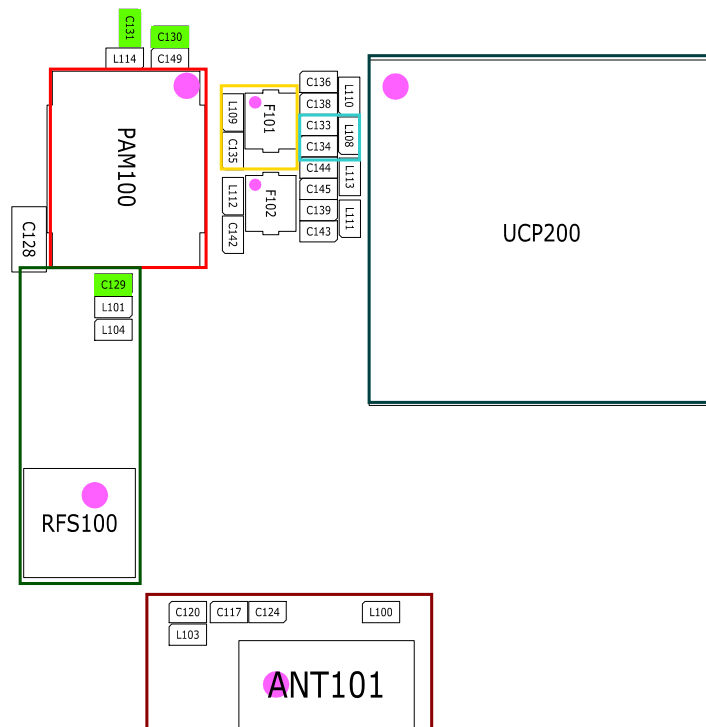
8-3-2-4. GSM900 Transmitter



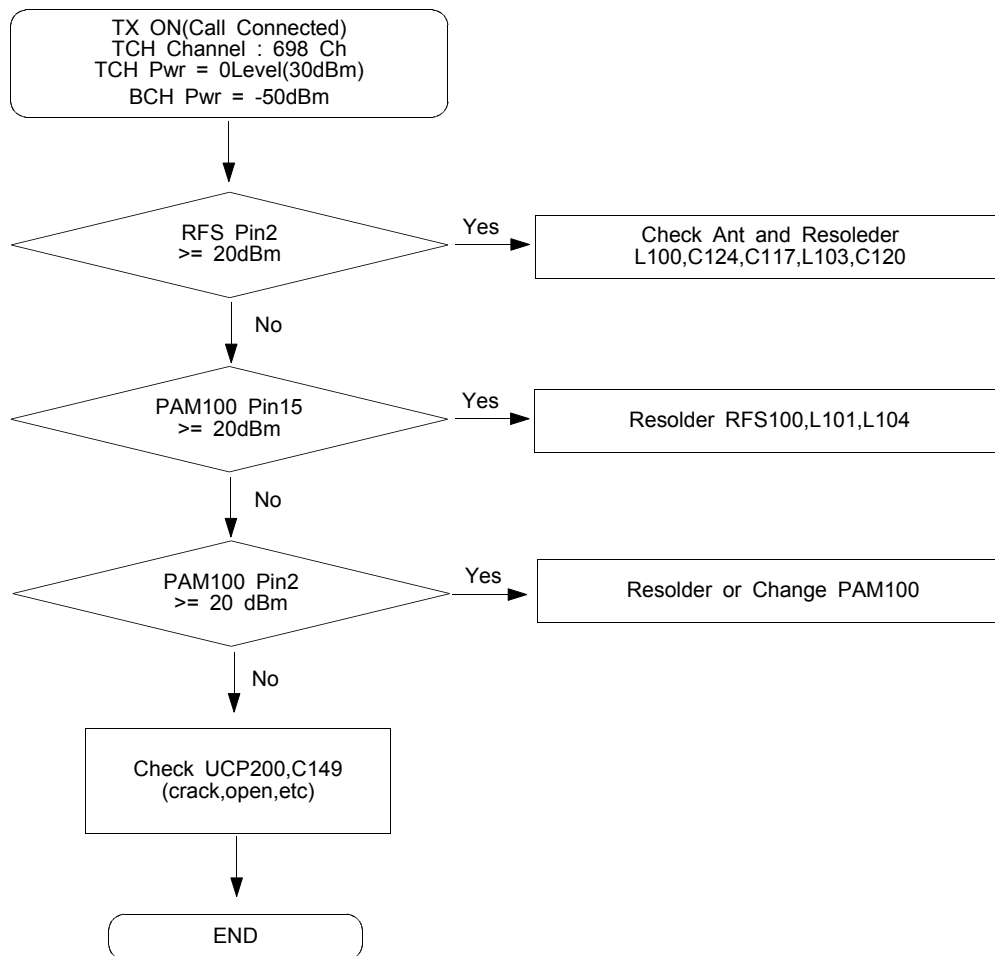


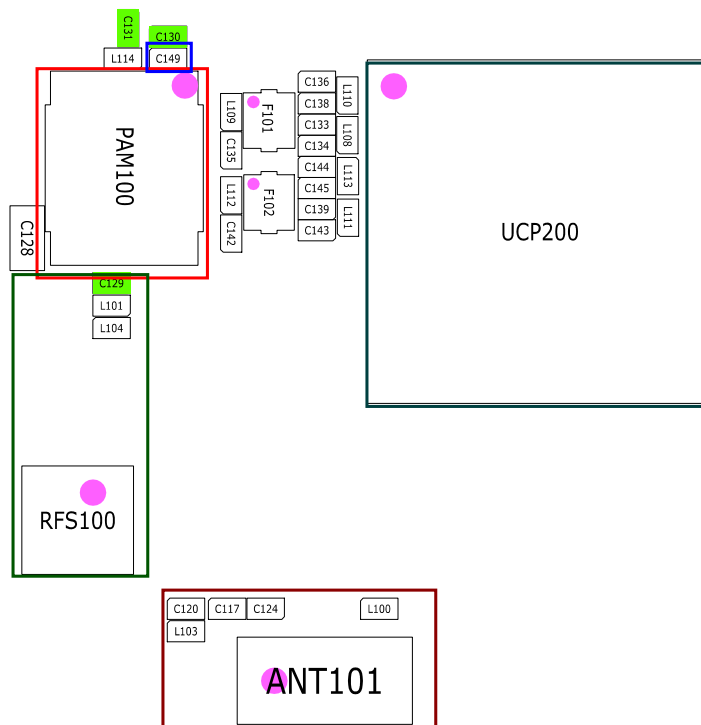
8-3-2-5. DCS Receiver



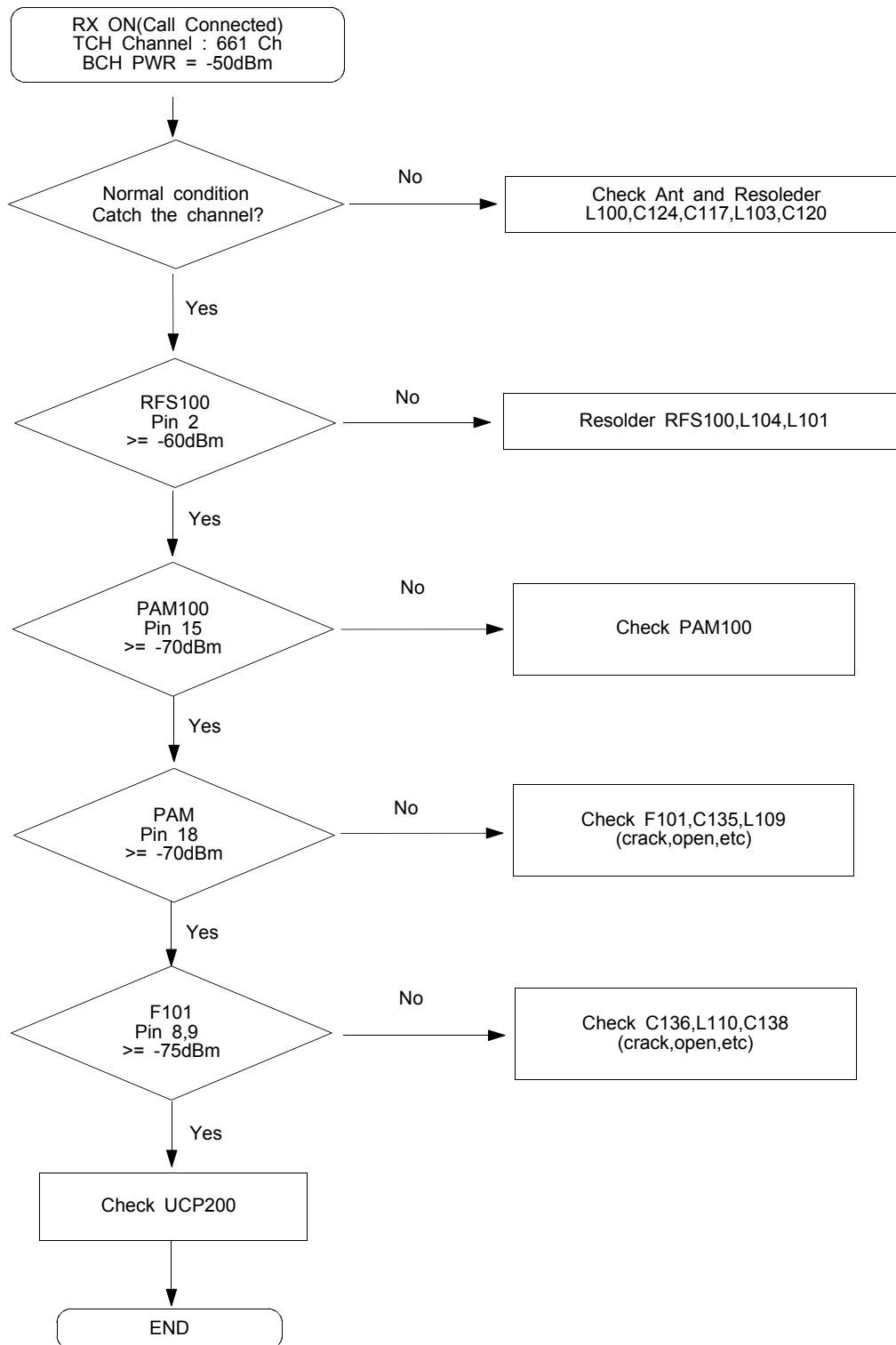


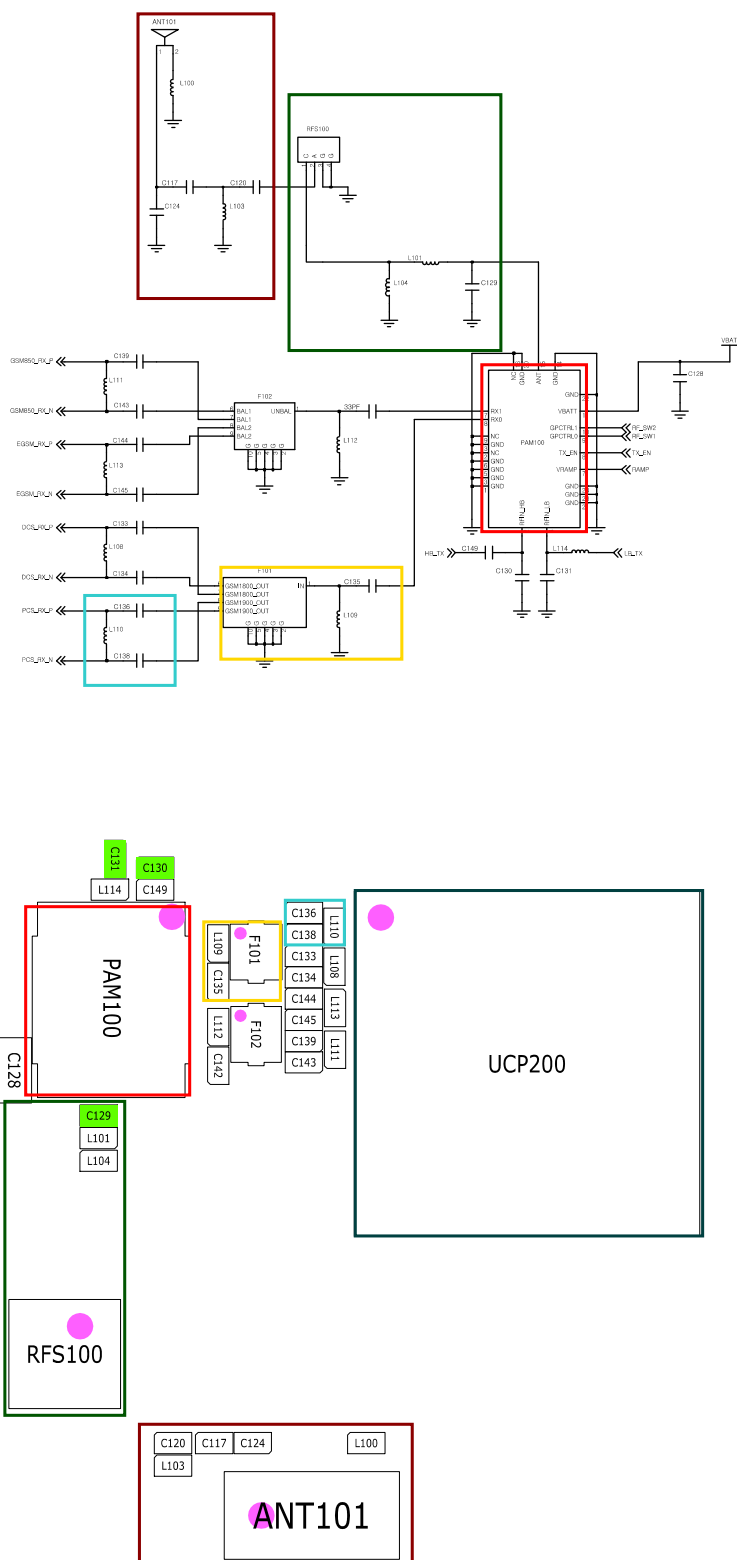
8-3-2-6. DCS Transmitter



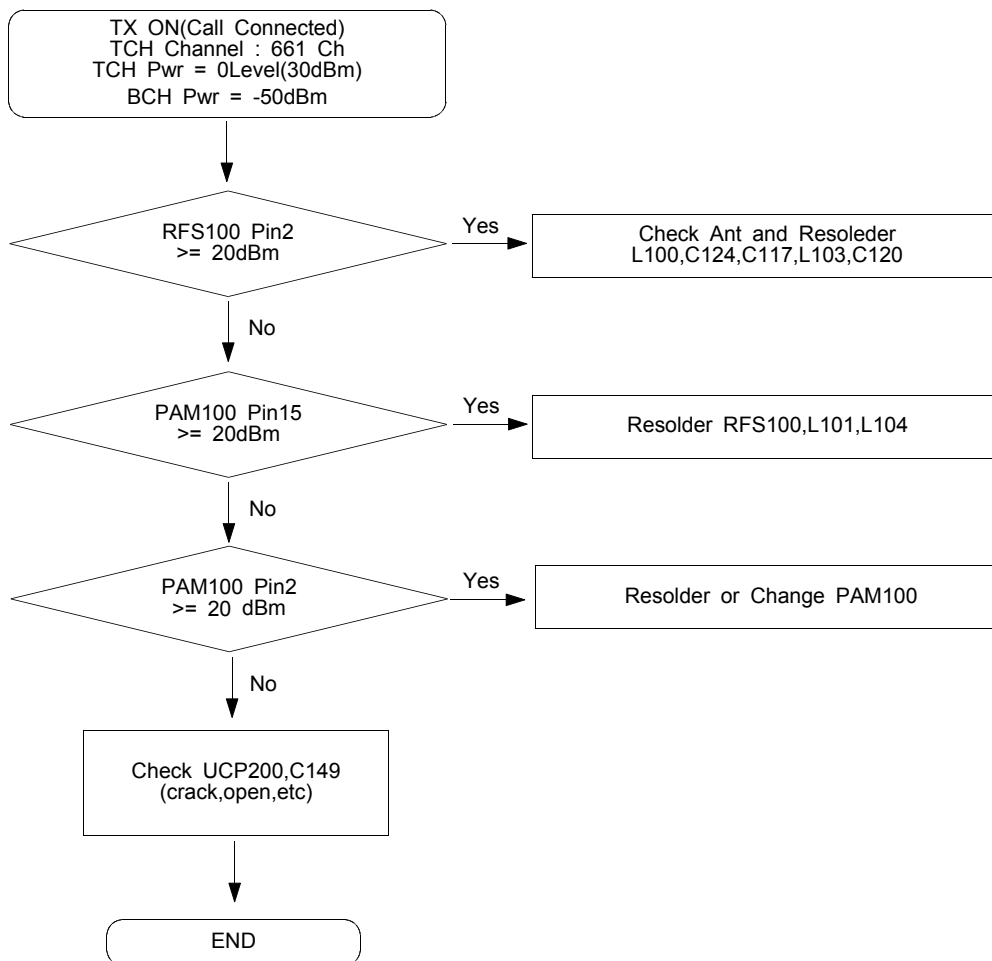


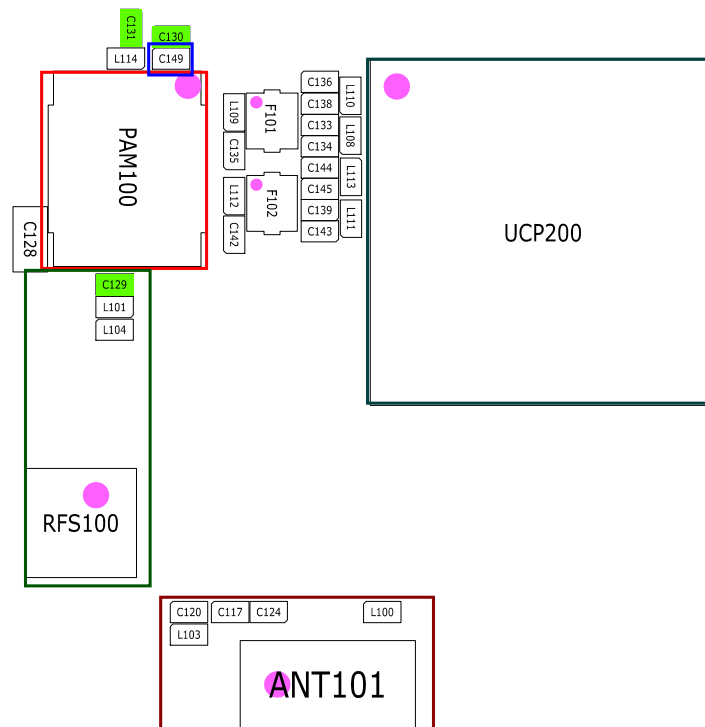
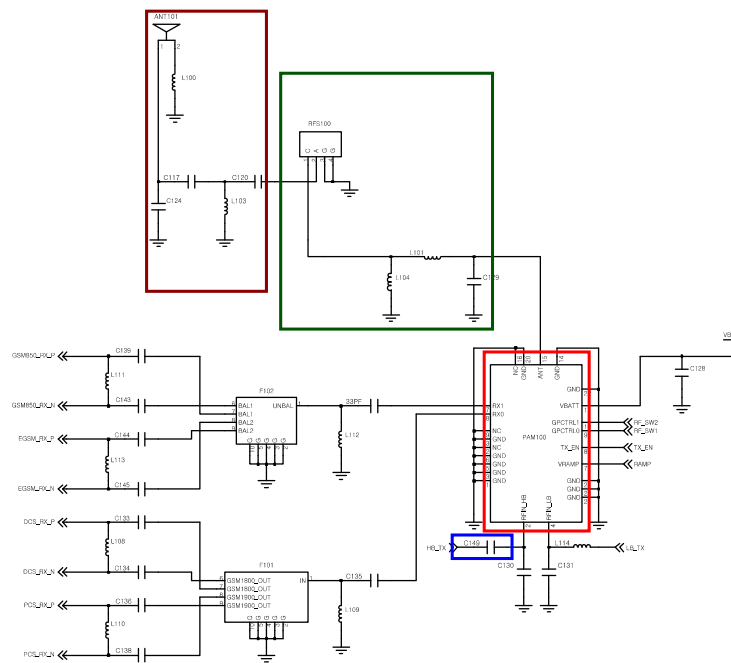
8-3-2-7. PCS Receiver

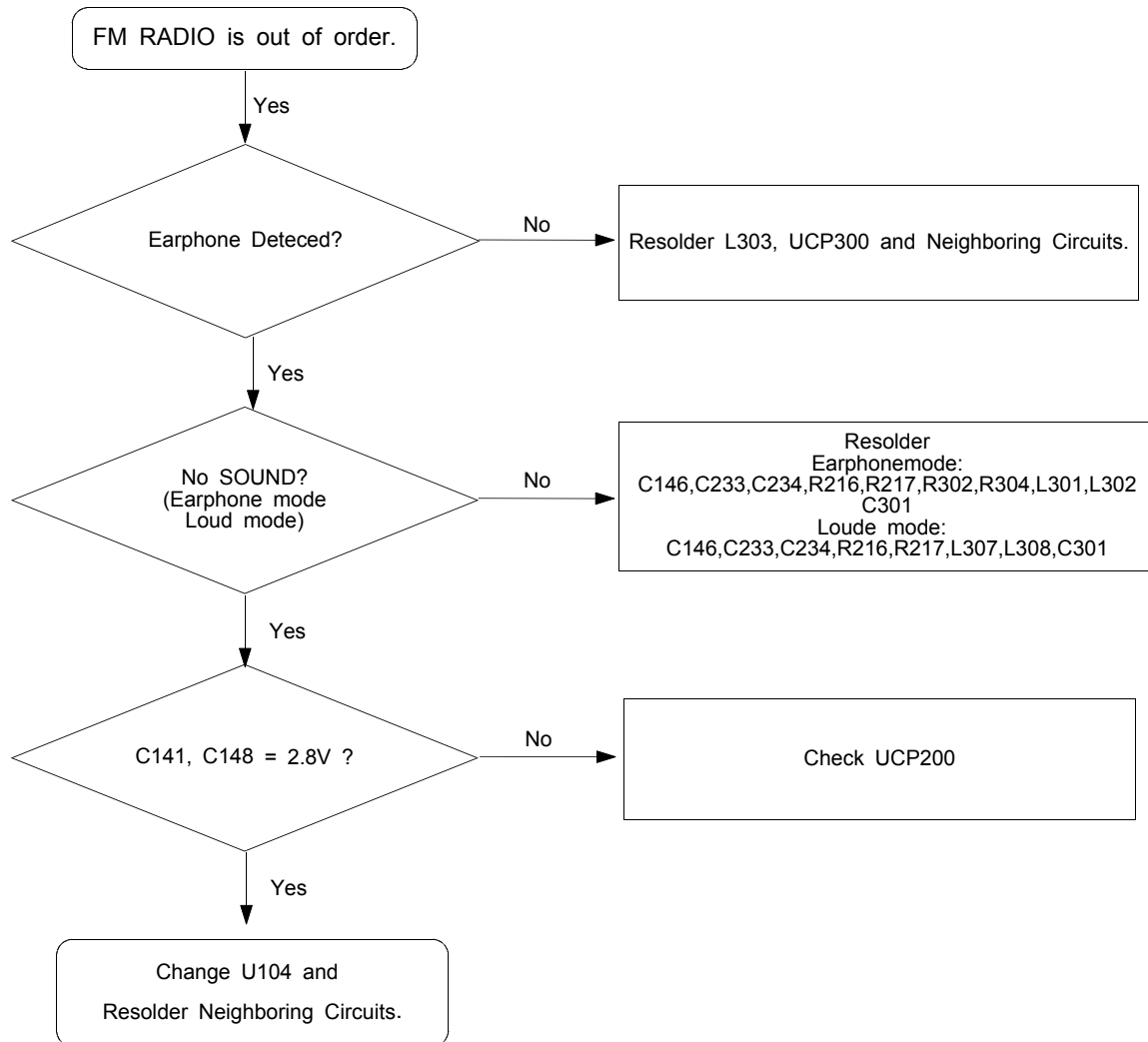


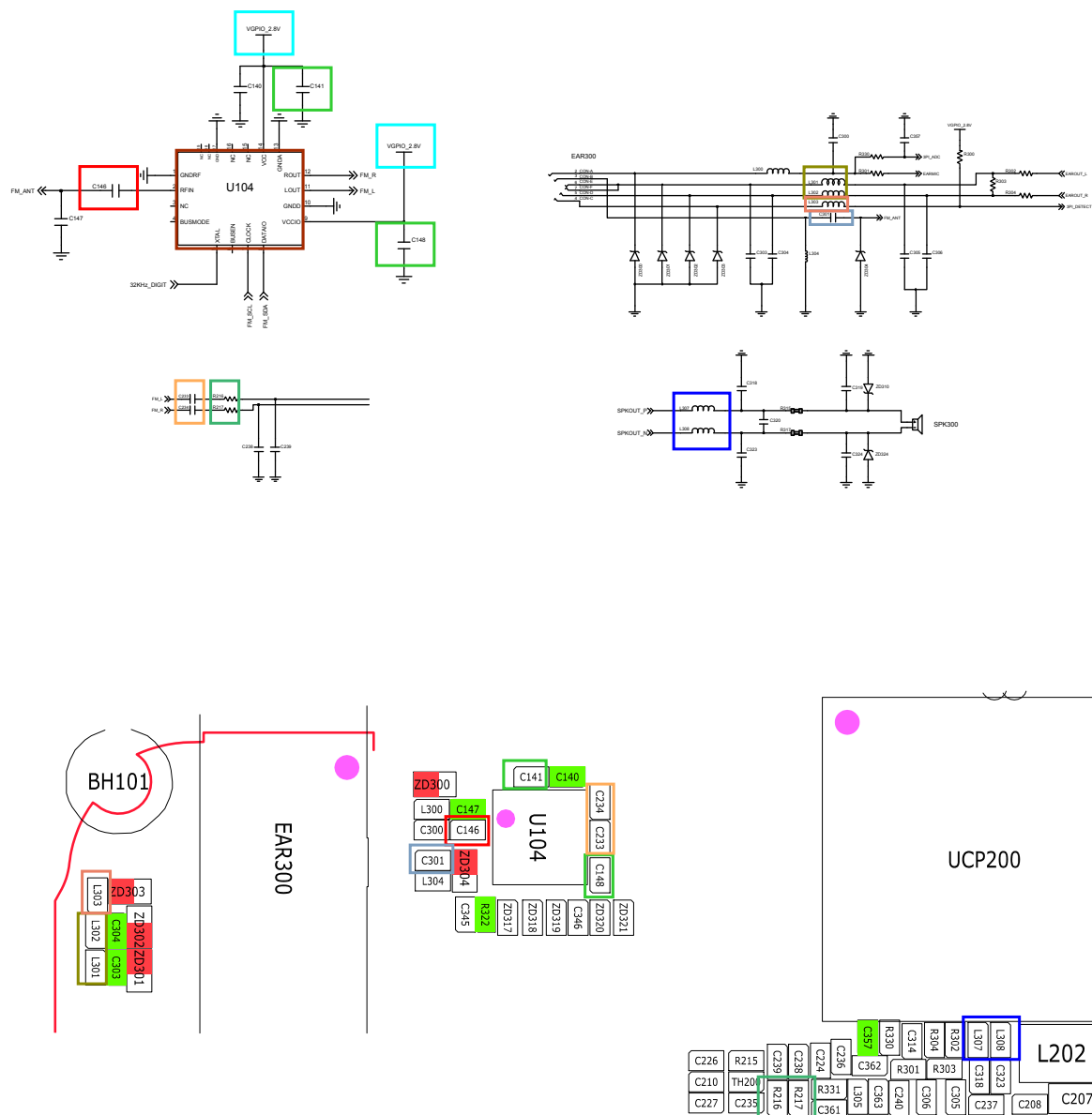


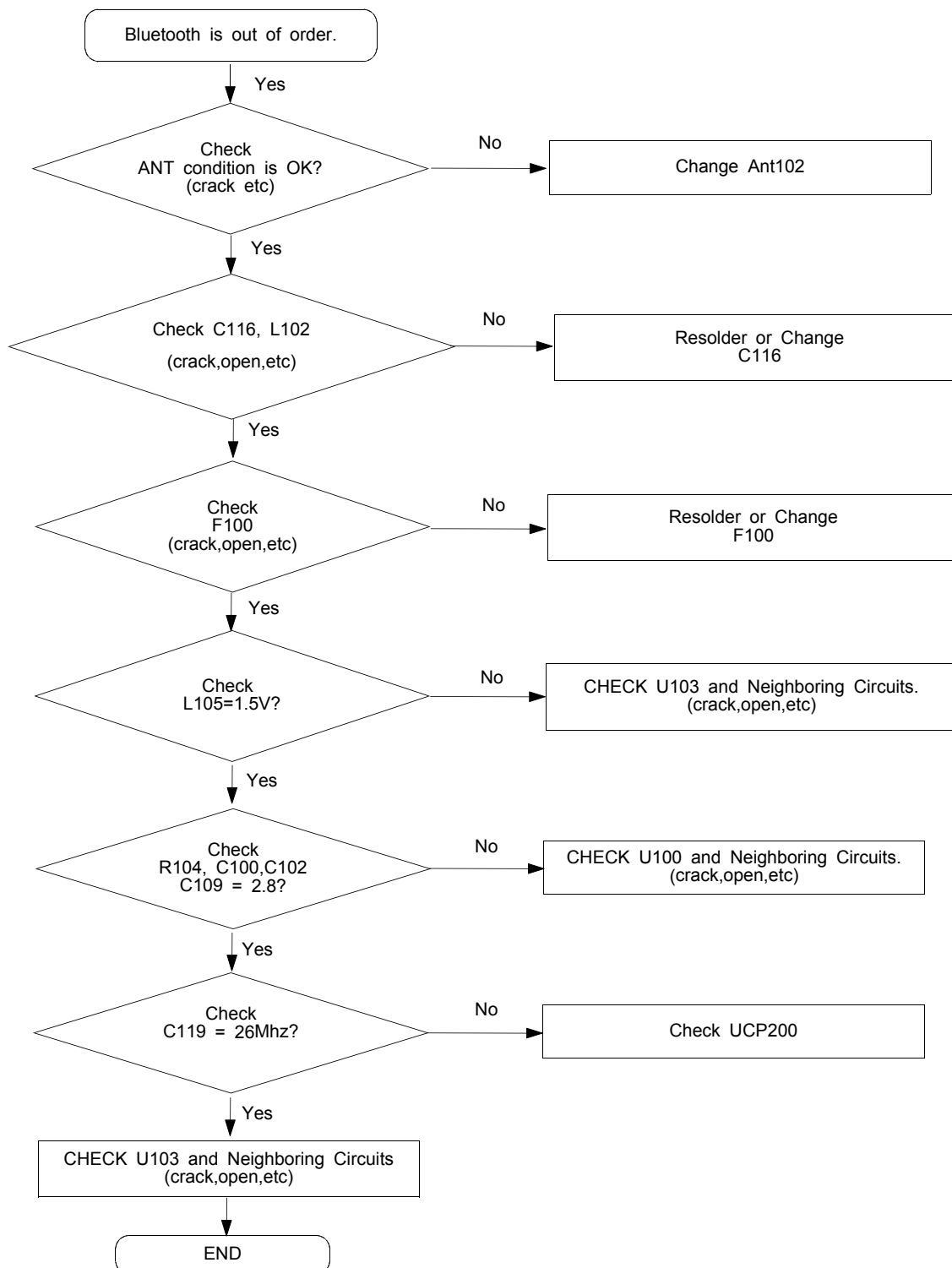
8-3-2-8. PCS Transmitter

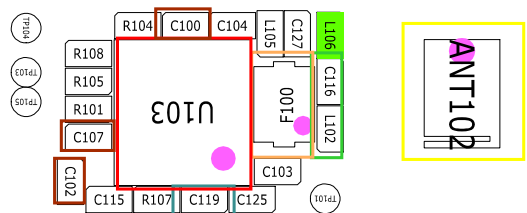




8-3-2-9. FM RADIO



8-3-2-10. BLUETOOTH



9. Reference Abbreviate

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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