SAMSUNG

GSM TELEPHONE

GT-C3750

SERVICE Manual

GSM TELEPHONE

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SAMSUNG
ELECTRONICS

2011. 04. Rev.1.0

2. Specification

2-1. GSM General Specification

	GSM900	GSM850	DCS1800	PCS1900
Freq. Band[MHz] Uplink/Downlink	880~915 925~960	824.2~848.8 869.2~893.8	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range	0~124 & 975~1023	128~251	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	5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm
TDMA Mux	8	8	8	8
Cell Radius	35Km	35Km	2Km	-

2-2. GSM TX power class

TX Power control level	GSM850	GSM900
5	33±2 dBm	33±2 dBm
6	31±3 dBm	31±3 dBm
7	29±2 dBm	29±2 dBm
8	27±3 dBm	27±3 dBm
9	25±3 dBm	25±3 dBm
10	23±3 dBm	23±3 dBm
11	21±3 dBm	21±3 dBm
12	19±3 dBm	19±3 dBm
13	17±3 dBm	17±3 dBm
14	15±3 dBm	15±3 dBm
15	13±3 dBm	13±3 dBm
16	11±5 dBm	11±5 dBm
17	9±5 dBm	9±5 dBm
18	7±5 dBm	7±5 dBm
19	5±5 dBm	5±5 dBm

TX Power control level	DCS1800	PCS1900
0	30±2 dBm	30±2 dBm
1	28±3 dBm	28±3 dBm
2	26±3 dBm	26±3 dBm
3	24±2 dBm	24±2 dBm
4	22±3 dBm	22±3 dBm
5	20±3 dBm	20±3 dBm
6	18±3 dBm	18±3 dBm
7	16±3 dBm	16±3 dBm
8	14±3 dBm	14±3 dBm
9	12±4 dBm	12±4 dBm
10	10±4 dBm	10±4 dBm
11	8±4dBm	8±4dBm
12	6±4 dBm	6±4 dBm
13	4±4 dBm	4±4 dBm
14	2±5 dBm	2±5 dBm
15	0±5 dBm	0±5 dBm

3. Operation Instruction and Installation

Main Function

- GPRS Quad Band(850/900/1800/1900)
- EDGE DL only
- 2.4” QVGA LCD (65K color)
- 3.2M CMOS Camera
- BT v2.1+EDR, MicroUSB 2.0, Micro SD(Up to 16G)
- FM Radio Support
- MP3 Player
- 3.5pi Earjack Support
- SMS, MMS

6. Level 1 Repair

6-1. Software Downloading

6-1-1. Pre-requisite for Downloading

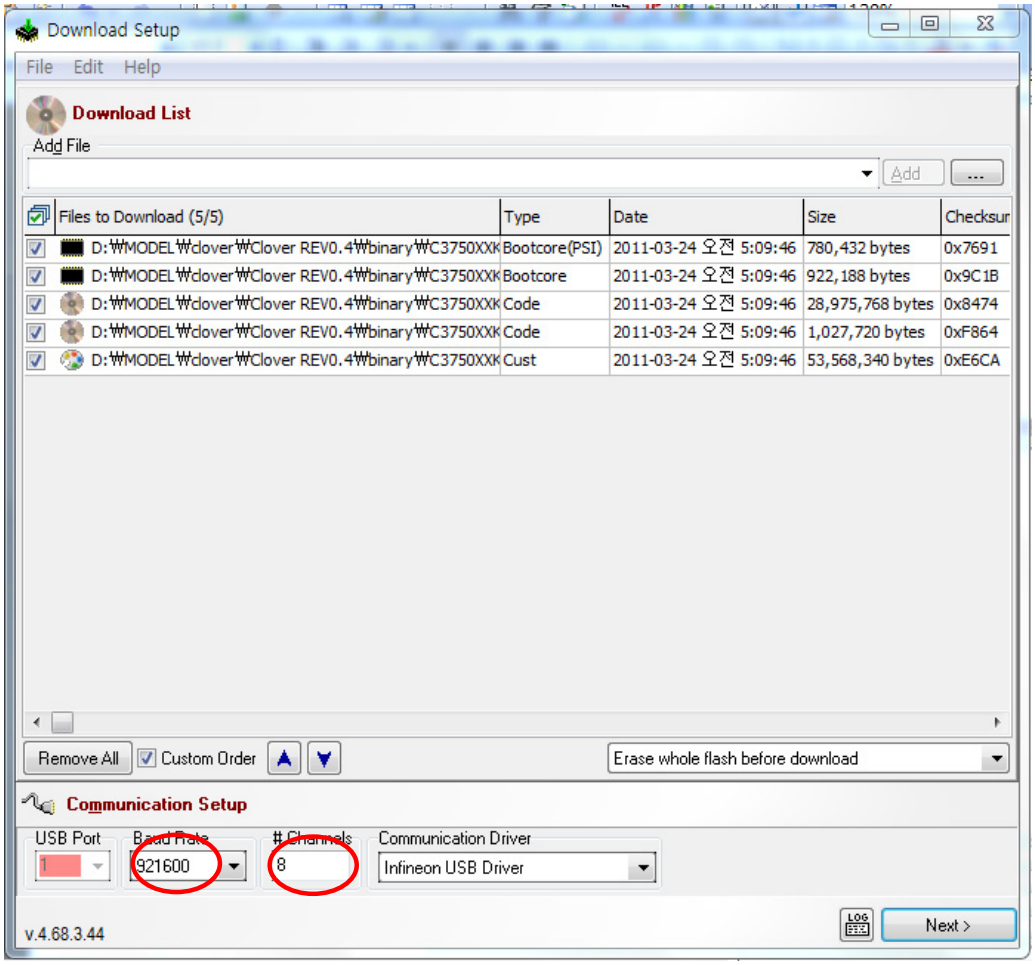
- Downloader Program(**FlashTool_E2_XMM2150**)
- GT-C3750 Mobile Phone
- Data Cable
- JIG BOX (GH99-36900A)
- RF Test Cable (GH39-00985A)
- JIG Cable (GH39-01290A)
- Adapter (GH99-38251A)
- Binary files

Connect to Computer using data cable.

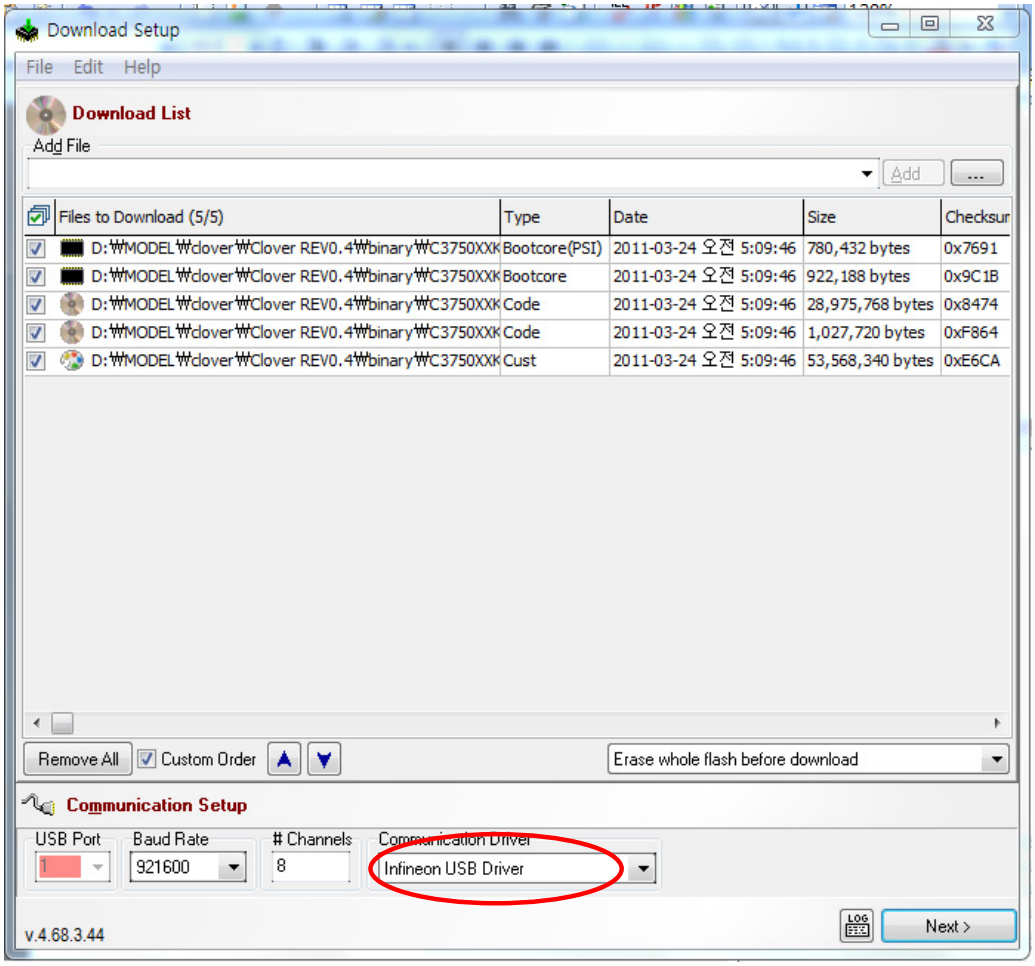
6-1-2. S/W Downloader Program

■ Load the binary download program by executing the
" FlashTool_E2_XMM2150 "

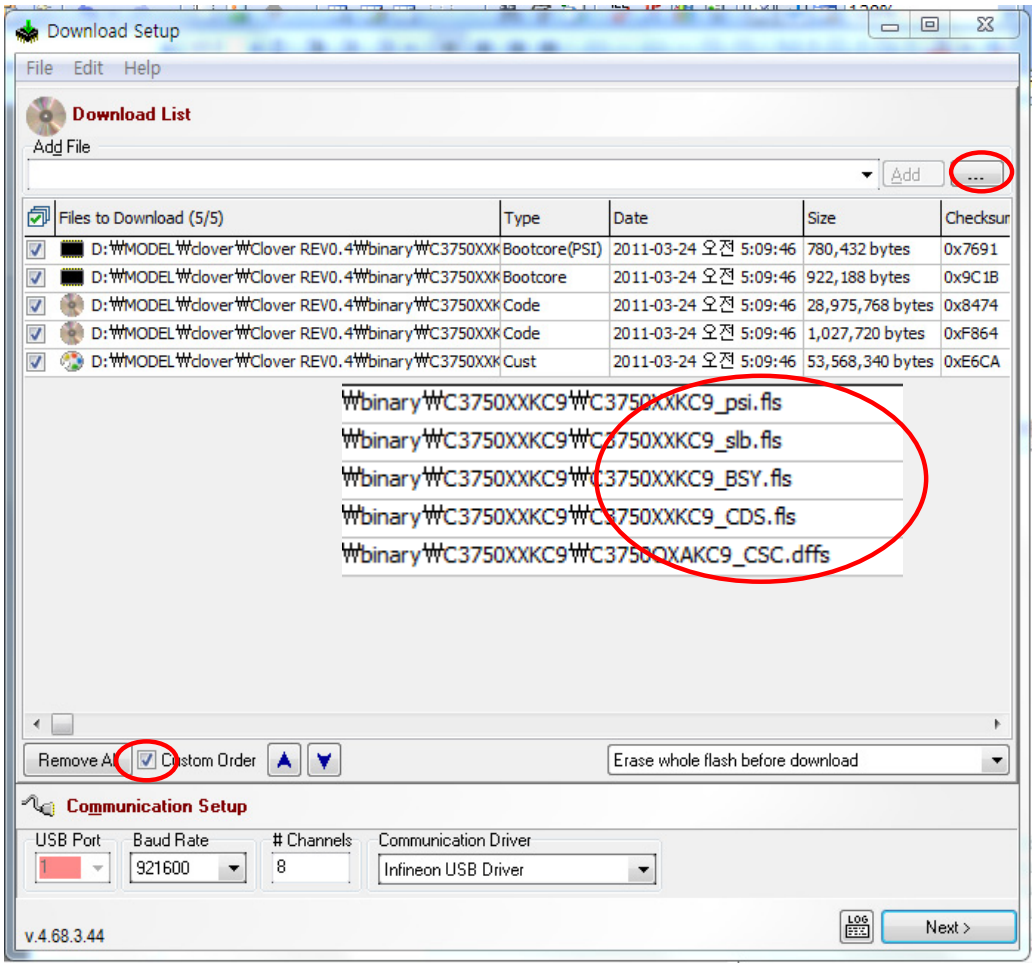
1. Select the connected serial port and the rate of speed.



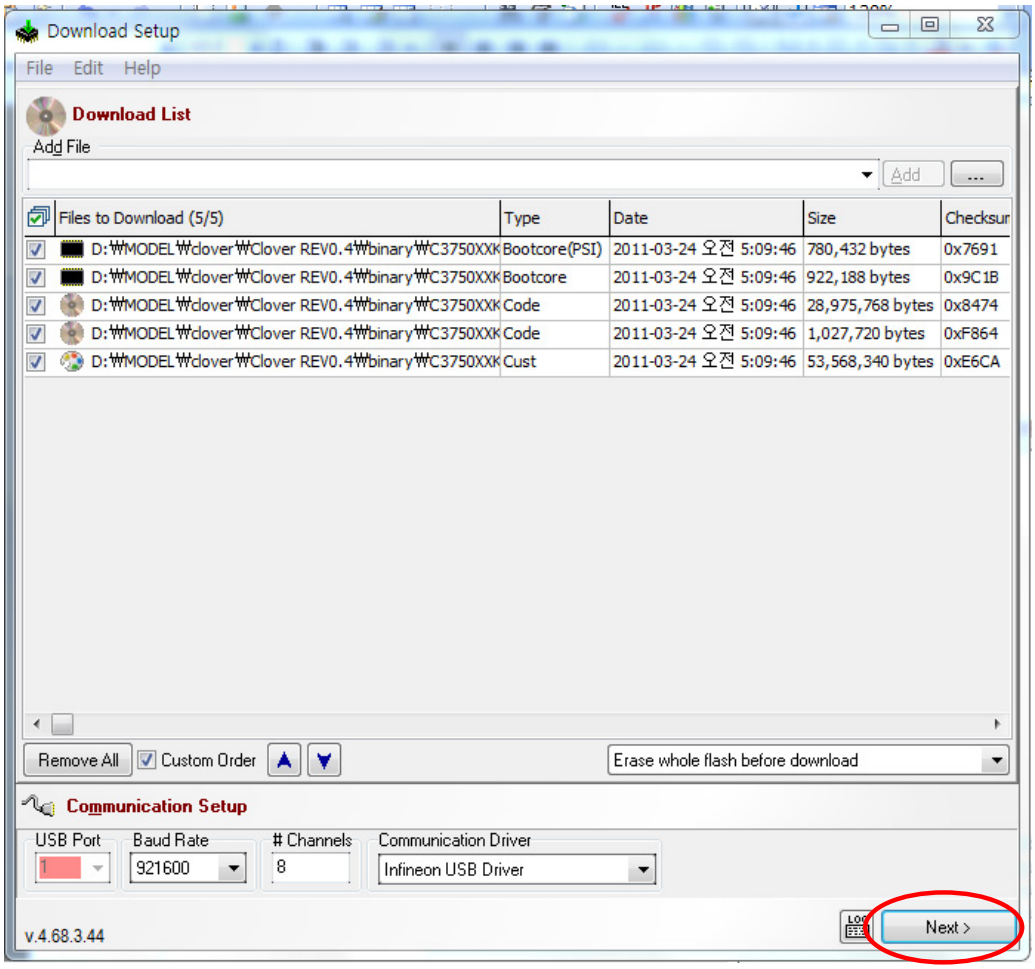
2. Select communication driver as Infineon USB driver.



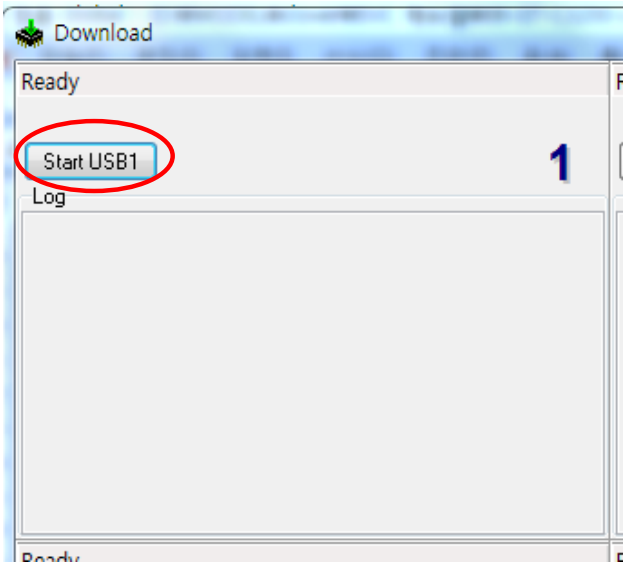
3. Select the Binary in sequence of _psi, _slb, _BSY, _CDS, _CSC. (If you click custom order, it can be reorder as in sequence)



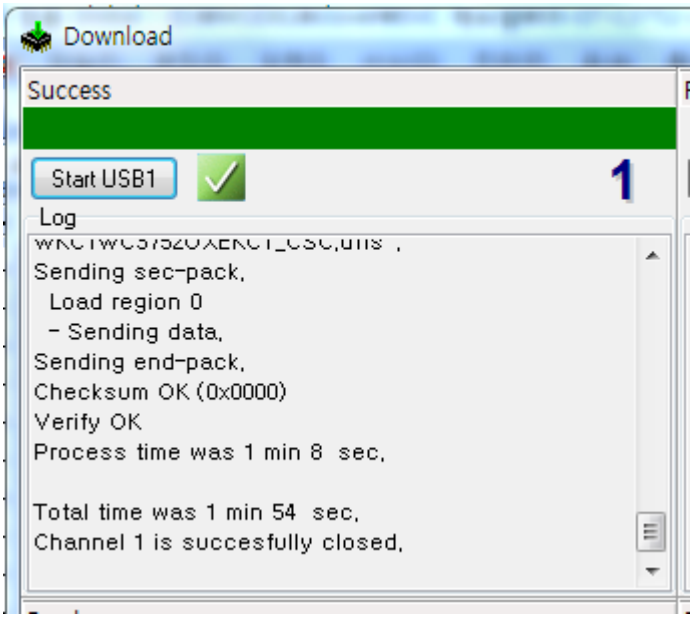
4. Press the "Next" button.



5. Press Start USB1 and connect the Handset.



6. When downloading is complete, you can see green bar.



7. Confirm the downloaded version name and etc. :
***#1234#**

Full Reset :
***2767*3855#**

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

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.

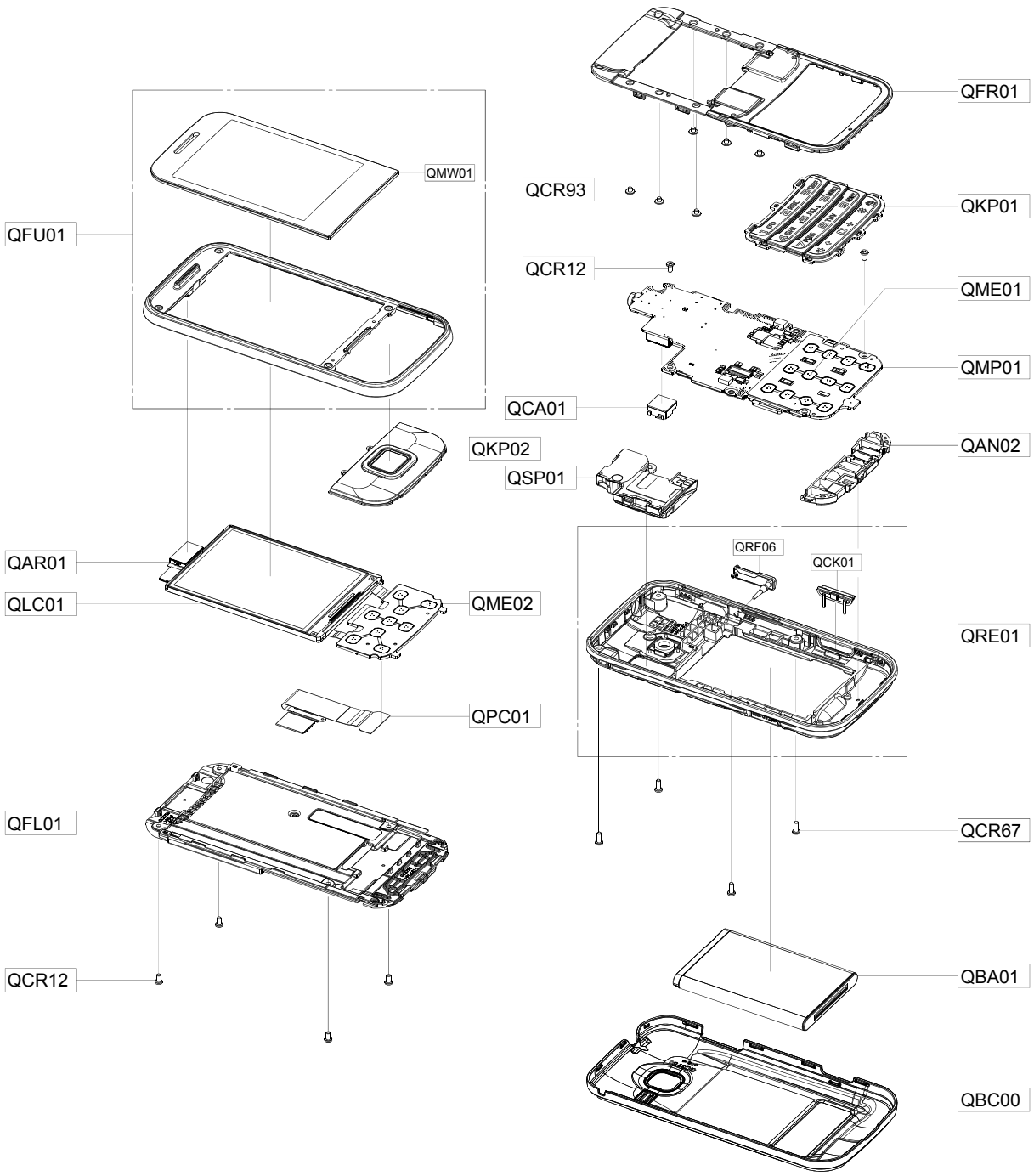
- Use soldering removing tool to break static electricity. , otherwise ESD will be damaged by static electricity.

- 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.

4. Exploded View and Parts List

4-1. Cellular phone Exploded View



4-2. Cellular phone Parts list

Design LOC		Description	SEC CODE
QAR01		AUDIO-RECEIVER	3009-001545
QCR12		SCREW-MACHINE	6001-001530
QCR12		SCREW-MACHINE	6001-001530
QCR67		SCREW-MACHINE	6001-002083
QCR93		SCREW-MACHINE	6001-002263
QAN02		INTENNA-GT-C3750	GH42-02922A
QBA01		INNER BATTERY PACK-800MAH,BLK,UNI,MAIN	GH43-03241A
QCA01		CAMERA MODULE-3M LSI 1/5" 5CC SOCKET TYP	GH59-10764A
QME01		DOME SHEET-GT-C3750	GH59-10799A
QME02		KEY FPCB-SUB KEY FPCB ASSY	GH59-10809A
QPC01		ASSY ETC-SLIDE FPCB	GH59-10810A
QSP01		MODULE-SPK + MOT	GH59-10835A
QKP01		PMO KEY-MAIN KEYPAD	GH72-63293A
QMP01		A/S ASSY-PBA MAIN (COMM)	GH82-05749A
QLC01		ELA MODULE-GT_C3500 LCD	GH96-04920A
QKP02		ASSY KEYPAD-SUB	GH98-19713A
QFL01		ASSY COVER-SLIDE LOWER	GH98-20032A
QFR01		ASSY COVER-FRONT	GH98-20033A
QBC00		ASSY COVER-BATTERY	GH98-20035A
QFU01		ASSY COVER-SLIDE UPPER	GH98-20030A
	QMW01	ASSY COVER-MAIN WINDOW	GH98-20031A
QRE01		ASSY COVER-REAR	GH98-20034A
	QRF06	PMO COVER-USB	GH72-63291A
	QCK01	PMO KEY-CAMERA	GH72-63292A

5. MAIN Electrical Parts List

SEC CODE	Design LOC	Description
0401-001141	D501	DIODE-SWITCHING
0403-001688	D300	DIODE-ZENER
0406-001286	ZD300,ZD302	DIODE-TVS
0406-001361	ZD500	DIODE-TVS
0406-001413	ZD501	DIODE-TVS
0406-001431	D400	DIODE-TVS
0406-001446	D302,ZD502,ZD503	DIODE-TVS
0406-001459	ZD402	DIODE-TVS
0601-002652	LED300,LED301,LED302	LED
0601-002652	LED303	LED
1001-001706	U403	IC
1009-001035	U201	IC
1108-000406	U200	MEMORY
1201-002944	U100	IC
1201-003025	PAM100	IC
1201-003111	U501	IC
1202-001068	U500	IC
1203-003643	U400	IC
1203-005574	U401	IC
1205-004116	U101	IC
1205-004215	UCP200	IC
1404-001224	TH200	THERMISTOR
1405-001298	D301	VARISTOR
2007-000137	R400	R-CHIP
2007-000138	R101,R102,R104,R105	R-CHIP
2007-000138	R331,R332,R333,R338	R-CHIP
2007-000138	R339,R502	R-CHIP
2007-000140	R103,R318,R412	R-CHIP
2007-000141	R210,R211	R-CHIP
2007-000143	R109,R312,R406	R-CHIP
2007-000148	R202,R324,R325,R326	R-CHIP
2007-000148	R327,R328,R401,R402	R-CHIP
2007-000148	R403	R-CHIP
2007-000149	R515,R516	R-CHIP
2007-000157	R213,R329,R500,R514	R-CHIP
2007-000162	R111,R417	R-CHIP

SEC CODE	Design LOC	Description
2007-000166	R506	R-CHIP
2007-000170	R501	R-CHIP
2007-000172	R410,R411	R-CHIP
2007-000242	R404,R405,R508,R509	R-CHIP
2007-001119	R108,R507	R-CHIP
2007-001307	R110	R-CHIP
2007-003010	R334,R335,R336,R337	R-CHIP
2007-007142	R204	R-CHIP
2007-007190	R503,R504	R-CHIP
2007-008055	R208	R-CHIP
2007-008516	R205,R209,R418	R-CHIP
2007-009323	R419	R-CHIP
2203-000233	C101,C117,C416	C-CERAMIC,CHIP
2203-000254	C309	C-CERAMIC,CHIP
2203-000278	C105,C241,C242,C243	C-CERAMIC,CHIP
2203-000278	C244	C-CERAMIC,CHIP
2203-000386	C114,C524,U502	C-CERAMIC,CHIP
2203-000438	C120,C203,C211	C-CERAMIC,CHIP
2203-000550	C227,C228	C-CERAMIC,CHIP
2203-000585	C503,C504	C-CERAMIC,CHIP
2203-000679	C500	C-CERAMIC,CHIP
2203-000812	C107,C109,C302,C303	C-CERAMIC,CHIP
2203-000812	C304,C305,C511,C520	C-CERAMIC,CHIP
2203-000854	C125,C508	C-CERAMIC,CHIP
2203-000995	C233	C-CERAMIC,CHIP
2203-002443	C115,C119,C229	C-CERAMIC,CHIP
2203-002487	C214,C221	C-CERAMIC,CHIP
2203-002668	C230	C-CERAMIC,CHIP
2203-002709	C113,C219	C-CERAMIC,CHIP
2203-005057	C100,C102	C-CERAMIC,CHIP
2203-005234	C108	C-CERAMIC,CHIP
2203-005288	C104	C-CERAMIC,CHIP
2203-005480	C226	C-CERAMIC,CHIP
2203-005481	C123,C124,C205,C220	C-CERAMIC,CHIP
2203-005483	C513,C514	C-CERAMIC,CHIP
2203-006048	C200,C201,C202,C207	C-CERAMIC,CHIP

SEC CODE	Design LOC	Description
2203-006048	C210,C222,C224,C236	C-CERAMIC,CHIP
2203-006048	C316,C317,C407,C408	C-CERAMIC,CHIP
2203-006048	C515,C517	C-CERAMIC,CHIP
2203-006190	C238	C-CERAMIC,CHIP
2203-006257	C111,C209,C215	C-CERAMIC,CHIP
2203-006260	C213,C235,C237	C-CERAMIC,CHIP
2203-006324	C217,C218	C-CERAMIC,CHIP
2203-006348	C400	C-CERAMIC,CHIP
2203-006399	C239	C-CERAMIC,CHIP
2203-006562	C206,C216,C223,C225	C-CERAMIC,CHIP
2203-006562	C314,C402,C405,C406	C-CERAMIC,CHIP
2203-006562	C409,C410,C510,C512	C-CERAMIC,CHIP
2203-006562	C519,C521,C522,U503	C-CERAMIC,CHIP
2203-006872	C110,C112,C116,C404	C-CERAMIC,CHIP
2203-006872	C414,C417	C-CERAMIC,CHIP
2203-006890	C507	C-CERAMIC,CHIP
2203-007210	C204	C-CERAMIC,CHIP
2203-007269	C231	C-CERAMIC,CHIP
2203-007271	C234,C401,C509,C516	C-CERAMIC,CHIP
2203-007271	C518	C-CERAMIC,CHIP
2203-007279	C103,C315,C411	C-CERAMIC,CHIP
2203-007342	C412,C413	C-CERAMIC,CHIP
2203-007385	C240	C-CERAMIC,CHIP
2203-007693	C415	C-CERAMIC,CHIP
2203-007701	C208	C-CERAMIC,CHIP
2703-000213	L120	INDUCTOR-SMD
2703-001733	L102	INDUCTOR-SMD
2703-001750	L110,L111	INDUCTOR-SMD
2703-002204	L100	INDUCTOR-SMD
2703-002208	L104,L106	INDUCTOR-SMD
2703-002268	L113,L118	INDUCTOR-SMD
2703-002269	L119	INDUCTOR-SMD
2703-002281	L105,L108,L117	INDUCTOR-SMD
2703-002365	L115,L116	INDUCTOR-SMD
2703-002367	L101,L121	INDUCTOR-SMD
2703-002369	L112	INDUCTOR-SMD

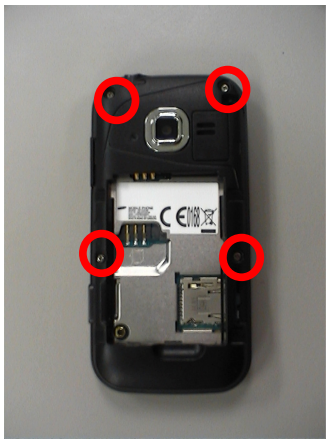
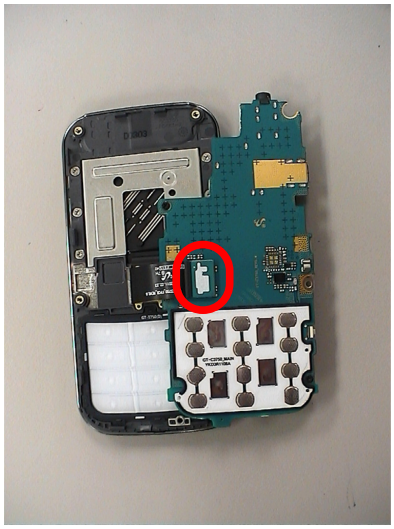
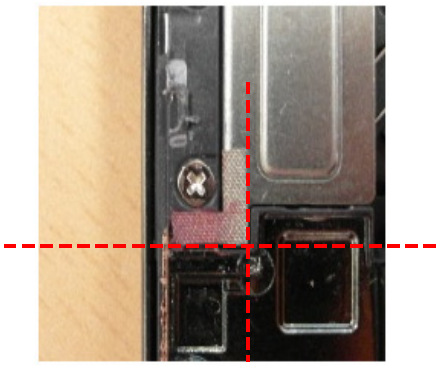
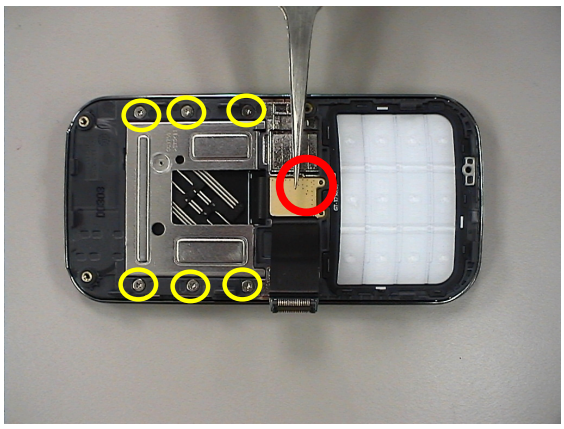
SEC CODE	Design LOC	Description
2703-003781	L505	INDUCTOR-SMD
2703-003869	L201	INDUCTOR-SMD
2801-004896	OSC201	CRYSTAL-UNIT
2801-004909	OSC200	CRYSTAL-UNIT
2901-001435	F400,F401,F402	FILTER-EMI
2904-001884	F100	FILTER-SAW
2904-001946	F101	FILTER-SAW
2909-001337	F102	FILTER-DUPLEXER
3003-001138	MIC500	MIC-CONDENSOR
3301-001342	F200	CORE-FERRITE
3301-001729	L506,L507	CORE-FERRITE
3301-001885	L500,L501,L504	CORE-FERRITE
3301-001917	L508,L509	CORE-FERRITE
3301-002000	L200	CORE-FERRITE
3301-002065	L502,L503	CORE-FERRITE
3404-001410	SW300	SWITCH-TACT
3705-001731	RFS100	CONNECTOR-COAXIAL
3709-001645	SIM300	CONNECTOR-CARD
3709-001679	CN300	CONNECTOR-CARD
3710-003306	CN400	CONNECTOR-SOCKET
3711-005581	HEA400	CONNECTOR-HEADER
3711-007393	BTC300	CONNECTOR-HEADER
3712-001348	ANT100,ANT101,SPK401	CONNECTOR
3712-001348	U504,U505,U506	CONNECTOR
3722-003115	IFC400	JACK-PHONE
3722-003259	EAR1	JACK-PHONE
4202-001529	ANT102	ANTENNA-CHIP
GH62-00019A	CON100,CON101	PCB-GASKET
GH70-03951A	SC101,SC102	IPR SHIELD-CAN CLIP

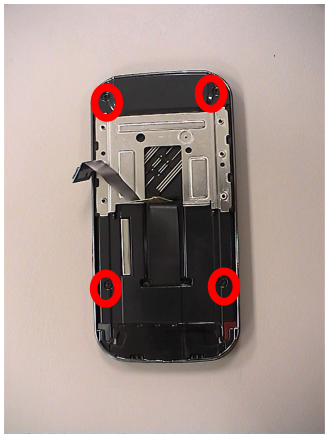
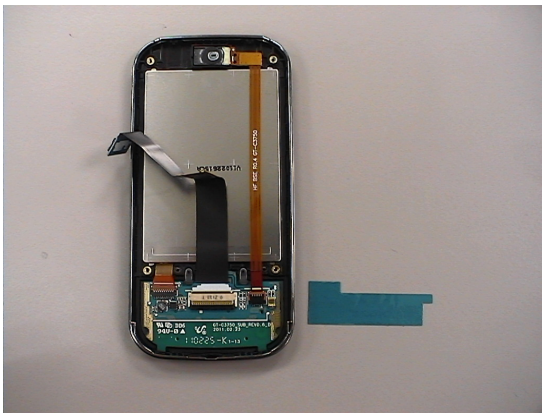
Please consult the GSPN website (Samsung Portal) for the most recent version of the product's part list.

7. Level 2 Repair

7-1. Disassembly and Assembly Instructions

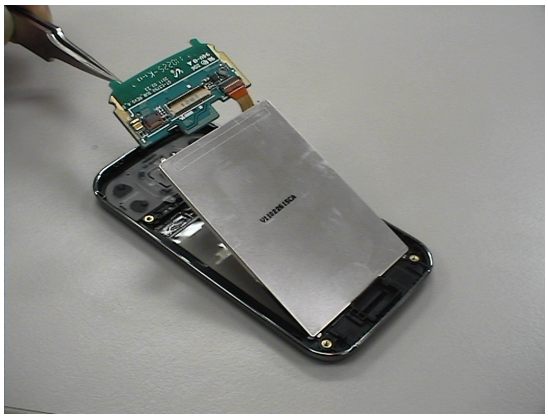
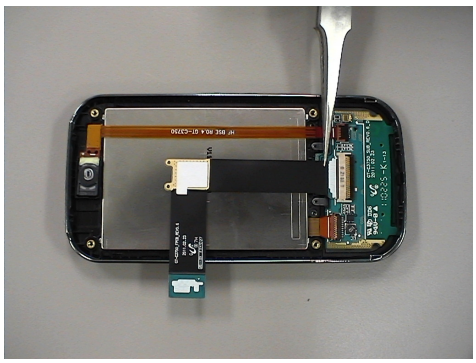
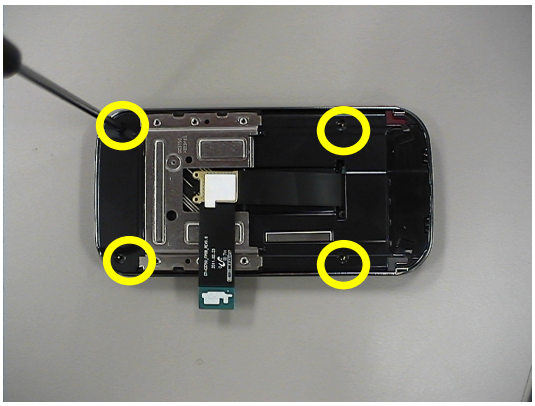
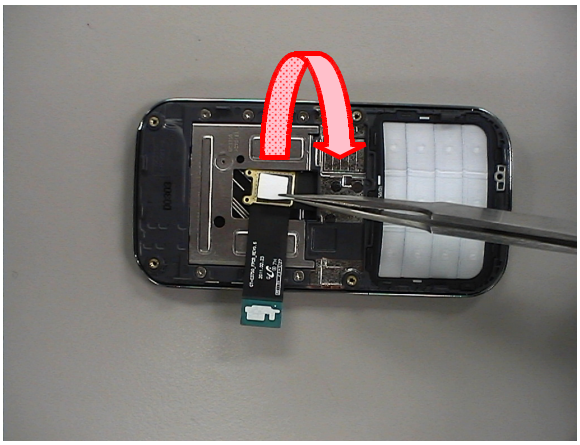
7-1-1. Disassembly

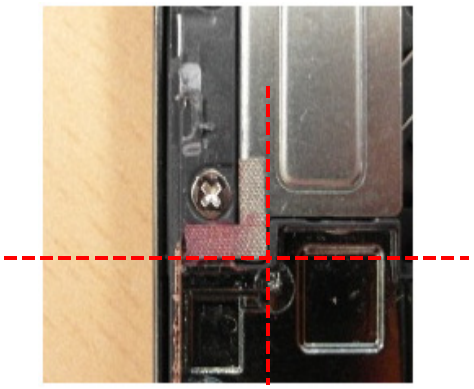
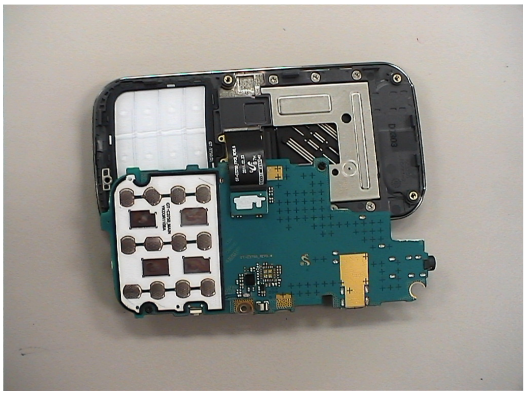
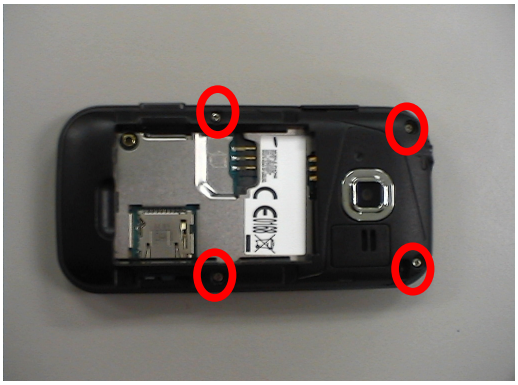
1 Unscrew REAR. 	2 Disassemble PBA 
1. Unscrew 4 points.	1. Turn over the PBA 2. Take off LCD connector.
3 Detach tape 	4 Detach Slide FPCB & Unscrew FRONT 
1. Detach tape	1.Detach Slide FPCB using a tweezer. 2. Unscrew 6 points.

5 Unscrew LOWER 	6 Detach SUB PBA TAPE 
1.Unscrew 4 points.	1. Detach SUB PBA Tape.
Disassemble SUB PBA, RCV and SLIDE FPCB 	
1. Disassemble SLIDE FPCB. 2. Disassemble RCV. 3. Disassemble SUB PBA.	

7-1. Disassembly and Assembly Instructions

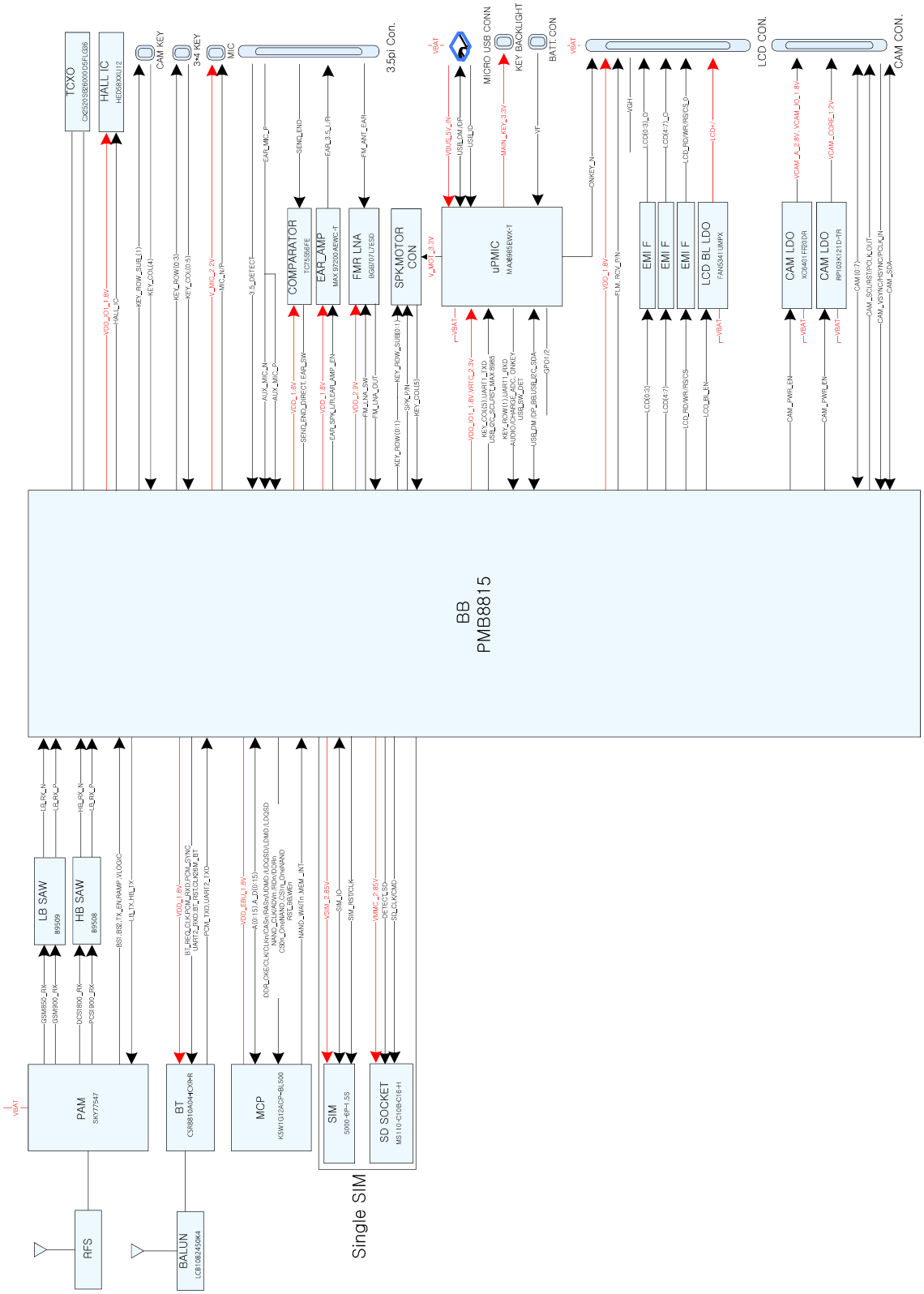
7-1-2. Assembly

1 Assemble LCD module & SUB PBA	2 Assemble SLIDE FPCB and RCV
	
1. Close LCD Module FPCB connector after assembling with SUB PBA. 2. Assemble LCD module & SUB PBA. with UPPER. - Becareful FPCB damage	1. Close SILDE FPCB connector after assembling on SUB PBA. 2. Close RCV connector after assembling on SUB PBA. - Becareful FPCB damage
3 Screw	4 Assemble FRONT & KEY PAD
	
1. Screw 4 Points.	1. Detach a white tape & attach SLIDE FPCB. => Follow red arrow direction. 2. Screw 6 points. 3. Assemble KEY PAD

5	6
	Assemble PBA 
1. Attach the tape.(lower hinge & Front Connecting)	1. Assemble PBA.
7 Assemble REAR 	
1. Assemble REAR 2. Screw 4 points.	

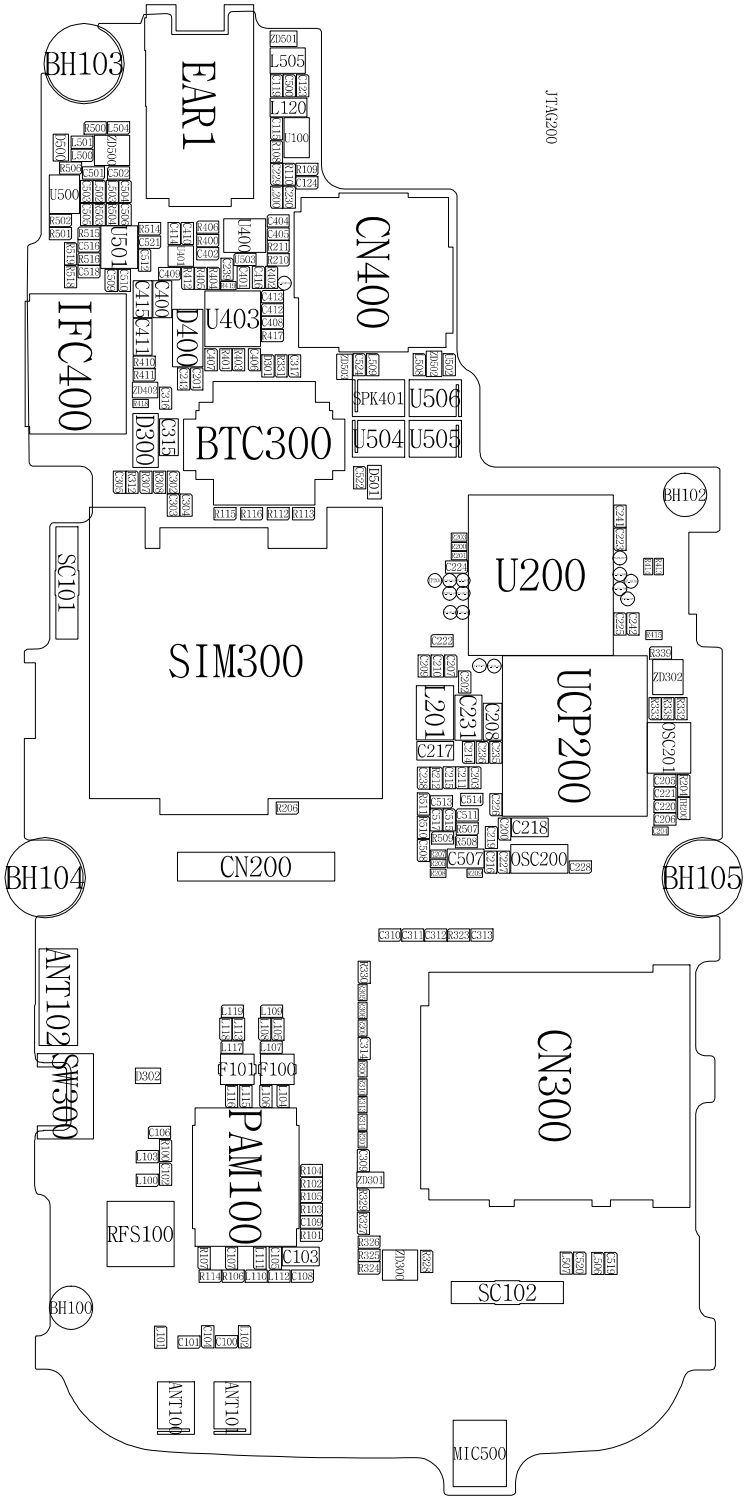
8. Level 3 Repair

8-1. Block Diagram

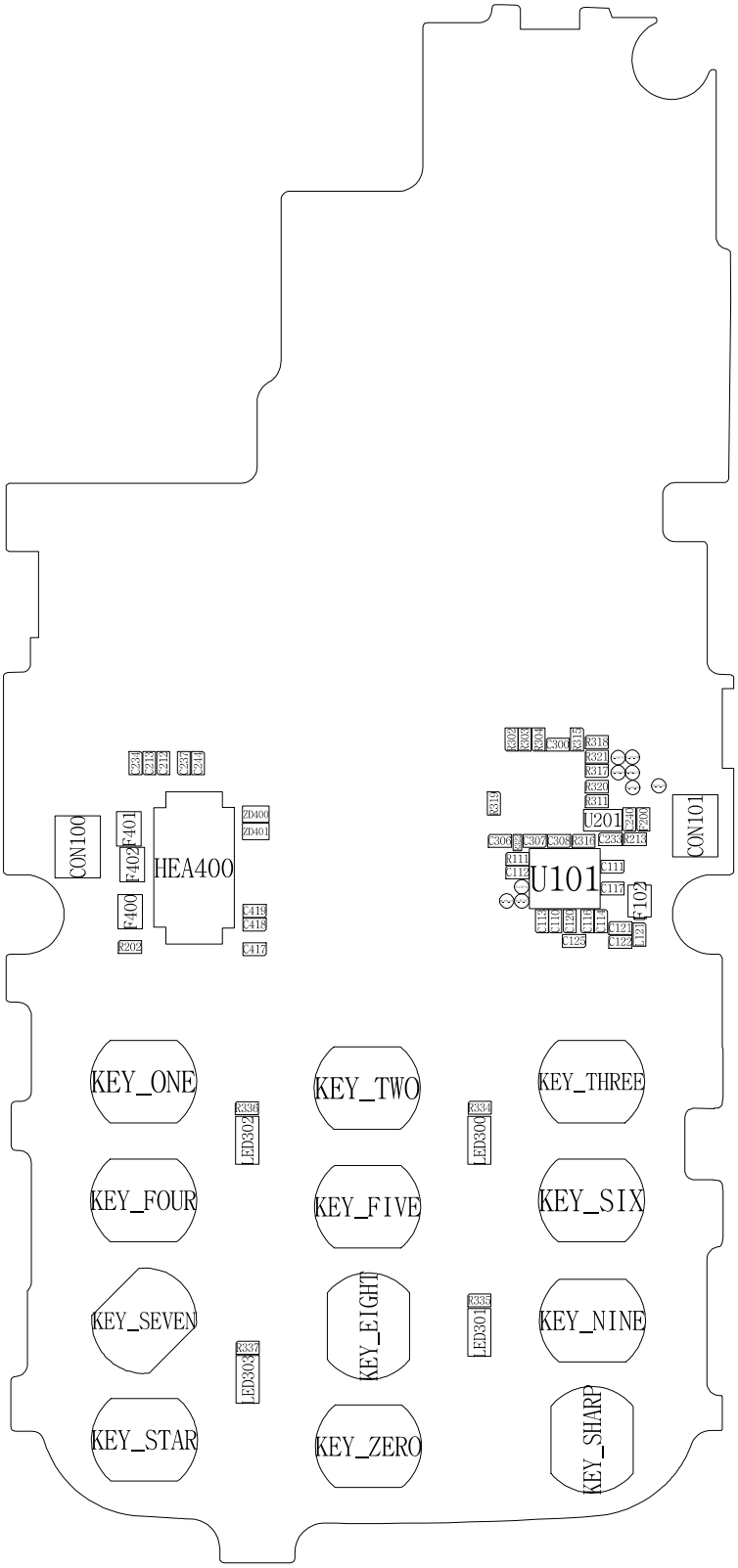


8-2. PCB Diagrams

8-2-1. Top



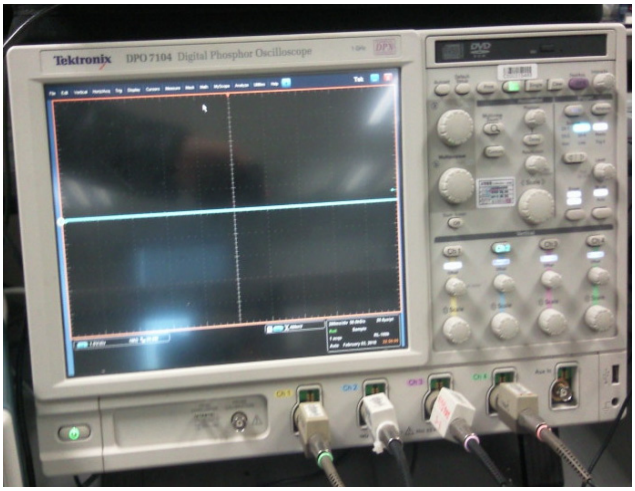
8-2-1. Bottom



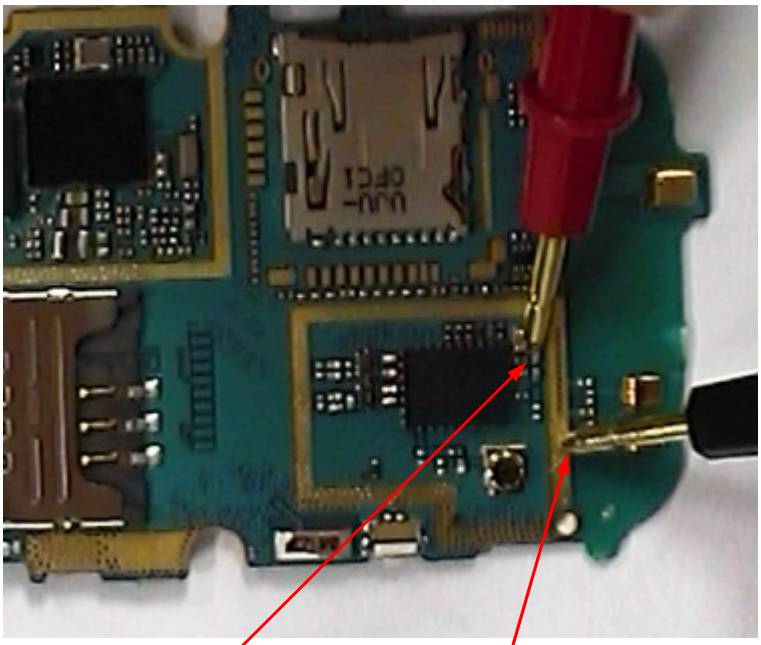
8-3. Flow Chart of Troubleshooting

※ presetting methods for checking TP

- GND & TP(exp. VBAT=**C105**) using Oscilloscope
- look over the coming out signal.

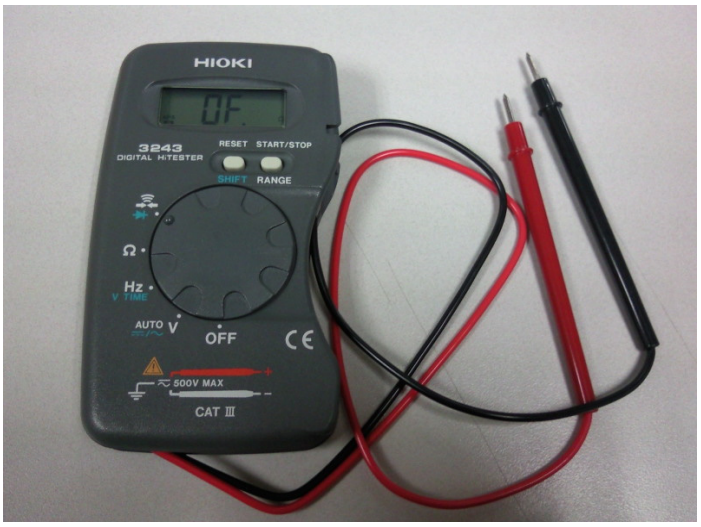


← Oscilloscope

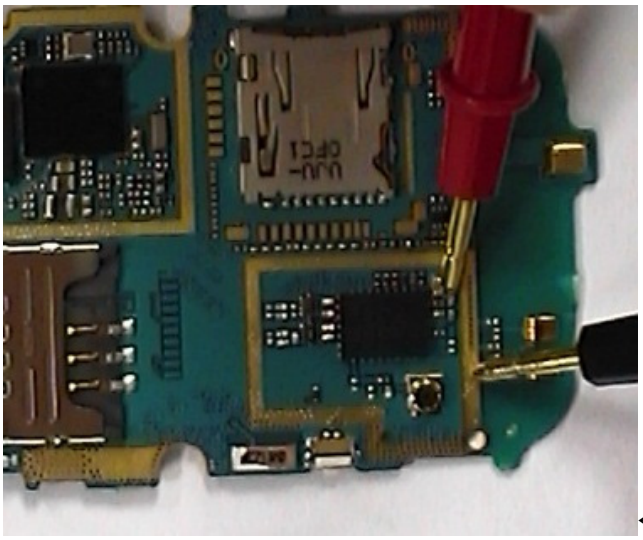


TP (Test Point)

GND



← Multi-meter



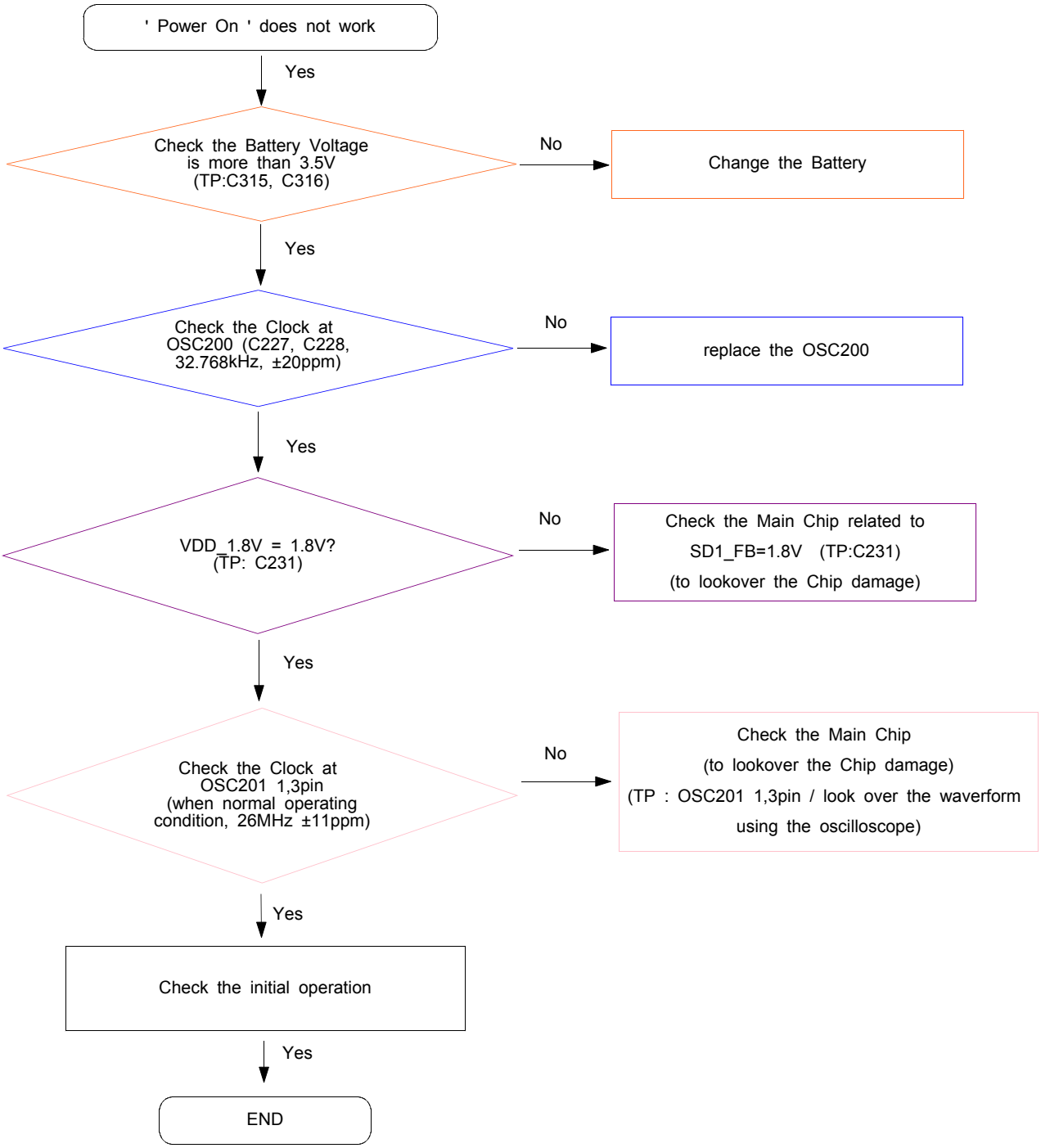
← Checking the TP(test point) using Multi-meter

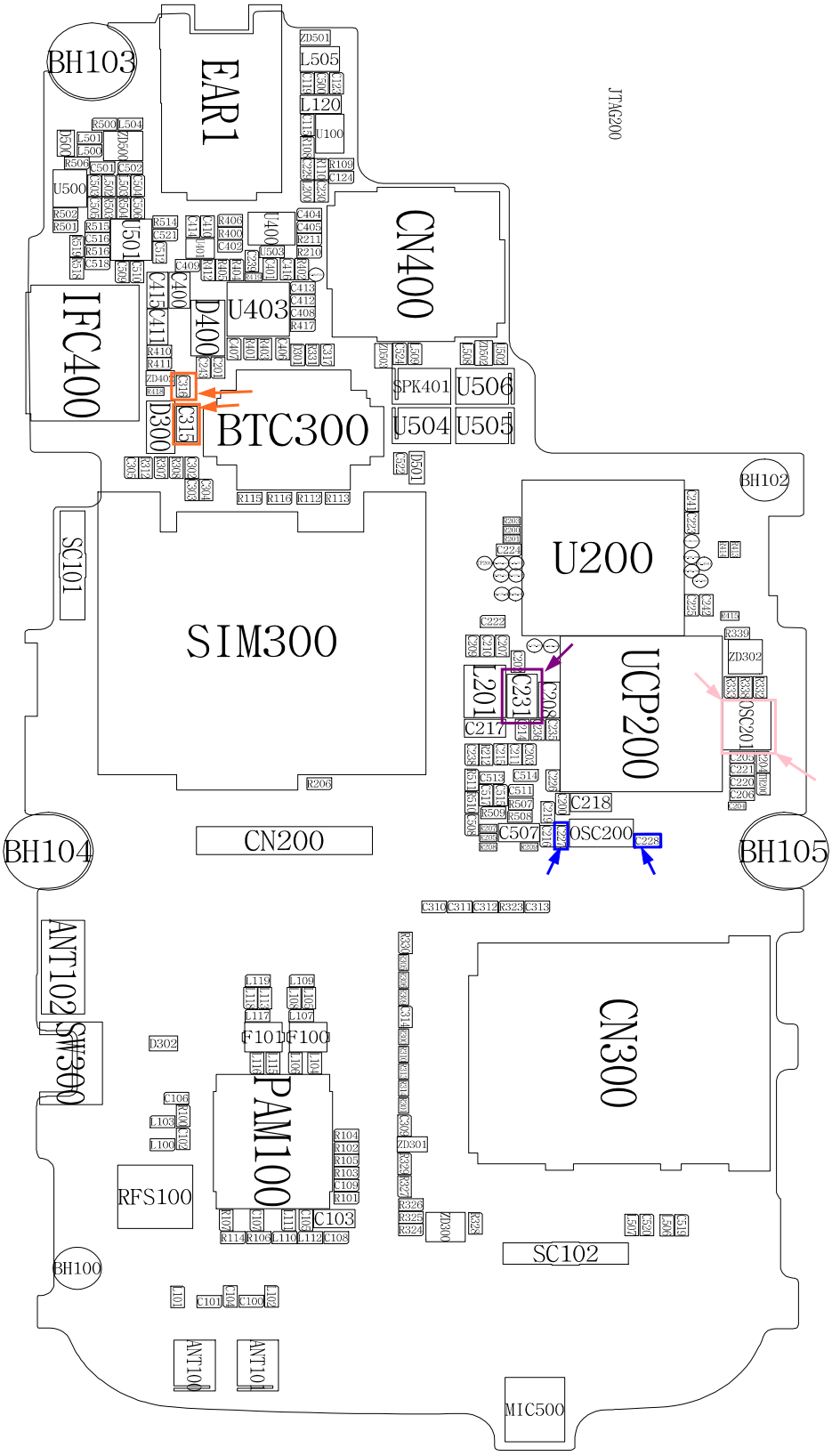
- EX) to look up the TP, shunt Cap.

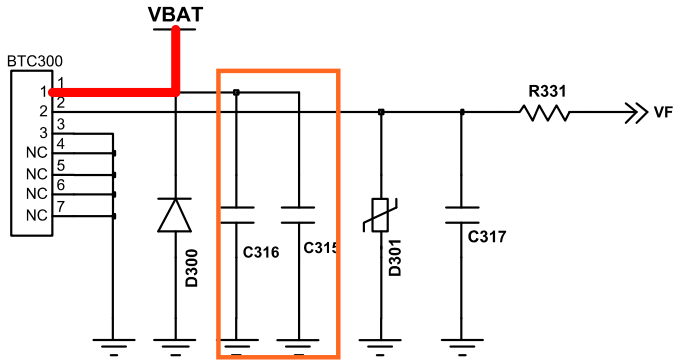
- if checking the GND, you can listen "beep"
  if checking the Signal, you can't listen it.

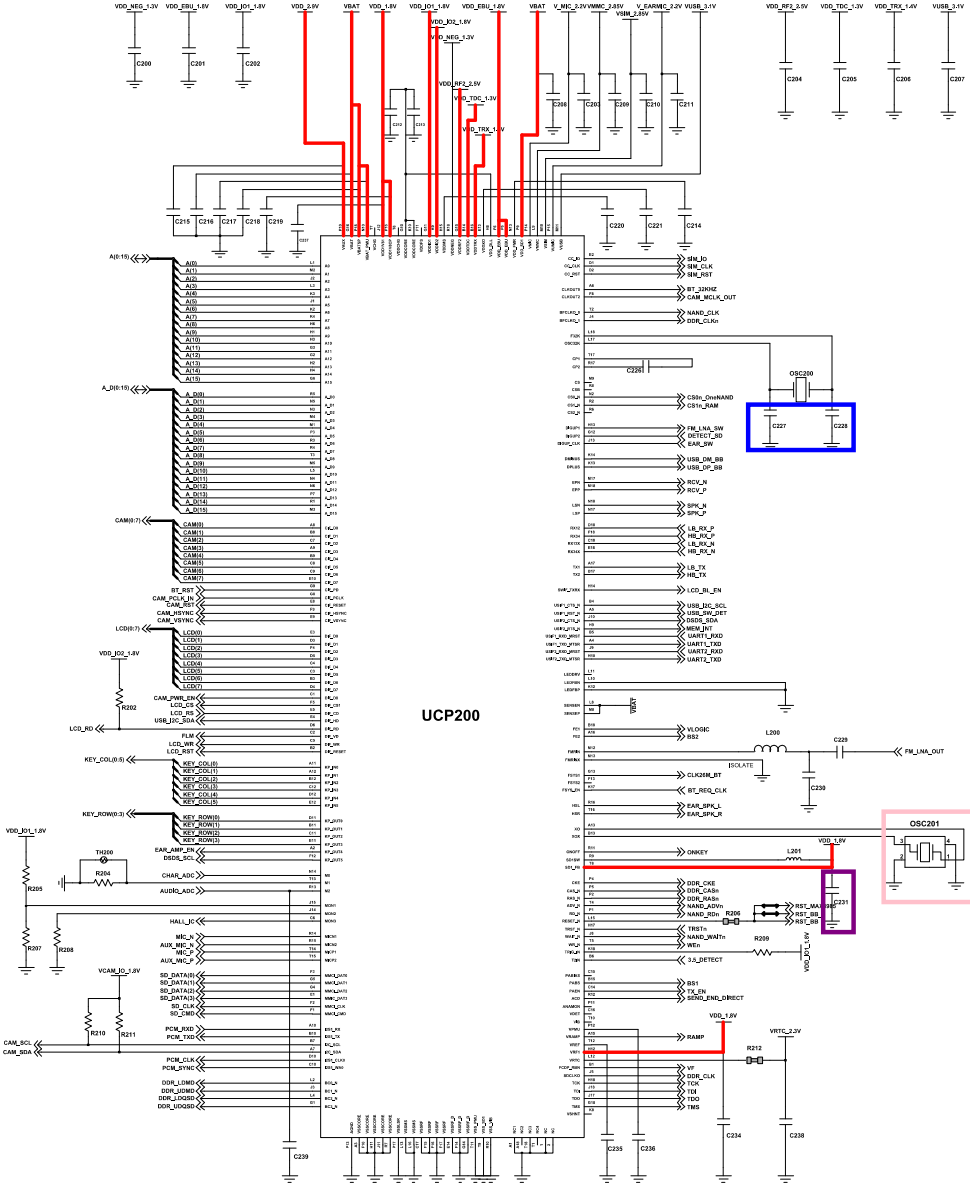
8-3. LOGIC

8-3-1. Power On

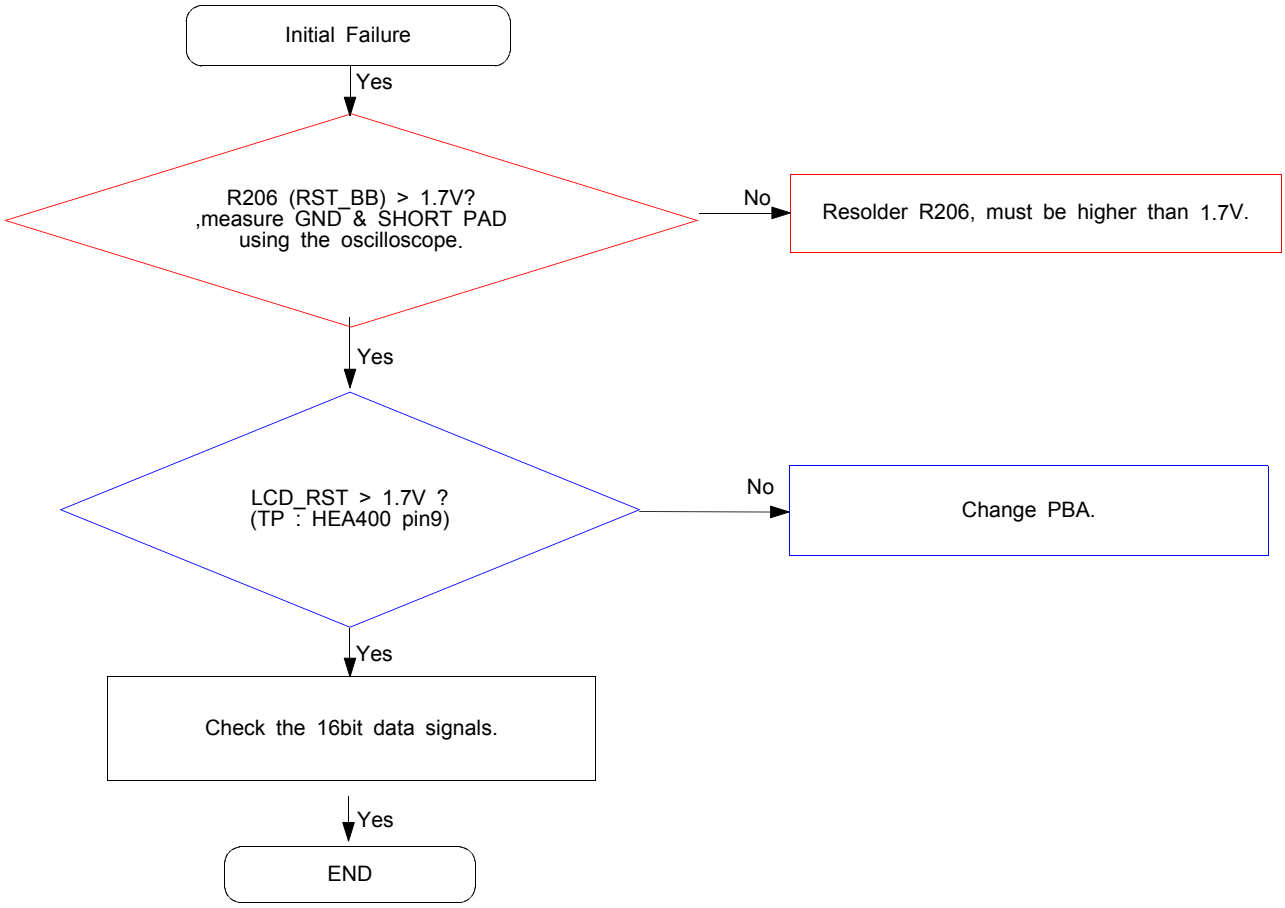


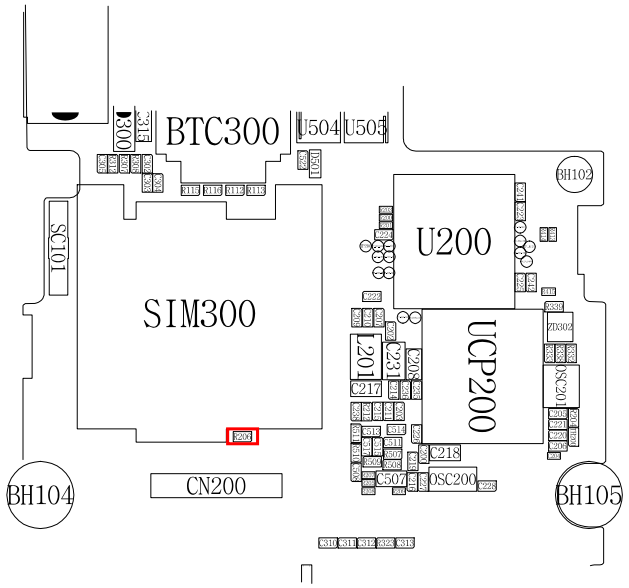


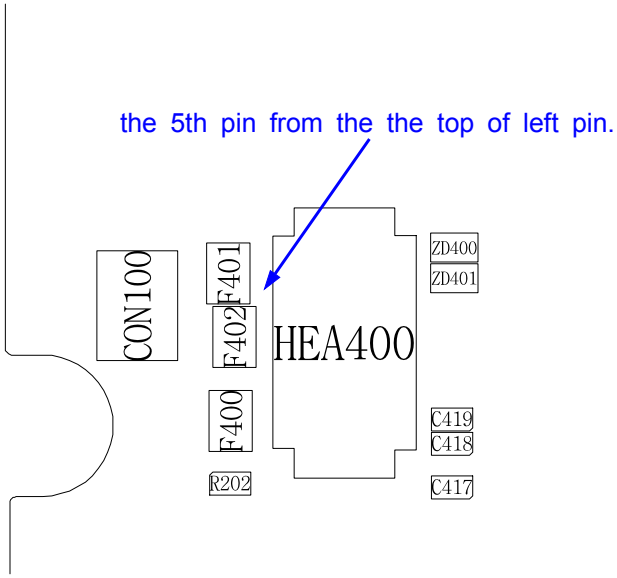


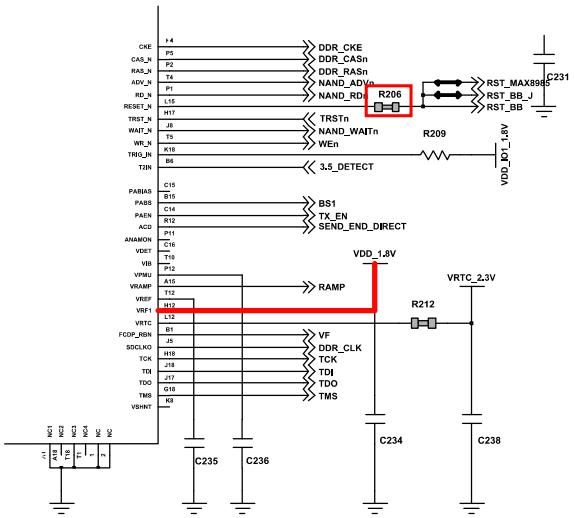


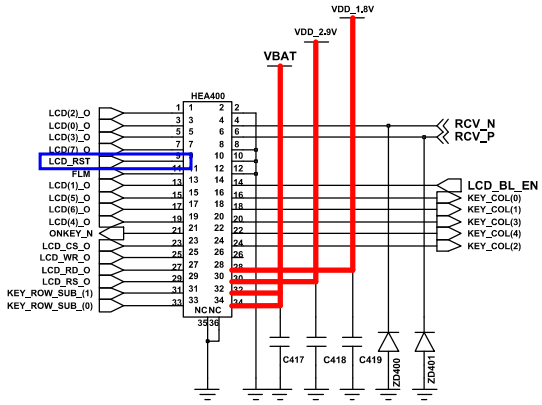
8-3-2. Initial



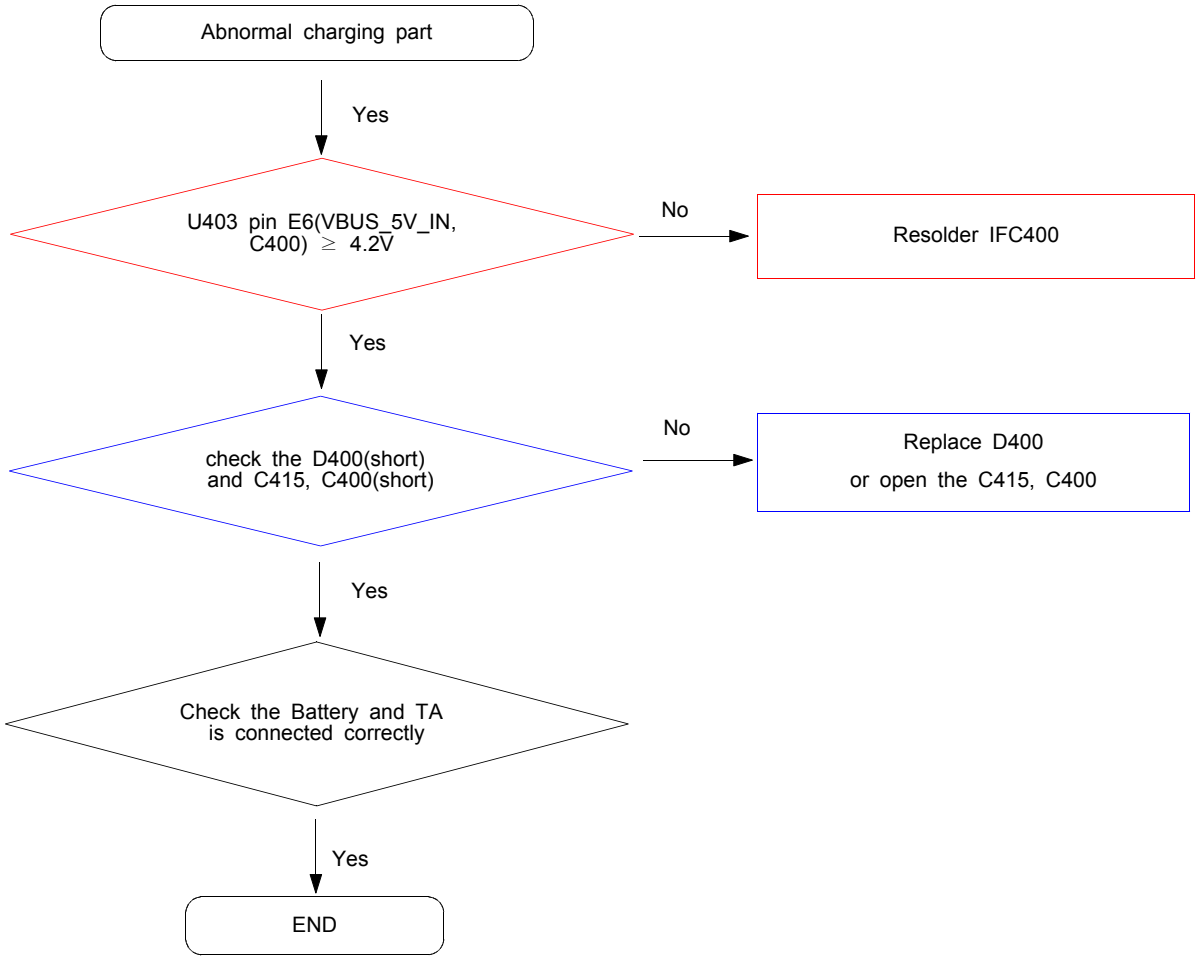


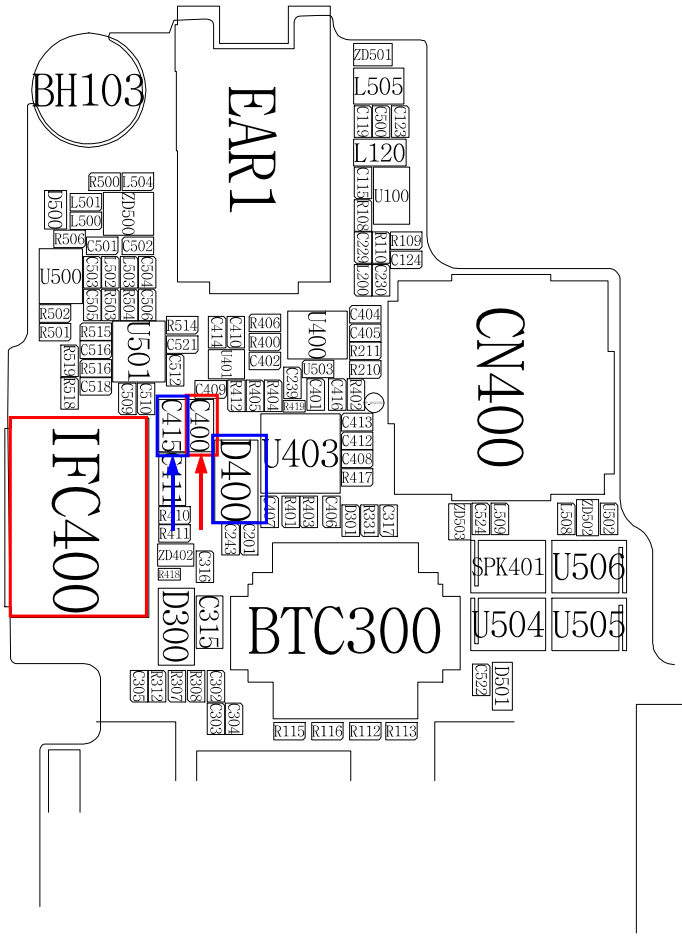


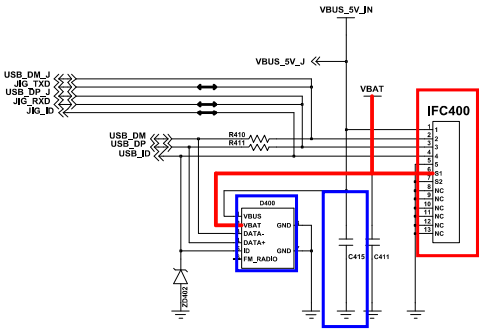


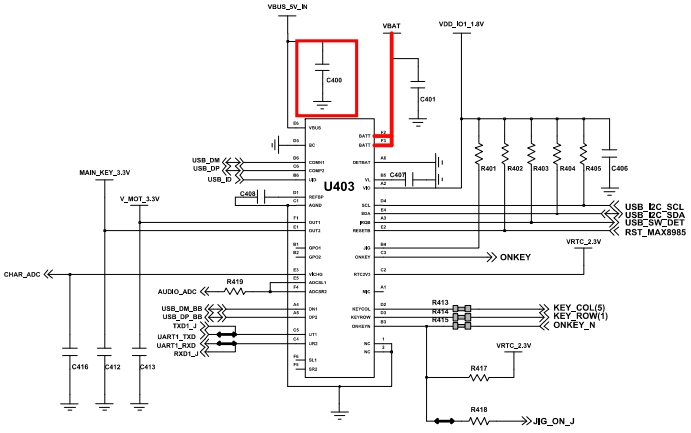


8-3-3. Charging Part

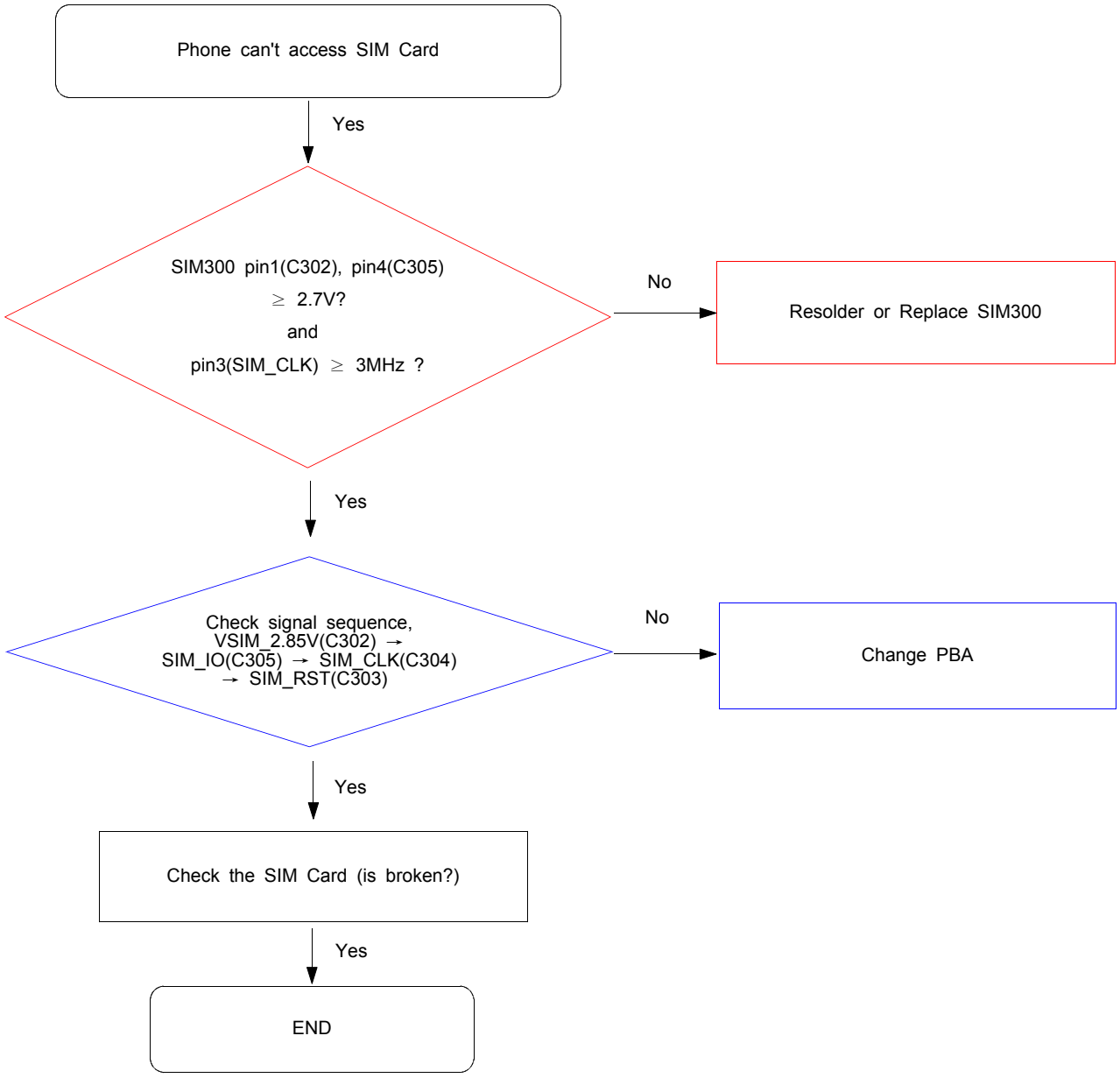


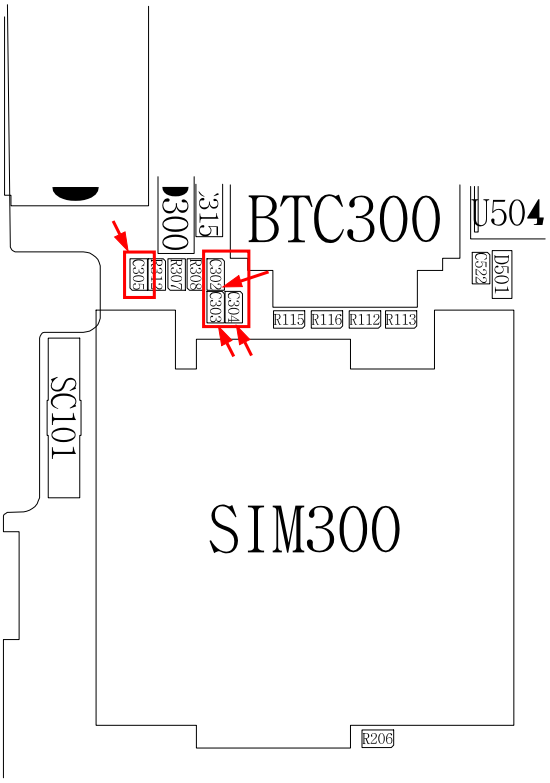


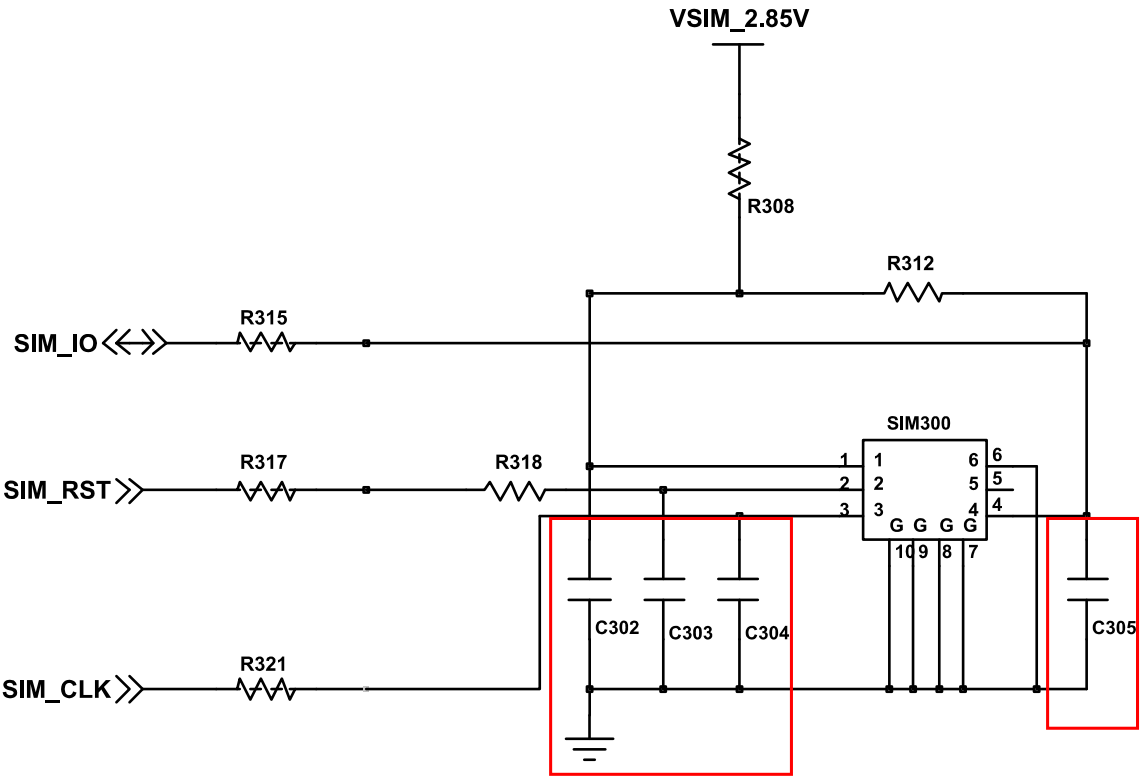




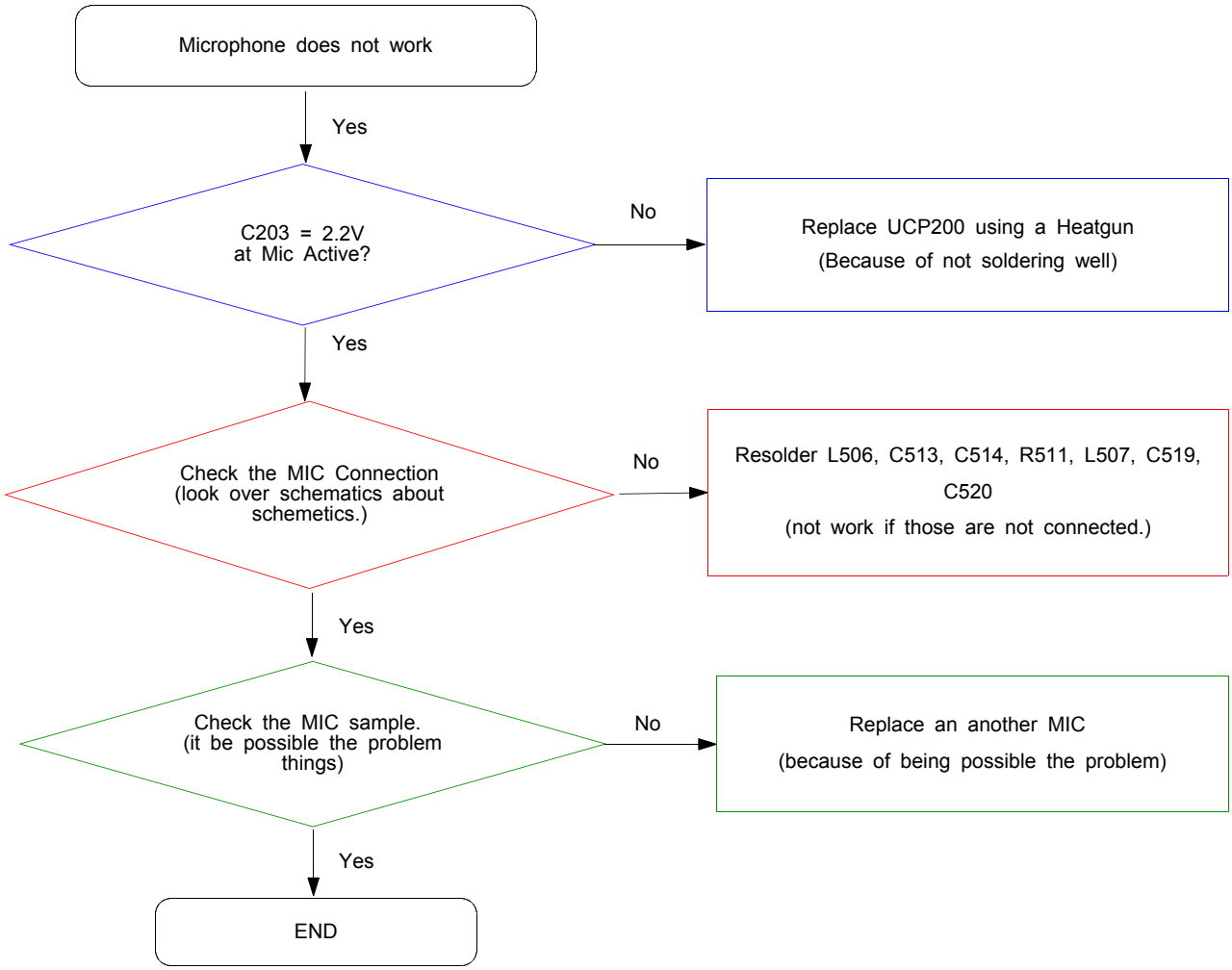
8-3-4. Sim Part

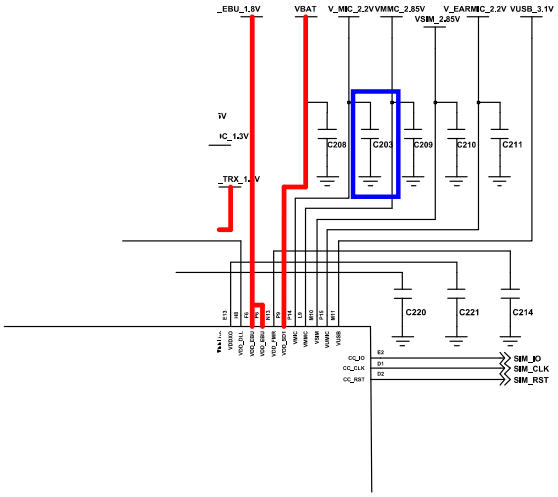


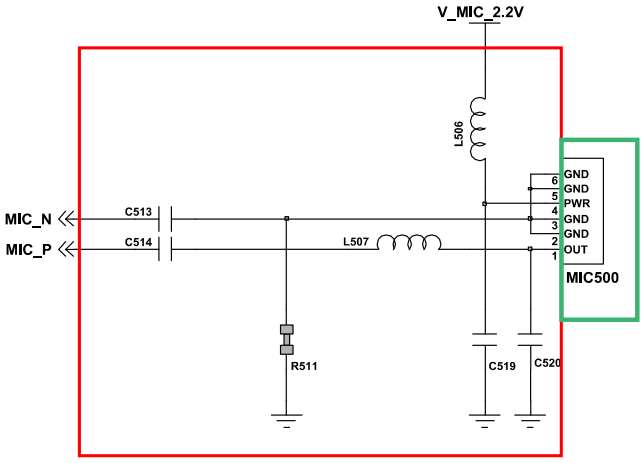


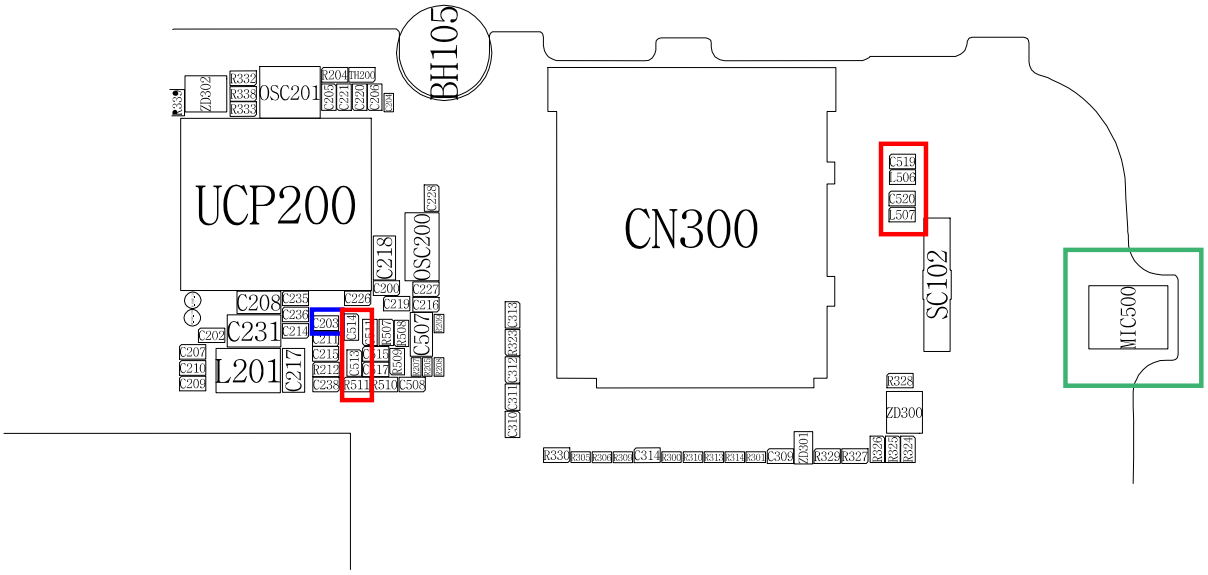


8-3-5. Microphone Part

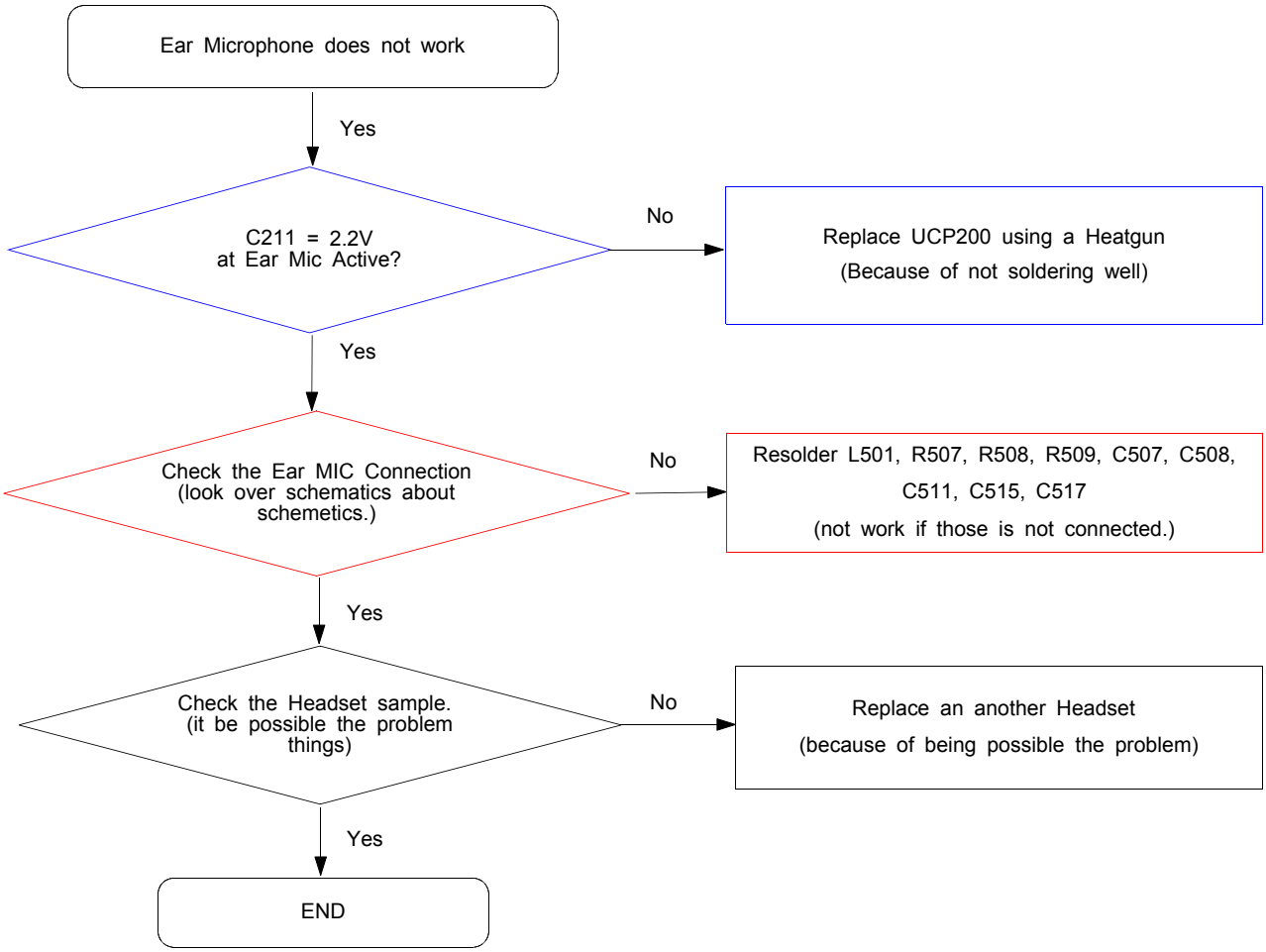


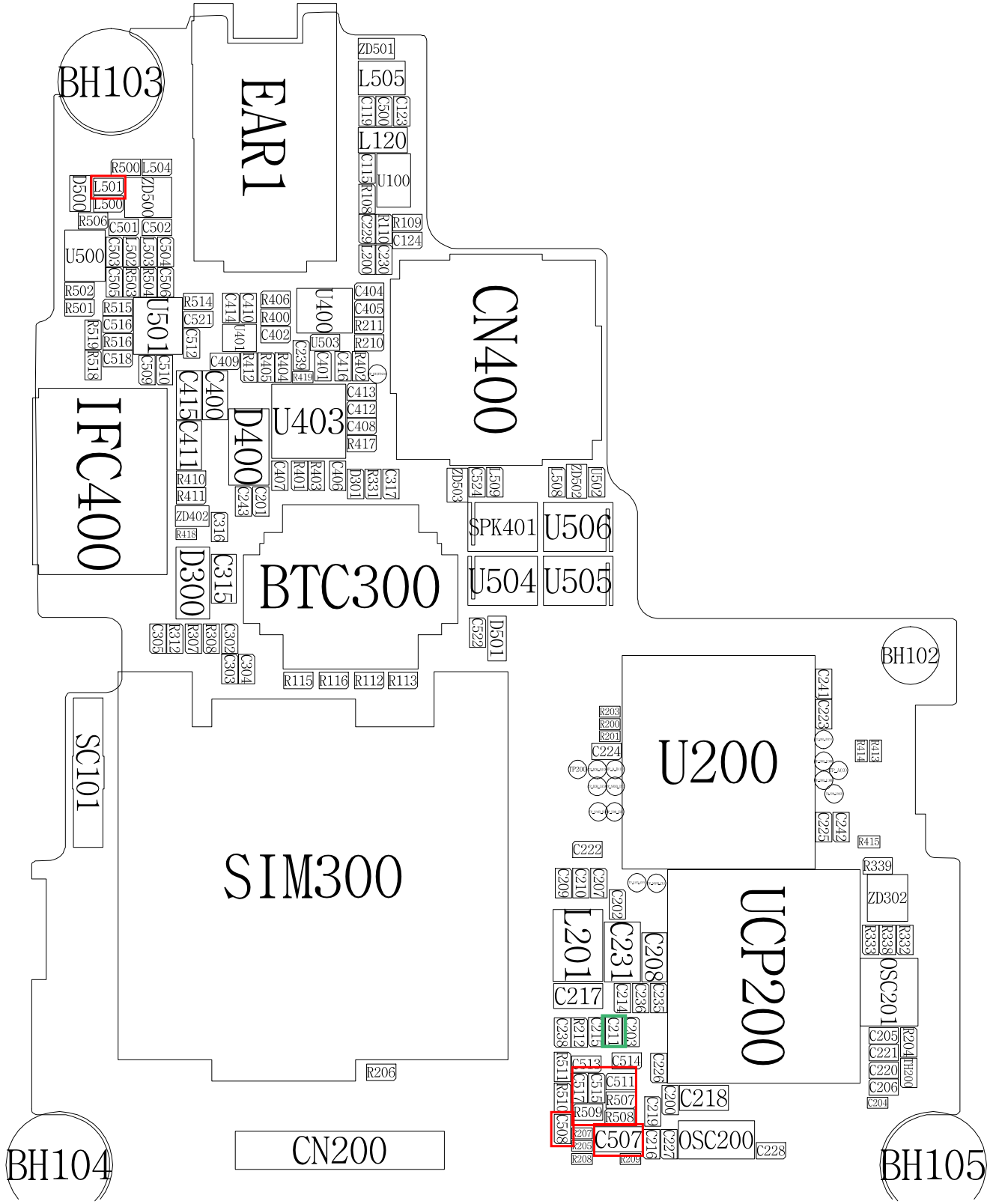


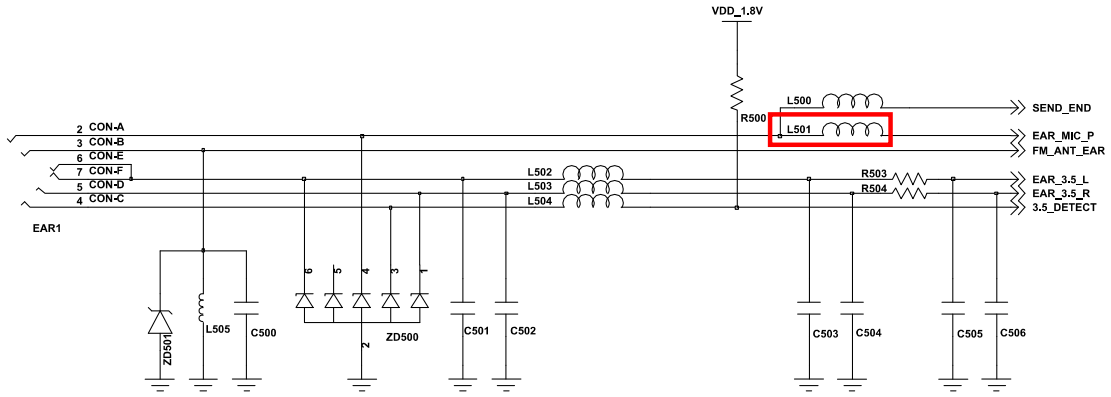


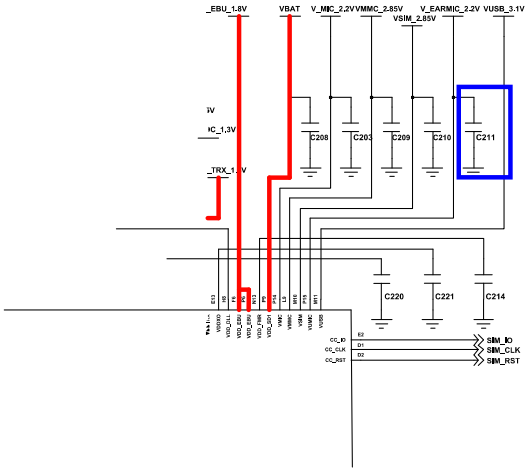


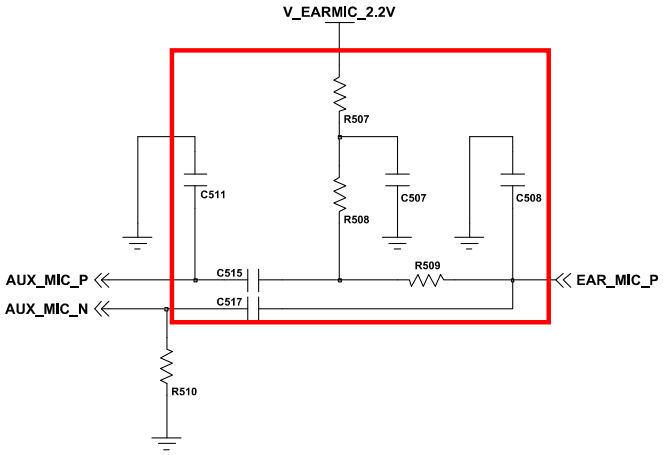
8-3-6. Ear Microphone Part



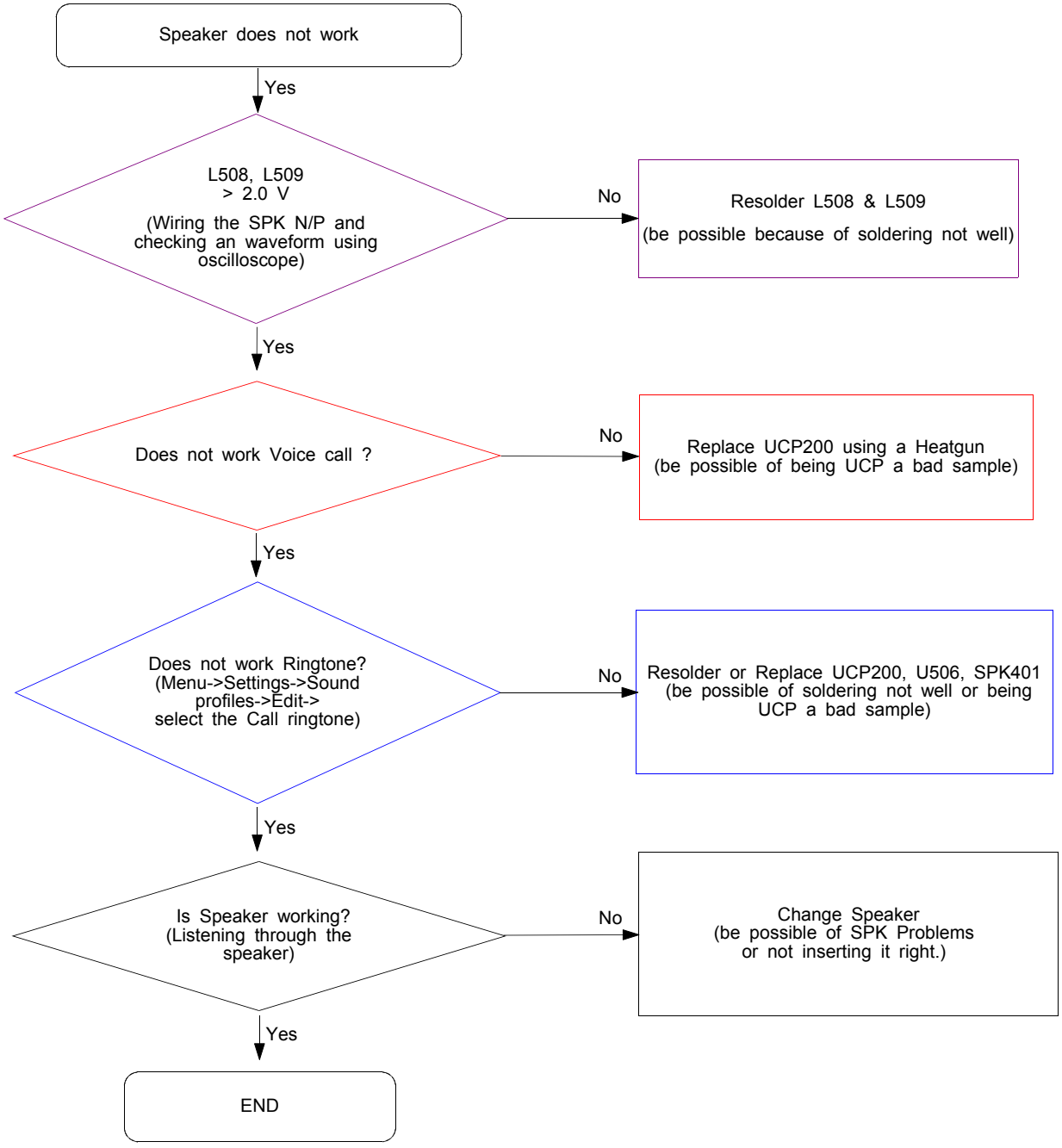


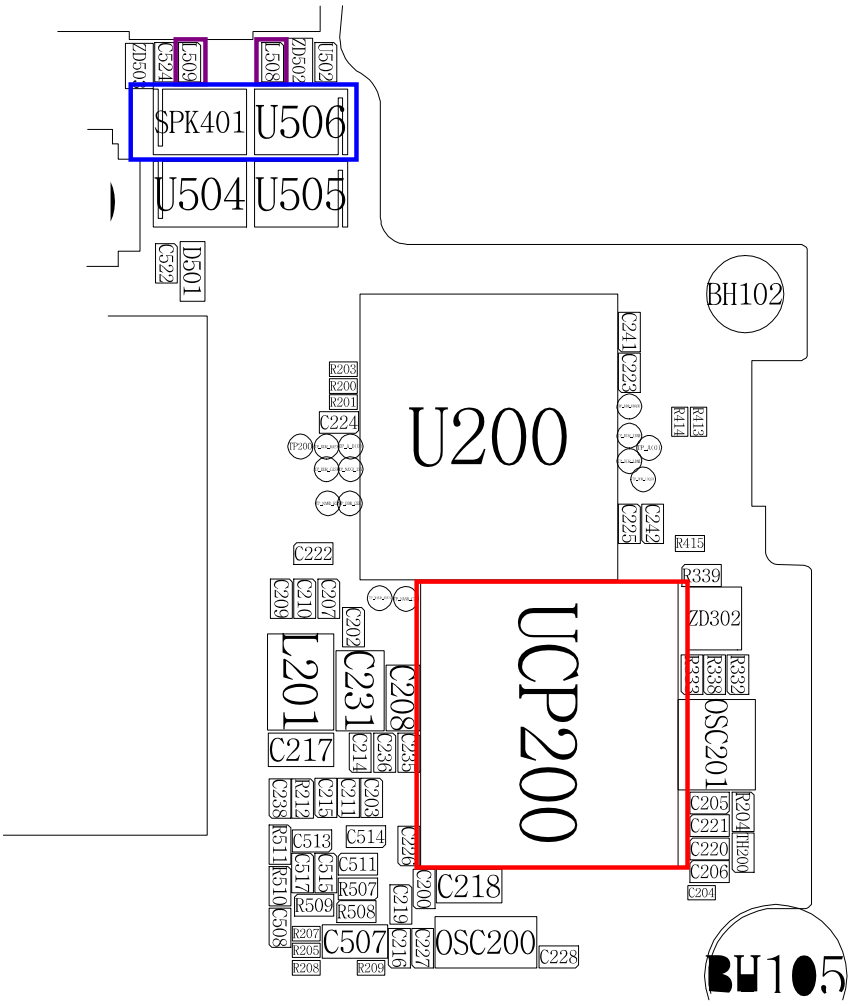


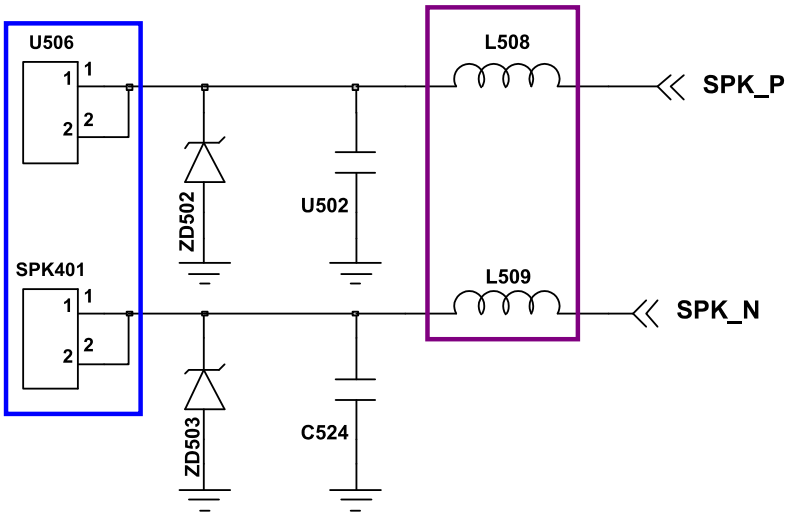




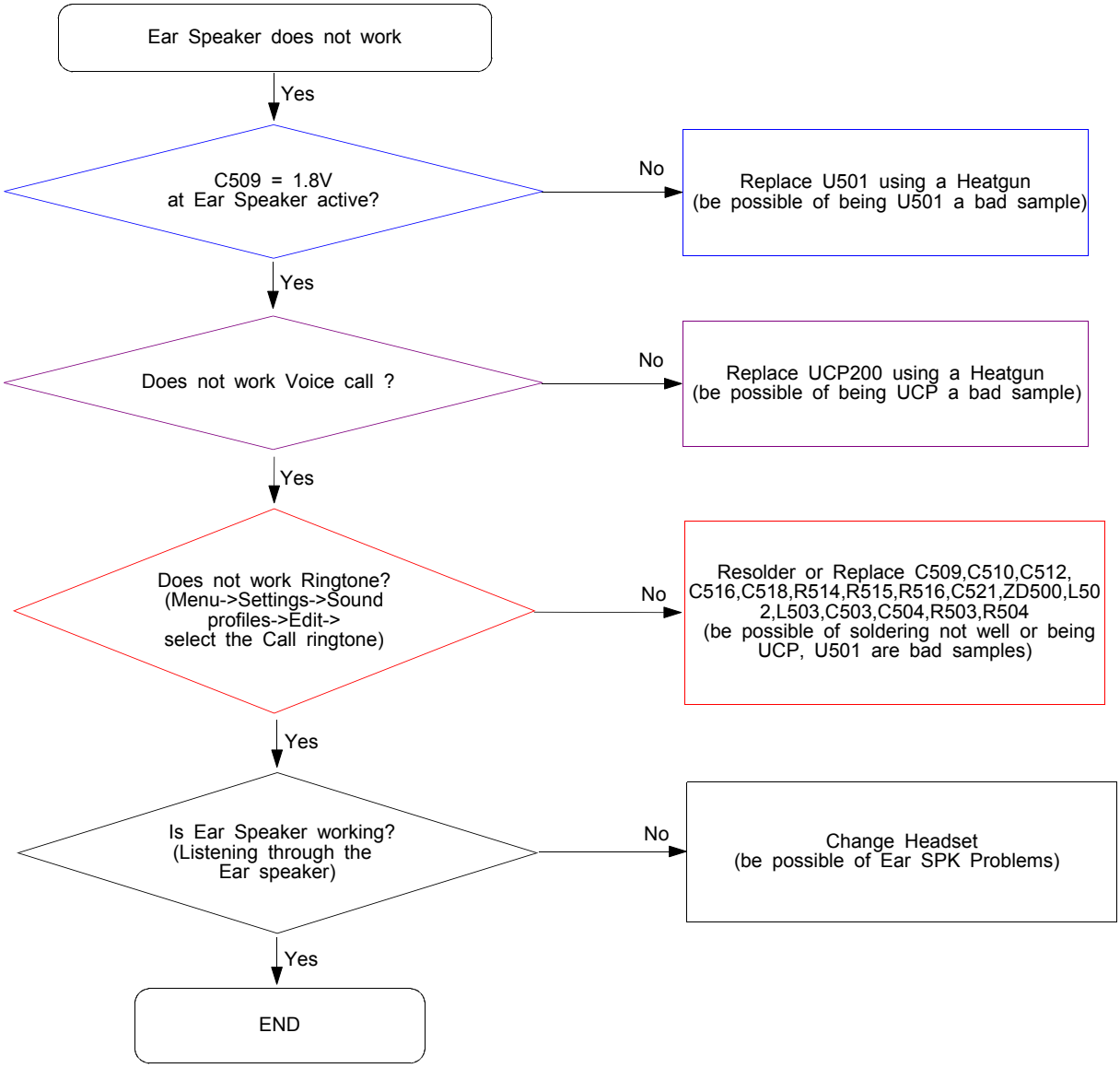
8-3-7. Speaker Part

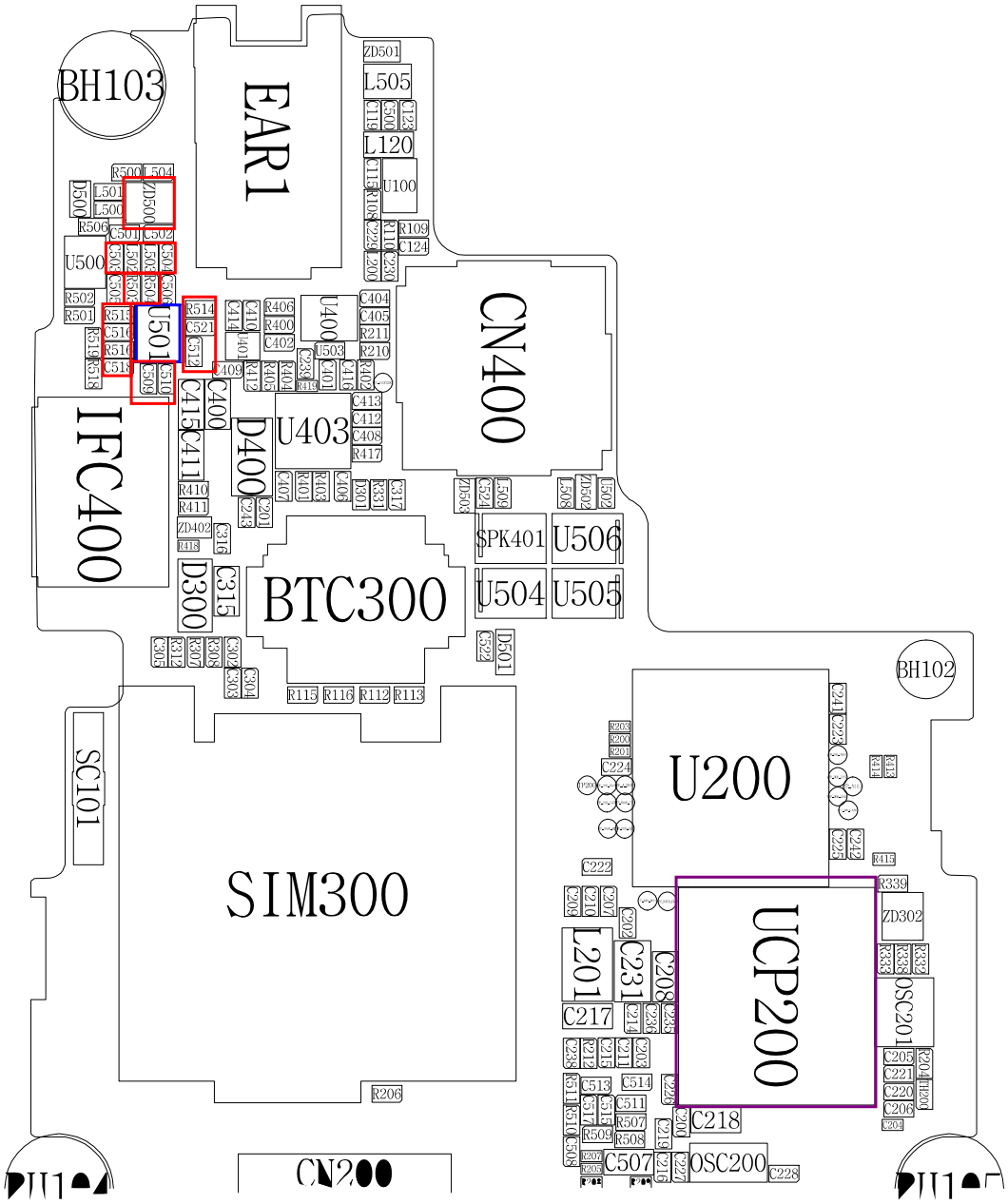


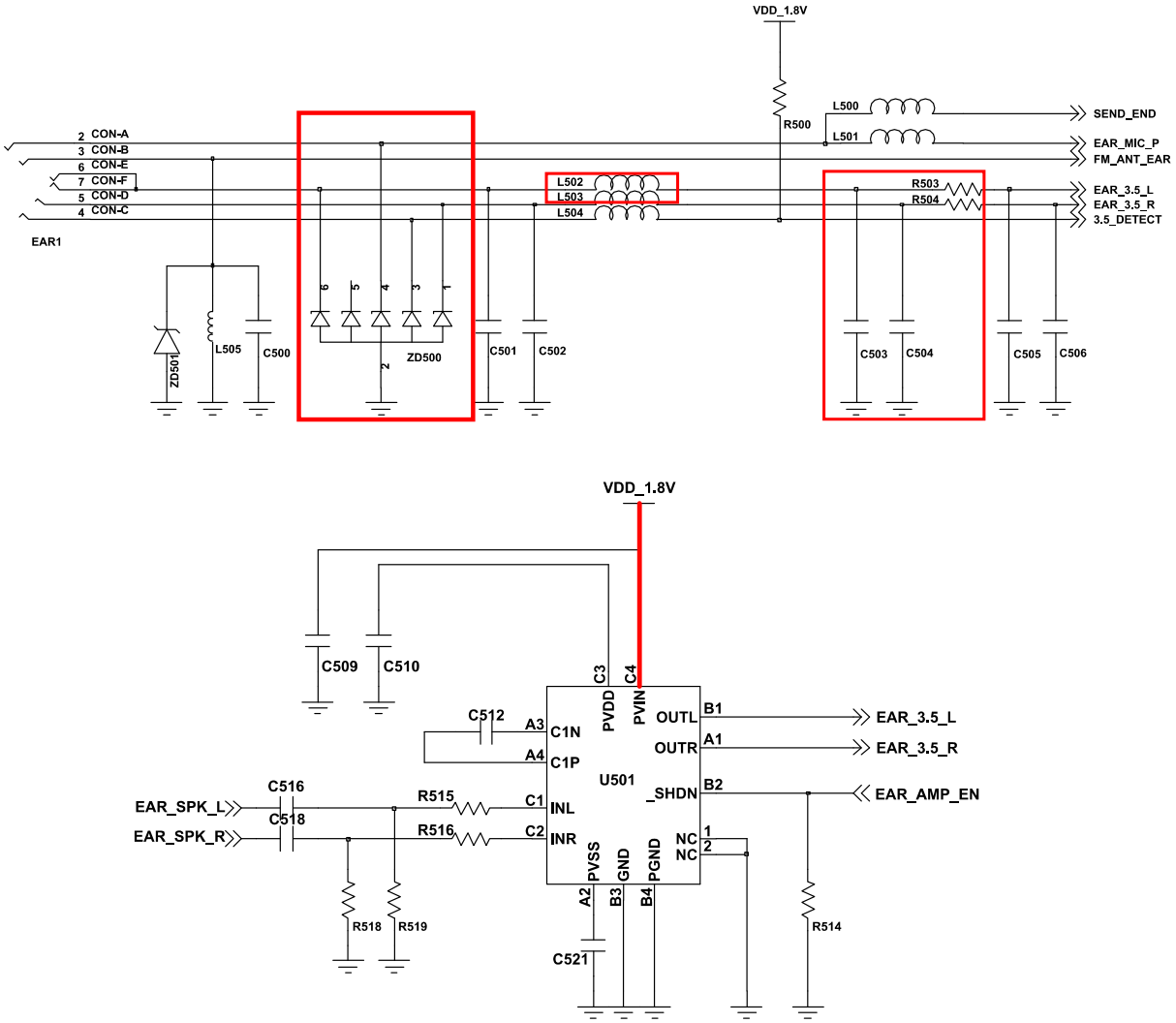




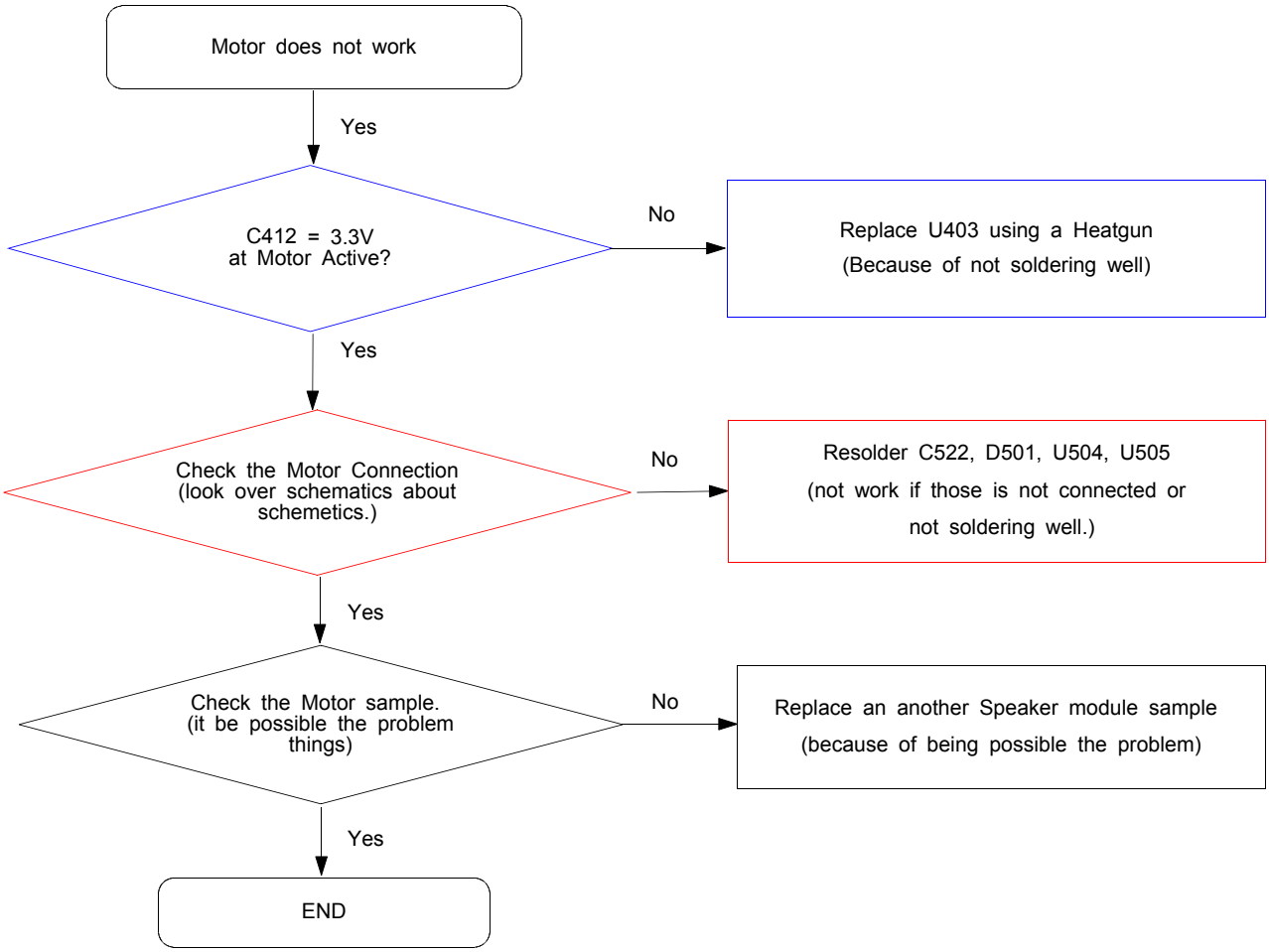
8-3-8. Ear Speaker Part

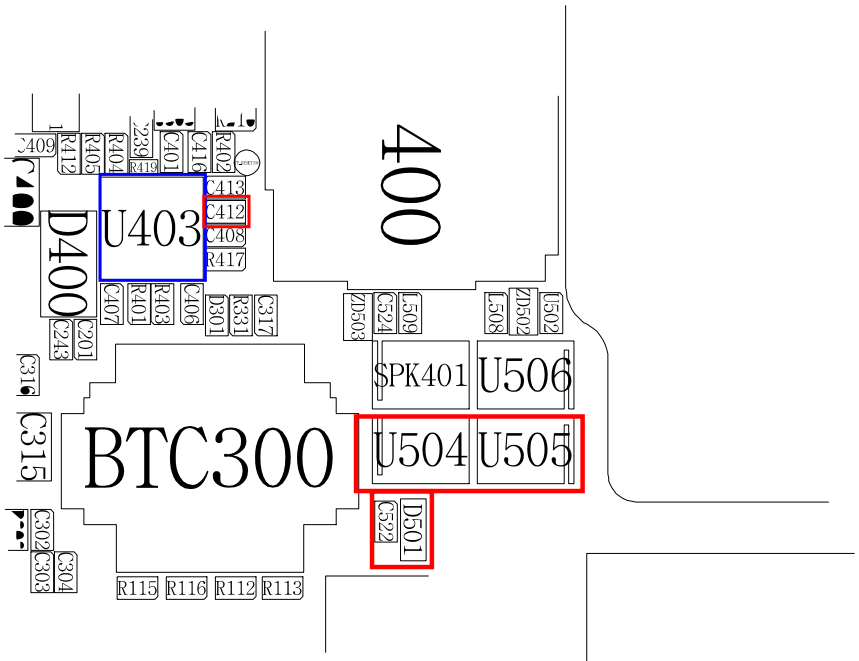


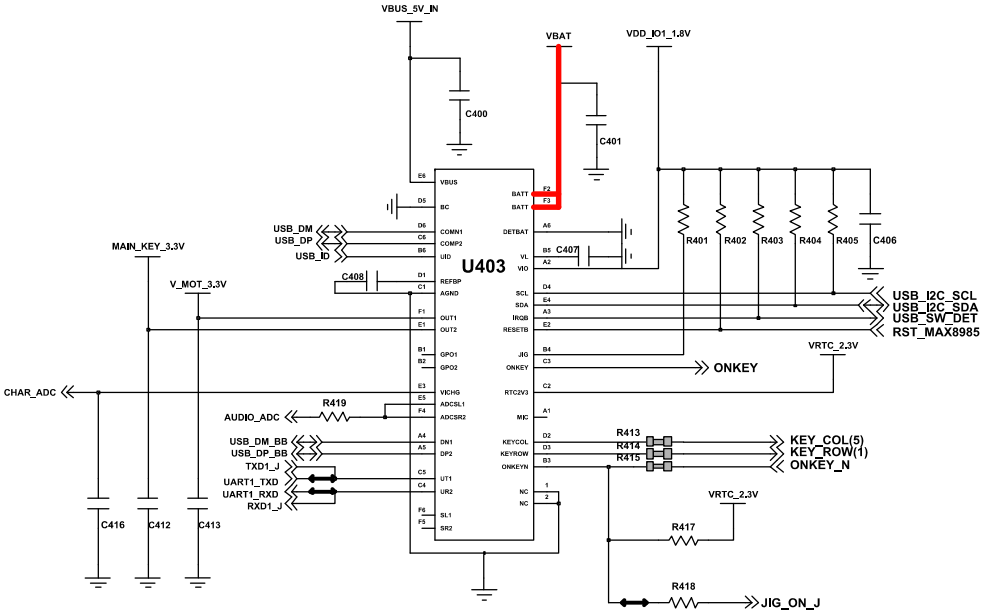


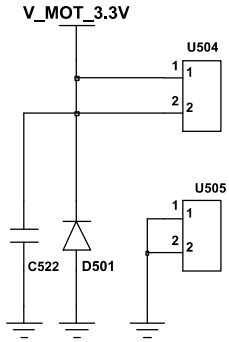


8-3-9. Motor Part

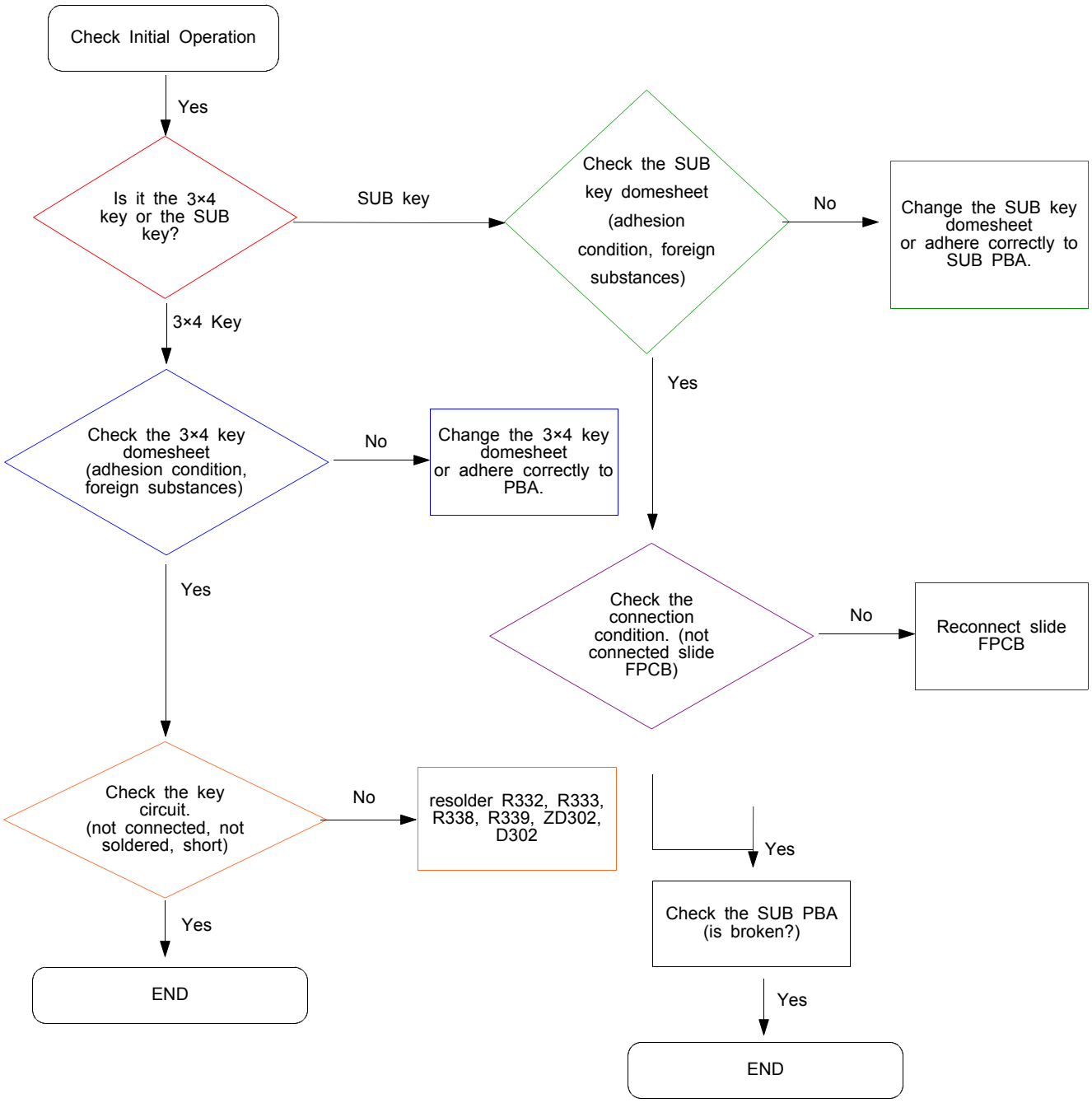


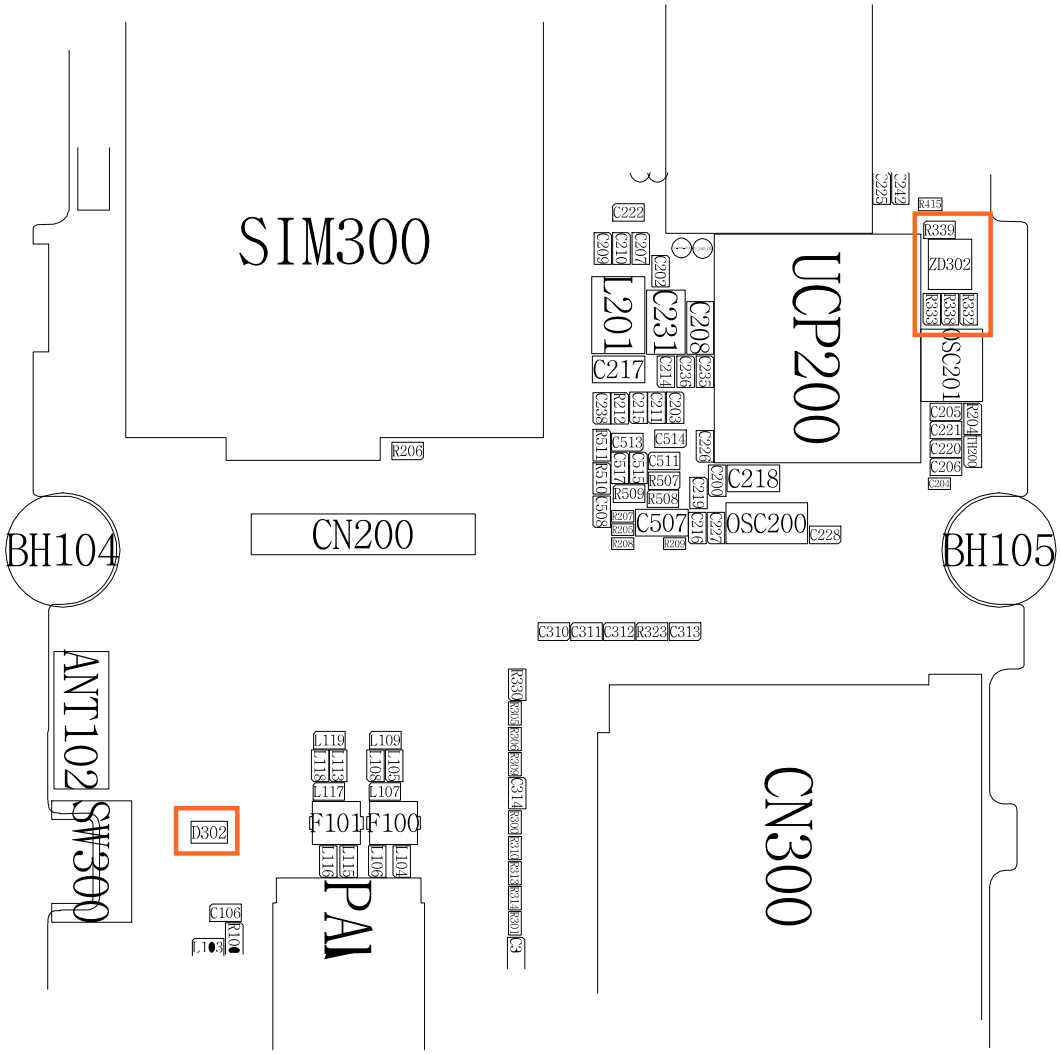


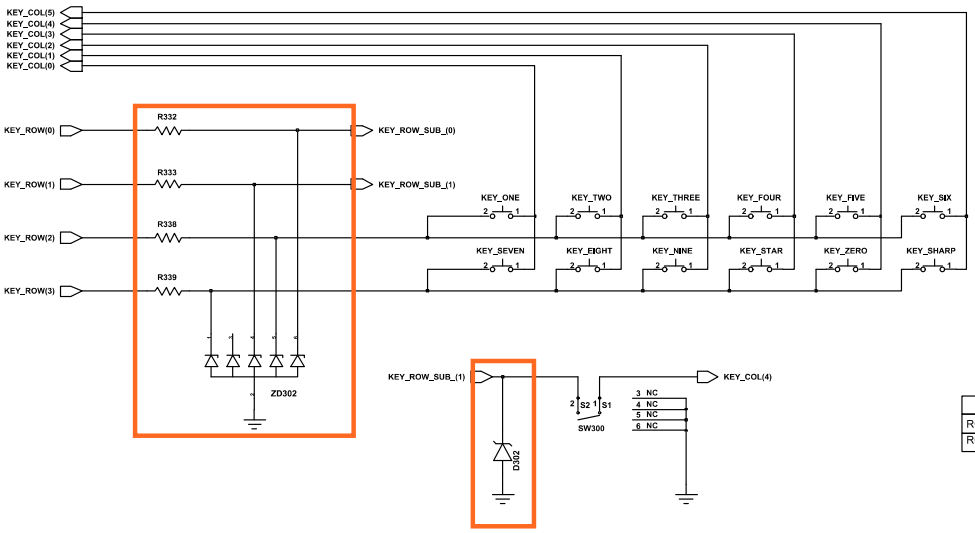




8-3-10. Key Data Input

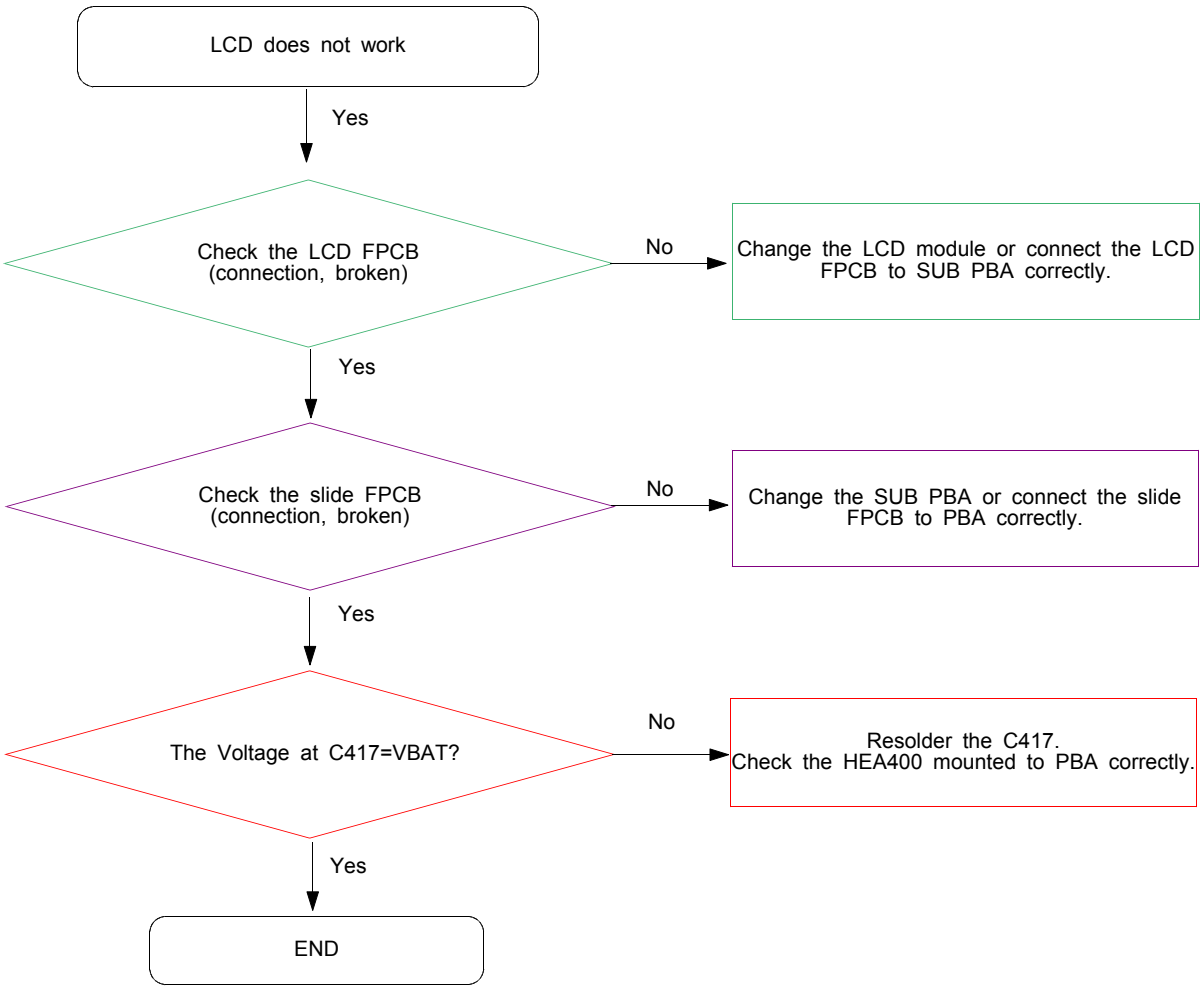


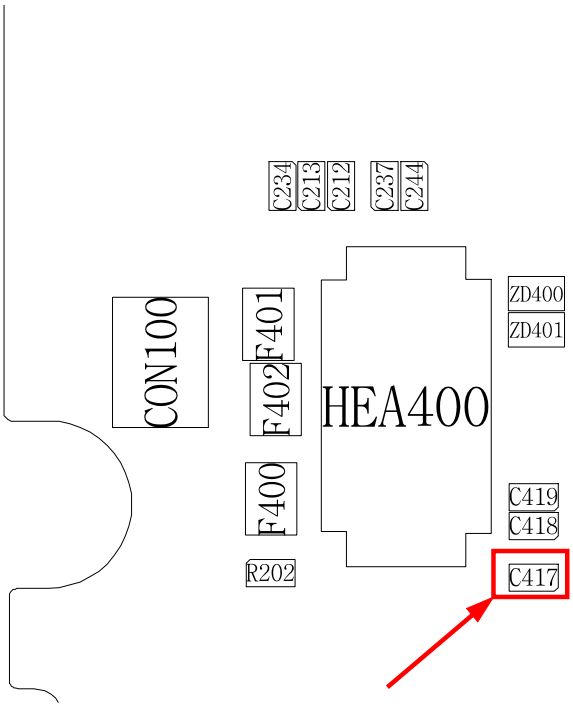


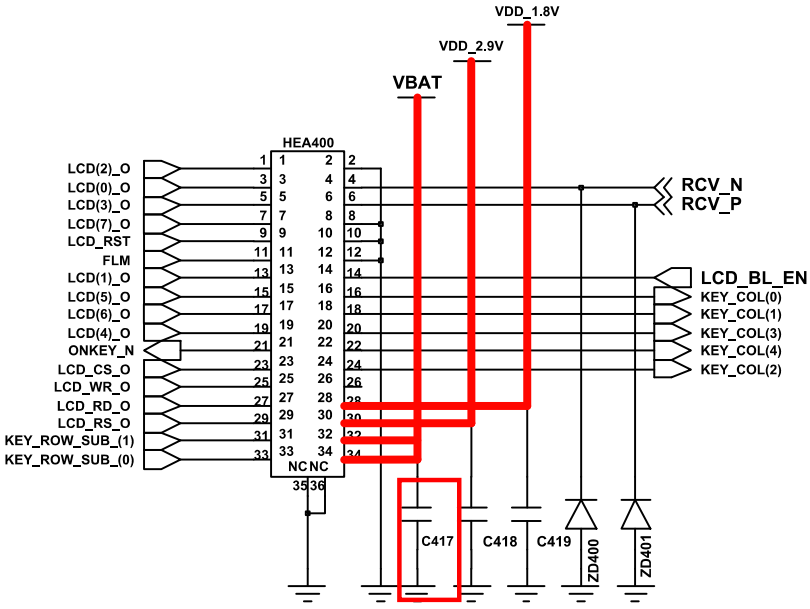


	COL(0)	COL(1)	COL(2)	COL(3)	COL(4)	COL(5)
ROW(0)	UP	DOWN	LEFT	RIGHT	OK	
ROW(1)	SOFT1	SOFT2	SEND			END KEY

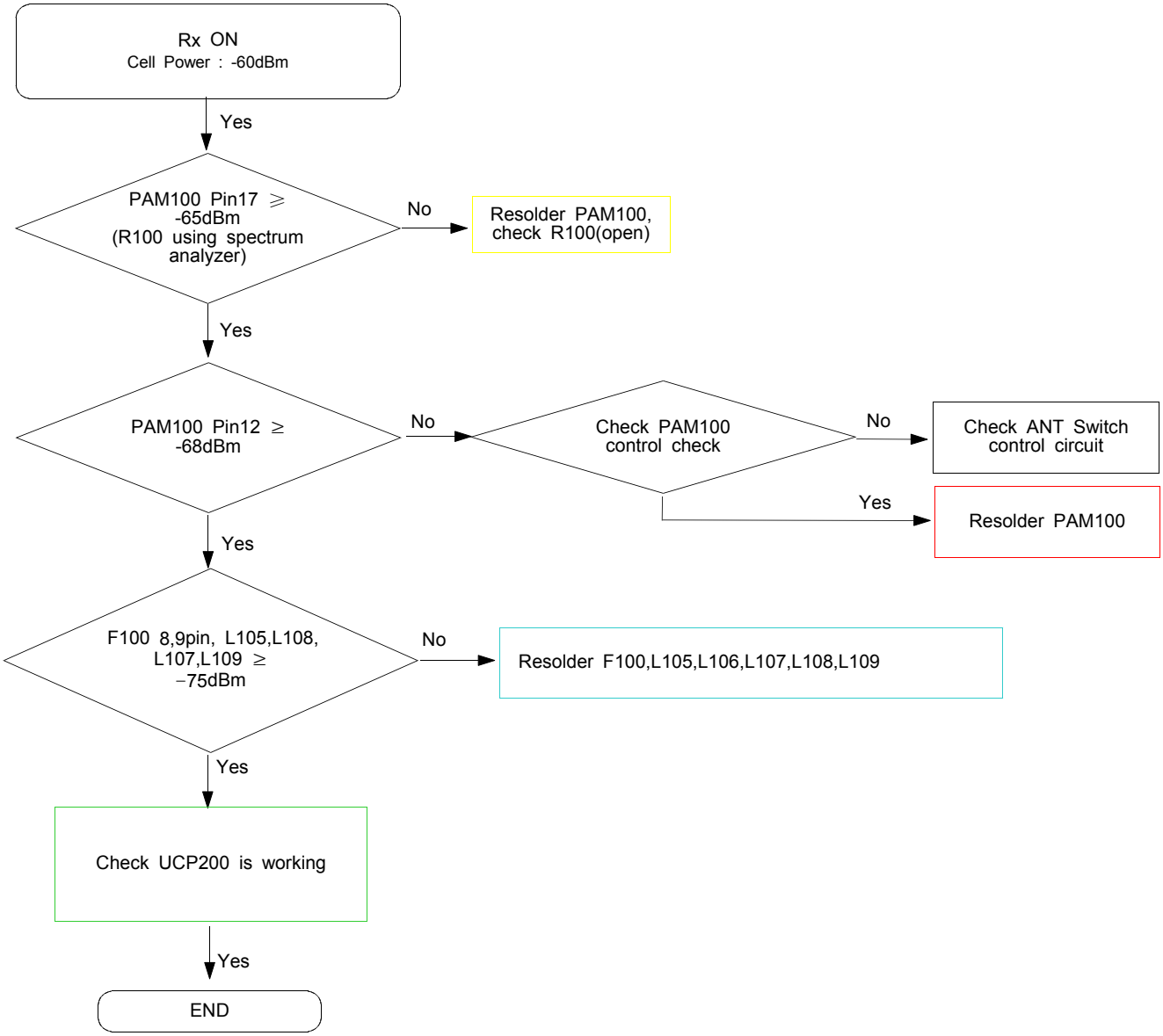
8-3-11. Back Light (LCD)



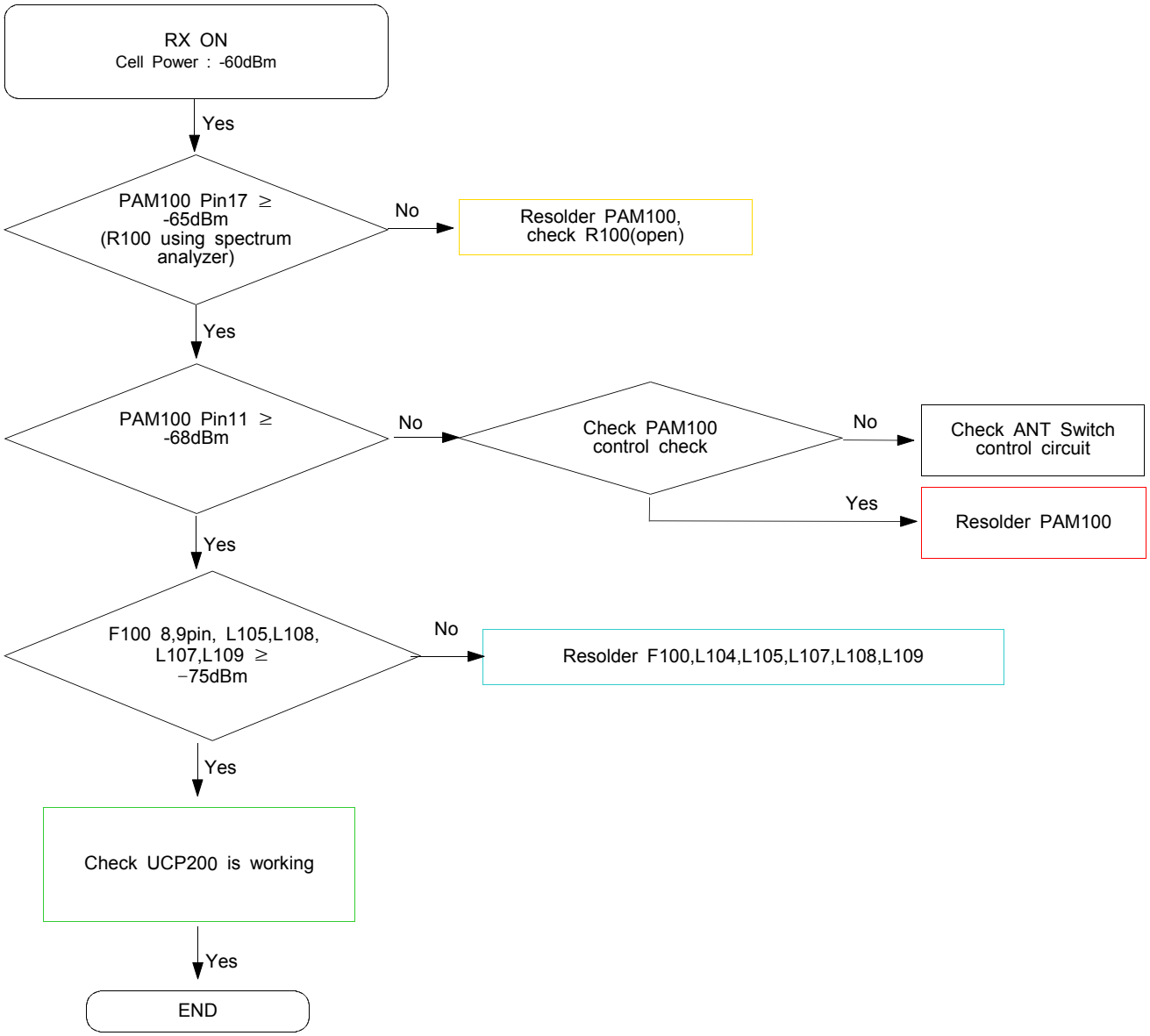




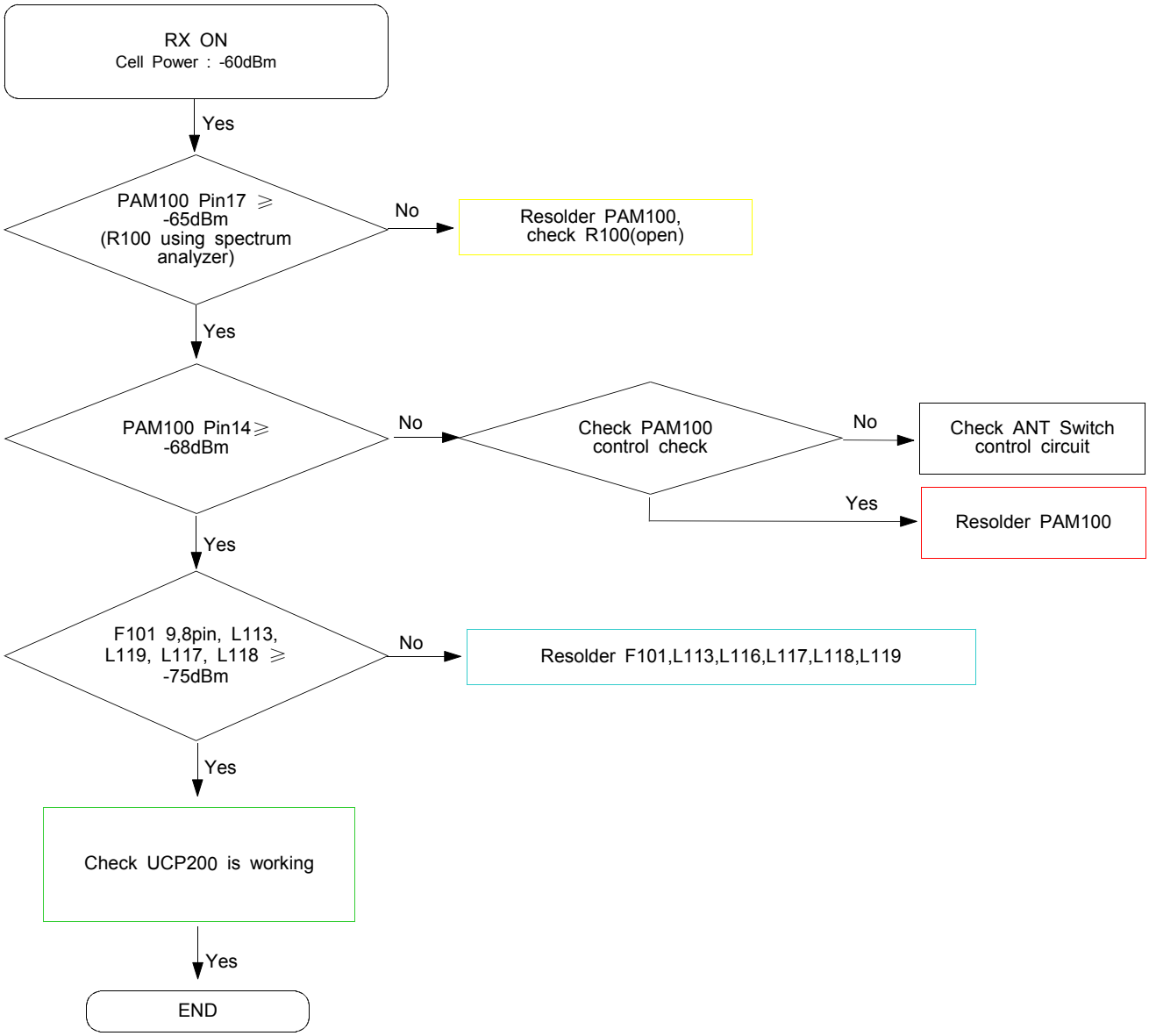
8-3-12. GSM850 Rx



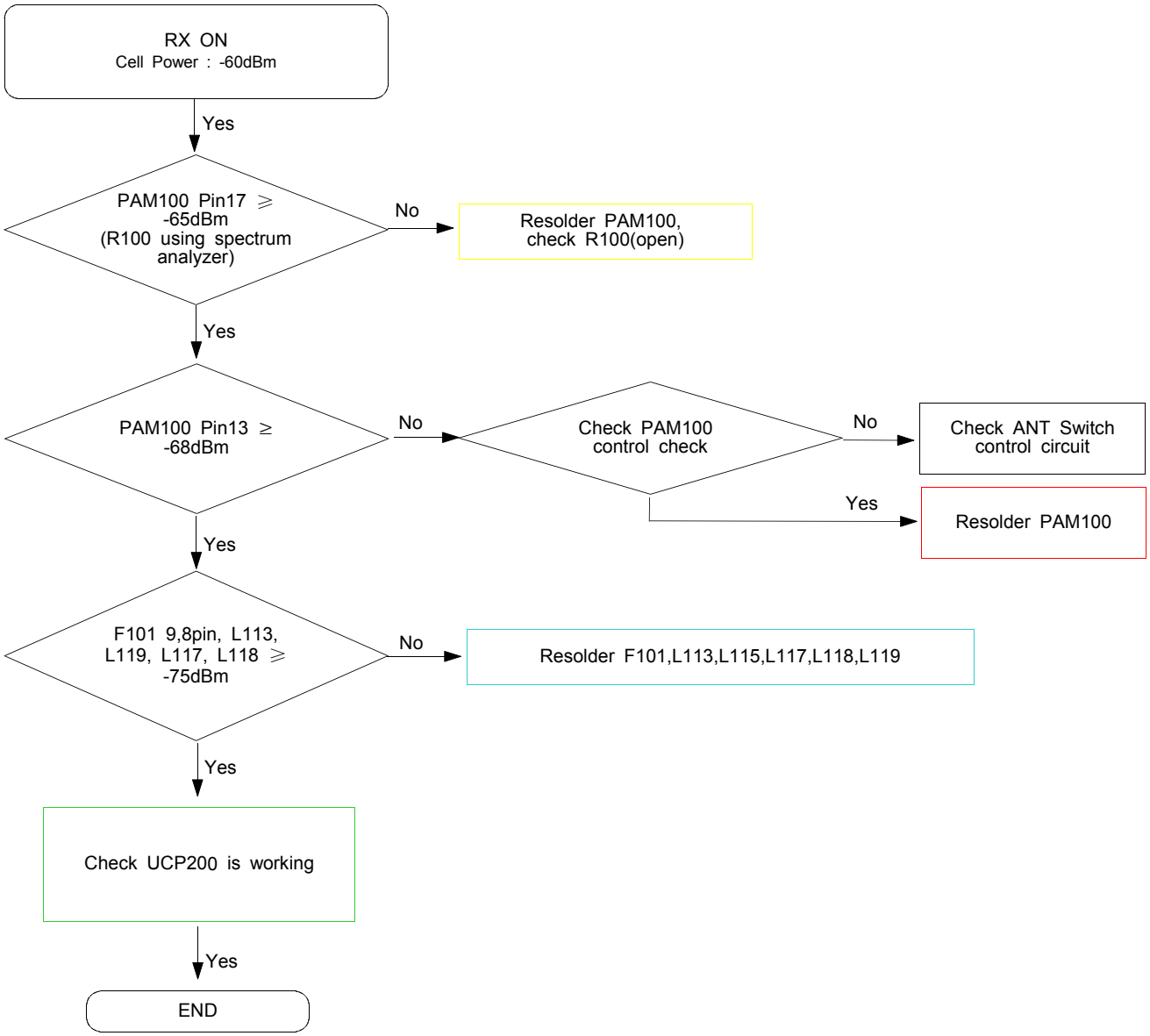
8-3-13. GSM900 Rx

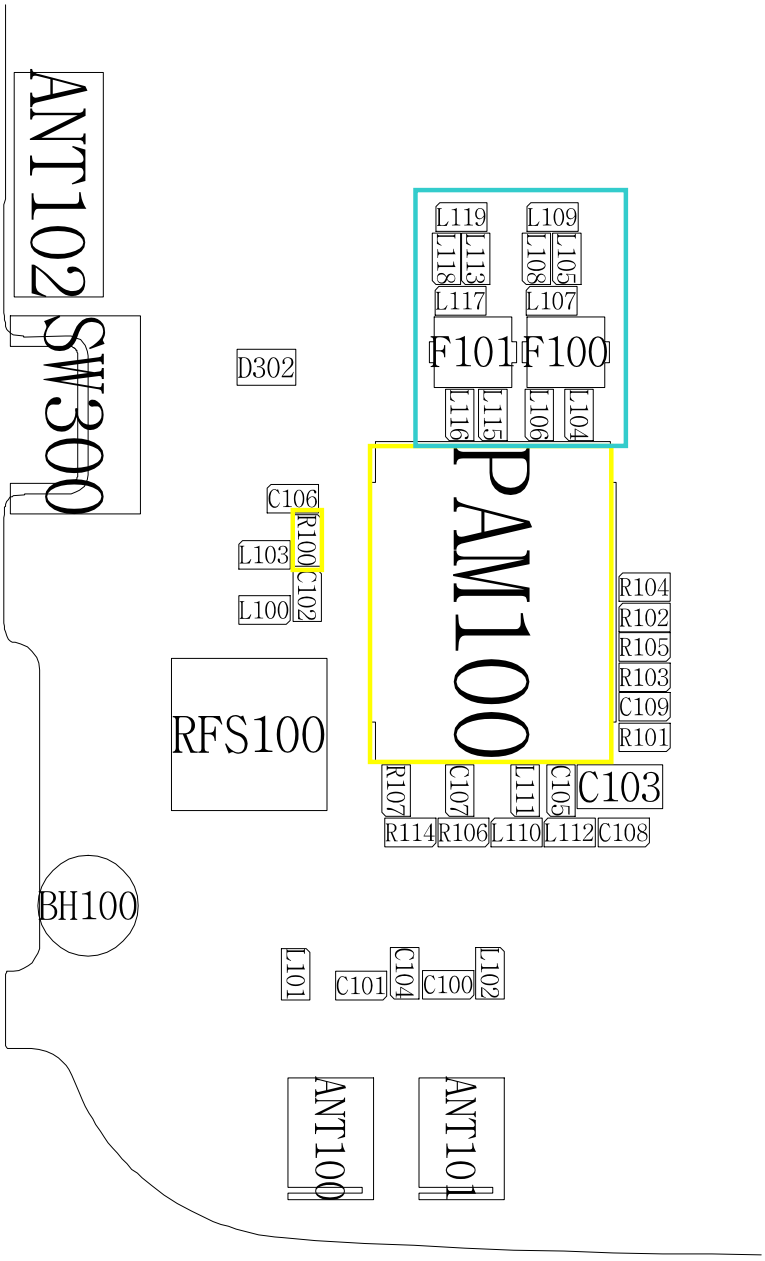


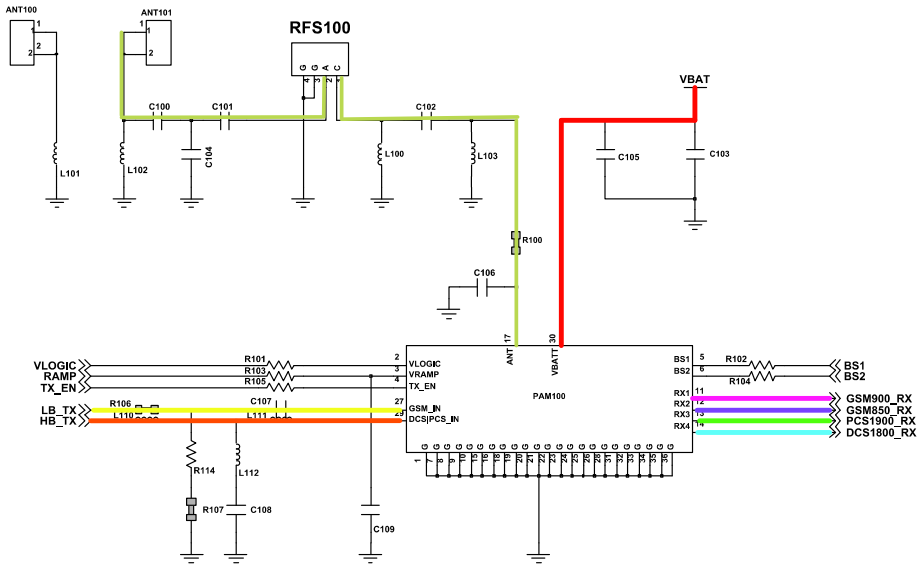
8-3-14. DCS Rx

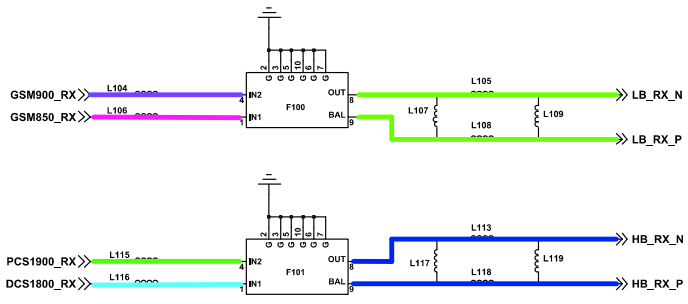


8-3-15. PCS Rx

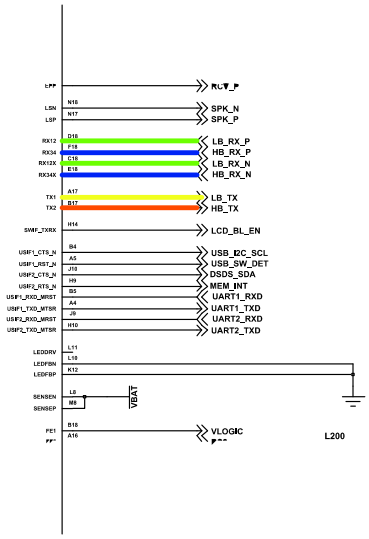




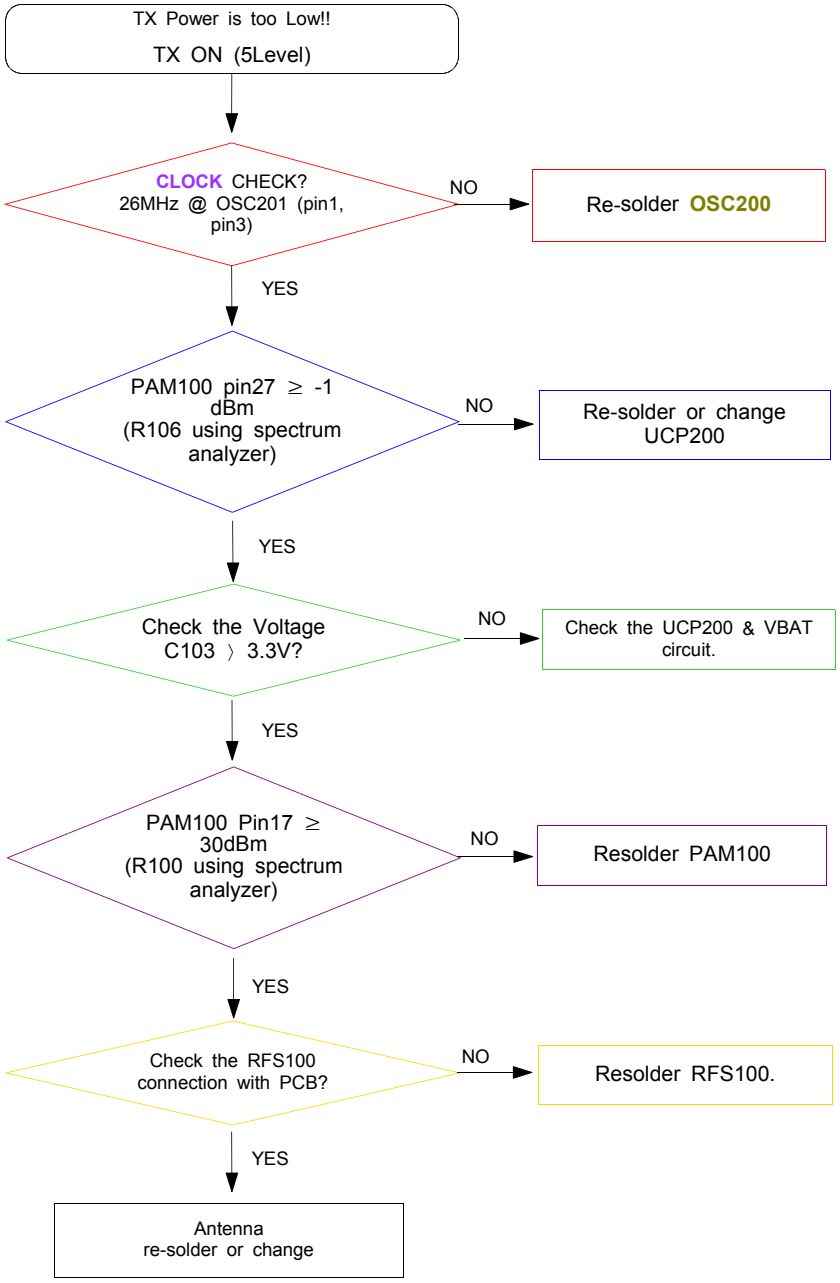




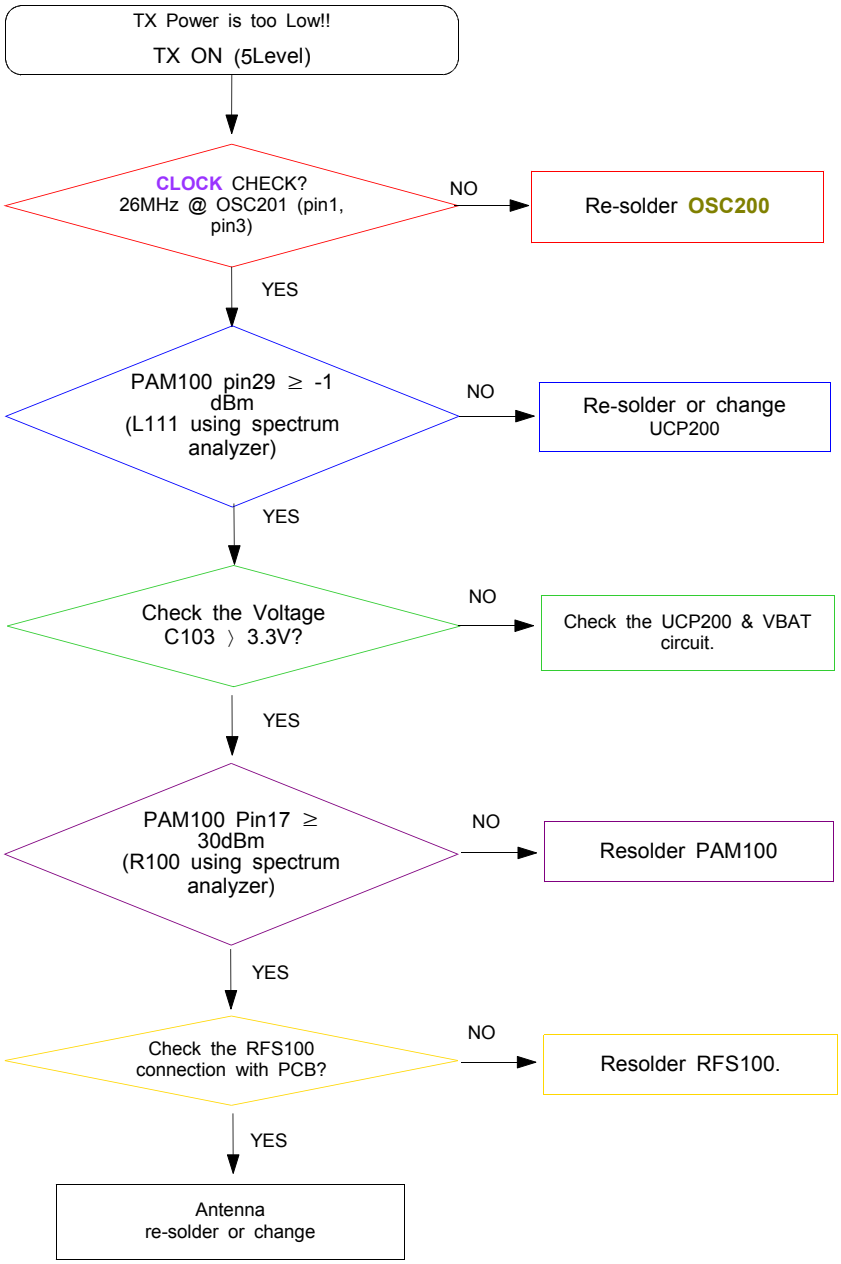
UCP200

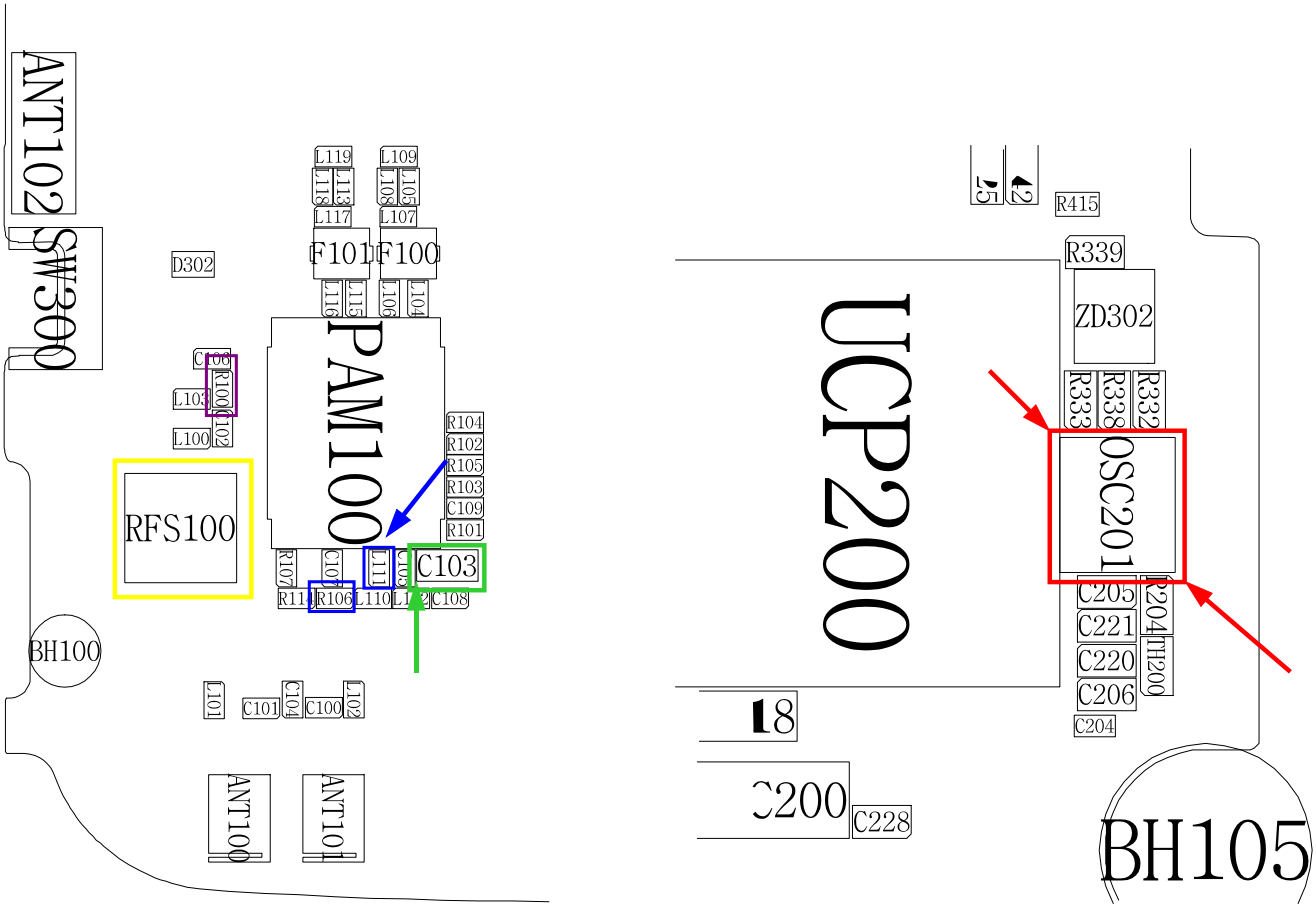


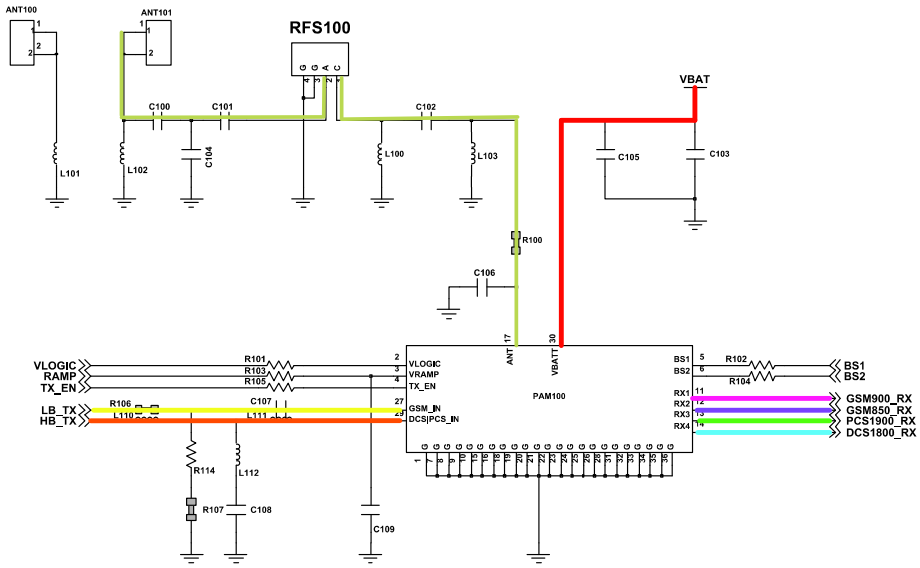
8-3-16. GSM850/900 Tx

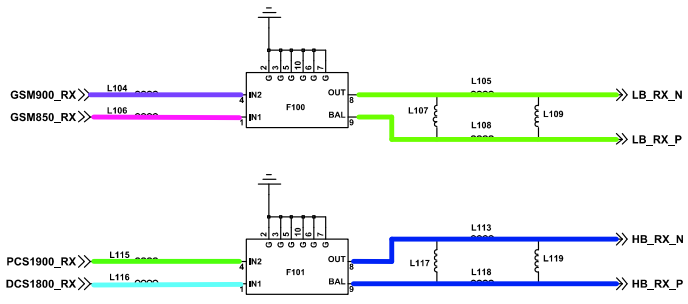


8-3-17. DCS/PCS Tx

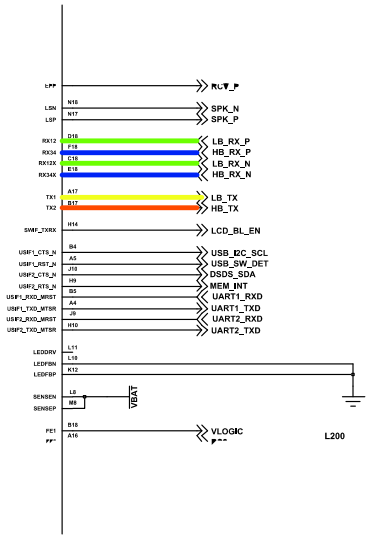








UCP200



- NC Point(Top View)

● : NC

U101

	1	2	3	4	5	6
A	○	○	○	○	○	○
B	○	○	○	●	○	●
C	○	○	○	○	●	●
D	○	○	○	○	○	○
E	○	○	●	●	●	○

UCP200

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
A	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●
B	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●	○	○
D	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
E	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
F	○	○	○	○	○	○	○	○	○	○	●	○	●	○	○	○	○	○
G	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
J	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○	○
L	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○
M	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○	○	○
N	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
P	○	○	○	○	○	○	○	○	○	○	●	○	○	○	○	○	○	○
R	○	○	○	○	○	●	○	●	○	○	○	○	○	○	○	○	○	○
T	●	○	○	○	○	●	●	○	○	●	○	○	○	○	○	○	○	○

U200

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	●	●	○	○	○	○	○	○	○	○	○	○	●	●
B	●	○	○	○	○	○	○	○	○	○	○	○	○	●
C	○	○	○	○	○	○	○	○	○	○	○	○	○	○
D	○	○	○	●	○	○	○	○	○	○	○	○	○	○
E	○	○	○	○	○	○	○	○	○	○	○	○	○	○
F	○	○	○	○	○	○	○	○	○	○	○	○	○	○
G	○	○	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○	○	○
J	○	○	○	○	○	○	○	○	○	○	○	○	○	○
K	○	○	○	○	○	○	○	○	○	○	○	○	○	○
L	○	○	○	○	○	○	○	○	○	○	○	○	○	○
M	○	○	○	○	○	○	○	○	○	○	○	○	○	○
N	●	○	○	○	○	○	○	○	○	○	○	○	○	●
P	●	●	○	○	○	○	○	○	○	○	○	○	●	●

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	DNU	DNU	NC	VSSo	VCCo	VSSQd	VDDQd	VDDQd	VSSQd	VSSd	VDDd	VSSQd	DNU	DNU
B	DNU	VSSo	/OEo	NC	/RPo	/WEo	NC	NC	NC	DQ12d	NC	NC	VDDQd	DNU
C	VSSd	NC	/WEd	/AVDo	/CEo	RDYo	DQ14d	DQ8d	DQ13d	NC	NC	DQ9d	UDMd	VDDQd
D	VDDd	/CSd	BA0d	Index								NC	NC	VSSQd
E	NC	/RASd	A2d		VCCo	NC	NC	INTo	NC	NC		NC	DQ15d	UDQSd
F	/CASd	A12d	A0d		CLKo					NC		DQ11d	DQ10d	VSSQd
G	CKEd	A9d	BA1d		VSSo					NC		VDDd	VDDQd	CKd
H	VDDd	A11d	A7d		ADQ8o					ADQ15o		VSSd	VDDQd	/CKd
J	A4d	VSSd	A5d		ADQ9o					ADQ14o		LDQSd	NC	VSSQd
K	A6d	A10d	A3d		ADQ10o	ADQ11o	VCCQo	VSSo	ADQ12o	ADQ13o		DQ2d	LDMd	DQ4d
L	NC	A8d	A1d									DQ5d	DQ7d	VSSQd
M	VSSd	VDDd	NC	ADQ5o	ADQ2o	ADQ0o	DQ6d	DQ3d	NC	NC	NC	NC	DQ0d	VDDQd
N	DNU	VCCo	NC	ADQ6o	ADQ3o	VSSQd	NC	DQ1d	NC	NC	NC	NC	VDDQd	DNU
P	DNU	DNU	VSSo	ADQ7o	ADQ4o	ADQ1o	VDDQd	VDDQd	VSSQd	VSSd	VDDd	VSSQd	DNU	DNU

153 FBGA: Top View (Ball Down)

NAND Flash
M-DDR
Power
Ground
NC/DNU

U403

	1	2	3	4	5	6
A	●	○	○	○	○	○
B	●	●	○	○	○	○
C	○	○	○	○	○	○
D	○	○	○	○	○	○
E	○	○	○	○	○	○
F	○	○	○	○	●	●