SAMSUNG

GSM TELEPHONE

SGH-B130

SERVICE *Manual*

GSM TELEPHONE

CONTENTS

SAMSUNG ELECTRONICS

GSPN (Global Service Partner Network)

Country	Web Site
North America	service.samsungportal.com
Latin America	latin.samsungportal.com
CIS	cis.samsungportal.com
Europe	europe.samsungportal.com
China	china.samsungportal.com
Asia	asia.samsungportal.com
Mideast & Africa	mea.samsungportal.com

2008. 05. Rev.1.0

2. Specification

2-1. GSM General Specification

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

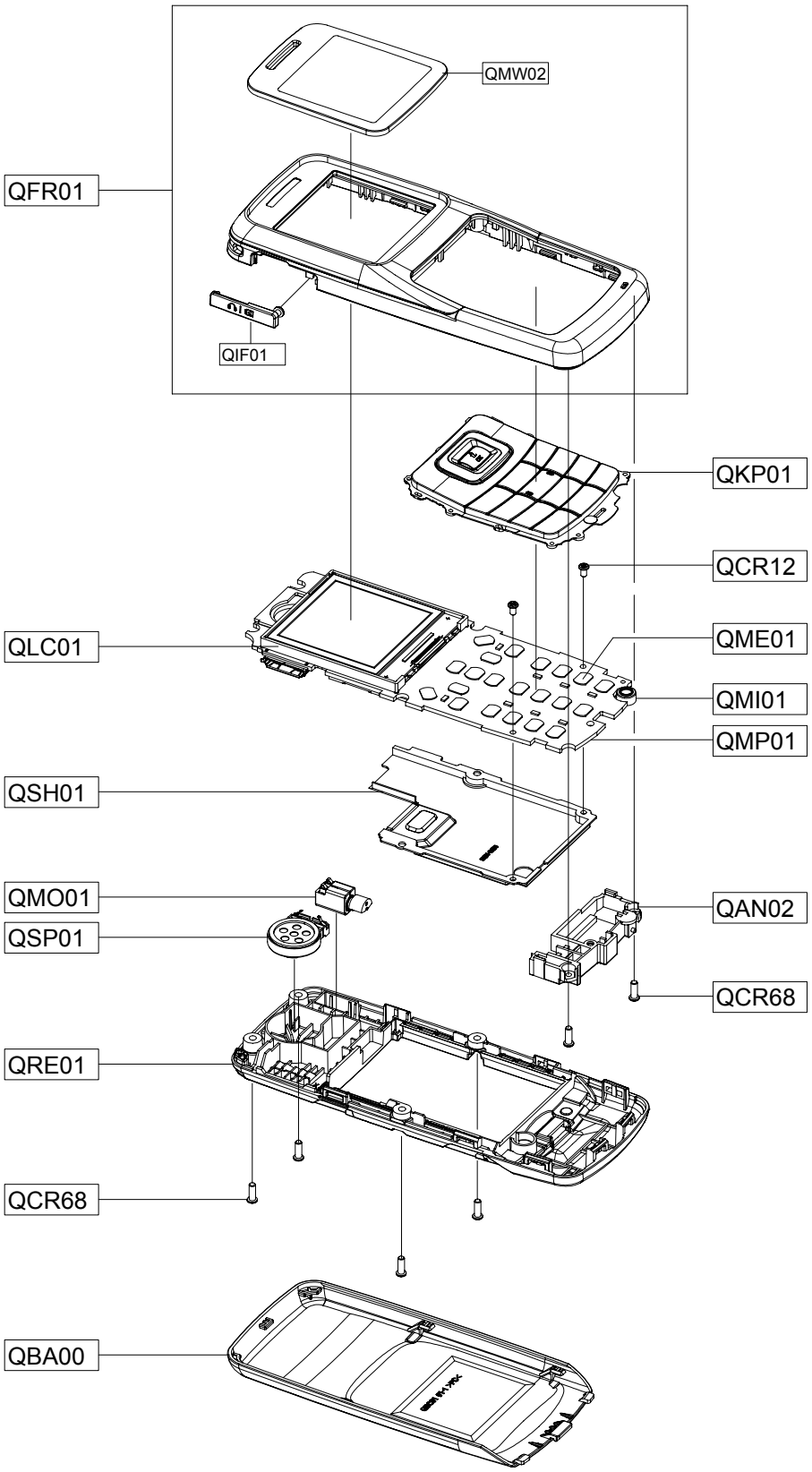
2-2. GSM TX power class

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

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

5. Exploded View and Parts List

5-1. Cellular phone Exploded View



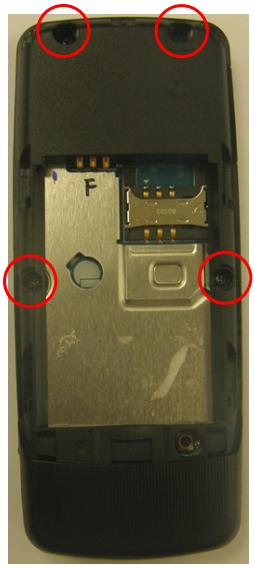
5-2. Cellular phone Parts list

Design LOC		Discription	SEC CODE
QAN02		INTENNA-SGHB130	GH42-01569A
QBA00		PMO CASE-BATT	GH72-47402A
QCR12		SCREW-MACHINE	6001-001530
QCR68		SCREW-TAPPING	6002-001399
QKP01		ASSY KEYPAD-MAIN(SER/BLACK)	GH98-08826A
QLC01		LCD-MODULE SGHB110L	GH07-01241A
QME01		KEY FPCB-M/DOME SHEET 22KEY	GH59-05754A
QMI01		MICROPHONE-ASSY-SGH_B130	GH30-00482A
QMO01		MOTOR DC-SCH-S369	GH31-00392A
QMP01		PBA MAIN-SGHB130	GH92-04580A
QRE01		ASSY CASE-REAR	GH98-08134A
QSH01		ICT SHIELD-CAN	GH70-03580A
QSP01		SPEAKER	3001-002306
QFR01		ASSY CASE-FRONT(EU/BLK)	GH98-08133A
	QMW02	PMO WINDOW-MAIN	GH72-47404A
	QIF01	PMO COVER-IF	GH72-47405A

11. Disassembly and Assembly Instructions

11-1. Disassembly

1



1) Release Screw 4 Point at rear

※ **Caution**

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

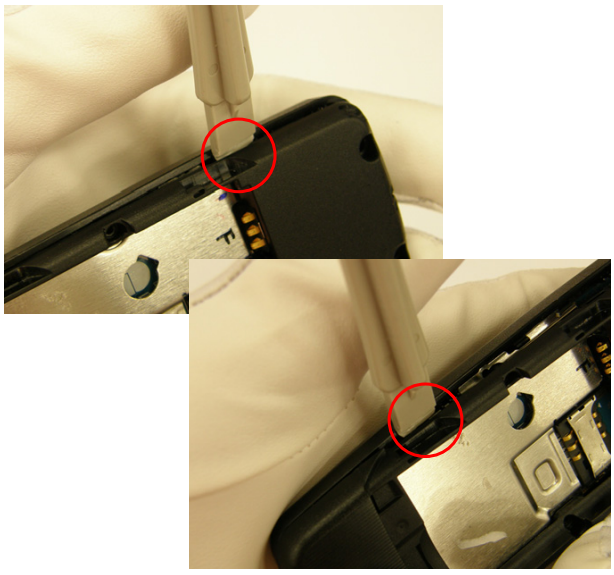
2

1) Disjoint Hook on the top of the rear

※ **Caution**

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

3



1) Disjoint hook on the side of the rear

※ **Caution**

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

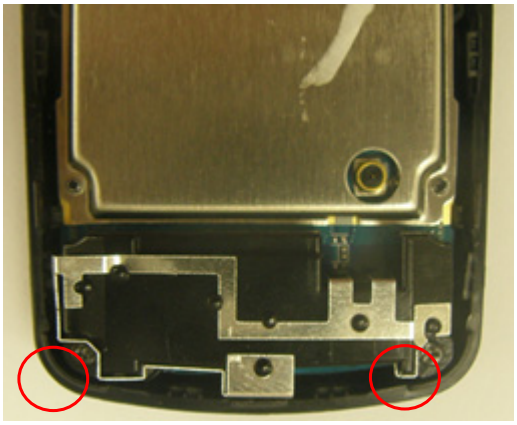
4

1) Disjoint hook on the bottom of the reart.

※ **Caution**

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

5

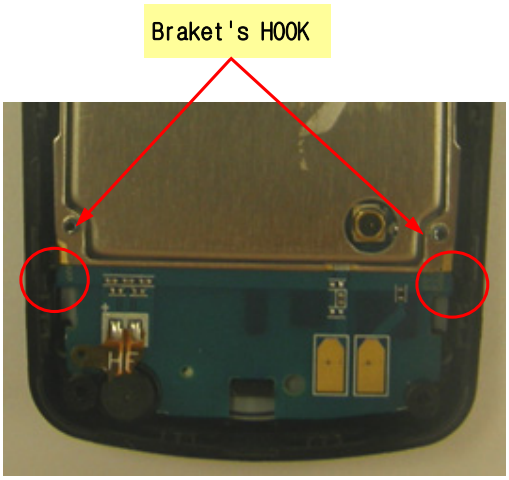


1) Release screw 2 point at Intenna

※ **Caution**

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

6

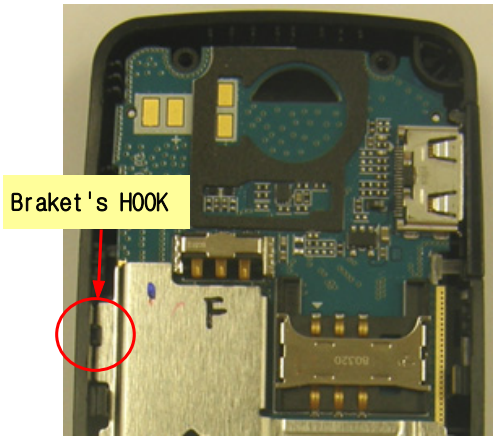


1) Disjoint the low braket's hook (2point)
2) Disconnect Intenna connector.
3) Unscrew B'd 's 1 point

※ **Caution**

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

7



1) Disjoint the high braket's hook (1 point)

※ **Caution**

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

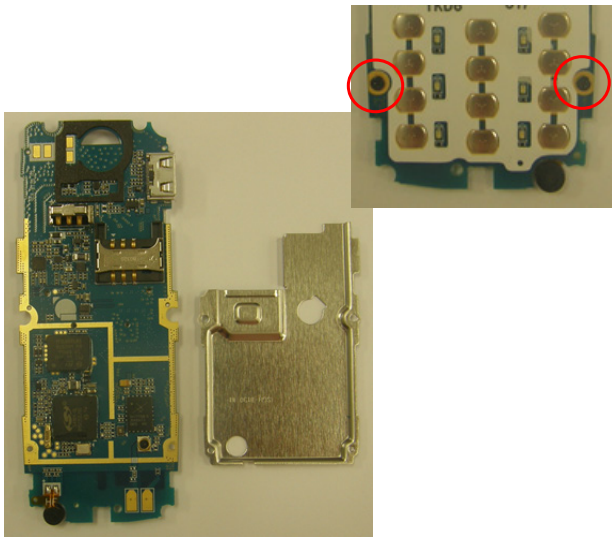
8

1) Disassembled PBA and front cover

※ **Caution**

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

9



1) Release screw 2 point at shieldcan

※ Caution

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

11-2. Assembly

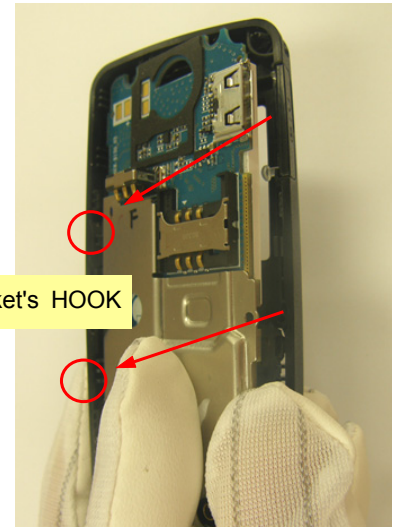
1

1) Set a PBA and front cover

※ **Caution**

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

2

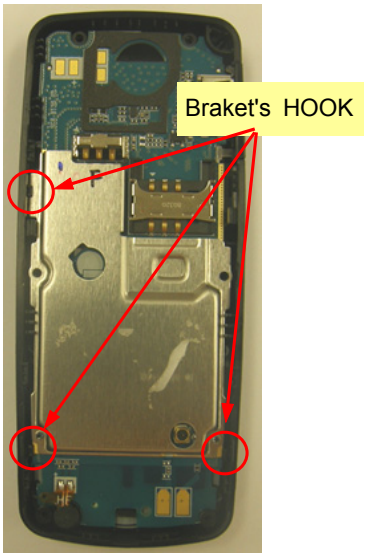


1) Put the PBA on the front cover

※ **Caution**

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

3

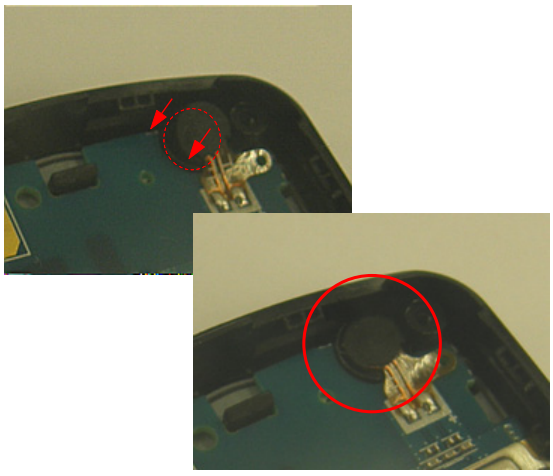


1) Assemble the front cover's hook 3point.

※ **Caution**

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

4

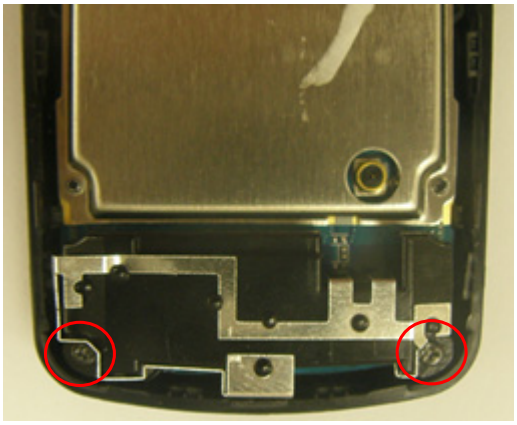


1) Put the MIC on the MIC hole of front cover

※ **Caution**

1) Be careful not to make scratch and molding damage!
2) Beware that you do not damage MIC F-PCB.

5



1) Drivers 2point screws on the intenna

※ **Caution**

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

6

1) Assemble the hooks on the bottom of the rear

※ **Caution**

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

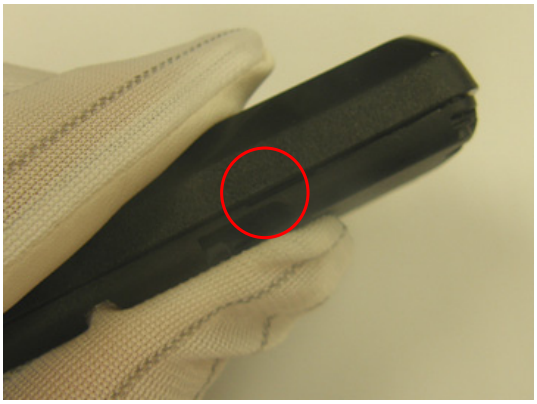
7

1) Assemble the hook on the side of the rear

※ **Caution**

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

8

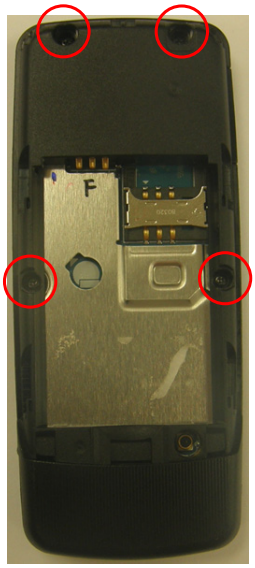


1) Assemble the hook on the other side of the rear

※ **Caution**

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

9



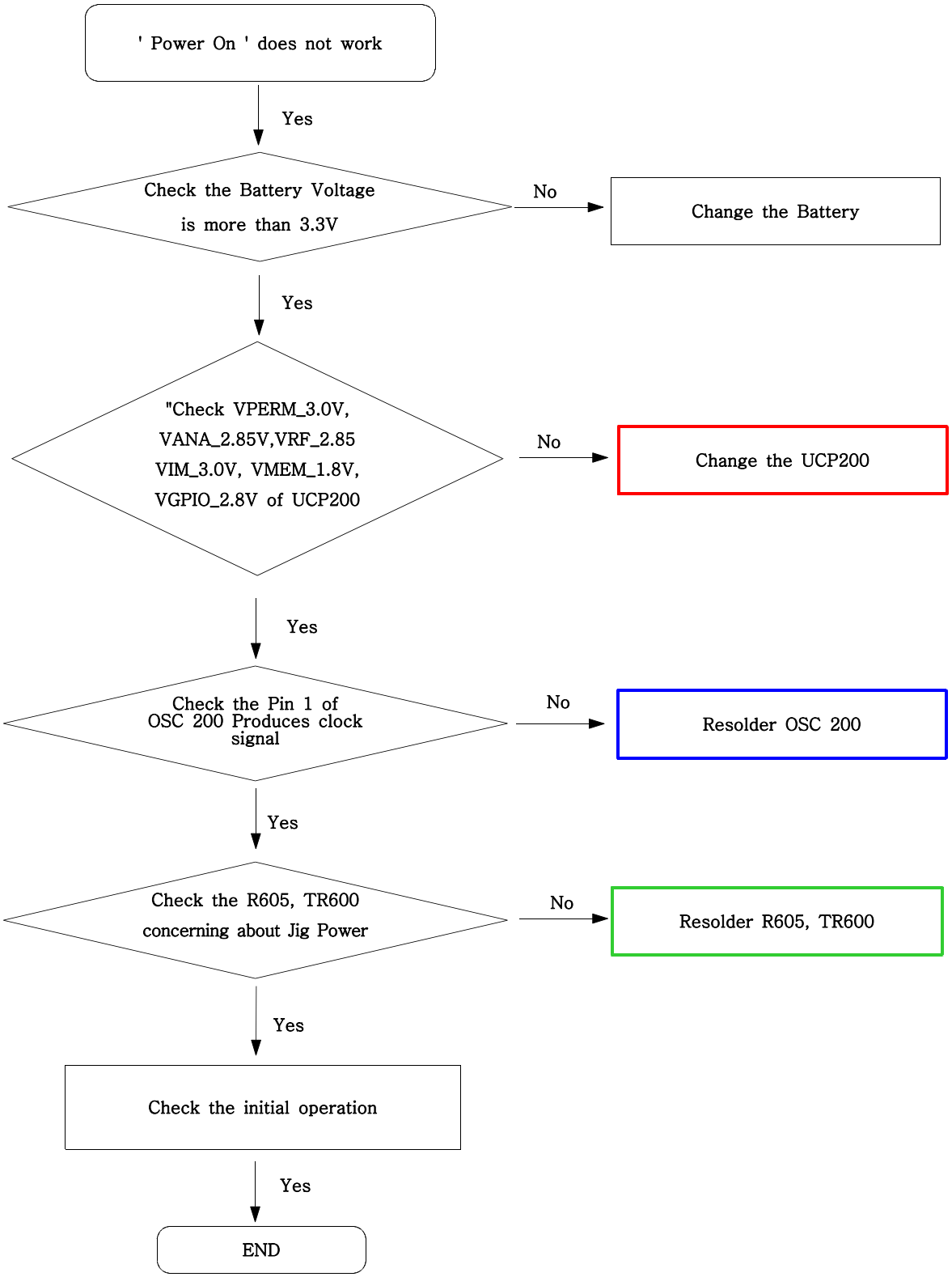
1) Drivers 4point screws on the rear.

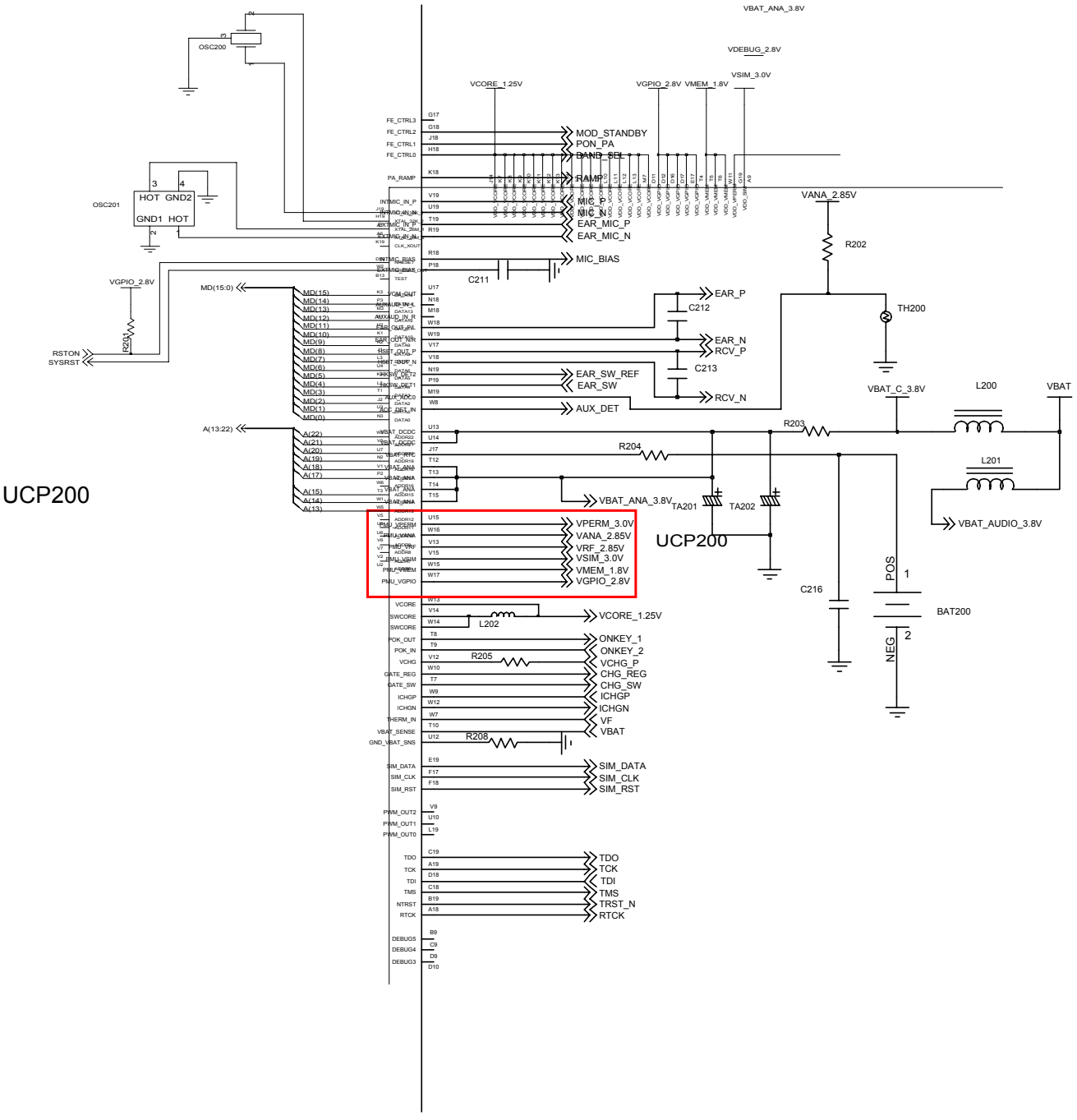
※ Caution

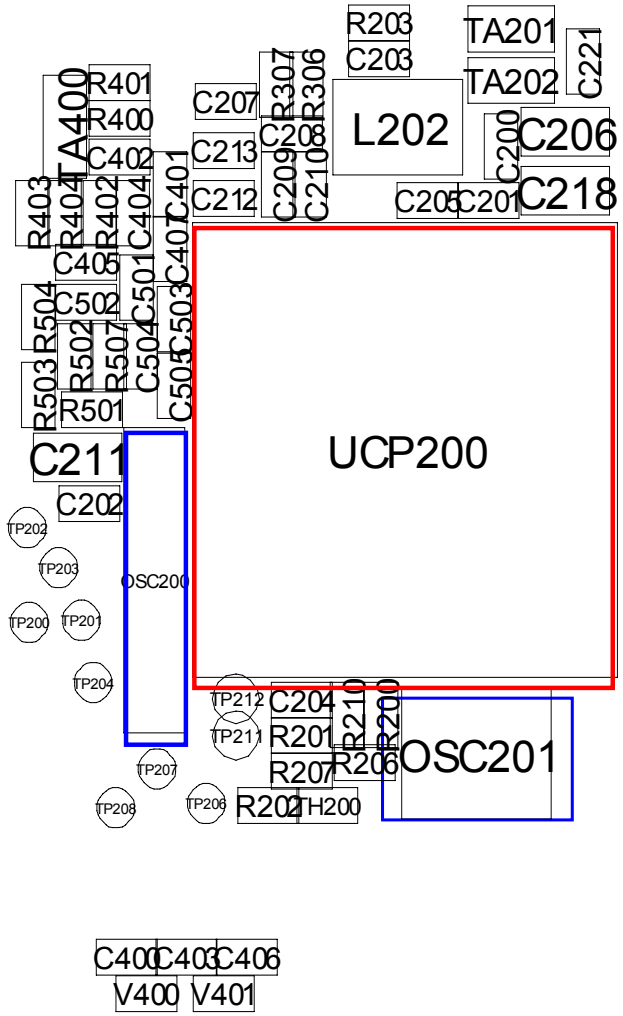
1) Be careful not to make scratch and molding damage!

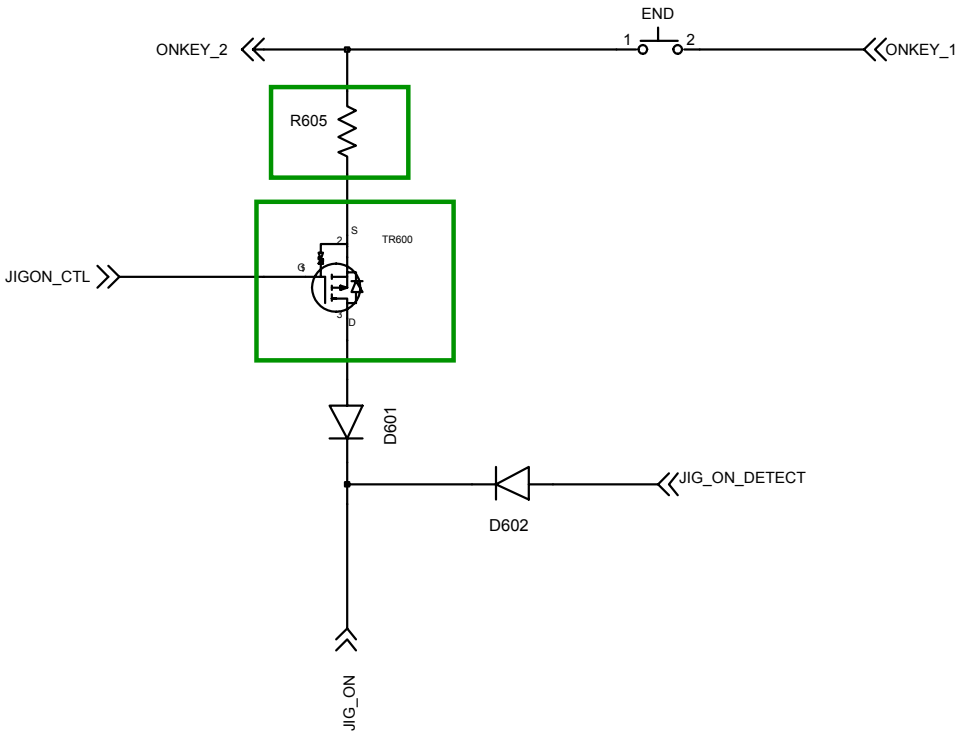
9. Flow Chart of Troubleshooting

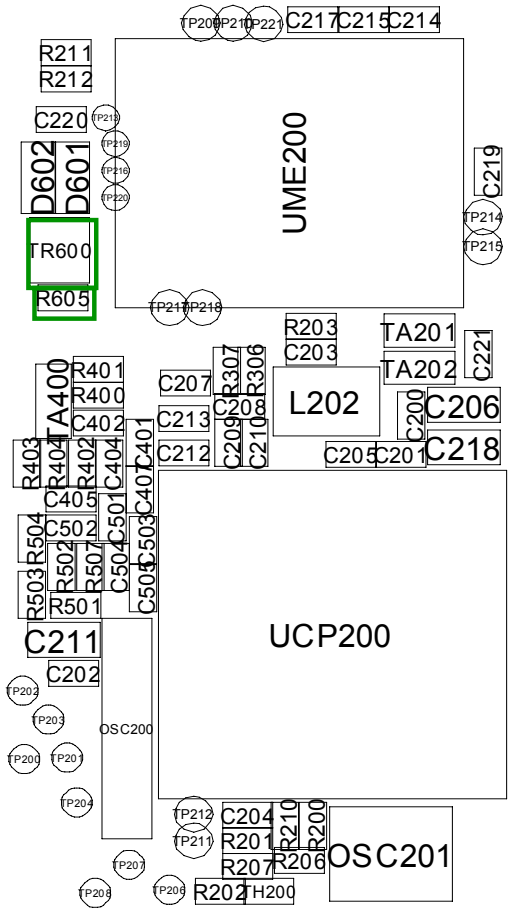
9-1. Power On



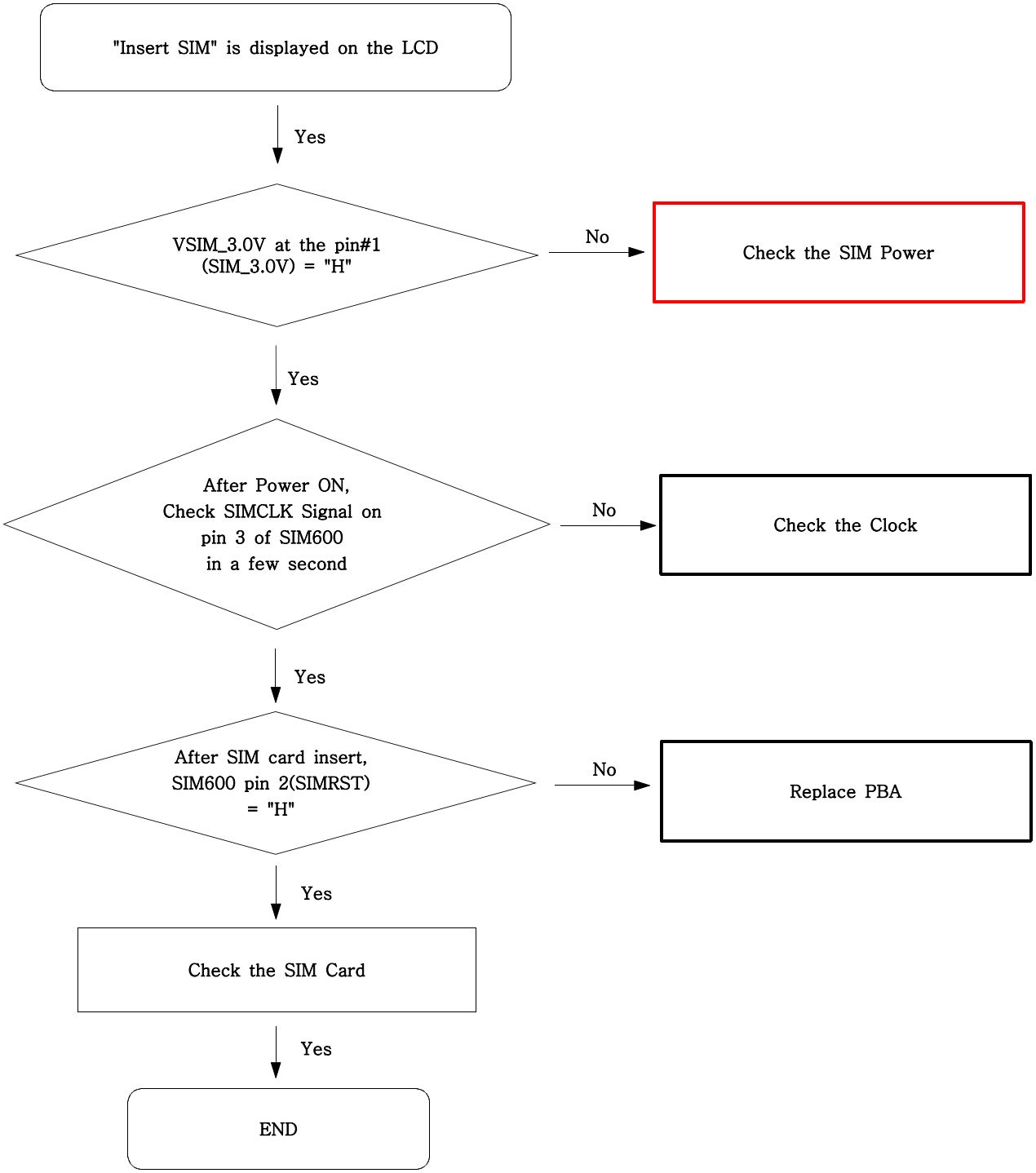


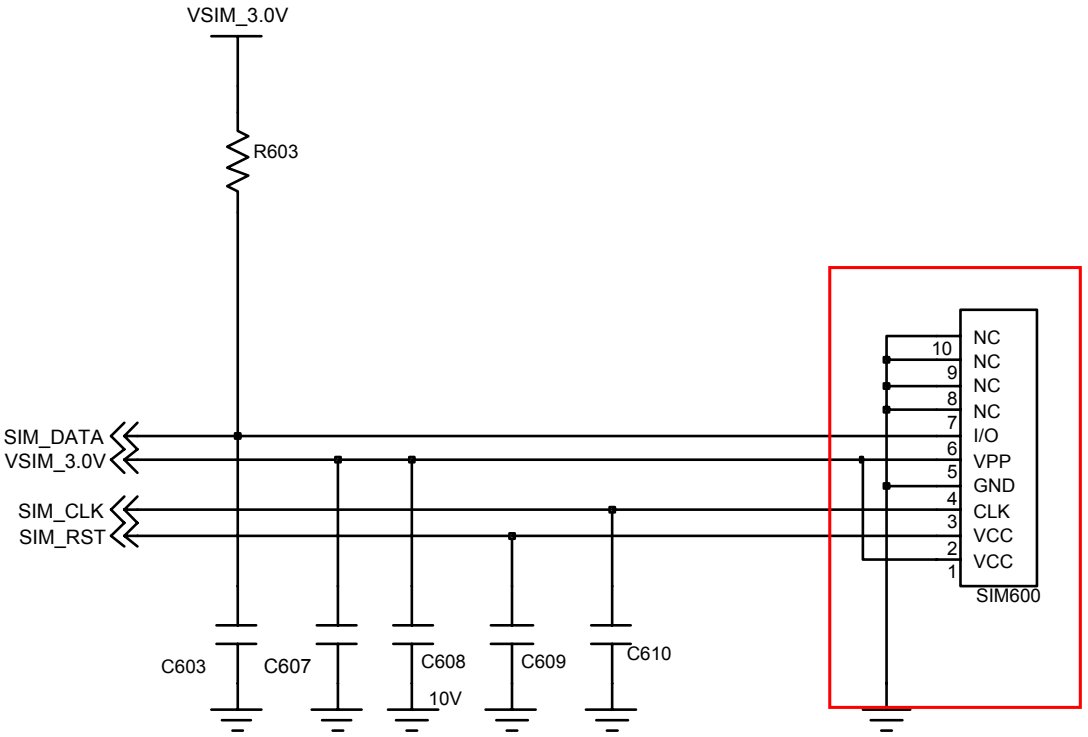


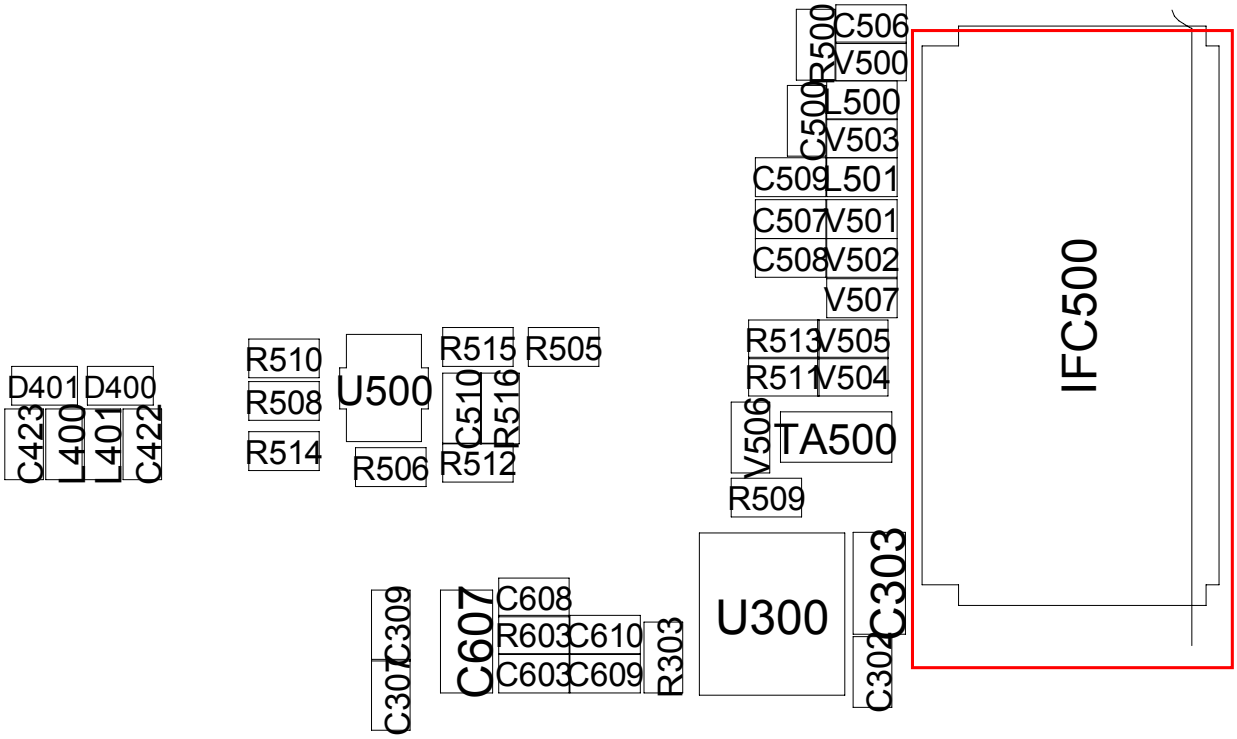




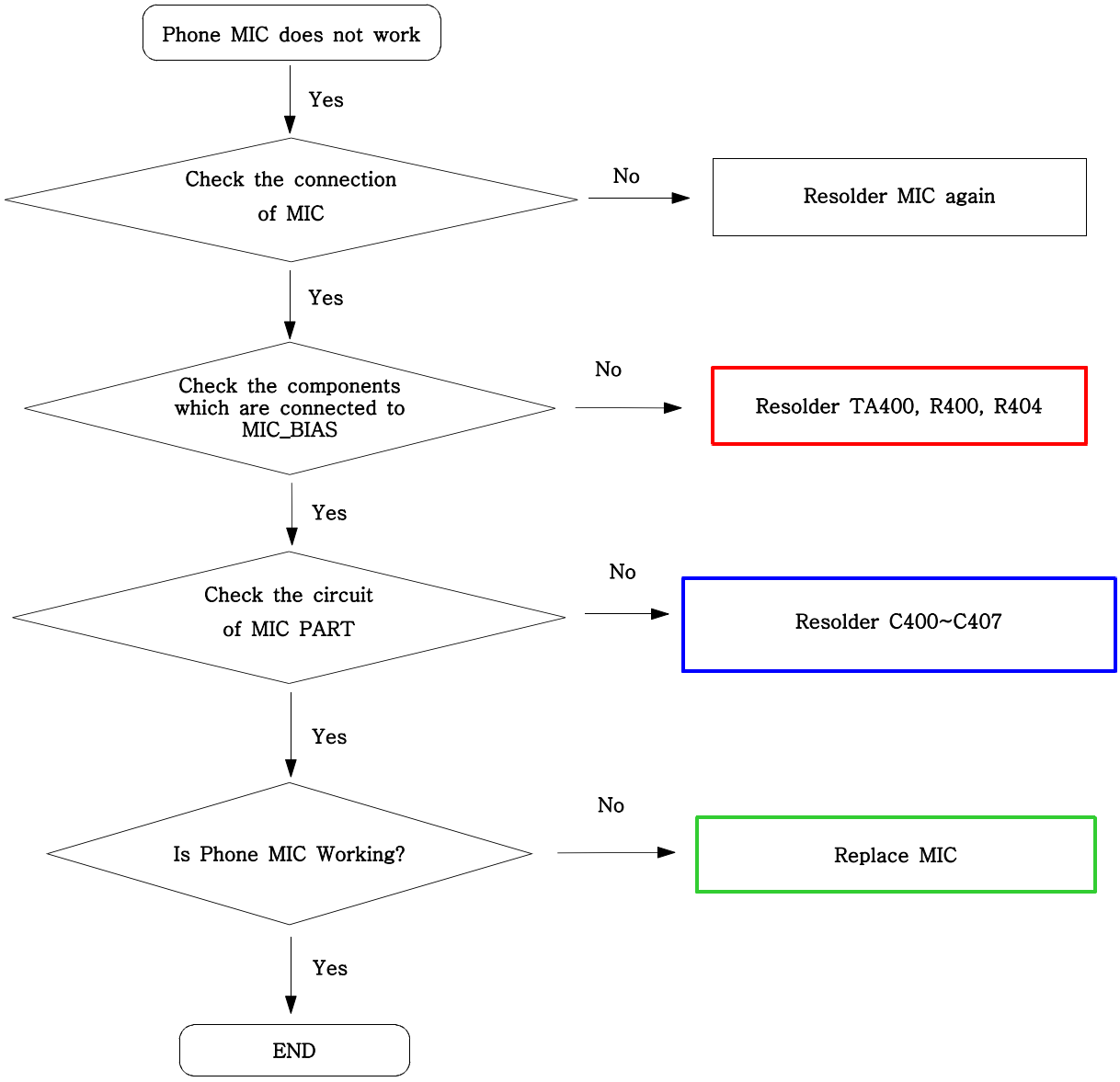
9-2. Sim Part

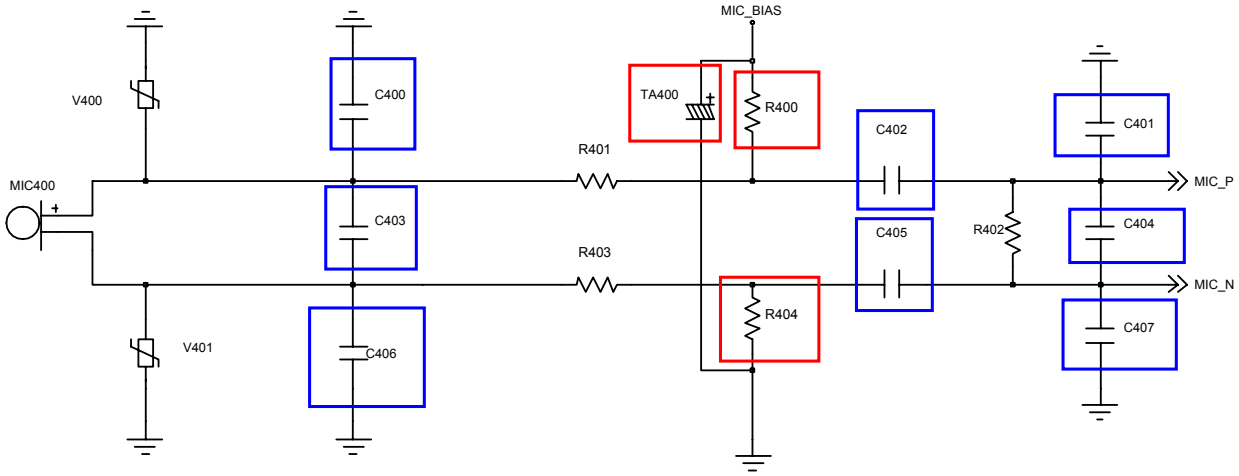


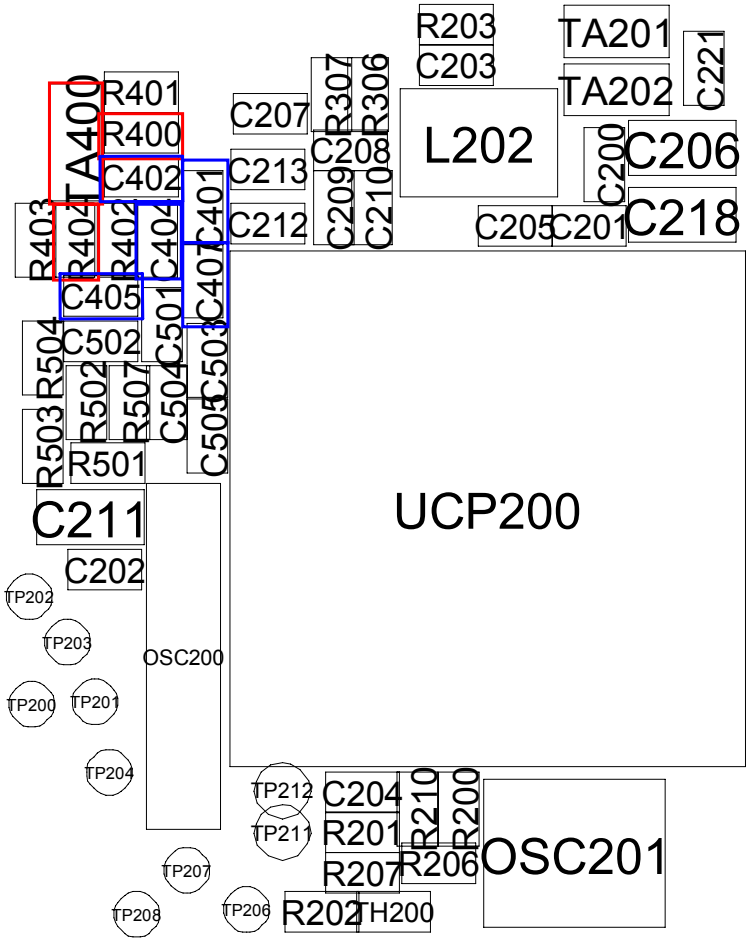


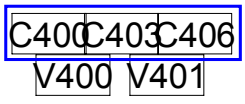


9-3. Microphone Part - Phone MIC

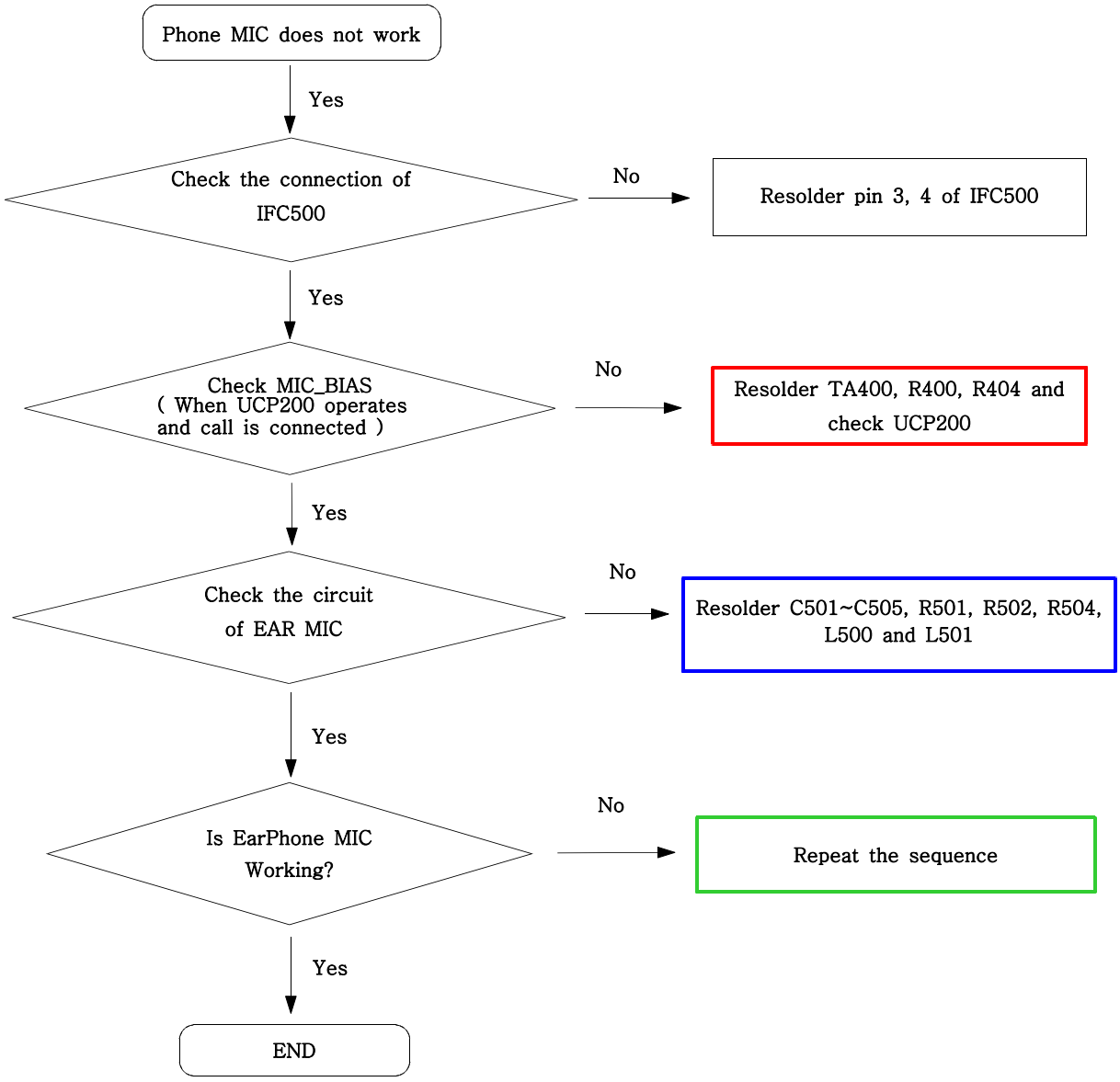


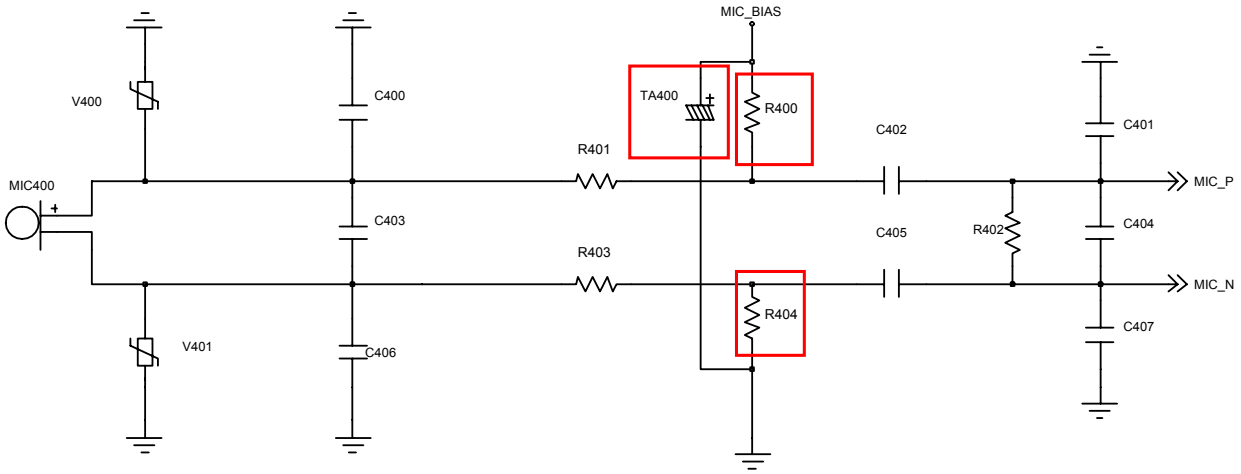


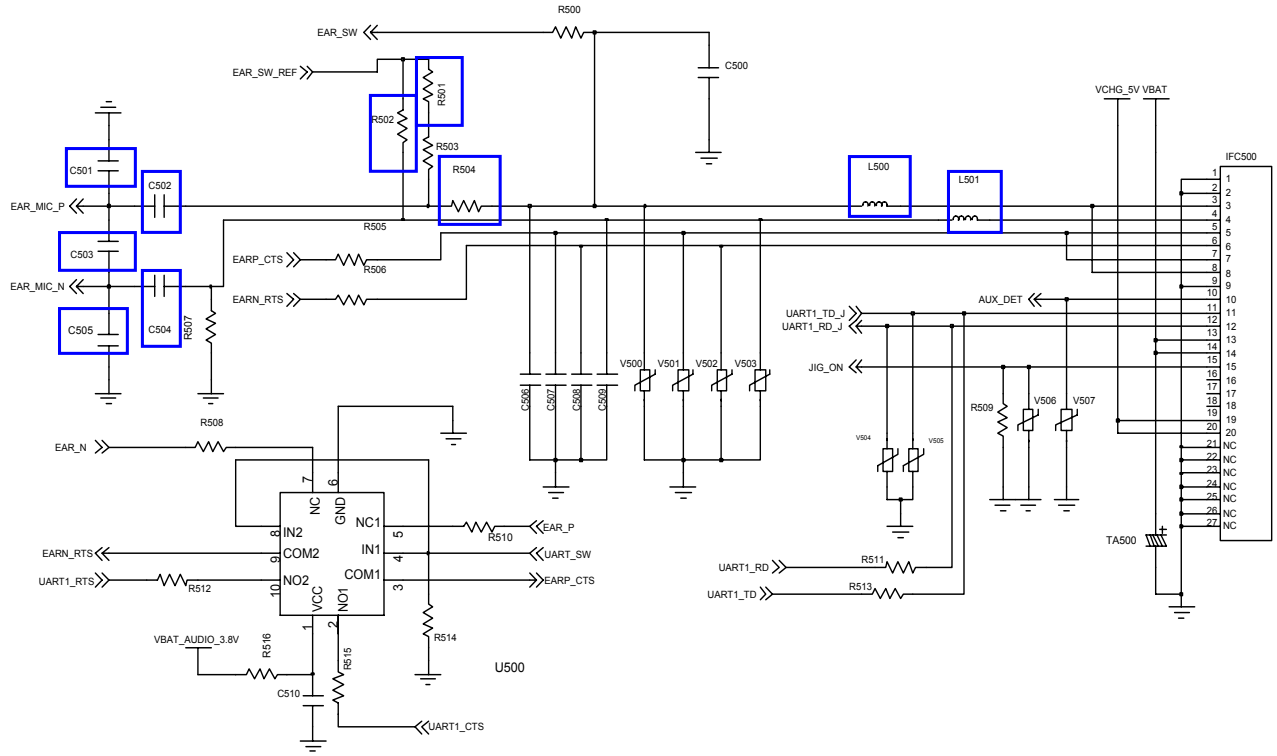


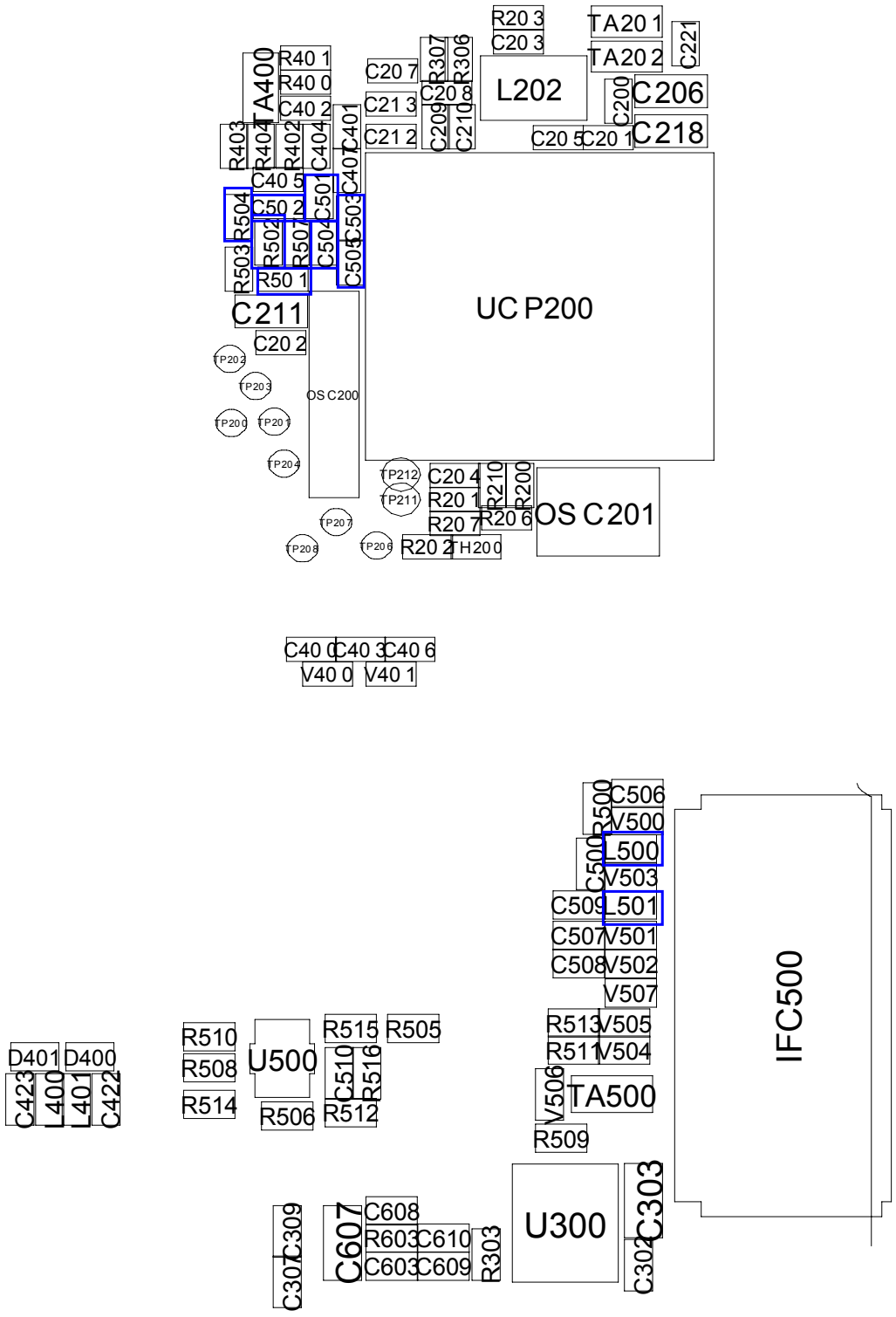


9-4. Microphone Part - Earphone MIC

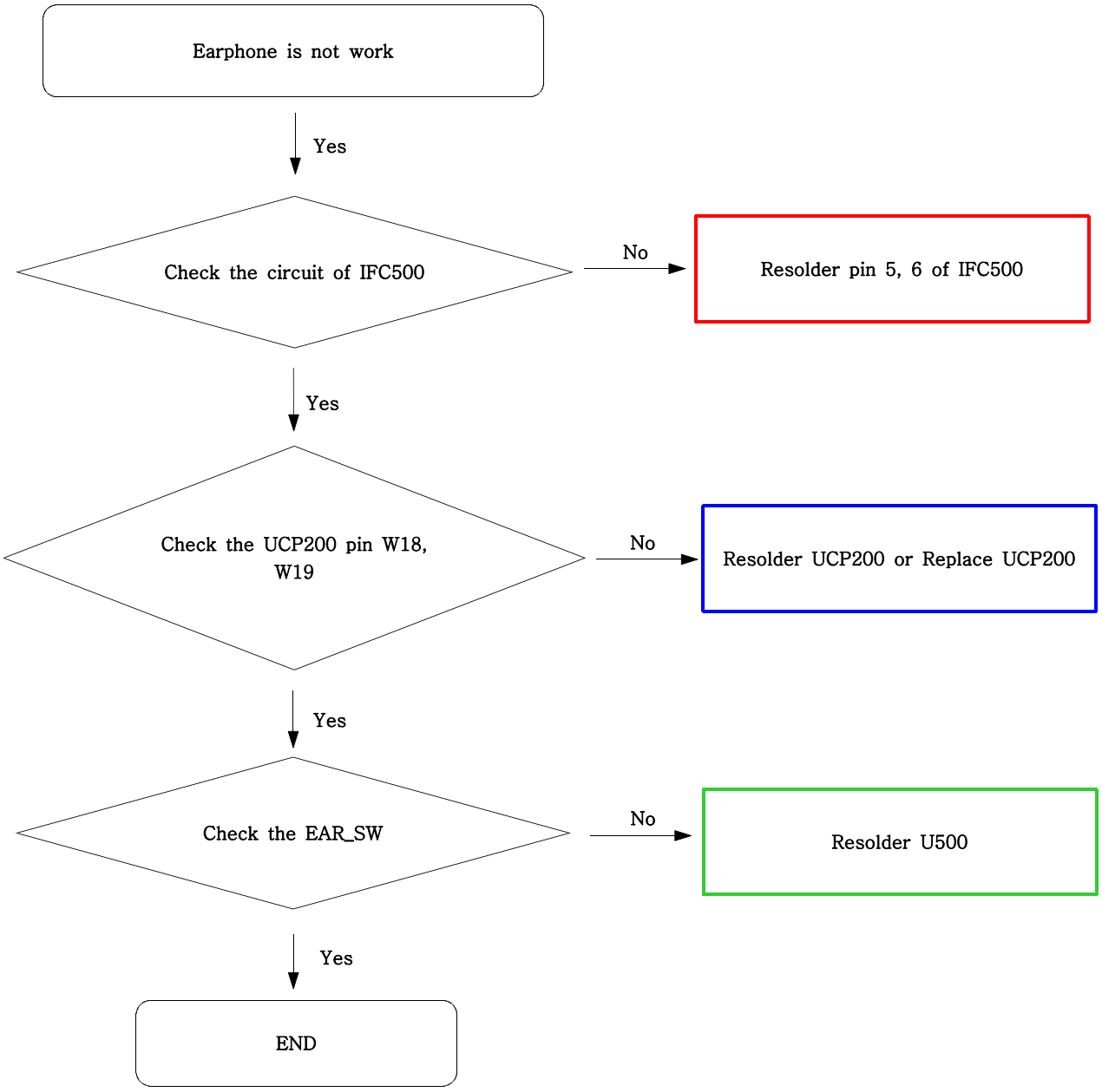


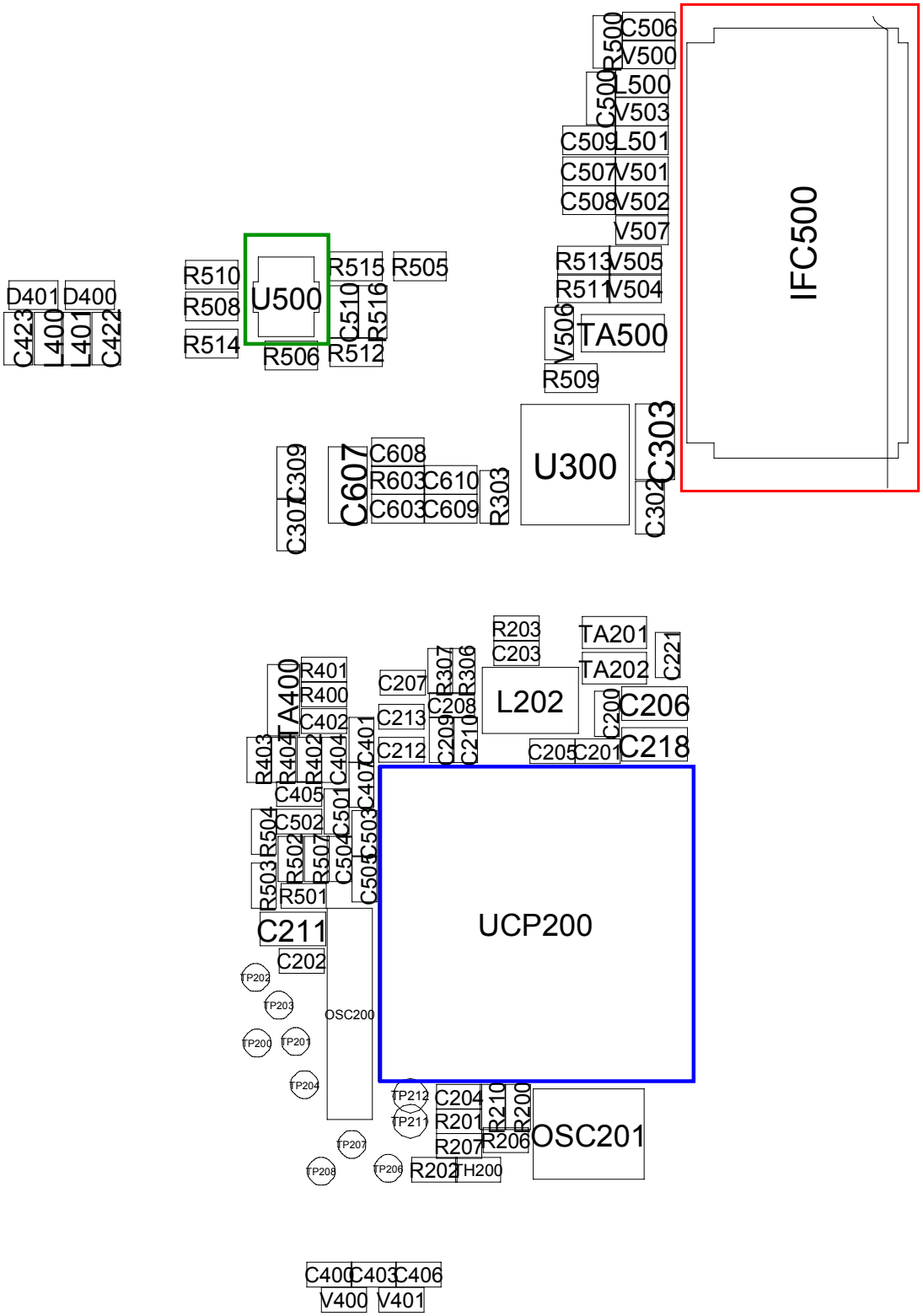




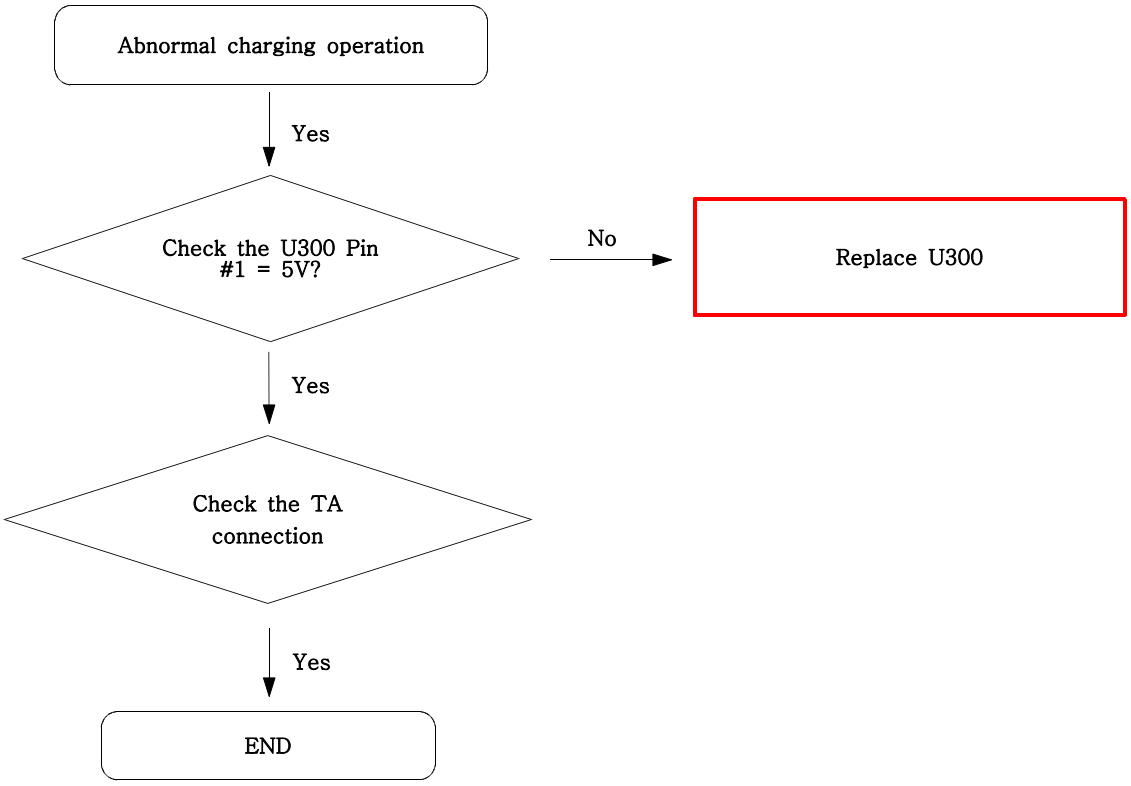


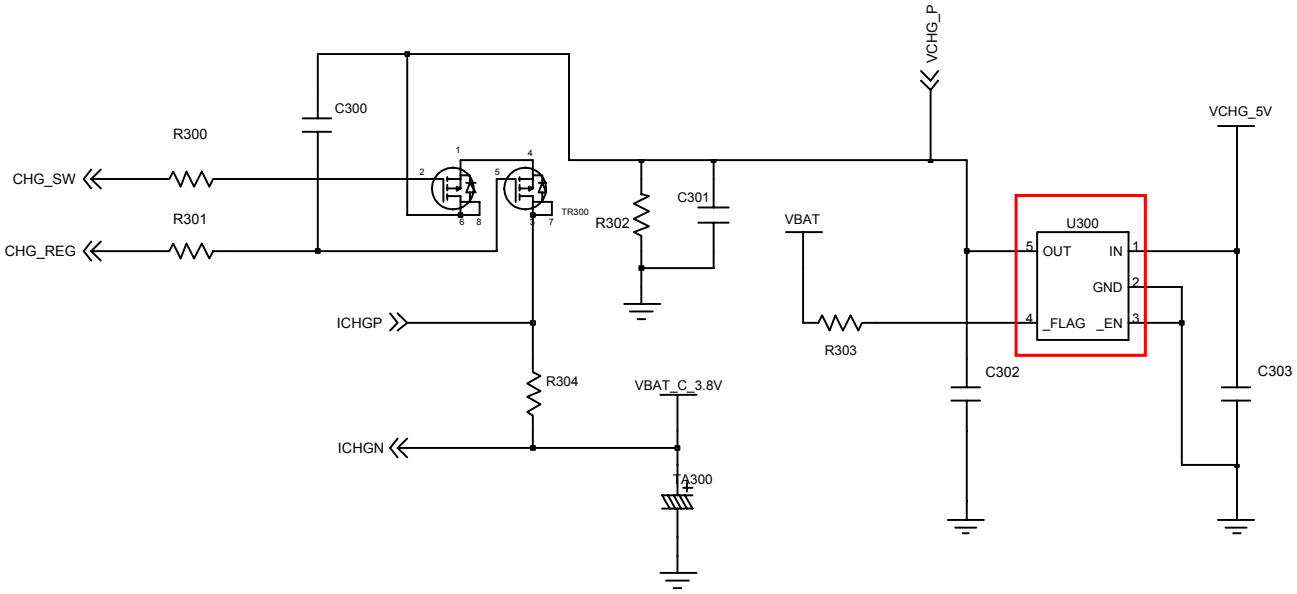
9-5. Earphone Part

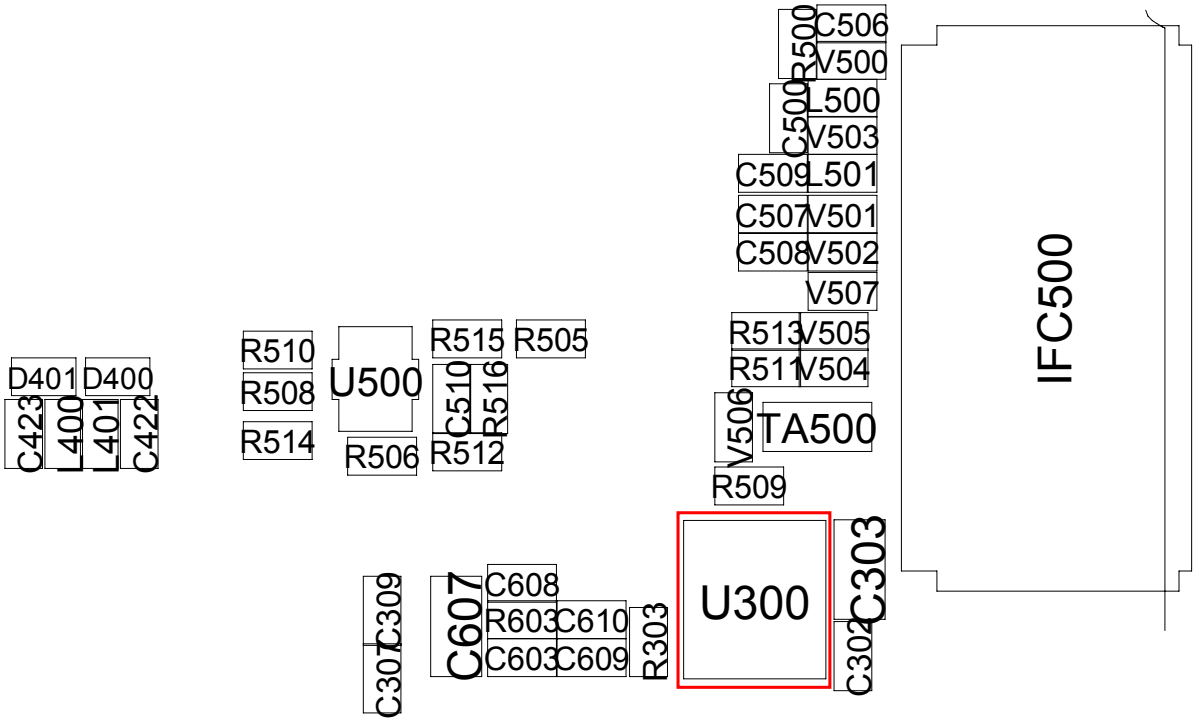




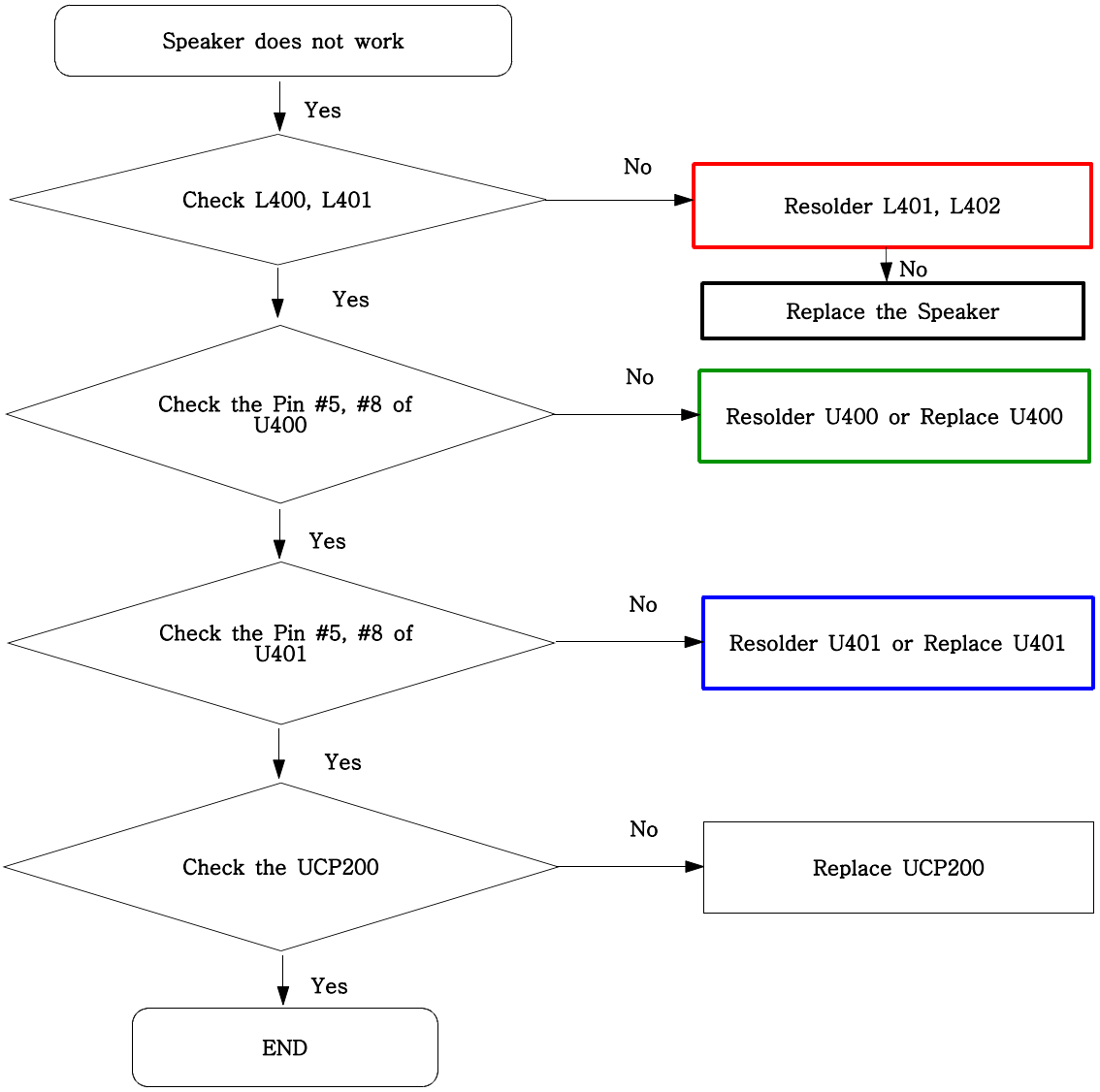
9-6. Charging Part

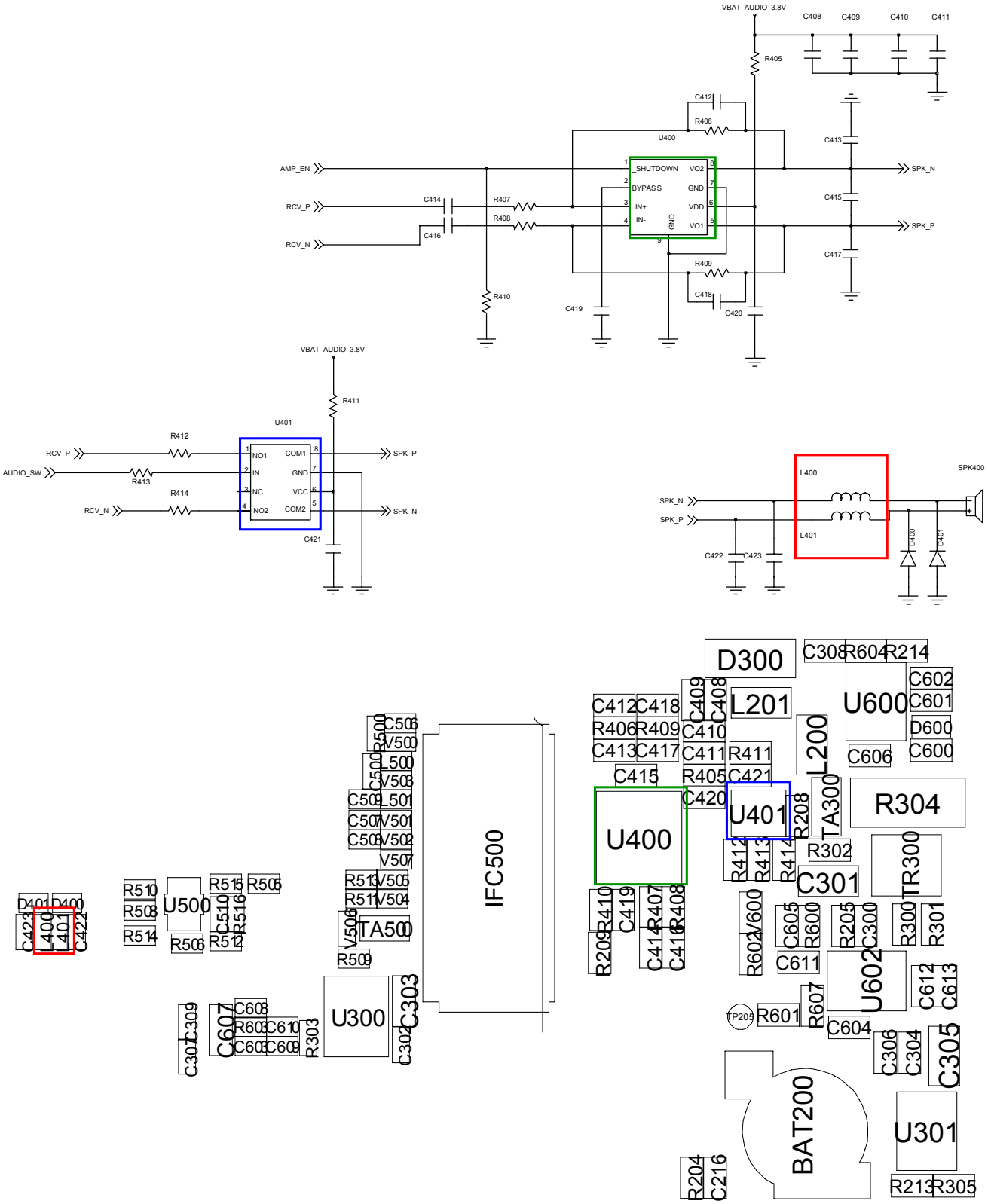




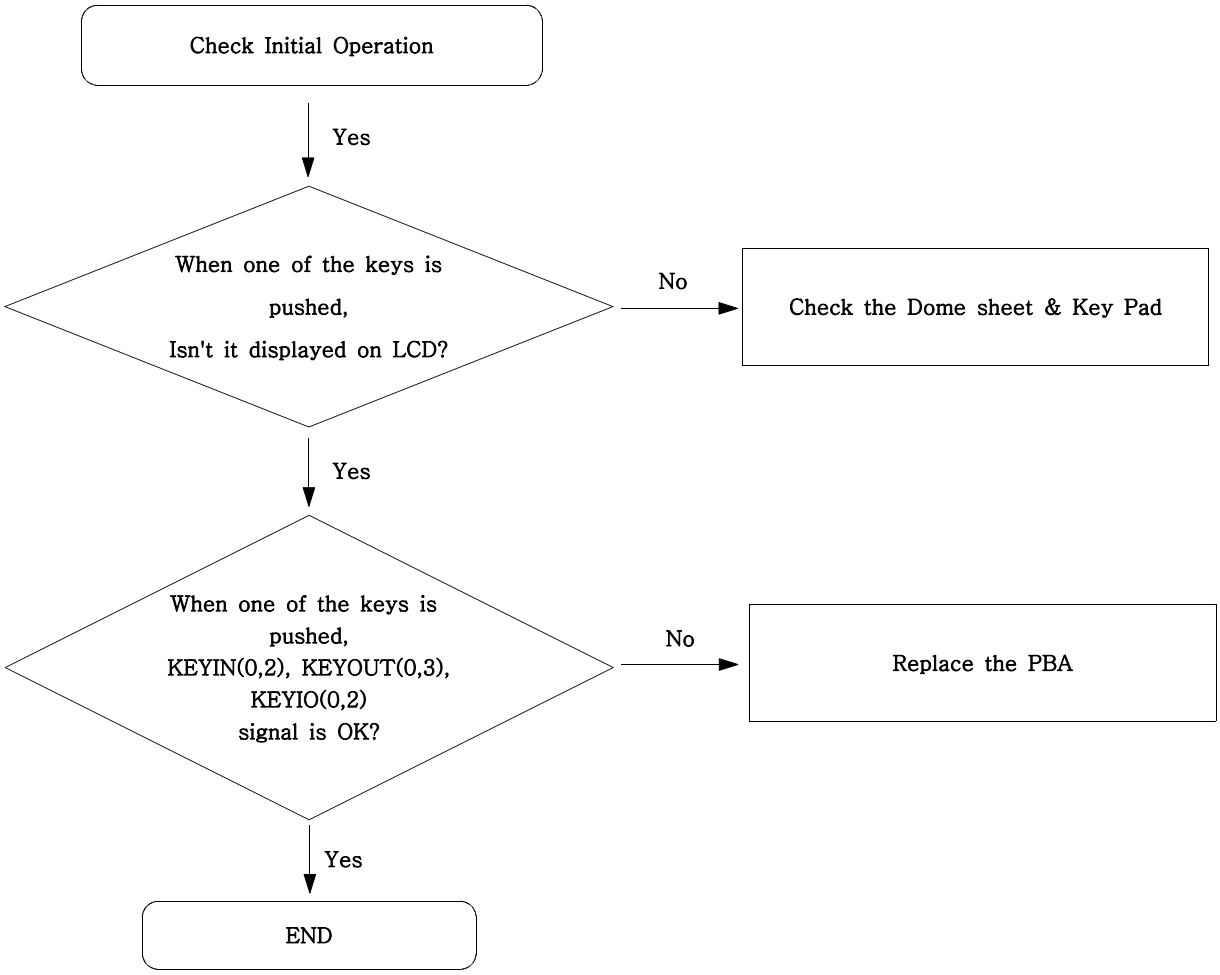


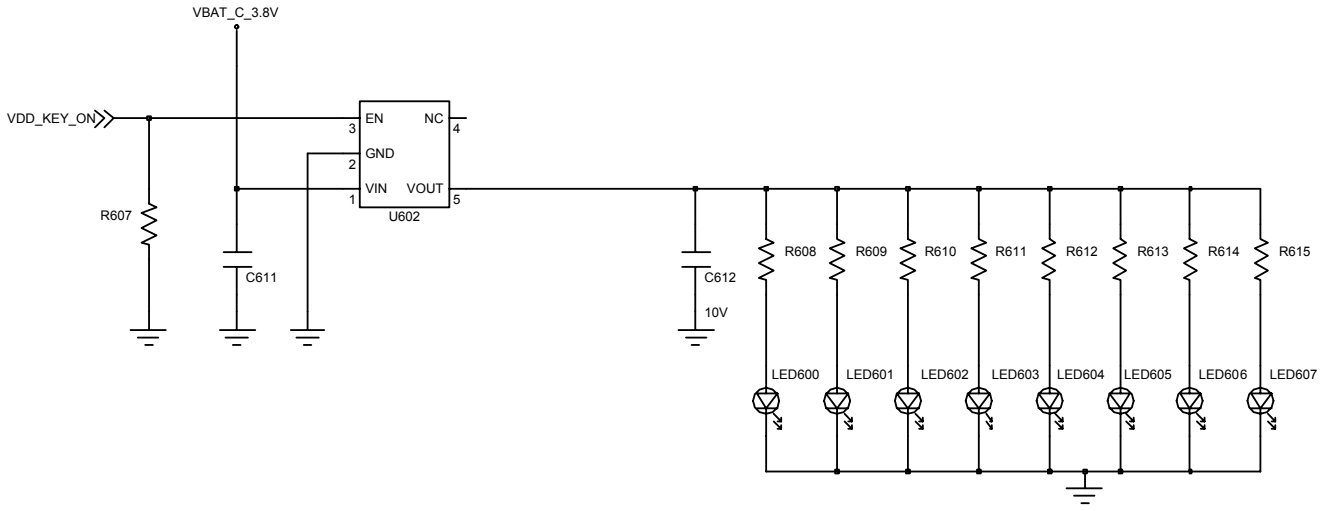
9-7. Speaker Part

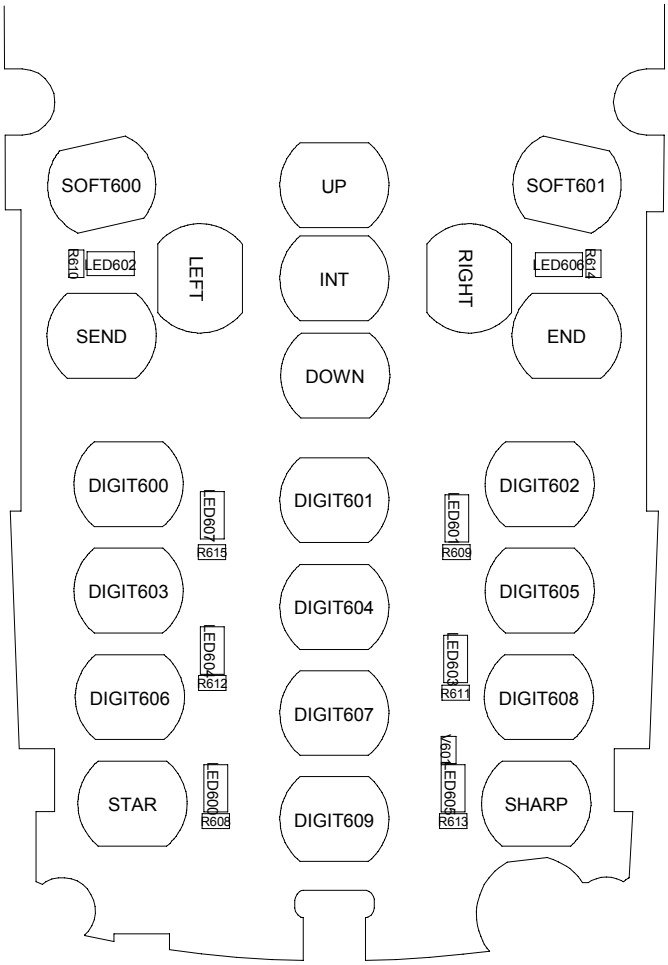




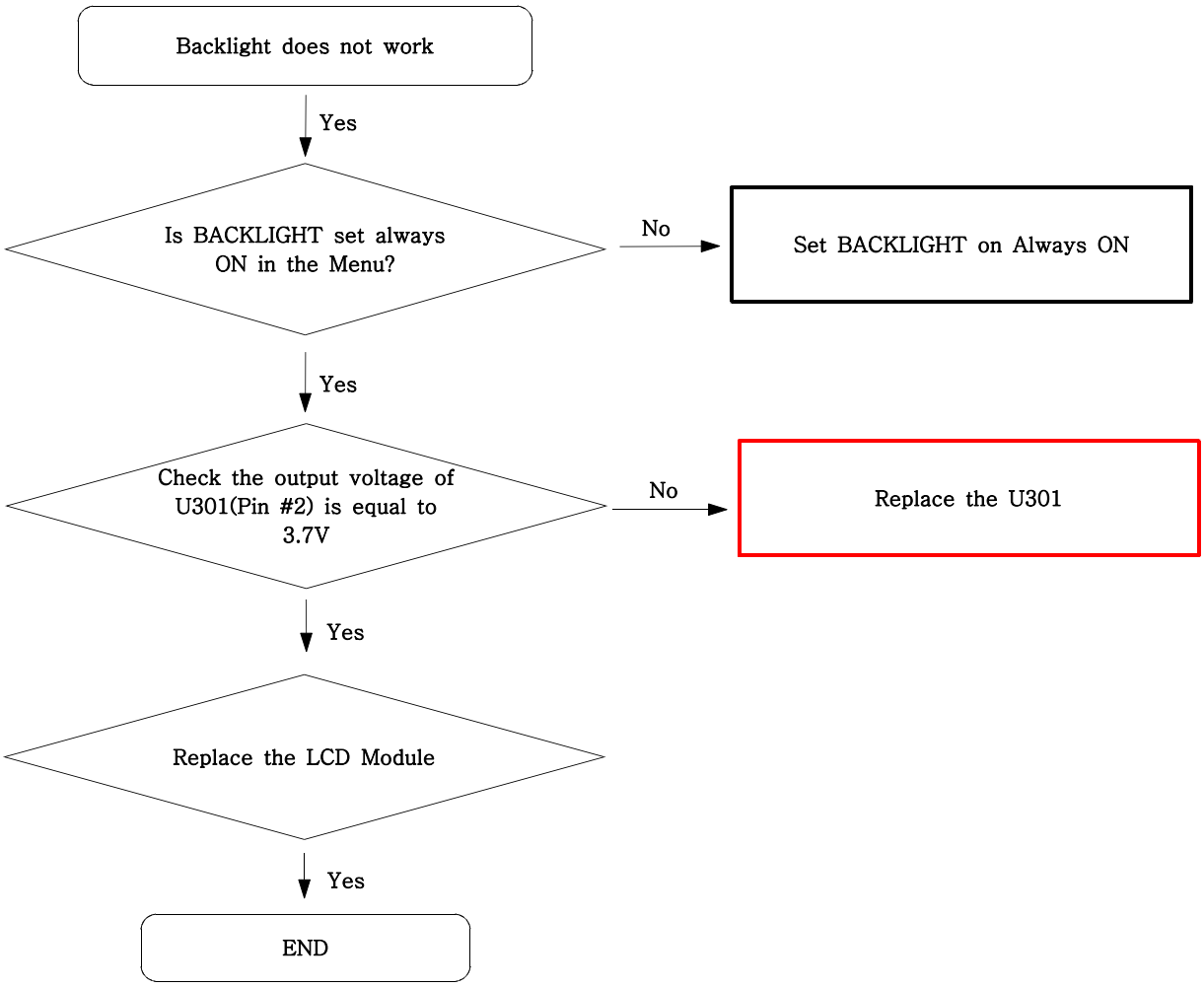
9-8. Key Data Input

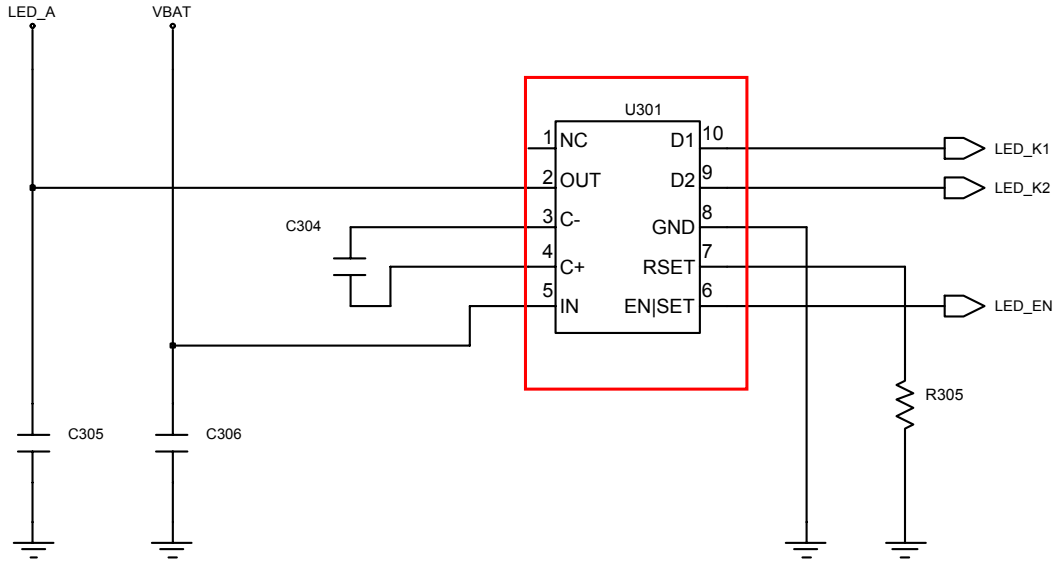


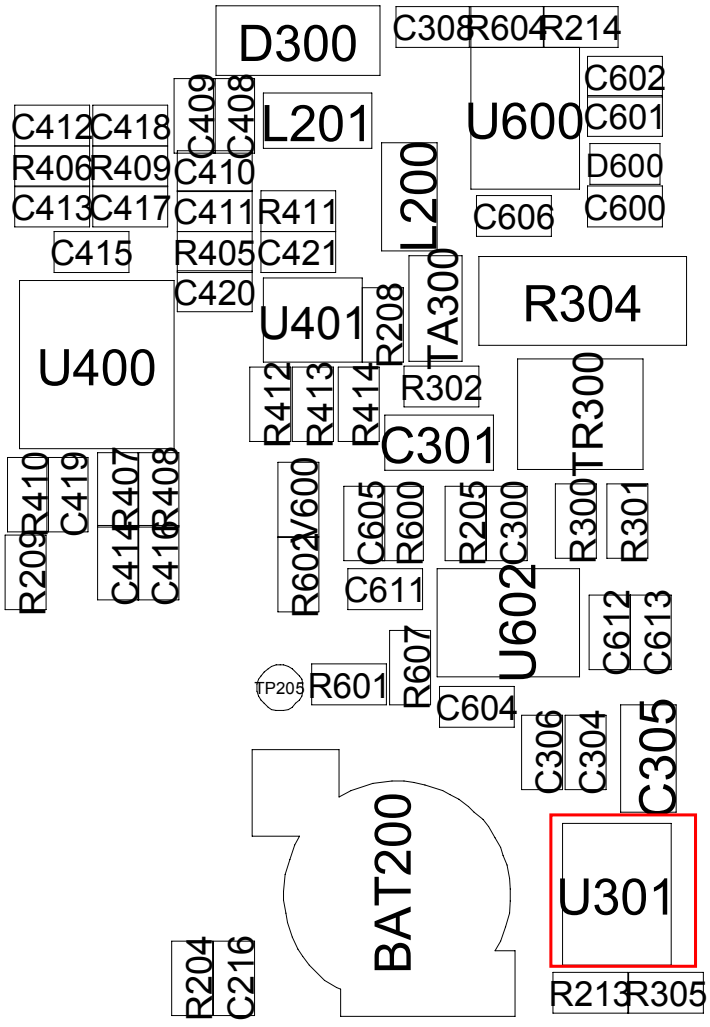




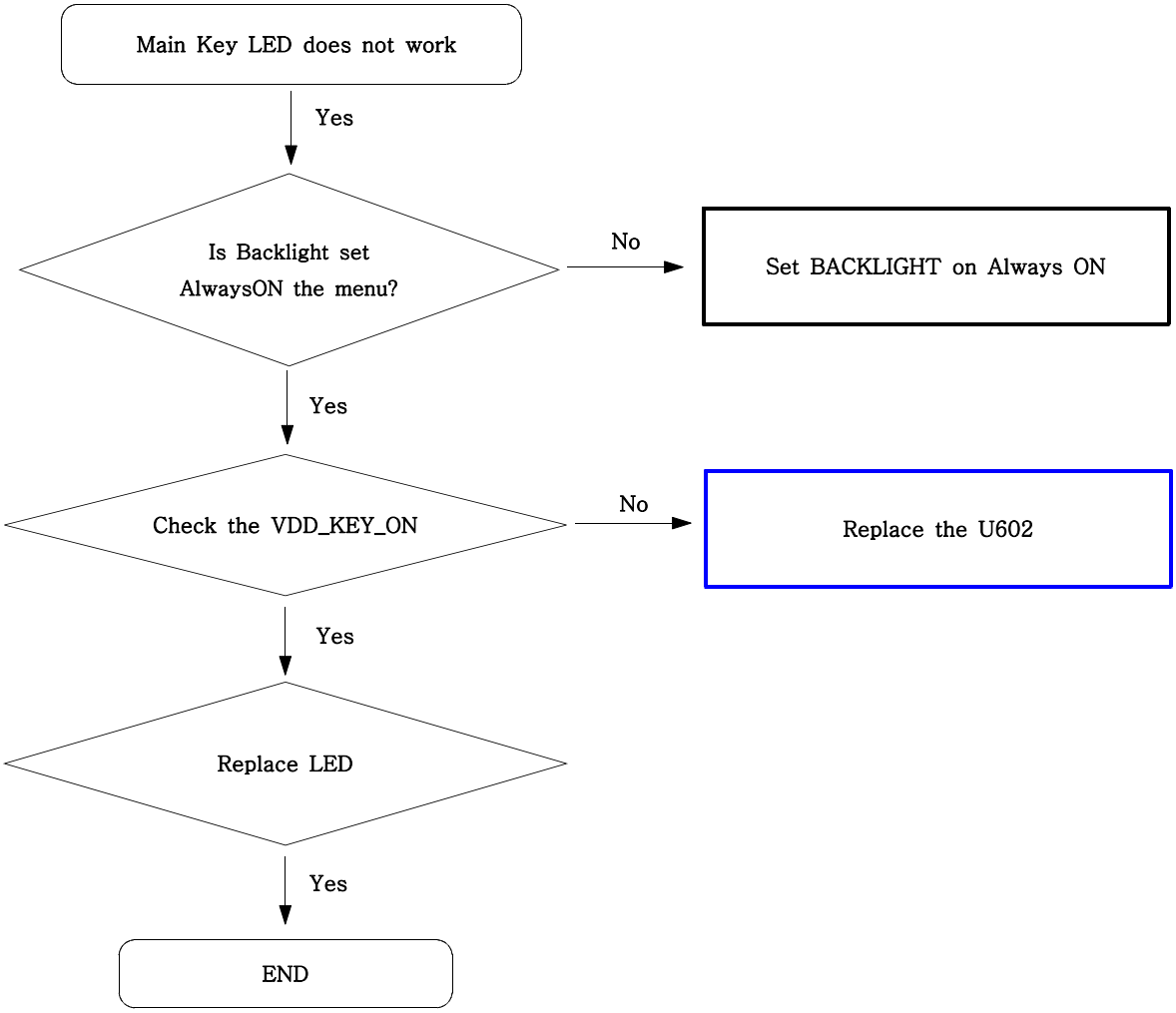
9-9. Back Light Part(For Color Main LCD)

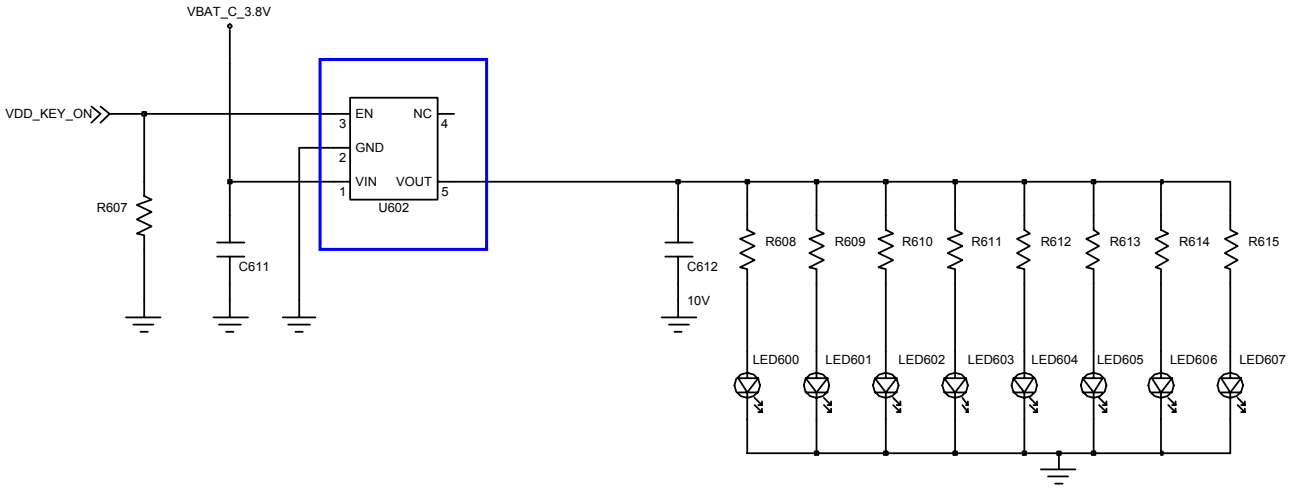


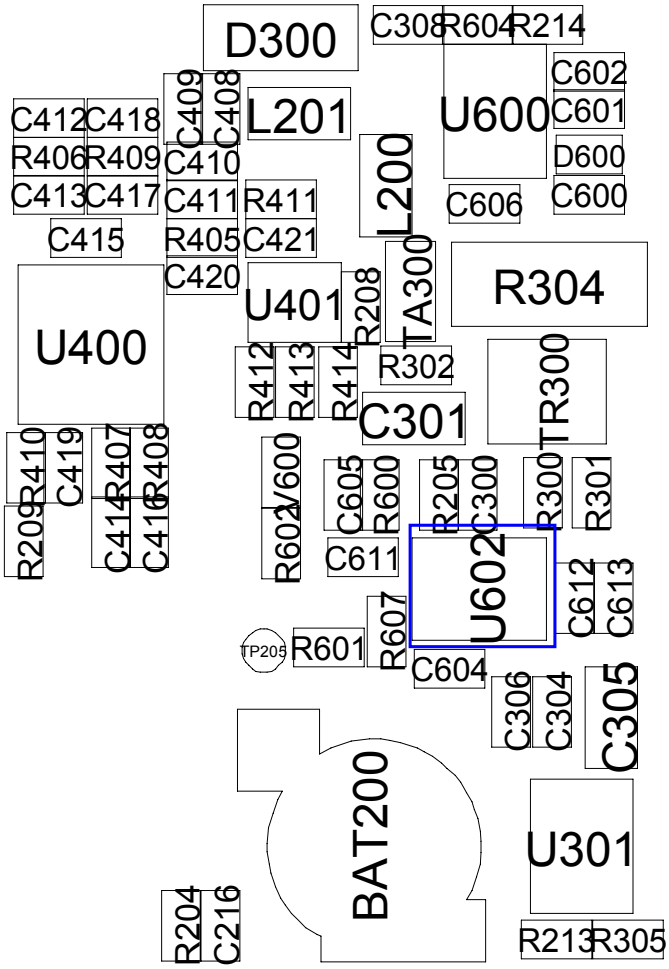




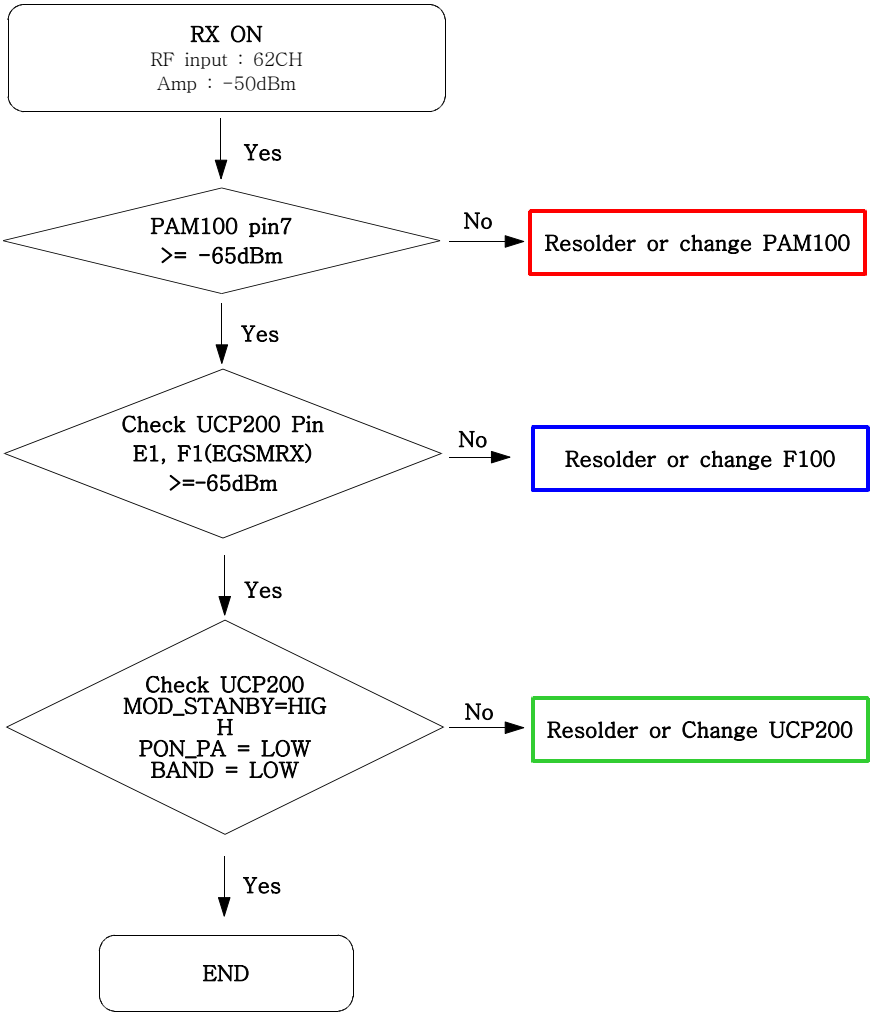
9-10. Key Back Light

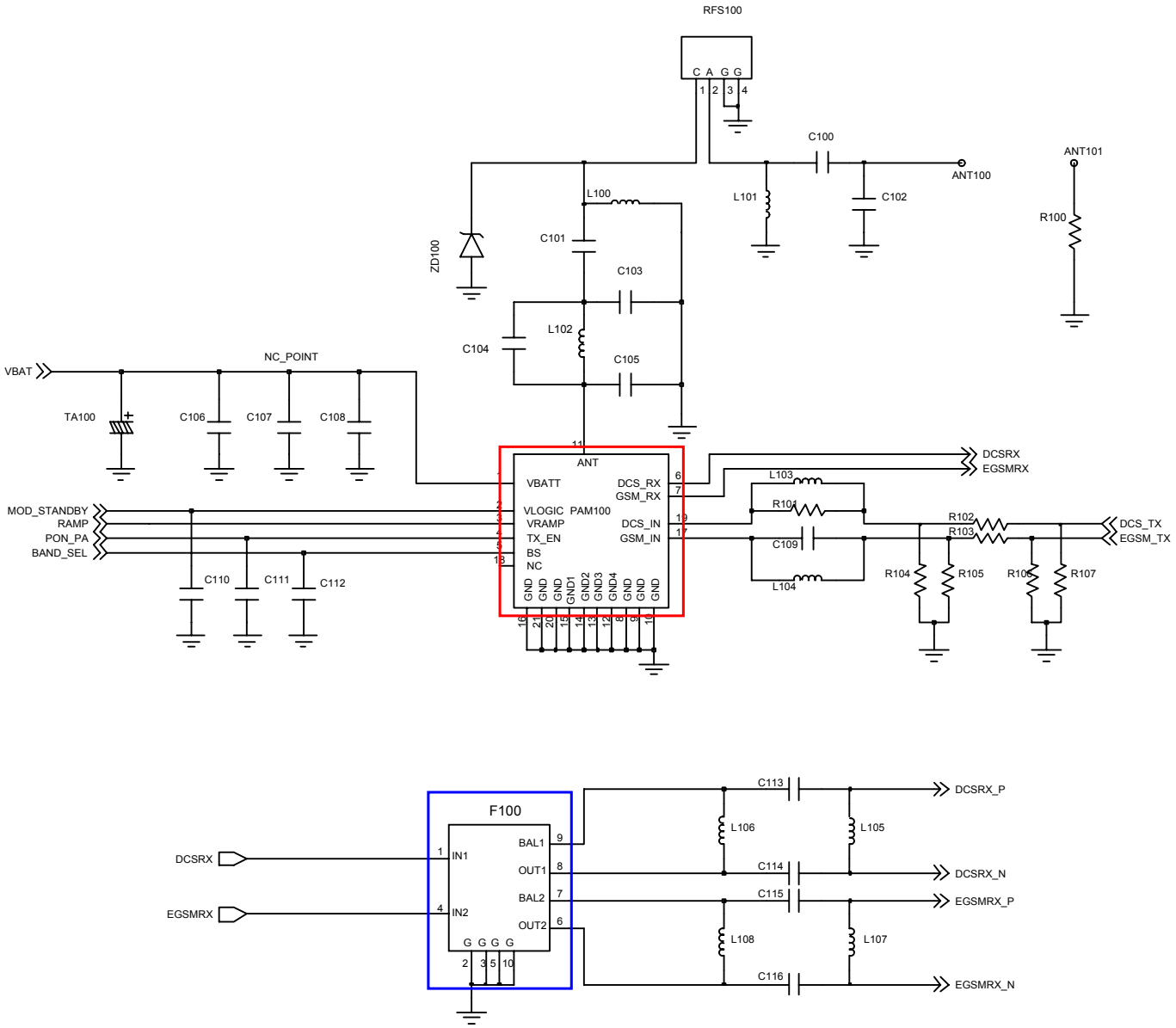


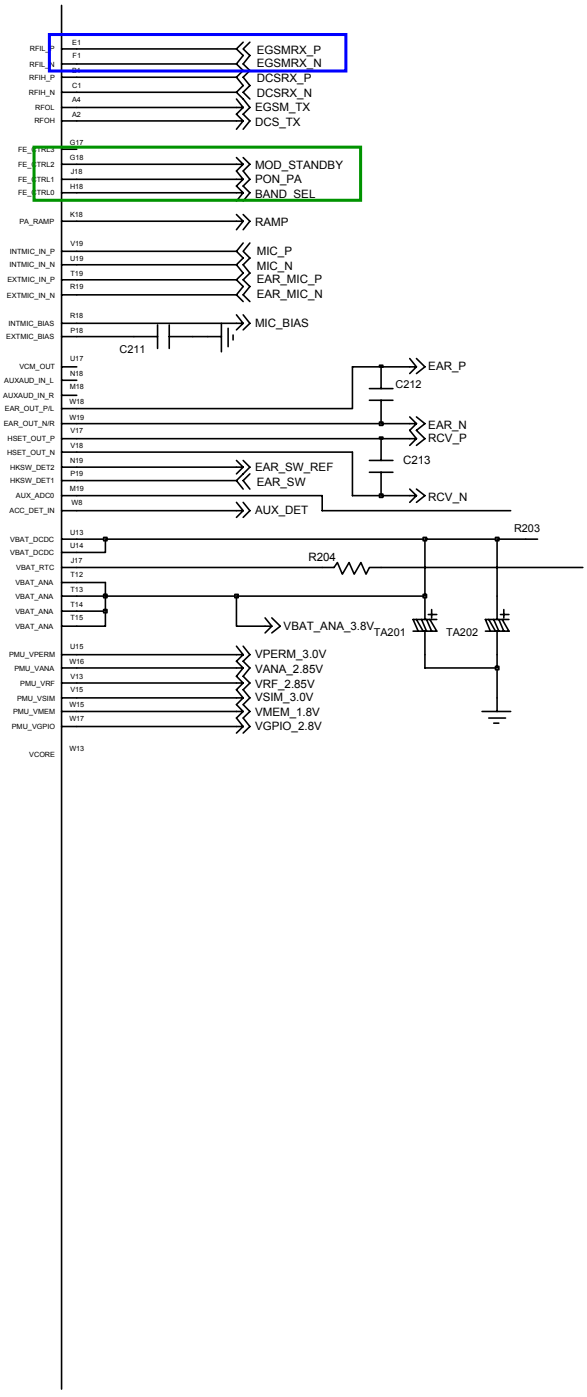


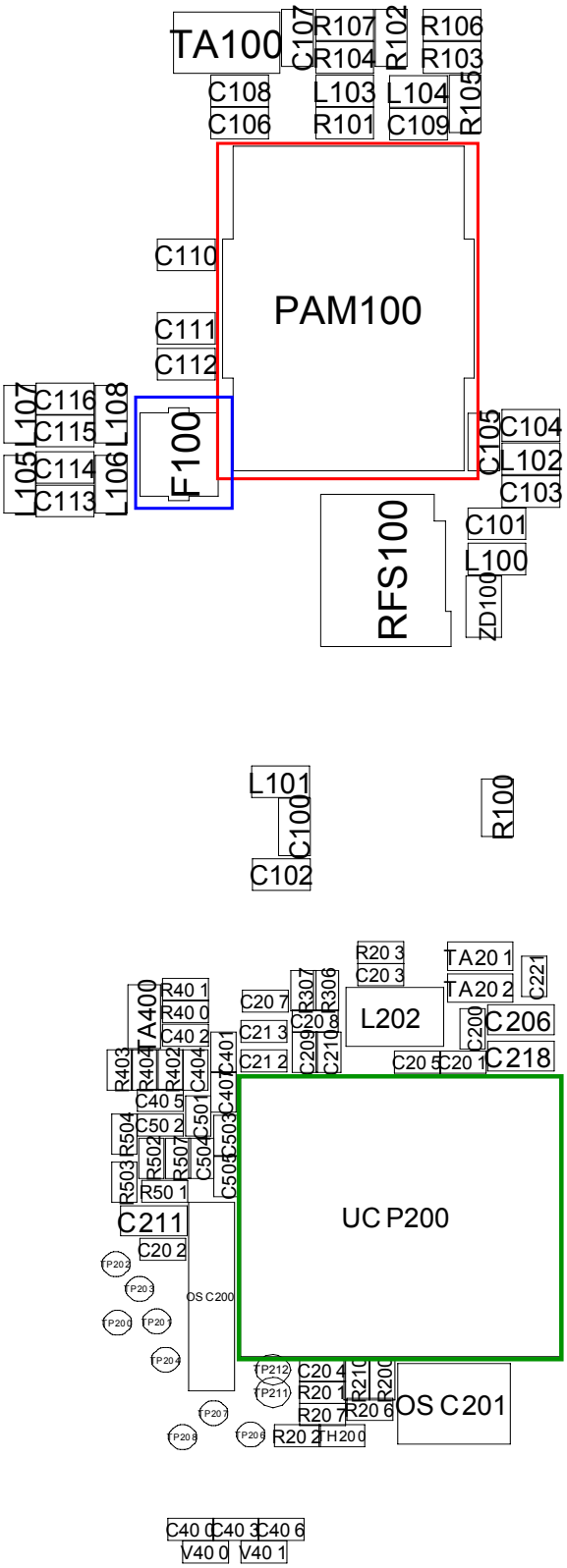


9-11. GSM Receiver

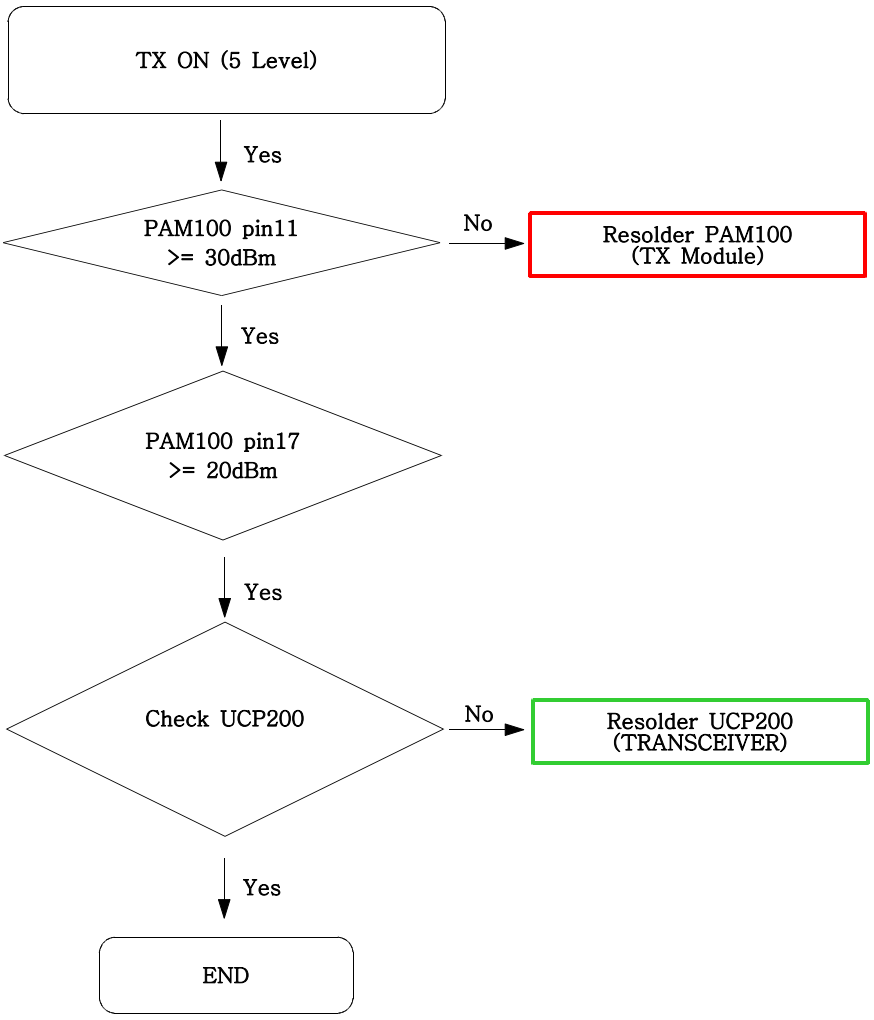


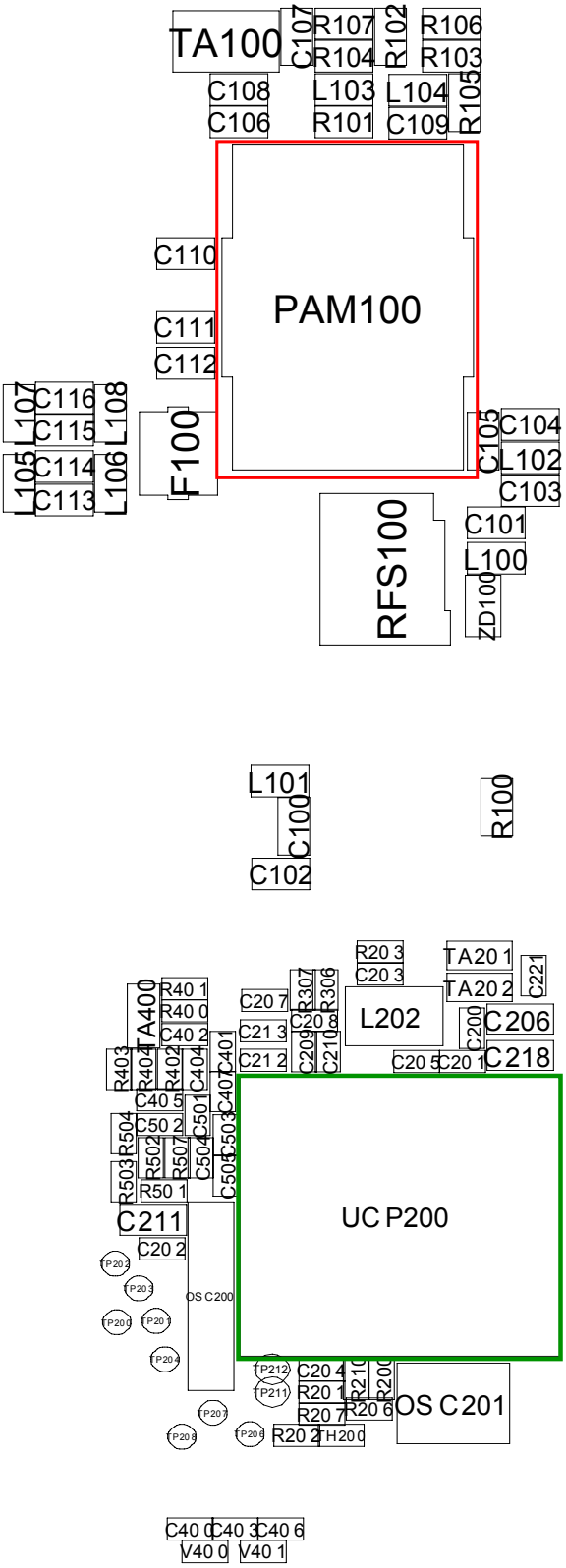




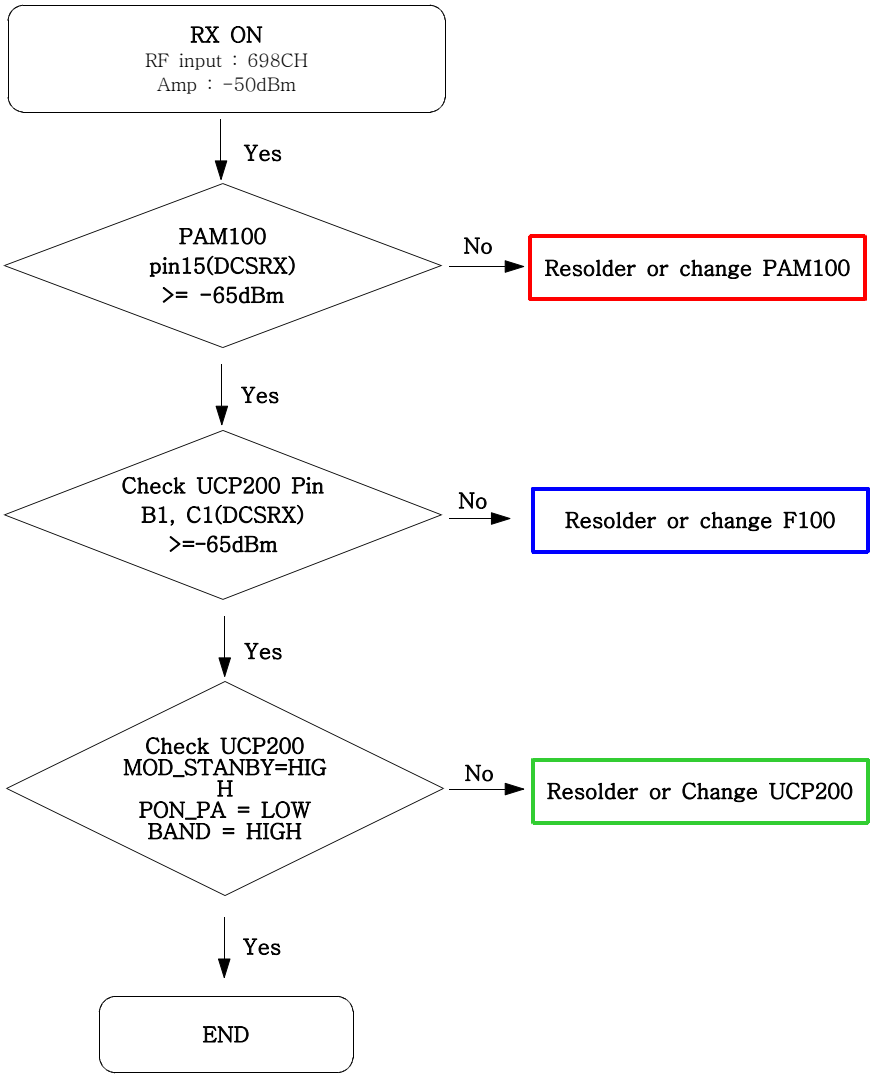


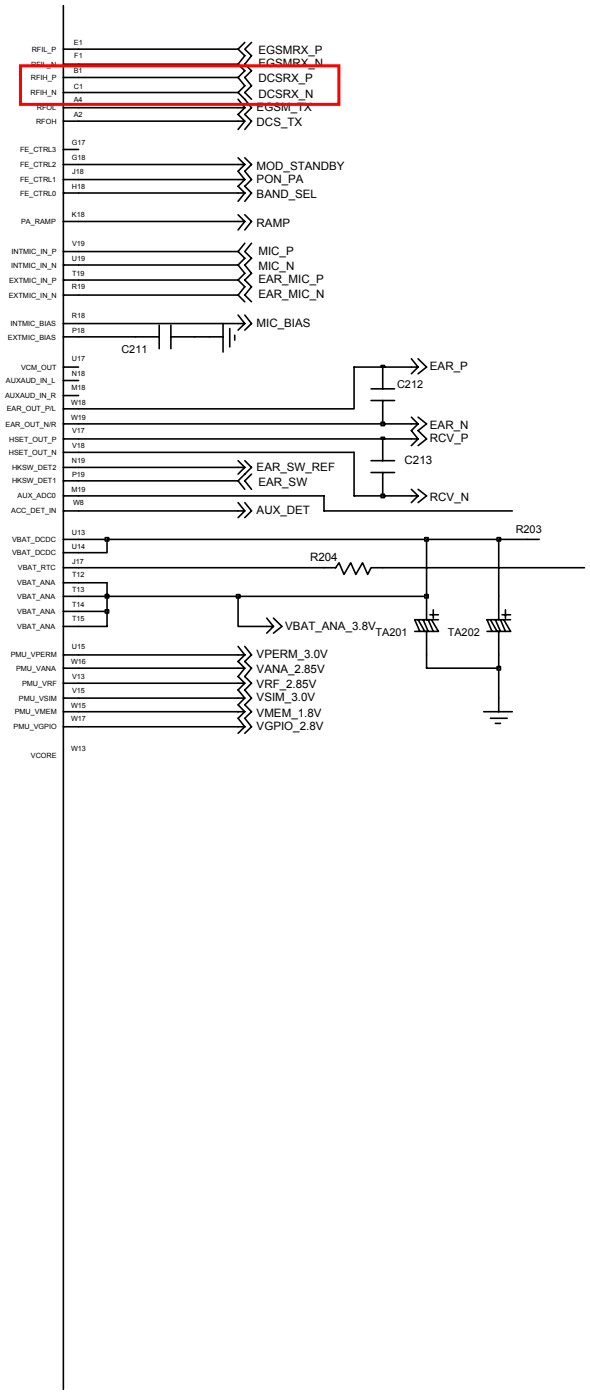
9-12. GSM transmitter

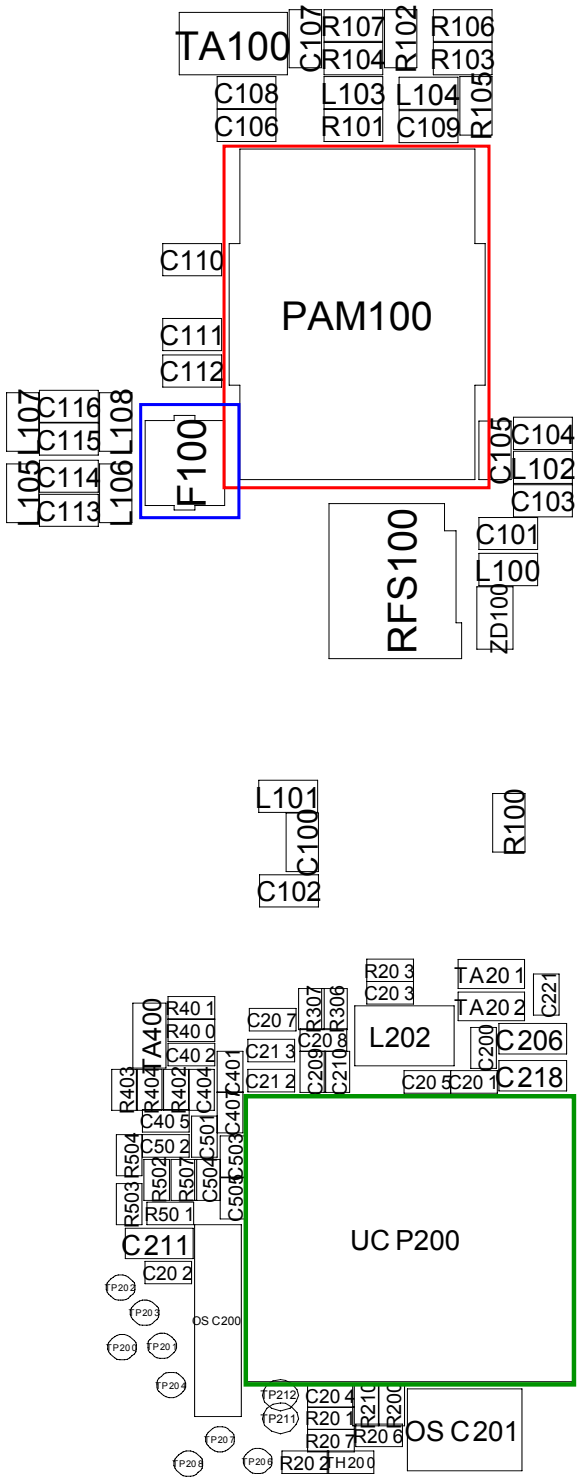




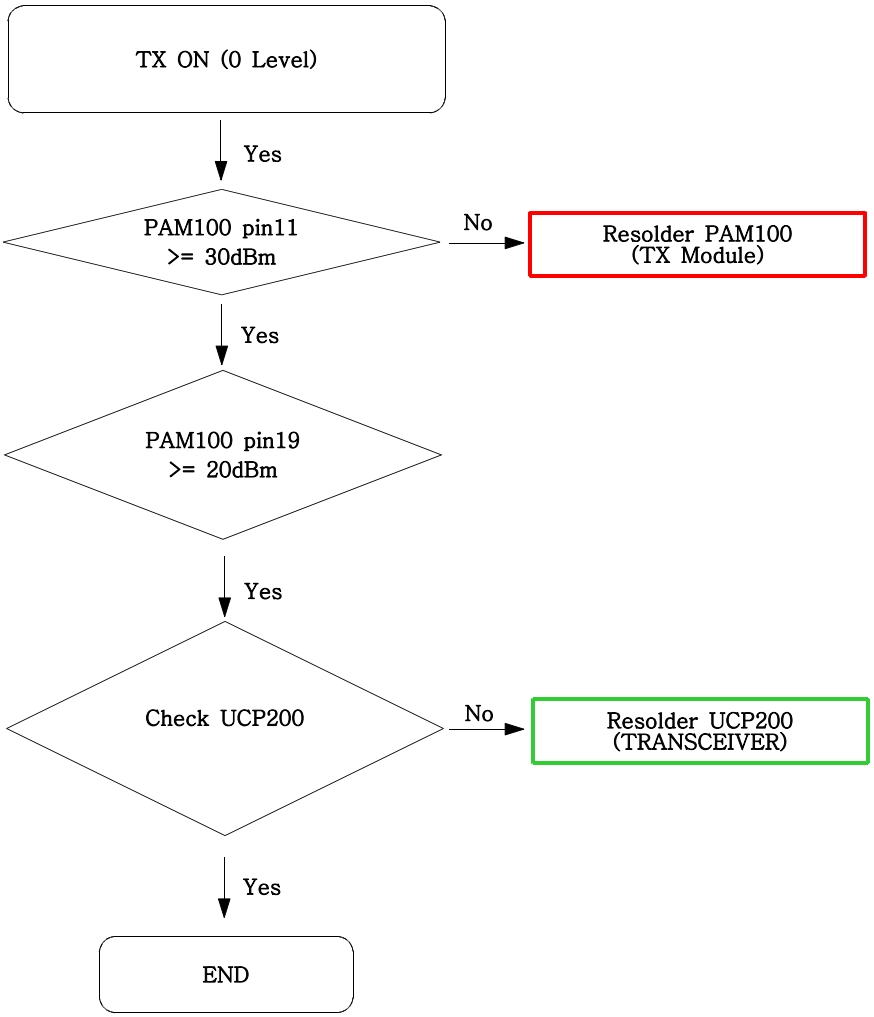
9-13. DCS Receiver

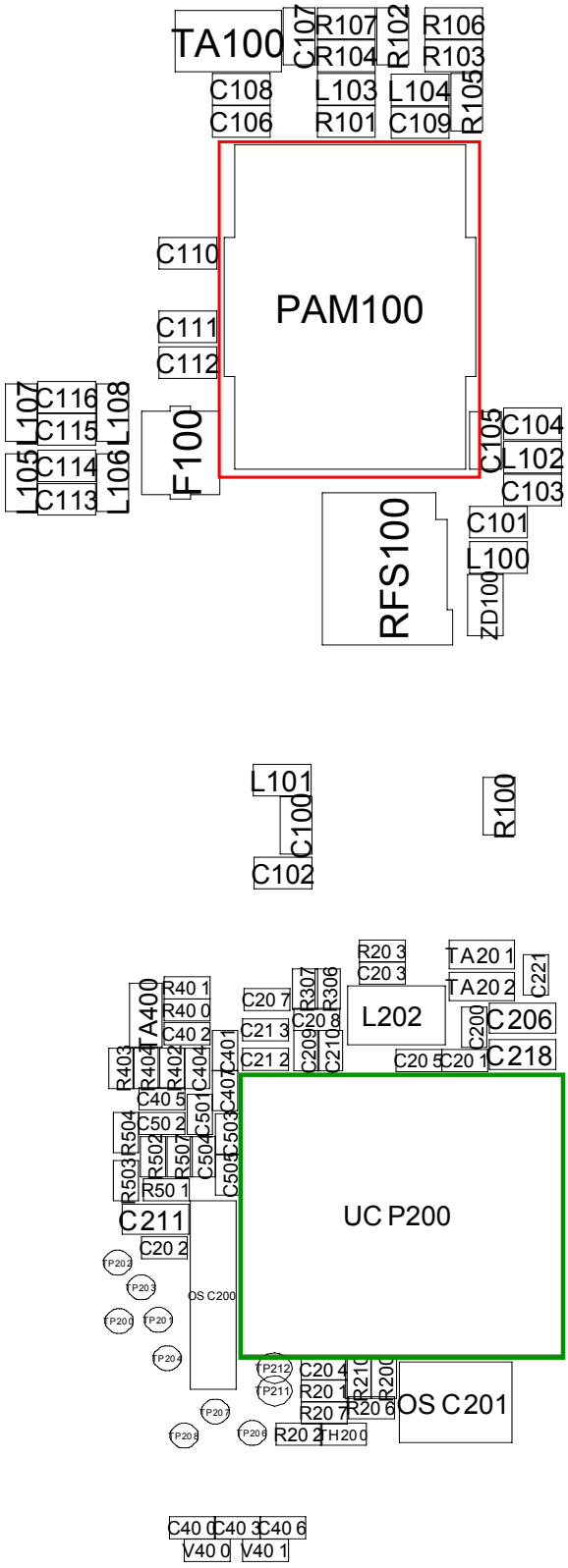






9-14. DCS transmitter

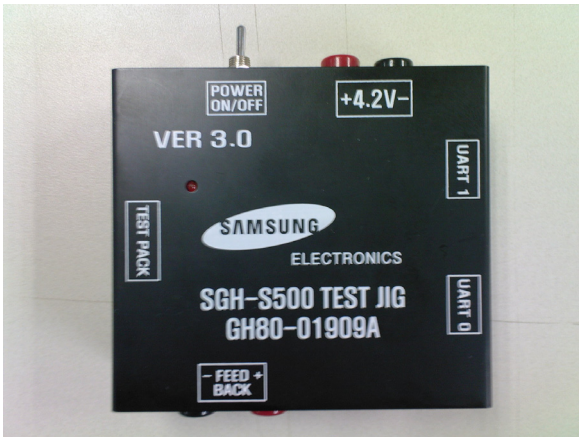




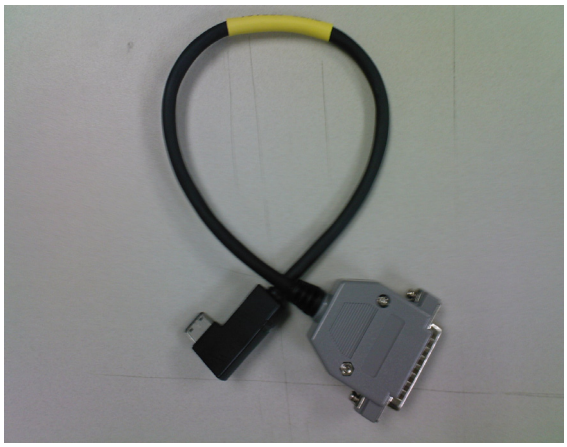
4. Array course control

4-1. Software Adjustments

JIG BOX (GH80-01909A)

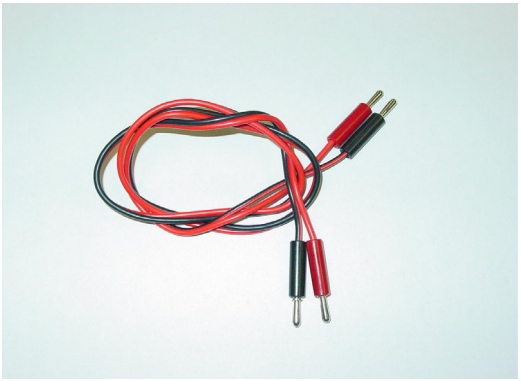


Test Cable (0.4M:GH39-00918A) (1.5M:GH39-00920A)



RF test cable (GH39-00985A)

Power Supply Cable



4-2. Software Downloading

4-2-1 Downloading Binary Files

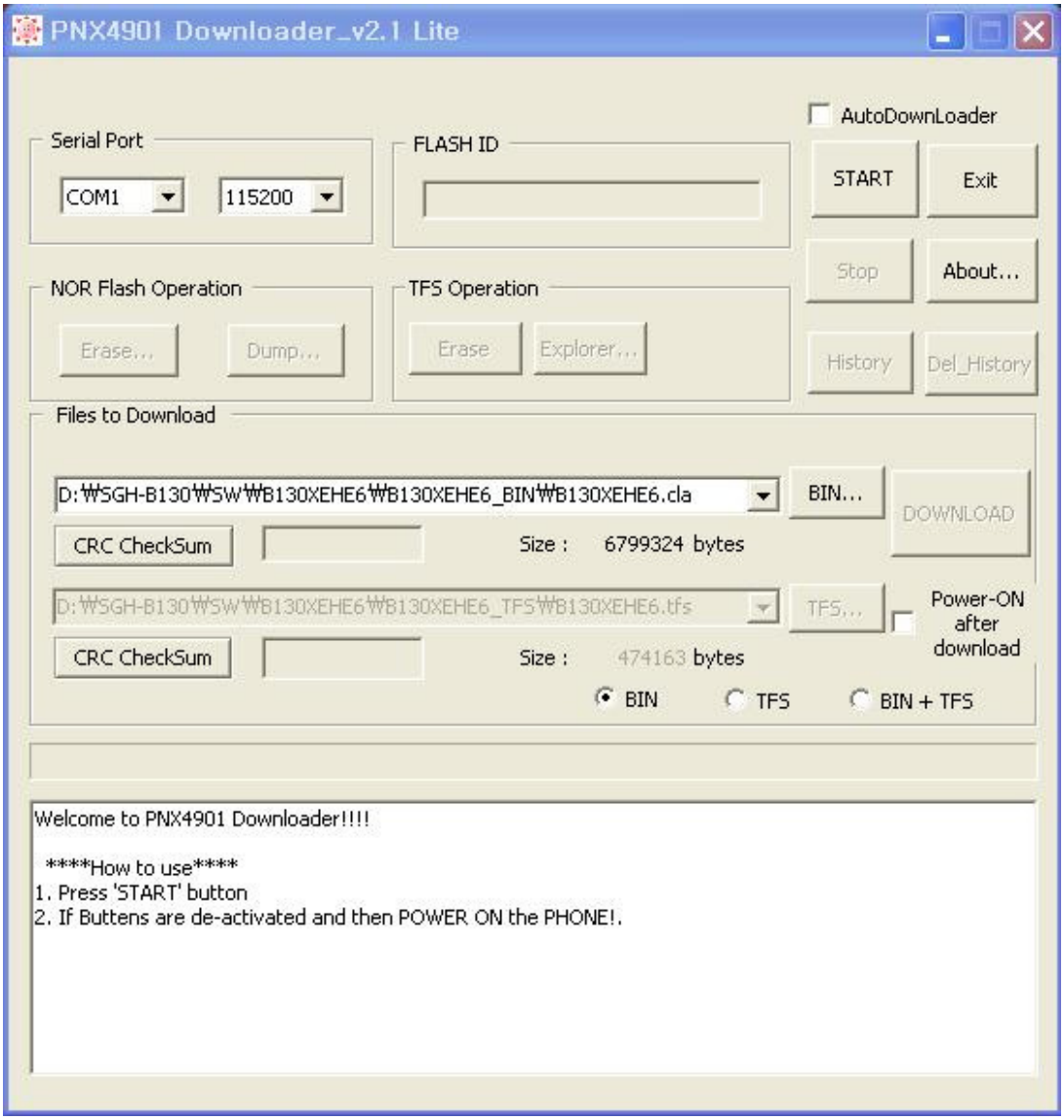
- 2 binary files for downloading B130.
  - B130XEHE6_BIN
  - B130XEHE6_TFS

4-2-2. Pre-request for Downloading

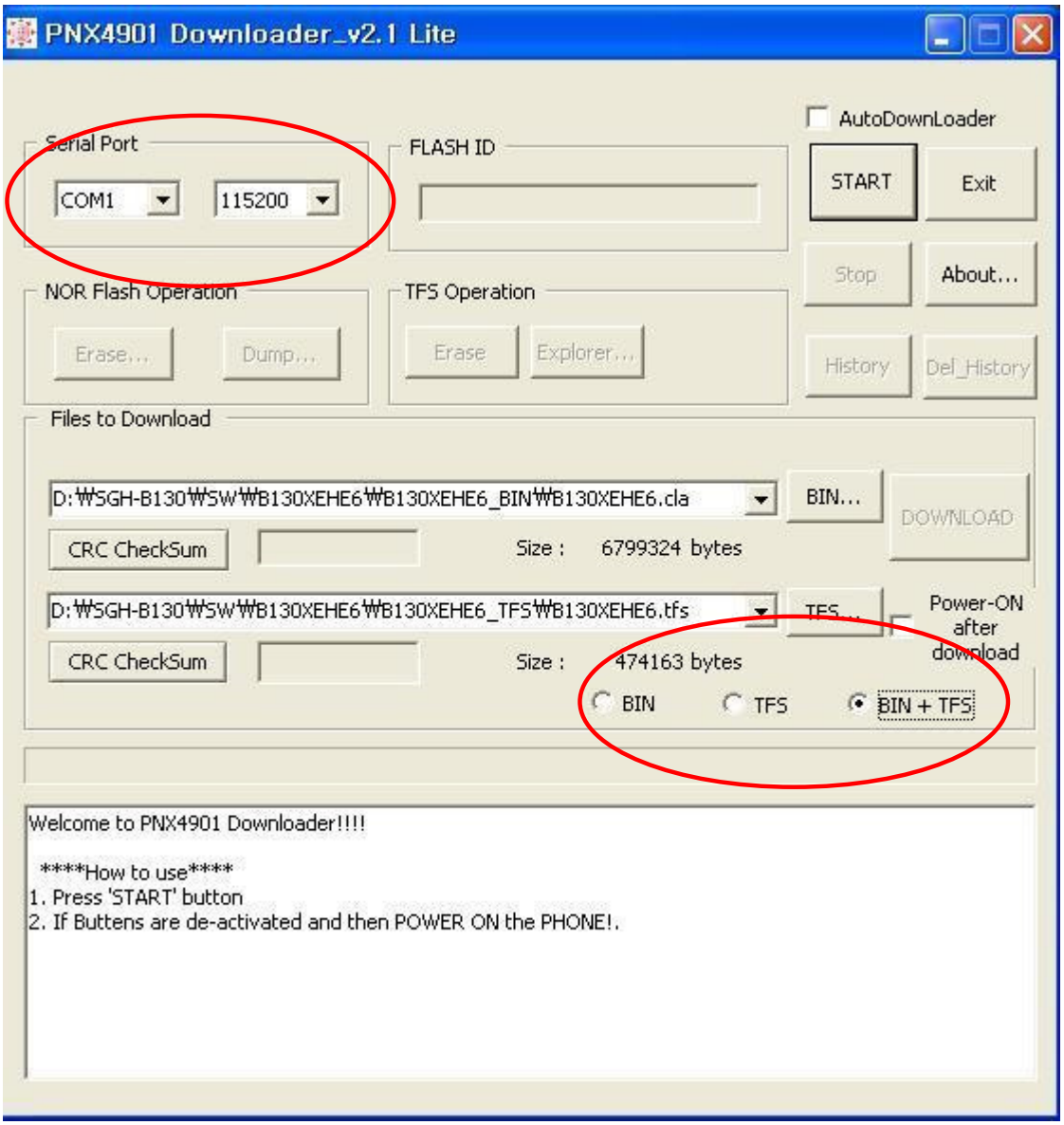
- Downloader Program(PNX4901 ULC Downloader_v21_Lite)
- SGH-B130 Mobile Phone
- JIG Box
- Test Cable
- Serial Cable
- Binary file, TFS file

4-2-3. S/W Downloader Program

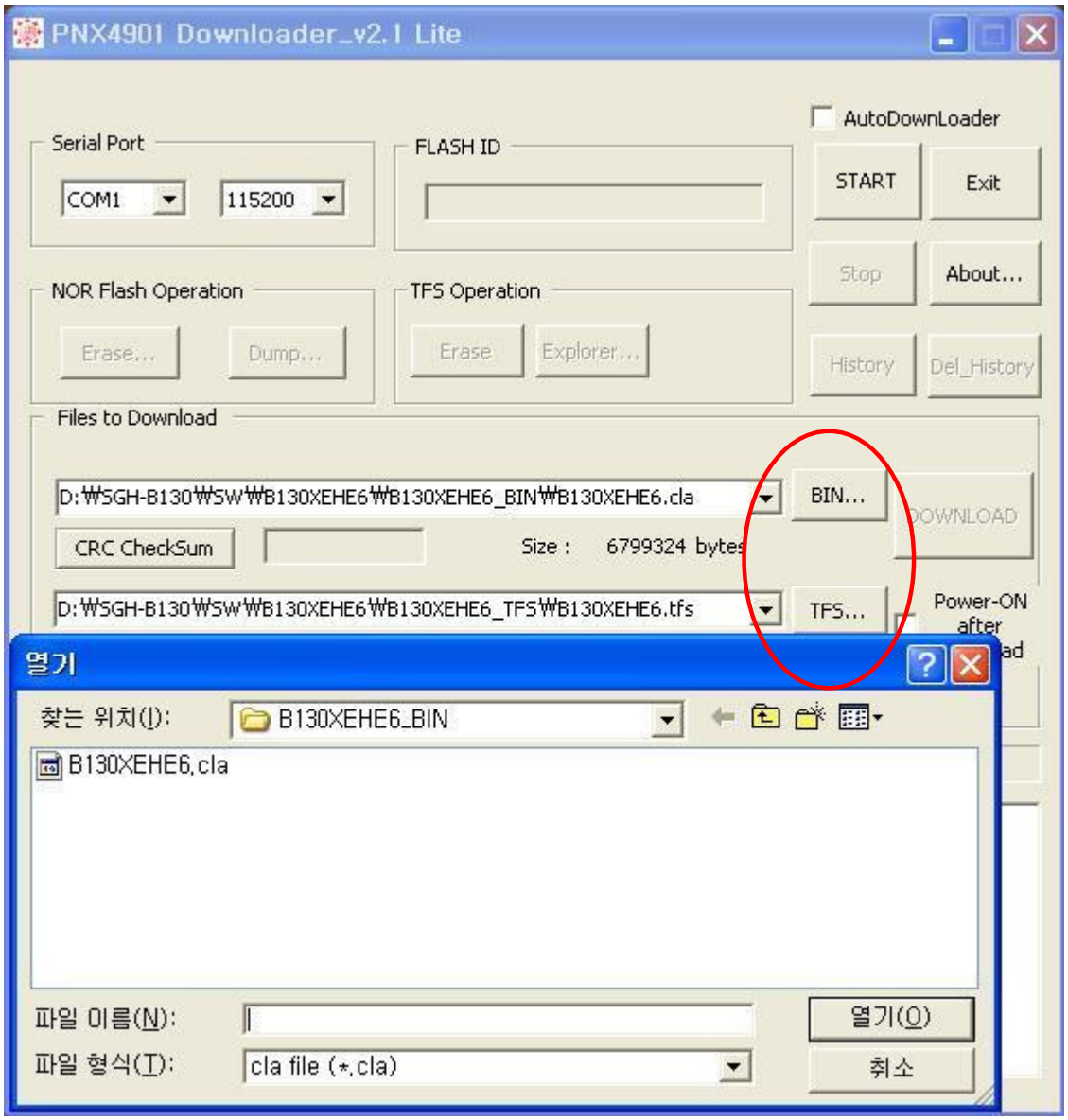
1. Load the binary download program by executing the "PNX4901 ULC Downloader_v21_Lite ".



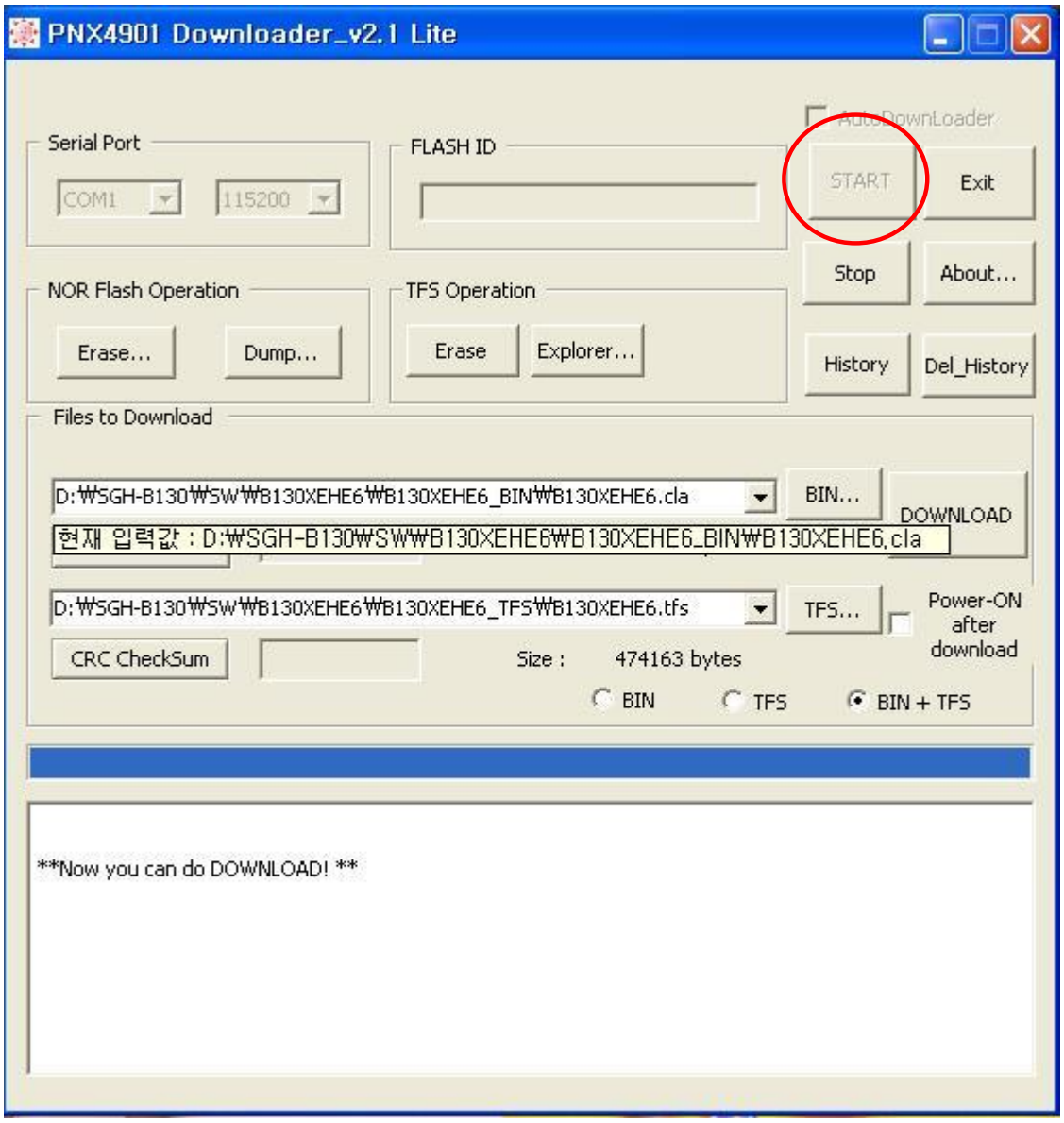
2. Select the Port, Baud Rate and Mode



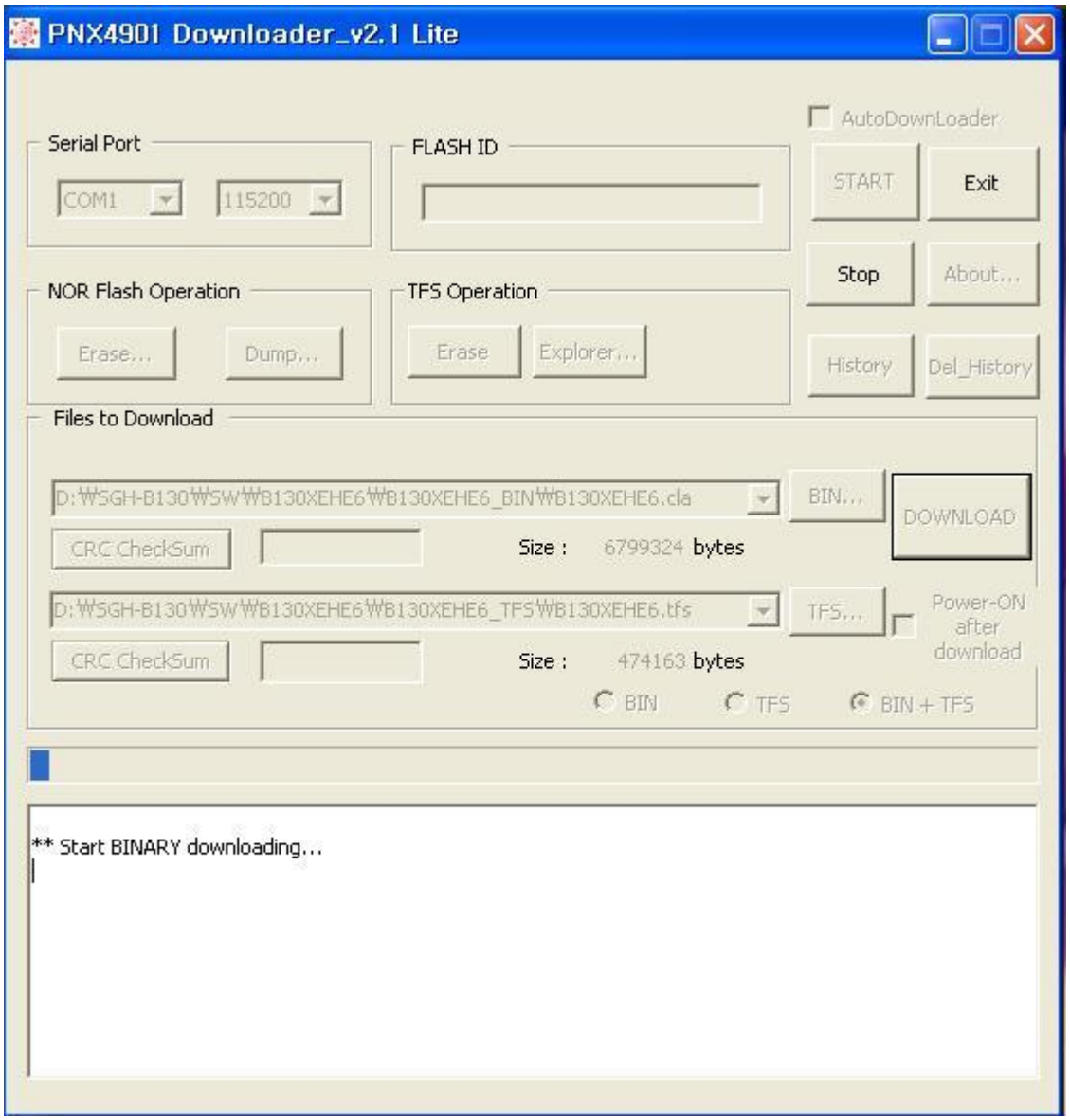
3. Select the file(s) what you want to download



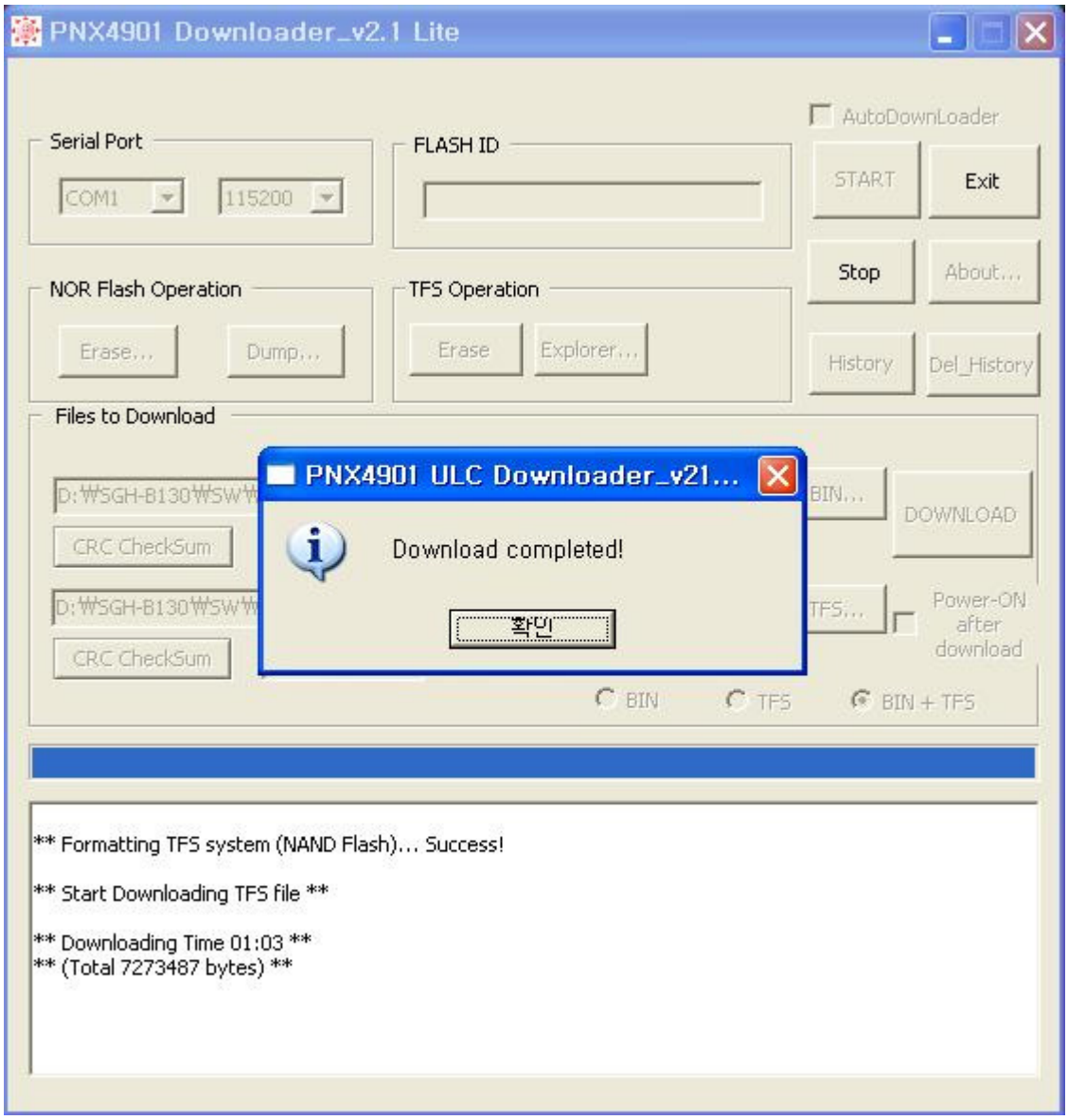
4. Press the "Start" button and connect the Handset



5. Press the "Download" button.

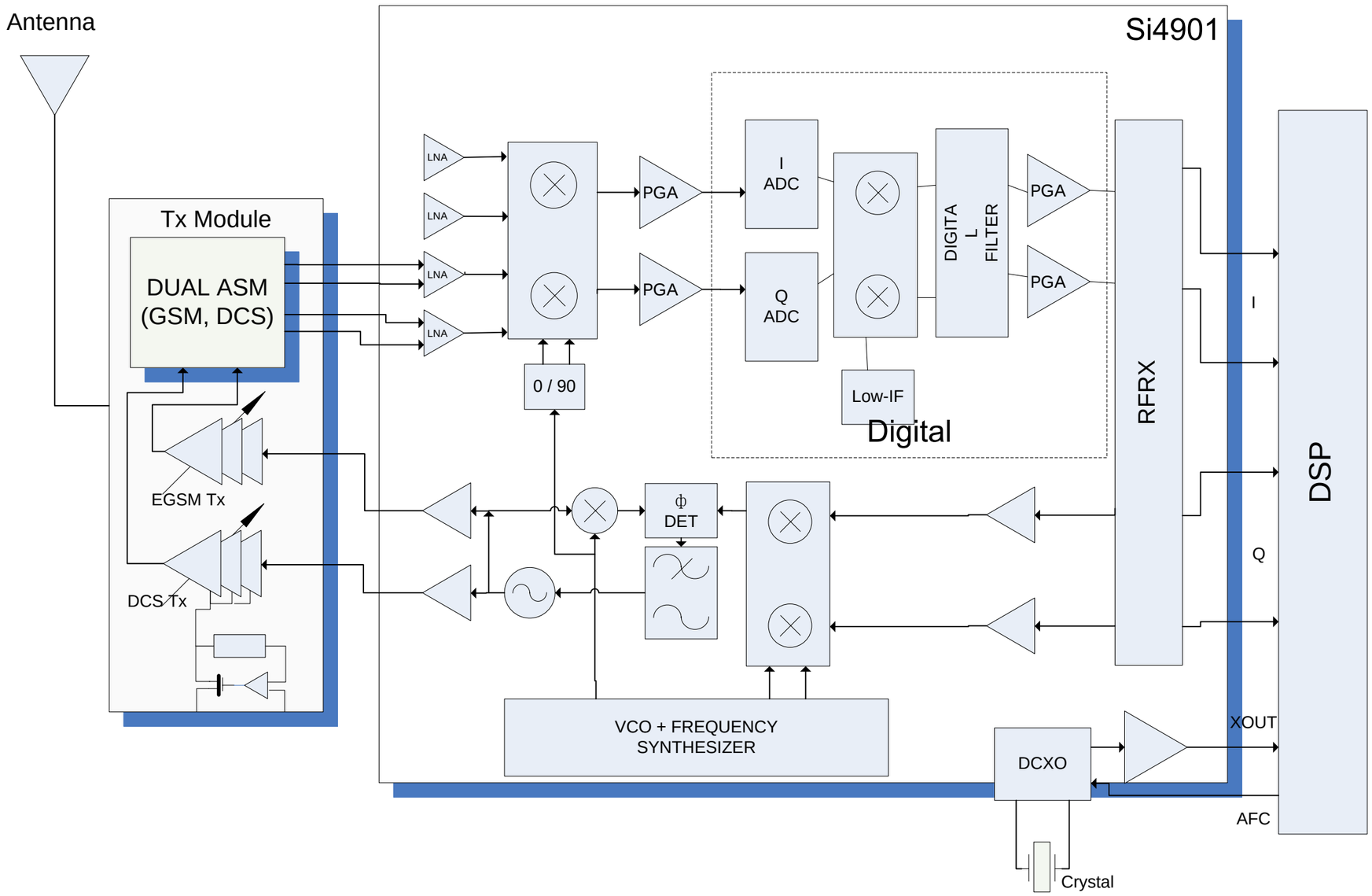


6. When downloading is complete, automatically the small window was showed up.

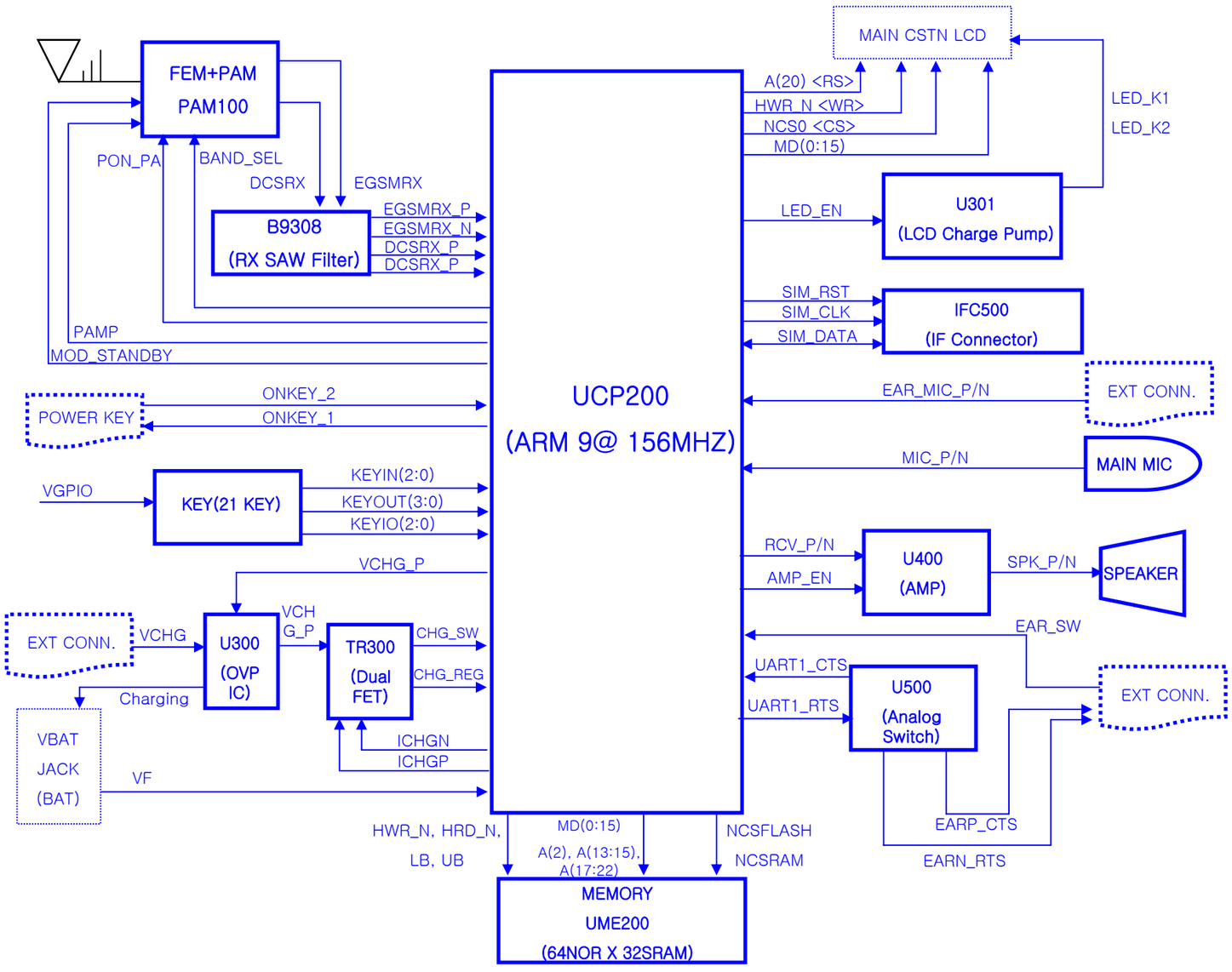


7. Block Diagrams

7-1. RF Solution Block Diagram



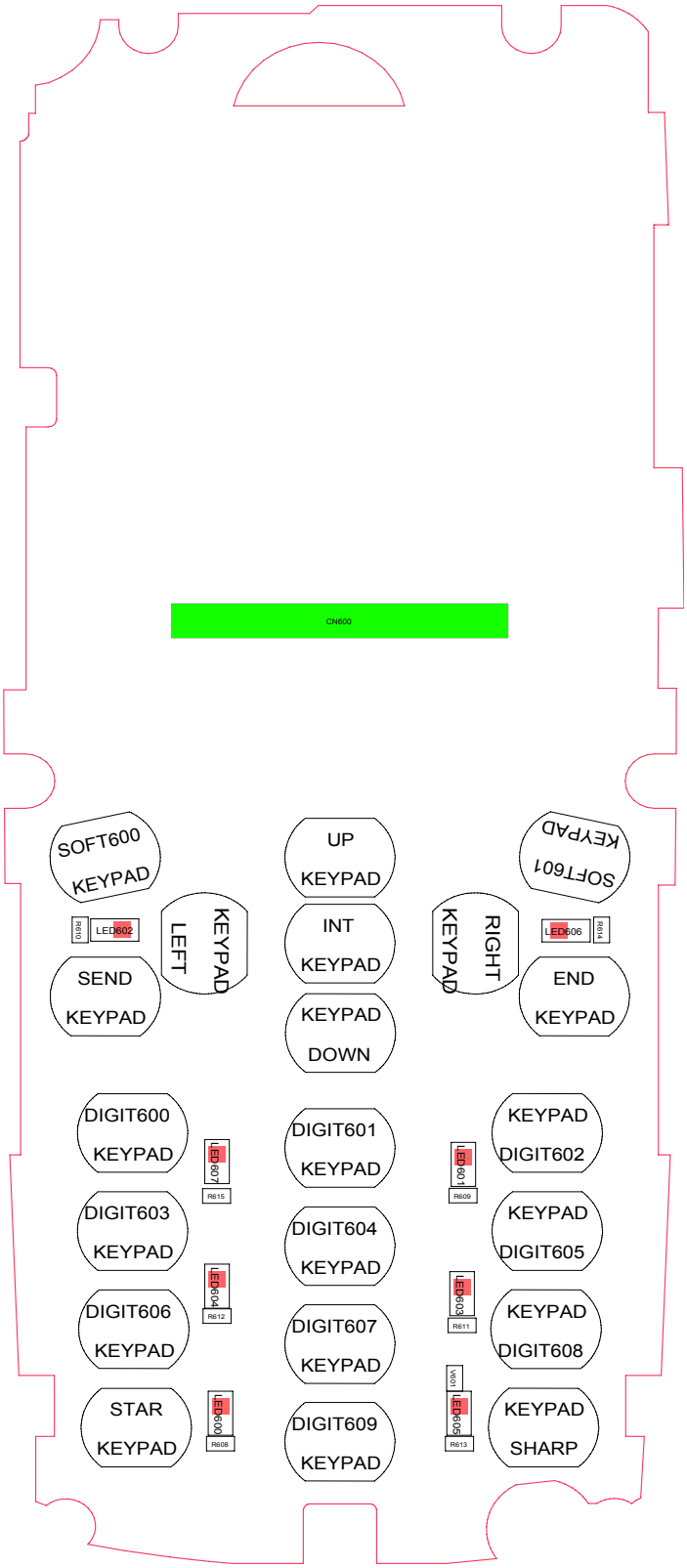
7-2. Base Band Solution Block Diagram



8. PCB Diagrams

Top

Bottom



3. Operation Instruction and Installation

Main Function

- S20 Pin TA
- No Java
- WAP 2.0
- Phonebook 200 entry, quick search
- Dual band(900/1800MHz)
- Auto power alarm
- 43.5 X 104.0 X 16.0 mm
- MP3 Ringtone, 40 Poly Sound, WAV / MIDI
- SOS

11. Reference data

11-1. Reference Abbreviate

AAC: Advanced Audio Coding.
AVC : Advanced Video Coding.
BER : Bit Error Rate
BPSK: Binary Phase Shift Keying
CA : Conditional Access
CDM : Code Division Multiplexing
C/I : Carrier to Interference
DMB : Digital Multimedia Broadcasting
EN **:** European Standard
ES **:** Elementary Stream
ETSI: European Telecommunications Standards Institute
MPEG: Moving Picture Experts Group
PN : Pseudo-random Noise
PS : Pilot Symbol
QPSK: Quadrature Phase Shift Keying
RS : Reed-Solomon
SI : Service Information
TDM : Time Division Multiplexing
TS **:** Transport Stream

1. Safety Precautions

1-1. Repair Precaution

- Repair in Shield Box, during detailed tuning.
  Take specially care of tuning or test,
  because specipicty of cellular phone is sensitive for surrounding interference(RF noise).

- Be careful to use a kind of magnetic object or tool,
  because performance of parts is damaged by the influence of manetic force.

- Surely use a standard screwdriver when you disassemble this product,
  otherwise screw will be worn away.

- Use a thicken twisted wire when you measure level.
  A thicken twisted wire has low resistance, therefore error of measurement is few.

- Repair after separate Test Pack and Set because for short danger (for example an overcurrent and furious flames of parts etc) when you repair board in condition of connecting Test Pack and tuning on.

- Take specially care of soldering, because Land of PCB is small and weak in heat.

- Surely tune on/off while using AC power plug, because a repair of battery charger is dangerous when tuning ON/OFF PBA and Connector after disassembing charger.

- Don't use as you pleases after change other material than replacement registered on SEC System.
  Otherwise engineer in charge isn't charged with problem that you don't keep this rules.

1-2. ESD(Electrostatically Sensitive Devices) Precaution

Several semiconductor may be damaged easilly by static electricity. Such parts are called by ESD(Electrostatically Sensitive Devices), for example IC,BGA chip etc. Read Precaution below. You can prevent from ESD damage by static electricity.

- Remove static electricity remained your body before you touch semiconductor or parts with semiconductor. There are ways that you touch an earthed place or wear static electricity prevention string on wrist.

- Use earthed soldering steel when you connect or disconnect ESD.

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

- Don't unpack until you set up ESD on product. Because most of ESD are packed by box and aluminum plate to have conductive power,they are prevented from static electricity.

- You must maintain electric contact between ESD and place due to be set up until ESD is connected completely to the proper place or a circuit board.

6. MAIN Electrical Parts List

SEC CODE	Design LOC	Discription
0401-001110	D601	DIODE-SWITCHING
0401-001110	D602	DIODE-SWITCHING
0403-001547	D300	DIODE-ZENER
0406-001288	D400	DIODE-TVS
0406-001288	D401	DIODE-TVS
0406-001288	D600	DIODE-TVS
0505-002341	TR600	FET-SILICON
0505-002348	TR300	FET-SILICON
0601-002037	LED600	LED
0601-002037	LED601	LED
0601-002037	LED602	LED
0601-002037	LED603	LED
0601-002037	LED604	LED
0601-002037	LED605	LED
0601-002037	LED606	LED
0601-002037	LED607	LED
1001-001410	U500	IC-ANALOG SWITCH
1001-001508	U401	IC-ANALOG SWITCH
1108-000199	UME200	IC-MCP
1201-002490	PAM100	IC-POWER AMP
1201-002675	U400	IC-AUDIO AMP
1203-005289	U301	IC-DC/DC CONVERTER
1203-005310	U300	IC-VOL. DETECTOR
1203-005347	U600	IC-POSI.FIXED REG.
1203-005347	U602	IC-POSI.FIXED REG.
1205-003511	UCP200	IC-COMM. CONTROLLER
1404-001221	TH200	THERMISTOR-NTC
1405-001082	V400	VARISTOR
1405-001082	V401	VARISTOR
1405-001082	V500	VARISTOR
1405-001082	V501	VARISTOR
1405-001082	V502	VARISTOR
1405-001082	V503	VARISTOR
1405-001082	V504	VARISTOR
1405-001082	V505	VARISTOR
1405-001082	V506	VARISTOR
1405-001082	V507	VARISTOR
1405-001082	V601	VARISTOR

SEC CODE	Design LOC	Discription
1405-001121	V600	VARISTOR
2007-000138	R411	R-CHIP
2007-000138	R516	R-CHIP
2007-000139	R104	R-CHIP
2007-000139	R107	R-CHIP
2007-000139	R504	R-CHIP
2007-000141	R503	R-CHIP
2007-000141	R507	R-CHIP
2007-000148	R206	R-CHIP
2007-000148	R207	R-CHIP
2007-000148	R211	R-CHIP
2007-000148	R604	R-CHIP
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2007-000161	R406	R-CHIP
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2007-000162	R201	R-CHIP
2007-000162	R303	R-CHIP
2007-000171	R100	R-CHIP
2007-000171	R101	R-CHIP
2007-000171	R103	R-CHIP
2007-000171	R200	R-CHIP
2007-000171	R203	R-CHIP
2007-000171	R208	R-CHIP
2007-000171	R209	R-CHIP
2007-000171	R210	R-CHIP
2007-000171	R212	R-CHIP
2007-000171	R213	R-CHIP
2007-000171	R214	R-CHIP
2007-000171	R300	R-CHIP
2007-000171	R301	R-CHIP
2007-000171	R401	R-CHIP
2007-000171	R403	R-CHIP
2007-000171	R405	R-CHIP
2007-000171	R413	R-CHIP
2007-000171	R500	R-CHIP
2007-000171	R501	R-CHIP
2007-000171	R505	R-CHIP

SEC CODE	Design LOC	Discription
2007-000171	R506	R-CHIP
2007-000171	R600	R-CHIP
2007-000171	R601	R-CHIP
2007-000171	R602	R-CHIP
2007-000172	R205	R-CHIP
2007-000172	R511	R-CHIP
2007-000172	R512	R-CHIP
2007-000172	R513	R-CHIP
2007-000172	R515	R-CHIP
2007-000173	R102	R-CHIP
2007-000173	R508	R-CHIP
2007-000173	R510	R-CHIP
2007-001292	R608	R-CHIP
2007-001292	R609	R-CHIP
2007-001292	R610	R-CHIP
2007-001292	R611	R-CHIP
2007-001292	R612	R-CHIP
2007-001292	R613	R-CHIP
2007-001292	R614	R-CHIP
2007-001292	R615	R-CHIP
2007-001294	R412	R-CHIP
2007-001294	R414	R-CHIP
2007-001333	R603	R-CHIP
2007-002796	R410	R-CHIP
2007-007142	R407	R-CHIP
2007-007142	R408	R-CHIP
2007-007317	R400	R-CHIP
2007-007317	R404	R-CHIP
2007-007480	R202	R-CHIP
2007-008500	R304	R-CHIP
2007-009822	R305	R-CHIP
2203-000311	C309	C-CER,CHIP
2203-000386	C400	C-CER,CHIP
2203-000386	C401	C-CER,CHIP
2203-000386	C403	C-CER,CHIP
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SEC CODE	Design LOC	Discription
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2203-000812	C108	C-CER,CHIP
2203-000812	C308	C-CER,CHIP
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2203-001259	C100	C-CER,CHIP
2203-001383	C104	C-CER,CHIP
2203-002709	C200	C-CER,CHIP
2203-002709	C201	C-CER,CHIP
2203-002709	C202	C-CER,CHIP
2203-002709	C203	C-CER,CHIP
2203-002709	C204	C-CER,CHIP
2203-002709	C307	C-CER,CHIP
2203-002709	C410	C-CER,CHIP
2203-002709	C601	C-CER,CHIP
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SEC CODE	Design LOC	Discription
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2203-006048	C106	C-CER,CHIP
2203-006208	C206	C-CER,CHIP
2203-006208	C218	C-CER,CHIP
2203-006260	C419	C-CER,CHIP
2203-006324	C301	C-CER,CHIP
2203-006348	C303	C-CER,CHIP
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2203-006562	C606	C-CER,CHIP
2203-006562	C611	C-CER,CHIP
2203-006562	C612	C-CER,CHIP
2203-006824	C211	C-CER,CHIP
2203-006841	C302	C-CER,CHIP
2404-001339	TA201	C-TA,CHIP
2404-001339	TA202	C-TA,CHIP
2404-001339	TA300	C-TA,CHIP
2404-001377	TA400	C-TA,CHIP
2404-001381	TA500	C-TA,CHIP
2404-001496	TA100	C-TA,CHIP

SEC CODE	Design LOC	Discription
2703-001178	L102	INDUCTOR-SMD
2703-001180	L100	INDUCTOR-SMD
2703-001722	L107	INDUCTOR-SMD
2703-002201	L500	INDUCTOR-SMD
2703-002201	L501	INDUCTOR-SMD
2703-002203	L104	INDUCTOR-SMD
2703-002267	L105	INDUCTOR-SMD
2703-003297	L202	INDUCTOR-SMD
2801-004353	OSC200	CRYSTAL-SMD
2801-004552	OSC201	CRYSTAL-SMD
2904-001792	F100	FILTER-SAW
3301-001158	L200	BEAD-SMD
3301-001158	L201	BEAD-SMD
3301-001729	L400	BEAD-SMD
3301-001729	L401	BEAD-SMD
3705-001503	RFS100	CONNECTOR-COAXIAL
3709-001384	SIM600	CONNECTOR-CARD EDGE
3710-002683	IFC500	SOCKET-INTERFACE
3711-006228	BTC300	HEADER-BATTERY

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