

SAMSUNG

GSM TELEPHONE

SGH-E500

SERVICE *Manual*

GSM TELEPHONE



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10. Reference data

1. Safety Precautions

1-1. Repair Precaution

- Repair in Shield Box, during detailed tuning.
Take specially care of tuning or test,
because specificity of cellular phone is sensitive for surrounding interference(RF noise).
- Be careful of using any 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 thick twisted wire when you measure level.
A thick twisted wire has low resistance, therefore, a chance of measurement error is low.
- Repair after separate Test Pack & Set because of 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 special care of soldering, because Land of PCB is small and weak in heat.
- Surely turn on/off the phone while using AC power plug, because a repair of battery
charger is dangerous when you turn 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 as following:

- Remove remaining static electricity on your body before you touch semiconductor or parts with semiconductor. Please 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 ESDs are packed in box and aluminum plate to have conductive power to avoid static electricity.
- You must maintain electric contact between ESD and plate until ESD is connected completely to the proper place or a circuit board.

2. Specification

2-1. GSM General Specification

	GSM 900 Phase 1	GSM 900 Phase 2	DCS 1800 Phase 1	DCS 1800 Phase 2	PCS 1900
Freq. Band[MHz] Uplink/Downlink	890~915 935~960	880~915 925~960	1710~1785 1805~1880	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range	1~124	0~124 & 975~1023	512~885	512~885	512~810
Tx/Rx spacing	45MHz	45MHz	95MHz	95MHz	80MHz
Mod. Data rate/ Bit Period	270.833kbps 3.692us	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	576.9us 4.615ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK
MS Power	33dBm~5dBm	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm	30dBm~0dBm
Power Control level	5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl	0pcl ~ 15pcl
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm	-100dBm
TDMA Mux	8	8	8	8	8
Cell Radius	35Km	35km	2km	2km	2km

2-2. GSM Tx Power Class

TX Power control level	GSM900	TX Power control level	DCS1800	TX Power control level	PCS1800
5	33±3 dBm	0	30±3 dBm	0	30±3 dBm
6	31±3 dBm	1	28±3 dBm	1	28±3 dBm
7	29±3 dBm	2	26±3 dBm	2	26±3 dBm
8	27±3 dBm	3	24±3 dBm	3	24±3 dBm
9	25±3 dBm	4	22±3 dBm	4	22±3 dBm
10	23±3 dBm	5	20±3 dBm	5	20±3 dBm
11	21±3 dBm	6	18±3 dBm	6	18±3 dBm
12	19±3 dBm	7	16±3 dBm	7	16±3 dBm
13	17±3 dBm	8	14±3 dBm	8	14±3 dBm
14	15±3 dBm	9	12±4 dBm	9	12±4 dBm
15	13±3 dBm	10	10±4 dBm	10	10±4 dBm
16	11±5 dBm	11	8±4dBm	11	8±4 dBm
17	9±5 dBm	12	6±4 dBm	12	6±4 dBm
18	7±5 dBm	13	4±4 dBm	13	4±4 dBm
19	5±5 dBm	14	2±5 dBm	14	2±5 dBm
		15	0±5 dBm	15	0±5 dBm

3. Product Function

Main Function

- Camera and camcorder
- Image editor
- MP3 player
- Phonebook
- Name card
- Multimedia Message Service (MMS)
- E-mail
- Voice recorder
- Bluetooth
- Get personal with photo caller ID
- Web browser
- Java
- Calendar
- Women's Life Software
- Voice recognition
- Voice Clarity
- Digital Data Printing

4. Array course control



Test Jig (GH80-03306A)



Test Cable (GH39-00499A)



RF Test Cable (GH39-00397A)

Software Downloading

4-1. Downloading Binary, Tfs Files

- Three binary files for downloading E500.
 - E500XAFH7.bin : Modem binary for communication function
& binary for user interface and various application
 - E500XAFH7.tfs: Files need for each application

4-2. Pre-requisite for Downloading

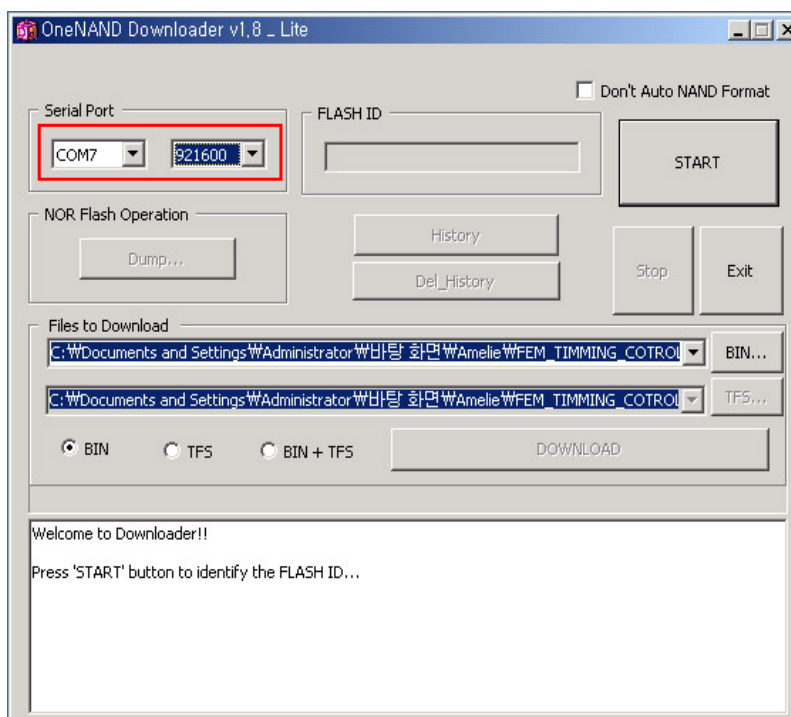
- Downloader Program([OneNAND Downloader_V19_Lite.exe](#))
- E500 Mobile Phone
- Data Cable
- Binary, tfs files

4-3. S/W Downloader Program

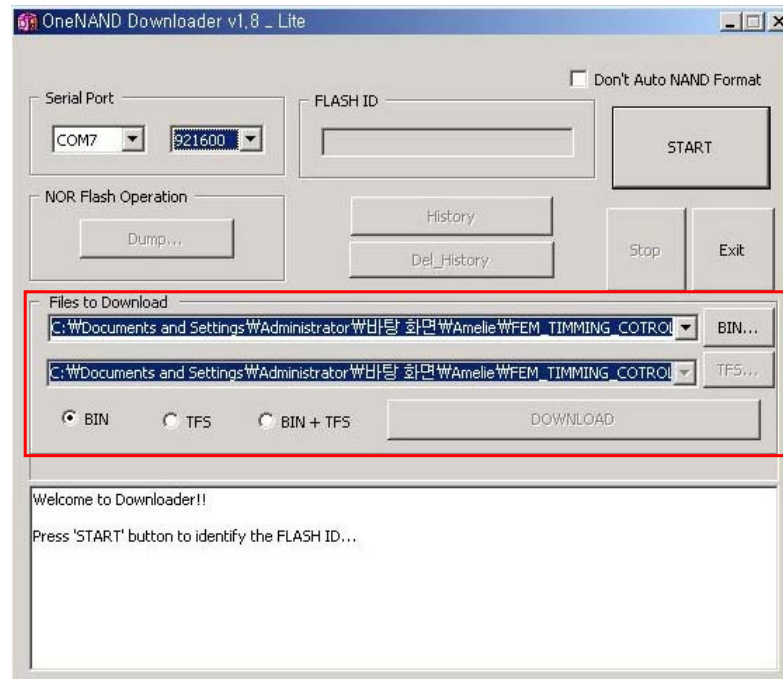
1. Load the binary download program by executing the “**OneNAND Downloader_V19_Lite.exe**”



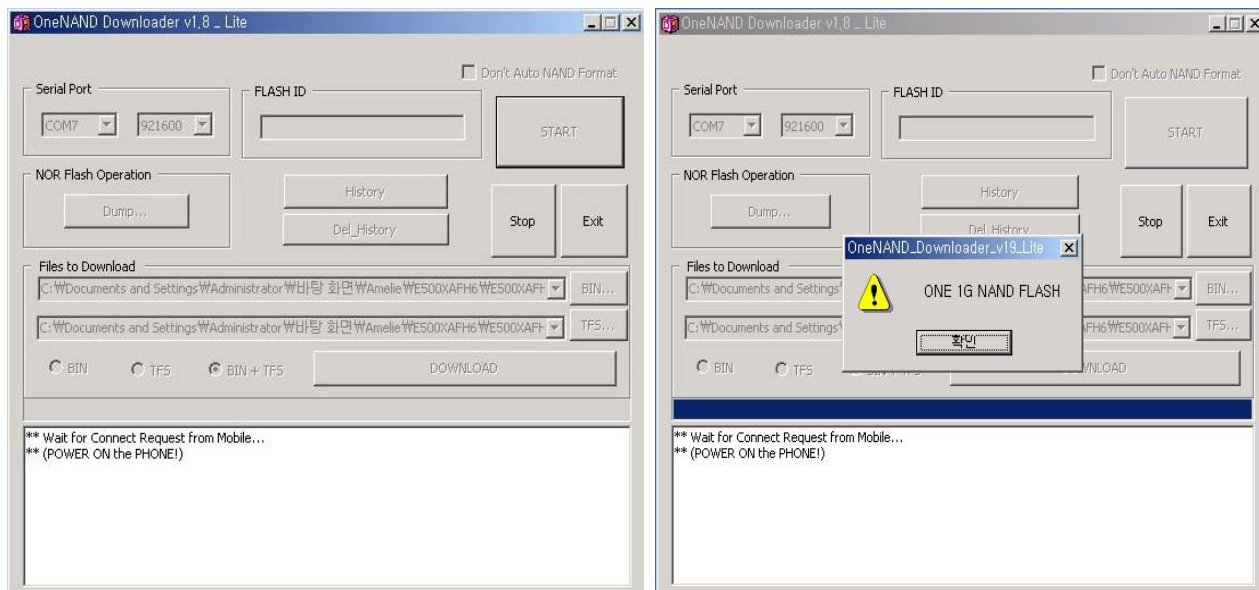
2. Select the check box what you want to download and port No, download rate.



3. Select the binary and tfs file what you want to download



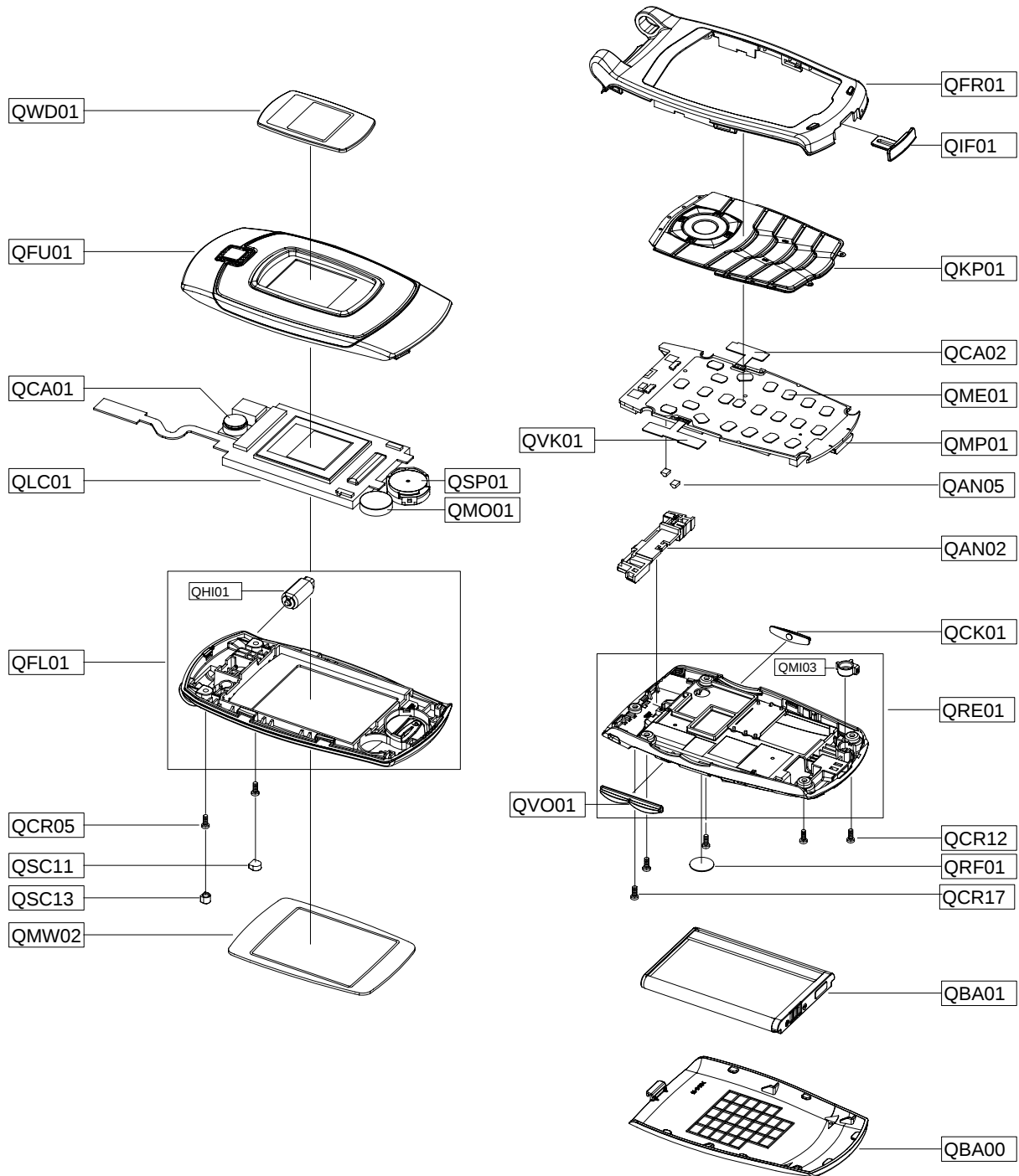
4. Now press the button 'Start'. And Power ON.



5. Now press the button 'OK'. Then Press the button 'Download'.

5. Exploded View / Disassembly&Assembly Instructions

5-1. Cellular phone Exploded View



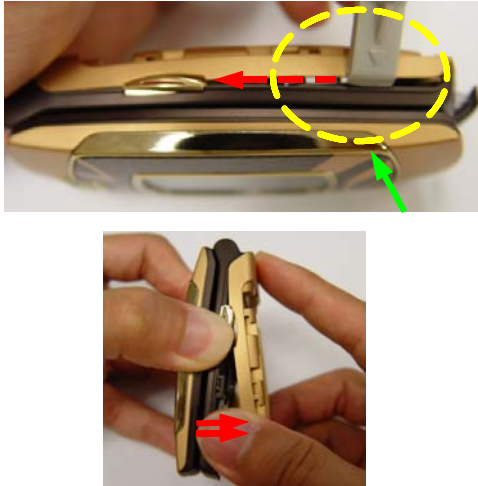
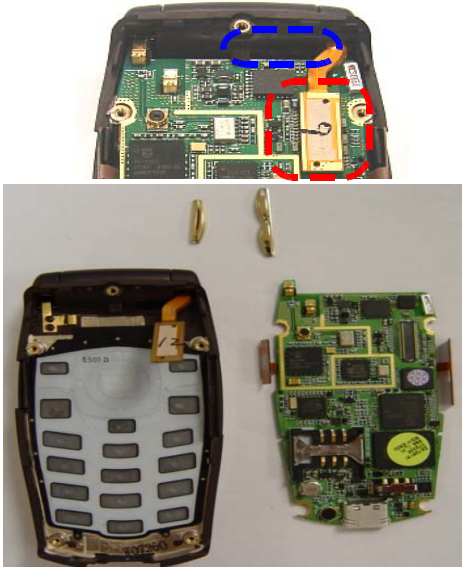
5-2. Cellular phone Parts List

Design LOC		Description	Sec Code
QAN02		INTENNA-SGH E500	GH42-00822A
QAN05		ASSY RUBBER-INTENNA	GH98-01592A
QBA00		PMO-COVER BATTERY	GH72-30992A
QBA01		INNER BATTERY PACK-800MAH,BLK,	GH43-01850A
QCA01		UNIT-CAMERA	GH59-03121A
QCA02		UNIT-CAMERA KEY	GH59-03144A
QCK01		ASSY KEY-CAMERA	GH98-01017A
QCR05		SCREW-MACHINE	6001-001478
QCR12		SCREW-MACHINE	6001-001530
QCR17		SCREW-MACHINE	6001-001460
QFR01		ASSY ACCE-FRONT COVER	GH98-01008A
QFU01		ASSY ACCE-FOLDER UPPER	GH98-01006A
QIF01		PMO-COVER IF CONN	GH72-30993A
QKP01		ASSY ACCE-KEYPAD(SER/BRN)	GH98-01660A
QLC01		MEA-LCD MODULE KIT	GH97-06377A
QME01		UNIT-DOME SHEET	GH59-03218A
QMO01		MOTOR DC-SGHZ130	GH31-00154C
QMP01		PBA MAIN-SGH E500CMAIN	GH92-02945A
QMW02		PCT-MAIN WINDOW	GH72-30962A
QRF01		MPR-SHEET RF	GH74-23482A
QSC11		RMO-RUBBER SCREW CAP	GH73-07079A
QSC13		MPR-SHEET SCREW REAR	GH74-26301A
QSP01		SPEAKER	3001-001995
QVK01		UNIT-VOLUME KEY	GH59-03143A
QVO01		PMO-VOLUME KEY	GH72-30990A
QWD01		PCT-SUB WINDOW	GH72-30963A
QRE01		ASSY ACCE-REAR COVER	GH98-01009A
	QMI03	ASSY RUBBER-MIC	GH98-01015A
QFL01		ASSY ACCE-FOLDER LOWER	GH98-01007A
	QHI01	ASSY MEC-TYPE HINGE CAN	GH75-07973A

Description	Sec Code
BAG PE	6902-000634
ADAPTOR-SGHE500,BLK,EU	GH44-01418A
S/W CD-SGHE500 PC LINK CD	GH46-00271A
UNIT-EARPHONE, SGH E500 , BRN	GH59-03356A
LABEL(P)-WATER SOAK	GH68-02026A
LABEL(P)-WATER SOAK	GH68-02026A
MANUAL-SFC	GH68-04336A
LABEL(P)-BARCODE RUSSIA	GH68-08494A
LABEL(R)-MAIN(SER)	GH68-09881B
MANUAL USERS-EU RUSSIAN	GH68-11410A
BOX-UNIT(SER)	GH69-04264B
MPR-BOHO VINYL LCD CONN	GH74-15350A
MPR-TAPE SUB WINDOW	GH74-23358A
MPR-TAPE MAIN WINDOW	GH74-23361A
MPR-TAPE LCD CONDUCTIVE L	GH74-23466A
MPR-TAPE LCD CONDUCTIVE R	GH74-23467A
MPR-TAPE LCD GOLD GASKETL	GH74-23468A
MPR-TAPE LCD GOLD GASKET R	GH74-23469A
MPR-TAPE INSULATE LCD1	GH74-23470A
MPR-TAPE INSULATE LCD2	GH74-23471A
MPR-TAPE GASKET DOME SHEET UP	GH74-23475A
MPR-TAPE GASKET DOME SHEET DOW	GH74-23476A
MPR-VINYL BOHO LOWER2	GH74-23484A
MPR-VINYL BOHO UPPER2	GH74-26138A
MPR-SPONGE LCD TAIL	GH74-26302A
MPR-SPONGE INTENNA	GH74-27279A
MPR-INSU TAPE	GH74-27307A
MPR-INSU TAPE	GH74-27308A
MPR-INSU TAPE	GH74-27465A
ASSY ACCE-SGHE500(LEATHER CASE	GH98-01955A
ASSY ACCE-HAND STRAP	GH98-01966A

5-3. Disassembly and Assembly Instructions

– Disassembly

1 	2 
1. Loosen a screw this six point form Rear. 2. And remove the IF cover.	1. Make the space between rear cover and front cover using assembly stick. 2. And then widen space with hand and separate 2 parts.
3 	4 
1. At first remove the connector from PBA. 2. And disjoint PBA form front ass'y. 3. Remove the front sheet tape at front ass'y.	1. Remove the keypad from front ass'y. 2. And separate the folder ass'y from front by pushing the hinge.

5



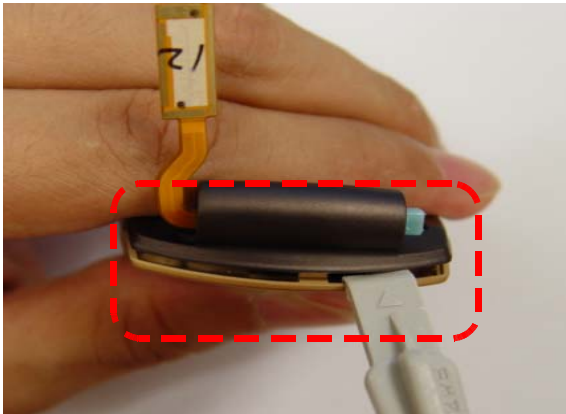
1. Remove a screw cap with a pinset.
2. Loosen a screw with driver.

6



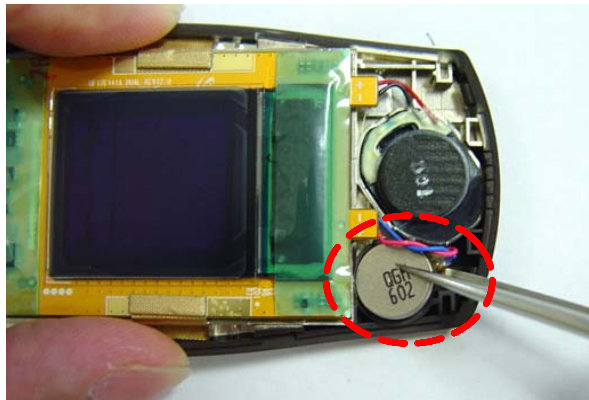
1. Insert a assembly stick to folder space after pushing top side with a thumb like a picture.

7



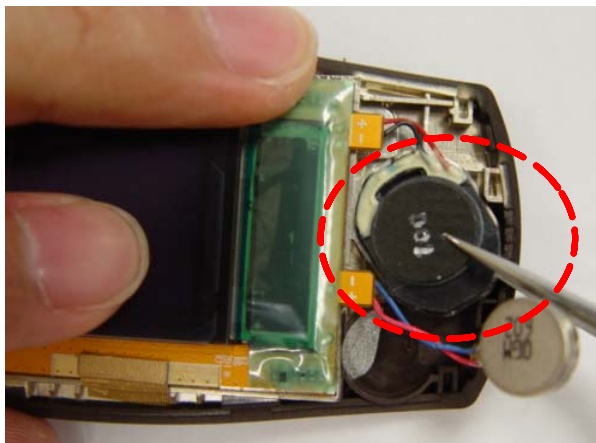
1. Make the space between folder upper and folder lower at top side using assembly stick.

8



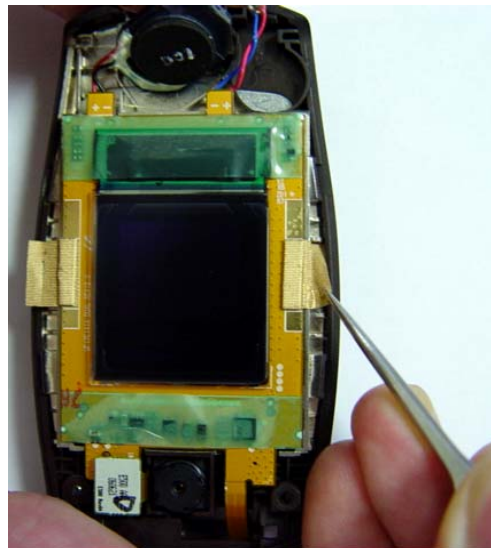
1. Separate a motor from folder lower using a pinset.

9



1. Separate a speaker from folder lower using a pinset.

10



1. Remove the LCD EMI tape.

11



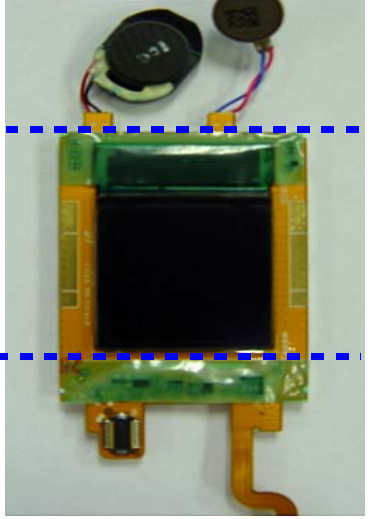
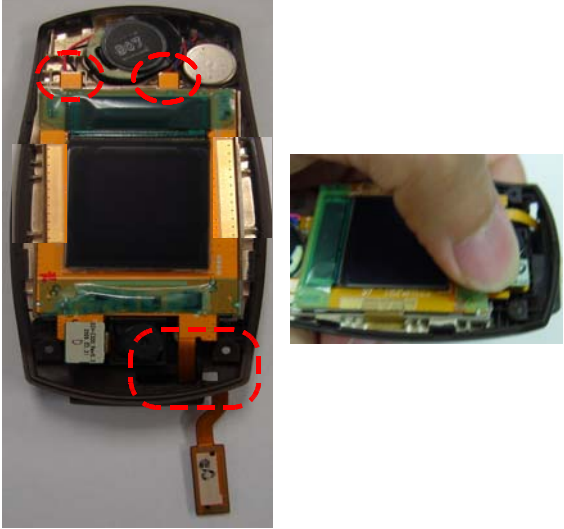
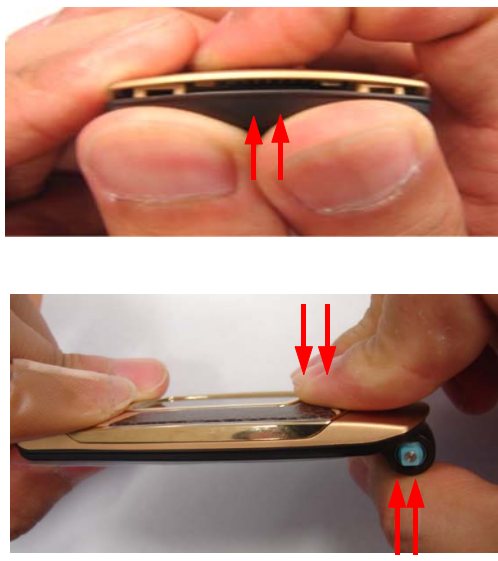
1. Separate the camera with pinset.

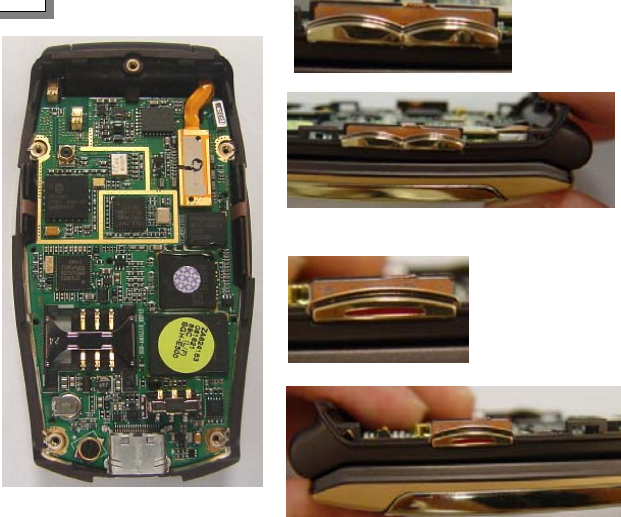
12



1. Verify all kinds of elements after finishing disassembling

— Assembly

1  1. Attach 2 kind LCD insulation tape regarding guide lines.	2  1. Insert LCD FPCB on folder lower. 2. Put the camera connector on sub-board.
3  1. Locking the hook from out side. (Left, Right)	 1. Pushing the upside of folder ass'y for locking 2. And twisting the bottom side of folder ass'y for locking

5 	6 
1. Fasten a screw with driver. 2. Attach a 'screw cap' with a pinset and hit with a Q-tip.	1. Insert the 'con to con' to front cover hole. 2. Insert the folder ass'y to front cover using folder hinge.
7 	8 
1. Attach the 'front sheet'. 2. Put the keypad on front ass'y.	1. Connecting LCD FPCB to main PBA. 2. Put the side key and camera key after setting the key FPCB.

9



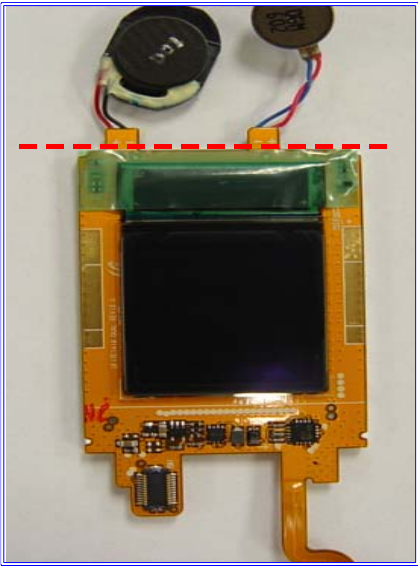
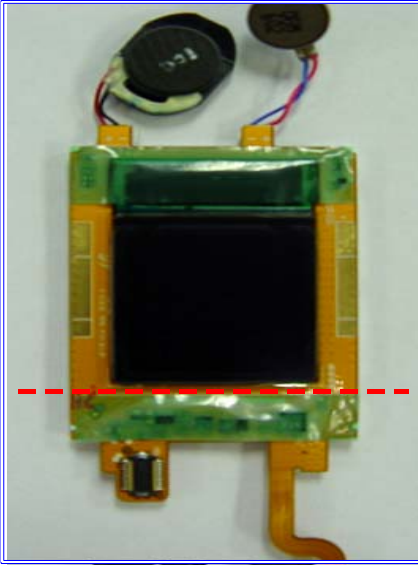
1. At first locking the edge hook for rear assembling. (left, right side)
2. Pushing upside of rear case for locking.

10



1. Fasten screws this four point of rear cover.

— LCD kit assembly

1 	2 
1. Put the insulation tape to LCD upper side according to guide line. 2. And pushing the tape with hand.	1. Put the insulation tape of LCD lower side according to guide line. 2. And pushing the tape with hand.

6. MAIN Electrical Parts List

Design LOC	Description	SEC Code	STATUS
ANT3	ANTENNA-CHIP	4202-001159	SA
BAT401	BATTERY-LI(2ND)	4302-001180	SA
BTC501	HEADER-BATTERY	3711-006090	SA
C101	C-CER,CHIP	2203-000812	SA
C102	C-CER,CHIP	2203-002668	SA
C103	C-CER,CHIP	2203-000425	SA
C104	C-CER,CHIP	2203-002668	SA
C105	C-CER,CHIP	2203-000425	SA
C109	C-CER,CHIP	2203-000438	SA
C110	C-CER,CHIP	2203-000233	SA
C112	C-CER,CHIP	2203-000386	SA
C113	C-CER,CHIP	2203-000233	SA
C114	C-CER,CHIP	2203-000386	SA
C115	C-CER,CHIP	2203-001385	SA
C116	INDUCTOR-SMD	2703-001409	SA
C117	C-CER,CHIP	2203-005482	SA
C118	C-CER,CHIP	2203-006562	SA
C119	C-CER,CHIP	2203-000628	SA
C120	C-TA,CHIP	2404-001413	SA
C121	C-CER,CHIP	2203-000438	SA
C122	C-CER,CHIP	2203-005736	SA
C123	C-CER,CHIP	2203-005683	SA
C124	C-CER,CHIP	2203-005736	SA
C125	C-CER,CHIP	2203-000233	SA
C128	C-CER,CHIP	2203-000530	SNA
C129	C-CER,CHIP	2203-000233	SA
C130	C-CER,CHIP	2203-000870	SA
C131	C-CER,CHIP	2203-000278	SA
C133	C-CER,CHIP	2203-000278	SA
C134	C-CER,CHIP	2203-005288	SA
C135	C-CER,CHIP	2203-000278	SA
C136	C-CER,CHIP	2203-000466	SA
C137	C-CER,CHIP	2203-005382	SA
C138	C-CER,CHIP	2203-002668	SA
C200	C-CER,CHIP	2203-006194	SA
C201	C-CER,CHIP	2203-006423	SA
C202	C-CER,CHIP	2203-006423	SA
C203	C-CER,CHIP	2203-005682	SA
C204	C-CER,CHIP	2203-006423	SA
C205	C-CER,CHIP	2203-006423	SA
C206	C-CER,CHIP	2203-006423	SA
C207	C-CER,CHIP	2203-006423	SA
C208	C-CER,CHIP	2203-006423	SA
C209	C-CER,CHIP	2203-006208	SA
C210	C-CER,CHIP	2203-006423	SA
C211	C-CER,CHIP	2203-006423	SA
C212	C-CER,CHIP	2203-006423	SA
C213	C-CER,CHIP	2203-005682	SA
C214	C-CER,CHIP	2203-006423	SA
C215	C-CER,CHIP	2203-006423	SA
C304	C-CER,CHIP	2203-006423	SA
C305	C-CER,CHIP	2203-006423	SA
C306	C-CER,CHIP	2203-006194	SA

Design LOC	Description	SEC Code	STATUS
C316	C-CER,CHIP	2203-006423	SA
C317	C-CER,CHIP	2203-000438	SA
C318	C-CER,CHIP	2203-006423	SA
C328	C-TA,CHIP	2404-001240	SA
C350	C-CER,CHIP	2203-006324	SA
C351	C-CER,CHIP	2203-006324	SA
C401	C-CER,CHIP	2203-006825	SA
C402	C-CER,CHIP	2203-005819	SA
C403	C-CER,CHIP	2203-005819	SA
C404	C-CER,CHIP	2203-006825	SA
C406	C-CER,CHIP	2203-005482	SA
C407	C-CER,CHIP	2203-006257	SA
C408	C-CER,CHIP	2203-000425	SA
C409	C-CER,CHIP	2203-000233	SA
C410	C-CER,CHIP	2203-000425	SA
C412	C-CER,CHIP	2203-000812	SA
C413	C-CER,CHIP	2203-006838	SA
C414	C-CER,CHIP	2203-006257	SA
C415	C-CER,CHIP	2203-006838	SA
C416	C-CER,CHIP	2203-006257	SA
C417	C-CER,CHIP	2203-006257	SA
C418	C-CER,CHIP	2203-006208	SA
C419	C-CER,CHIP	2203-005482	SA
C421	C-CER,CHIP	2203-006838	SA
C422	C-CER,CHIP	2203-006208	SA
C423	C-CER,CHIP	2203-006838	SA
C424	C-CER,CHIP	2203-006257	SA
C425	C-CER,CHIP	2203-006257	SA
C501	C-CER,CHIP	2203-000189	SA
C502	C-CER,CHIP	2203-000854	SA
C503	C-CER,CHIP	2203-000854	SA
C504	C-CER,CHIP	2203-005482	SA
C505	C-CER,CHIP	2203-005382	SA
C506	C-CER,CHIP	2203-002709	SA
C507	C-CER,CHIP	2203-000995	SA
C508	C-CER,CHIP	2203-005482	SA
C509	C-CER,CHIP	2203-002443	SA
C602	C-CER,CHIP	2203-005052	SA
C603	C-CER,CHIP	2203-005054	SA
C605	C-CER,CHIP	2203-000278	SA
C606	C-CER,CHIP	2203-005819	SA
C607	C-CER,CHIP	2203-006562	SA
C608	C-CER,CHIP	2203-005050	SA
C610	C-CER,CHIP	2203-000995	SA
C611	C-CER,CHIP	2203-005052	SA
C612	C-CER,CHIP	2203-005054	SA
C613	C-CER,CHIP	2203-006562	SA
C614	C-CER,CHIP	2203-006562	SA
C615	C-CER,CHIP	2203-005052	SA
C616	C-CER,CHIP	2203-005054	SA
C617	C-CER,CHIP	2203-000278	SA
C618	C-CER,CHIP	2203-005819	SA
C619	C-CER,CHIP	2203-006562	SA

Design LOC	Description	SEC Code	STATUS
C620	C-CER,CHIP	2203-005052	SA
C621	C-CER,CHIP	2203-005054	SA
C622	C-CER,CHIP	2203-000995	SA
C623	C-CER,CHIP	2203-000278	SA
C624	C-CER,CHIP	2203-006137	SA
C625	C-CER,CHIP	2203-000438	SA
C626	C-CER,CHIP	2203-000438	SA
C627	C-CER,CHIP	2203-005682	SA
C628	C-CER,CHIP	2203-005682	SA
C629	C-CER,CHIP	2203-005682	SA
C632	C-CER,CHIP	2203-002709	SA
C635	C-CER,CHIP	2203-002709	SA
C637	C-CER,CHIP	2203-000254	SA
C638	C-TA,CHIP	2404-001383	SA
C641	C-CER,CHIP	2203-000254	SA
C702	C-CER,CHIP	2203-006838	SA
C703	C-CER,CHIP	2203-006562	SA
C705	C-CER,CHIP	2203-006423	SA
C706	C-CER,CHIP	2203-006423	SA
C707	C-CER,CHIP	2203-006423	SA
C708	C-CER,CHIP	2203-006423	SA
C709	C-CER,CHIP	2203-005717	SNA
C710	C-CER,CHIP	2203-005717	SNA
C712	C-CER,CHIP	2203-005717	SNA
C713	C-CER,CHIP	2203-005717	SNA
C714	C-CER,CHIP	2203-005717	SNA
C715	C-CER,CHIP	2203-005717	SNA
C716	C-CER,CHIP	2203-005717	SNA
C717	C-CER,CHIP	2203-005683	SA
C718	C-CER,CHIP	2203-005683	SA
C719	C-CER,CHIP	2203-005683	SA
C720	C-CER,CHIP	2203-005683	SA
C721	C-CER,CHIP	2203-005683	SA
D601	DIODE-SCHOTTKY	0404-001172	SA
F100	FILTER-SAW	2904-001553	SA
F600	FILTER-EMI/ESD	2901-001349	SA
F700	FILTER-EMI SMD	2901-001377	SA
F701	FILTER-EMI SMD	2901-001377	SA
F702	FILTER-EMI SMD	2901-001377	SA
F703	FILTER-EMI SMD	2901-001377	SA
F704	FILTER-EMI SMD	2901-001377	SA
F705	FILTER-EMI SMD	2901-001377	SA
IFC600	SOCKET-INTERFACE	3710-002306	SA
L100	NPR-ANTENNA CONTACT V2	GH71-06570A	SA
L101	NPR-ANTENNA CONTACT V2	GH71-06570A	SA
L103	INDUCTOR-SMD	2703-001938	SA
L104	INDUCTOR-SMD	2703-002200	SA
L106	INDUCTOR-SMD	2703-001613	SA
L107	INDUCTOR-SMD	2703-001750	SA
L108	INDUCTOR-SMD	2703-001750	SA
L109	INDUCTOR-SMD	2703-001748	SA
L110	INDUCTOR-SMD	2703-002636	SA
L111	INDUCTOR-SMD	2703-002281	SA

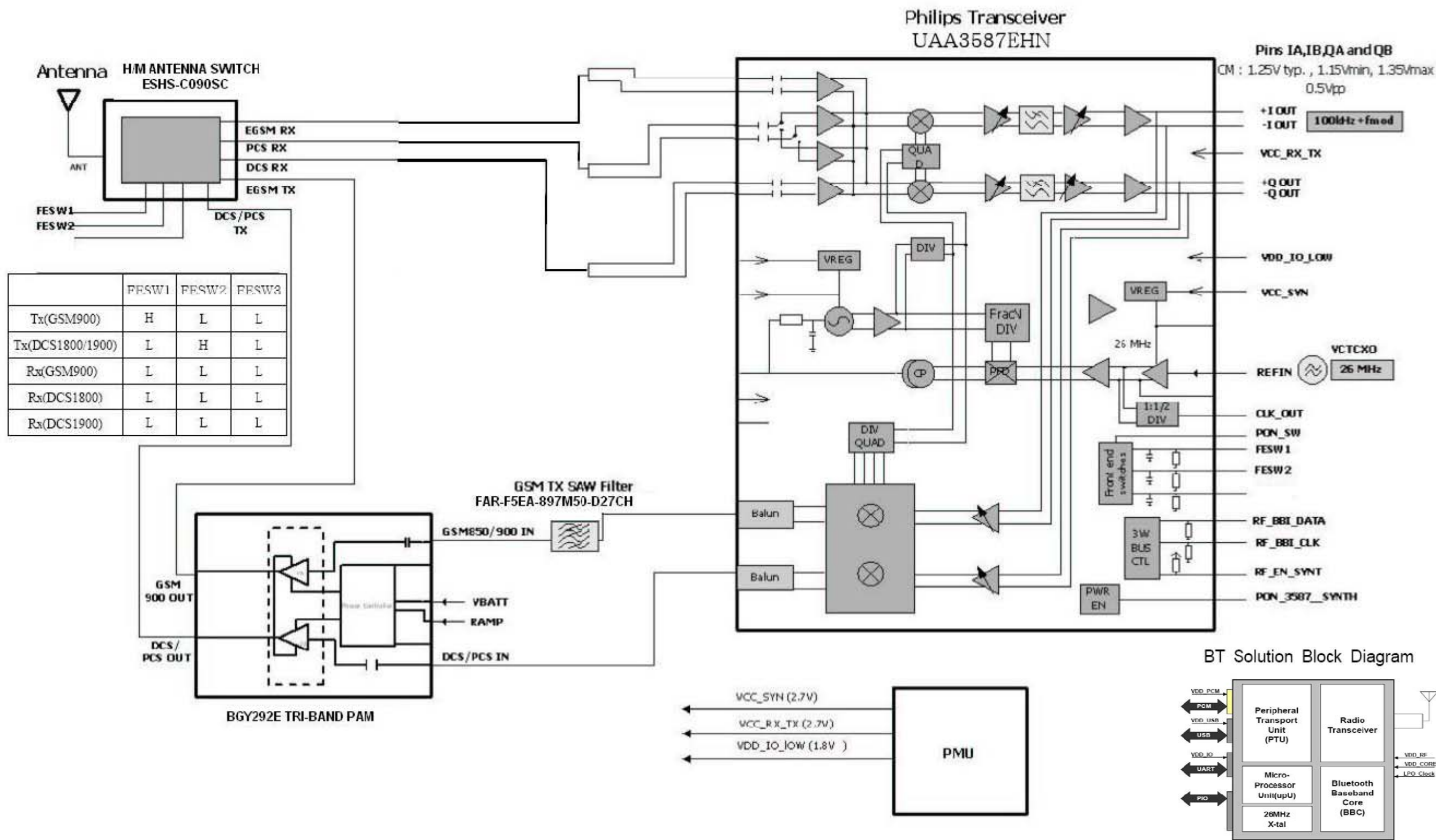
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L115	INDUCTOR-SMD	2703-002313	SA
L116	BEAD-SMD	3301-001729	SA
L117	INDUCTOR-SMD	2703-002267	SA
L300	BEAD-SMD	3301-001534	SA
L400	BEAD-SMD	3301-001120	SA
L402	INDUCTOR-SMD	2703-002782	SA
L404	R-CHIP	2007-000171	SA
L500	BEAD-SMD	3301-001534	SA
L600	BEAD-SMD	3301-001158	SA
L601	BEAD-SMD	3301-001158	SA
LED611	LED	0601-002119	SA
LED613	LED	0601-002119	SA
MIC600	MIC-CONDENSOR	3003-001107	SA
MOD1	BLUETOOTH MODULE	4709-001445	SA
MODULE100	DUPLEXER-FEM	2911-000046	SA
OSC400	CRYSTAL-SMD	2801-004466	SA
PAM100	IC-POWER AMP	1201-002280	SA
R100	R-CHIP	2007-000171	SA
R101	R-CHIP	2007-008542	SA
R102	R-CHIP	2007-008542	SA
R104	R-CHIP	2007-008542	SA
R105	R-CHIP	2007-000148	SA
R106	R-CHIP	2007-000172	SA
R107	R-CHIP	2007-000566	SA
R108	R-CHIP	2007-000566	SA
R109	R-CHIP	2007-007190	SA
R110	R-CHIP	2007-007318	SA
R111	R-CHIP	2007-007155	SNA
R112	R-CHIP	2007-007155	SNA
R113	R-CHIP	2007-000171	SA
R117	R-CHIP	2007-008542	SA
R118	R-CHIP	2007-008542	SA
R119	R-CHIP	2007-008542	SA
R120	R-CHIP	2007-008542	SA
R121	R-CHIP	2007-007190	SA
R122	R-CHIP	2007-007155	SNA
R123	R-CHIP	2007-007155	SNA
R200	R-CHIP	2007-008516	SA
R202	R-CHIP	2007-008055	SA
R204	R-CHIP	2007-008478	SA
R205	R-CHIP	2007-008478	SA
R206	R-CHIP	2007-008055	SA
R207	R-CHIP	2007-008055	SA
R208	R-CHIP	2007-008052	SA
R210	R-CHIP	2007-008516	SA
R294	R-CHIP	2007-008055	SA
R300	R-CHIP	2007-008055	SA
R301	R-CHIP	2007-000168	SA
R302	R-CHIP	2007-008516	SA
R303	R-CHIP	2007-008052	SA
R304	R-CHIP	2007-008052	SA
R307	R-CHIP	2007-008055	SA

Design LOC	Description	SEC Code	STATUS
R309	R-CHIP	2007-007014	SA
R310	R-CHIP	2007-001303	SA
R311	R-CHIP	2007-007014	SA
R336	R-CHIP	2007-000166	SA
R337	R-CHIP	2007-000165	SA
R400	R-CHIP	2007-007100	SA
R402	R-CHIP	2007-000162	SA
R403	R-CHIP	2007-002796	SA
R505	R-CHIP	2007-000162	SA
R507	R-CHIP	2007-007107	SA
R508	R-CHIP	2007-000148	SA
R509	R-CHIP	2007-000152	SA
R511	R-CHIP	2007-000170	SA
R512	R-CHIP	2007-000170	SA
R513	R-CHIP	2007-000137	SA
R514	R-CHIP	2007-007573	SA
R515	R-CHIP	2007-000162	SA
R516	R-CHIP	2007-007334	SA
R517	R-CHIP	2007-008275	SA
R518	R-CHIP	2007-007489	SA
R519	R-CHIP	2007-007107	SA
R600	R-CHIP	2007-000162	SA
R601	R-CHIP	2007-000141	SA
R602	R-CHIP	2007-007190	SA
R603	R-CHIP	2007-000148	SA
R604	R-CHIP	2007-000141	SA
R606	R-CHIP	2007-007190	SA
R626	R-CHIP	2007-000162	SA
R627	R-CHIP	2007-001339	SA
R630	R-CHIP	2007-000171	SA
R631	R-CHIP	2007-000171	SA
R633	R-CHIP	2007-000148	SA
R634	R-CHIP	2007-000151	SA
R635	R-CHIP	2007-000151	SA
R636	R-CHIP	2007-000148	SA
R637	R-CHIP	2007-002796	SA
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R644	R-CHIP	2007-000141	SA
R645	R-CHIP	2007-000171	SA
R646	R-CHIP	2007-000148	SA
R647	R-CHIP	2007-000171	SA
R648	R-CHIP	2007-000141	SA
R649	R-CHIP	2007-000148	SA
R650	R-CHIP	2007-000165	SA
R651	R-CHIP	2007-000140	SA
RFS101	CONNECTOR-COAXIAL	3705-001358	SA
SIM400	CONNECTOR-CARD EDGE	3709-001451	SA
SLC600	HEADER-BOARD TO BOARD	3711-005873	SA
TA411	C-TA,CHIP	2404-001381	SA
TA423	C-TA,CHIP	2404-001377	SA

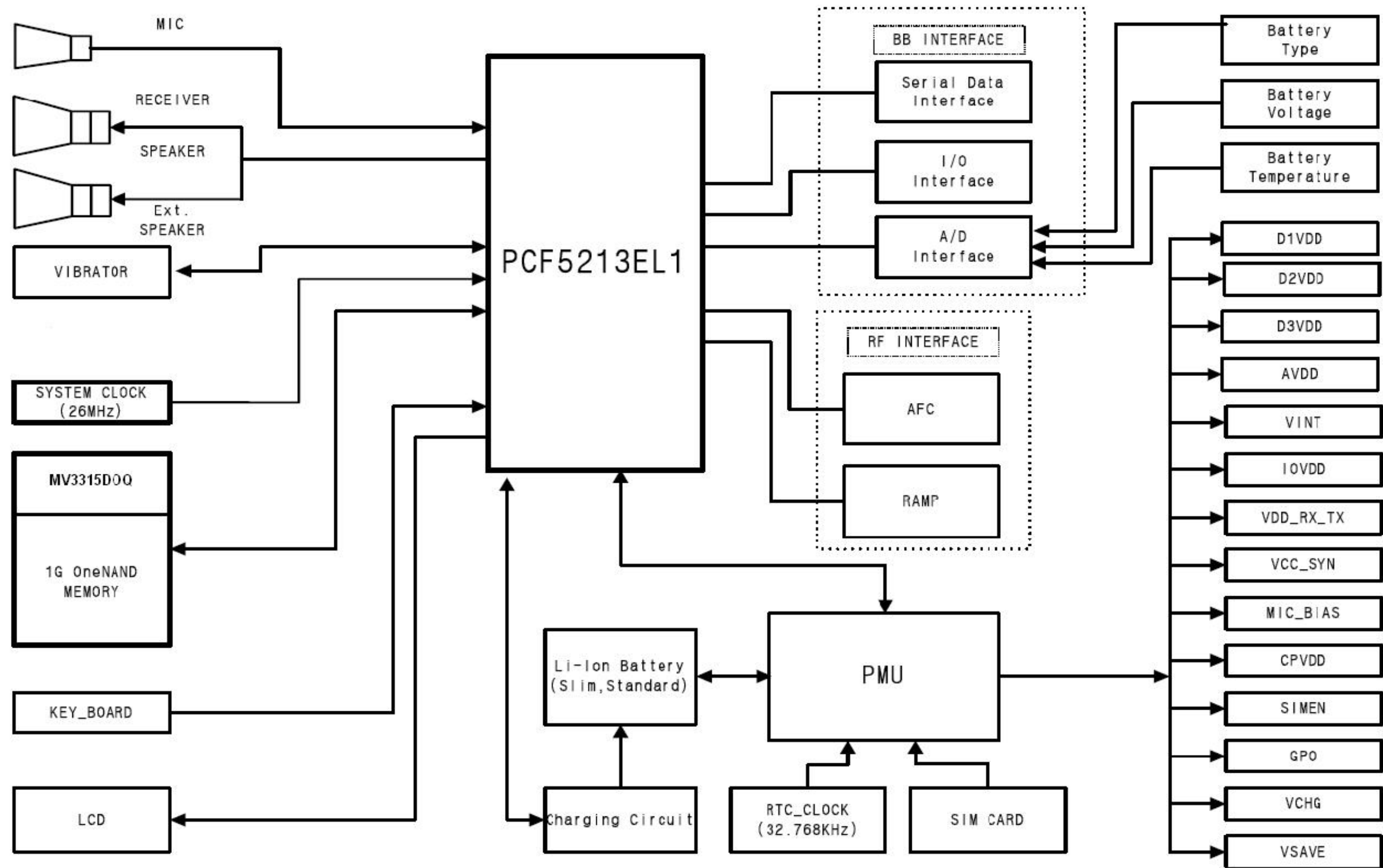
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TA600	C-TA,CHIP	2404-001377	SA
TA601	C-TA,CHIP	2404-001381	SA
TA602	C-TA,CHIP	2404-001381	SA
TA603	C-TA,CHIP	2404-001377	SA
TCX100	OSCILLATOR-VCTCXO	2809-001287	SA
TR300	FET-SILICON	0505-001518	SA
U302	IC-CMOS LOGIC	0801-002237	SA
U304	IC ASIC-SPHA800	GH13-00030A	SA
U308	IC-CMOS LOGIC	0801-002237	SA
U400	IC-POWER SUPERVISOR	1203-003882	SA
U402	IC-POSI.FIXED REG.	1203-003737	SA
U403	IC-DC/DC CONVERTER	1203-003545	SA
U501	IC-HALL EFFECT S/W	1009-001018	SA
U502	TR-DIGITAL	0504-001151	SA
U503	FILTER-EMI SMD	2901-001315	SA
U504	IC-BATTERY	1203-003742	SA
U602	IC-POSI.FIXED REG.	1203-003105	SA
U603	IC-AUDIO AMP	1201-002233	SA
U613	IC-ANALOG MULTIPLEX	1001-001405	SA
U614	IC-ANALOG SWITCH	1001-001362	SA
U701	IC-POSI.FIXED REG.	1203-003208	SA
U702	R-CHIP	2007-000162	SA
UCP200	IC-COMM. CONTROLLER	1205-002757	SA
UME300	IC-MCP	1108-000030	SA
UPL102	IC-TRANSCEIVER	1205-002817	SA
VR300	DIODE-TVS	0406-001231	SA
VR302	DIODE-TVS	0406-001231	SA
VR303	DIODE-TVS	0406-001231	SA
VR400	VARISTOR	1405-001082	SA
VR500	THERMISTOR-NTC	1404-001221	SA
ZD500	DIODE-ZENER	0403-001547	SA
ZD600	DIODE-TVS	0406-001231	SA
ZD601	DIODE-TVS	0406-001237	SNA
ZD602	DIODE-TVS	0406-001231	SA
ZD603	DIODE-TVS	0406-001231	SA
ZD604	DIODE-TVS	0406-001231	SA
ZD605	DIODE-TVS	0406-001231	SA
ZD701	DIODE-TVS	0406-001231	SA
ZD702	DIODE-TVS	0406-001231	SA
ZD703	DIODE-TVS	0406-001231	SA
ZD705	DIODE-TVS	0406-001231	SA
ZD706	DIODE-TVS	0406-001231	SA
ZD707	DIODE-TVS	0406-001231	SA
ZD714	DIODE-TVS	0406-001231	SA

7. Block Diagrams

7-1. RF Solution Block Diagram

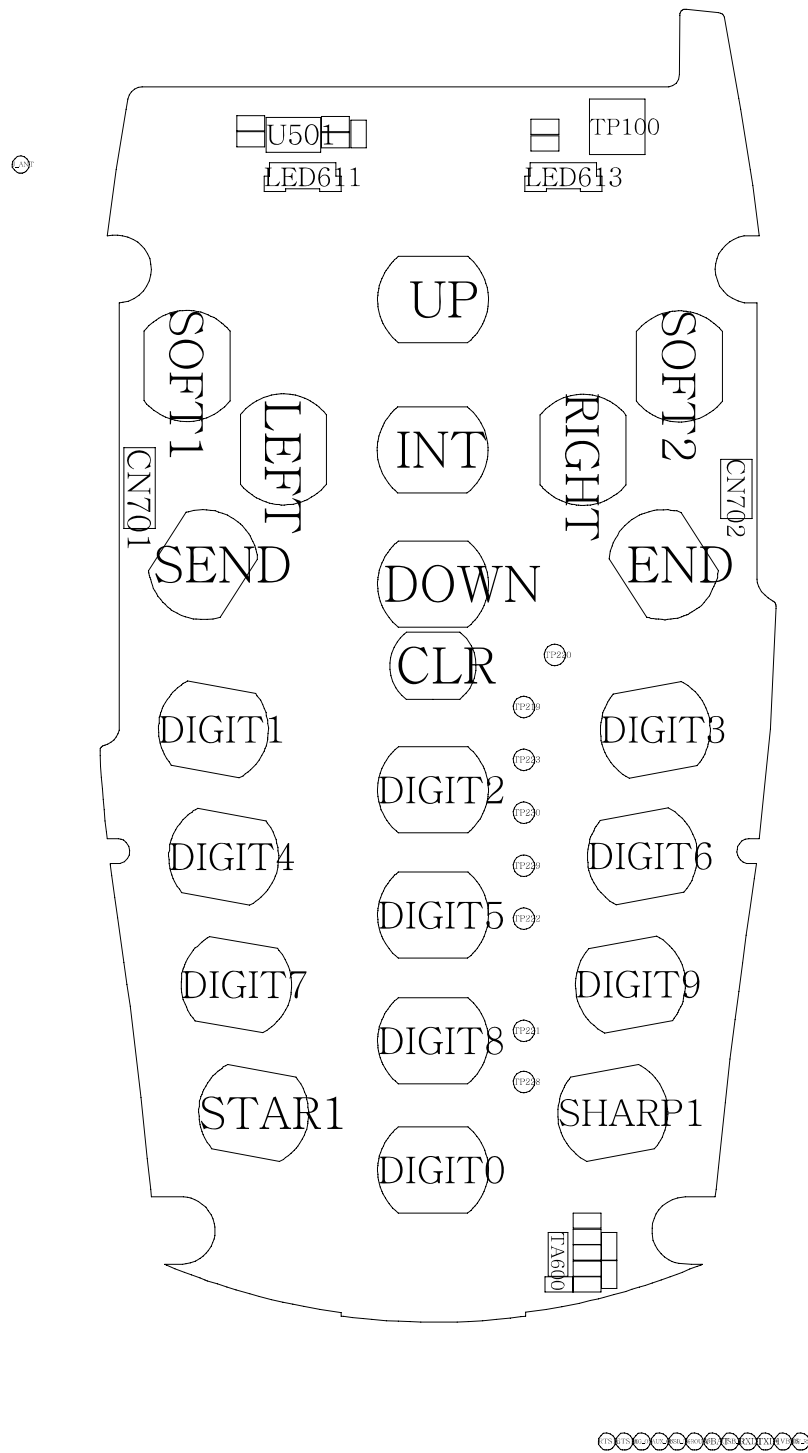


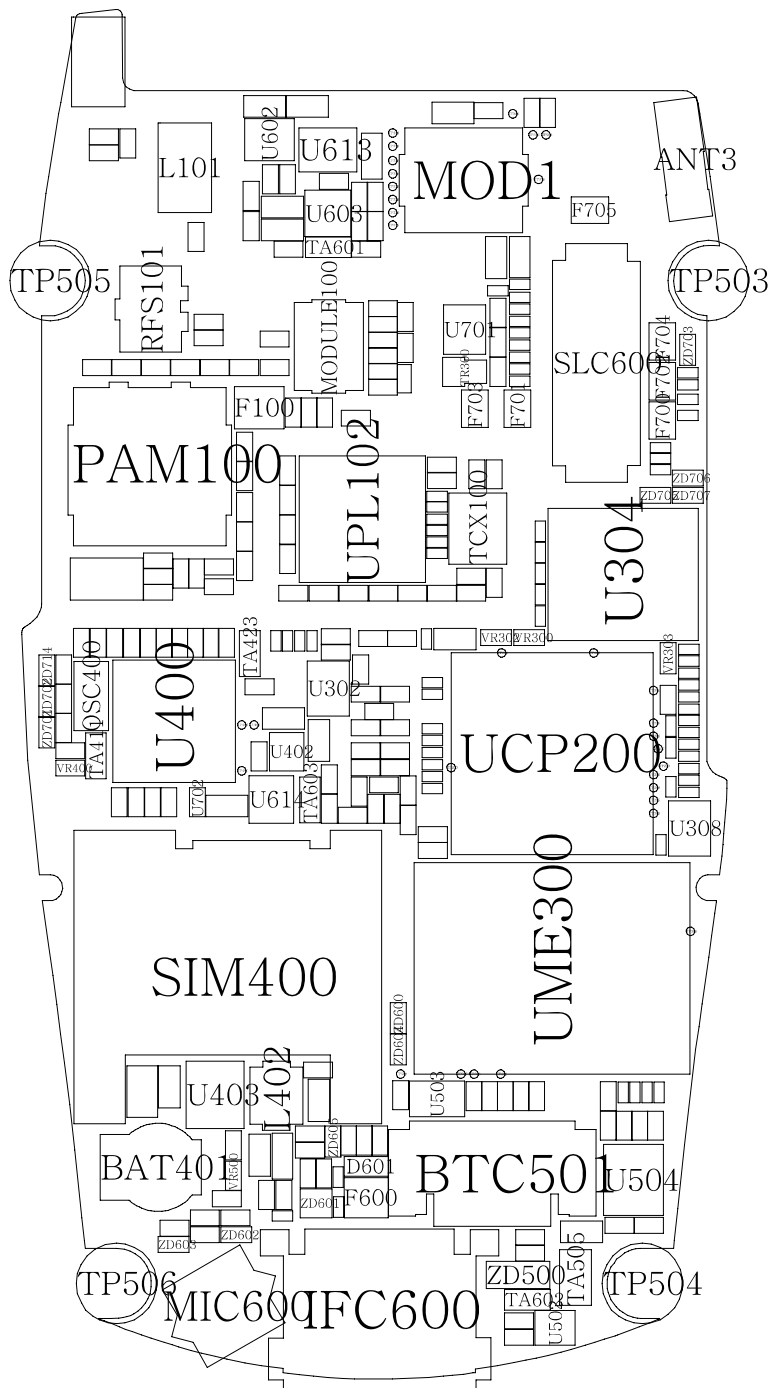
7-2. Base Band Solution Block Diagram



8. PCB Diagrams

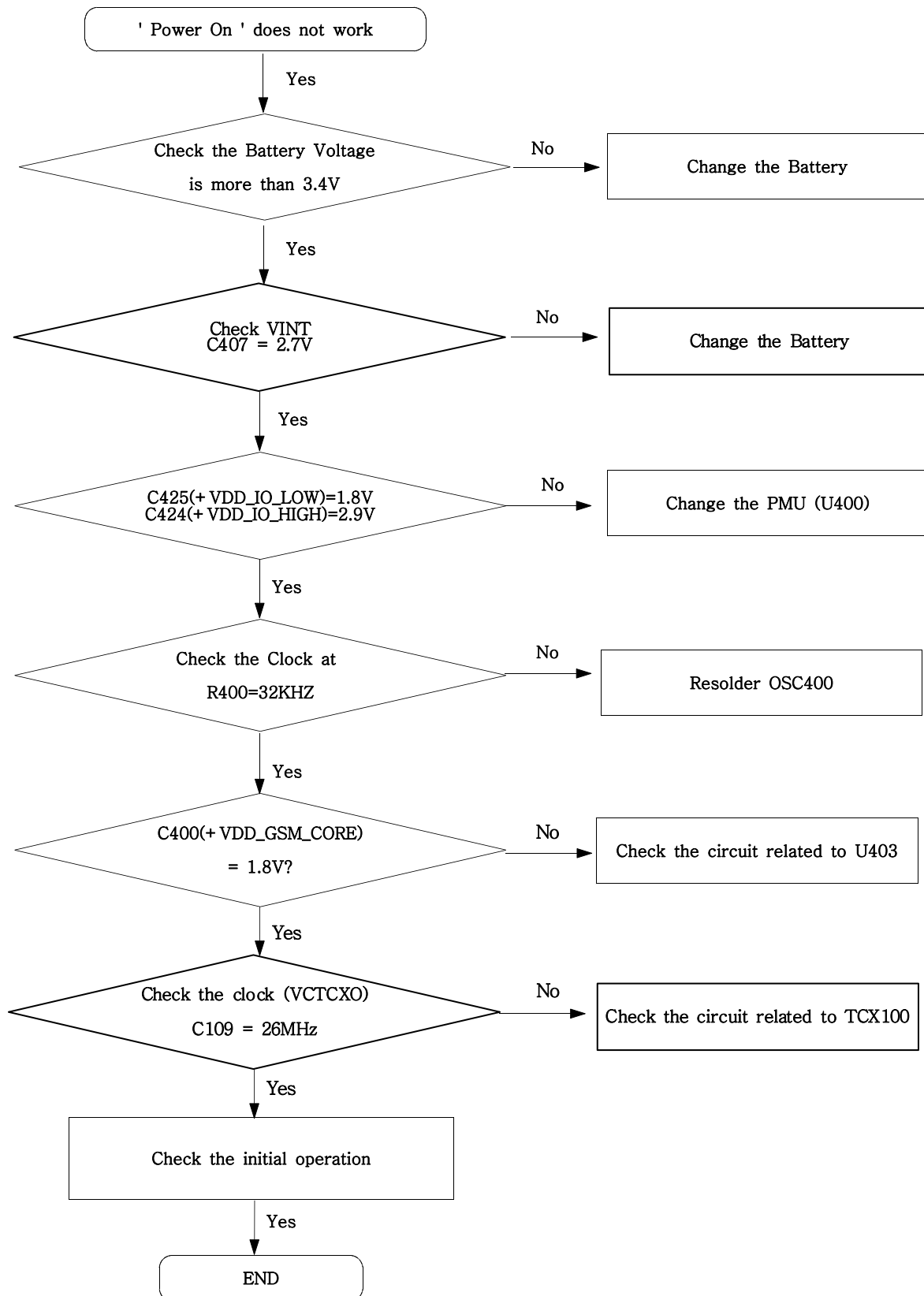
8-1. Top

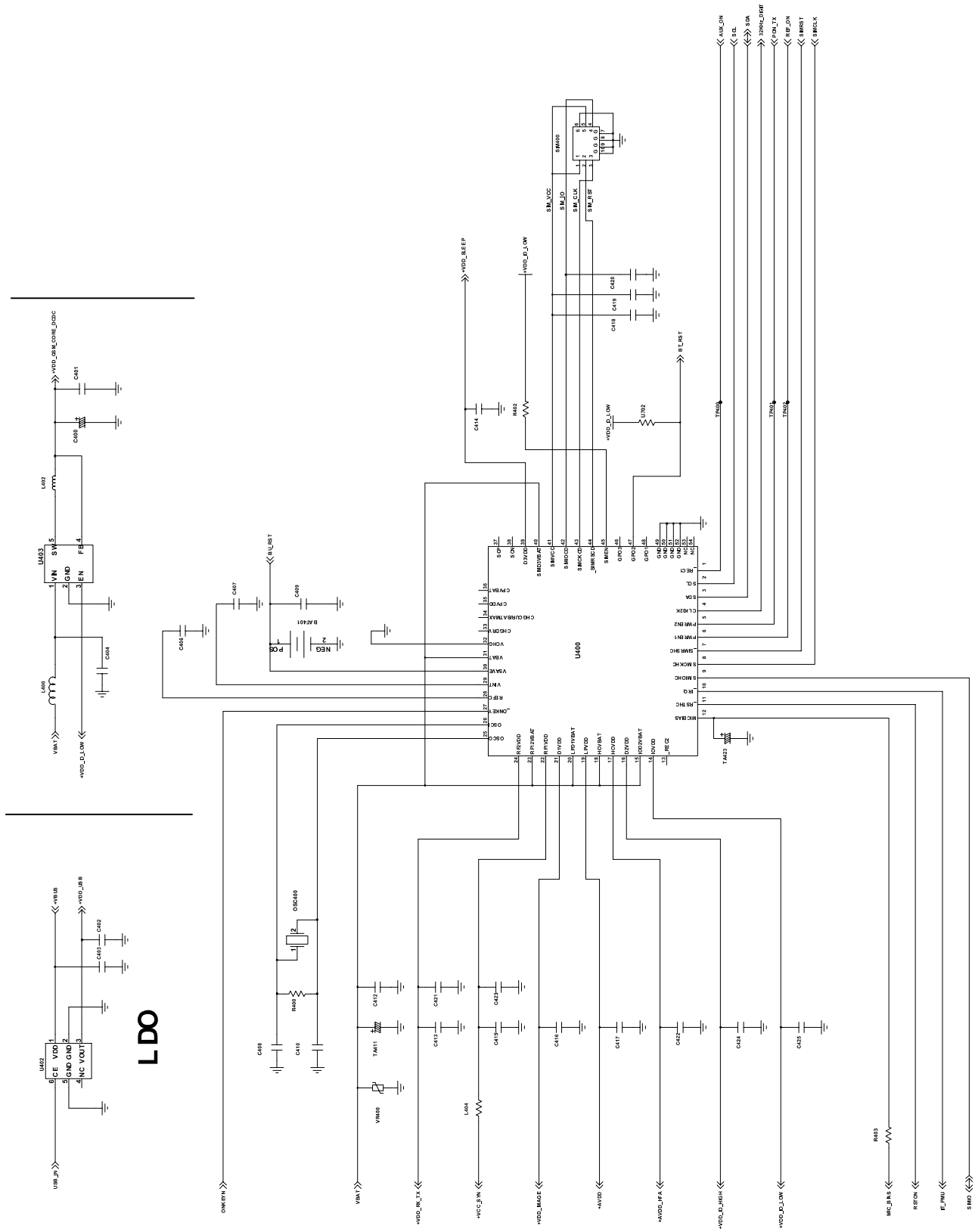


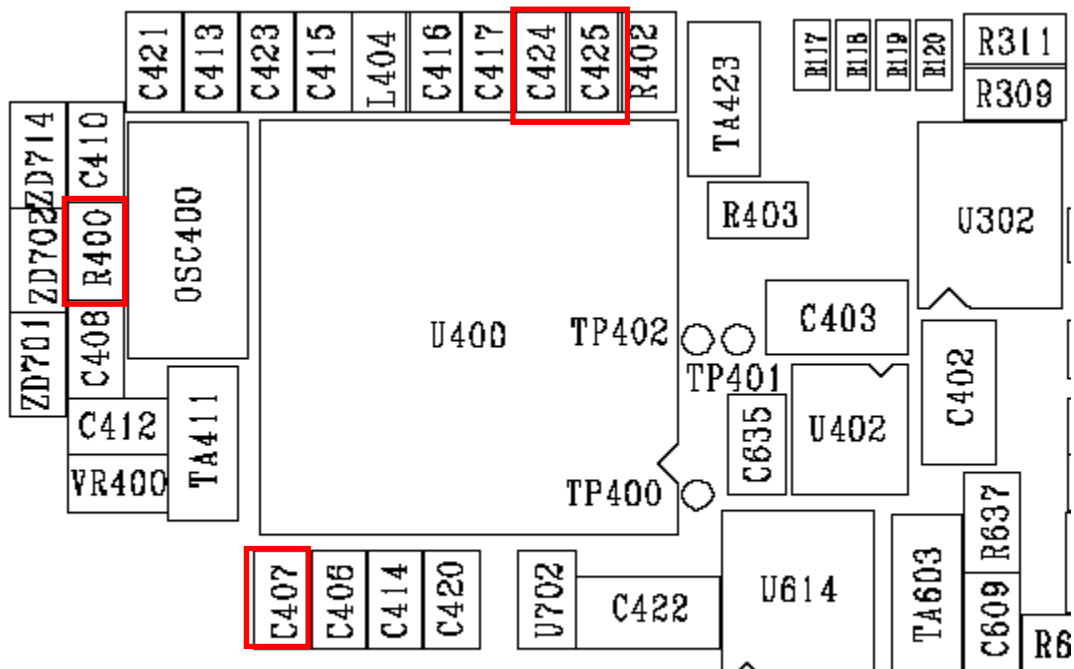


9. Flow Chart of Troubleshooting

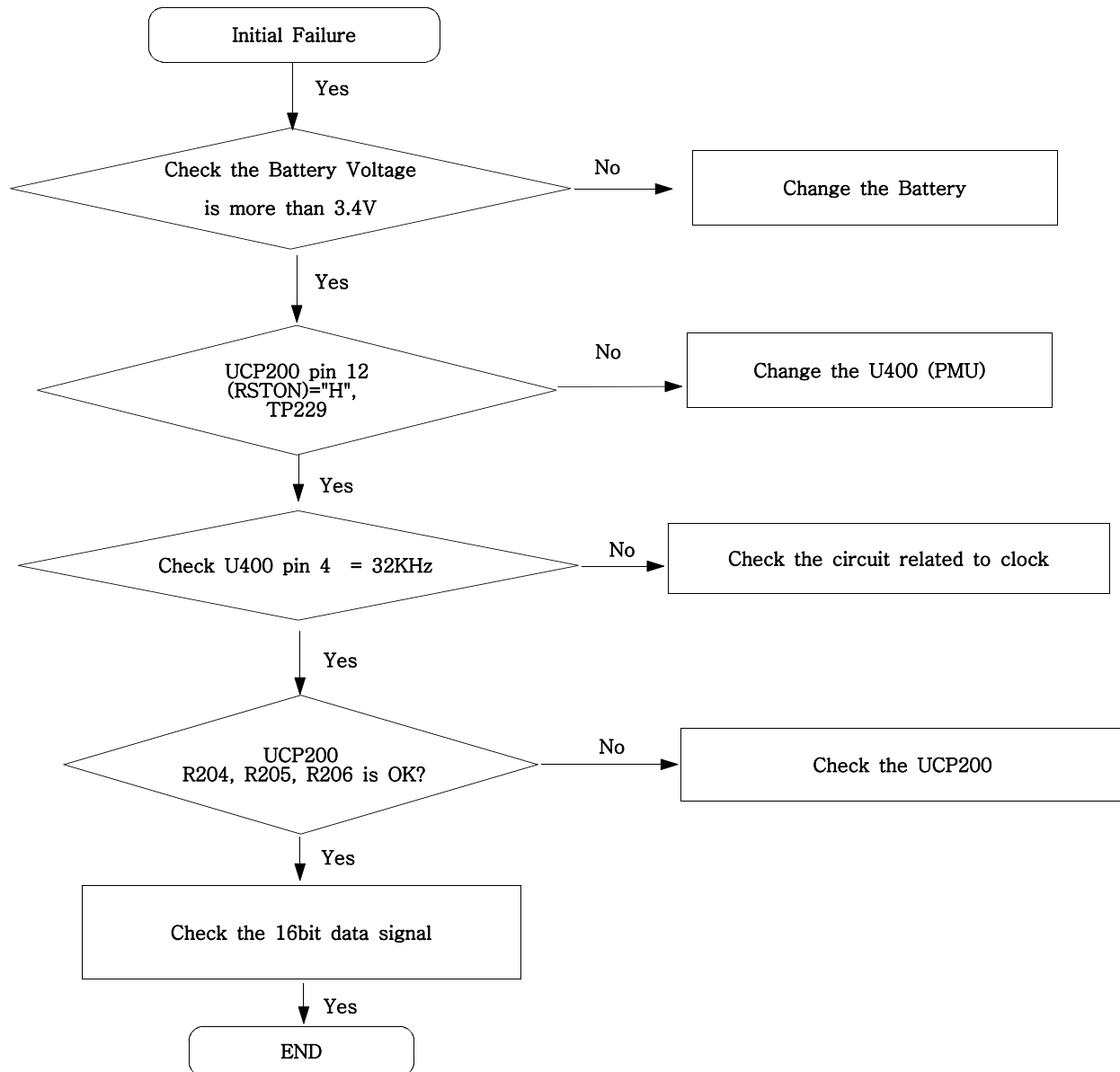
9-1. Power On

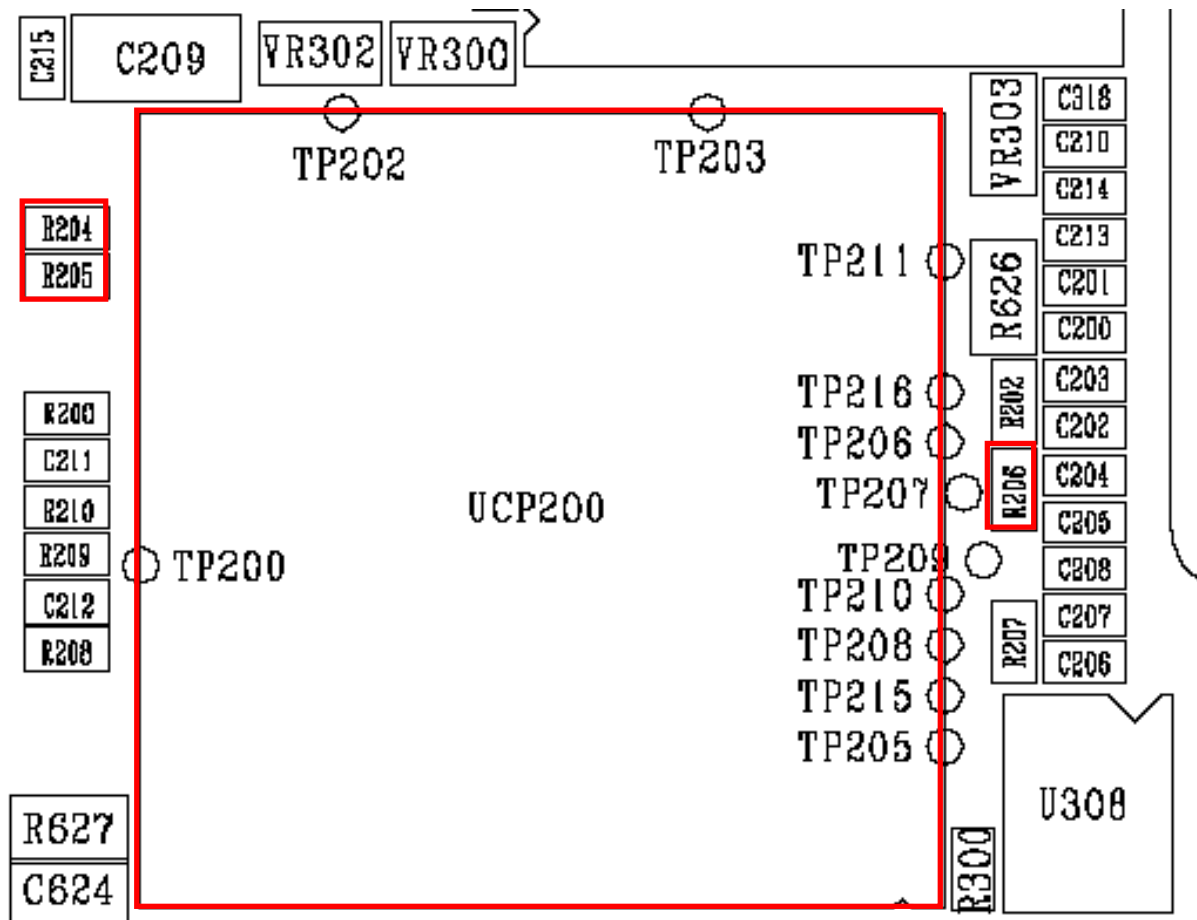




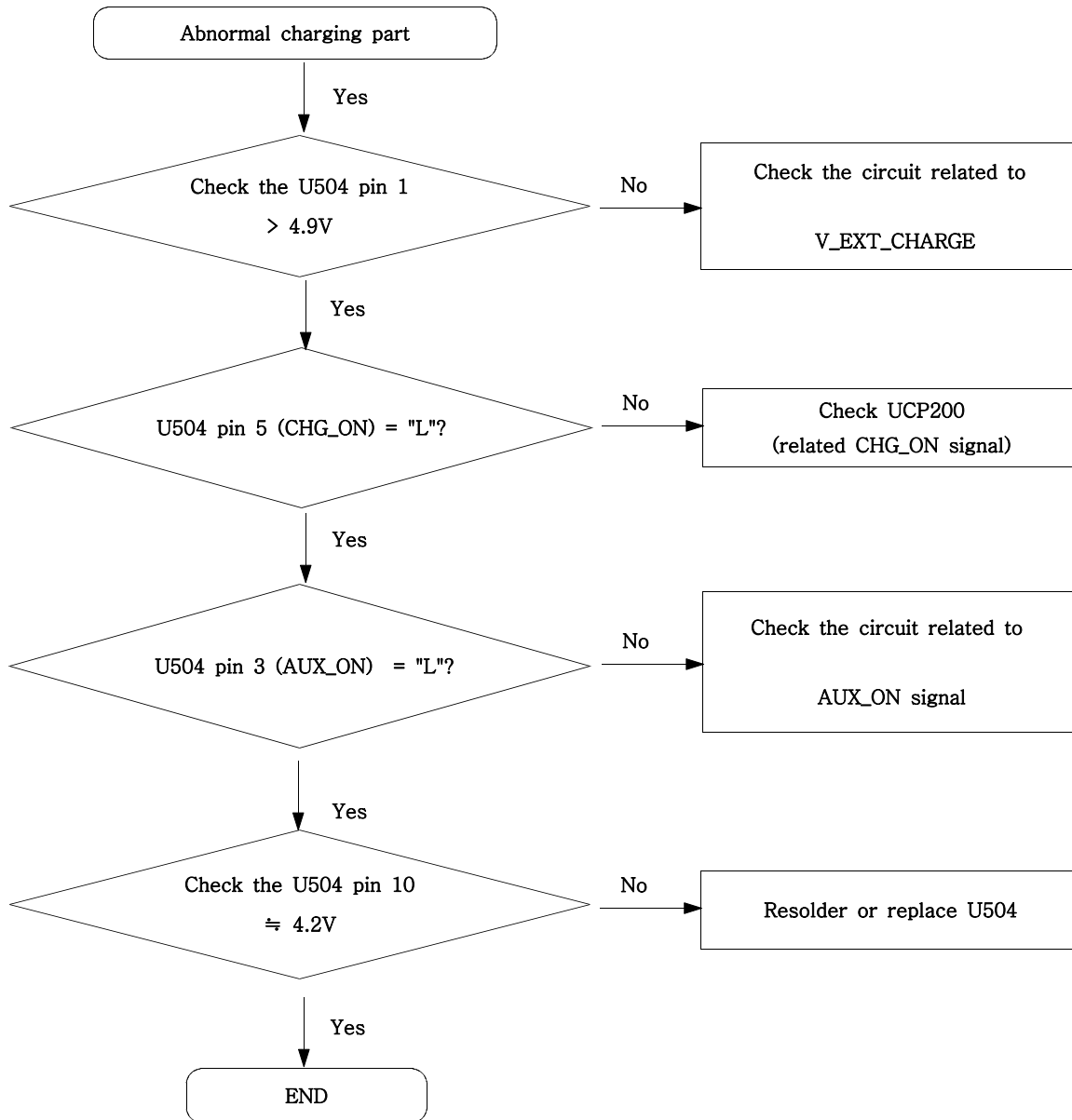


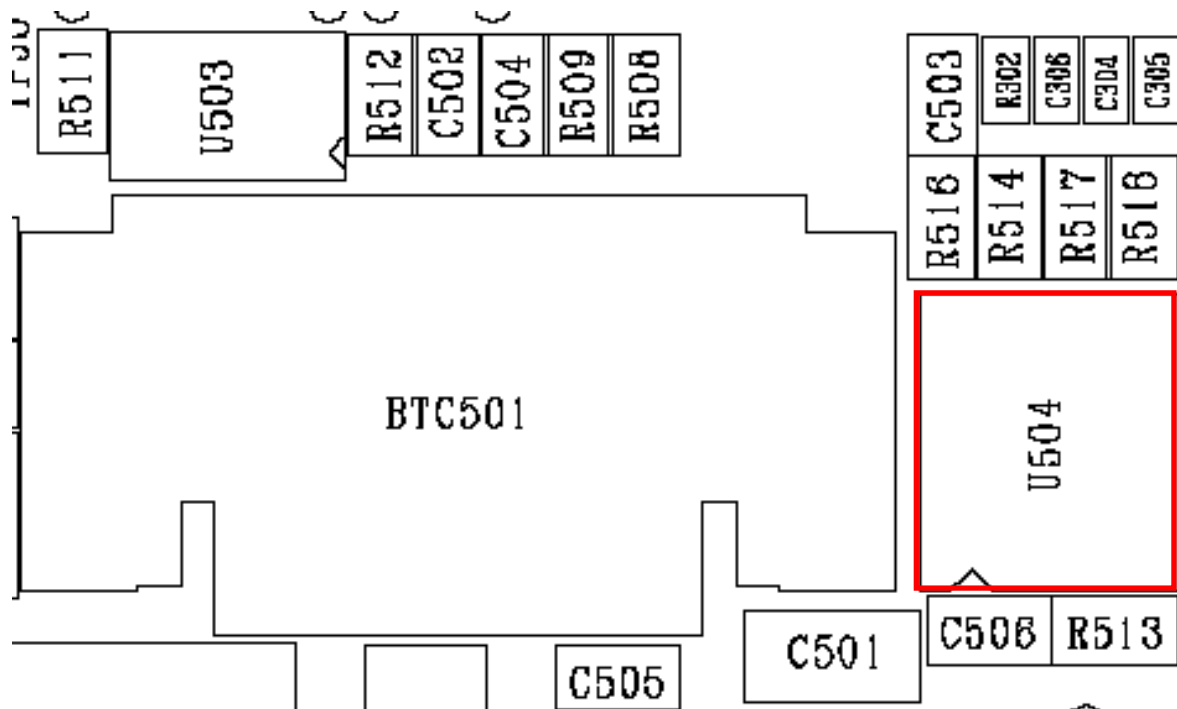
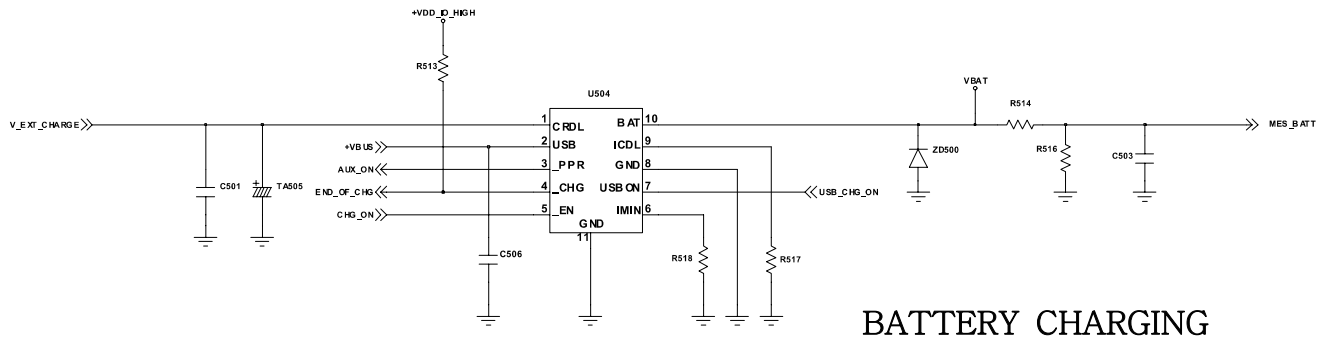
9-2. Initial



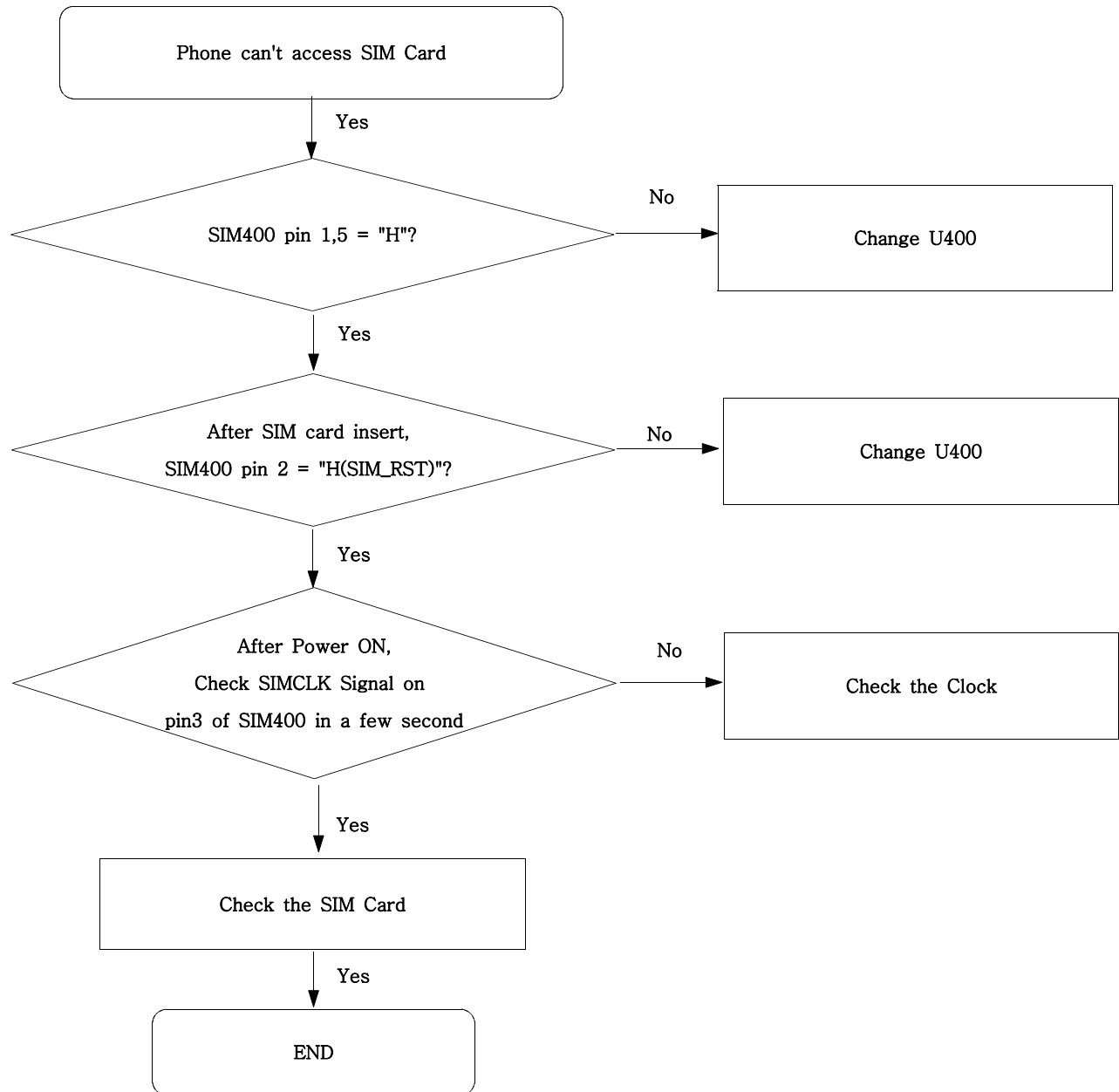


9-3. Charging Part

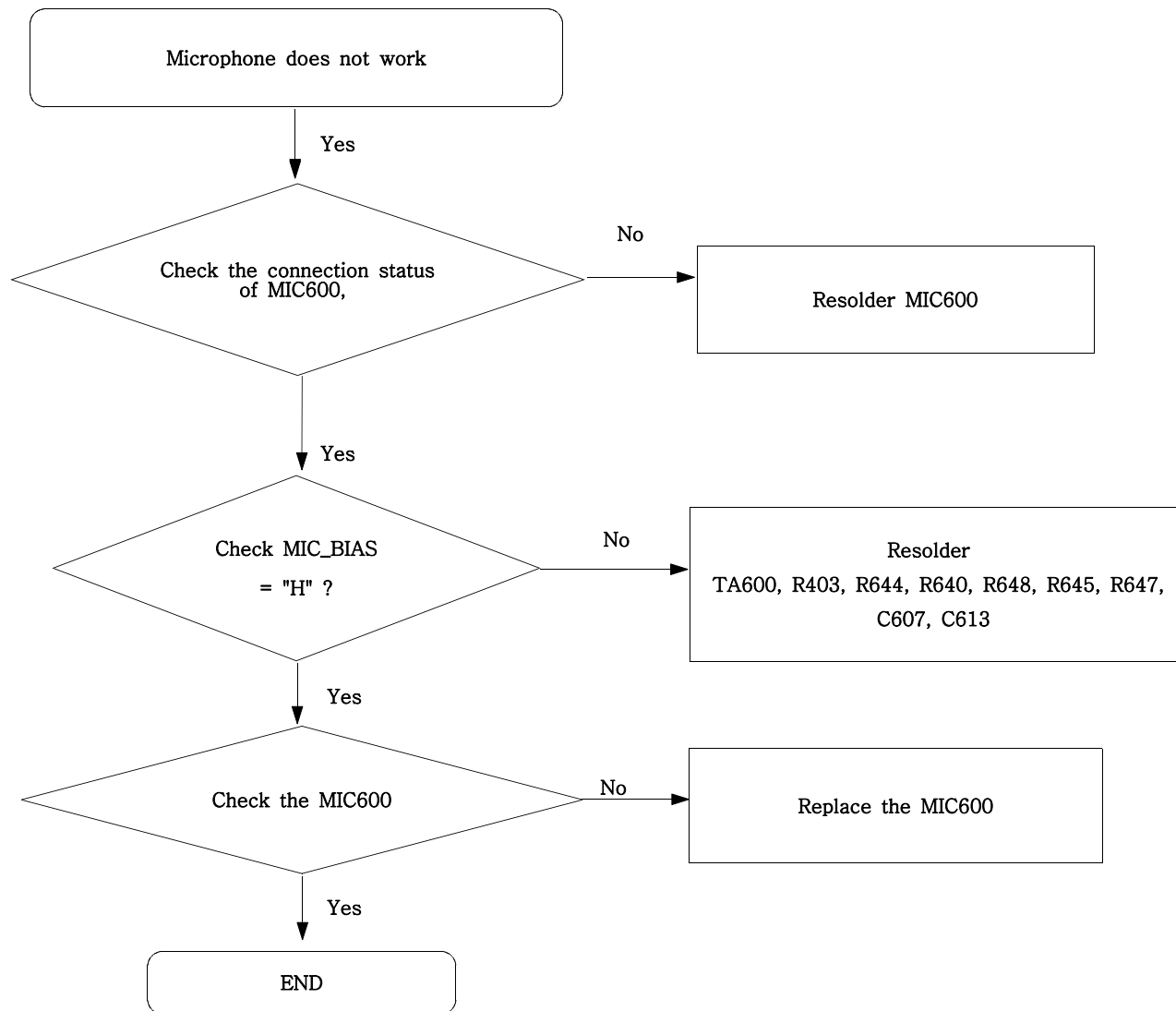


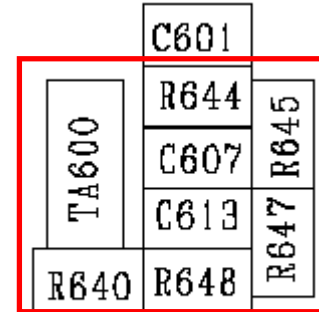
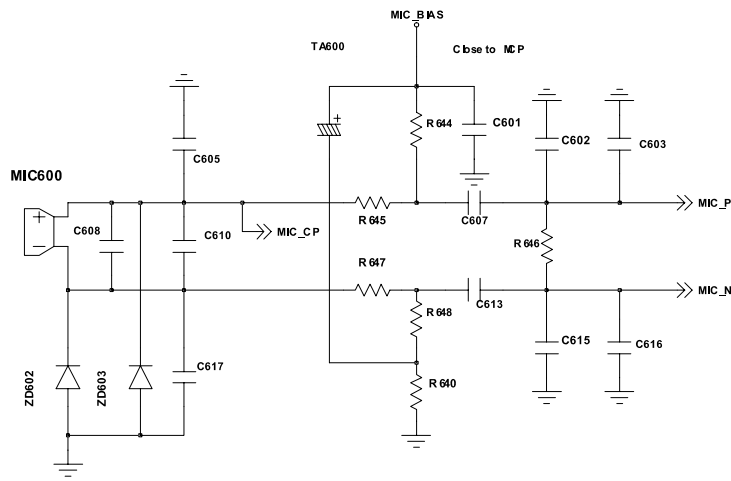


9-4. Sim Part

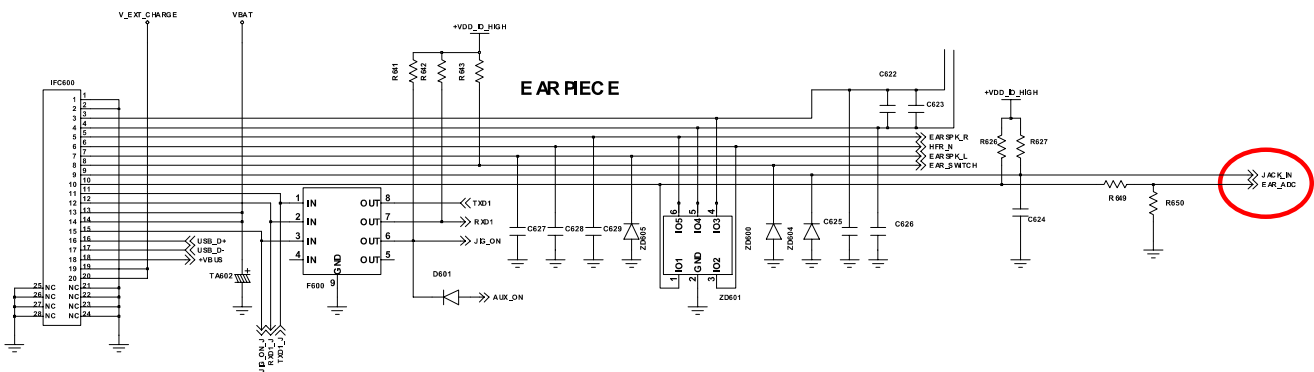
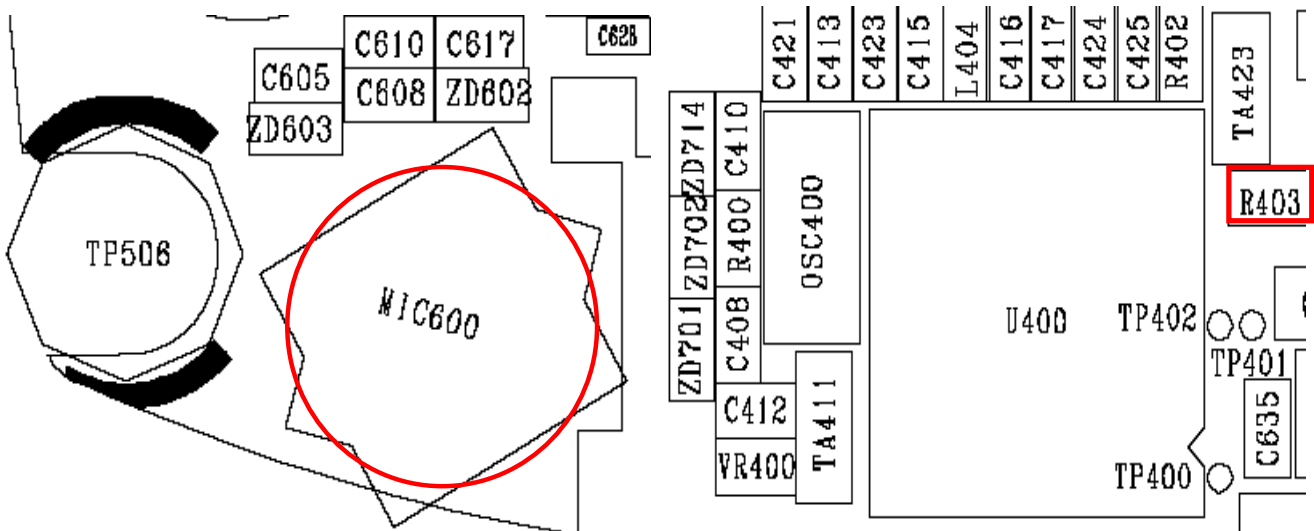


9-5. Microphone Part

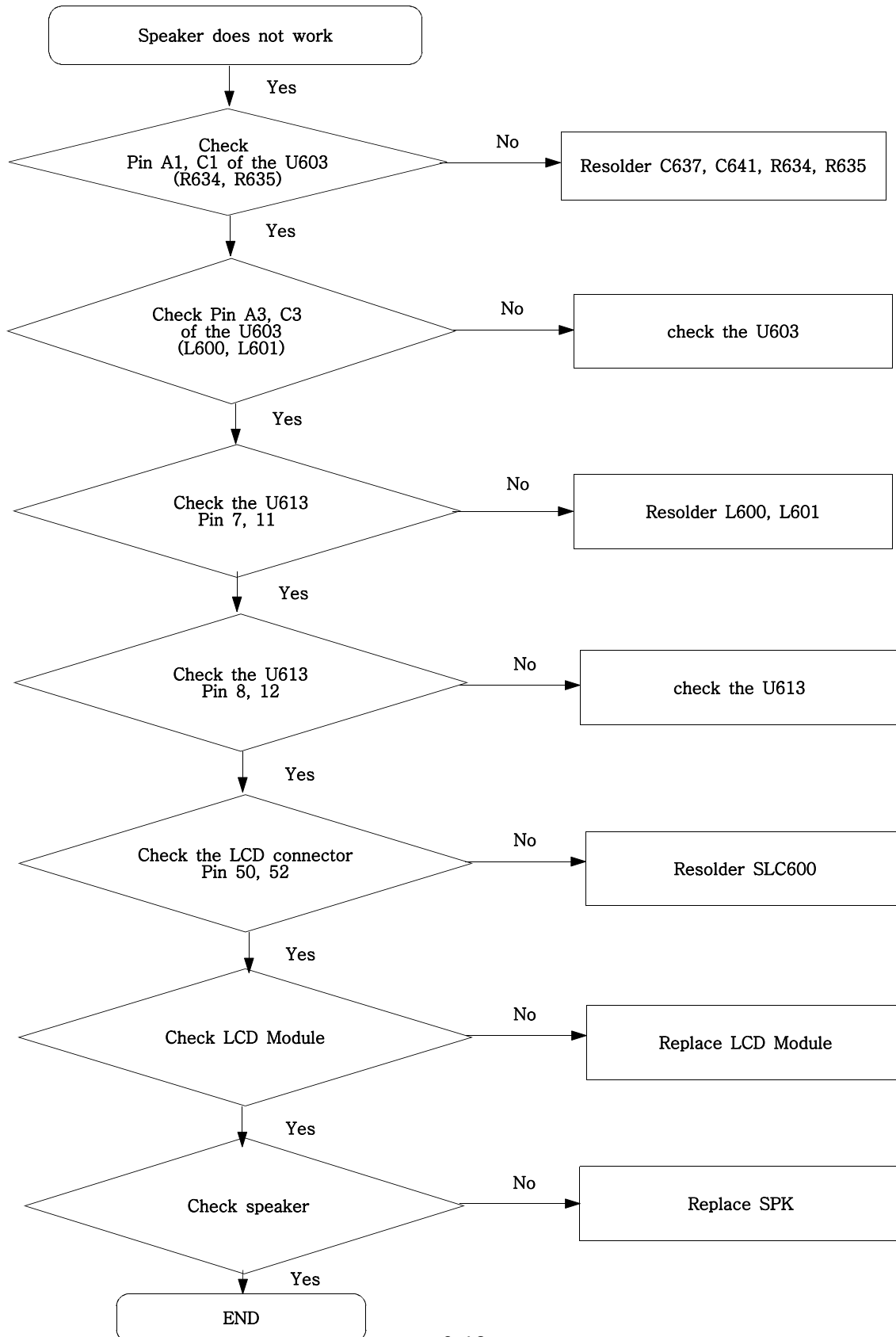


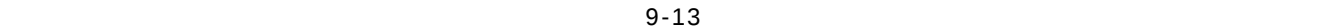
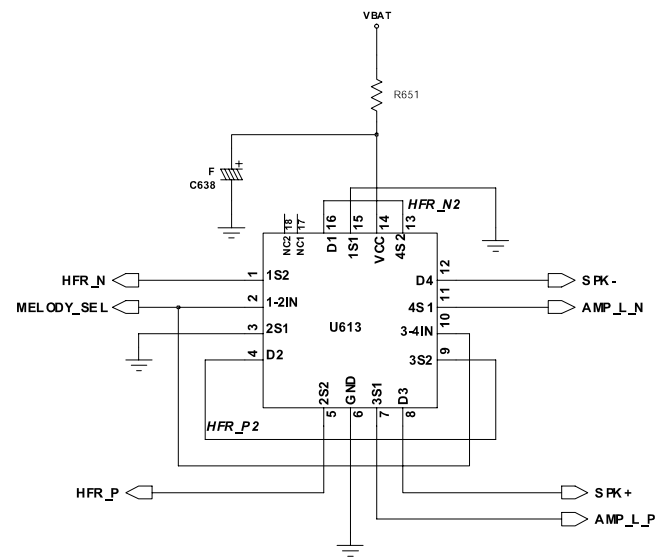


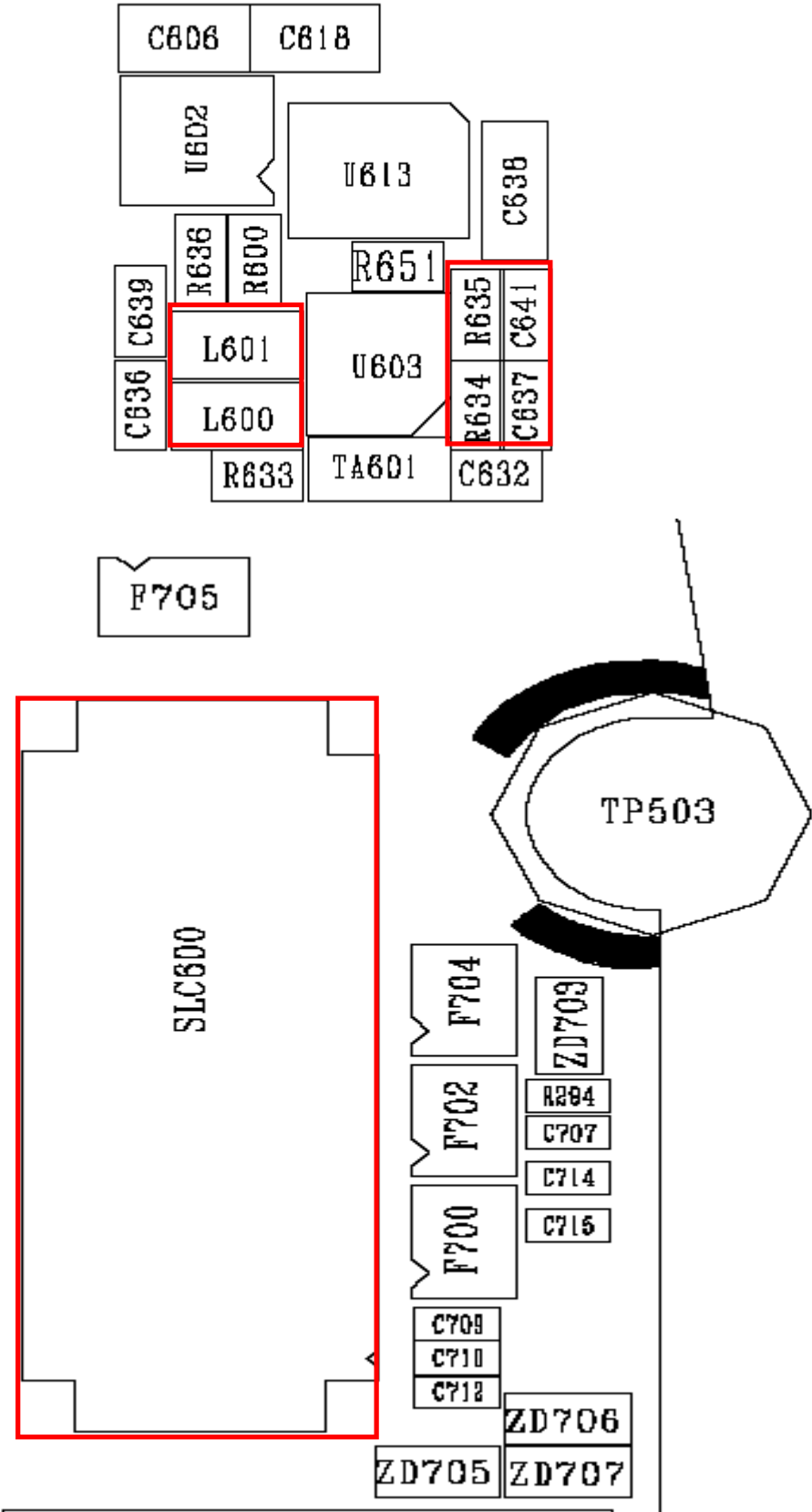
MICROPHONE



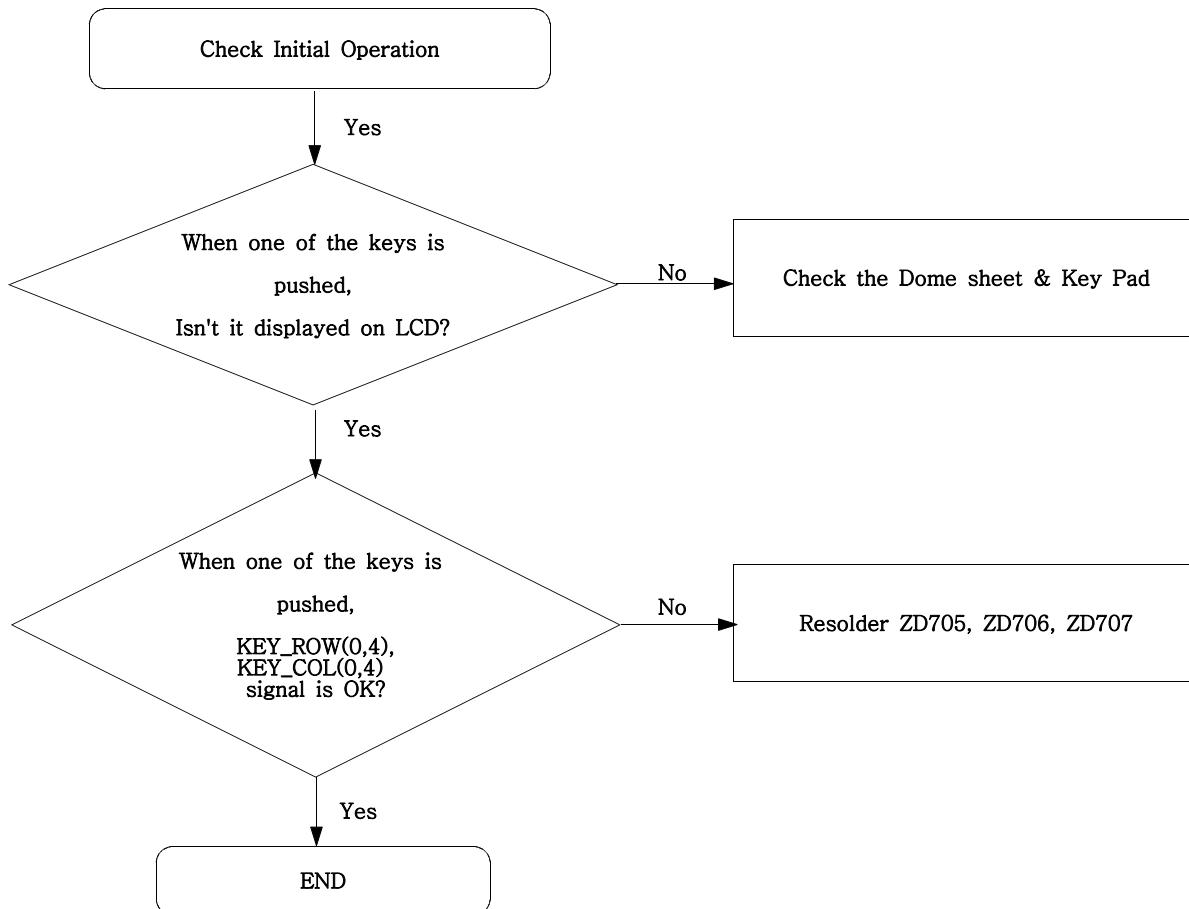
9-6. Speaker Part (Melody)

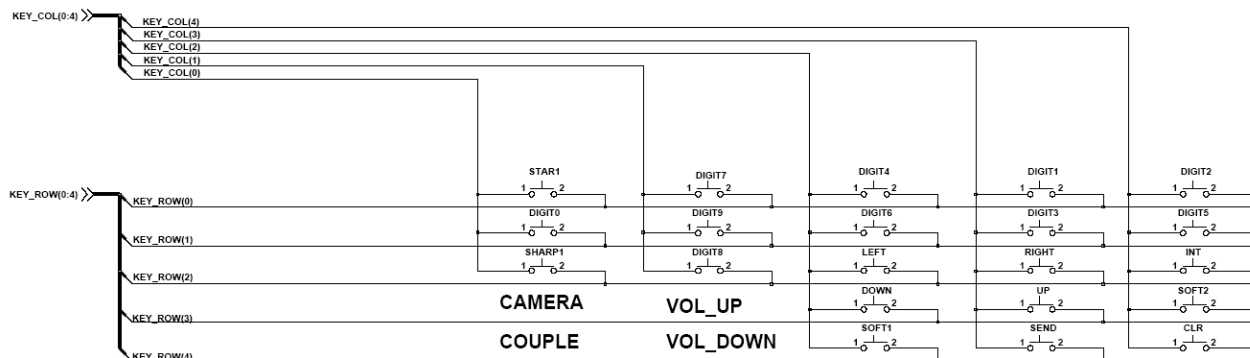




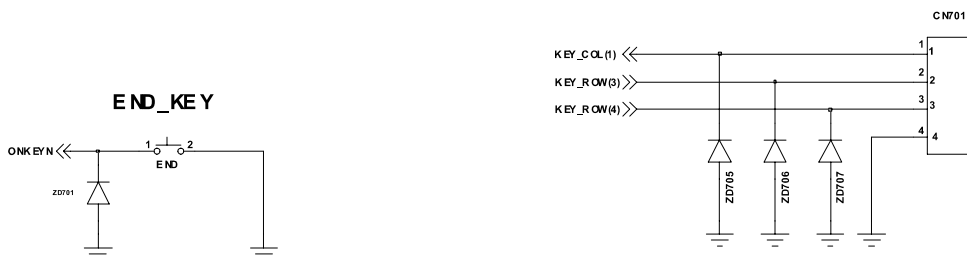


9-7. Key Data Input

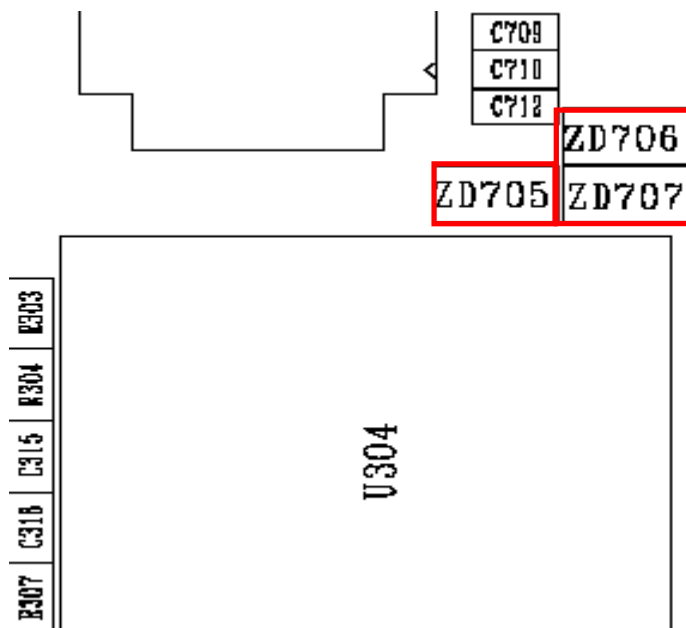




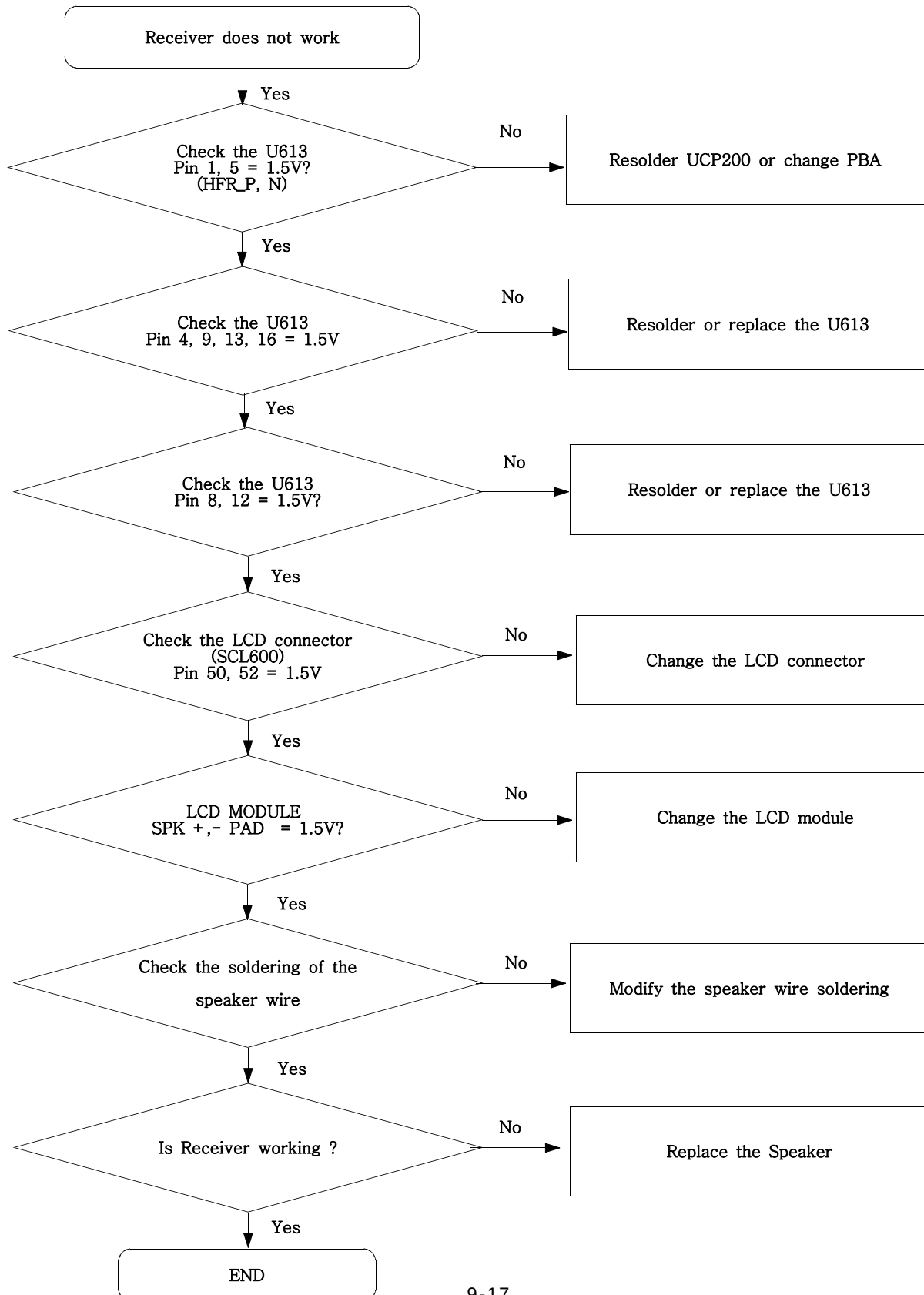
KEY_MAP

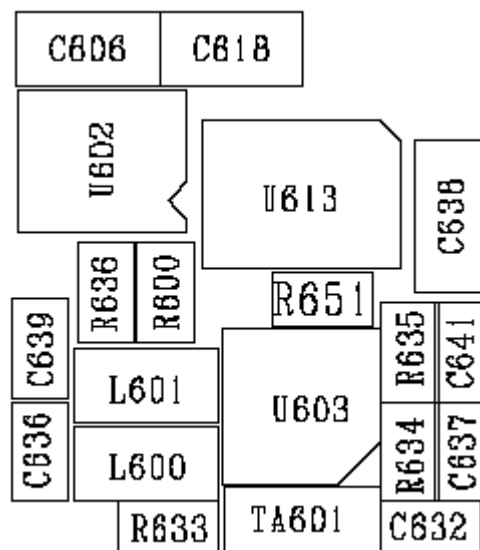
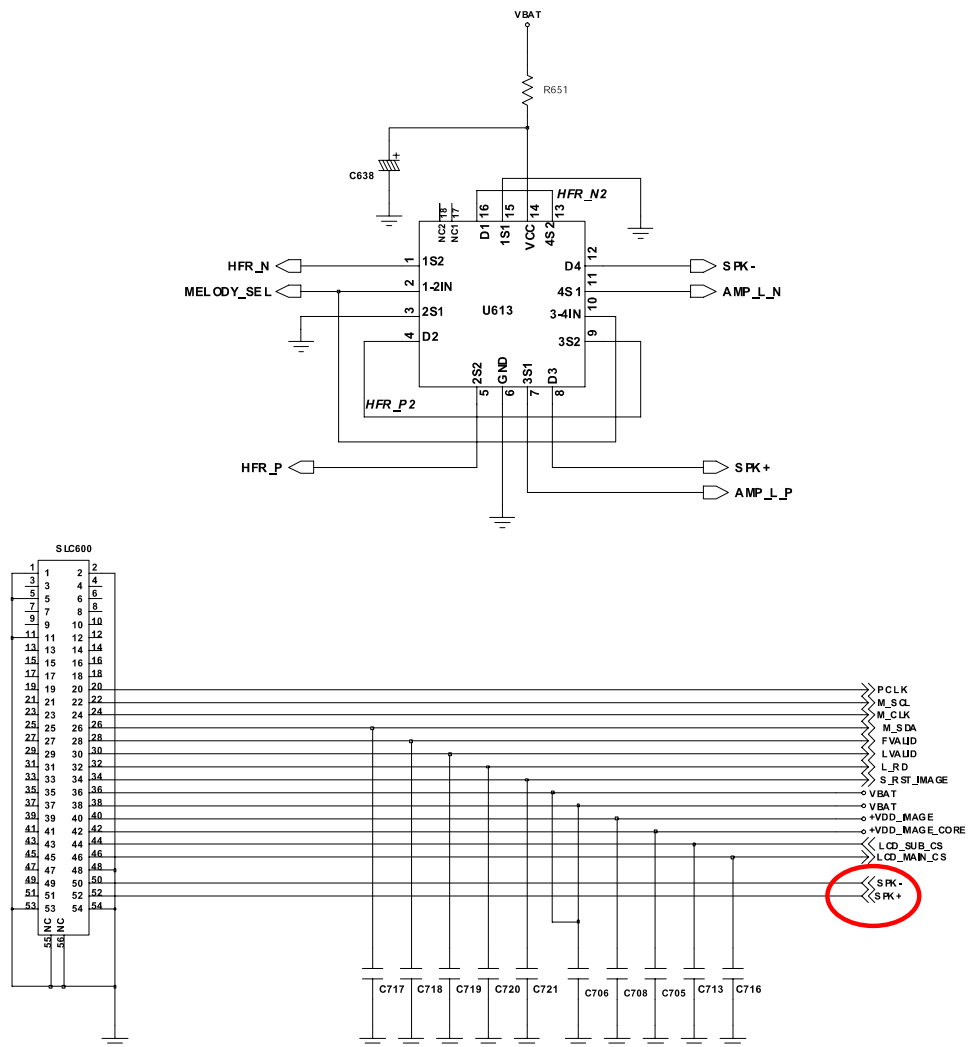


SDE_KEY

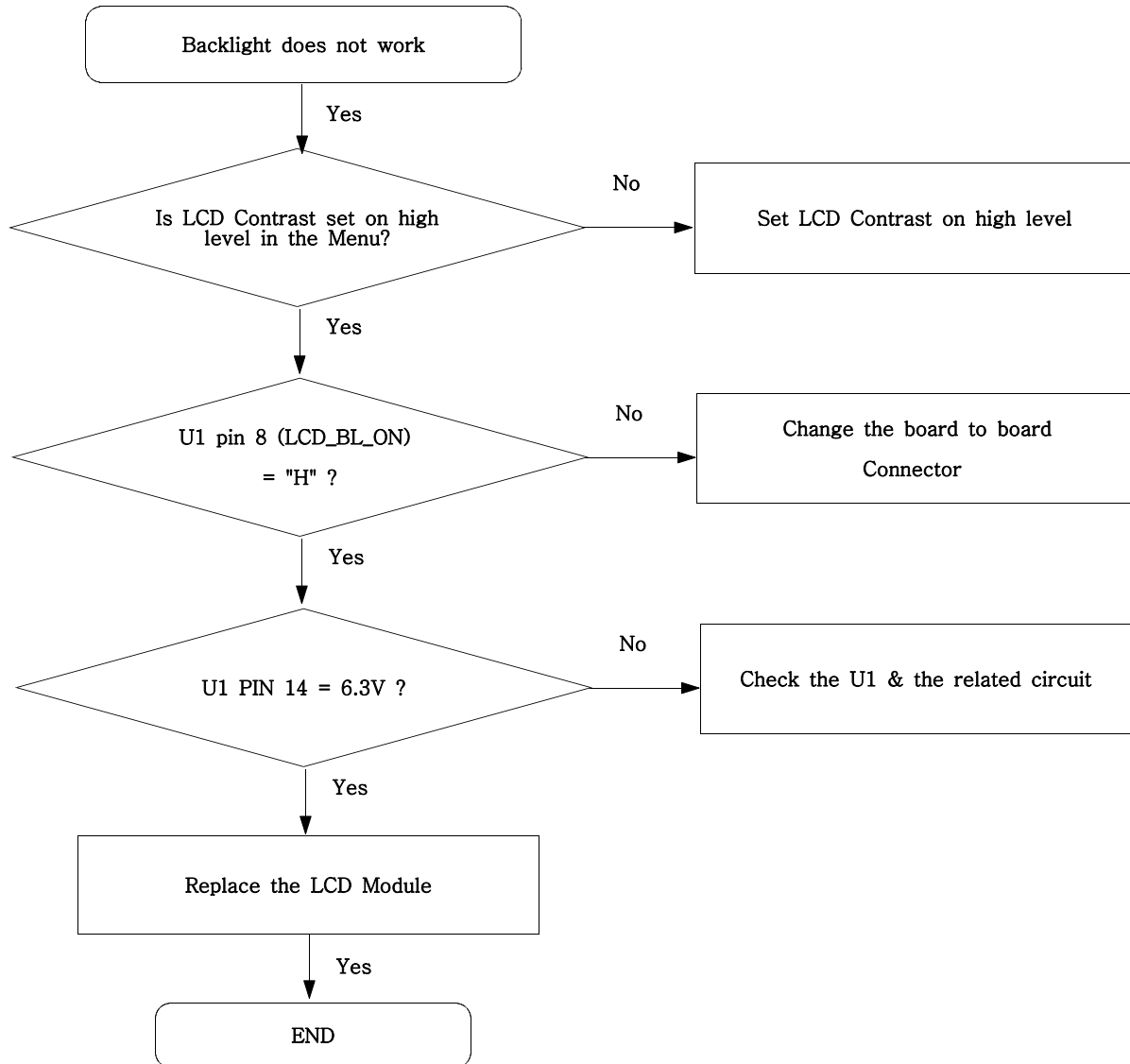


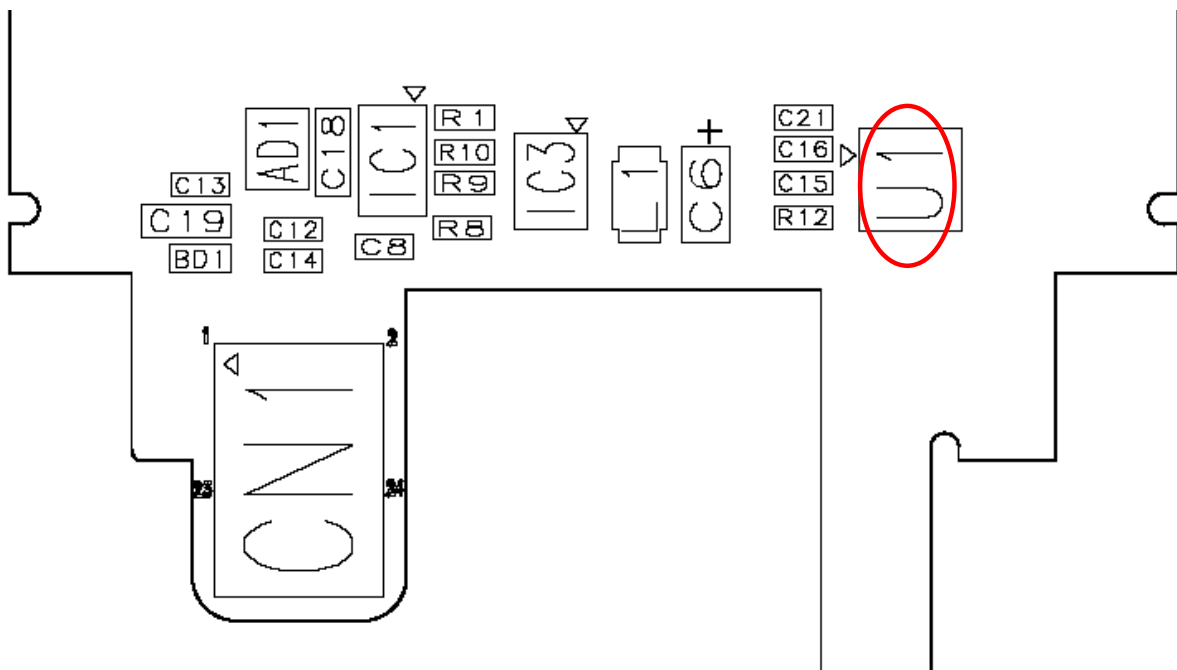
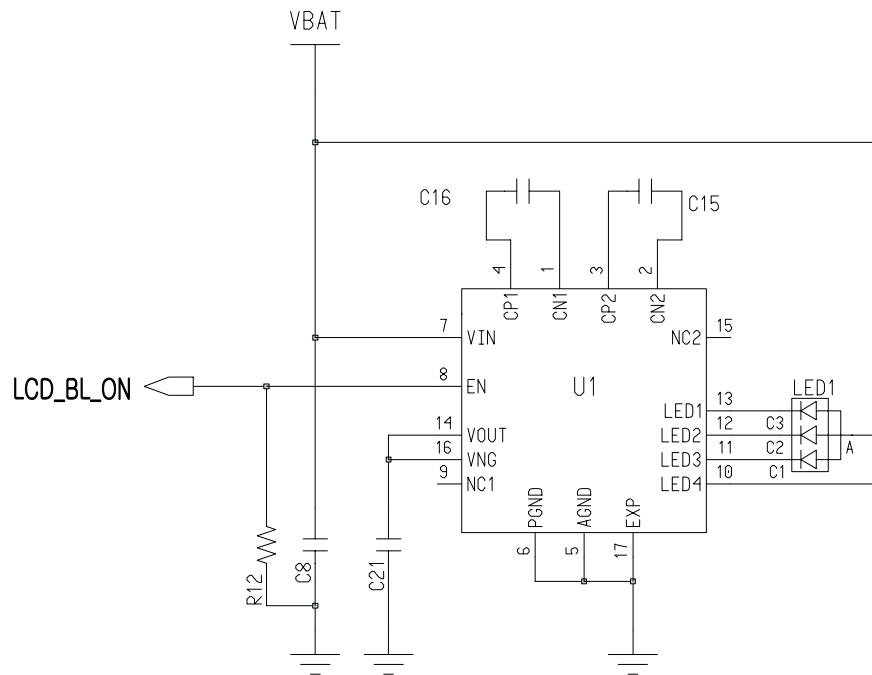
9-8. Receiver Part



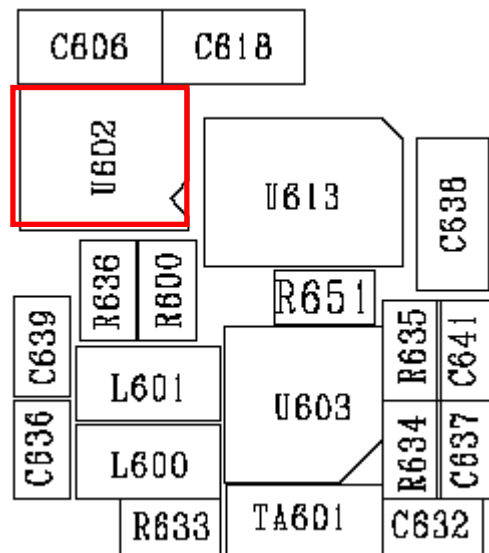
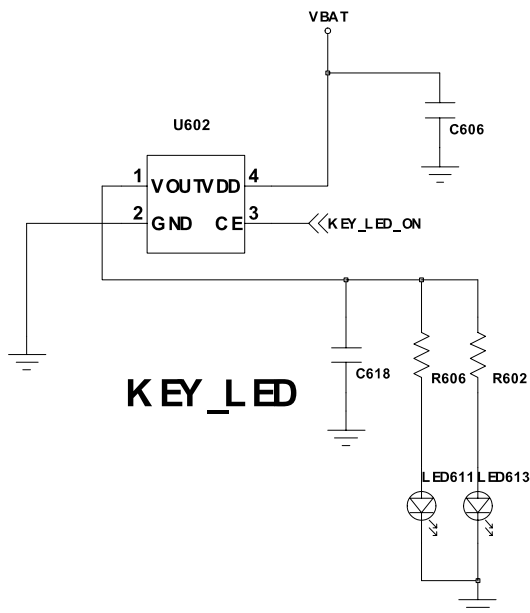
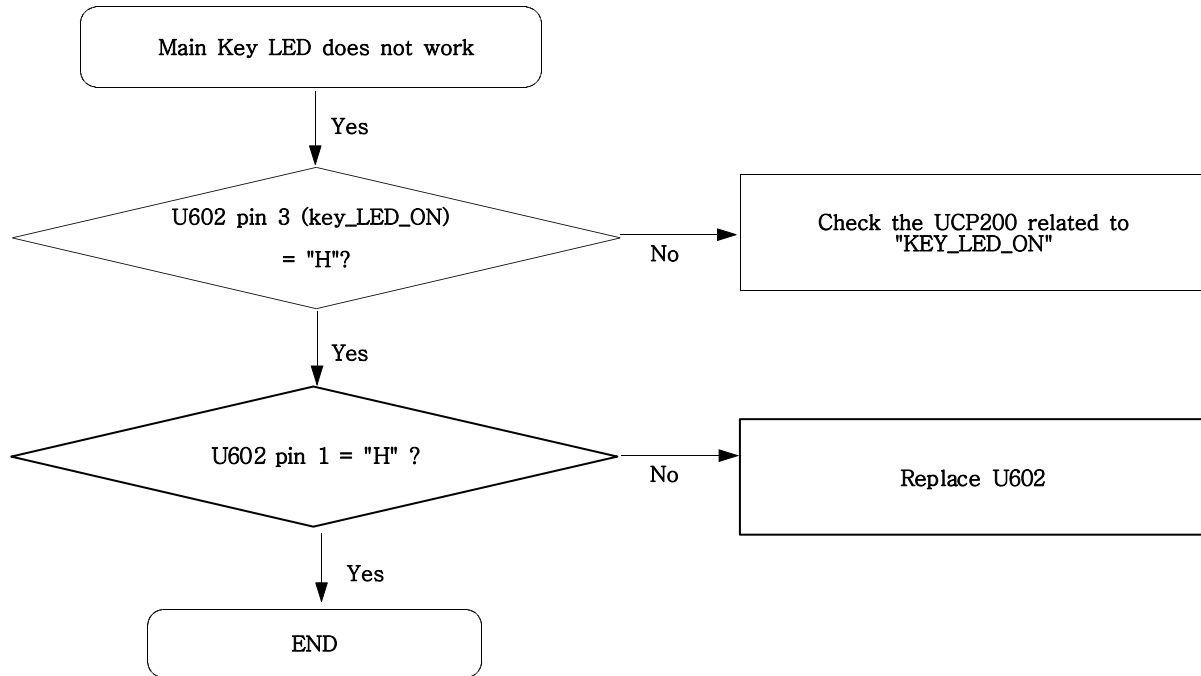


9-9. Back Light (for Color Main LCD)

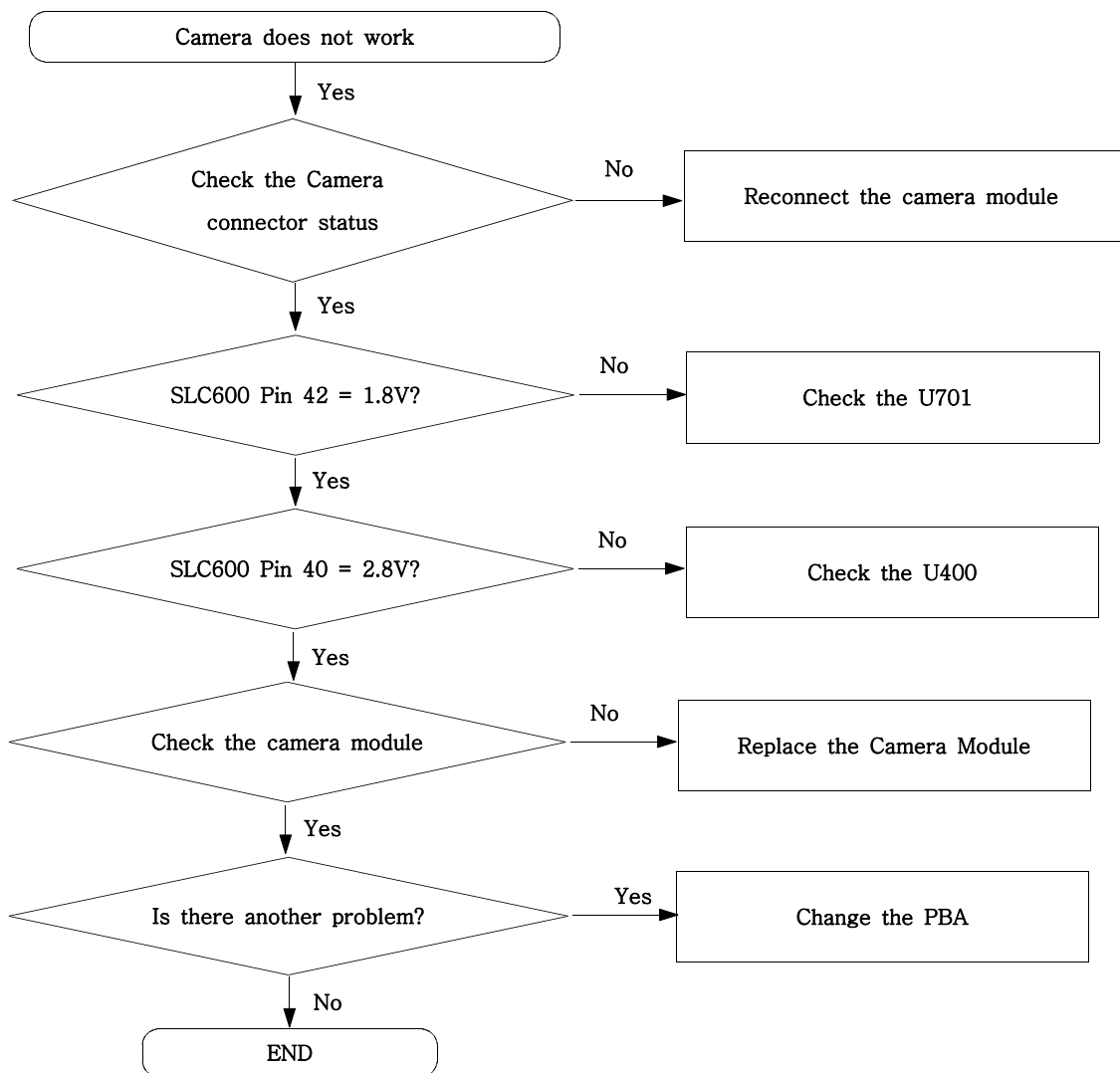


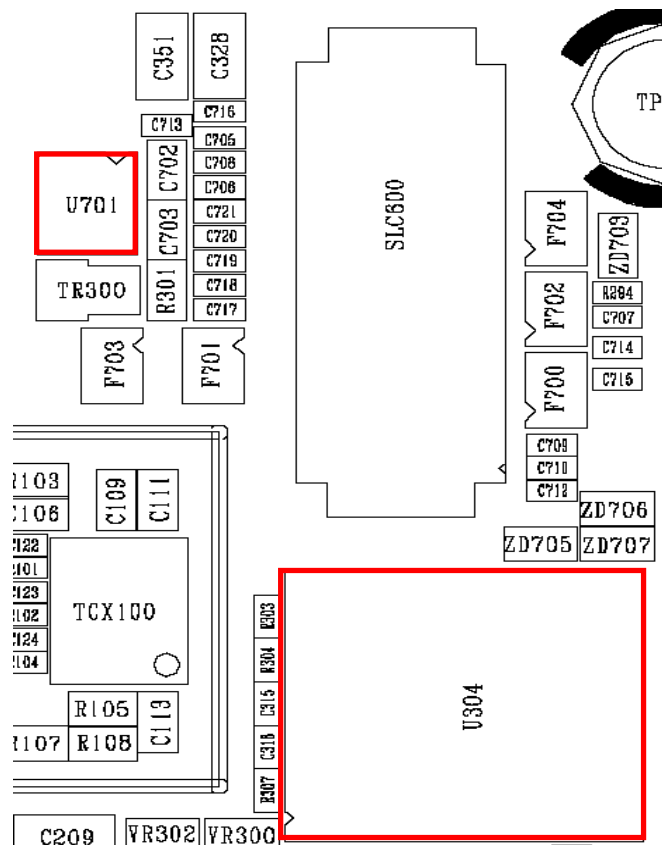
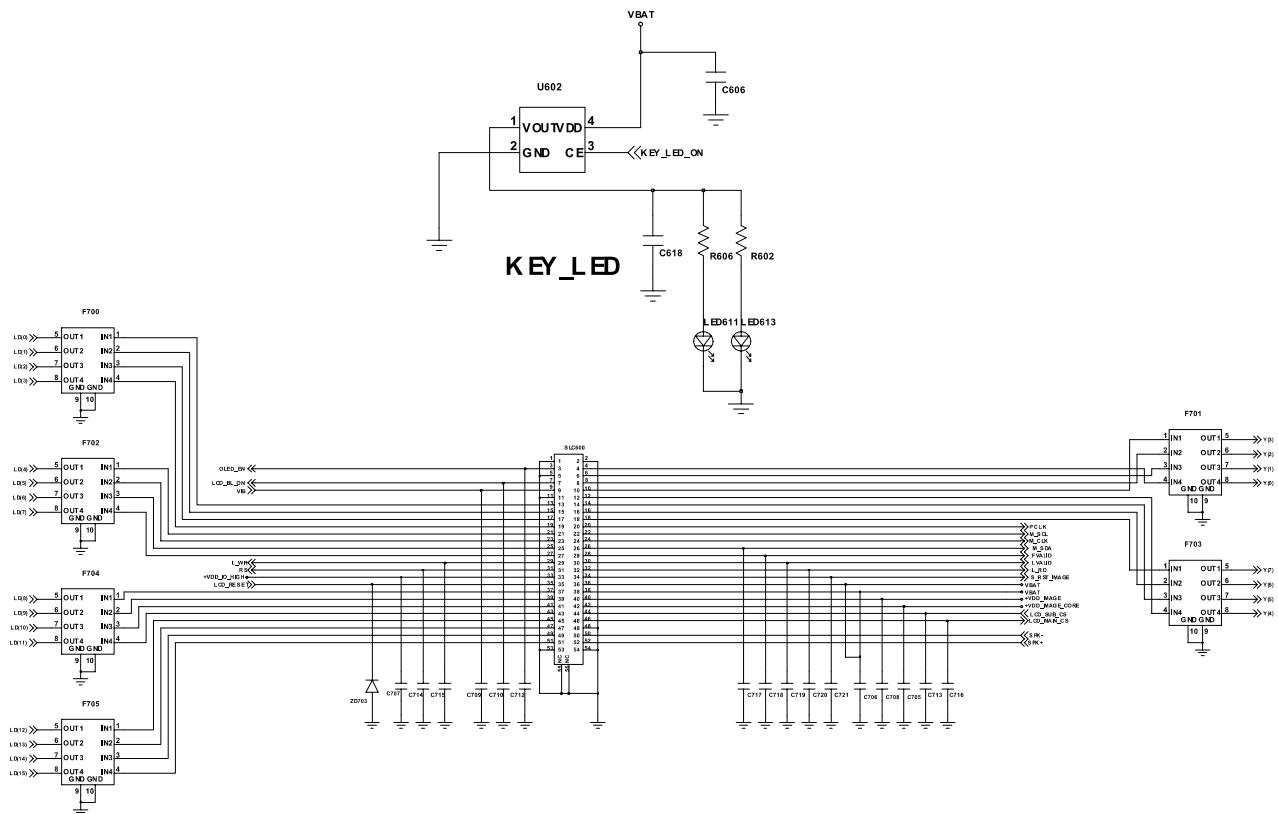


9-10. Key Back Light

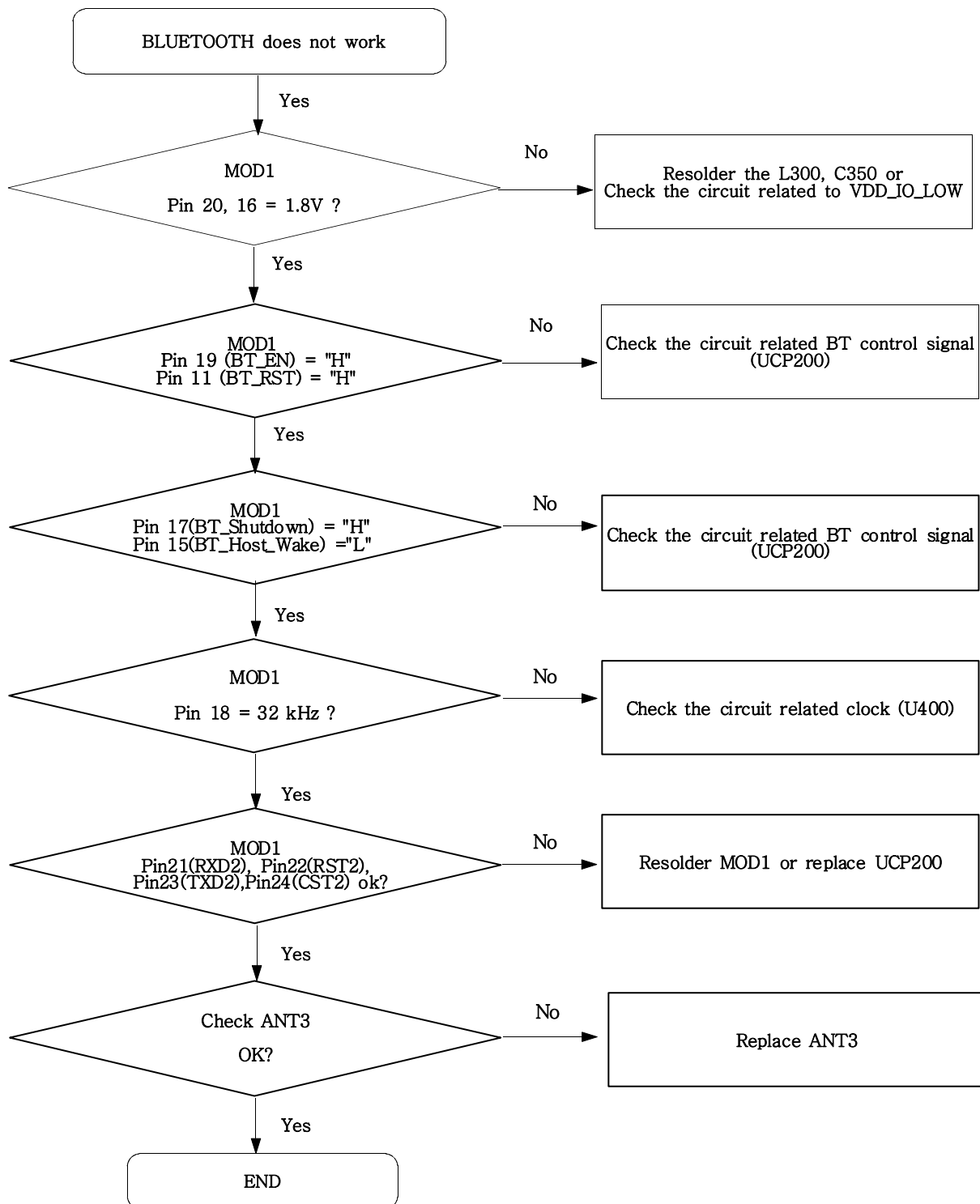


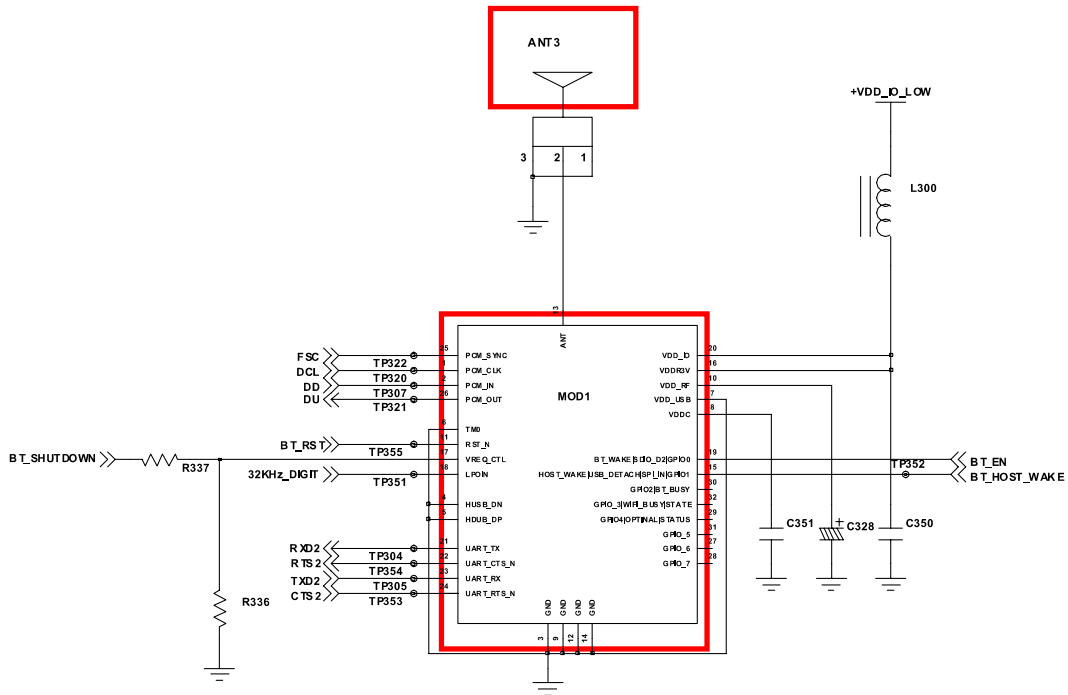
9-11. Camera part



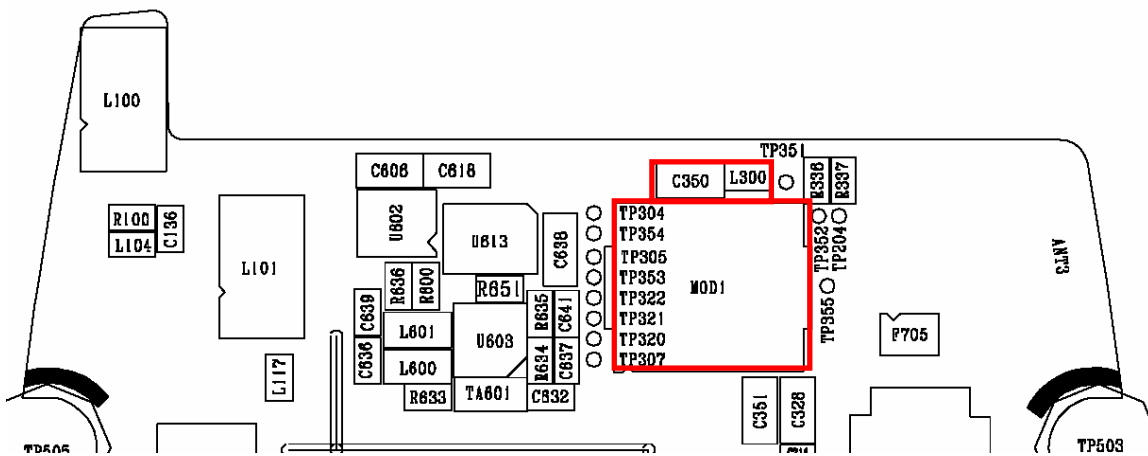


9-12. BLUETOOTH

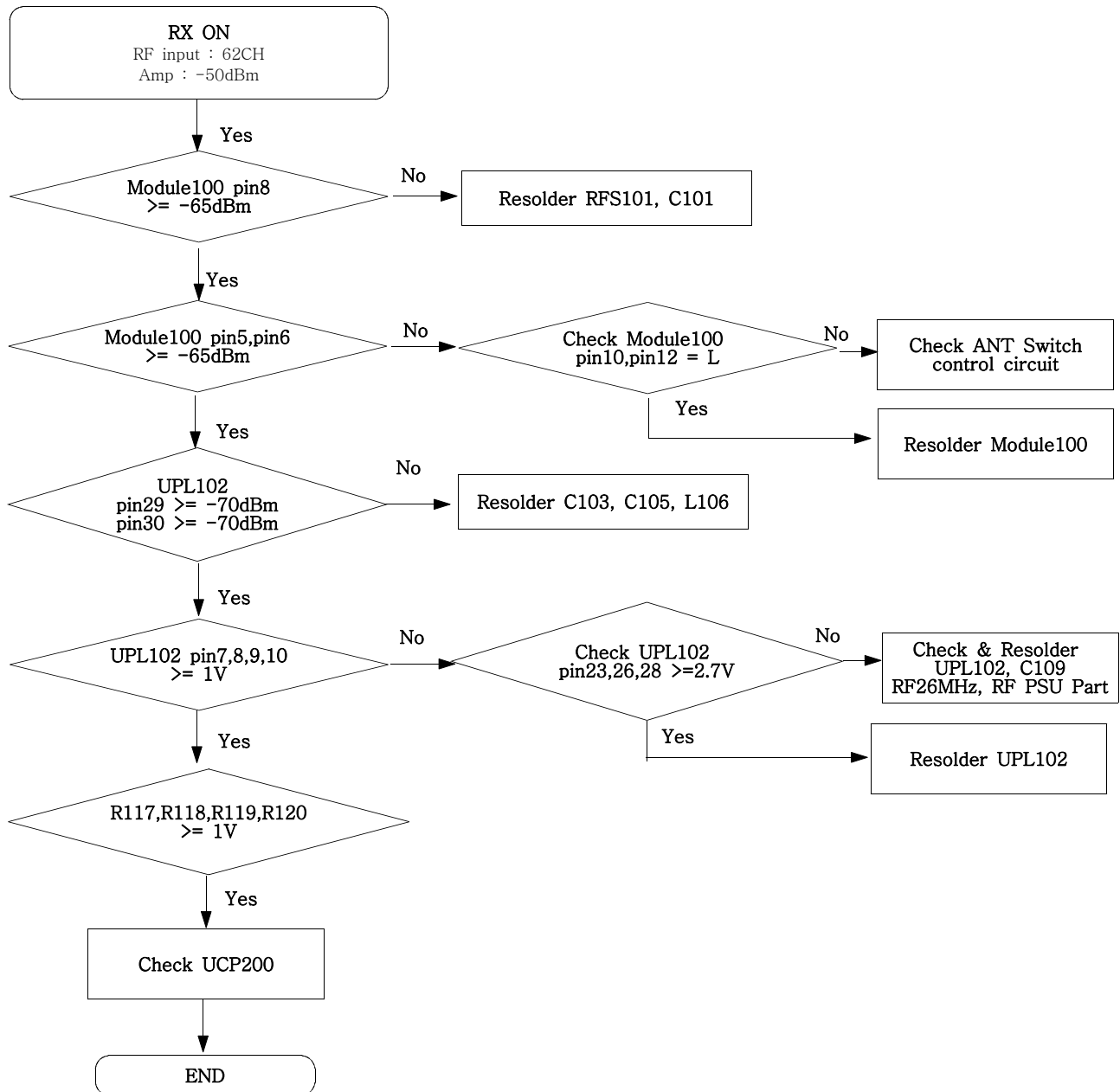


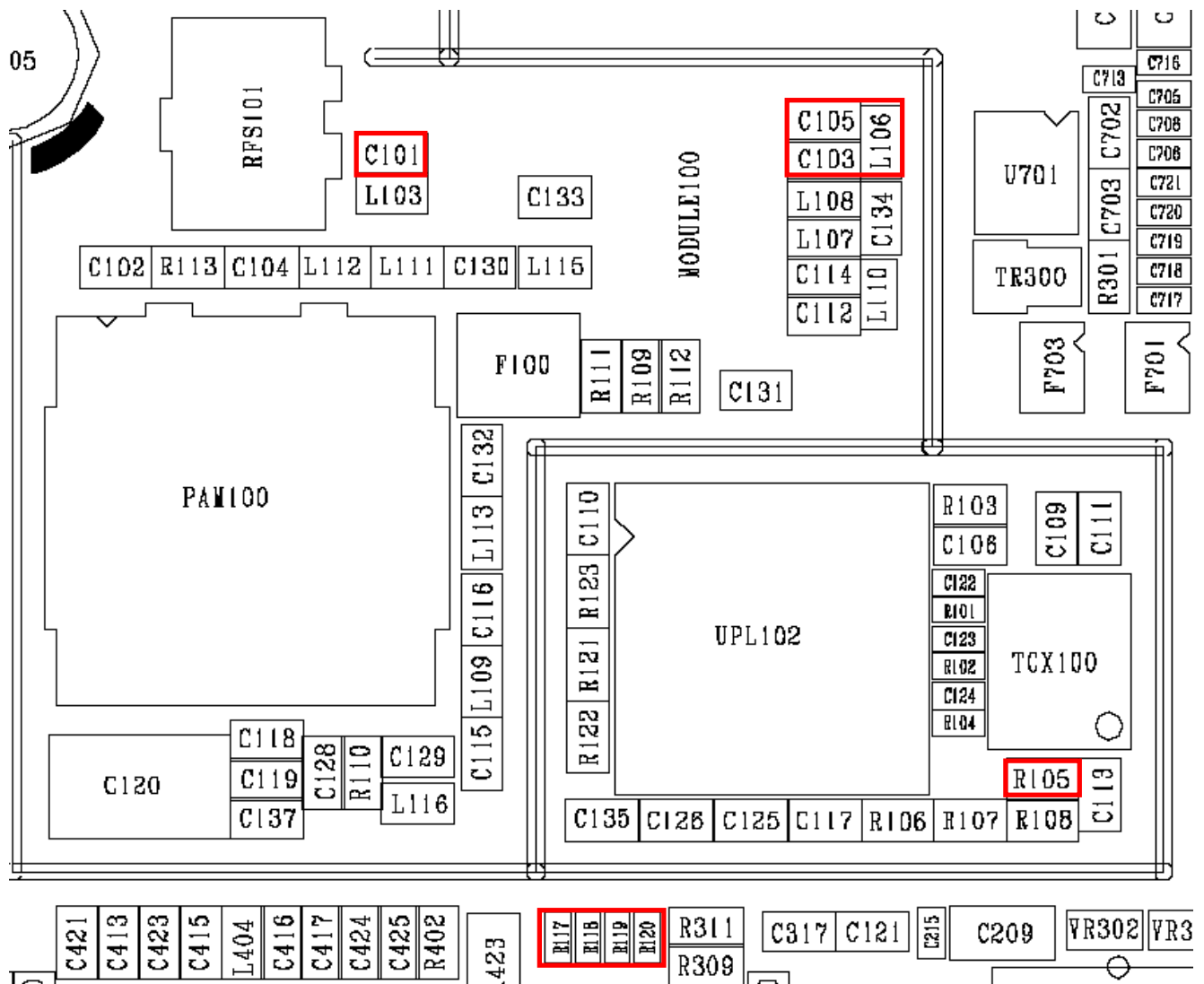


BLUE_TOOTH

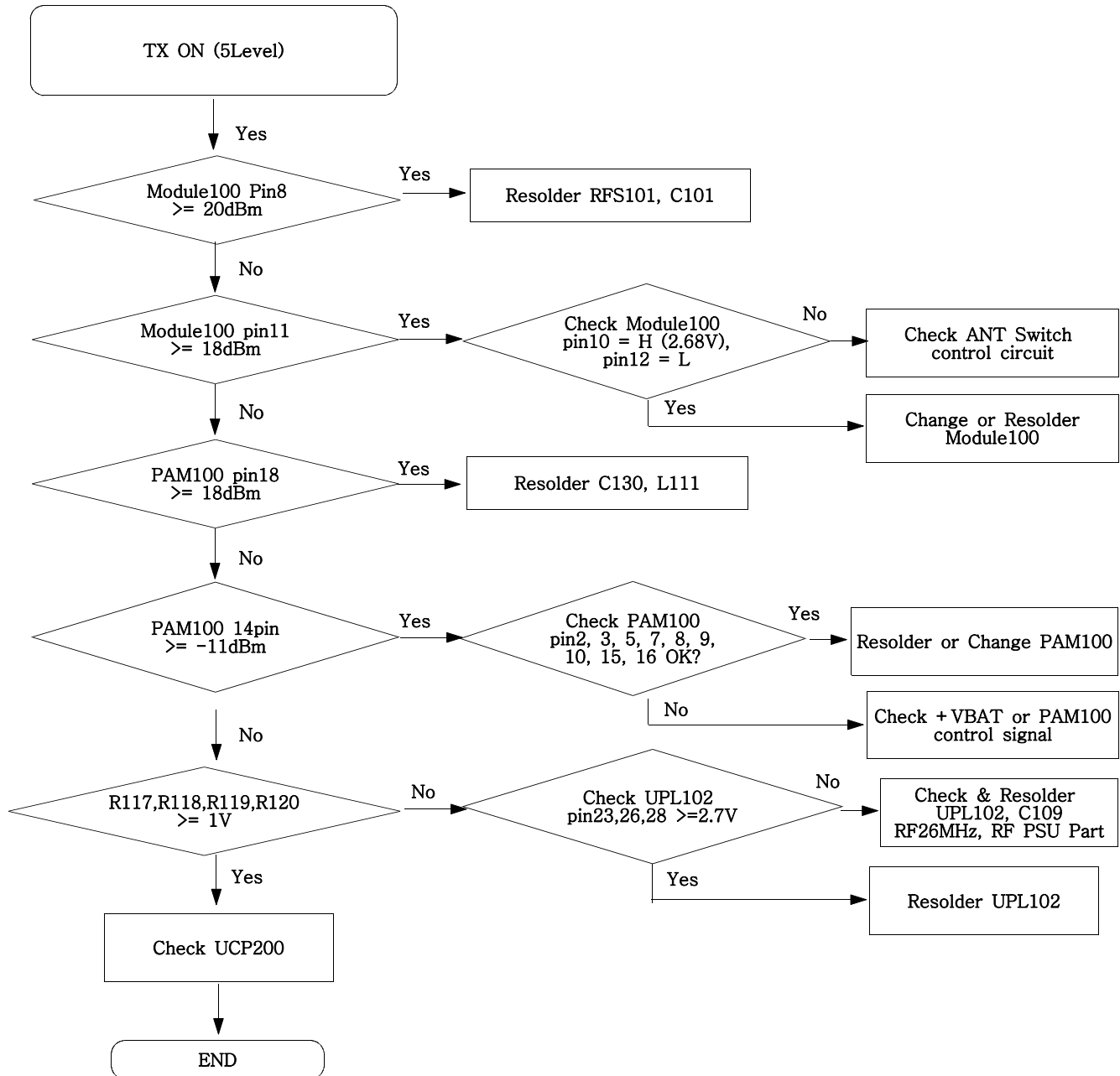


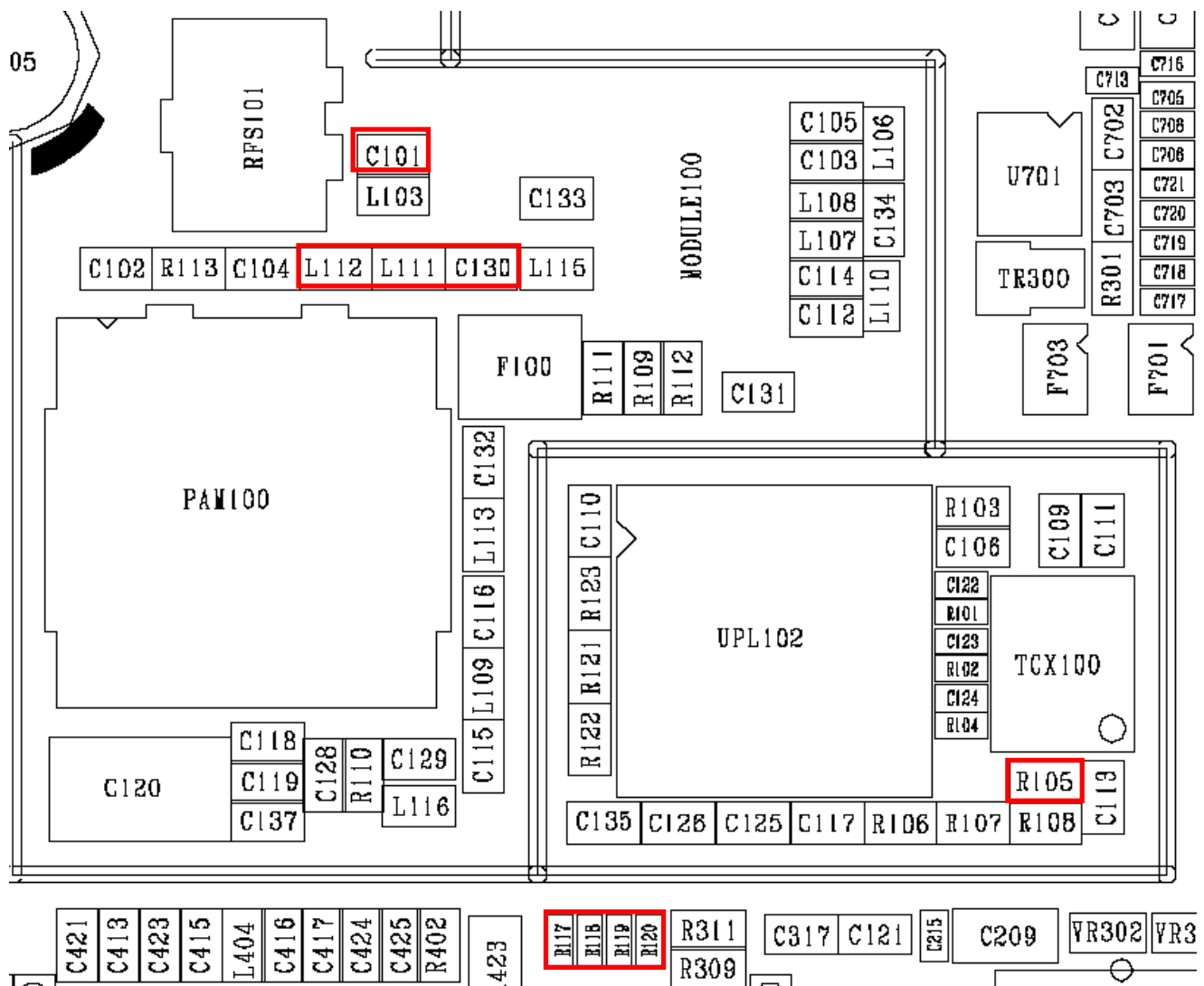
9-13. GSM Receiver



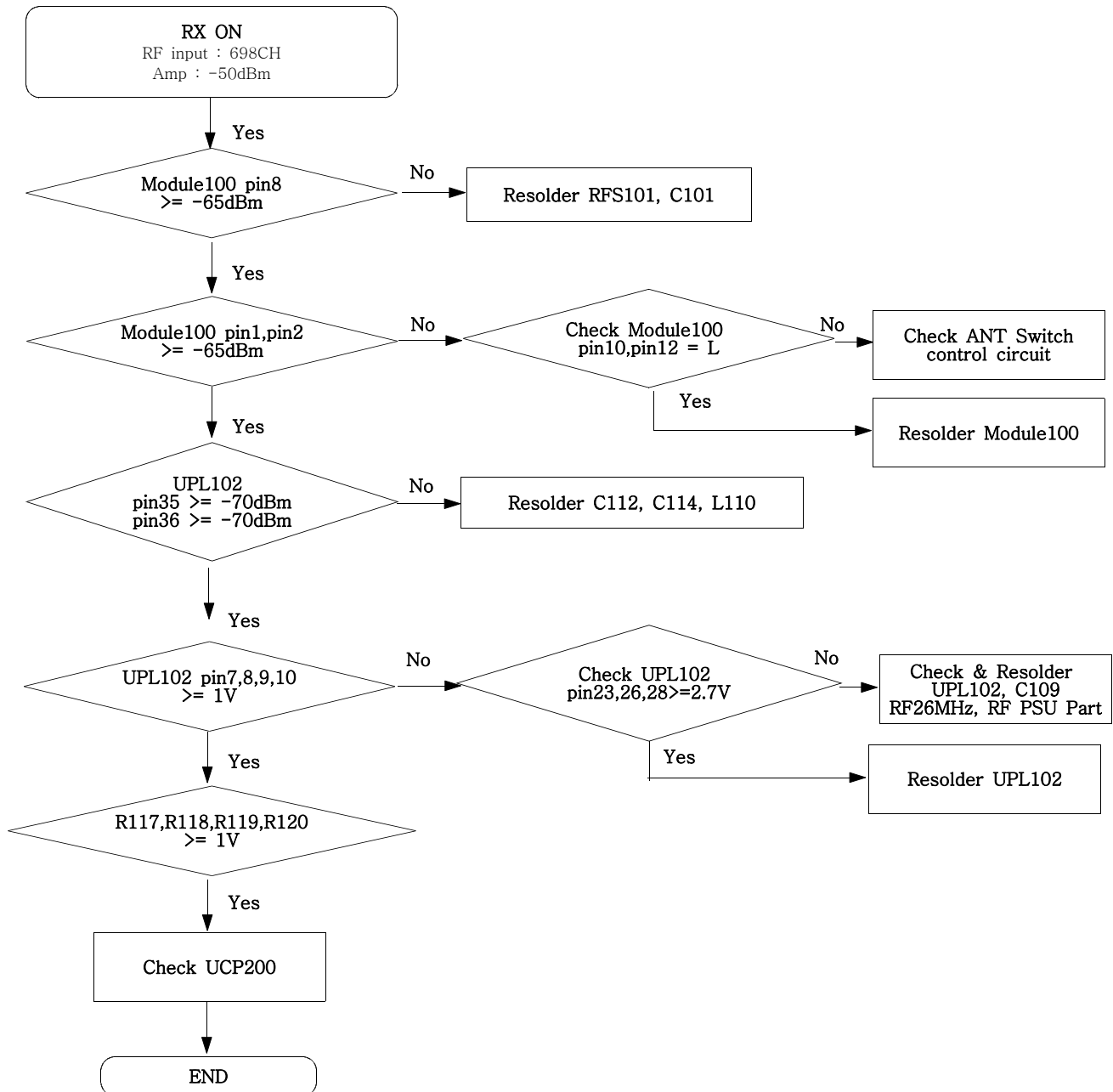


9-14. GSM Transmitter

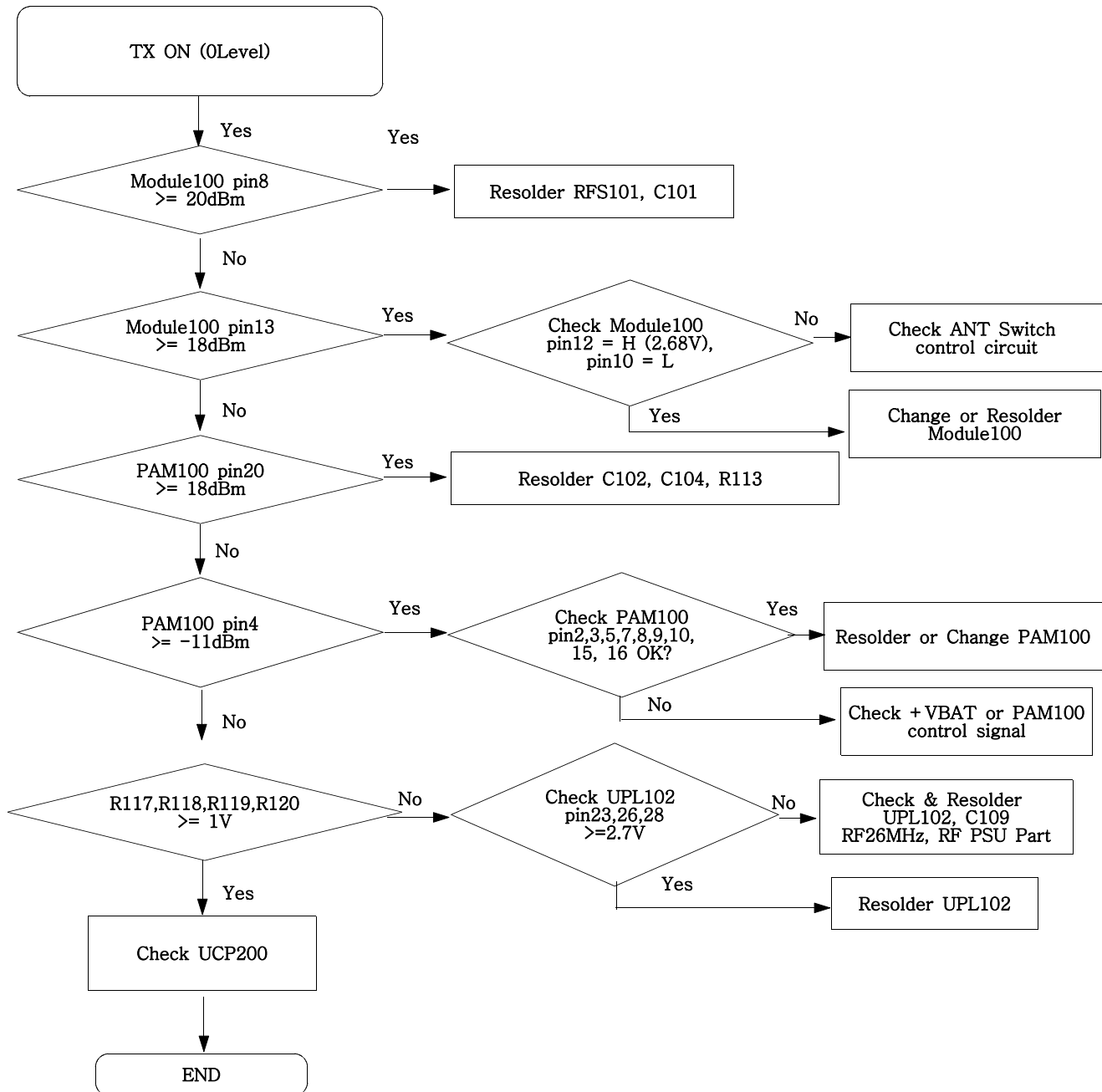


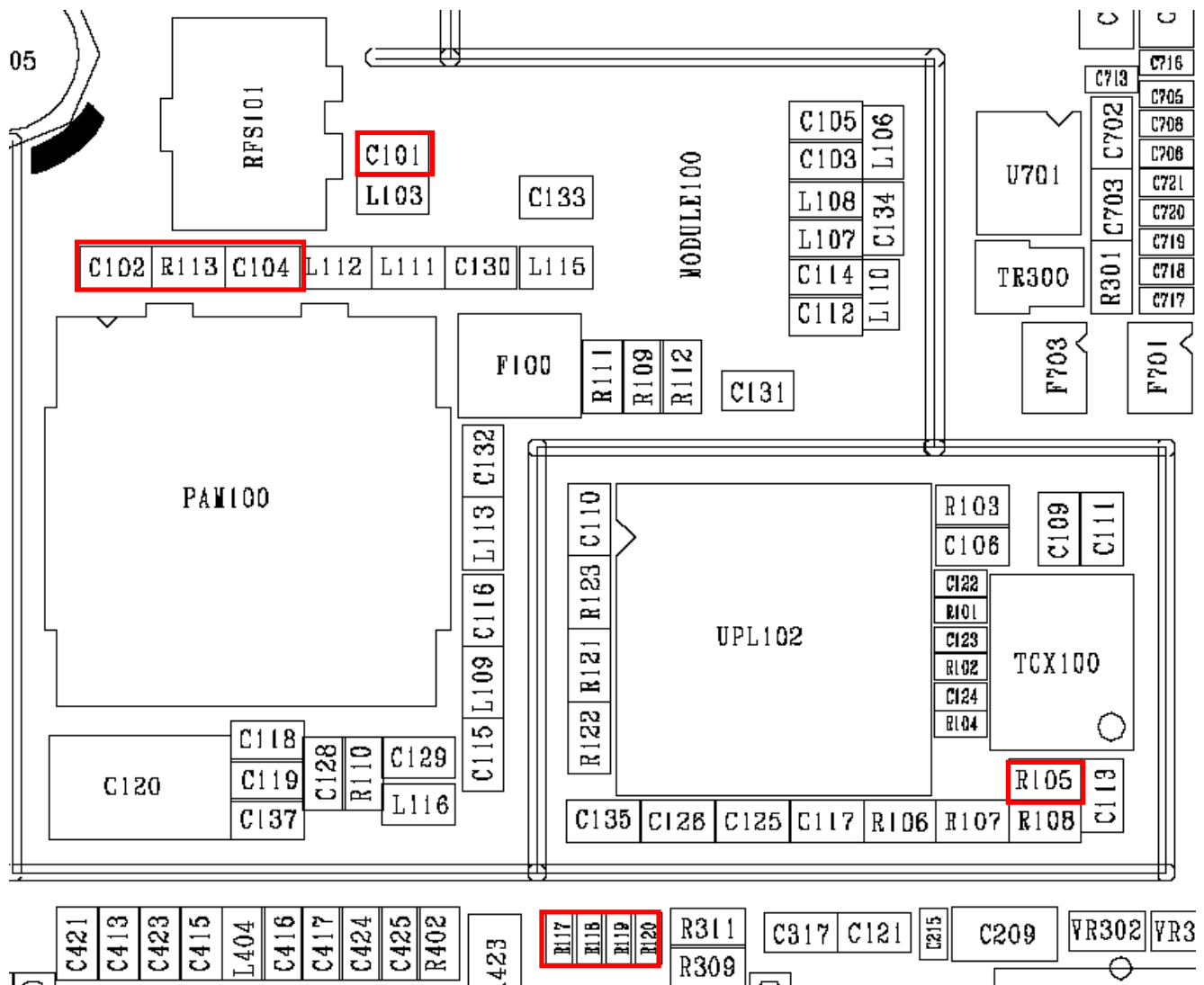


9-15. DCS Receiver

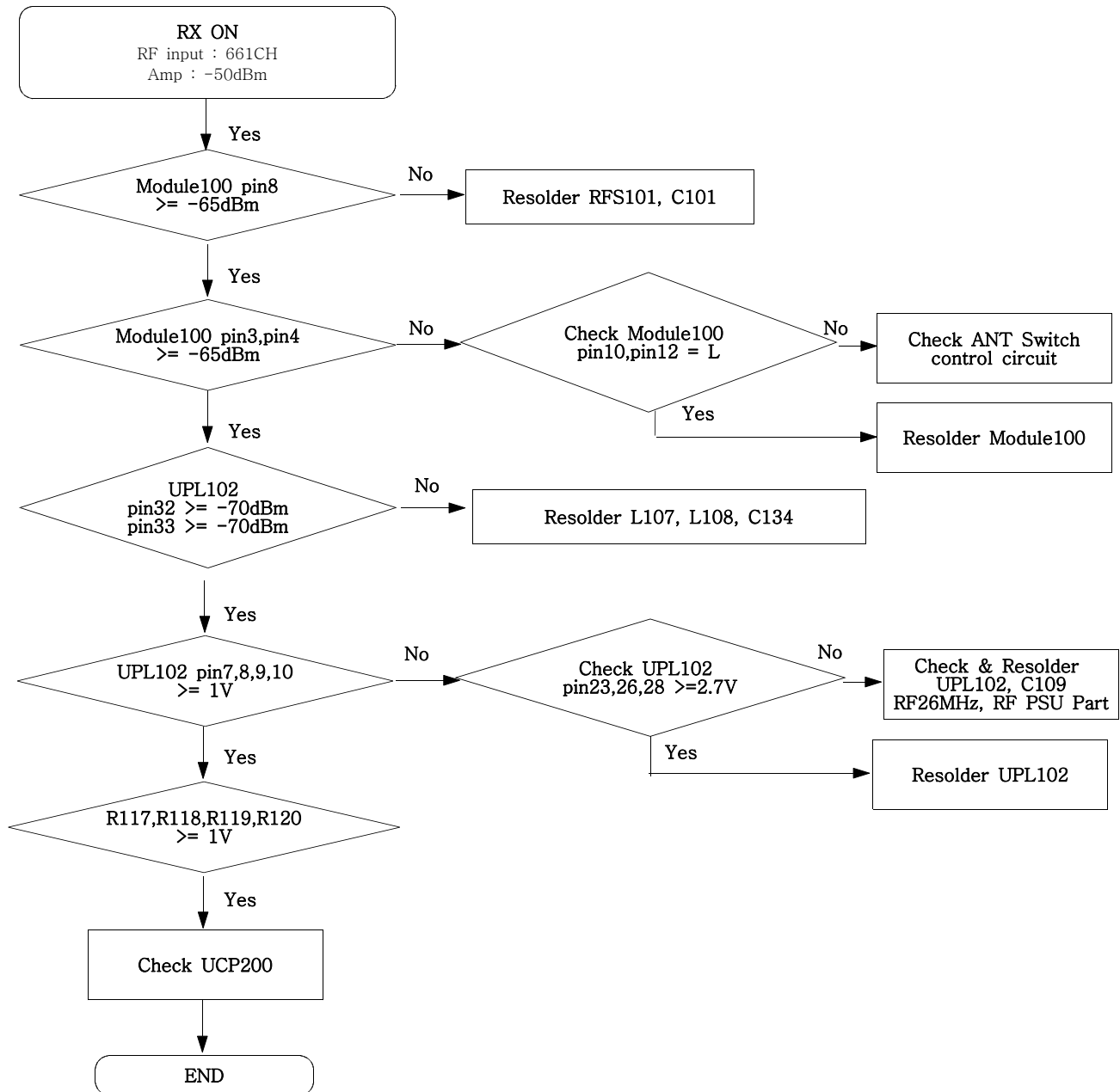


9-16. DCS Transmitter

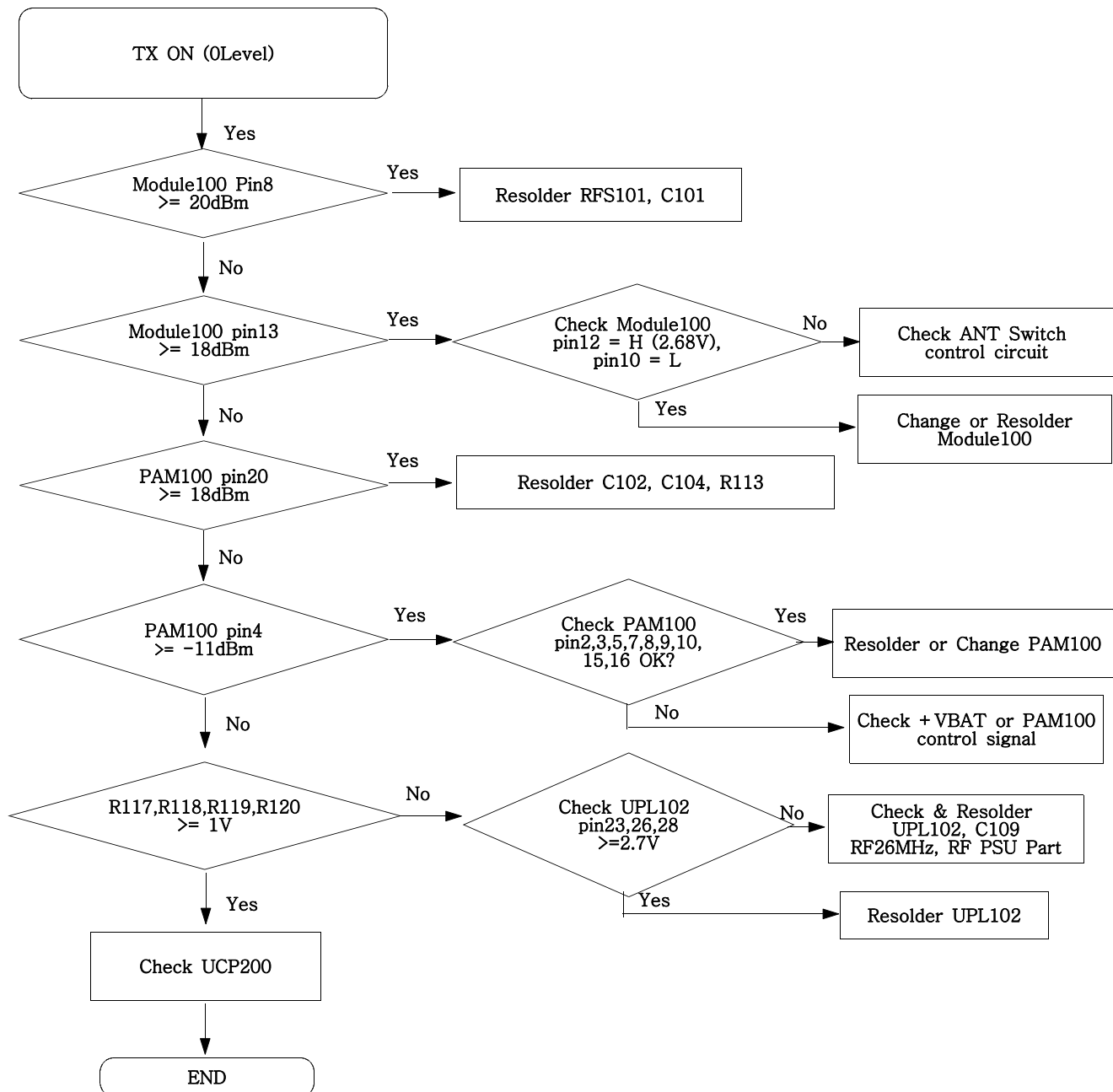


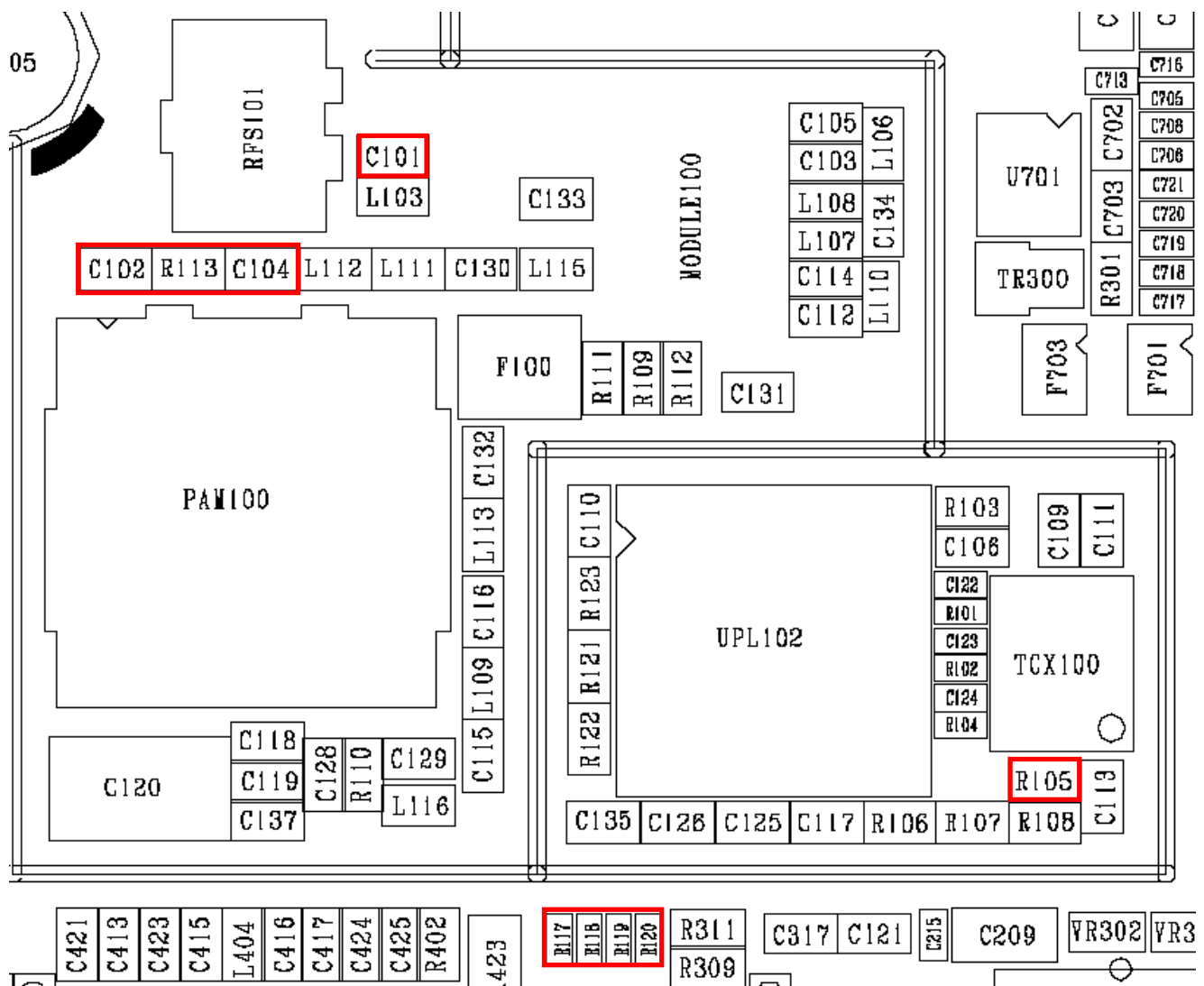


9-17. PCS Receiver



9-18. PCS Transmitter





10. Reference data

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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