GSM TELEPHONE
SGH-F480

SERVICE Manual

GSM TELEPHONE

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SAMSUNG ELECTRONICS

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2. Specification

2-1. GSM General Specification

	EGSM900	DCS1800	PCS1900	WCDMA 2100
Freq. Band[MHz] Uplink/Downlink	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990	1920~1980 2110~2170
ARFCN range	0~124 & 975~1023	512~885	512~810	UL : 9612~9888 DL : 10562~10838
Tx/Rx spacing	45MHz	95MHz	80MHz	190MHz
Mod. Bit rate/ Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	3.84Mcps
Time lot Period/ Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	Frame length : 10ms Slot length : 0.667ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	QPSK HQPSK
MS Power	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm	24dBm~ -50dBm
Power Class	4 (Max +33dBm)	1 (Max +30dBm)	1 (Max +30dBm)	3 (Max +24dBm)
Sensitivity	-102dBm	-100dBm	-100dBm	-106.7dBm
TDMA Mux	8	8	8	NA
Cell Radius	35Km	2Km	2Km	2Km

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2-2. GSM Tx Power Class

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

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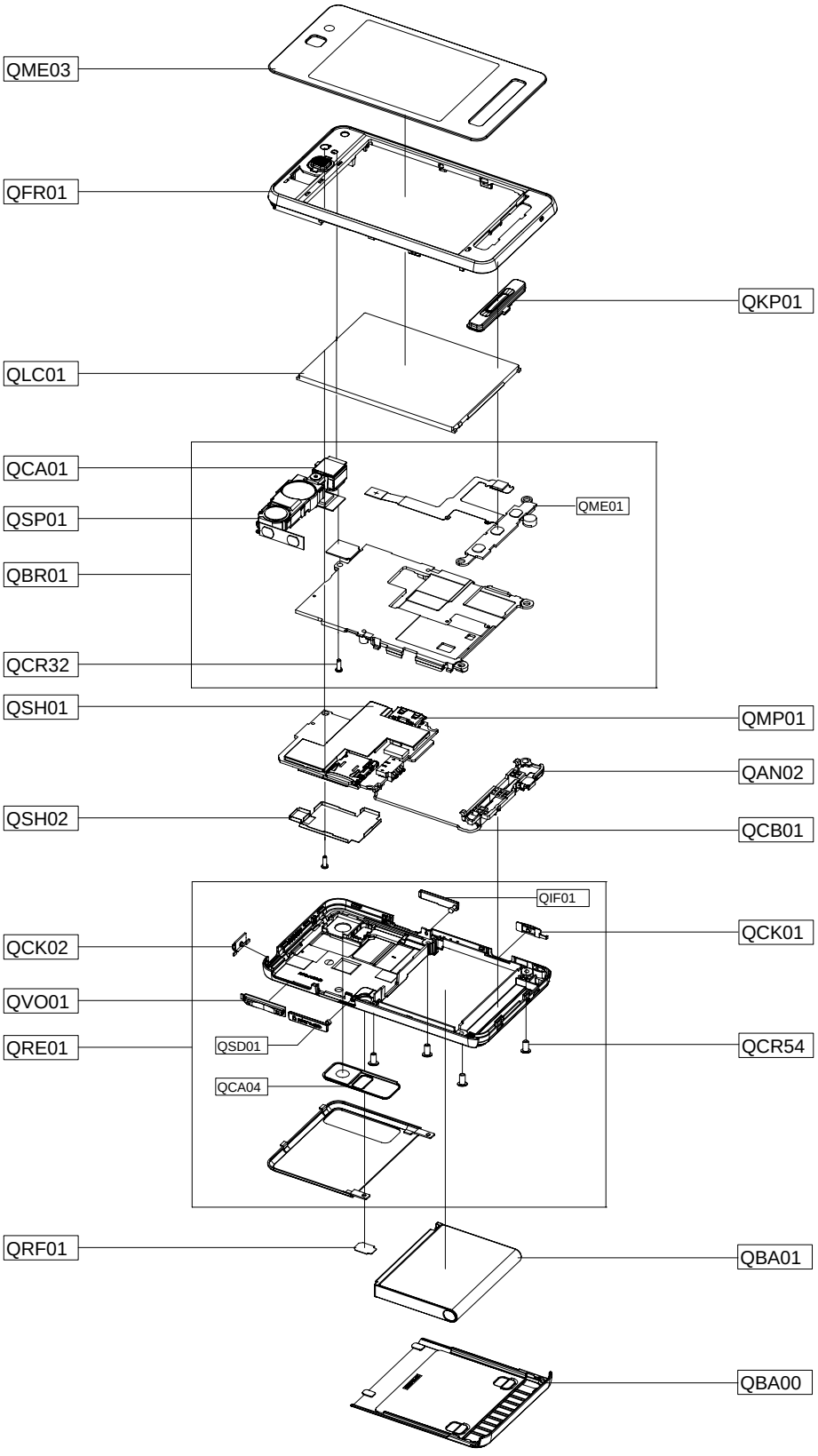
5. Exploded View and Parts List

5-1. Cellular phone Exploded View



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5-2. Cellular phone Parts List

Design LOC	Description	SEC CODE
QAN01	FPCB ANTENNA CHIP-SGH F480	GH42-01496A
QAN02	INTENNA-SGH F480	GH42-01506A
QAN19	PMO CASE-INTENNA CARRIER	GH72-48495A
QBA00	ASSY COVER-BATT	GH98-07384A
QBA01	INNER BATTERY PACK-1000MAH, BL	GH43-02513A
QBR01	ASSY BRACKET-SHIELD CAN	GH98-07497A
QCA01	CAMERA MODULE-SGH F480	GH59-05376A
QCA04	ASSY COVER-CAMERA	GH98-07496A
QCB01	CBF COAXIAL CABLE-SGHF480	GH39-01061A
QCK01	PMO KEY-CAMERA	GH72-45768A
QCK02	PMO KEY-HOLD	GH72-45770A
QCR32	SCREW-MACHINE	6001-001700
QCR32	SCREW-MACHINE	6001-001700
QCR54	SCREW-MACHINE	6001-001645
QFR01	ASSY CASE-FRONT	GH98-07382A
QIF01	PMO COVER-IF	GH72-45766A
QKP01	ASSY KEYPAD-(EU/SIL)	GH98-07495A
QLC01	LCD-SGH F480 MODULE	GH07-01258A
QME01	KEY FPCB-MAIN KEY FPCB	GH59-05373A
QME03	KEY FPCB-TOUCH SCREEN(VODA)	GH59-05628A
QMP01	PBA MAIN-SGH F480	GH92-04398A
QRE01	ASSY CASE-REAR	GH98-07383A
QRF01	TAPE-RF SHEET	GH74-38134A
QSD01	PMO COVER-SD	GH72-45767A
QSH01	ASSY COVER-SHIELD A	GH98-08197A
QSH02	ICT SHIELD-SHIELD CAN B	GH70-03272A
QSP01	UNIT-SPK/MOT/KEYFPCB	GH59-05577A
QVO01	PMO KEY-VOLUME	GH72-45769A

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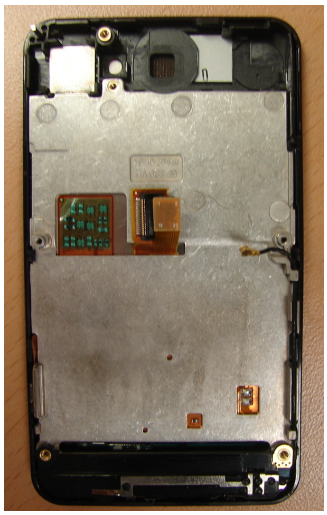
11. Disassembly and Assembly Instructions

11-1. Disassembly Instructions

1 1) Unscrew the REAR at the four points. 2) Disassemble the IF cover and SD card cover 	2 1) Disassemble the Rear from the bottom side to the upper side.
1) Be careful not to make scratch and molding damage!	1) Be careful not to make scratch and molding damage!
3 1) Disassemble the touch-key connector,antenna cable , SPK connector,camera connector 2) Unscrew the screw 	4 1) Disassemble the PBA from the FRONT ASS'Y 
1) When PBA is separated from LCD Connector, Be careful not to damage!	1) Be careful not to damage FPCB!

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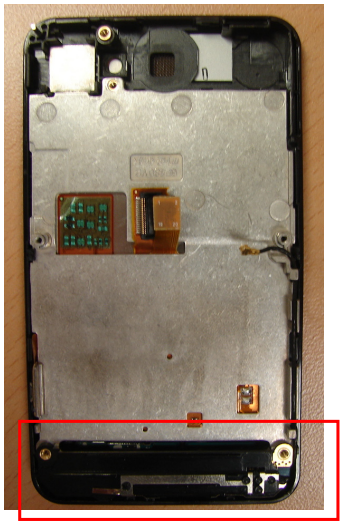
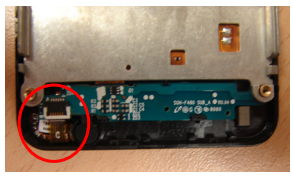
5 1) Remove the antenna and antenna cable 	6 1) Remove the SPK ass'y and camera
1) Be careful not to damage antenna cable !	1) Be careful not to make scratch and molding damage! 2) Be careful not to damage the FPCB
7 1) Remove the screw 2) Disassemble the touch key FPCB 3) Remove the bracket  	
1) Be careful not to make scratch and molding damage! 2) Be careful not to damage the LCD FPCB	

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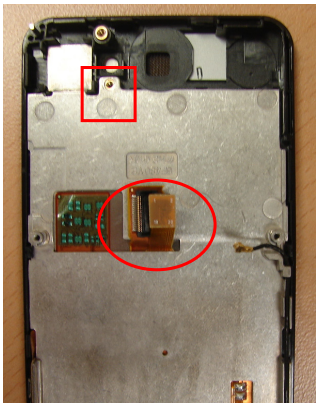
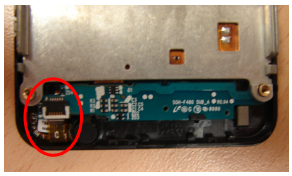
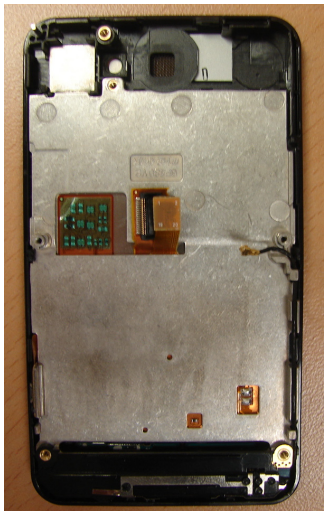
11-2. Assembly Instructions

1 1) Assemble the LCD on the front 	2 1) Insert the key pad in the front 2) Assemble the bracket on the front and insert the screw 
1) Be careful not to damage LCD FPCB!	1) Be careful not to damage LCD FPCB! 2) Torque kgf.cm
3 1) Insert the touch key FPCB 2) Assemble Antenna and take care of the antenna cable  	4 1) Connect the LCD connector and assemble the PBA on the bracket 2) Connect the touch-key connector,antenna cable,SPK connector
1) Be careful not to damage the antenna cable !	1) Be sure to connect the connectors!

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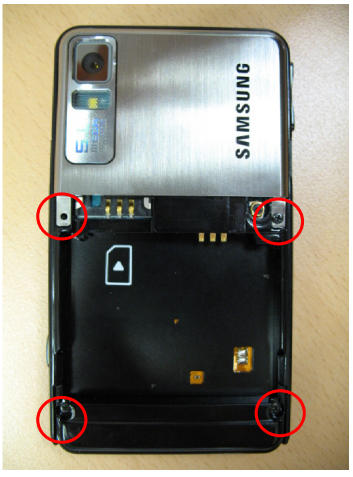
5 1) Insert the screw and connect the camera connector 	6 1) Assemble the side key , camera key and power key. 2) Then assemble the rear.
1) Torque kgf.cm	1) Be sure the direction of side key
7 1) Screw up the REAR at 4 Points. [] 	
1) Torque Kgf/㎠	

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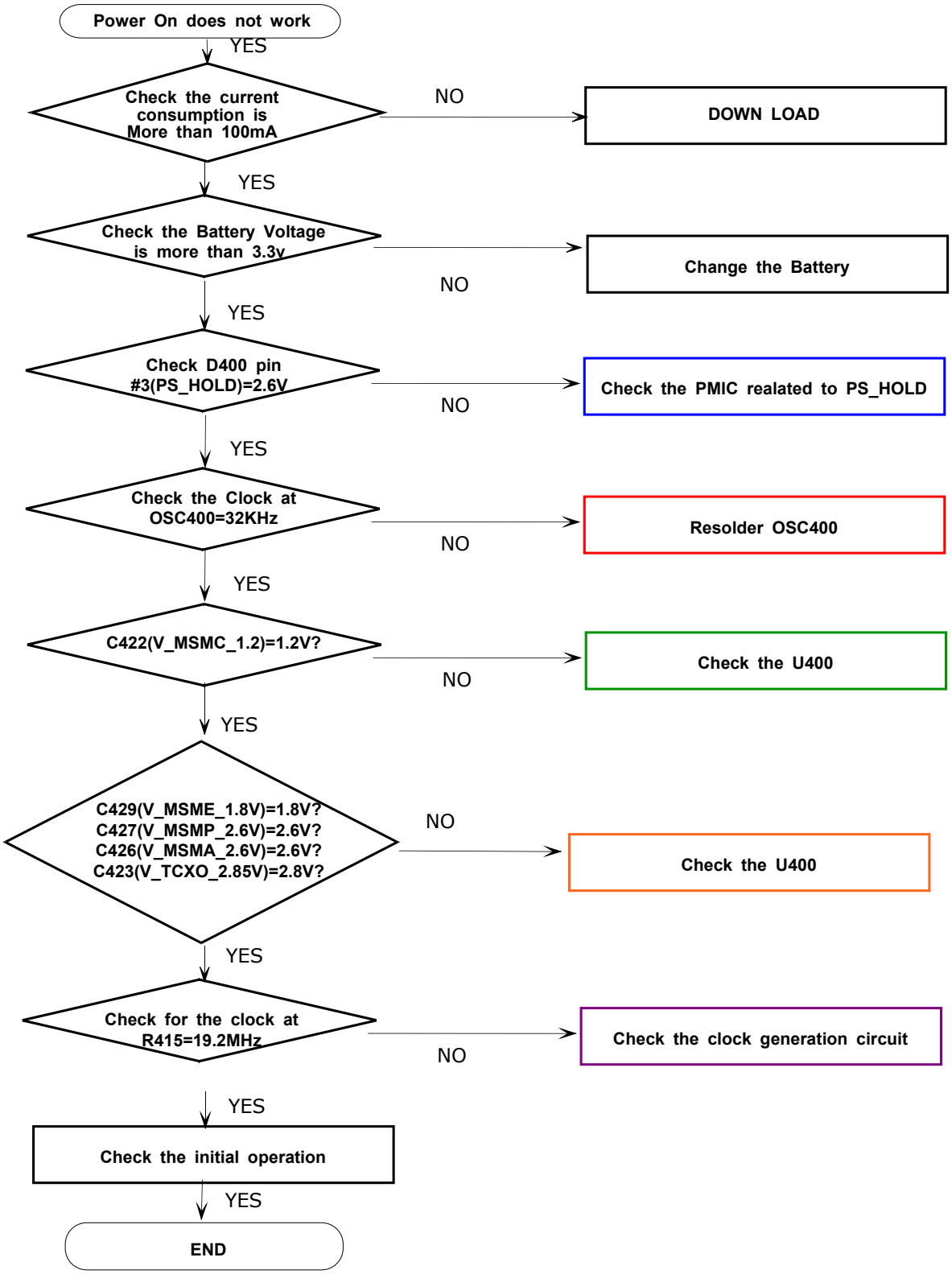
9. Flow Chart of Troubleshooting

9-1.Logic

9-1-1. Power on/off



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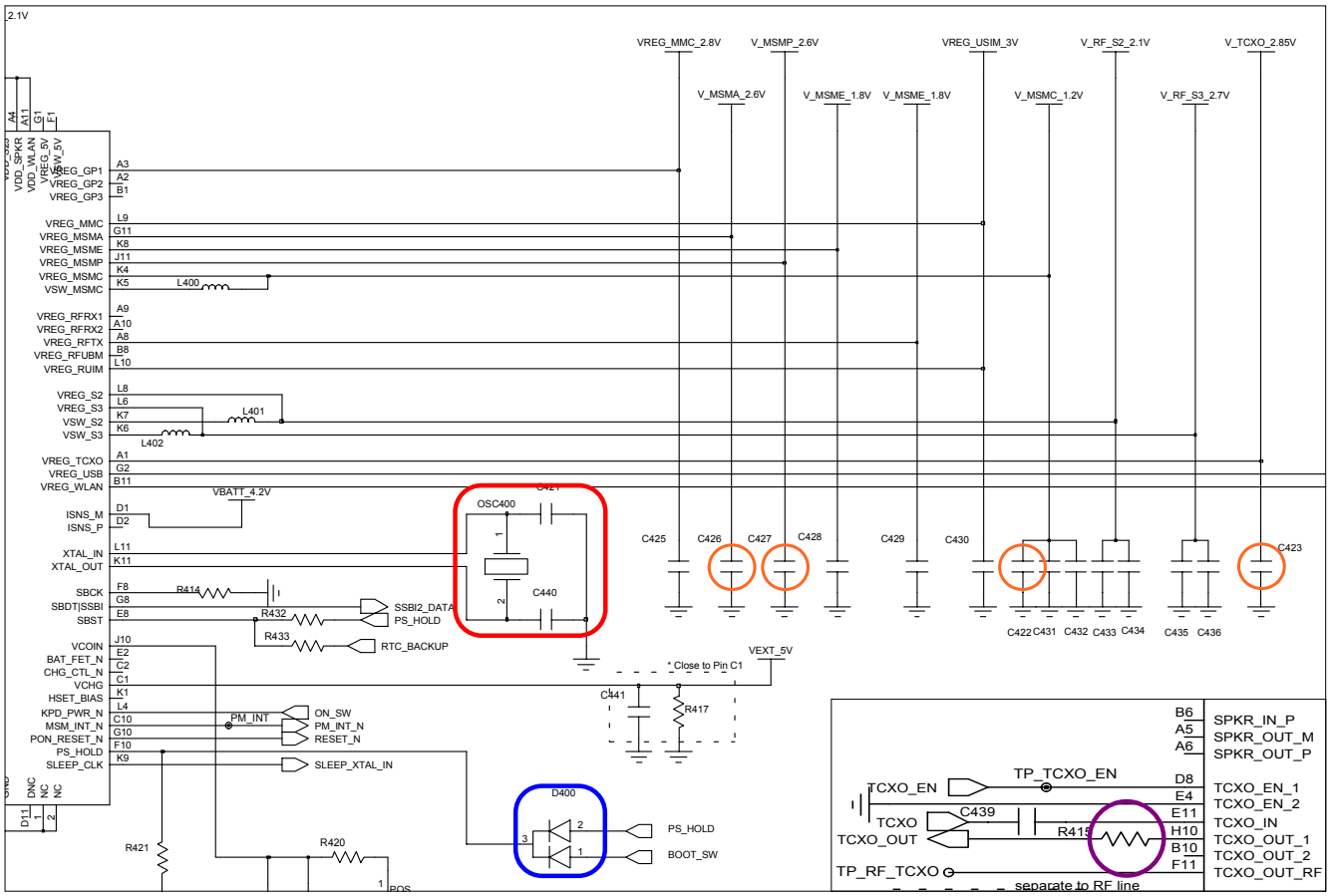

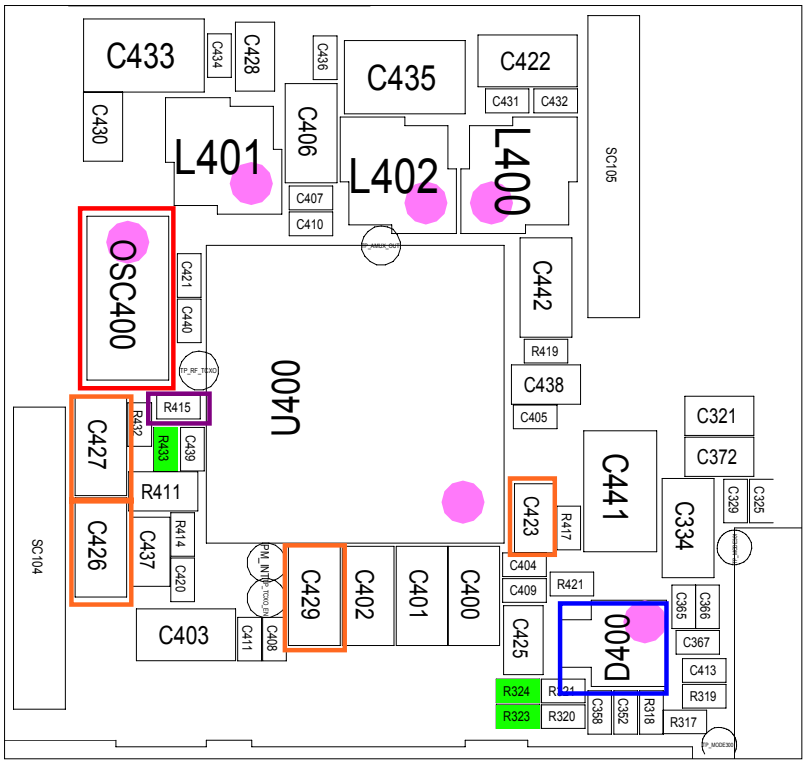

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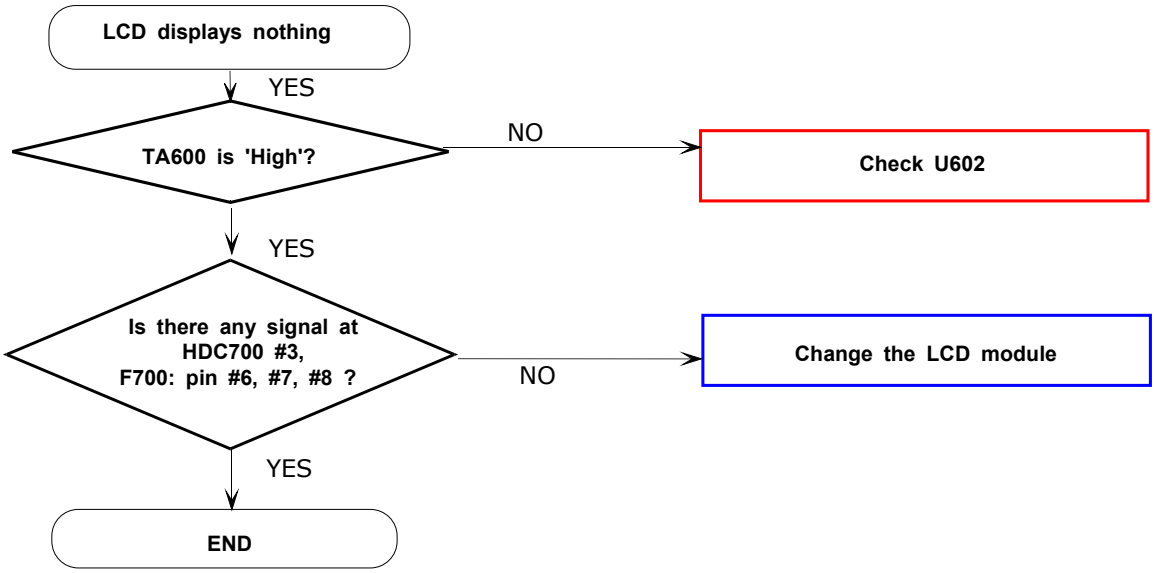
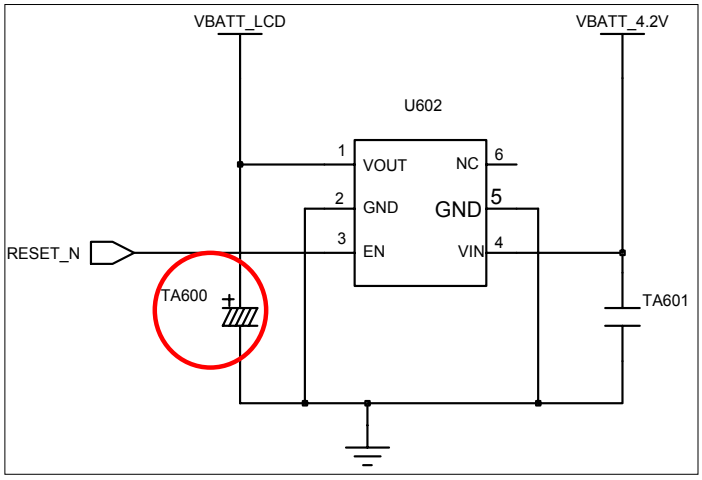
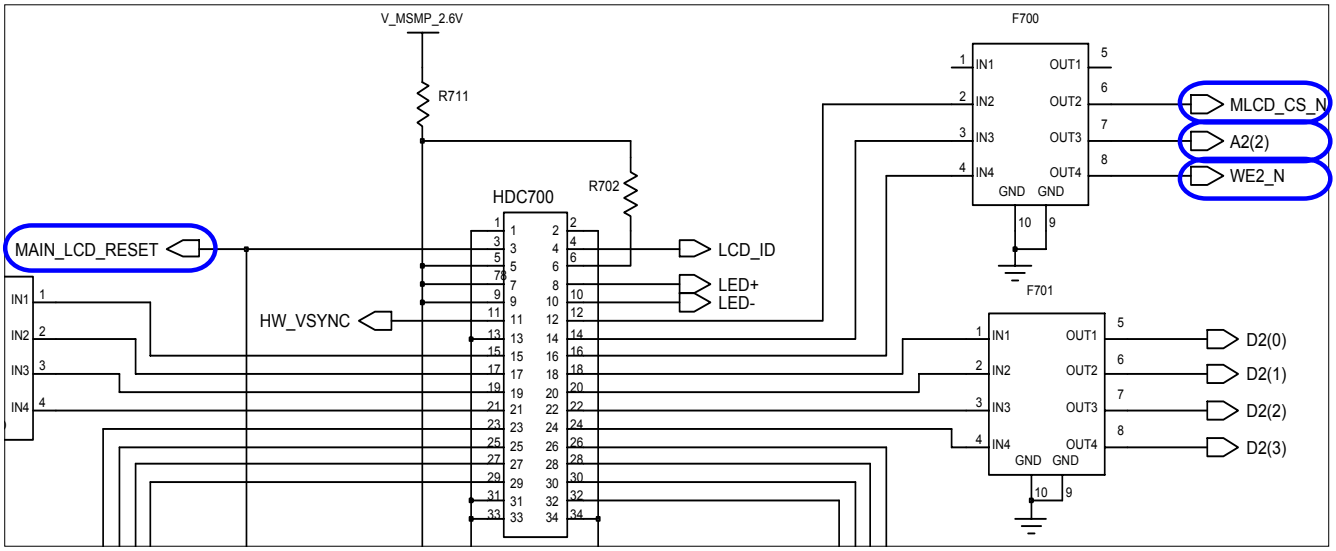
9-1-2. LCD Part







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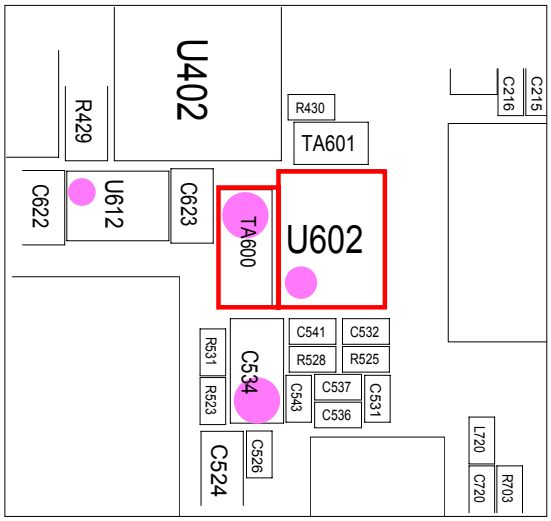

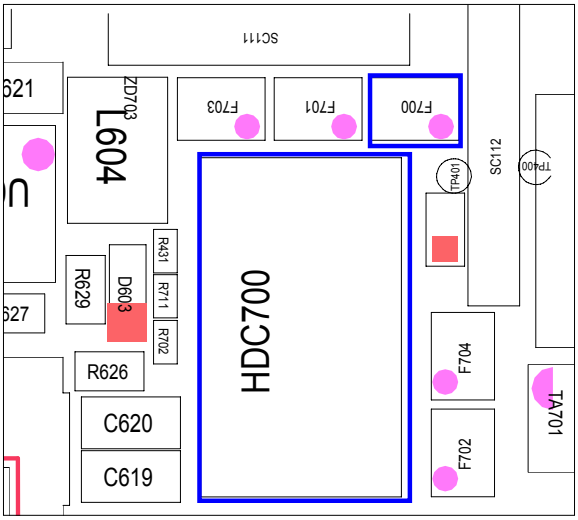

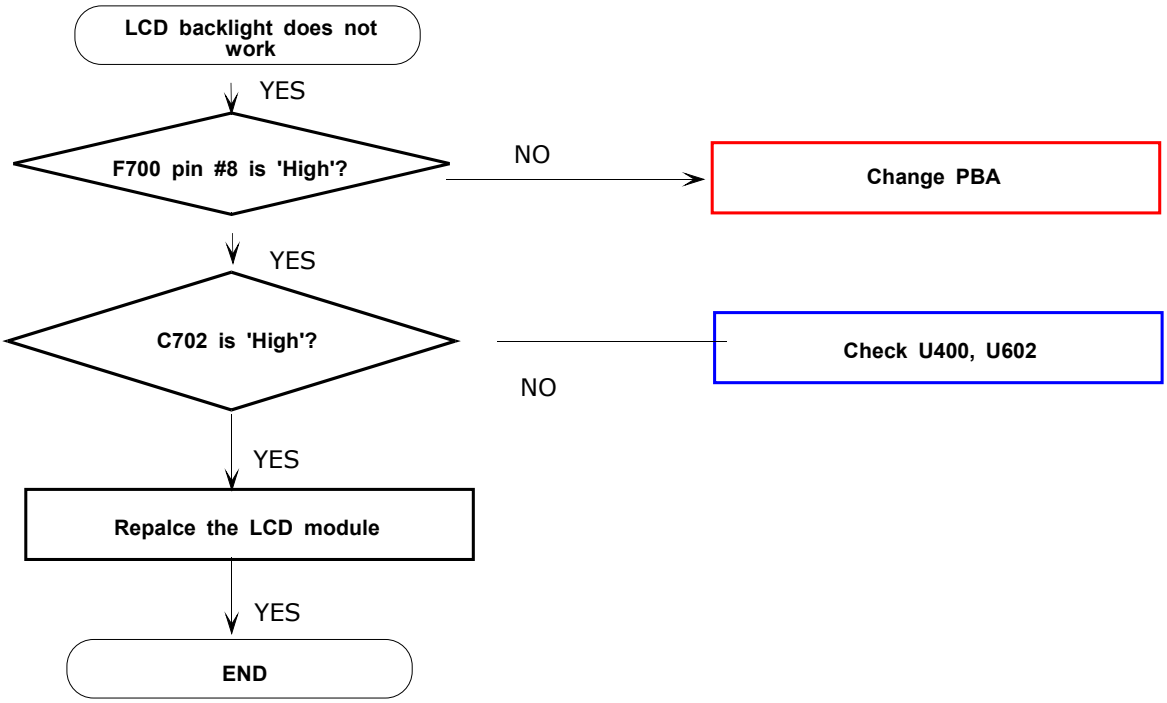

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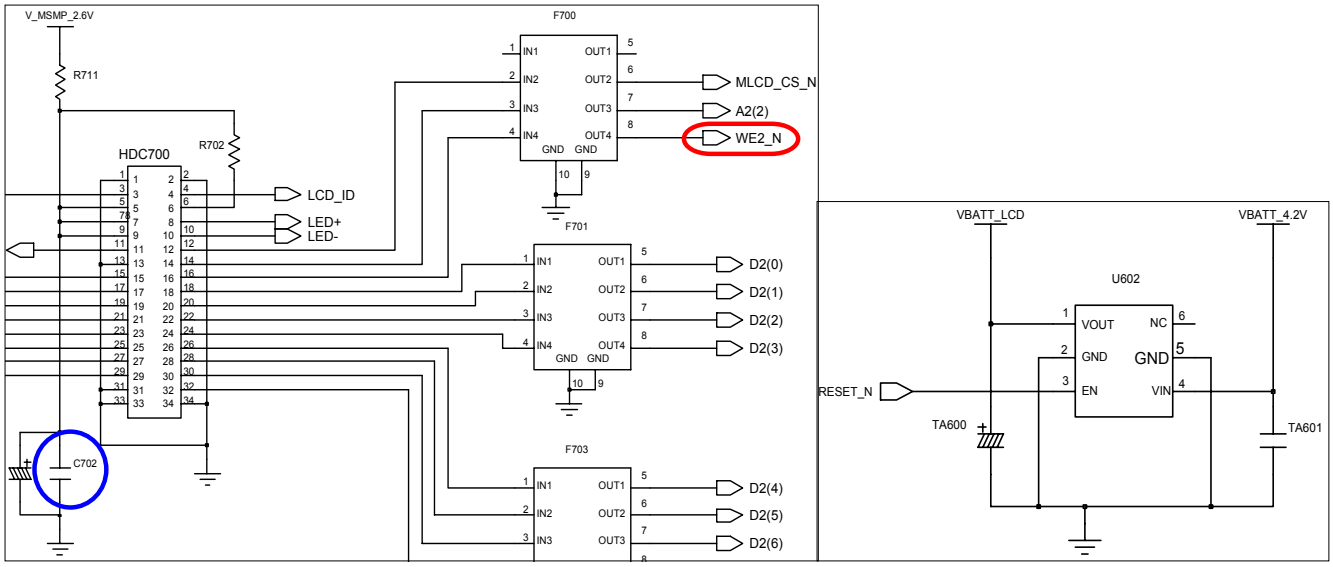

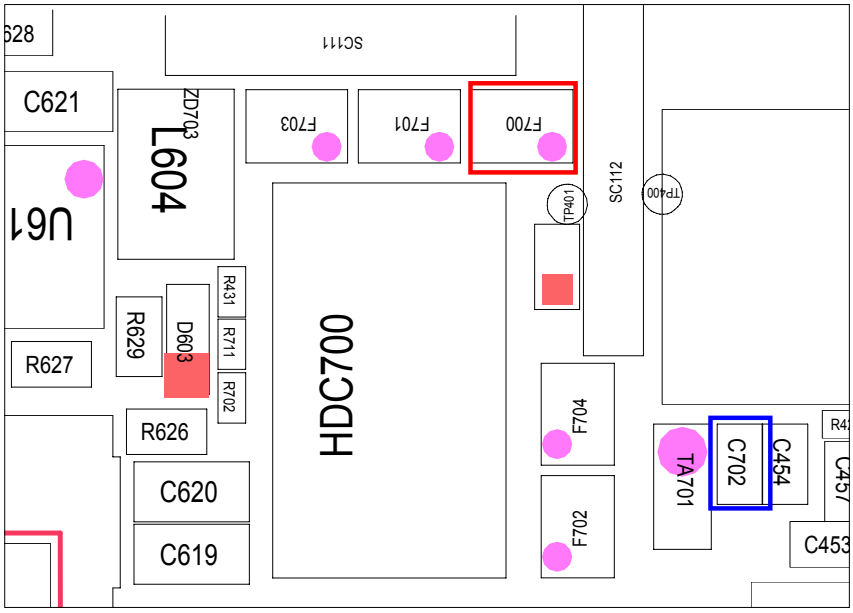

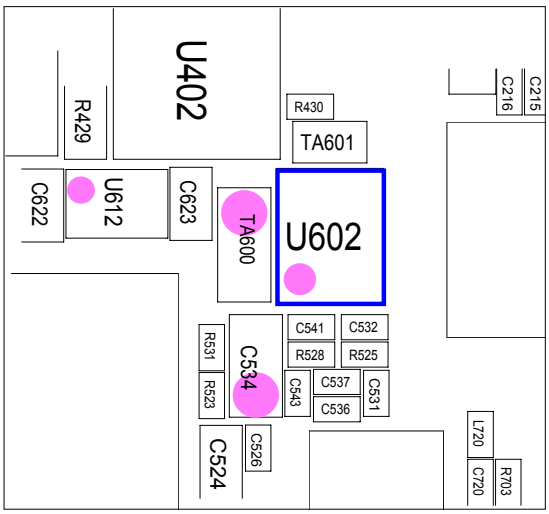

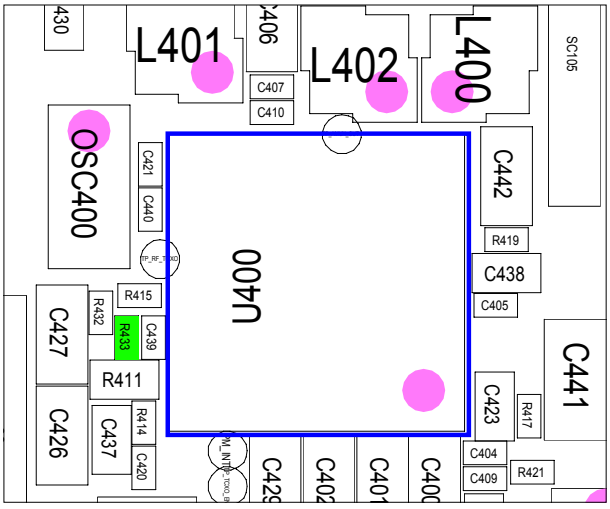

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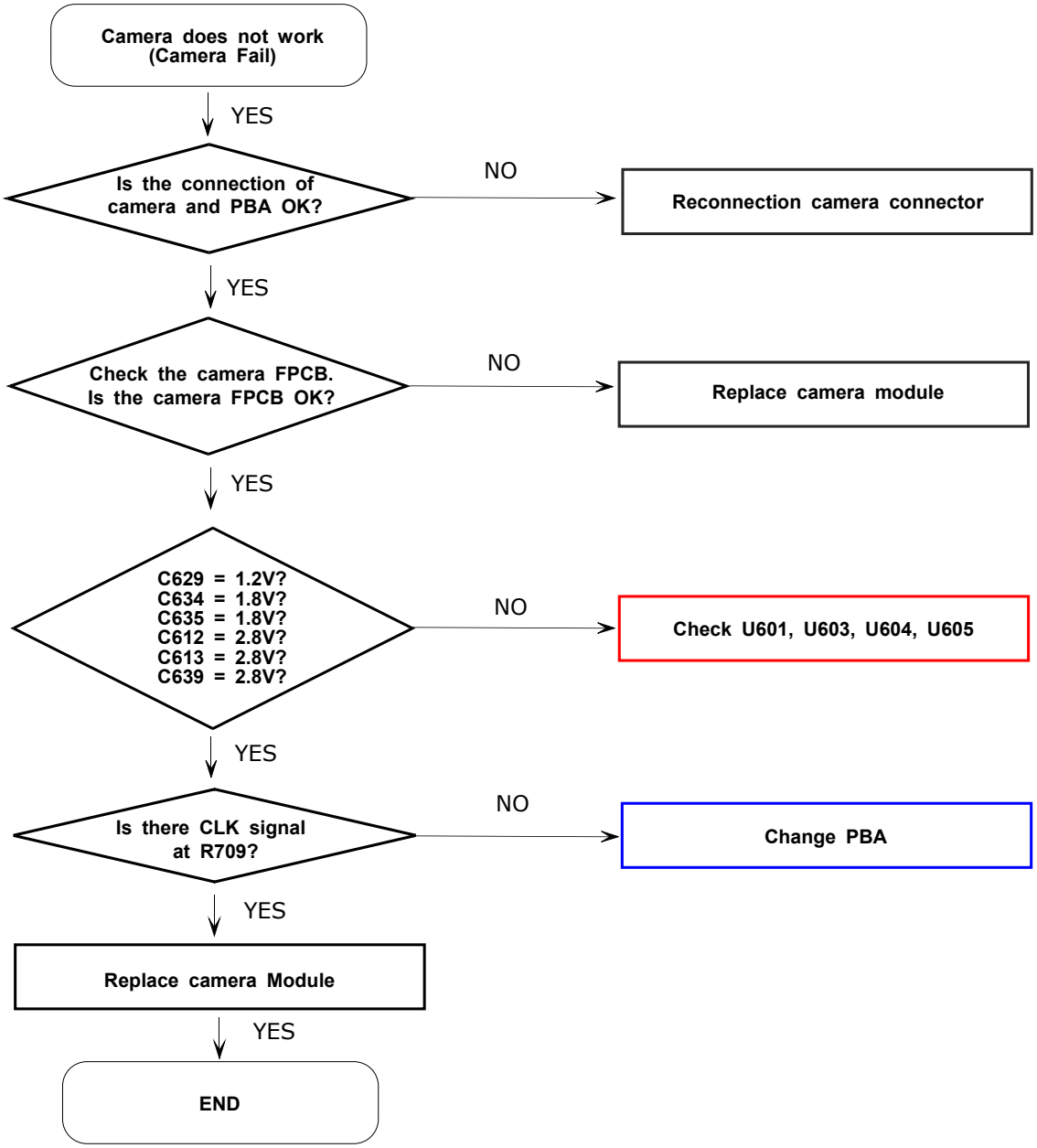
9-1-3. Camera Part



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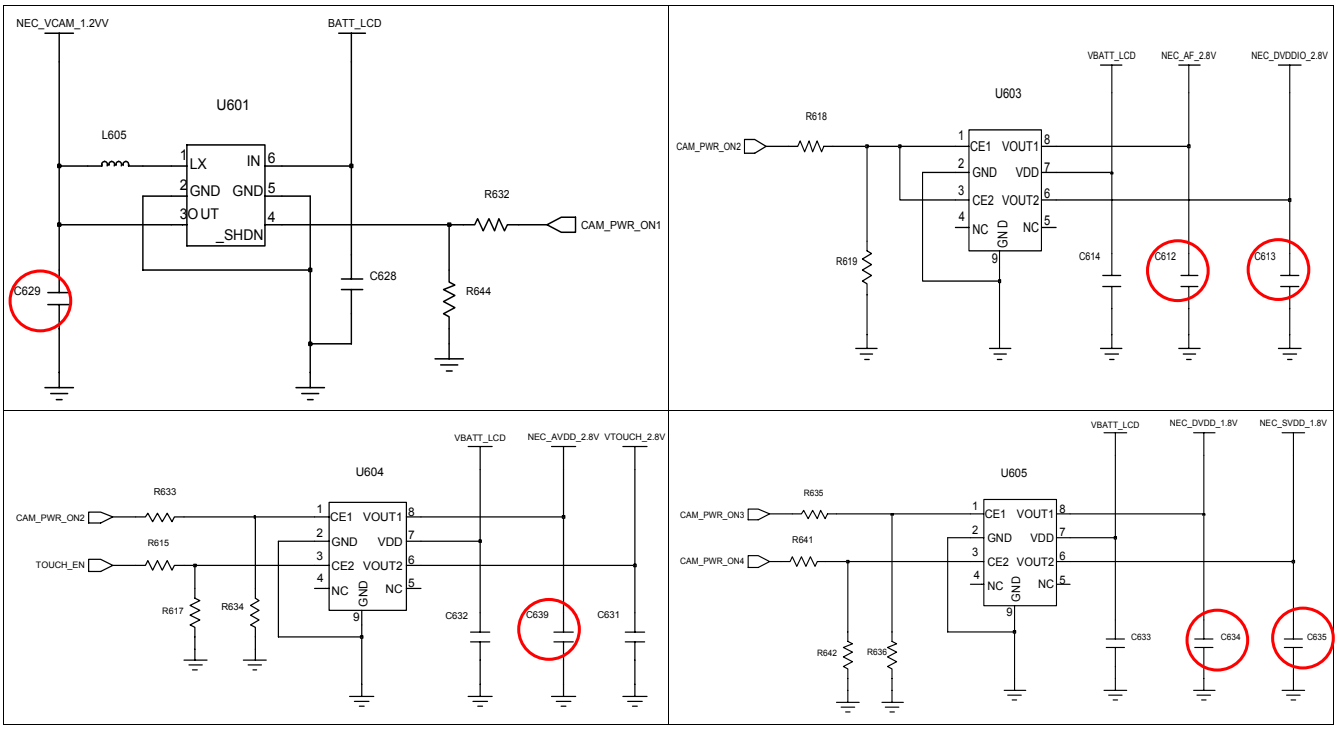

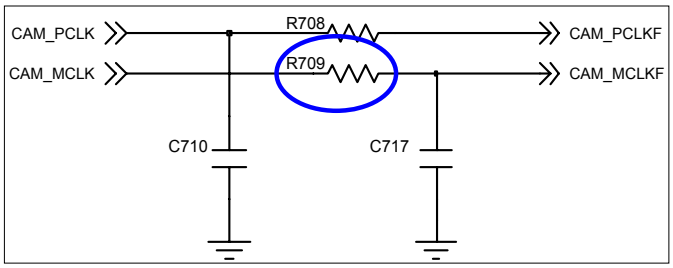

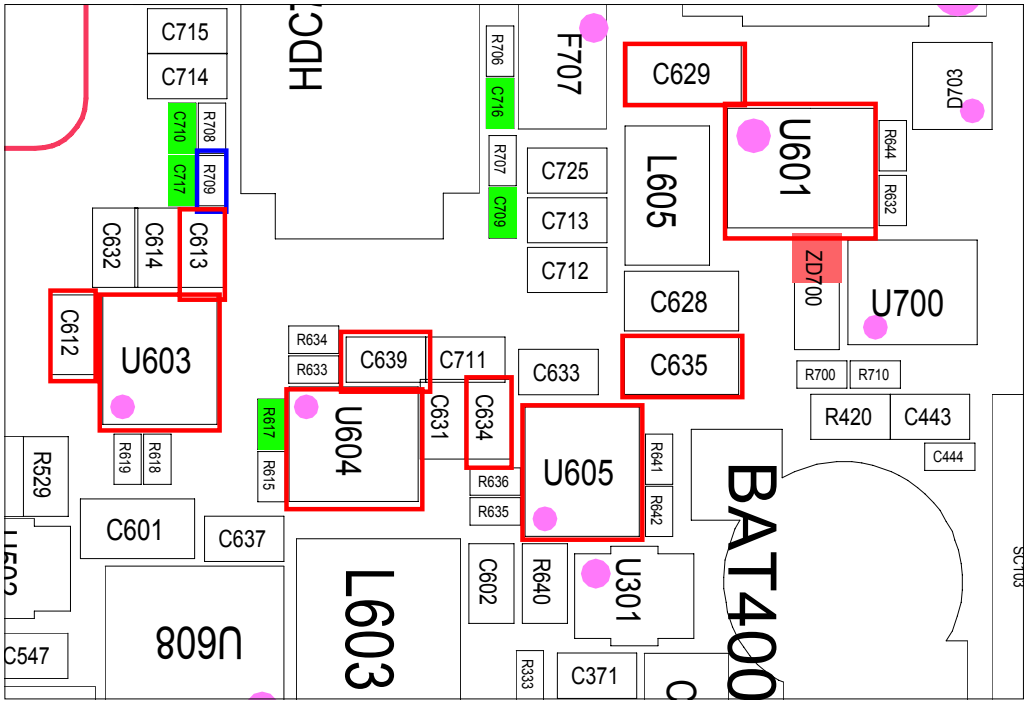

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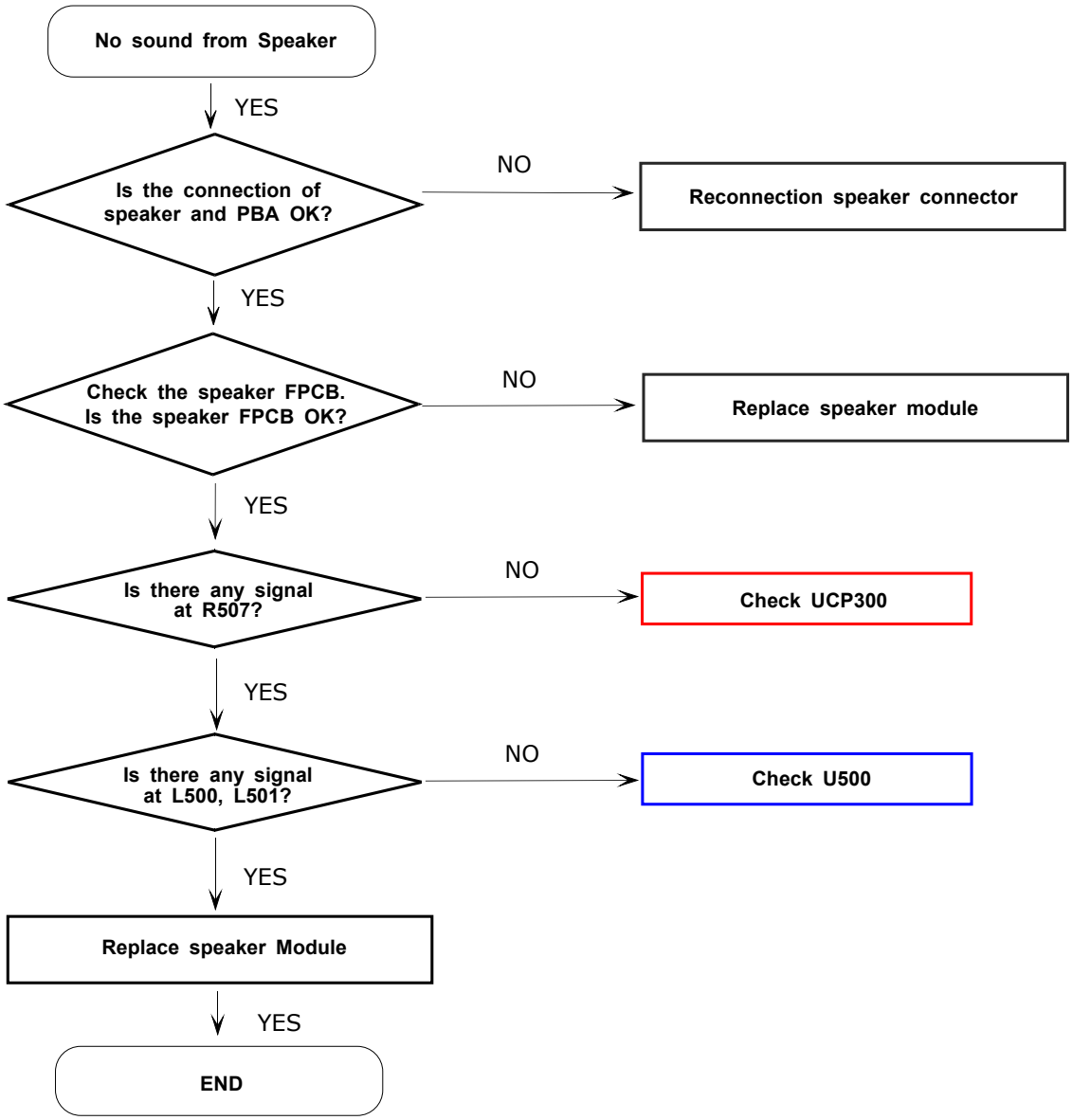
9-1-4. Speaker Part (Melody)



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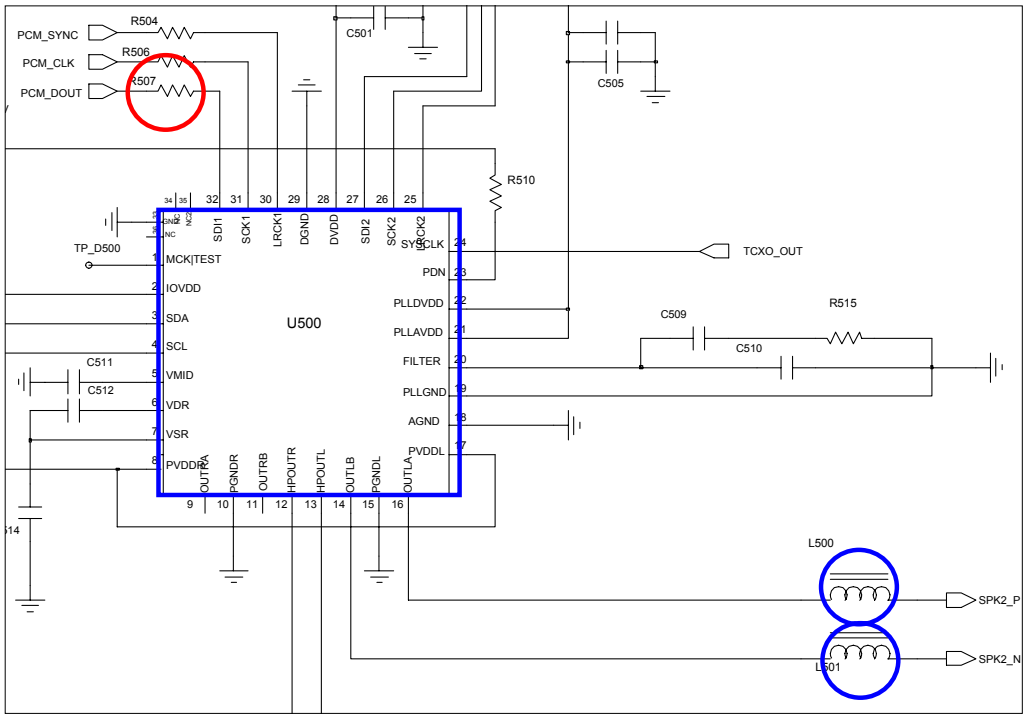

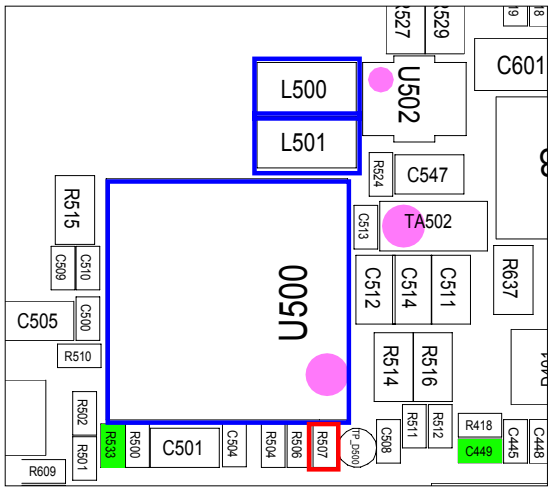

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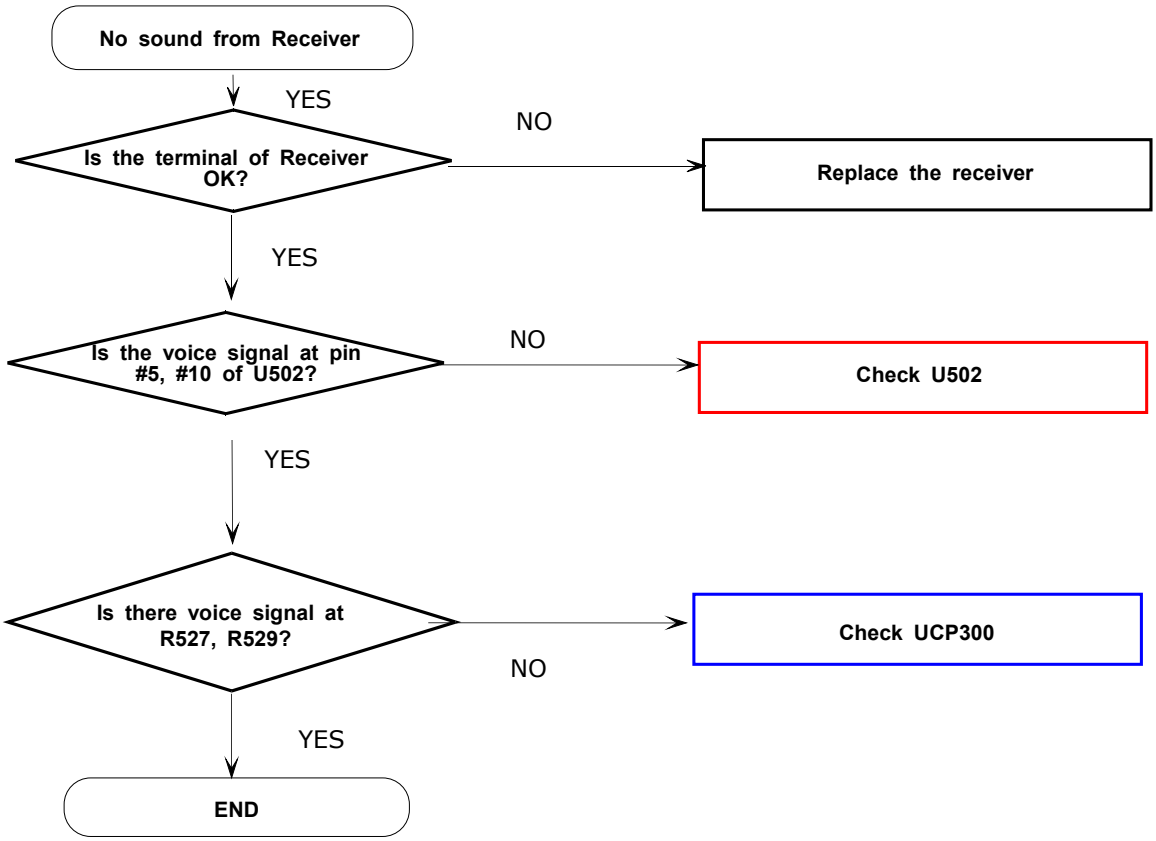
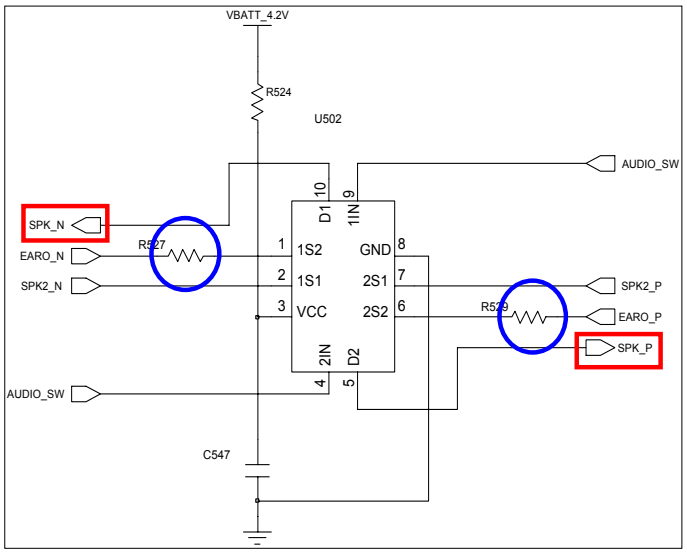
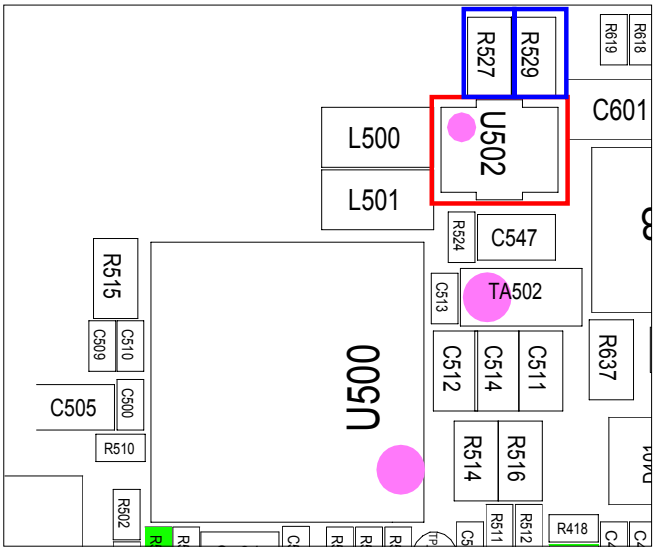
9-1-5. Receiver Part (Voice)







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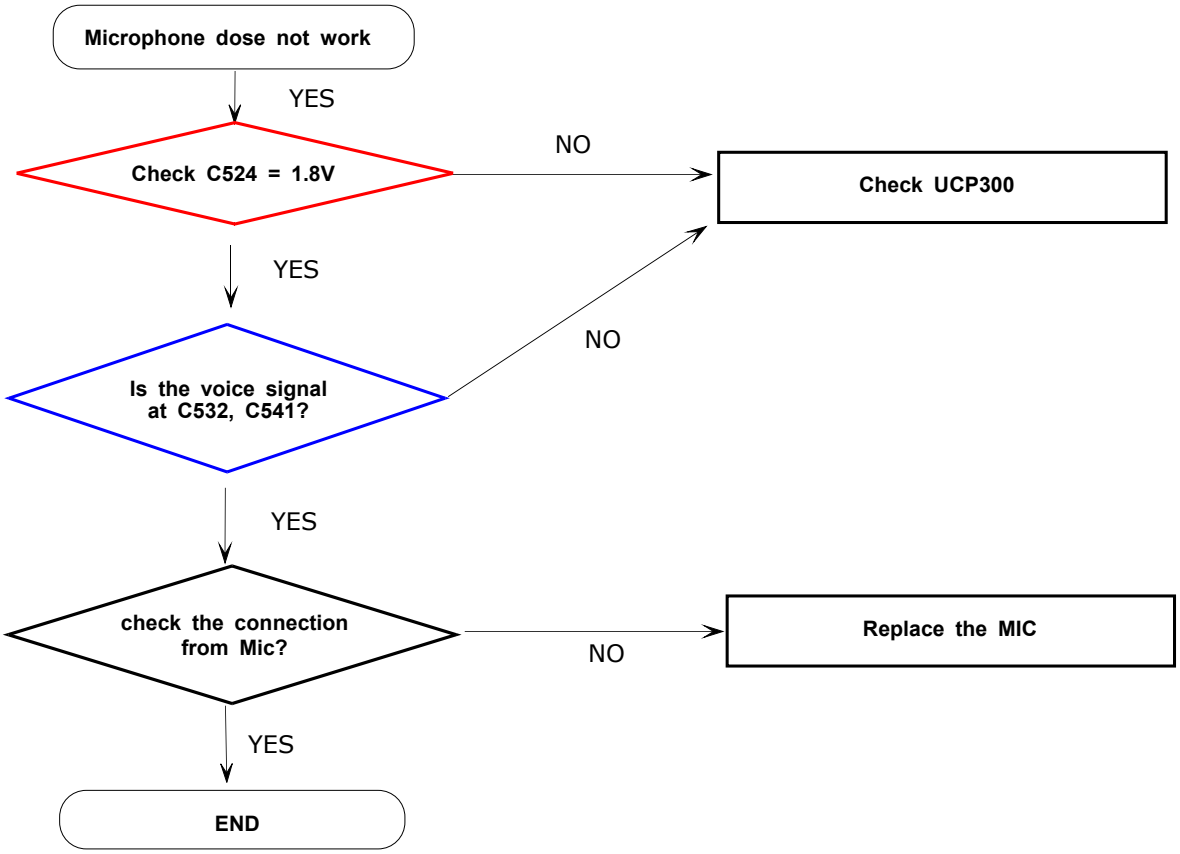
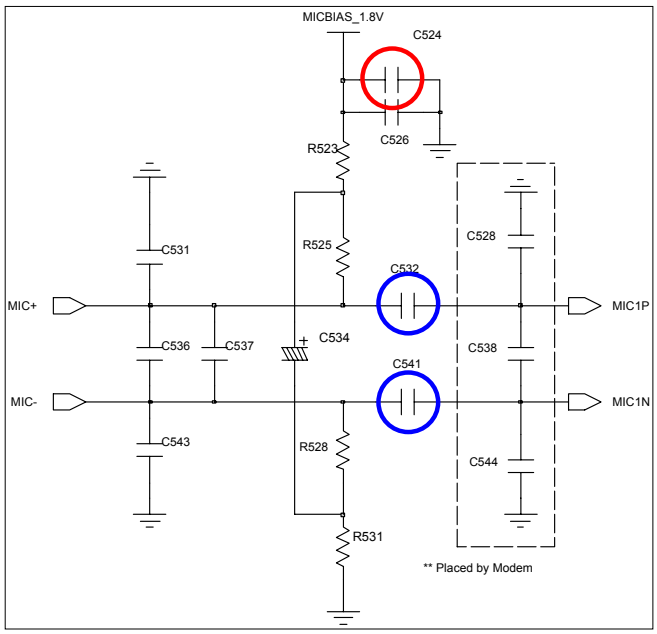
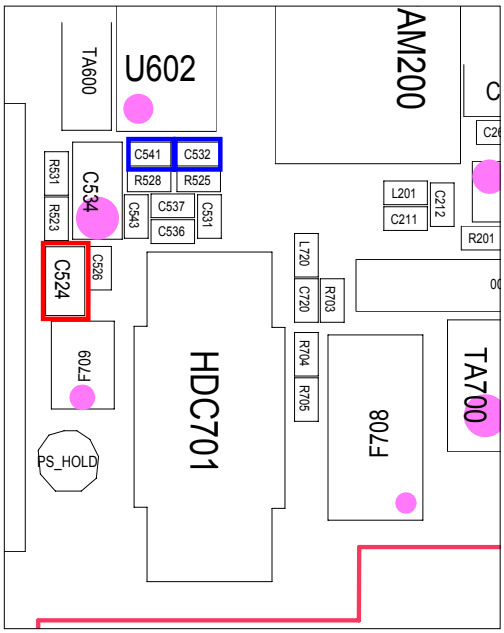
9-1-6. Microphone Part







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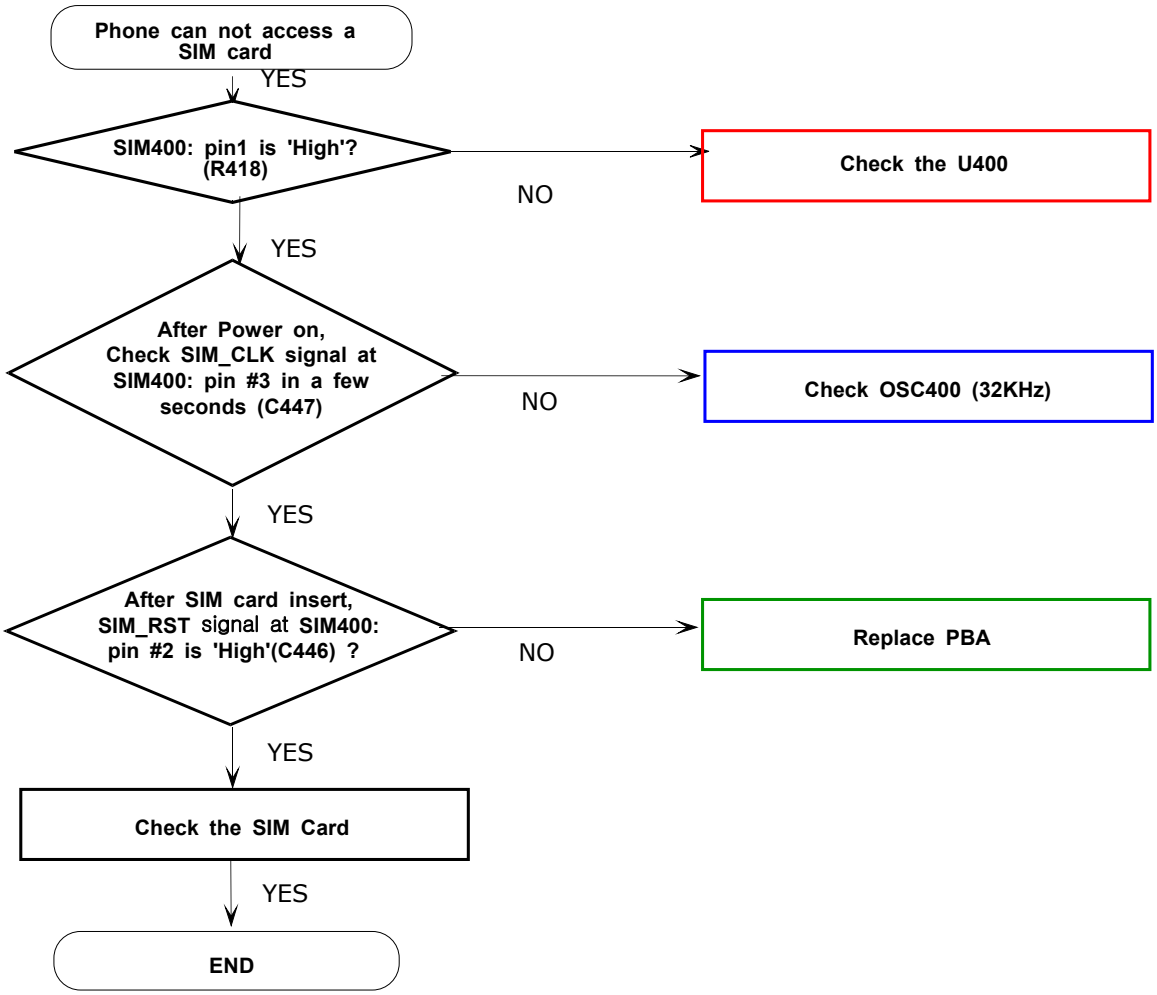
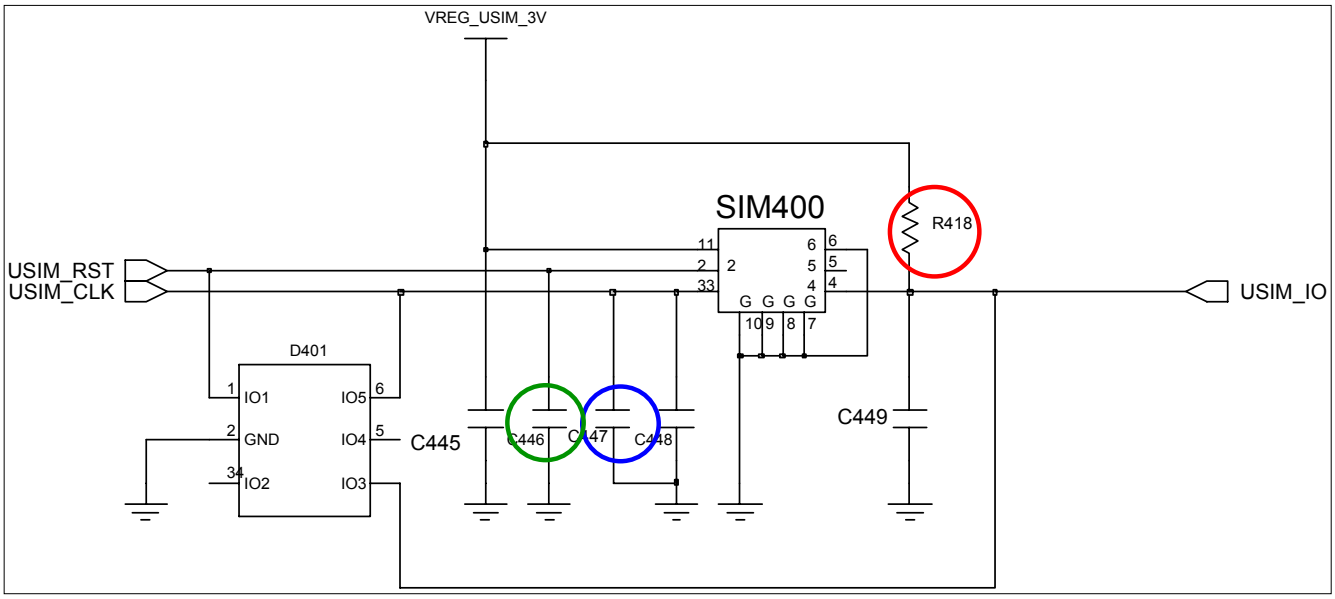
9-1-7. SIM Part





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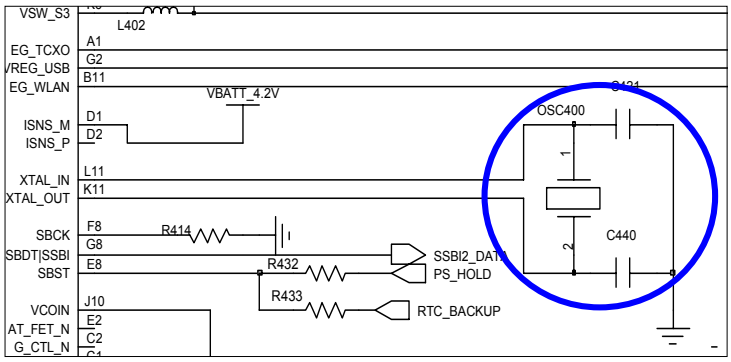

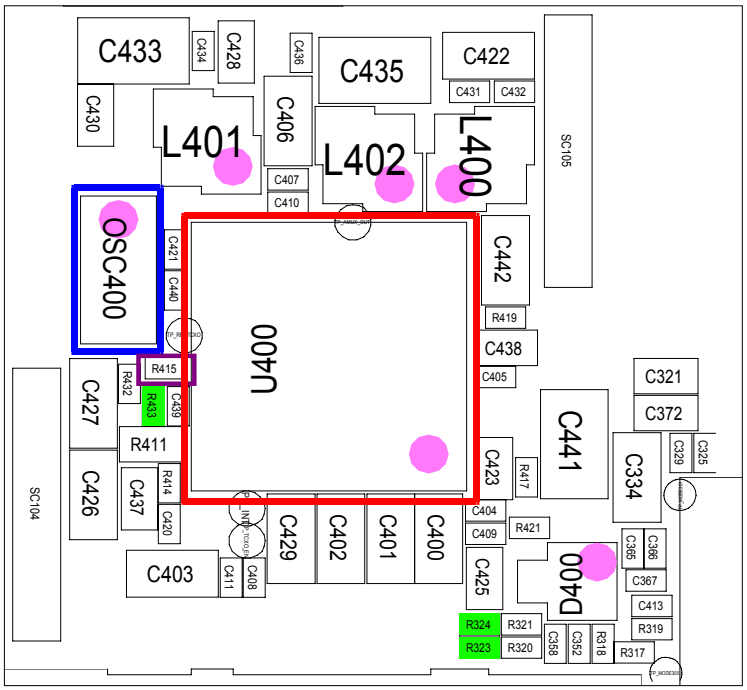

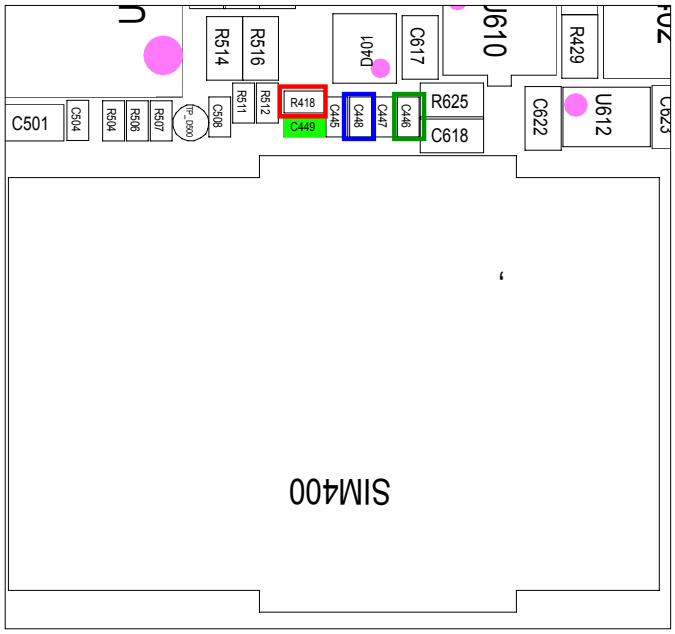

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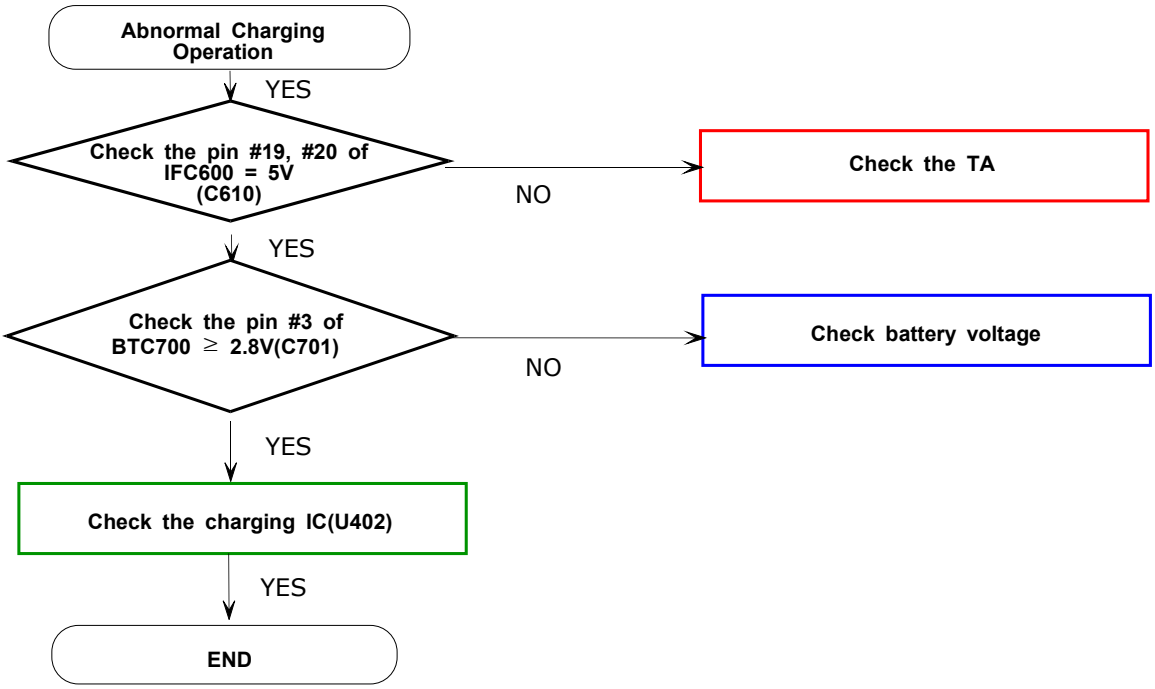
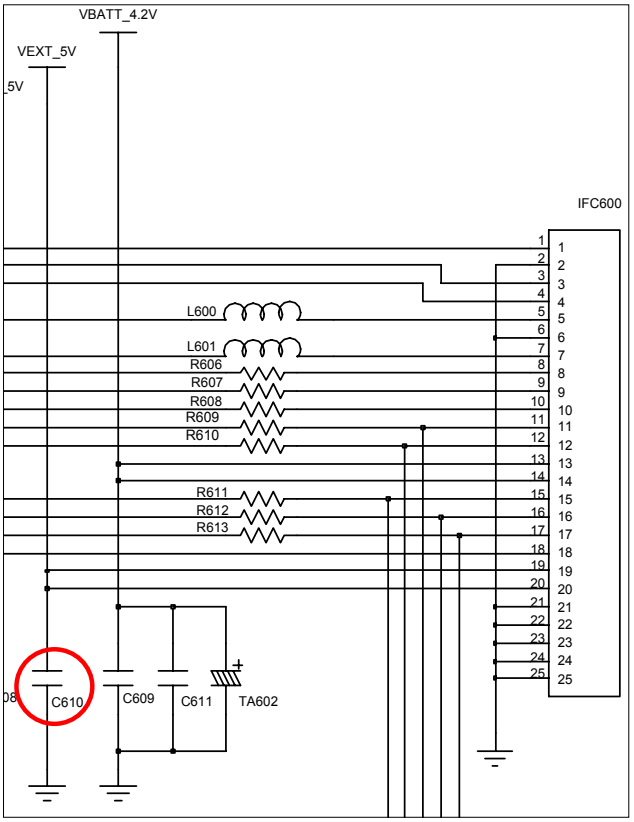
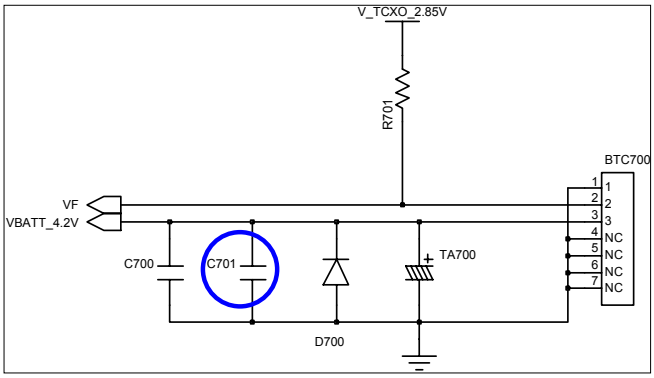
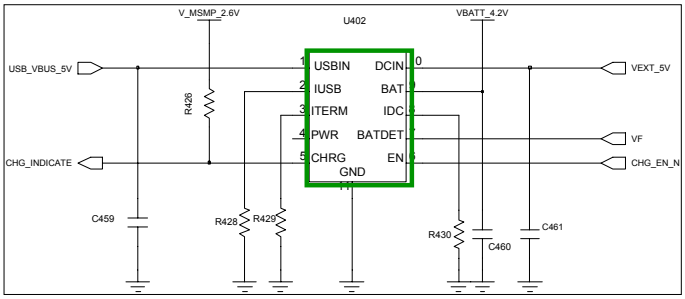
9-1-8. Charging Part









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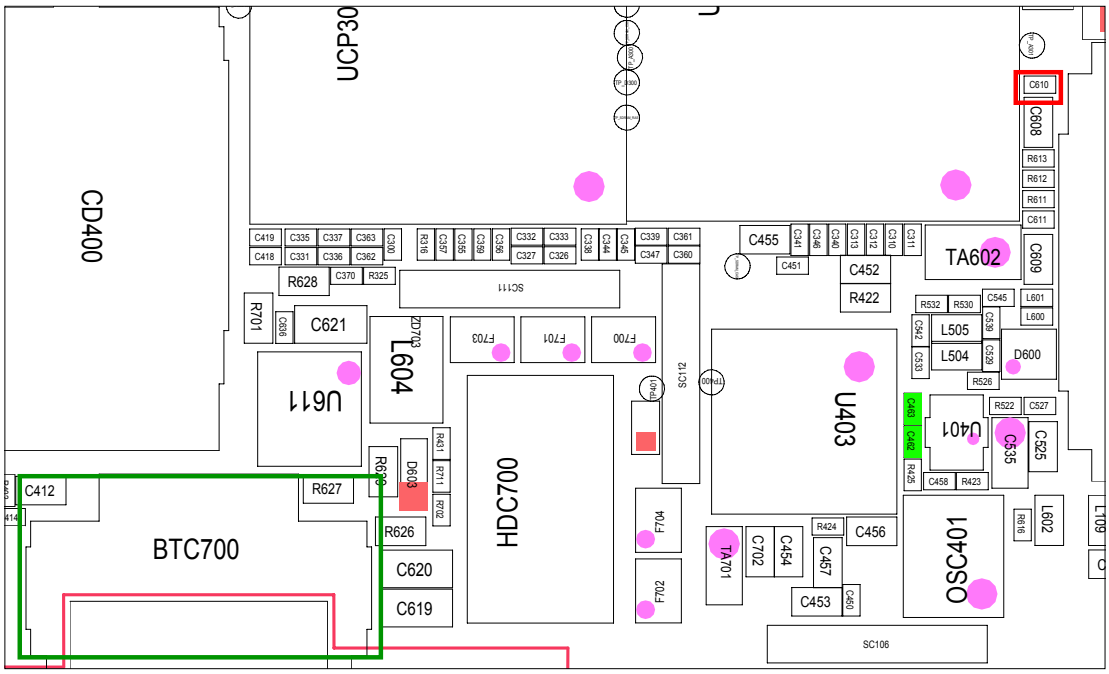

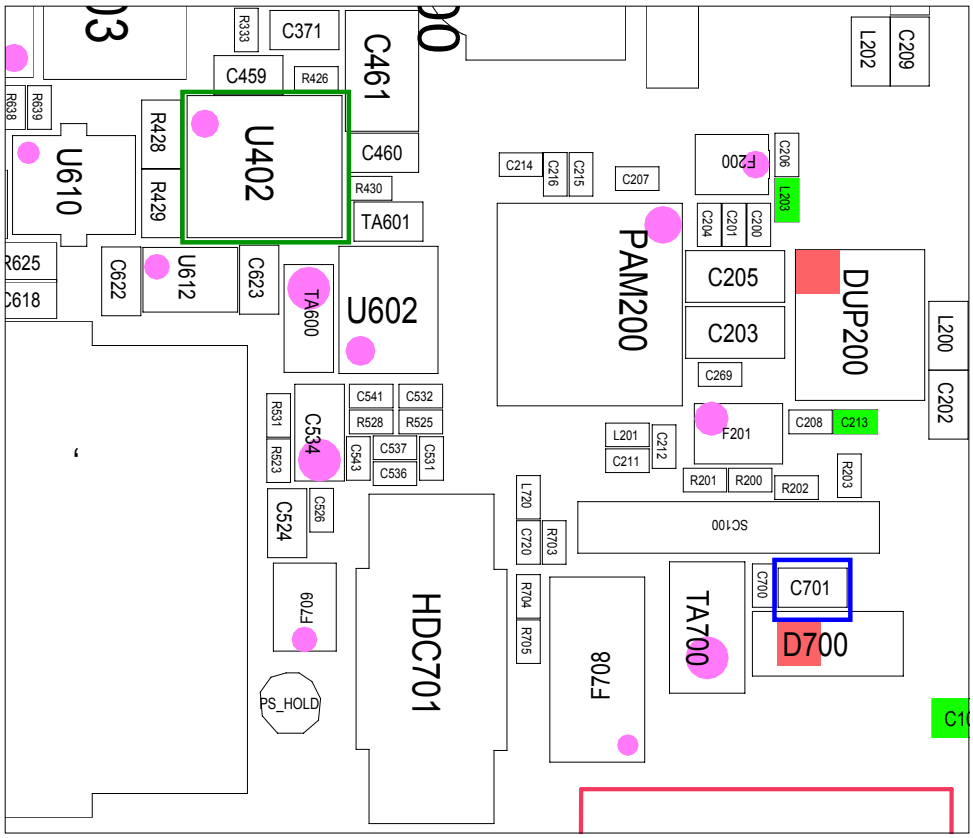

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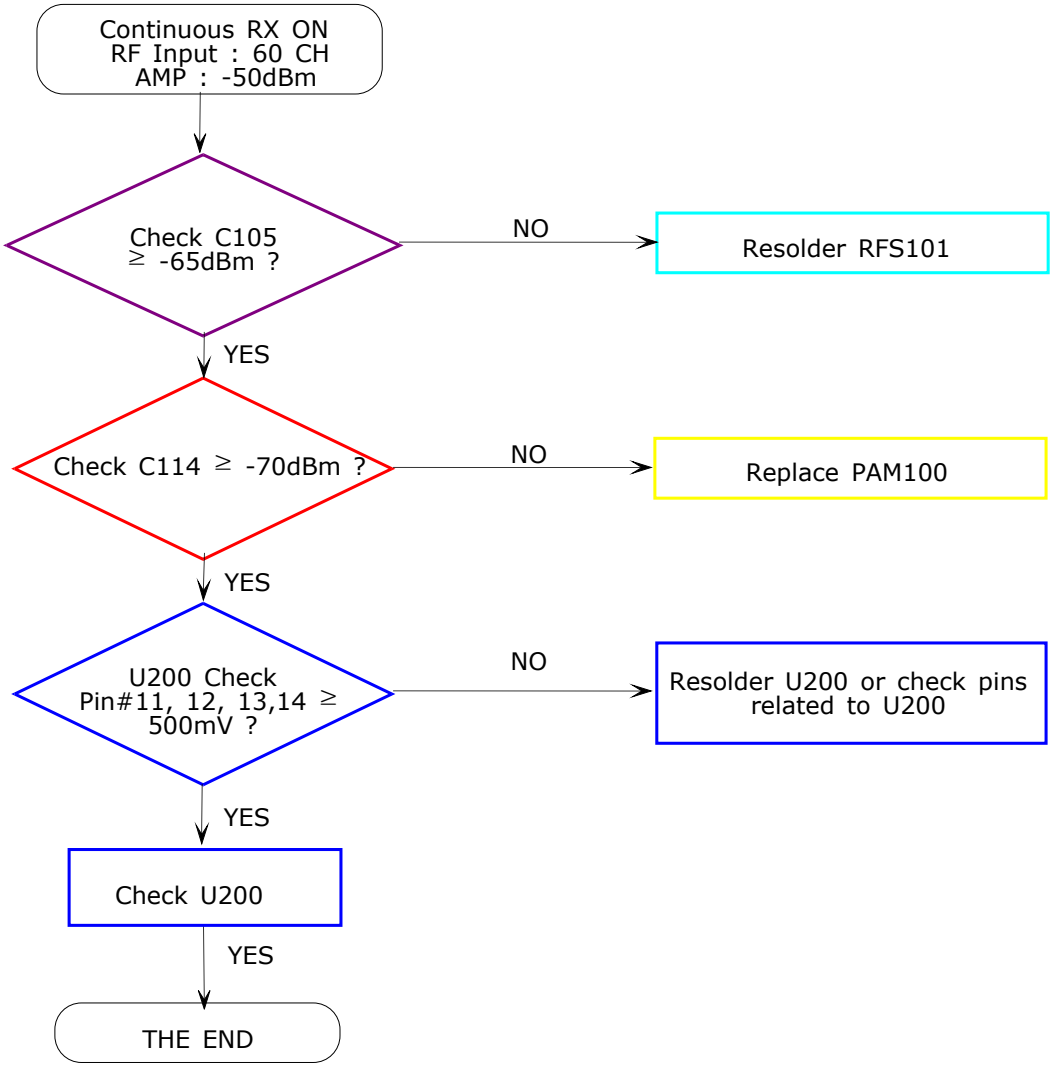
9-2.RF
9-2-1. GSM900 Receiver

**If you check the rx chain,

Check not only RF Devices but also resistors, inductors and capacitors.



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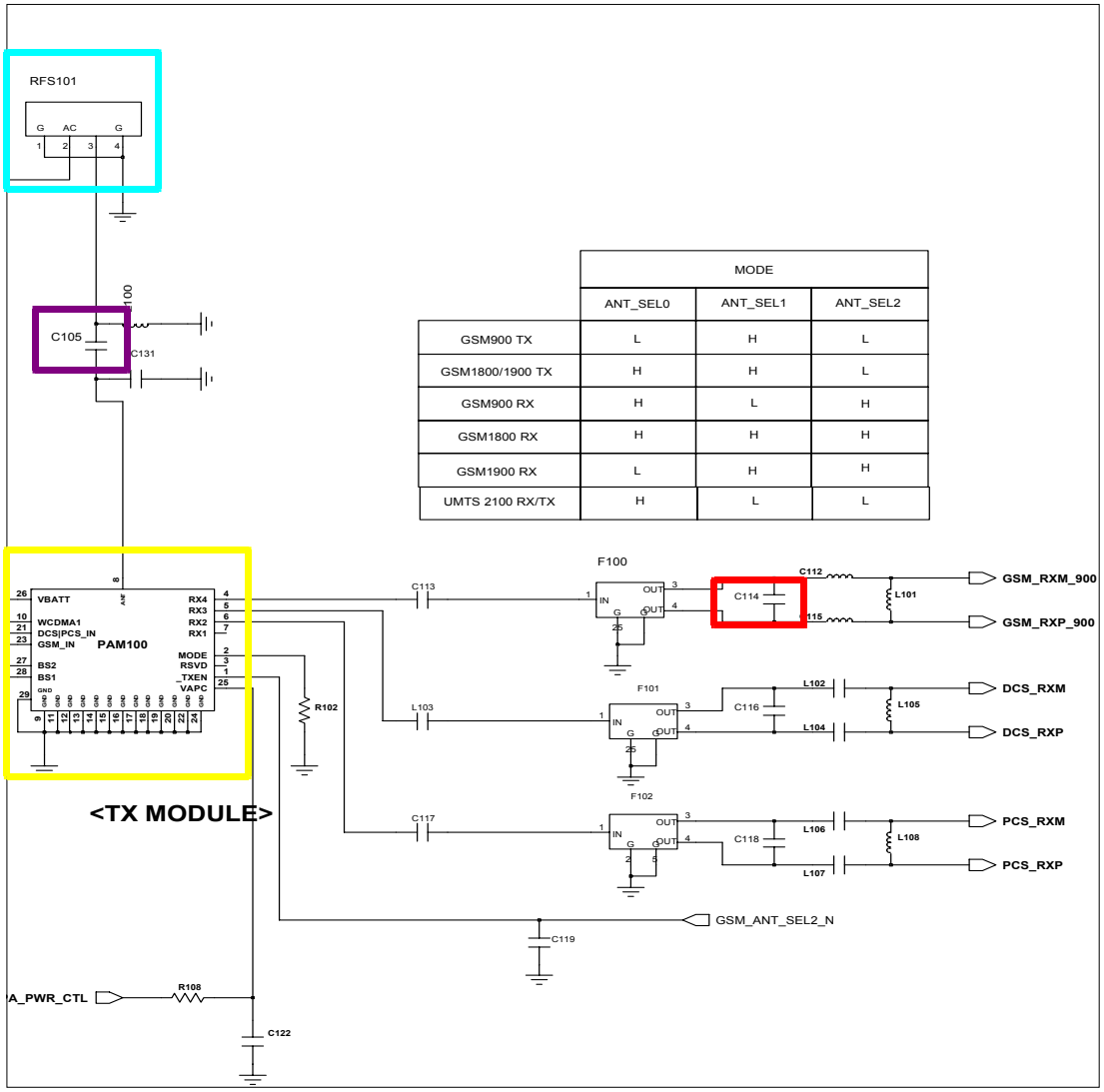
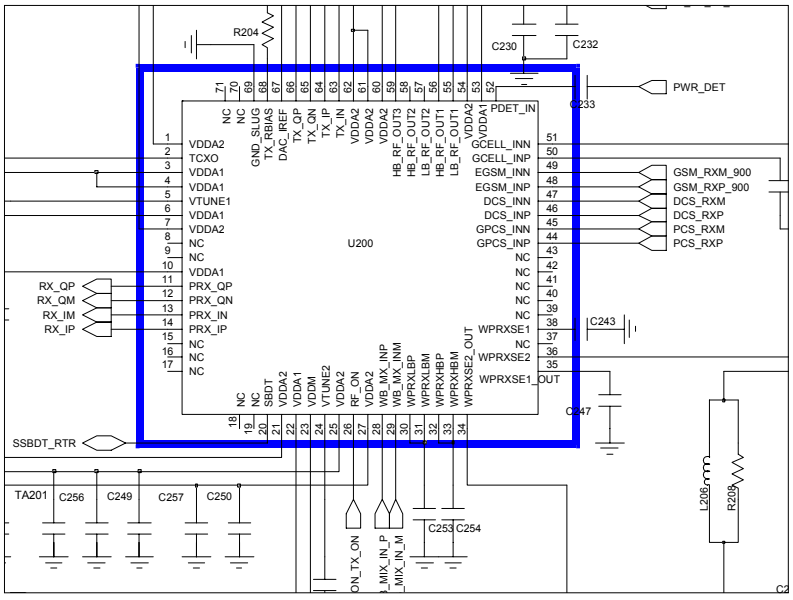


	MODE		
	ANT_SEL0	ANT_SEL1	ANT_SEL2
GSM900 TX	L	H	L
GSM1800/1900 TX	H	H	L
GSM900 RX	H	L	H
GSM1800 RX	H	H	H
GSM1900 RX	L	H	H
UMTS 2100 RX/TX	H	L	L



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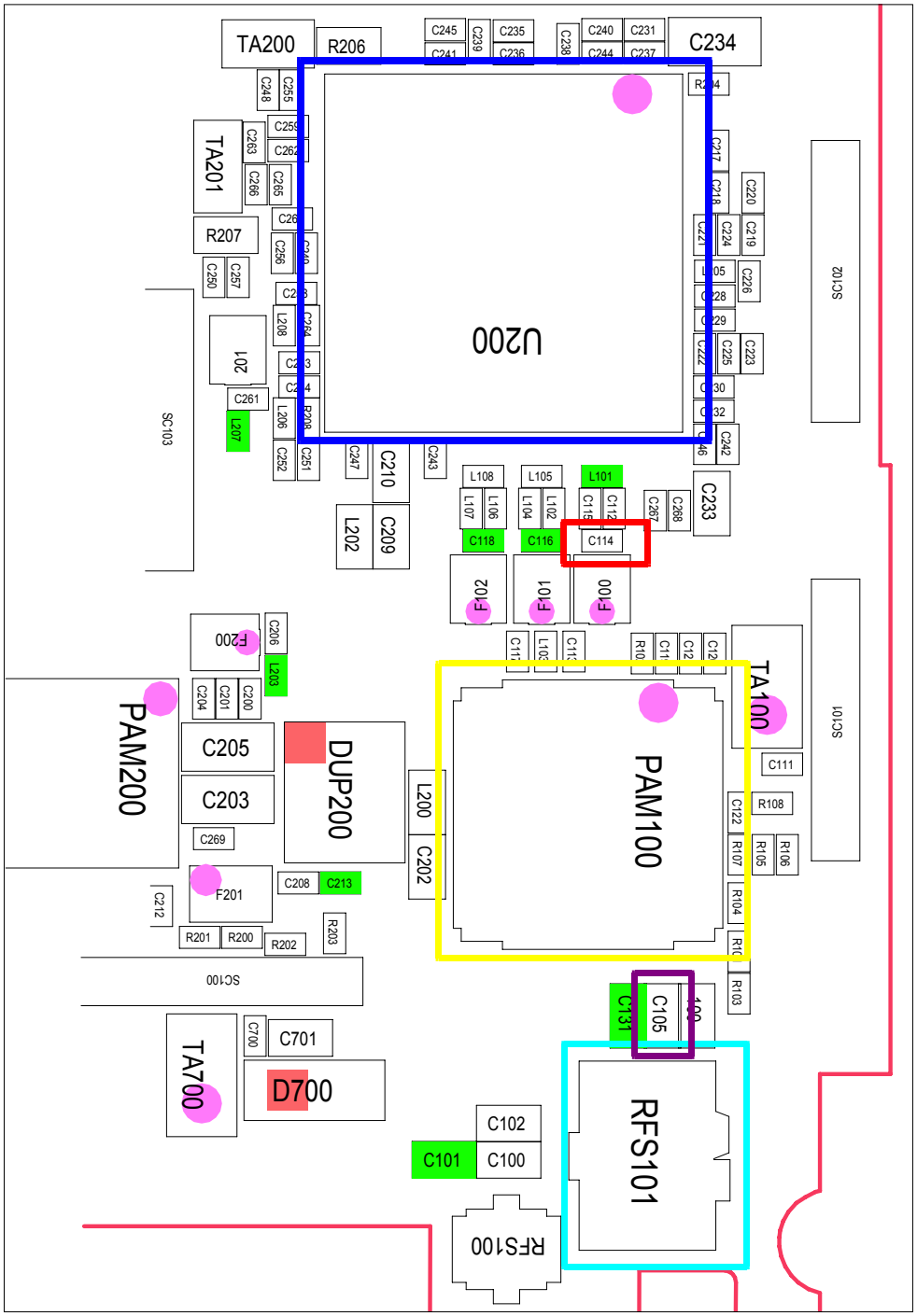

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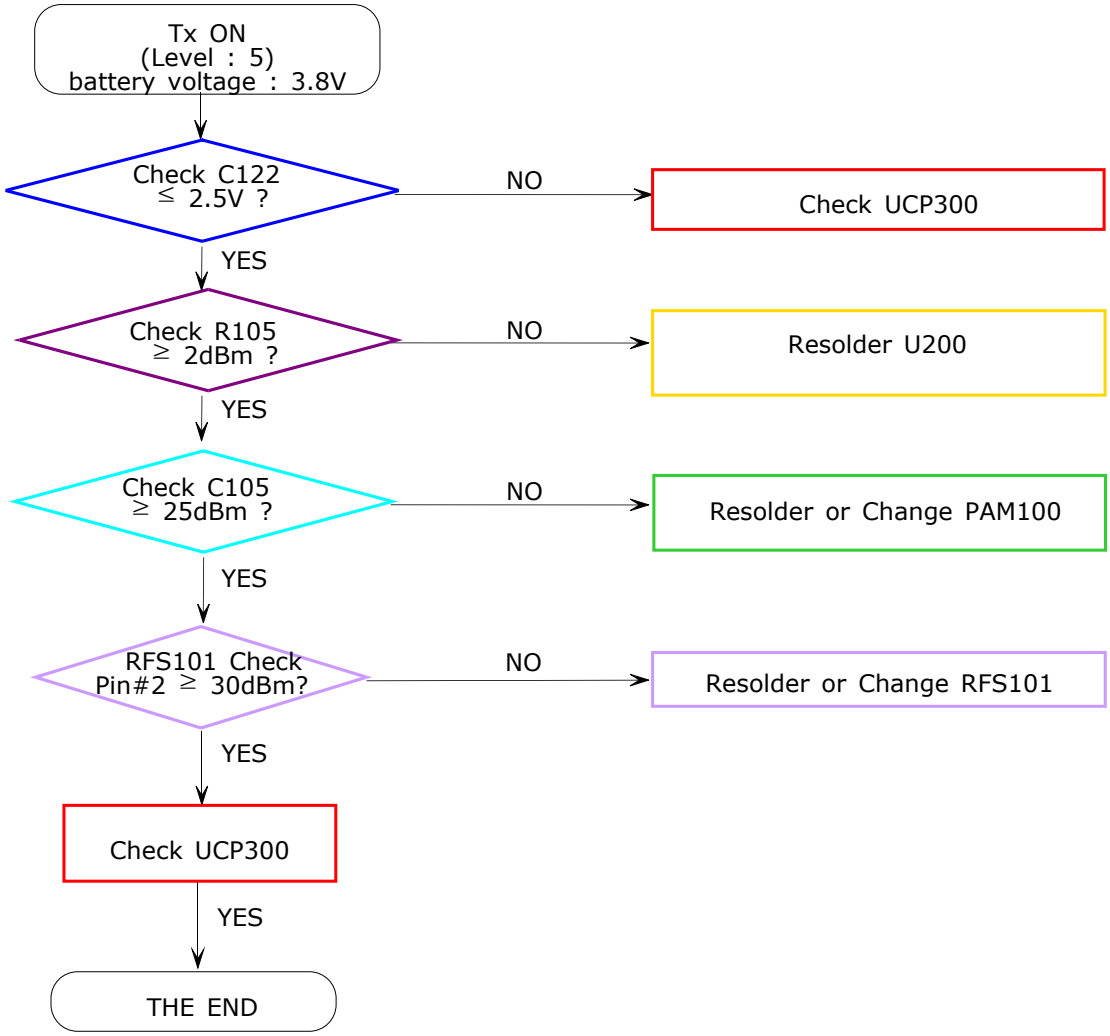
9-2-2. GSM900 Transmitter

**If you check the tx chain,

Check not only RF Devices but also resistors, inductors and capacitors.



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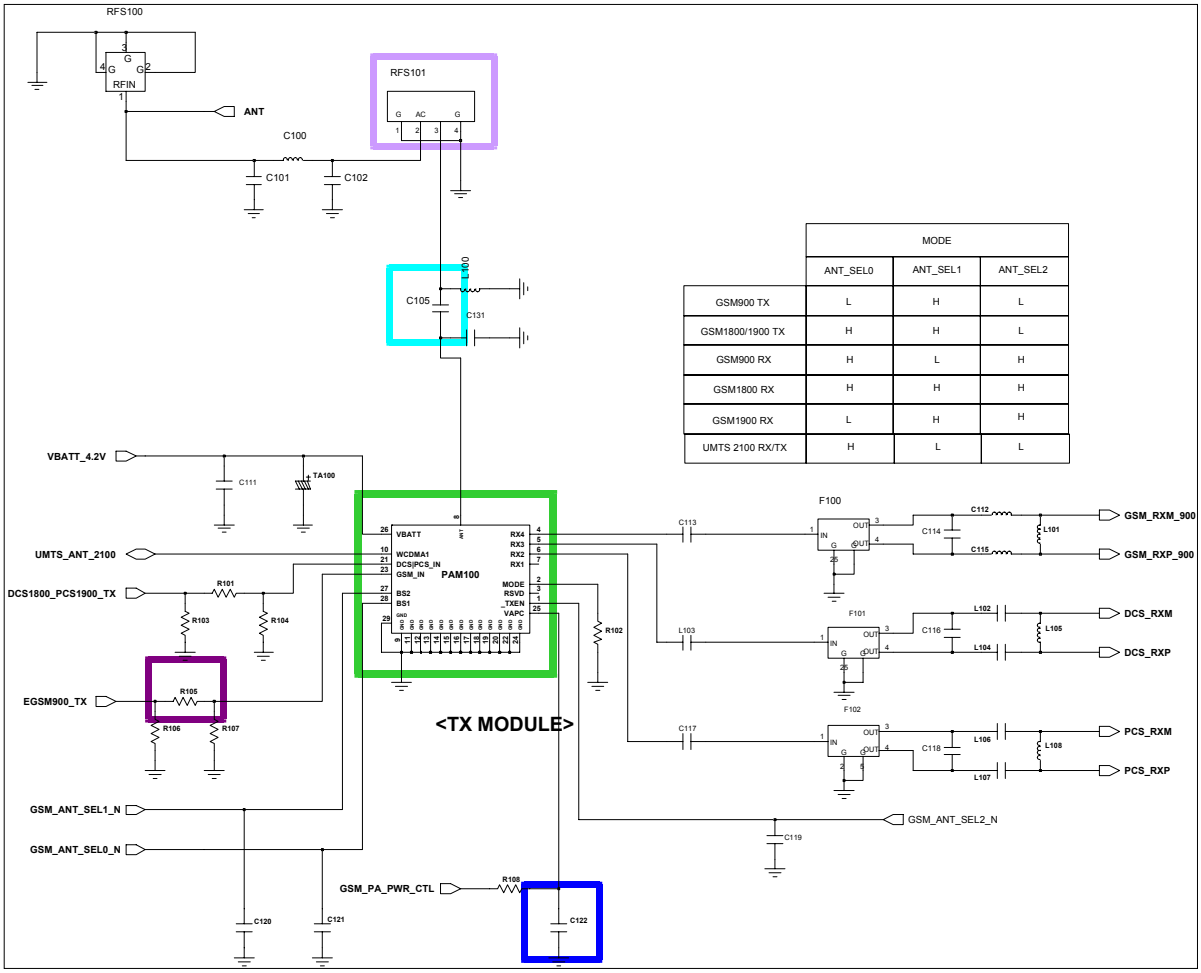
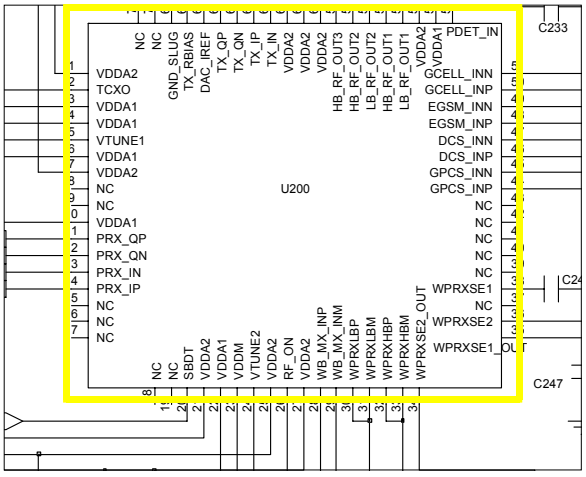
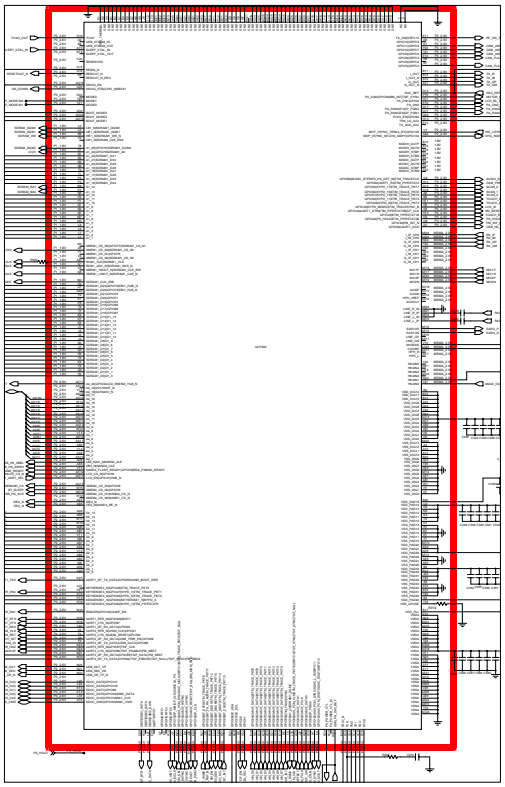


	MODE		
	ANT_SEL0	ANT_SEL1	ANT_SEL2
GSM900 TX	L	H	L
GSM1800/1900 TX	H	H	L
GSM900 RX	H	L	H
GSM1800 RX	H	H	H
GSM1900 RX	L	H	H
UMTS 2100 RX/TX	H	L	L





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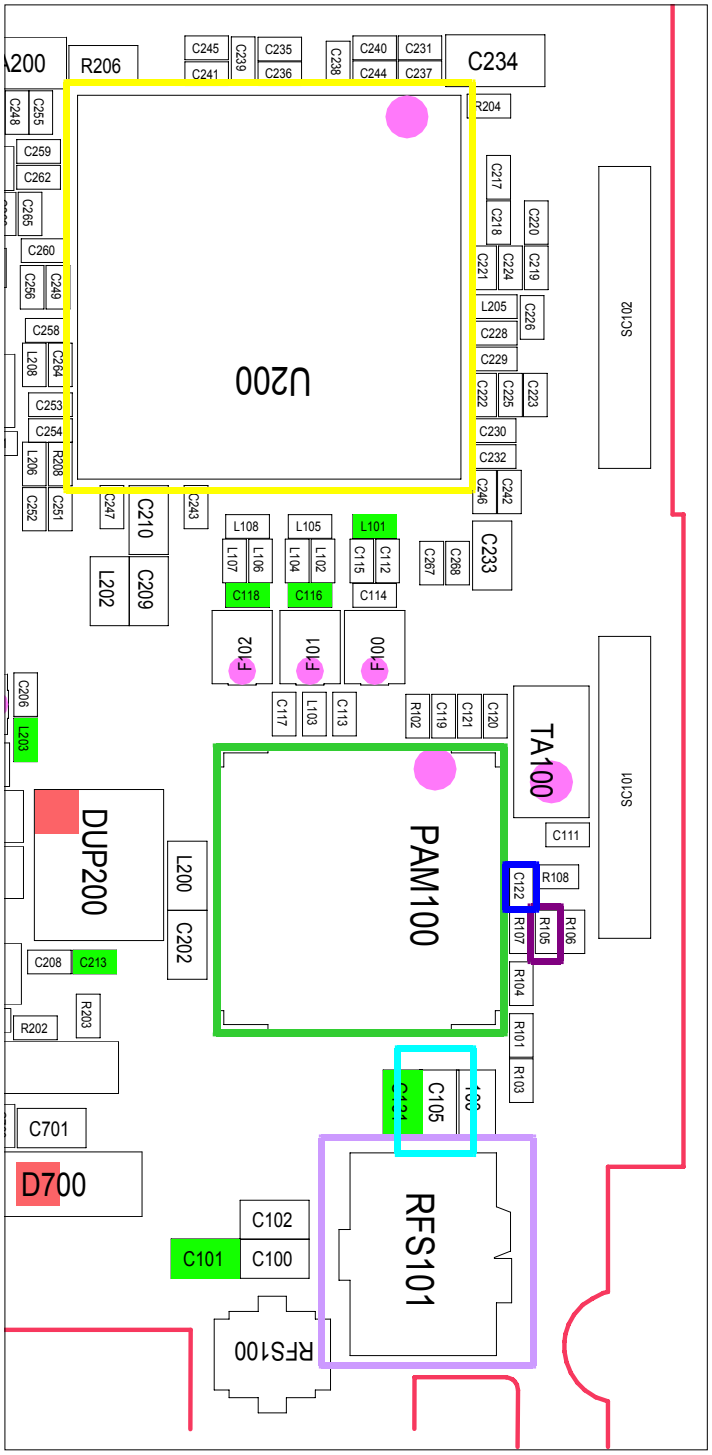

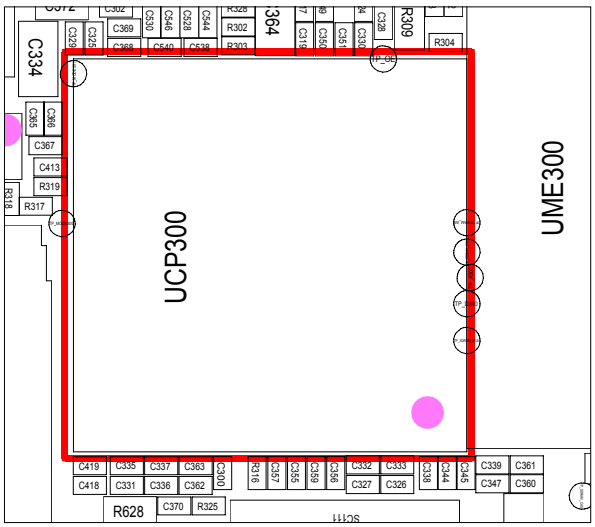

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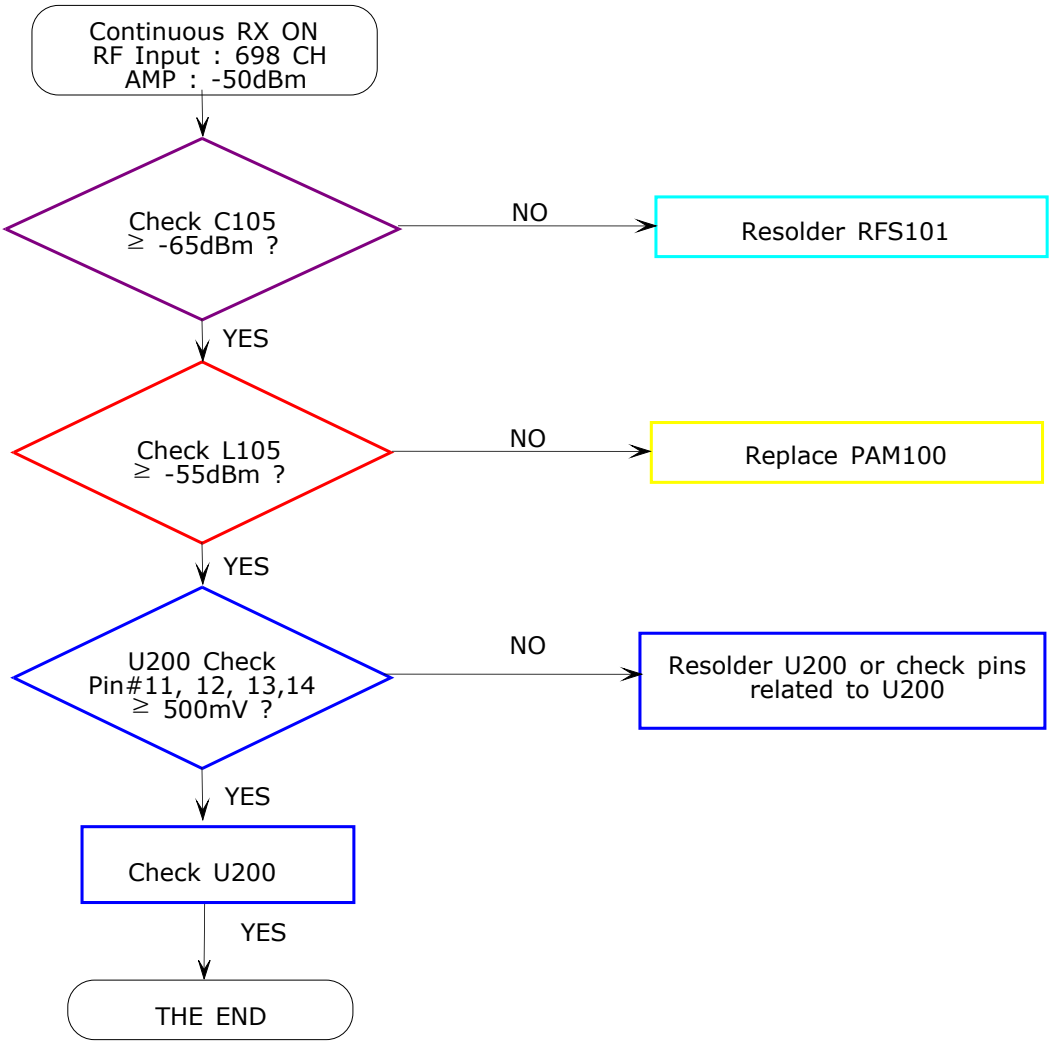
9-2-3. DCS1800 Receiver

**If you check the rx chain,

Check not only RF Devices but also resistors, inductors and capacitors.



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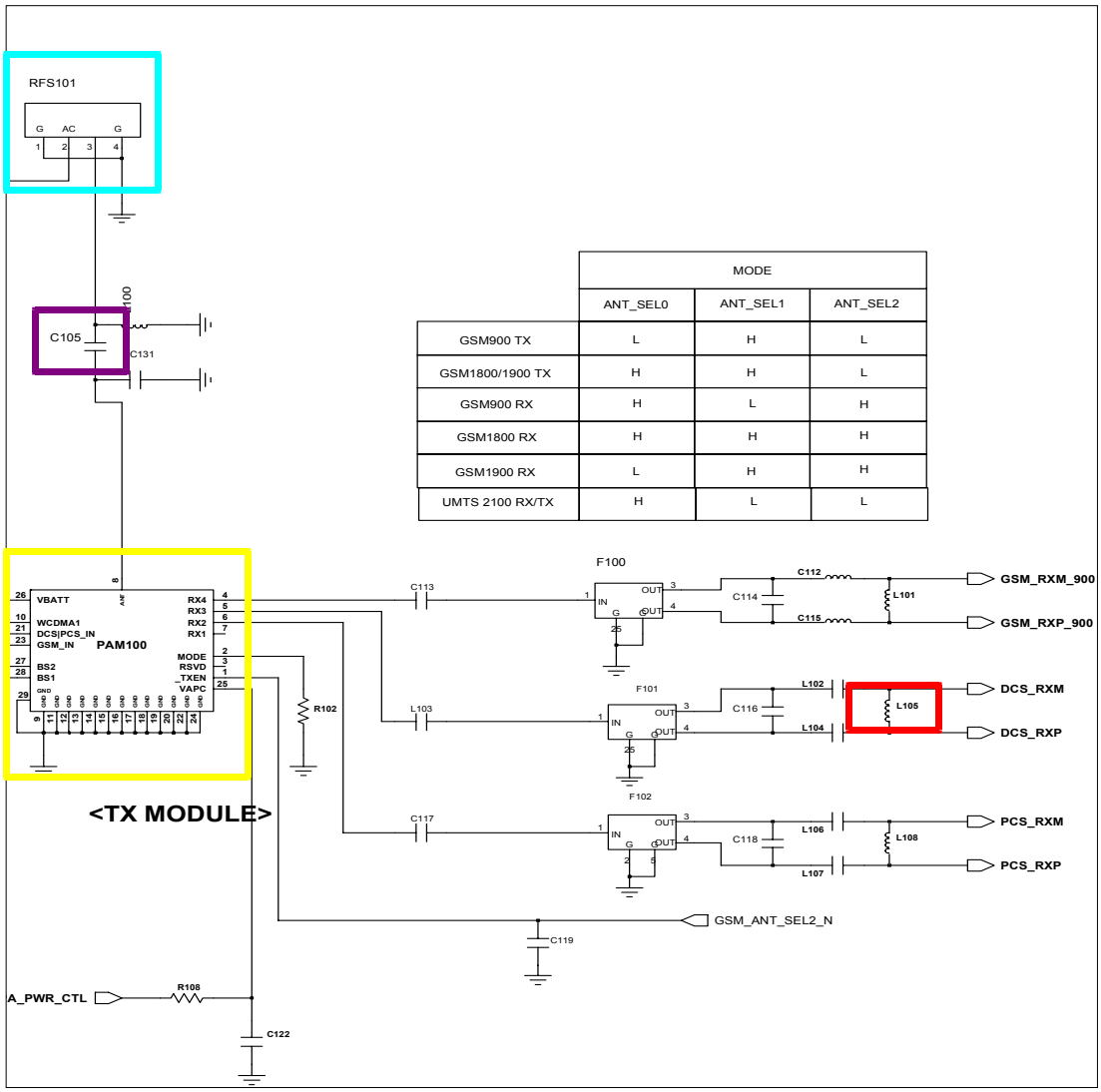
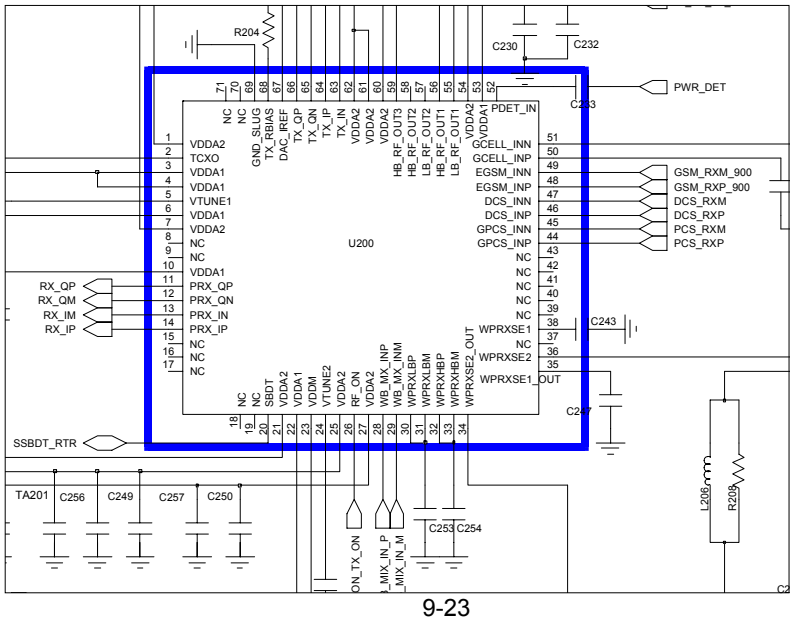


	MODE		
	ANT_SEL0	ANT_SEL1	ANT_SEL2
GSM900 TX	L	H	L
GSM1800/1900 TX	H	H	L
GSM900 RX	H	L	H
GSM1800 RX	H	H	H
GSM1900 RX	L	H	H
UMTS 2100 RX/TX	H	L	L



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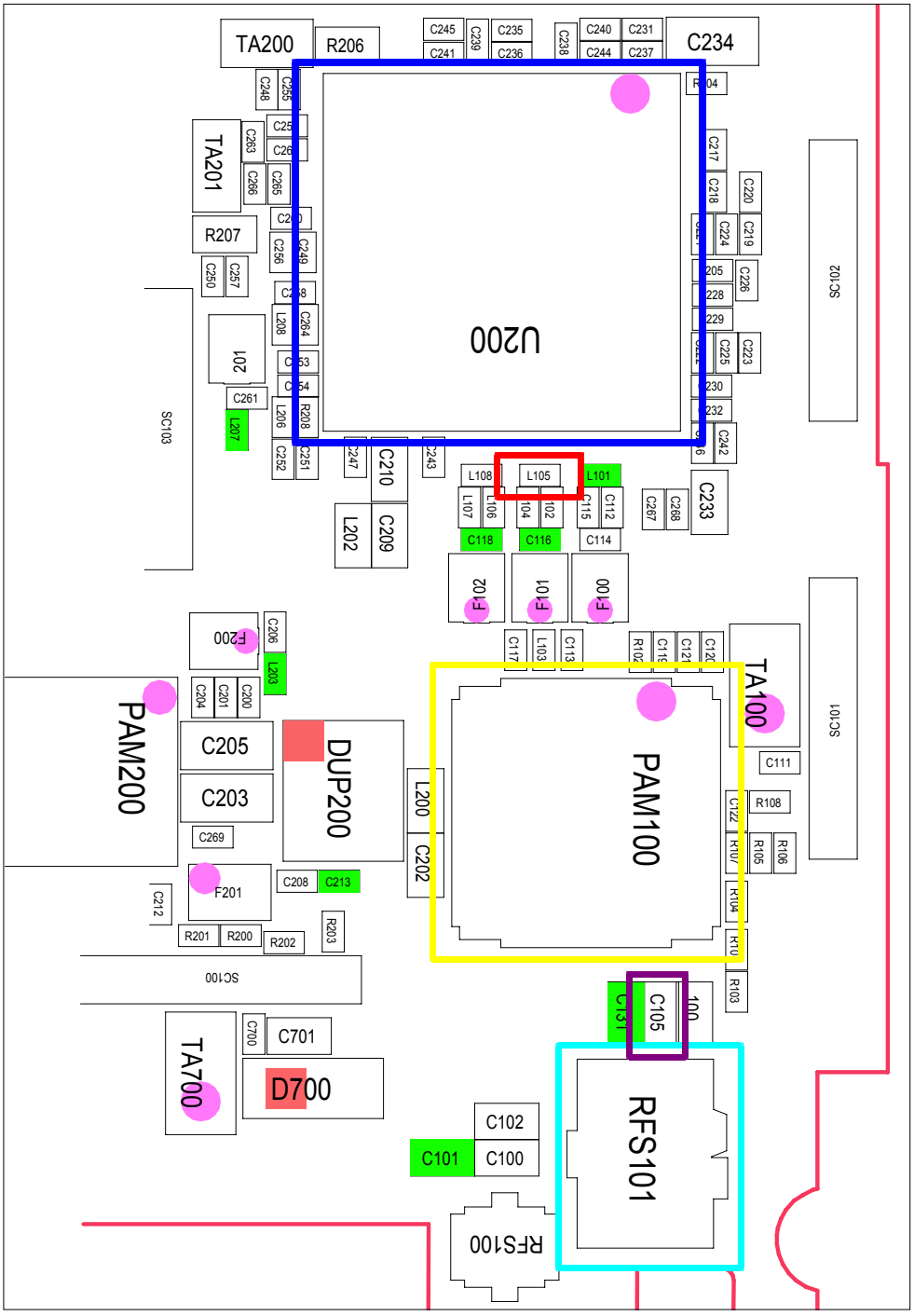

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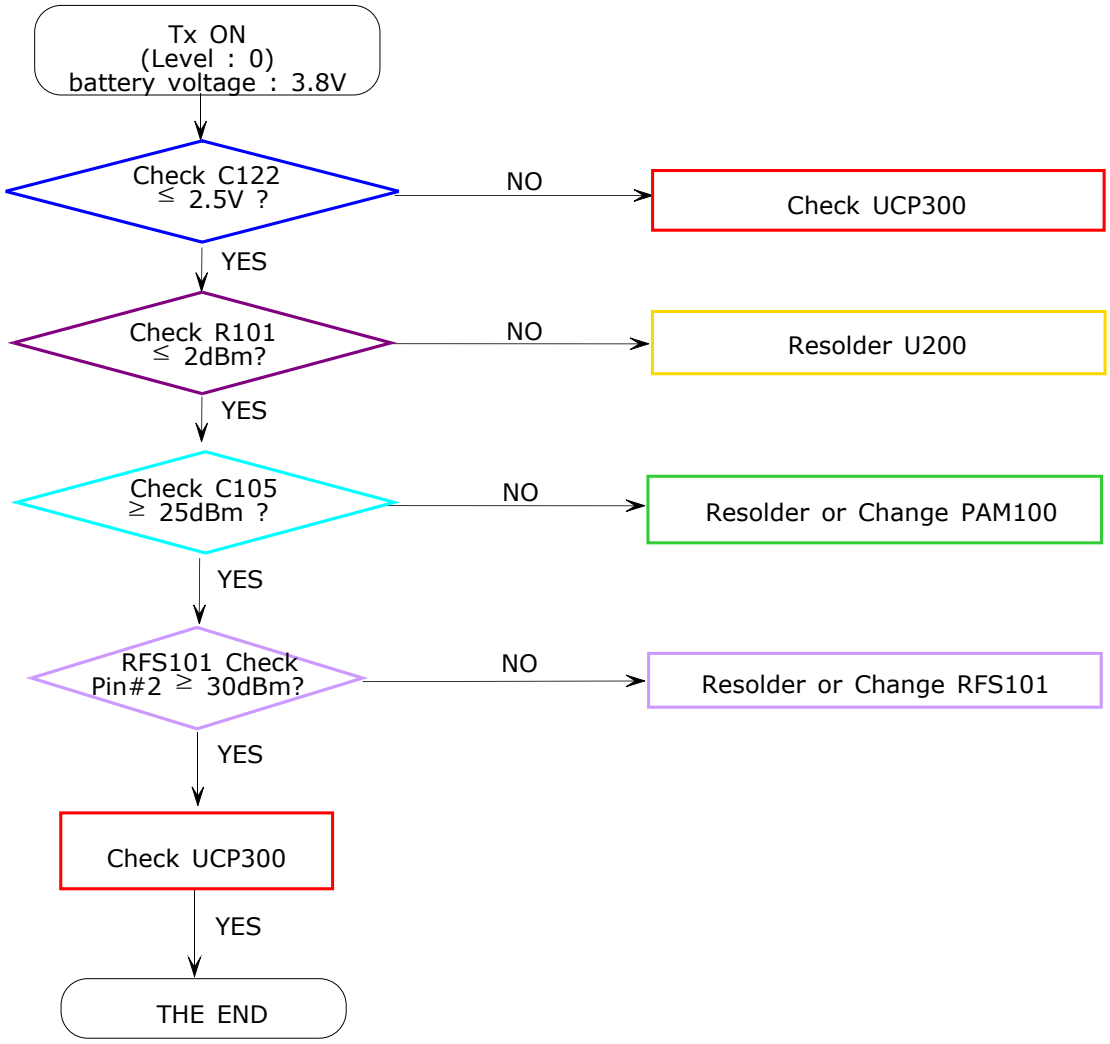
9-2-4. DCS1800 Transmitter

**If you check the tx chain,

Check not only RF Devices but also resistors, inductors and capacitors.



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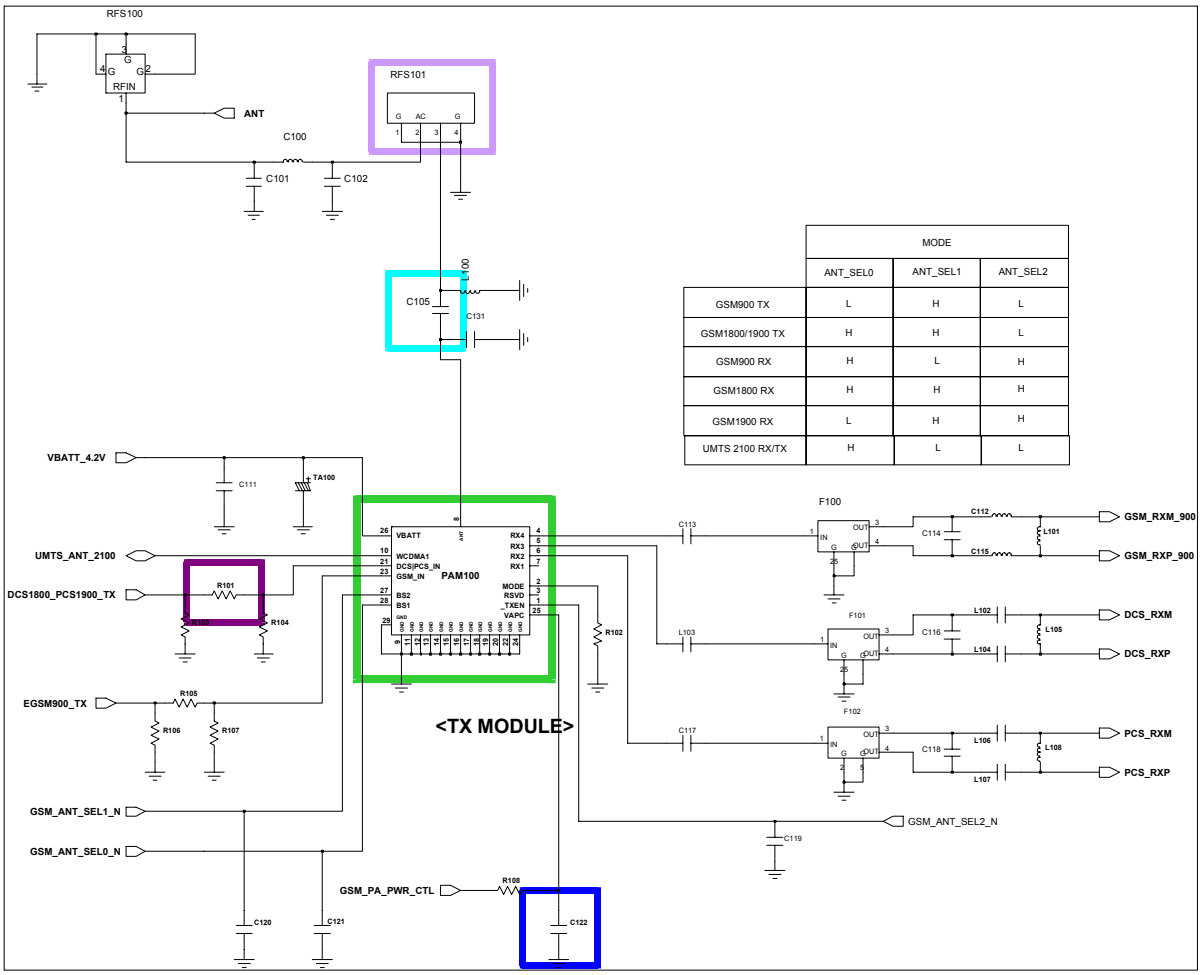
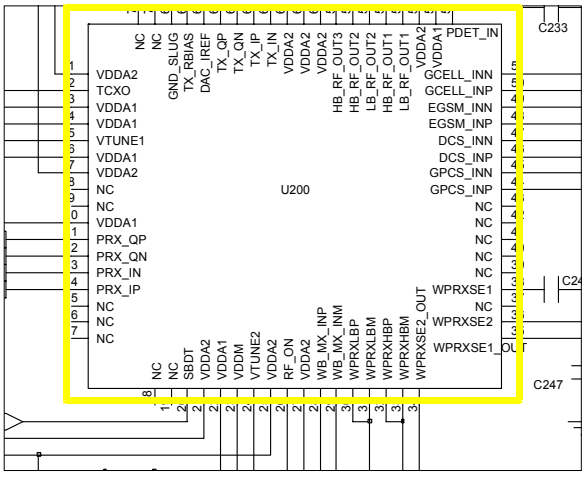
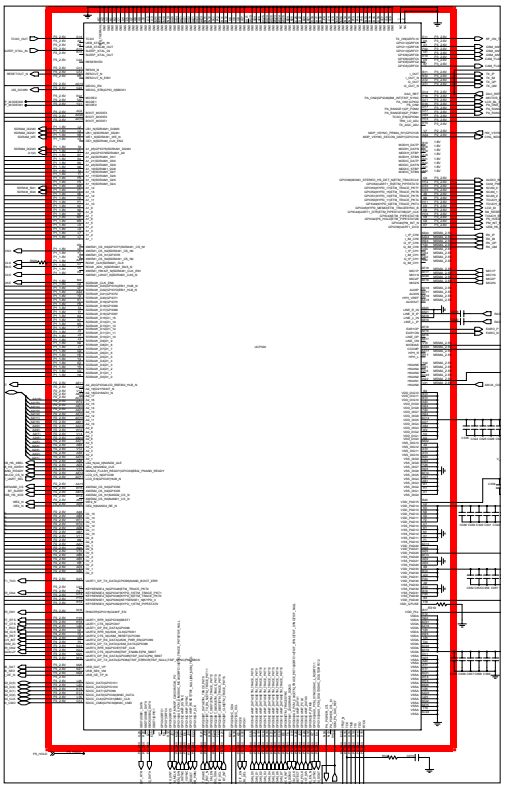


	MODE		
	ANT_SEL0	ANT_SEL1	ANT_SEL2
GSM900 TX	L	H	L
GSM1800/1900 TX	H	H	L
GSM900 RX	H	L	H
GSM1800 RX	H	H	H
GSM1900 RX	L	H	H
UMTS 2100 RX/TX	H	L	L





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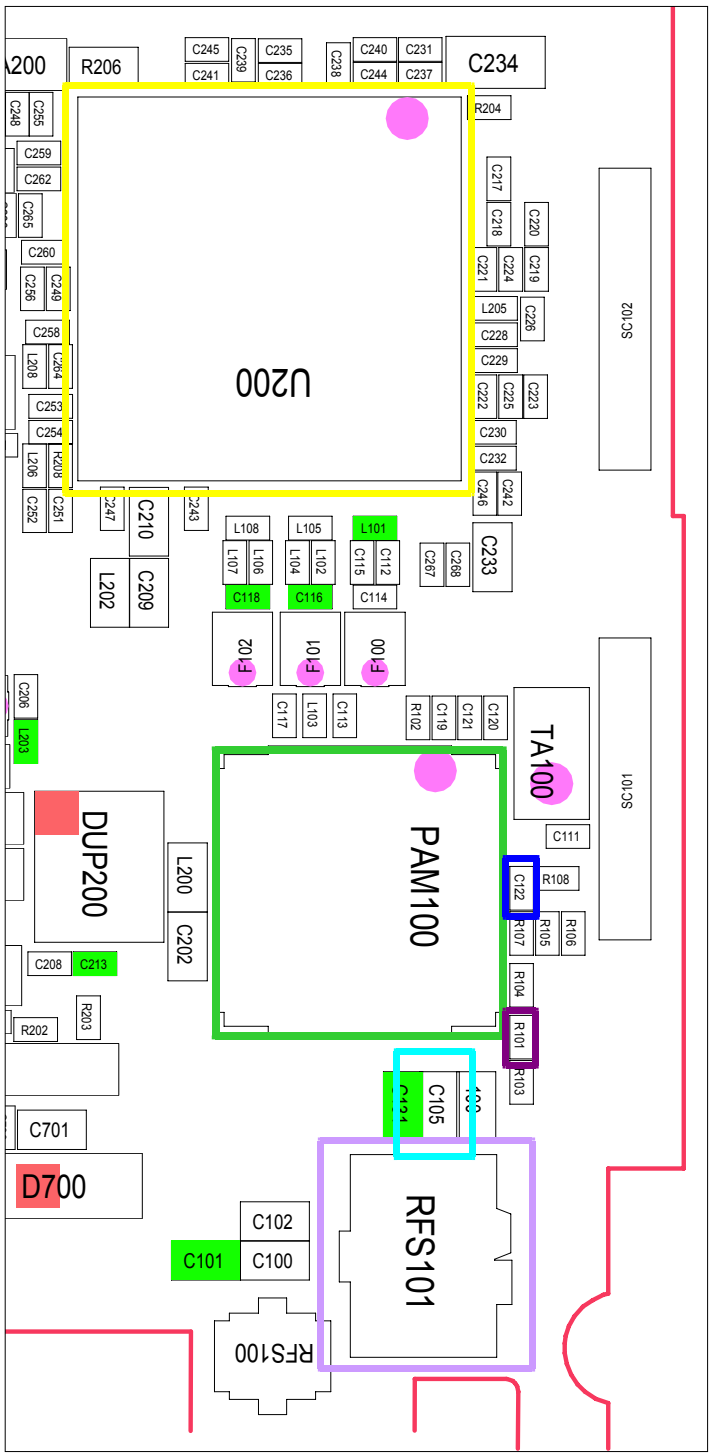

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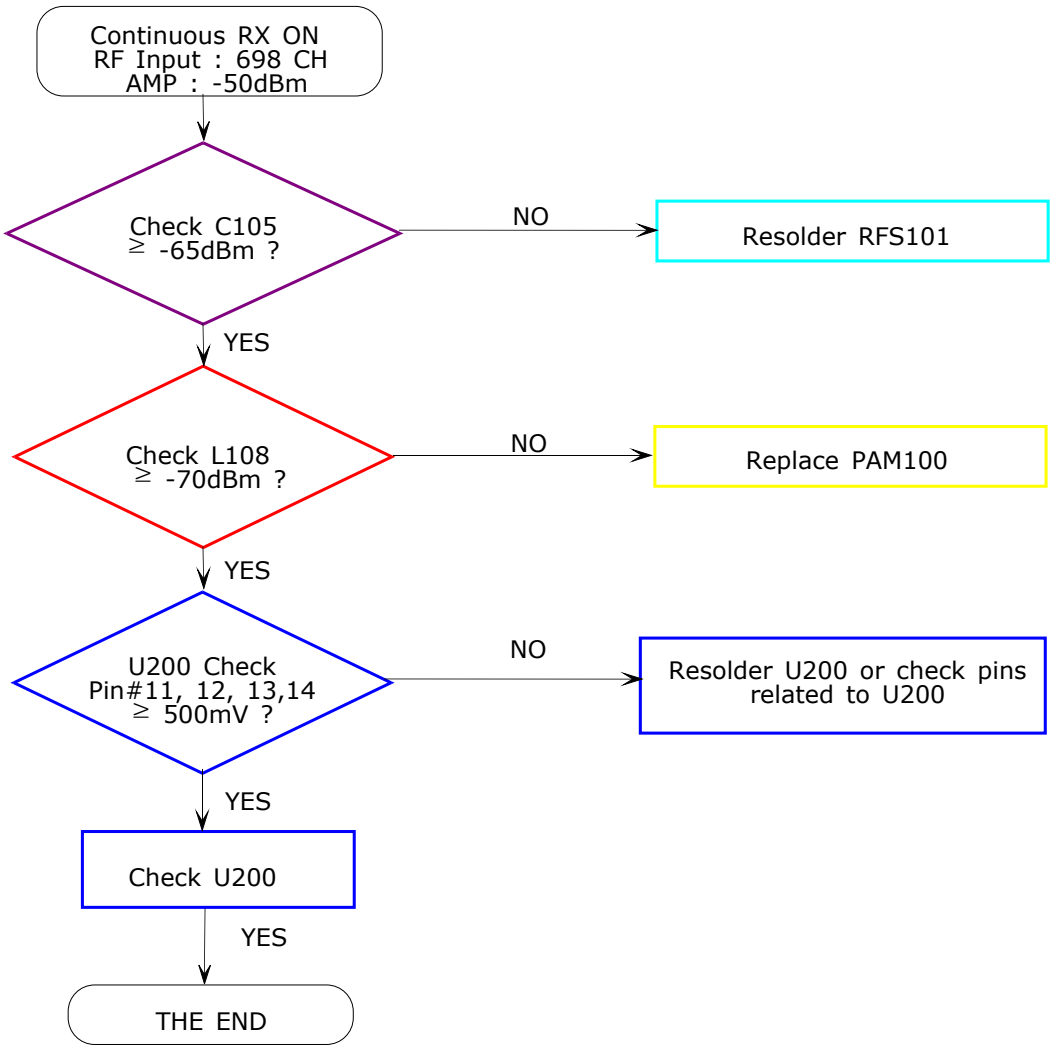
9-2-5. PCS1900 Receiver

**If you check the rx chain,

Check not only RF Devices but also resistors, inductors and capacitors.



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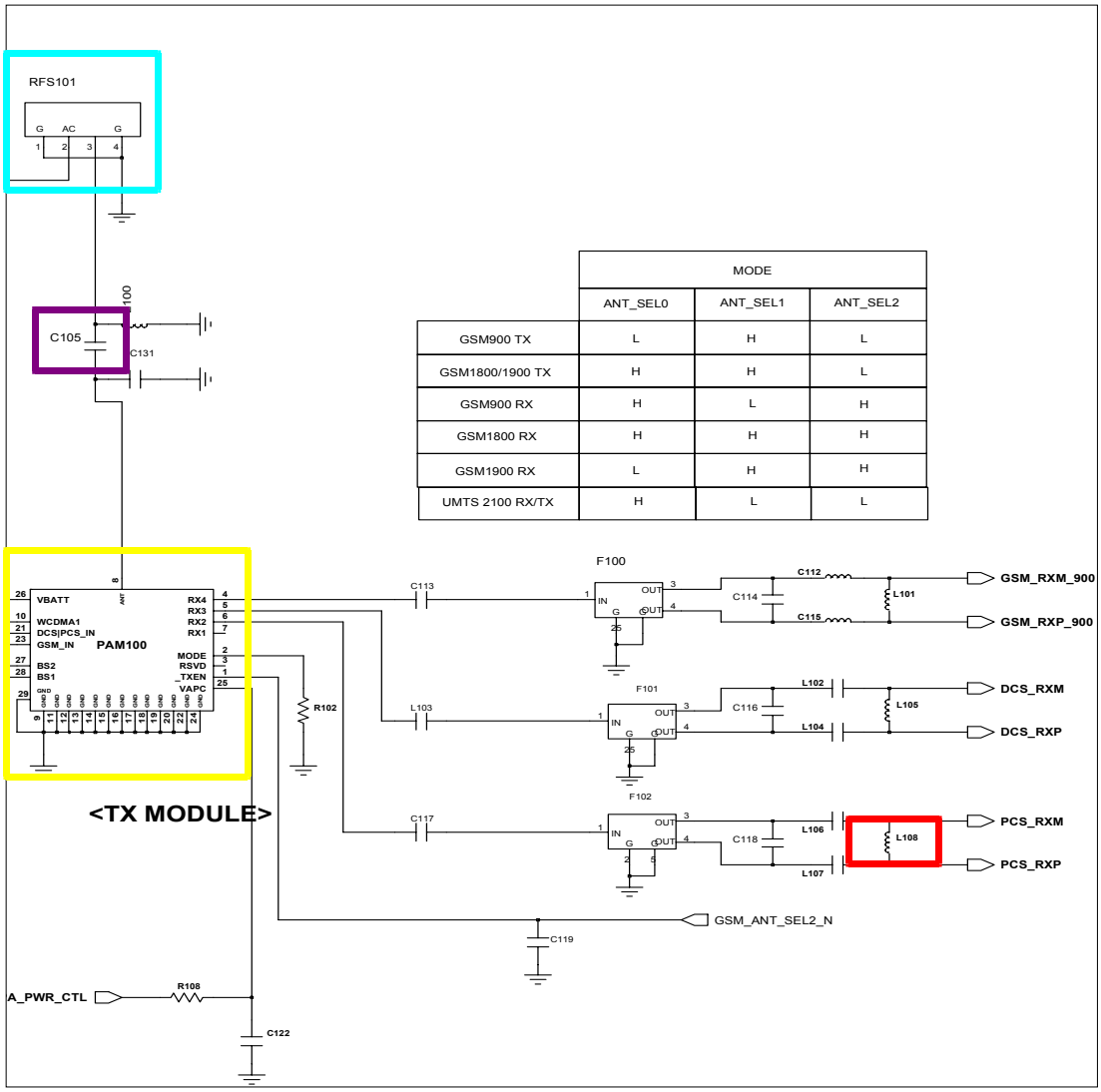
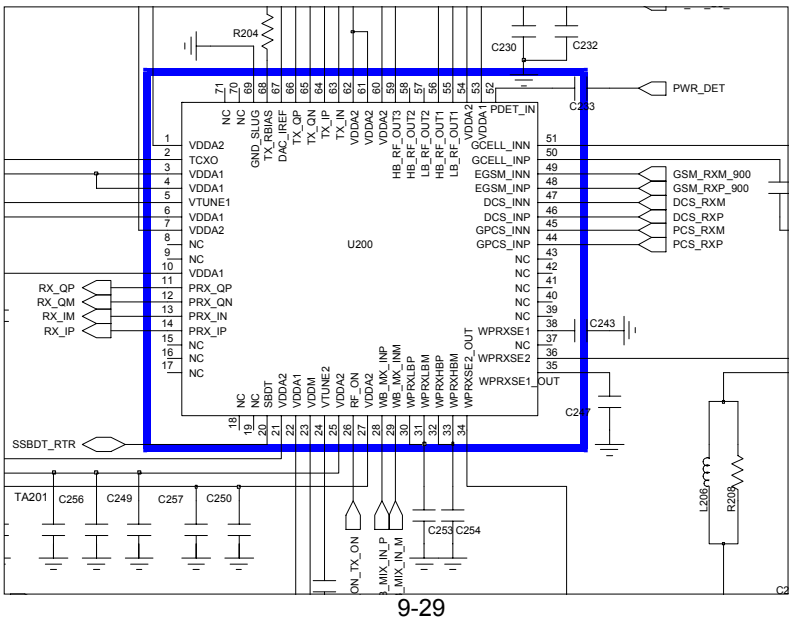


	MODE		
	ANT_SEL0	ANT_SEL1	ANT_SEL2
GSM900 TX	L	H	L
GSM1800/1900 TX	H	H	L
GSM900 RX	H	L	H
GSM1800 RX	H	H	H
GSM1900 RX	L	H	H
UMTS 2100 RX/TX	H	L	L



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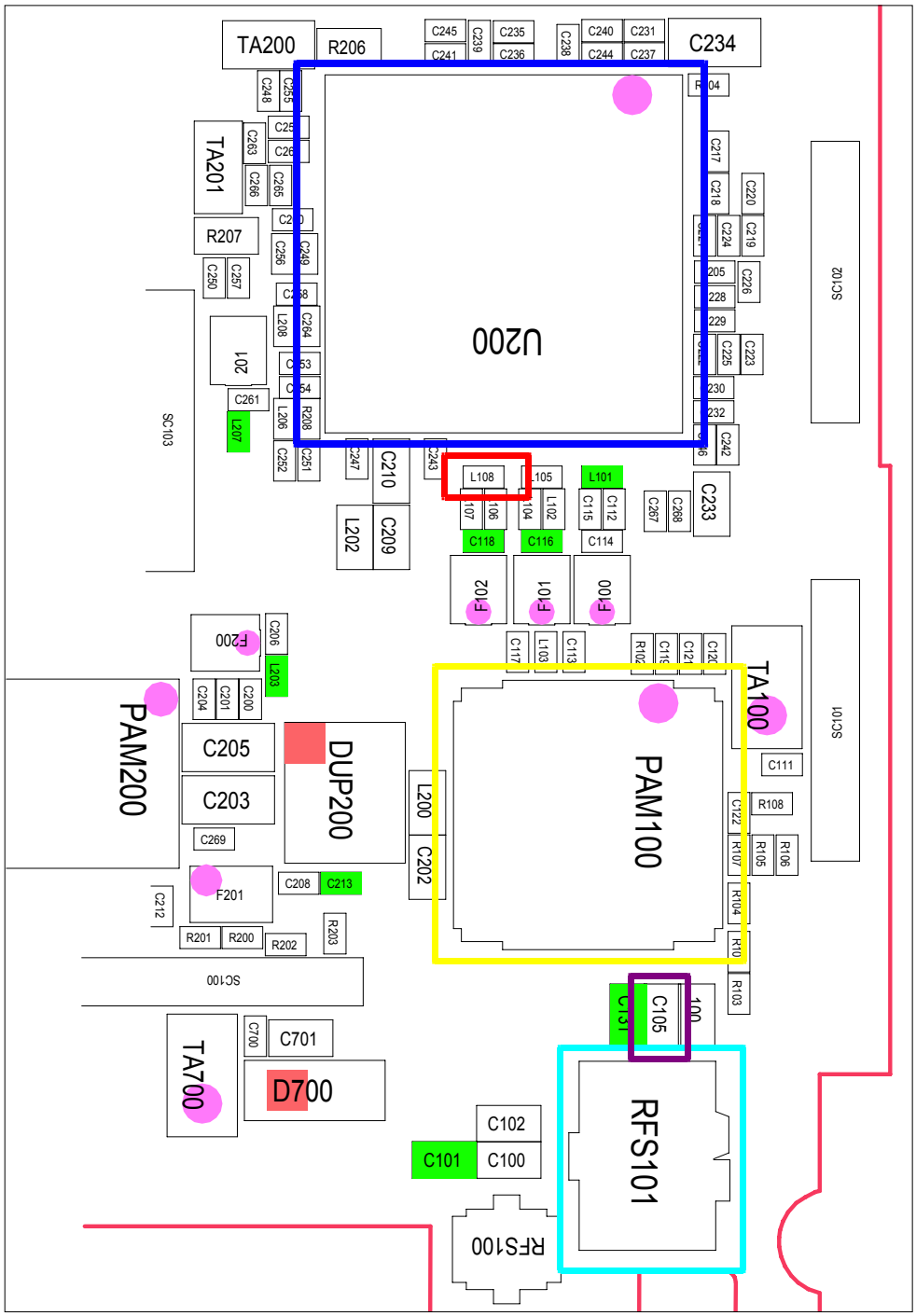

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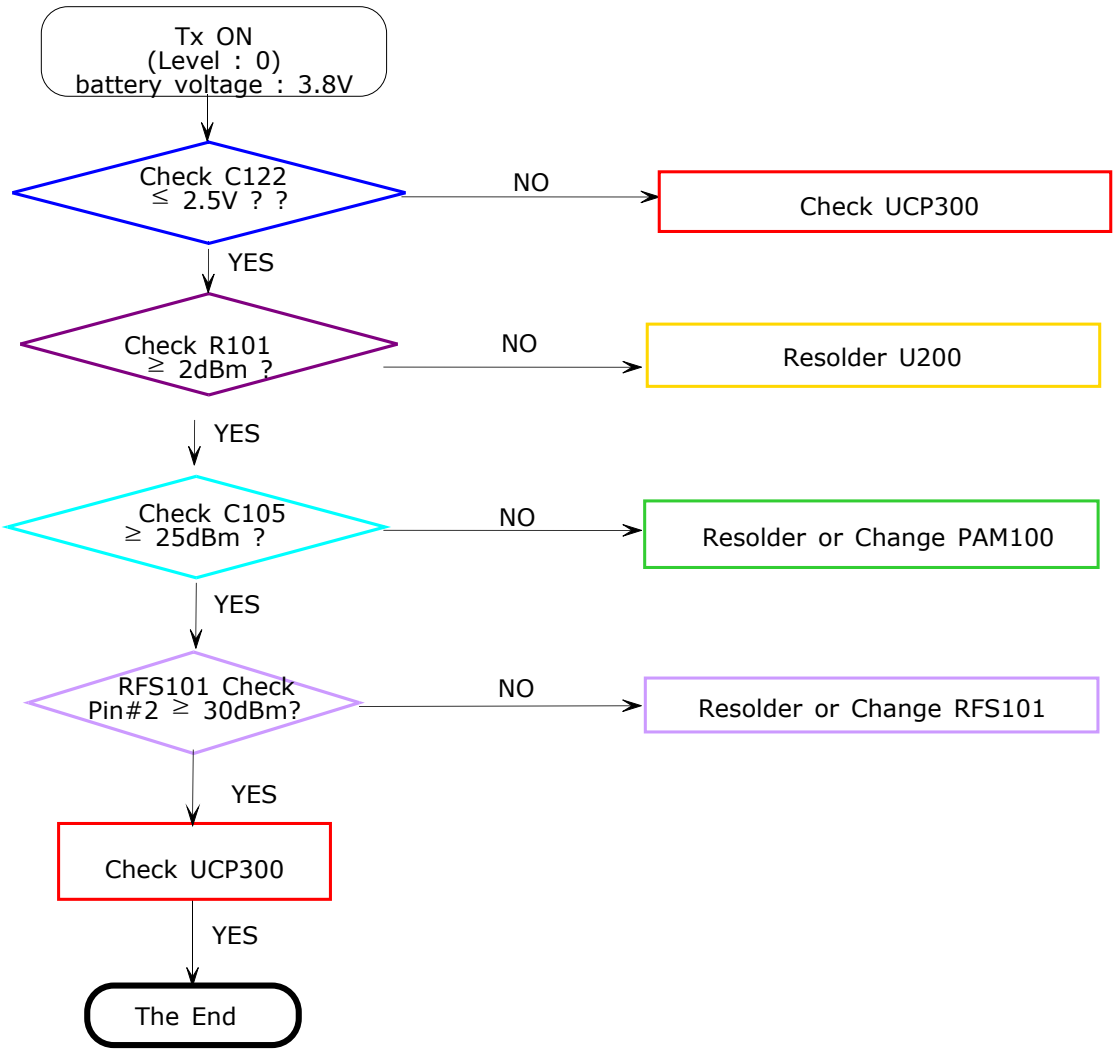
9-2-6. PCS1900 Transmitter

**If you check the tx chain,

Check not only RF Devices but also resistors, inductors and capacitors.



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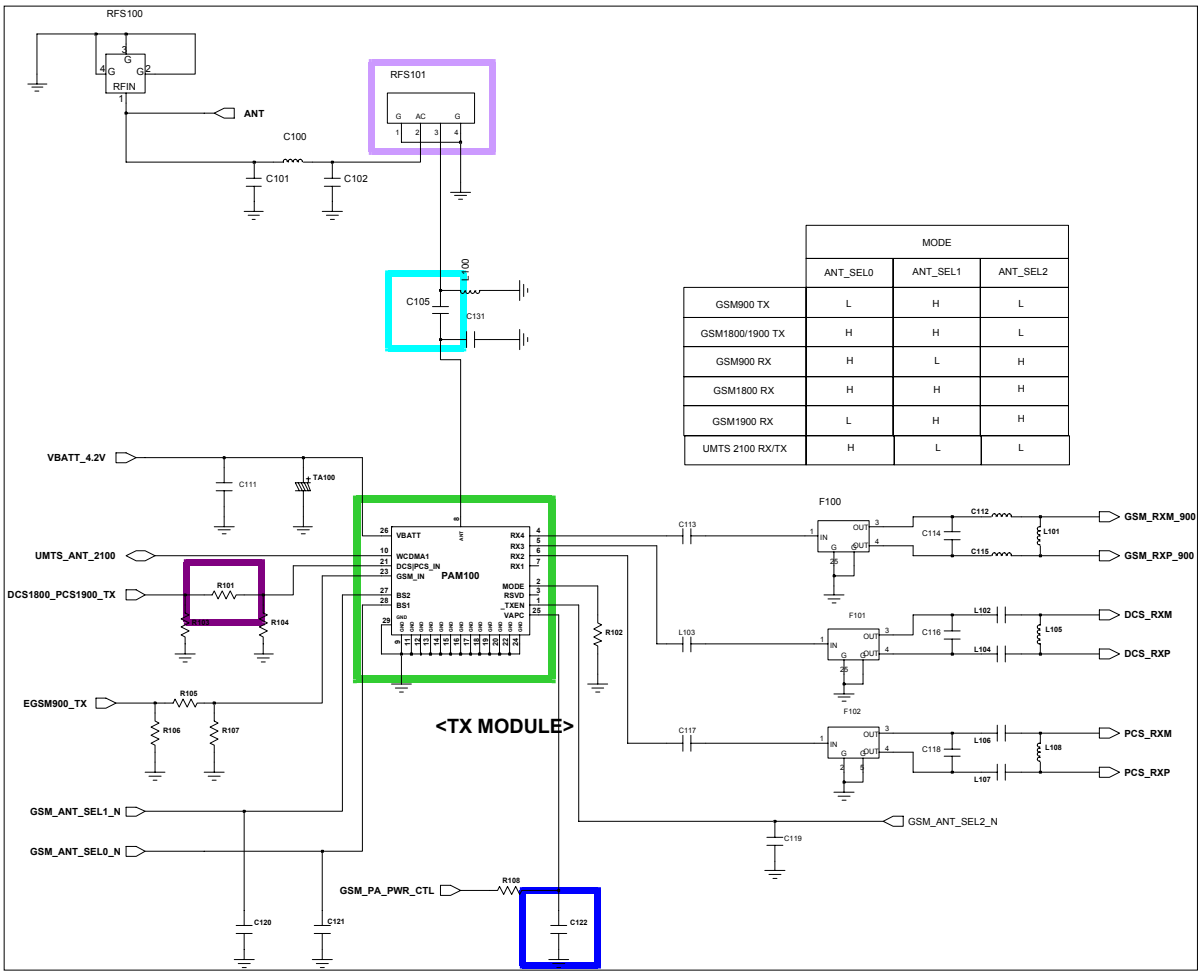
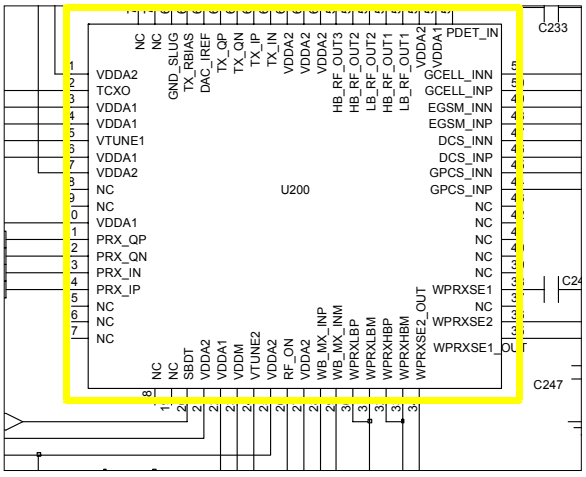
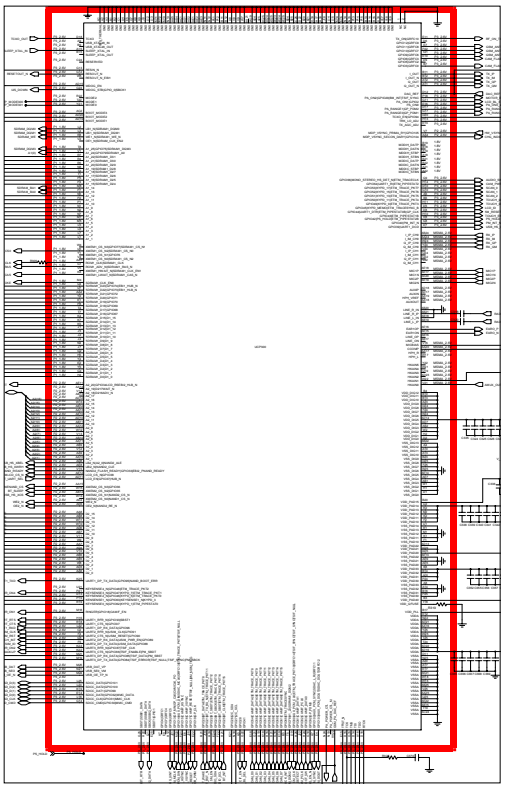


	MODE		
	ANT_SEL0	ANT_SEL1	ANT_SEL2
GSM900 TX	L	H	L
GSM1800/1900 TX	H	H	L
GSM900 RX	H	L	H
GSM1800 RX	H	H	H
GSM1900 RX	L	H	H
UMTS 2100 RX/TX	H	L	L





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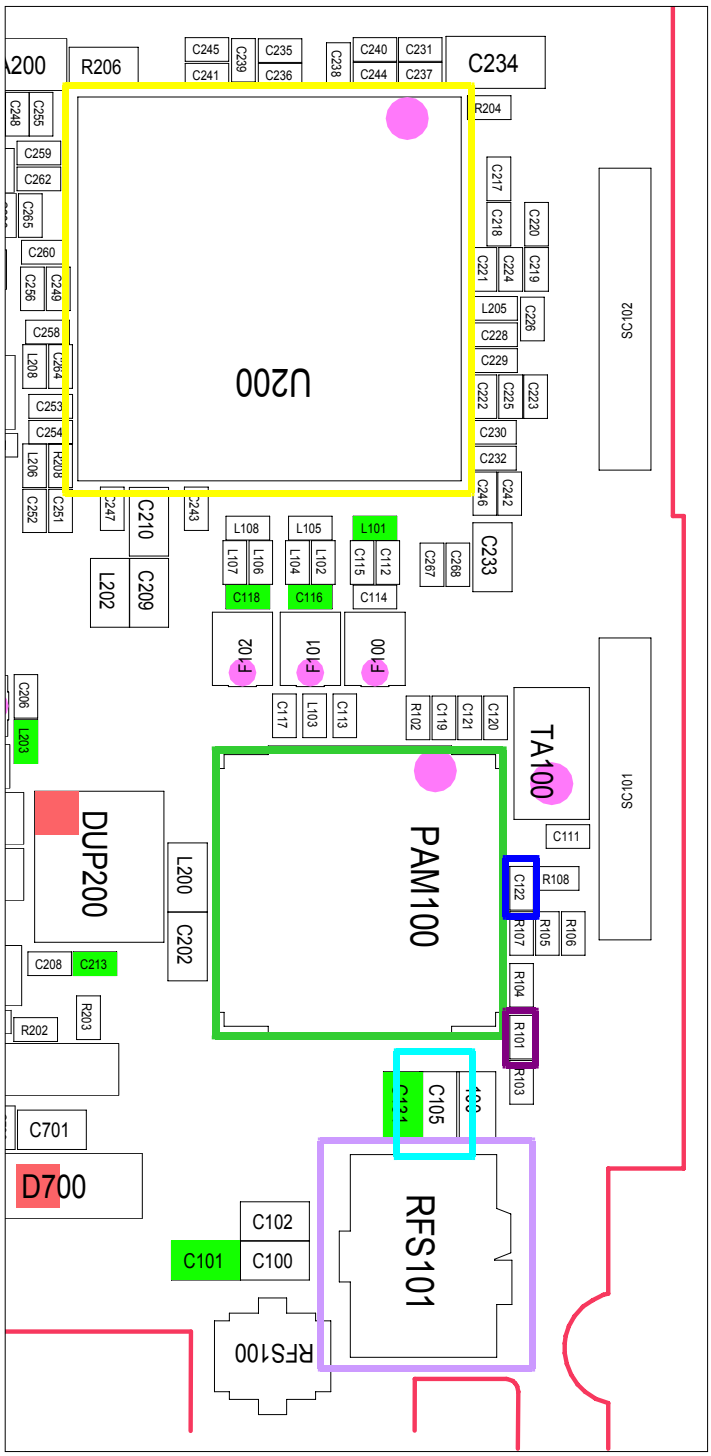

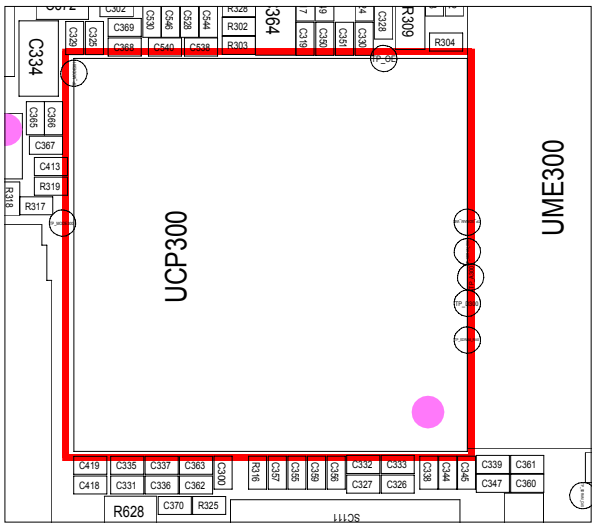

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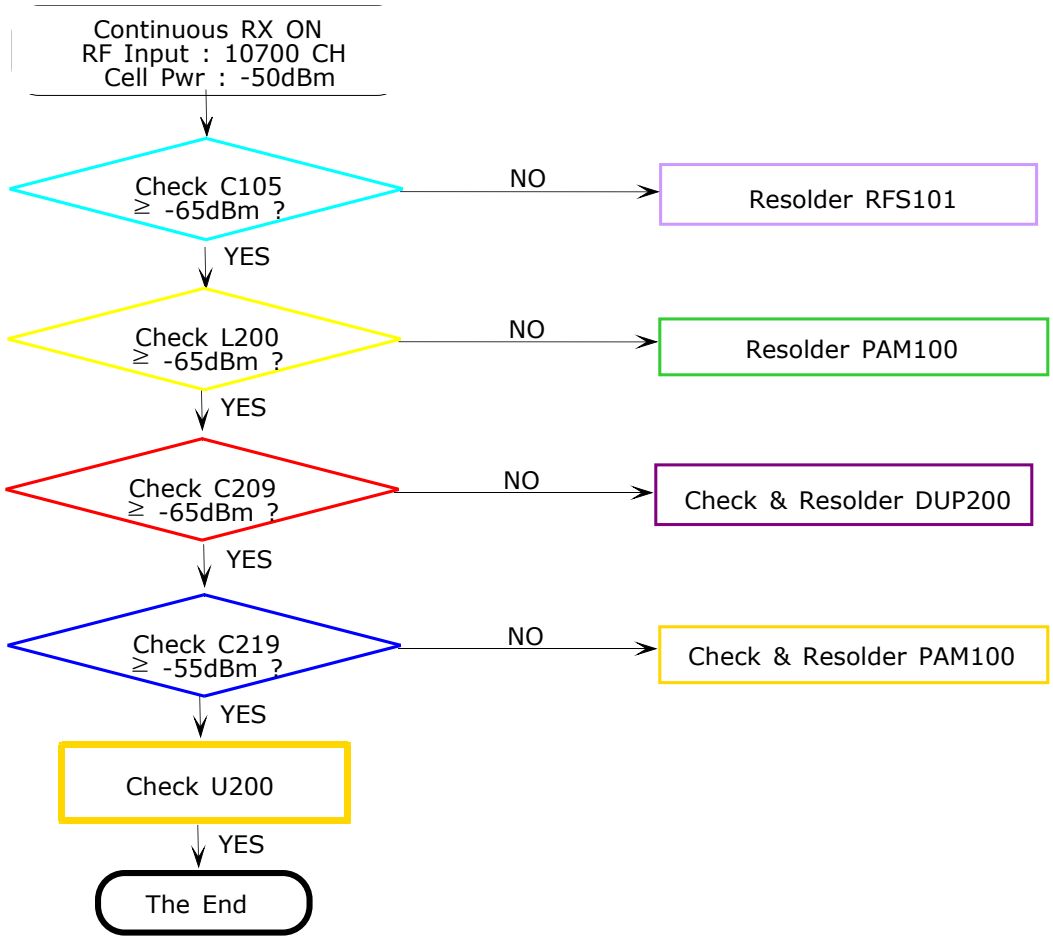
9-2-7. UMTS 2100 Receiver

**If you check the Rx chain,

Check not only RF Devices but also resistors, inductors and capacitors..



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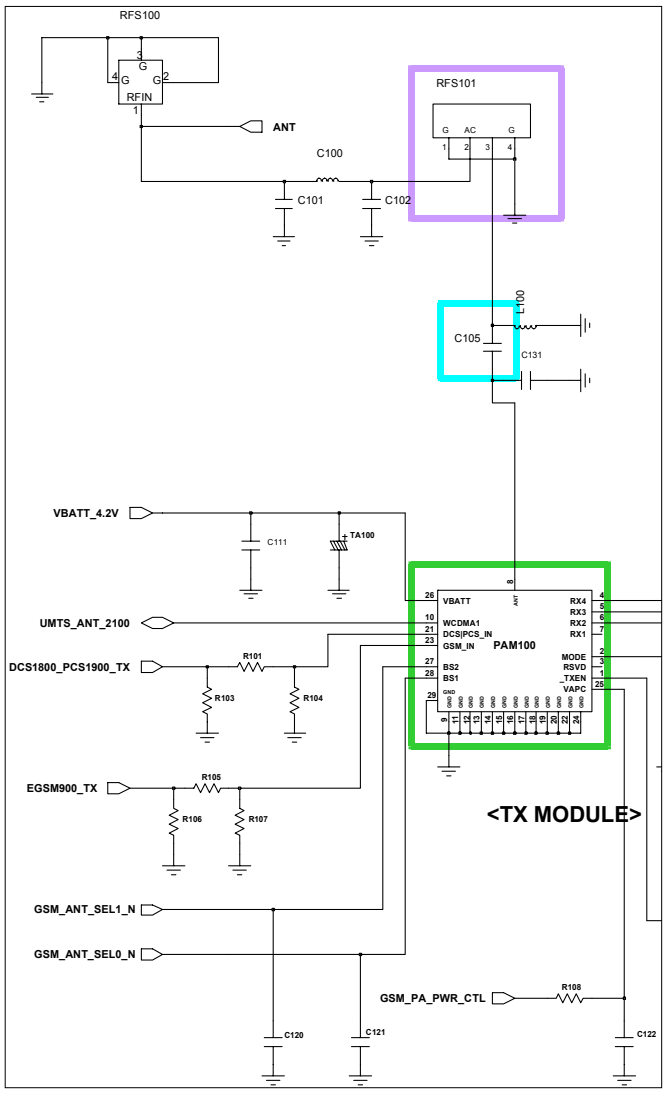

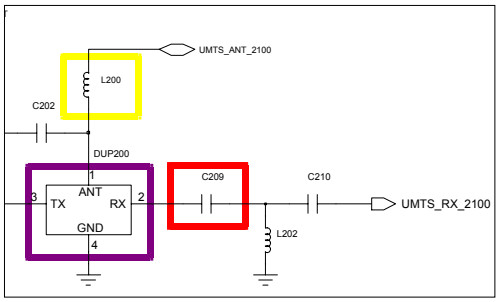

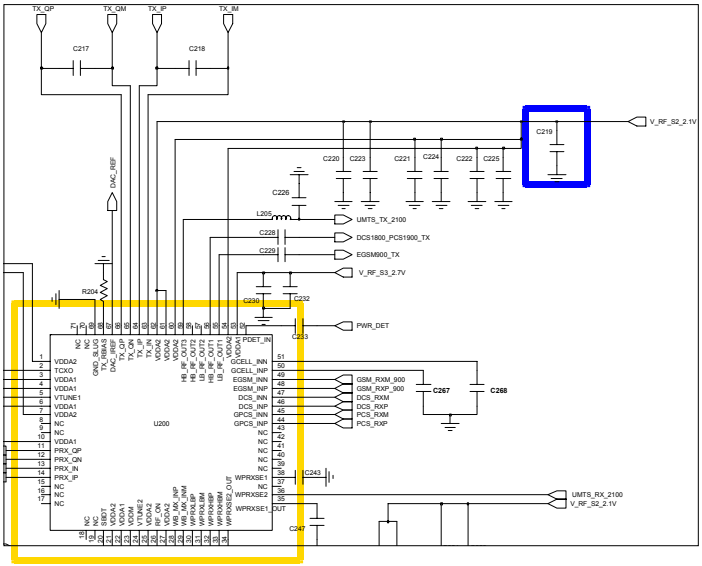

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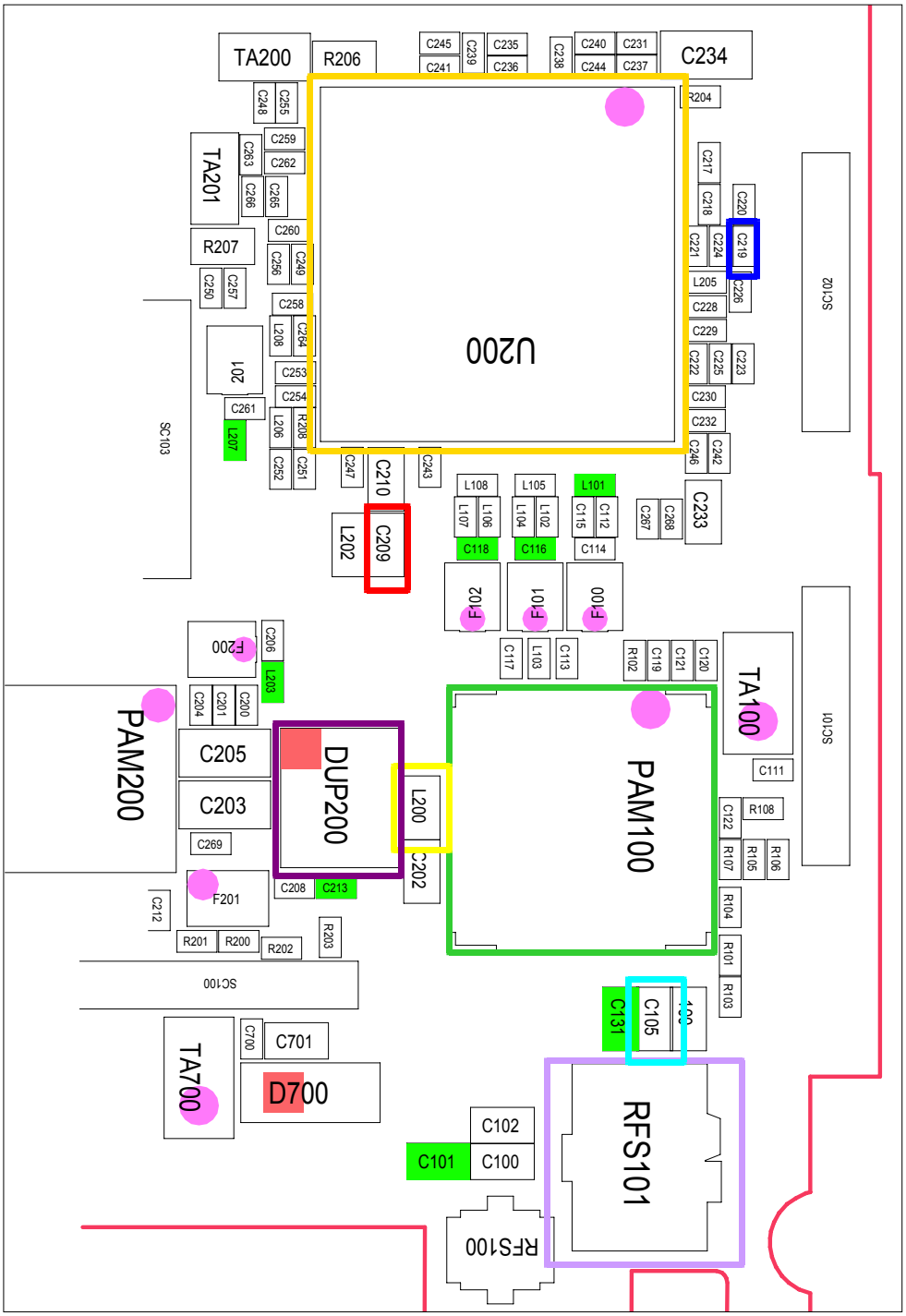

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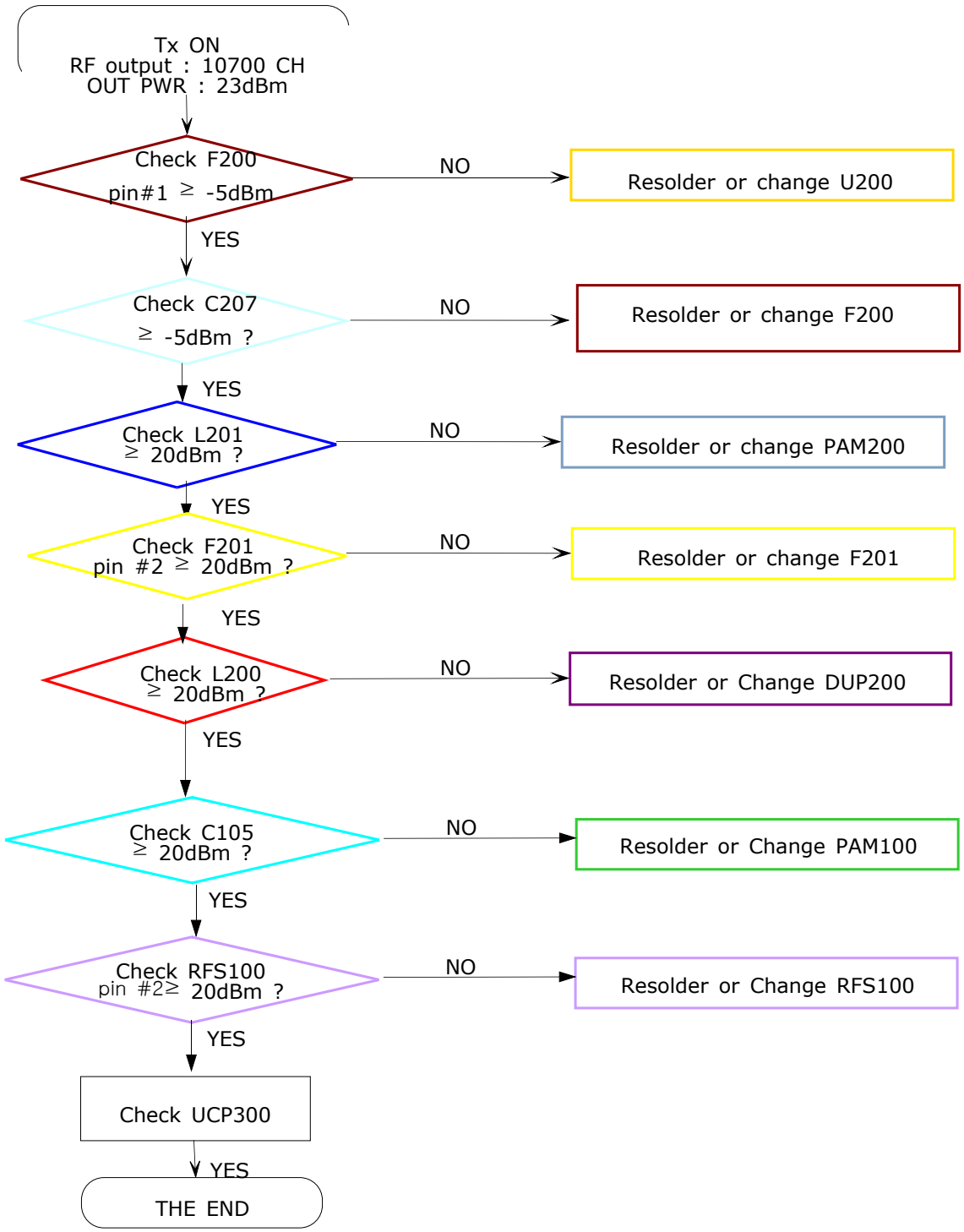
9-2-8. UMTS 2100 Transmitter

**If you check the tx chain,

Check not only RF Devices but also resistors, inductors and capacitors.



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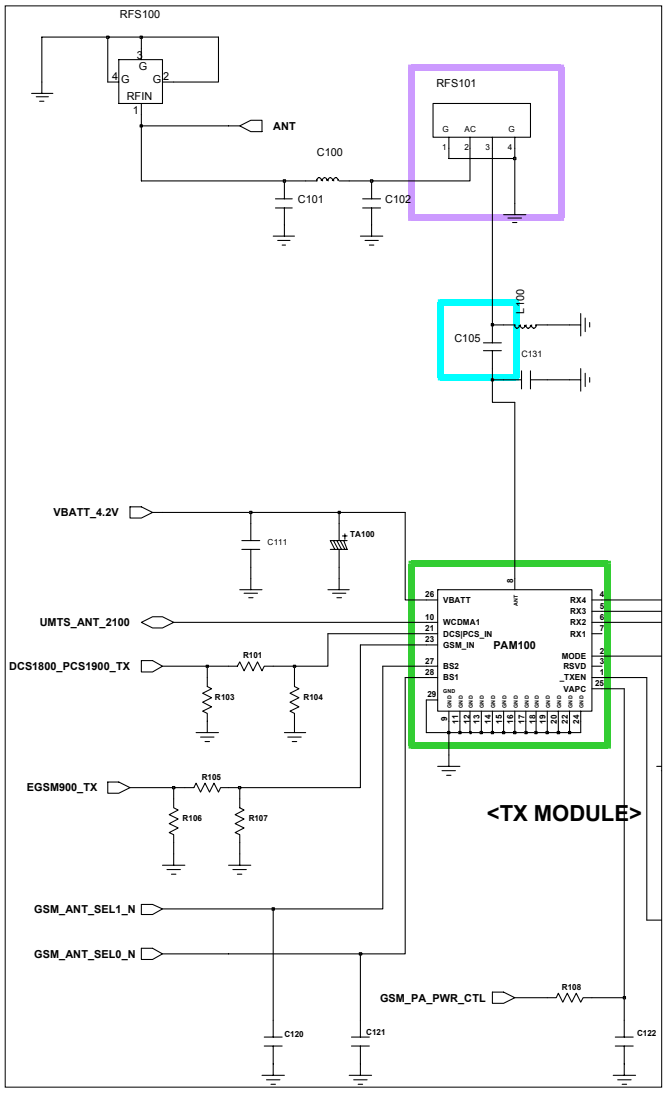

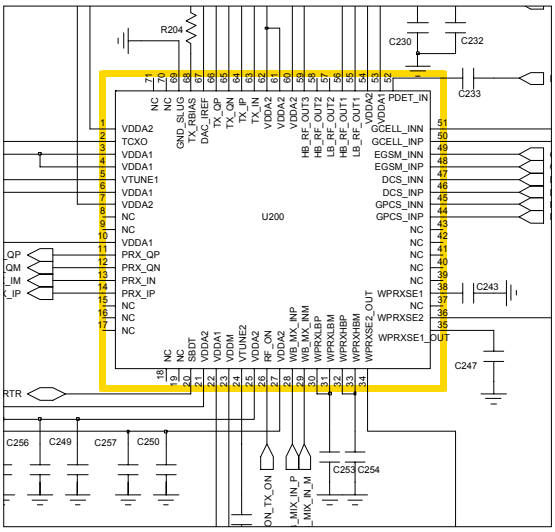

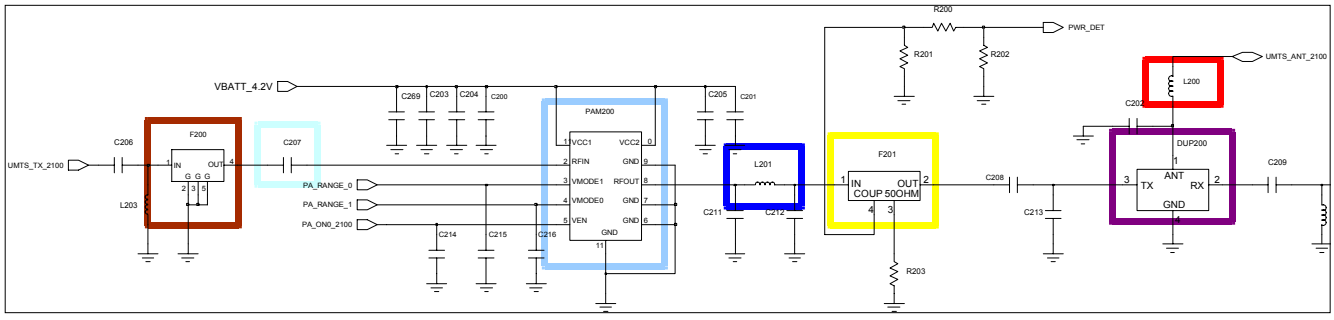

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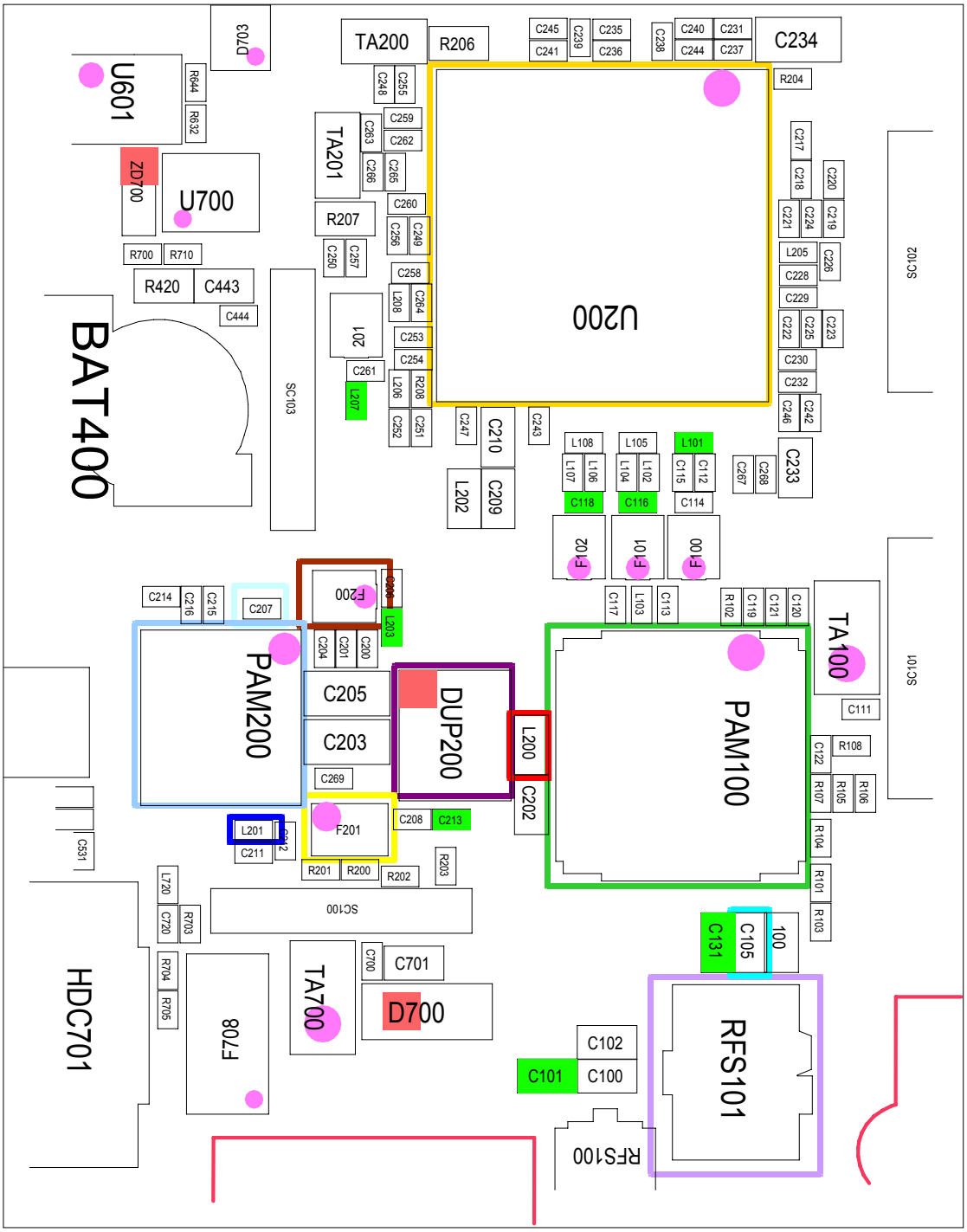

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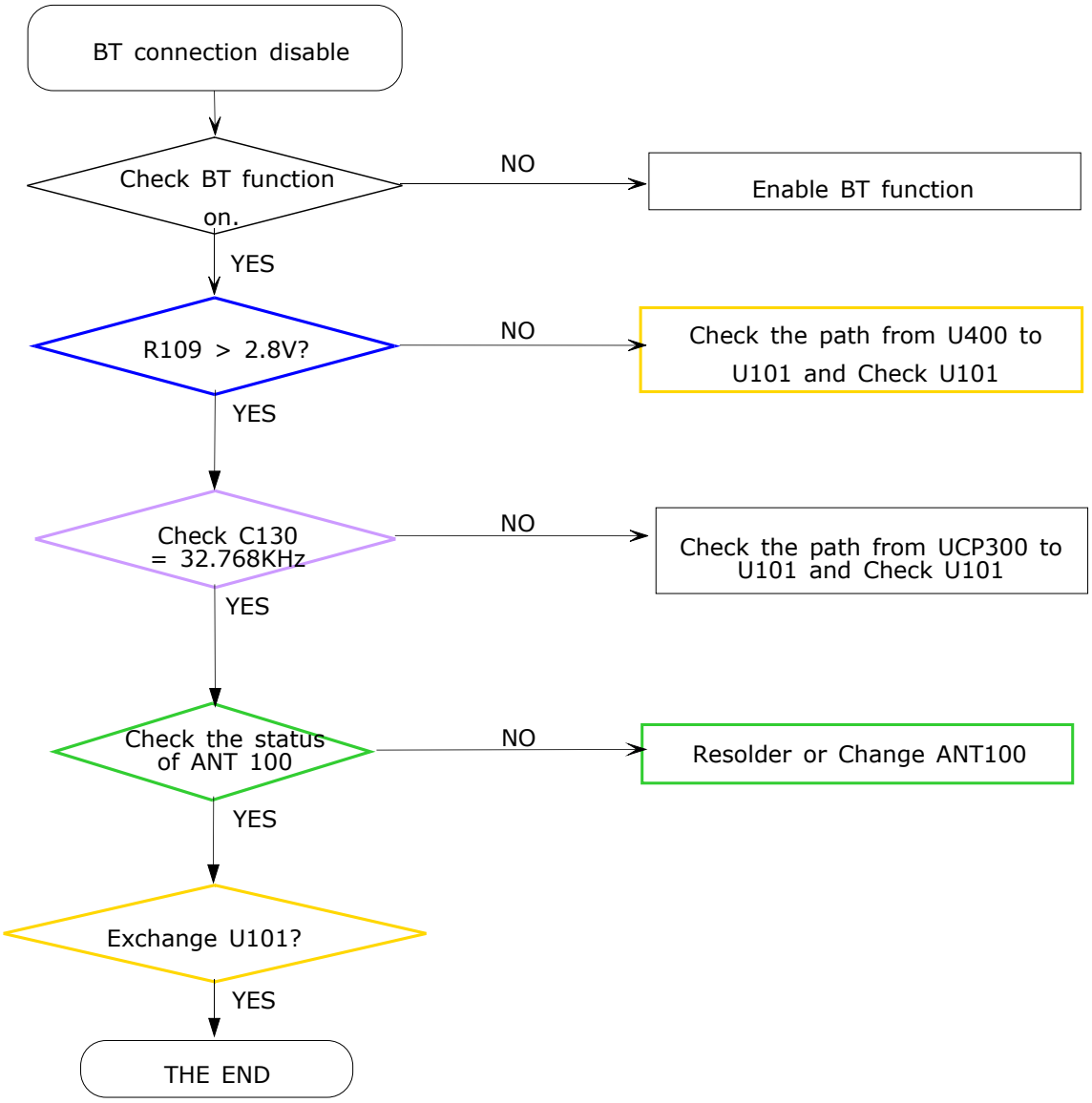
9-2-9. BLUETOOTH



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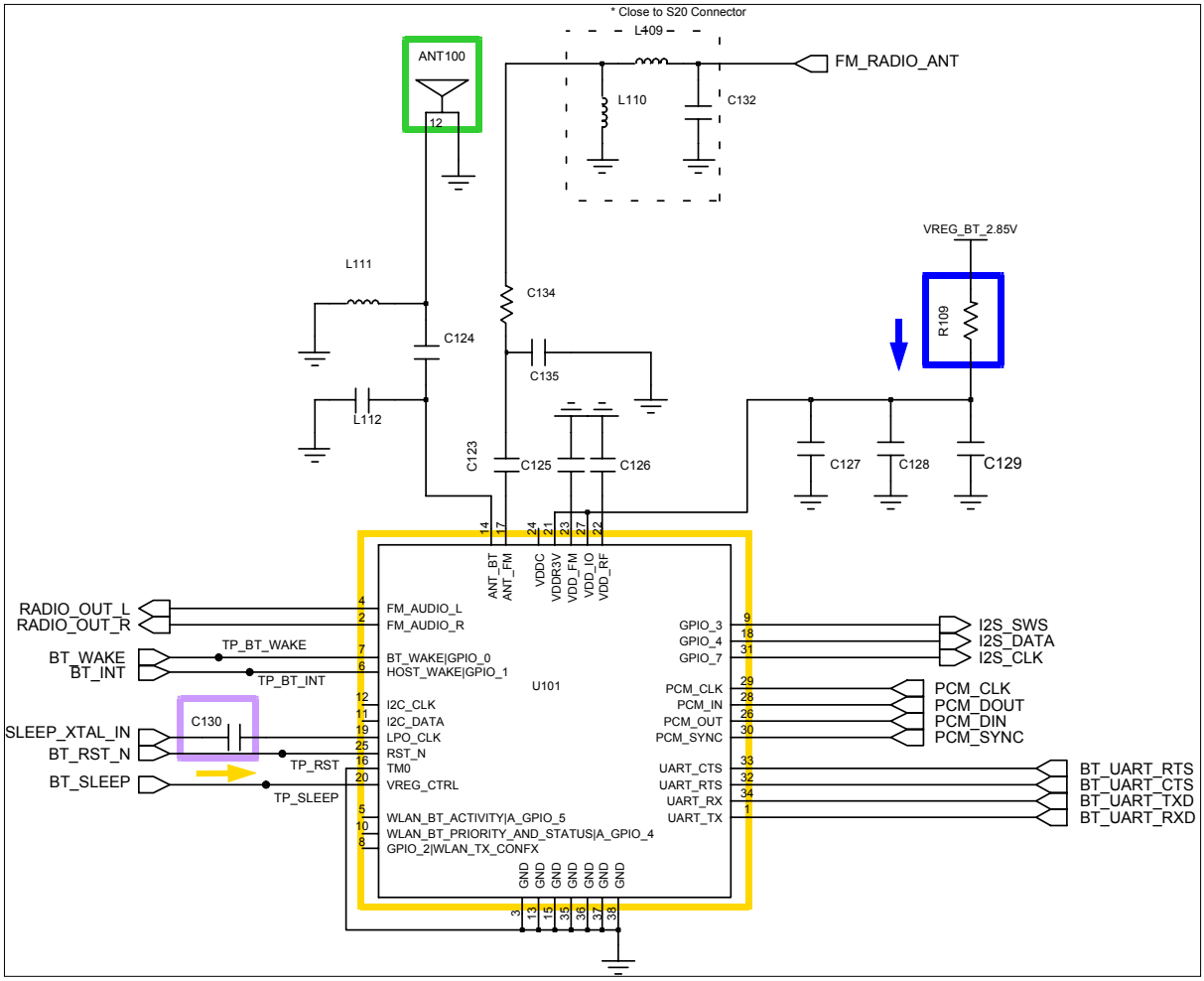

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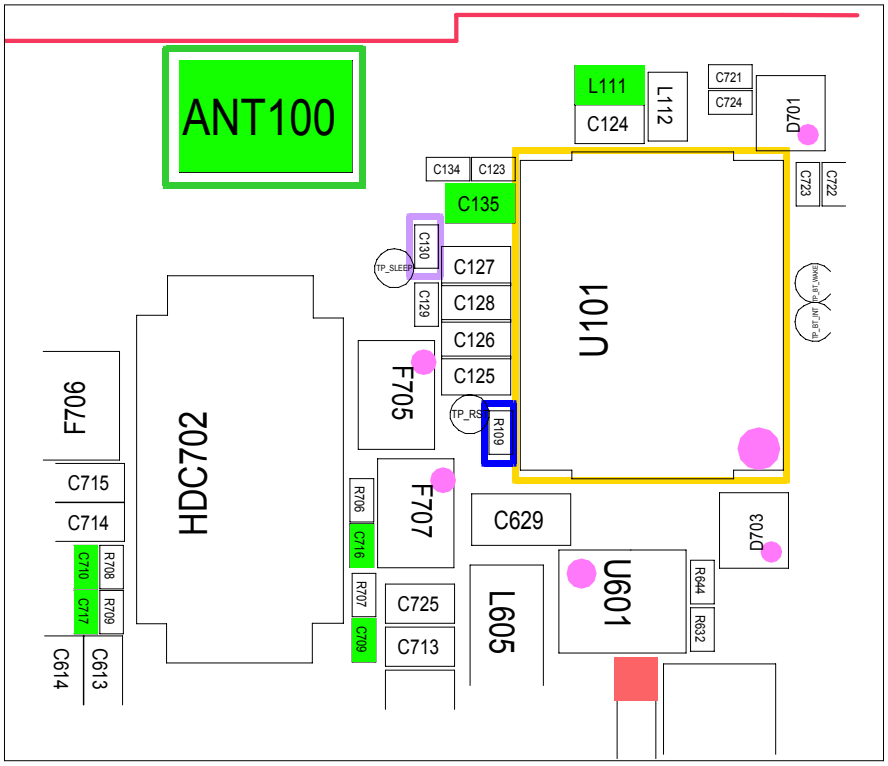

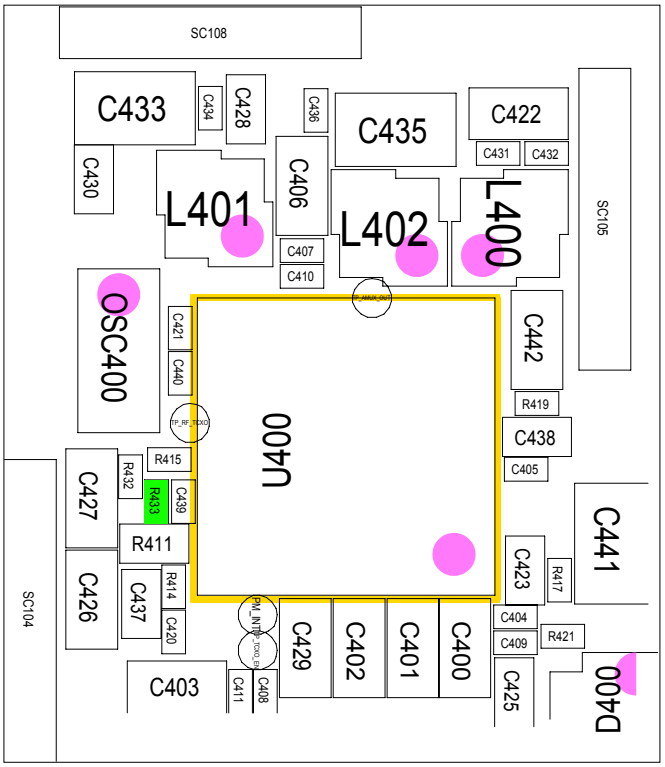

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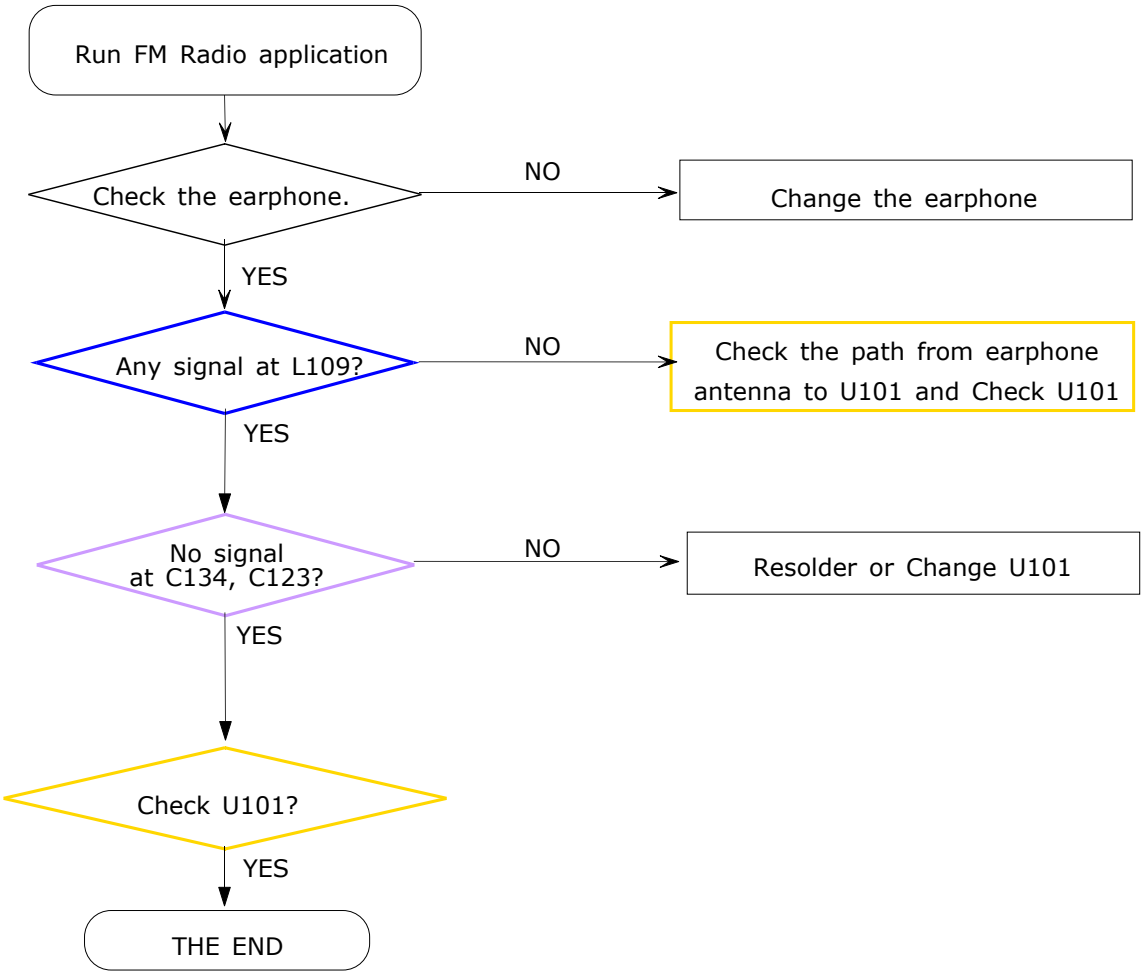
9-2-10. FM Radio



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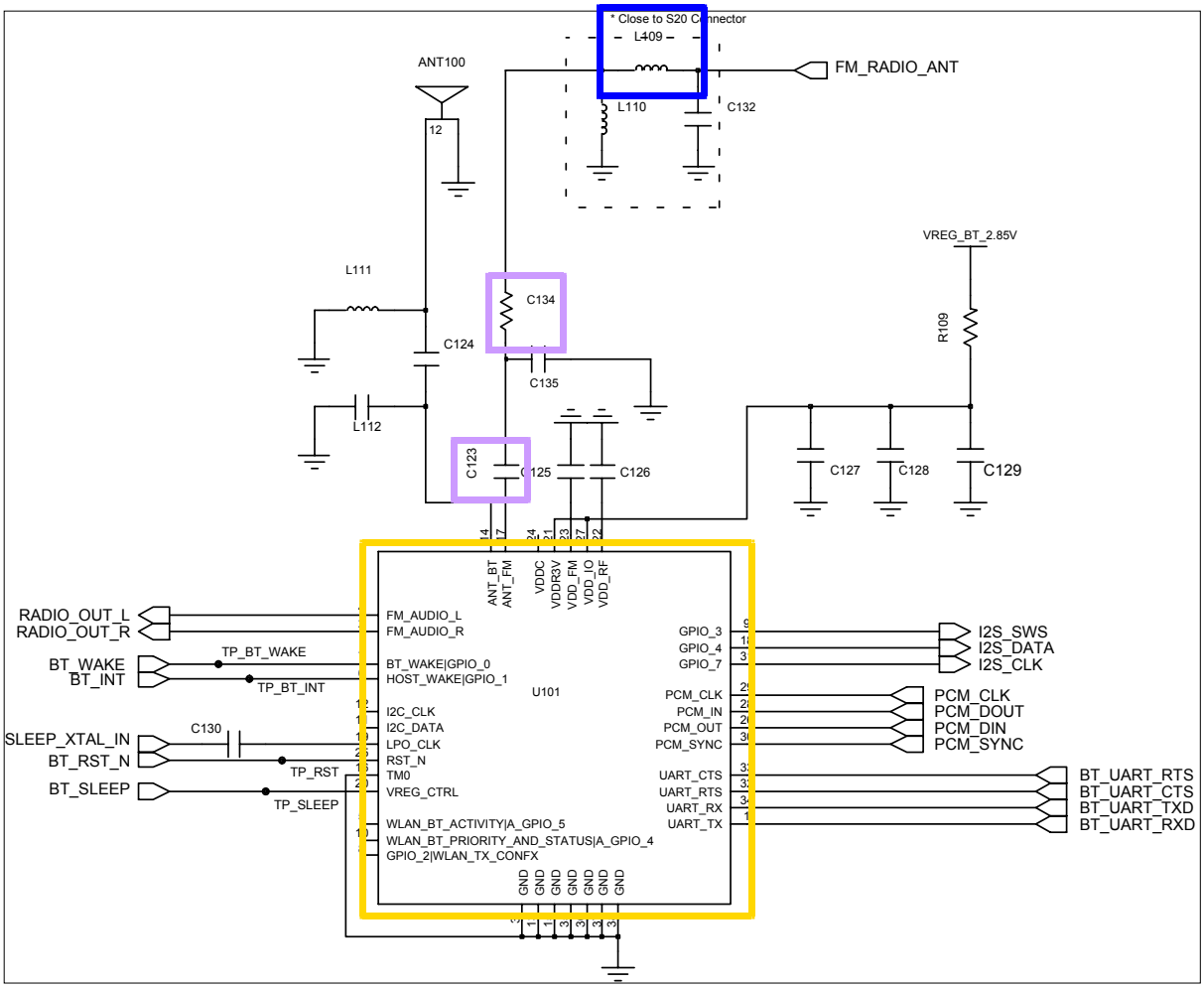

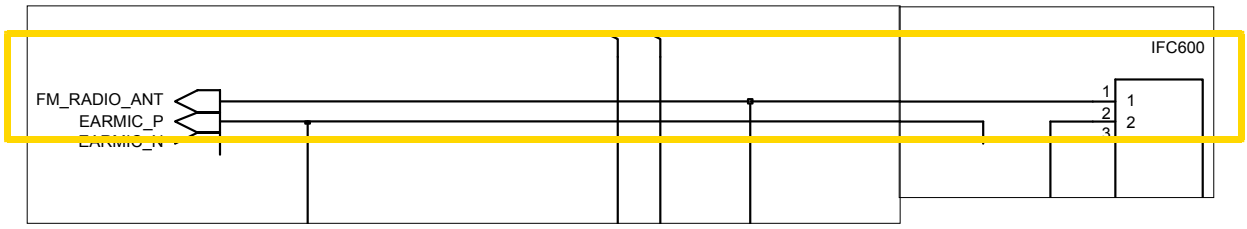

SAMSUNG Proprietary-Contents may change without notice
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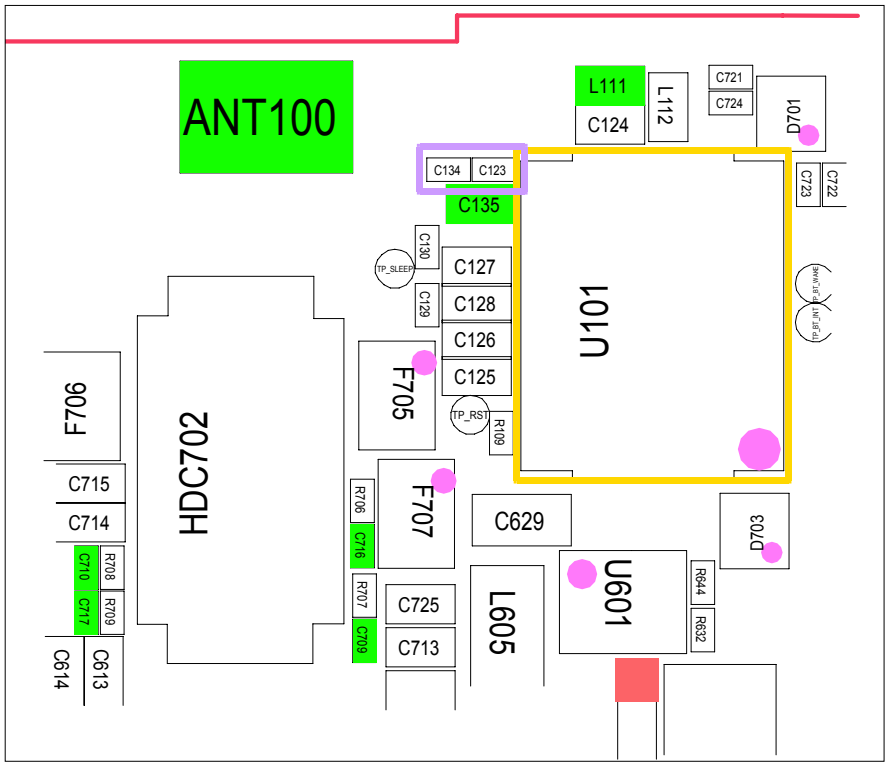

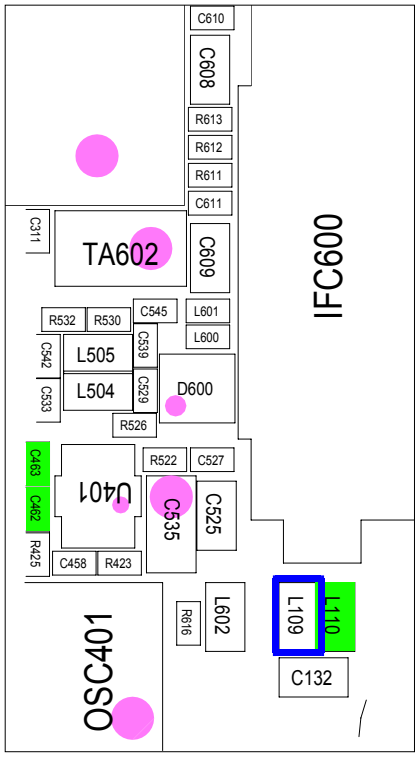

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4. Array course control

4-1. Software Adjustments

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1.JIG(GH80-03308A): Download, Trace, Calibration, etc
2.RF test cable(GH39-00397A): RF test
3.Test cable(GH39-00886A): JIG to phone
4.Travel Adaptor(GH44-01702A)
5.Data Link Cable(GH39-00922A): USB cable
6.Serial cable(LJ39-00013A) : PC to JIG
7.Test cable(GH39-00890A): JIG to phone

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4-2. Software Downloading

4-2-1. Downloading Binary Files

•Four binary files for downloading F480

–amss_compressed : Modem binary for communication function & user interface and various applications.

–Rsrc_F480_Open_Europe_Common.rc1: Files need for each application

–Rsrc2_F480(Low).rc2 : Power on/off animation

–FactoryFs_F480_Open_Europe_Common.ffs : Default file system to be put into in initial production.

4-2-2. Pre-requsite for Downloading

•Downloader Program (**MultiLoader V5.33**)

•SGH-F480 Mobile Phone

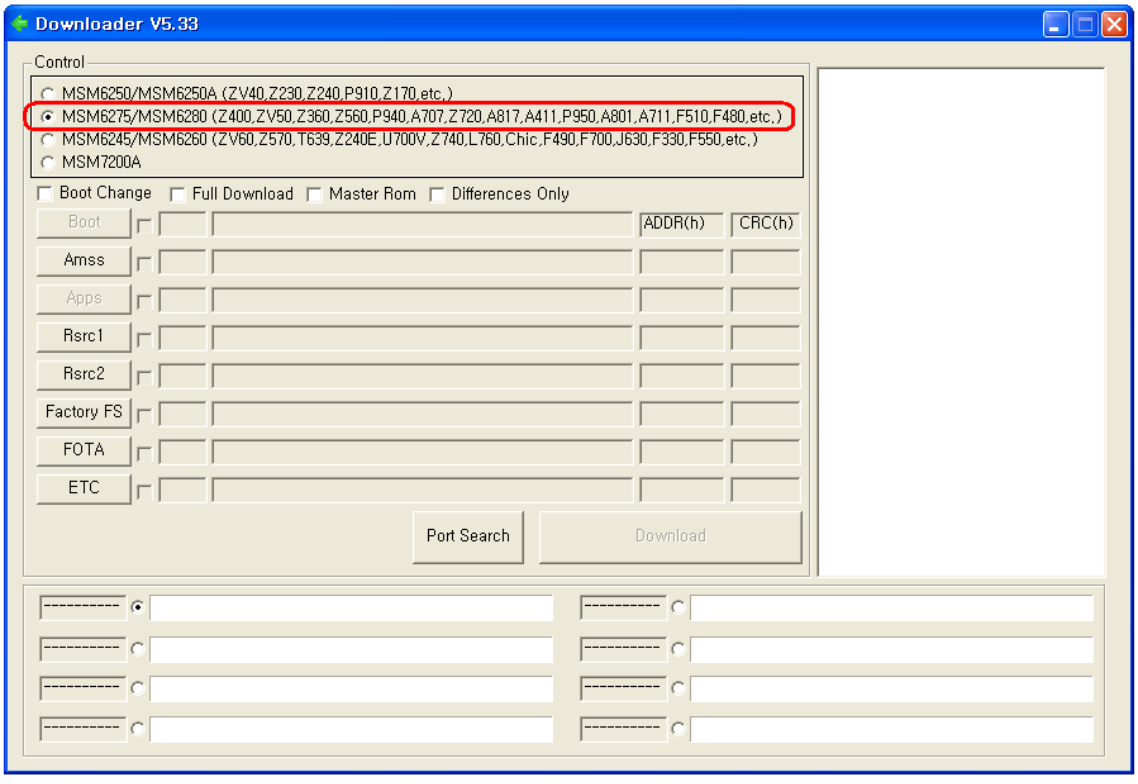
•USB Data Link Cable

•Binary files

4-2-3. S/W Downloader Program

1. Boot the F480 by pressing 'power ON key' + 'Camera key + Side up key' at the same time. If you do properly, you can see the following message on Main LCD.
" DEMSBL BOOT Loader for MSM6280 Downloader Ver 5.33

2. Load the binary download program by executing the " **MultiLoader V5.33.exe**".
And Check the **MSM6275/MSM6280.**



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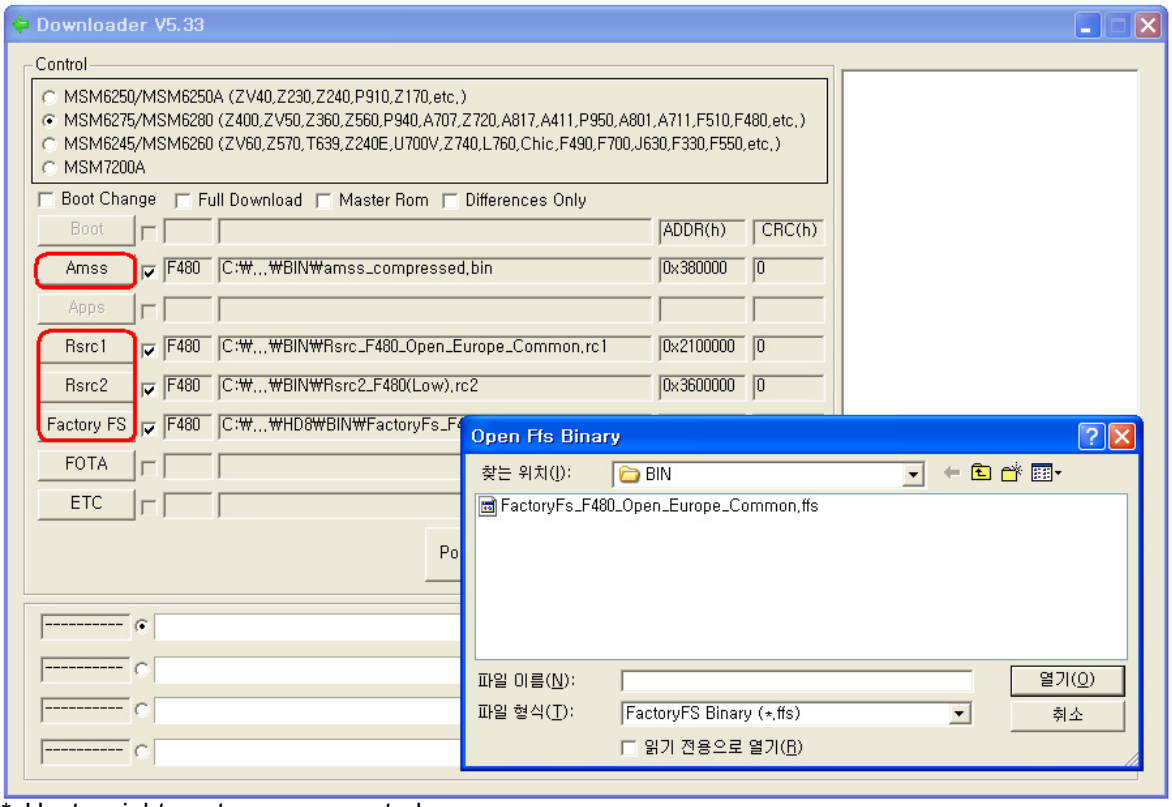
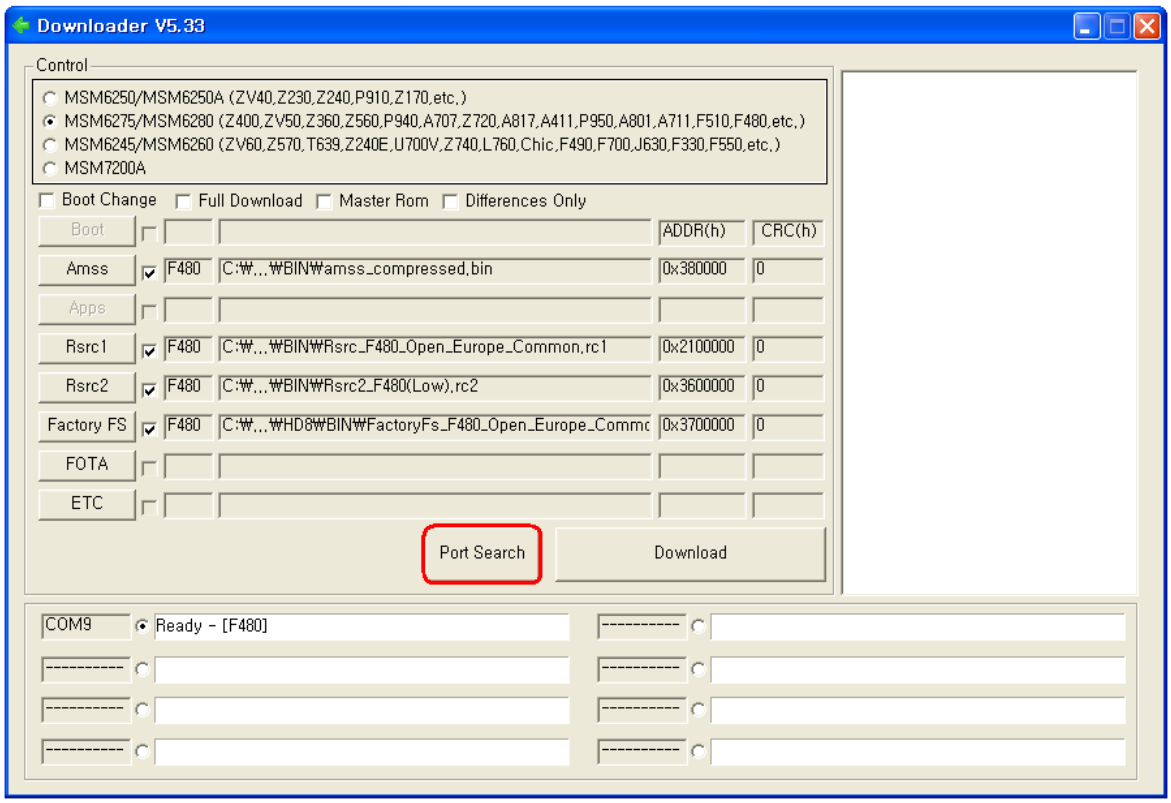
3. Select the binary file what you want to download.



* Up to eight ports are supported.

4. press the button 'Port search'.



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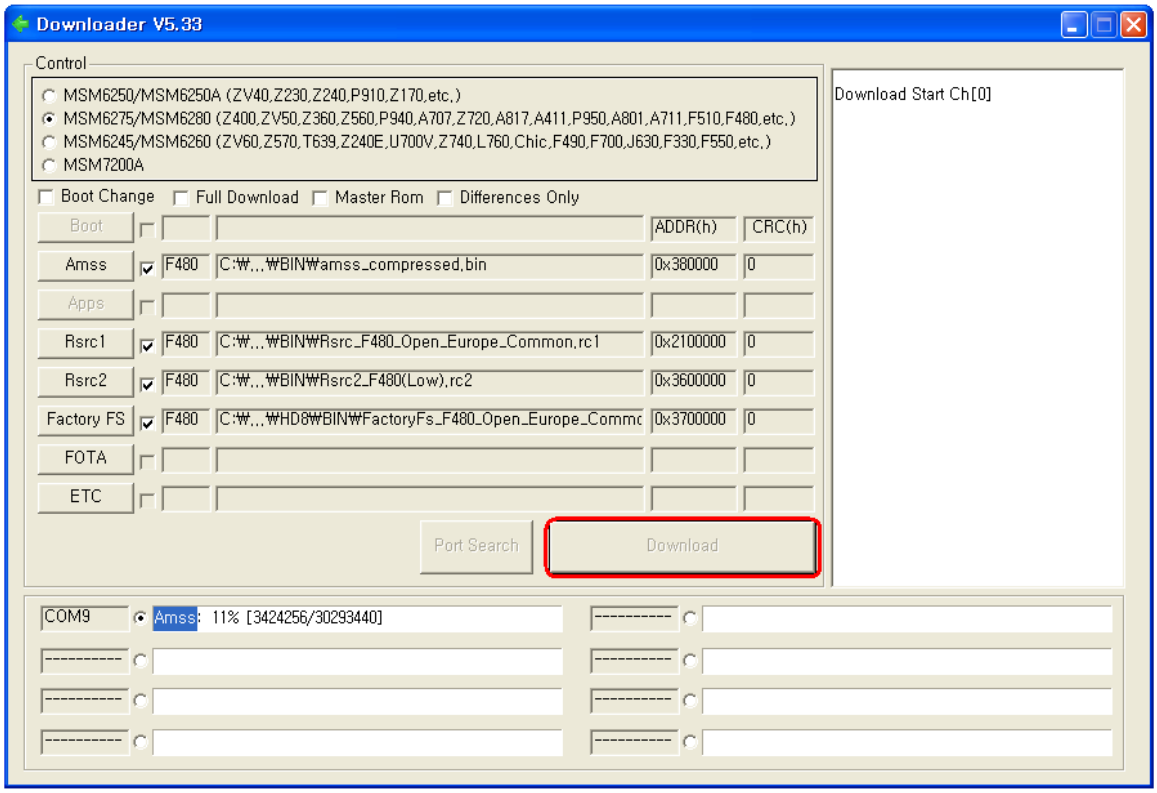
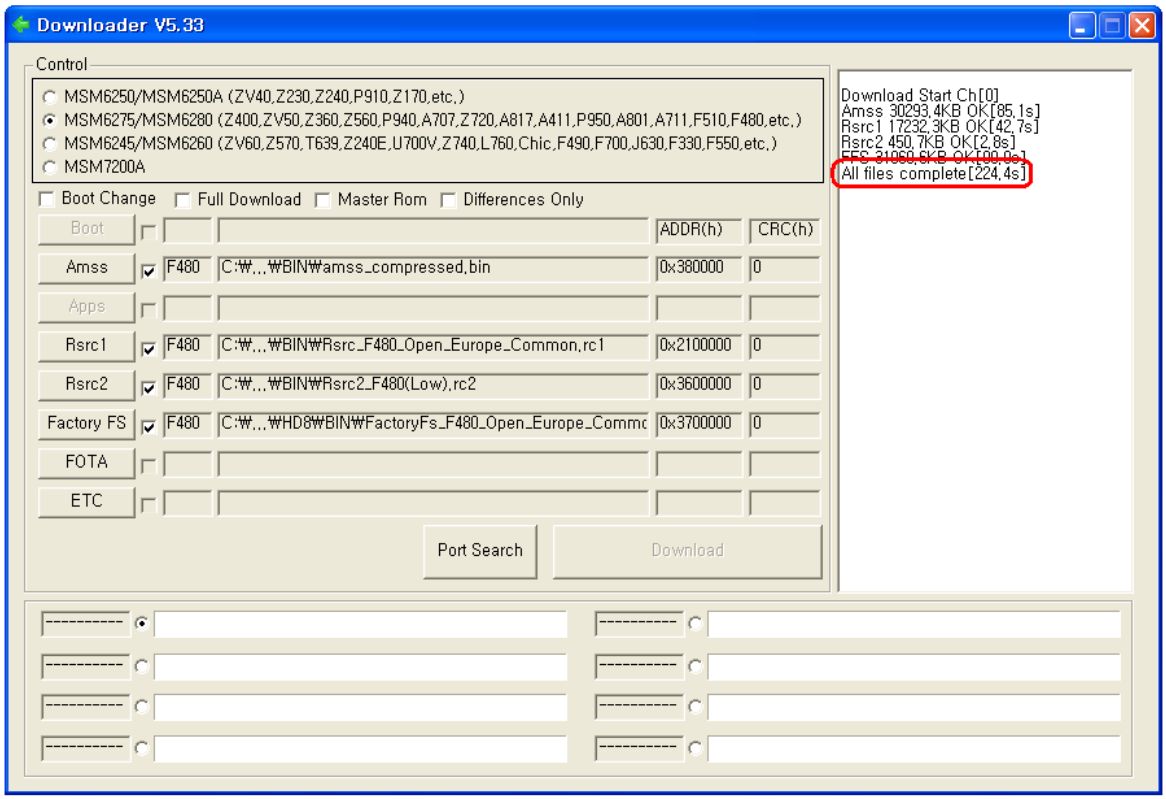
5. Now press the button ' Download'.



6. When downloading is complete, UE reboot automatically.
-If there is difference in FactoryFS.bin, UE will format file system automatically.



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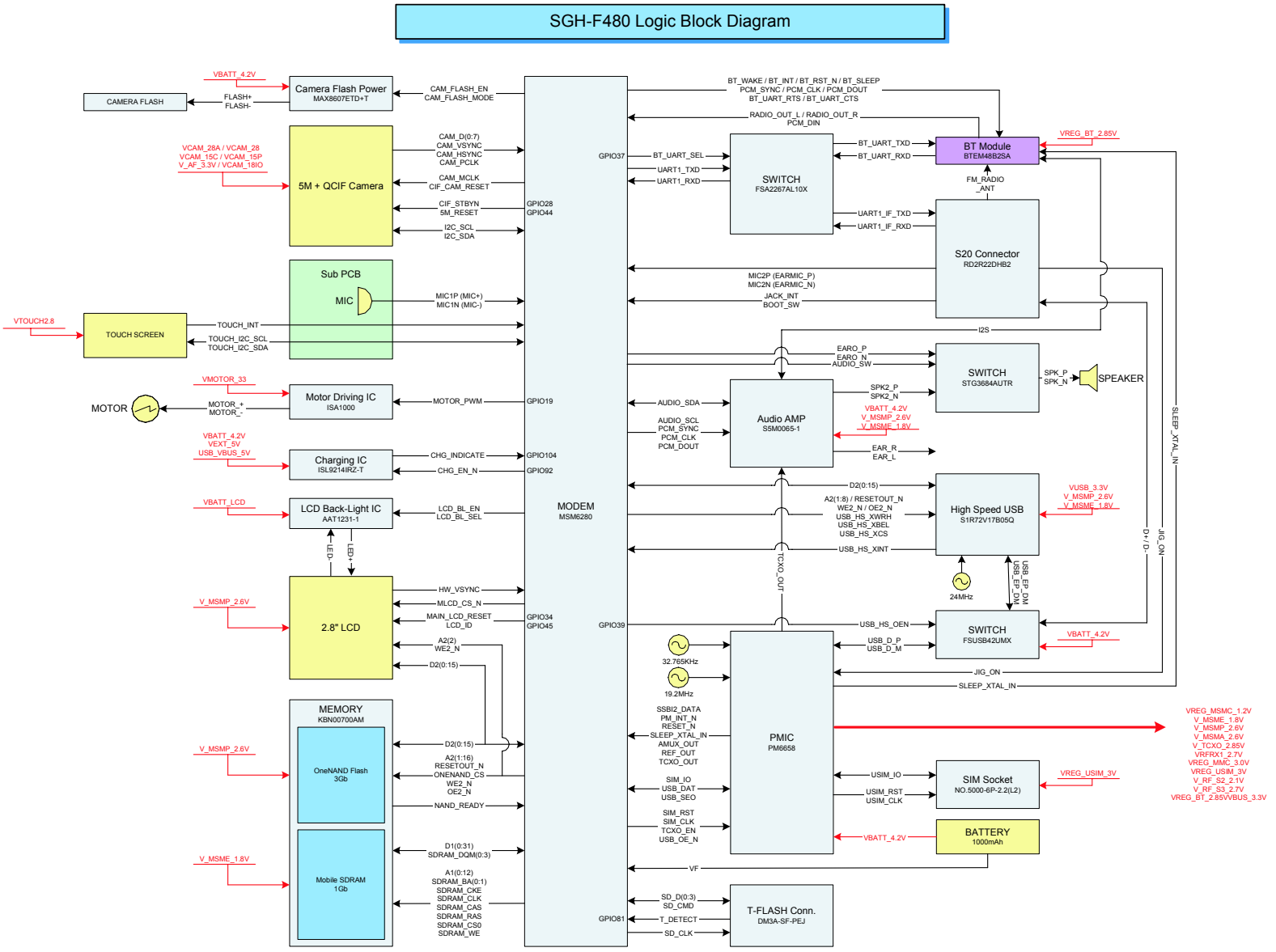
7. Block Diagrams



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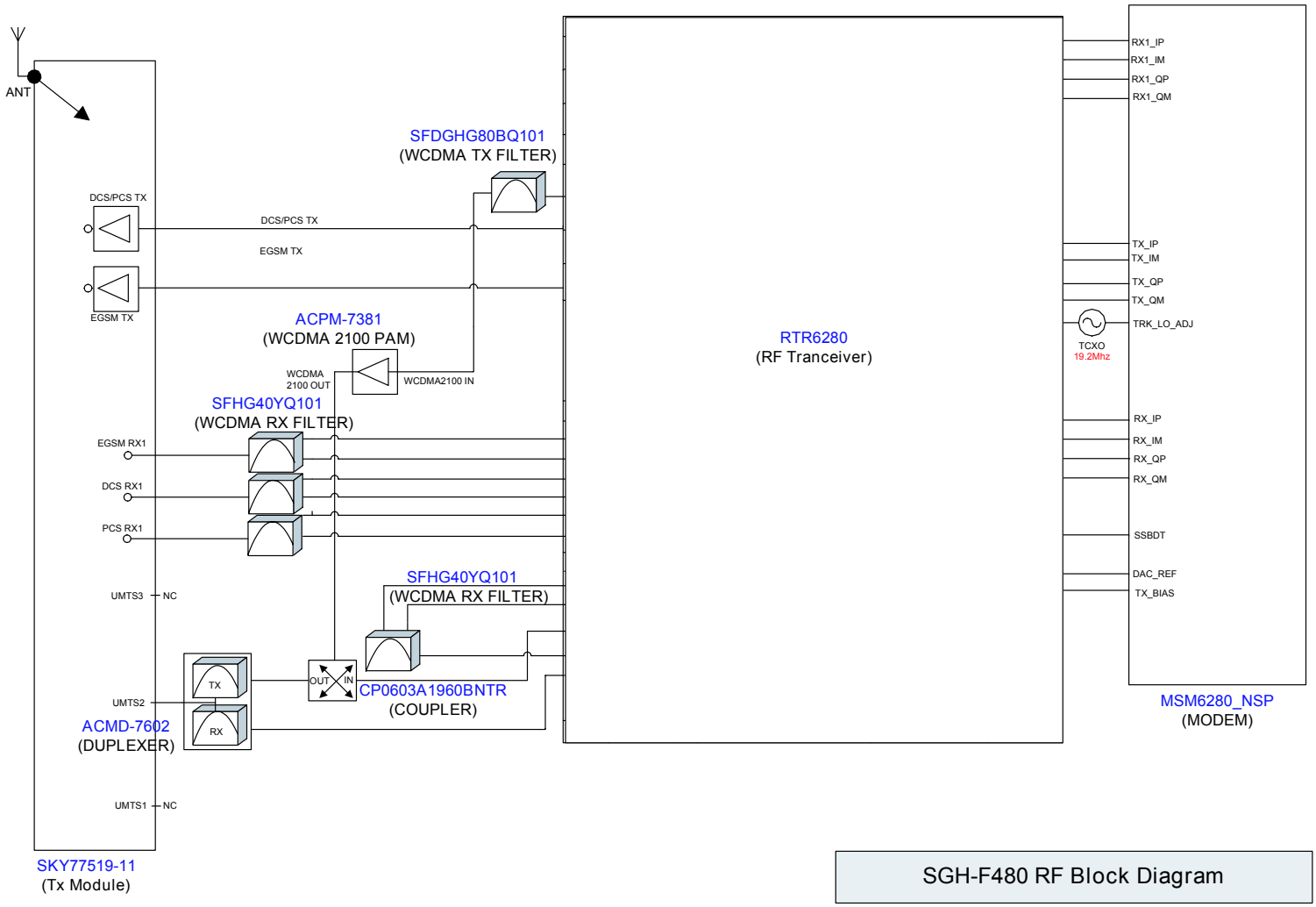

SGH-F480 RF Block Diagram

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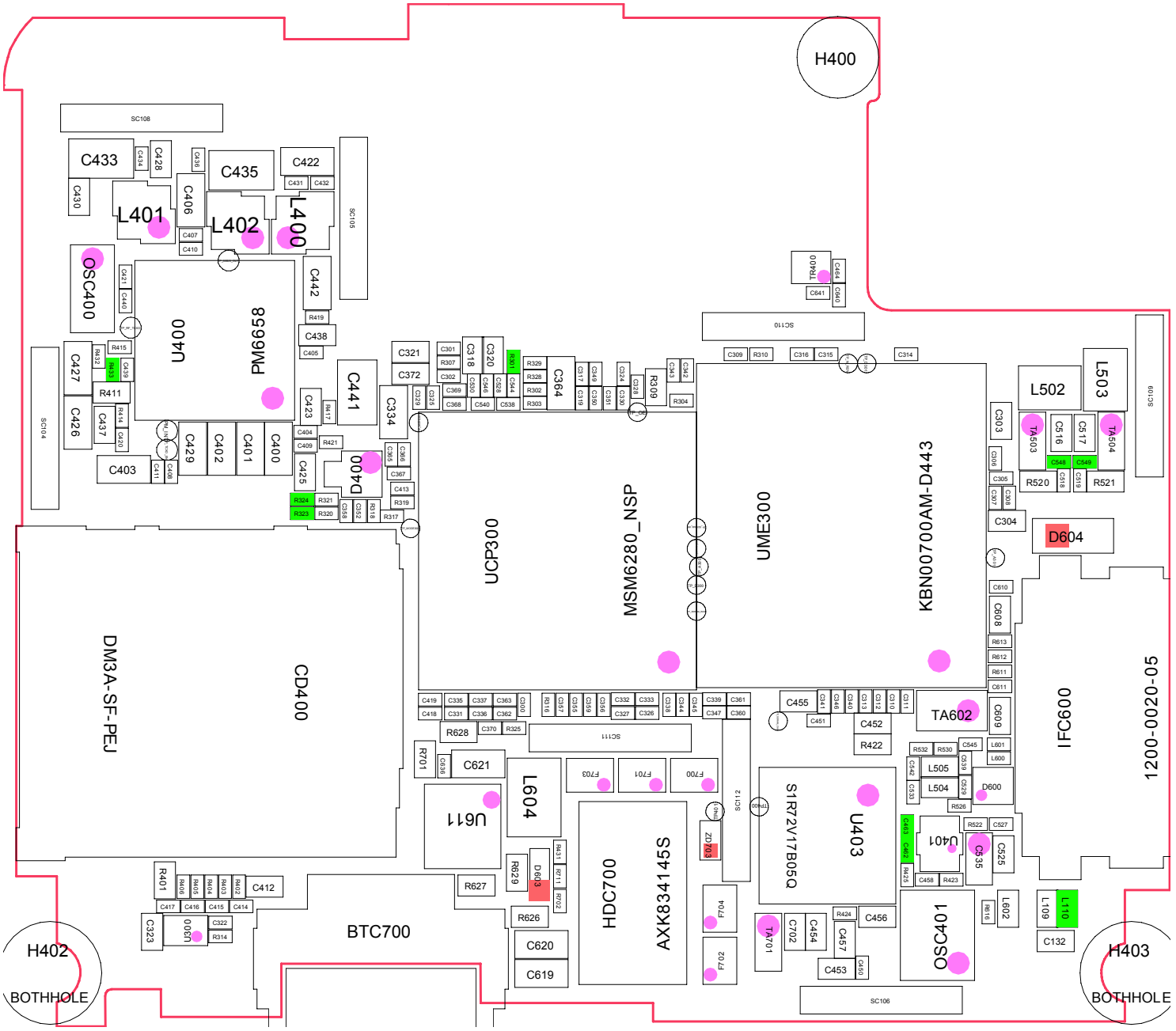
8. PCB Diagrams

1. Main top



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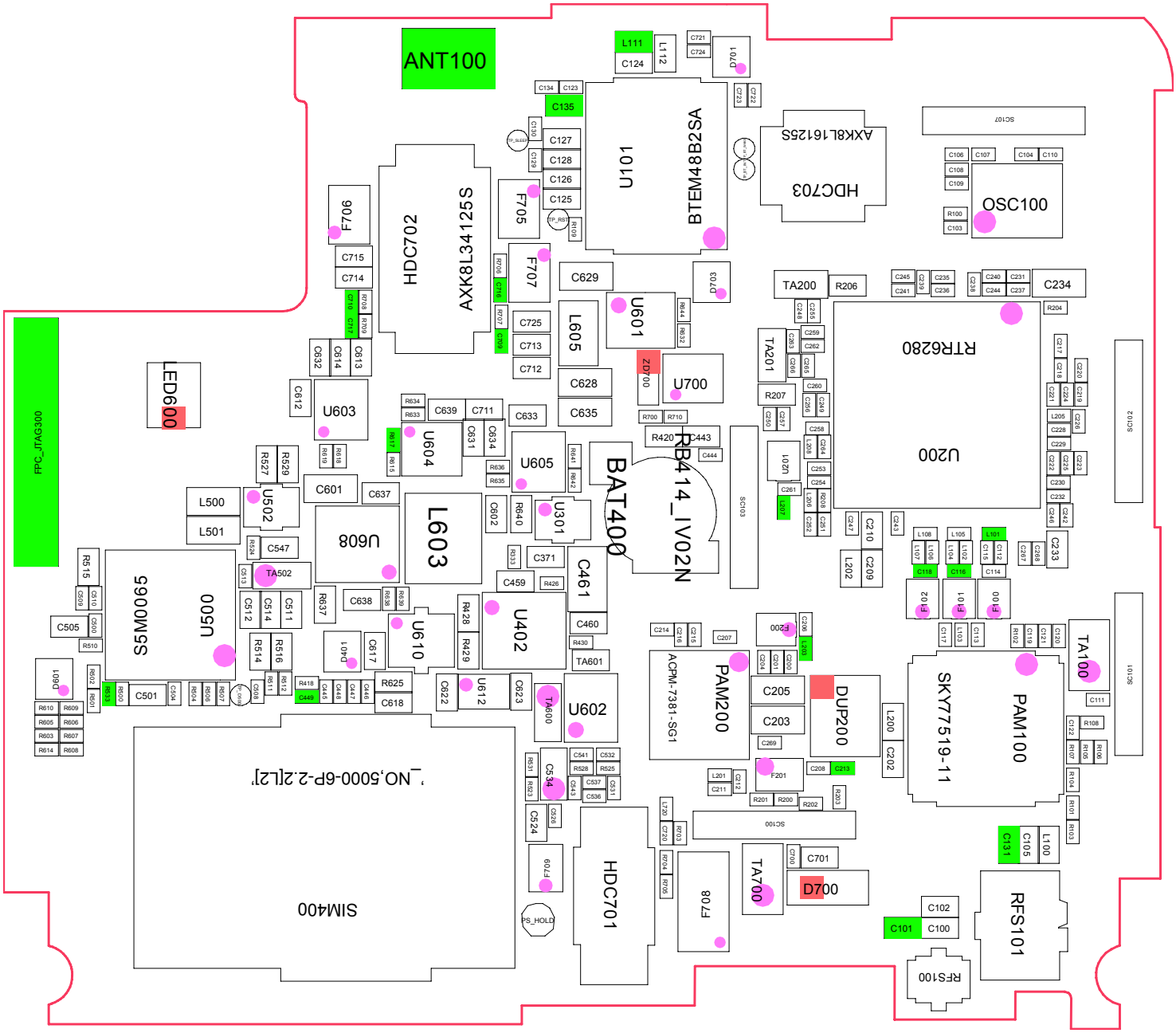
2. Main bottom



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3. Product Function

Main Function

- **HSDPA 7.2Mbps**
- **Touch Screen**
- **Bluetooth 2.0**
- **FM radio**
- **External Memory: micro SD**
- **High speed USB**
- **GPRS/EDGE : class 12**
- **BT : Braodcom BCM2048**
- **Battery: 1000mAH**
- **Weight: 77.8g (Include Battery : 98.7g)**
- **Memory: 3Gb ONENAND + 1Gb SDRAM**
- **Camera: 5Mega (LSI)**
- **LCD : 2.8" QVGA TFT**
- **Size: 100.7x50.5x12.9mm**
- **Band: GSM900/1800/1900, W2100**
- **BB: Qualcomm MSM6280, PM6658**
- **RF: Qualcomm RTR6280**

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10. Reference data

Reference Abbreviation

- **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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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.

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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.

1-3. Heating Precaution

- Use within -20~45 degrees in ambient temperature.
  It is not recommended to use in lower than -20 or higher than 45 degrees.

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6. MAIN Electrical Parts List

SEC Code	Design LOC	Description
0401-001141	ZD700	DIODE-SWITCHING
0403-001547	D604	DIODE-ZENER
0403-001547	D700	DIODE-ZENER
0404-001153	D603	DIODE-SCHOTTKY
0406-001231	ZD703	DIODE-TVS
0406-001237	D401	DIODE-TVS
0406-001237	D600	DIODE-TVS
0406-001237	D601	DIODE-TVS
0406-001237	D701	DIODE-TVS
0406-001237	D703	DIODE-TVS
0406-001267	D602	DIODE-TVS
0407-001002	D400	DIODE-ARRAY
0504-001113	TR400	TR-DIGITAL
0601-002456	LED600	LED
0904-002262	U403	IC-USC
1001-001336	U700	IC-ANALOG SWITCH
1001-001428	U301	IC-ANALOG MULTIPLEX
1001-001428	U502	IC-ANALOG MULTIPLEX
1001-001436	U501	IC-ANALOG SWITCH
1001-001481	U401	IC-ANALOG SWITCH
1003-002047	U610	IC-MOTOR DRIVER
1108-000147	UME300	IC-MCP
1201-002470	U500	IC-AUDIO AMP
1201-002548	PAM200	IC-POWER AMP
1201-002570	PAM100	IC-POWER AMP
1203-004524	U603	IC-MULTI REG.
1203-004524	U604	IC-MULTI REG.
1203-004530	U605	IC-MULTI REG.
1203-004540	U611	IC-DC/DC CONVERTER
1203-004548	U601	IC-DC/DC CONVERTER
1203-004778	U400	IC-POWER SUPERVISOR
1203-004792	U612	IC-POSI.FIXED REG.
1203-004838	U402	IC-BATTERY
1203-004857	U608	IC-DC/DC CONVERTER
1205-003341	U200	IC-TRANSCEIVER
1205-003349	U602	IC-SWITCH
1205-003360	UCP300	IC-MODEM
1209-001712	U300	IC-SENSOR
2007-000138	R533	R-CHIP
2007-000140	R429	R-CHIP
2007-000140	R516	R-CHIP
2007-000144	R420	R-CHIP
2007-000145	R515	R-CHIP
2007-000164	R625	R-CHIP
2007-000165	R401	R-CHIP
2007-000171	R109	R-CHIP
2007-000171	R514	R-CHIP

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SEC Code	Design LOC	Description
2007-001285	R207	R-CHIP
2007-001290	R309	R-CHIP
2007-001298	R206	R-CHIP
2007-001307	R520	R-CHIP
2007-001307	R521	R-CHIP
2007-007107	R628	R-CHIP
2007-007309	R629	R-CHIP
2007-007310	R701	R-CHIP
2007-007316	R428	R-CHIP
2007-007468	R411	R-CHIP
2007-007592	R637	R-CHIP
2007-007798	R422	R-CHIP
2007-008043	R201	R-CHIP
2007-008043	R202	R-CHIP
2007-008044	R105	R-CHIP
2007-008045	R100	R-CHIP
2007-008045	R106	R-CHIP
2007-008045	R107	R-CHIP
2007-008045	R333	R-CHIP
2007-008045	R423	R-CHIP
2007-008045	R524	R-CHIP
2007-008046	R200	R-CHIP
2007-008049	R307	R-CHIP
2007-008050	R108	R-CHIP
2007-008052	R511	R-CHIP
2007-008052	R512	R-CHIP
2007-008052	R619	R-CHIP
2007-008052	R634	R-CHIP
2007-008052	R636	R-CHIP
2007-008052	R642	R-CHIP
2007-008052	R644	R-CHIP
2007-008052	R703	R-CHIP
2007-008052	R704	R-CHIP
2007-008055	R614	R-CHIP
2007-008055	R638	R-CHIP
2007-008055	R639	R-CHIP
2007-008057	R103	R-CHIP
2007-008057	R104	R-CHIP
2007-008354	R626	R-CHIP
2007-008419	R208	R-CHIP
2007-008419	R609	R-CHIP
2007-008419	R610	R-CHIP
2007-008477	R314	R-CHIP
2007-008486	R421	R-CHIP
2007-008486	R426	R-CHIP
2007-008486	R700	R-CHIP
2007-008516	R102	R-CHIP

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SEC Code	Design LOC	Description
2007-008516	R302	R-CHIP
2007-008516	R303	R-CHIP
2007-008516	R304	R-CHIP
2007-008516	R310	R-CHIP
2007-008516	R402	R-CHIP
2007-008516	R403	R-CHIP
2007-008516	R404	R-CHIP
2007-008516	R405	R-CHIP
2007-008516	R406	R-CHIP
2007-008516	R417	R-CHIP
2007-008516	R418	R-CHIP
2007-008516	R510	R-CHIP
2007-008516	R702	R-CHIP
2007-008516	R705	R-CHIP
2007-008542	R424	R-CHIP
2007-008542	R500	R-CHIP
2007-008542	R501	R-CHIP
2007-008542	R502	R-CHIP
2007-008542	R606	R-CHIP
2007-008542	R607	R-CHIP
2007-008542	R615	R-CHIP
2007-008542	R706	R-CHIP
2007-008542	R707	R-CHIP
2007-008542	R709	R-CHIP
2007-008548	R525	R-CHIP
2007-008548	R526	R-CHIP
2007-008548	R528	R-CHIP
2007-008548	R530	R-CHIP
2007-008548	R608	R-CHIP
2007-008588	R328	R-CHIP
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2007-008776	R529	R-CHIP
2007-008806	R203	R-CHIP
2007-008806	R325	R-CHIP
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2007-008806	R708	R-CHIP
2007-009084	R319	R-CHIP
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2007-009111	R612	R-CHIP
2007-009111	R613	R-CHIP
2007-009111	R711	R-CHIP

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SEC Code	Design LOC	Description
2007-009161	R627	R-CHIP
2007-009170	R320	R-CHIP
2007-009170	R321	R-CHIP
2007-009170	R603	R-CHIP
2007-009170	R605	R-CHIP
2007-009171	R316	R-CHIP
2007-009171	R317	R-CHIP
2007-009171	R318	R-CHIP
2007-009171	R414	R-CHIP
2007-009171	R419	R-CHIP
2007-009199	R101	R-CHIP
2007-009212	R522	R-CHIP
2007-009212	R523	R-CHIP
2007-009212	R531	R-CHIP
2007-009212	R532	R-CHIP
2007-009408	R430	R-CHIP
2007-009420	R204	R-CHIP
2007-009794	R425	R-CHIP
2007-009801	R710	R-CHIP
2203-000278	C132	C-CER,CHIP
2203-000425	C456	C-CER,CHIP
2203-000425	C457	C-CER,CHIP
2203-000438	C123	C-CER,CHIP
2203-000725	C618	C-CER,CHIP
2203-000812	C105	C-CER,CHIP
2203-000812	C233	C-CER,CHIP
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2203-000854	C505	C-CER,CHIP
2203-000995	C209	C-CER,CHIP
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2203-002677	C102	C-CER,CHIP
2203-002677	C202	C-CER,CHIP
2203-002709	C372	C-CER,CHIP
2203-002709	C702	C-CER,CHIP
2203-005288	C133	C-CER,CHIP
2203-005482	C321	C-CER,CHIP
2203-005482	C323	C-CER,CHIP
2203-005483	C514	C-CER,CHIP
2203-005682	C109	C-CER,CHIP
2203-005682	C111	C-CER,CHIP
2203-005682	C113	C-CER,CHIP
2203-005682	C117	C-CER,CHIP
2203-005682	C119	C-CER,CHIP
2203-005682	C120	C-CER,CHIP
2203-005682	C121	C-CER,CHIP
2203-005682	C206	C-CER,CHIP
2203-005682	C208	C-CER,CHIP

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SEC Code	Design LOC	Description
2203-005682	C261	C-CER,CHIP
2203-005682	C269	C-CER,CHIP
2203-005682	C302	C-CER,CHIP
2203-005682	C313	C-CER,CHIP
2203-005682	C316	C-CER,CHIP
2203-005682	C317	C-CER,CHIP
2203-005682	C411	C-CER,CHIP
2203-005682	C413	C-CER,CHIP
2203-005682	C414	C-CER,CHIP
2203-005682	C415	C-CER,CHIP
2203-005682	C416	C-CER,CHIP
2203-005682	C417	C-CER,CHIP
2203-005682	C418	C-CER,CHIP
2203-005682	C432	C-CER,CHIP
2203-005682	C446	C-CER,CHIP
2203-005682	C610	C-CER,CHIP
2203-005682	C611	C-CER,CHIP
2203-005682	C636	C-CER,CHIP
2203-005682	C700	C-CER,CHIP
2203-005682	C720	C-CER,CHIP
2203-005682	C721	C-CER,CHIP
2203-005682	C722	C-CER,CHIP
2203-005682	L103	C-CER,CHIP
2203-005719	C122	C-CER,CHIP
2203-005719	C526	C-CER,CHIP
2203-005719	C527	C-CER,CHIP
2203-005719	C528	C-CER,CHIP
2203-005719	C529	C-CER,CHIP
2203-005719	C530	C-CER,CHIP
2203-005719	C531	C-CER,CHIP
2203-005719	C543	C-CER,CHIP
2203-005719	C544	C-CER,CHIP
2203-005719	C545	C-CER,CHIP
2203-005719	C546	C-CER,CHIP
2203-005725	C228	C-CER,CHIP
2203-005725	C232	C-CER,CHIP
2203-005725	C236	C-CER,CHIP
2203-005725	C243	C-CER,CHIP
2203-005725	C244	C-CER,CHIP
2203-005725	C245	C-CER,CHIP
2203-005725	C246	C-CER,CHIP
2203-005725	C247	C-CER,CHIP
2203-005725	C253	C-CER,CHIP
2203-005725	C254	C-CER,CHIP
2203-005725	C256	C-CER,CHIP
2203-005725	C262	C-CER,CHIP
2203-005725	C265	C-CER,CHIP

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SEC Code	Design LOC	Description
2203-005725	C267	C-CER,CHIP
2203-005725	C268	C-CER,CHIP
2203-005727	C207	C-CER,CHIP
2203-005727	C421	C-CER,CHIP
2203-005727	C723	C-CER,CHIP
2203-005727	C724	C-CER,CHIP
2203-005729	C319	C-CER,CHIP
2203-005729	C440	C-CER,CHIP
2203-005729	C537	C-CER,CHIP
2203-005729	C539	C-CER,CHIP
2203-005731	C448	C-CER,CHIP
2203-005731	C710	C-CER,CHIP
2203-005732	C217	C-CER,CHIP
2203-005732	C218	C-CER,CHIP
2203-005736	C130	C-CER,CHIP
2203-005736	C200	C-CER,CHIP
2203-005736	C214	C-CER,CHIP
2203-005736	C215	C-CER,CHIP
2203-005736	C216	C-CER,CHIP
2203-005736	C223	C-CER,CHIP
2203-005736	C224	C-CER,CHIP
2203-005736	C225	C-CER,CHIP
2203-005736	C229	C-CER,CHIP
2203-005736	C235	C-CER,CHIP
2203-005736	C237	C-CER,CHIP
2203-005736	C239	C-CER,CHIP
2203-005736	C251	C-CER,CHIP
2203-005736	C255	C-CER,CHIP
2203-005736	C257	C-CER,CHIP
2203-005736	C258	C-CER,CHIP
2203-005736	C264	C-CER,CHIP
2203-005736	C266	C-CER,CHIP
2203-005736	C431	C-CER,CHIP
2203-005736	C434	C-CER,CHIP
2203-005736	C436	C-CER,CHIP
2203-005736	C439	C-CER,CHIP
2203-005736	C444	C-CER,CHIP
2203-005779	C419	C-CER,CHIP
2203-005779	C518	C-CER,CHIP
2203-005779	C519	C-CER,CHIP
2203-005779	C536	C-CER,CHIP
2203-005779	C538	C-CER,CHIP
2203-005779	C540	C-CER,CHIP
2203-005789	C114	C-CER,CHIP
2203-005792	C211	C-CER,CHIP
2203-005792	C212	C-CER,CHIP
2203-005792	C226	C-CER,CHIP

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SEC Code	Design LOC	Description
2203-005806	C104	C-CER,CHIP
2203-005806	C108	C-CER,CHIP
2203-005806	C312	C-CER,CHIP
2203-005806	C324	C-CER,CHIP
2203-005806	C325	C-CER,CHIP
2203-005806	C326	C-CER,CHIP
2203-005806	C327	C-CER,CHIP
2203-005806	C328	C-CER,CHIP
2203-005806	C335	C-CER,CHIP
2203-005806	C338	C-CER,CHIP
2203-005806	C339	C-CER,CHIP
2203-005806	C340	C-CER,CHIP
2203-005806	C341	C-CER,CHIP
2203-005806	C342	C-CER,CHIP
2203-005806	C343	C-CER,CHIP
2203-005806	C349	C-CER,CHIP
2203-006047	C638	C-CER,CHIP
2203-006048	C608	C-CER,CHIP
2203-006048	C701	C-CER,CHIP
2203-006120	C201	C-CER,CHIP
2203-006194	C103	C-CER,CHIP
2203-006194	C107	C-CER,CHIP
2203-006194	C110	C-CER,CHIP
2203-006194	C311	C-CER,CHIP
2203-006194	C315	C-CER,CHIP
2203-006194	C329	C-CER,CHIP
2203-006194	C330	C-CER,CHIP
2203-006194	C331	C-CER,CHIP
2203-006194	C332	C-CER,CHIP
2203-006194	C333	C-CER,CHIP
2203-006194	C336	C-CER,CHIP
2203-006194	C344	C-CER,CHIP
2203-006194	C345	C-CER,CHIP
2203-006194	C346	C-CER,CHIP
2203-006194	C350	C-CER,CHIP
2203-006194	C351	C-CER,CHIP
2203-006194	C352	C-CER,CHIP
2203-006194	C355	C-CER,CHIP
2203-006194	C360	C-CER,CHIP
2203-006194	C362	C-CER,CHIP
2203-006208	C629	C-CER,CHIP
2203-006208	C635	C-CER,CHIP
2203-006307	C441	C-CER,CHIP
2203-006307	C461	C-CER,CHIP
2203-006324	C203	C-CER,CHIP
2203-006324	C205	C-CER,CHIP
2203-006324	C442	C-CER,CHIP

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SEC Code	Design LOC	Description
2203-006324	C601	C-CER,CHIP
2203-006324	C621	C-CER,CHIP
2203-006324	C628	C-CER,CHIP
2203-006399	C318	C-CER,CHIP
2203-006399	C320	C-CER,CHIP
2203-006399	C423	C-CER,CHIP
2203-006399	C438	C-CER,CHIP
2203-006399	C443	C-CER,CHIP
2203-006423	C106	C-CER,CHIP
2203-006423	C129	C-CER,CHIP
2203-006423	C219	C-CER,CHIP
2203-006423	C220	C-CER,CHIP
2203-006423	C221	C-CER,CHIP
2203-006423	C222	C-CER,CHIP
2203-006423	C230	C-CER,CHIP
2203-006423	C231	C-CER,CHIP
2203-006423	C240	C-CER,CHIP
2203-006423	C241	C-CER,CHIP
2203-006423	C242	C-CER,CHIP
2203-006423	C248	C-CER,CHIP
2203-006423	C249	C-CER,CHIP
2203-006423	C250	C-CER,CHIP
2203-006423	C252	C-CER,CHIP
2203-006423	C259	C-CER,CHIP
2203-006423	C263	C-CER,CHIP
2203-006423	C305	C-CER,CHIP
2203-006423	C306	C-CER,CHIP
2203-006423	C307	C-CER,CHIP
2203-006423	C308	C-CER,CHIP
2203-006423	C309	C-CER,CHIP
2203-006423	C310	C-CER,CHIP
2203-006423	C314	C-CER,CHIP
2203-006423	C322	C-CER,CHIP
2203-006423	C337	C-CER,CHIP
2203-006423	C347	C-CER,CHIP
2203-006423	C356	C-CER,CHIP
2203-006423	C357	C-CER,CHIP
2203-006423	C358	C-CER,CHIP
2203-006423	C359	C-CER,CHIP
2203-006423	C361	C-CER,CHIP
2203-006423	C363	C-CER,CHIP
2203-006423	C365	C-CER,CHIP
2203-006423	C366	C-CER,CHIP
2203-006423	C367	C-CER,CHIP
2203-006423	C368	C-CER,CHIP
2203-006423	C369	C-CER,CHIP
2203-006423	C404	C-CER,CHIP

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SEC Code	Design LOC	Description
2203-006423	C405	C-CER,CHIP
2203-006423	C407	C-CER,CHIP
2203-006423	C408	C-CER,CHIP
2203-006423	C409	C-CER,CHIP
2203-006423	C410	C-CER,CHIP
2203-006423	C420	C-CER,CHIP
2203-006423	C445	C-CER,CHIP
2203-006423	C532	C-CER,CHIP
2203-006423	C533	C-CER,CHIP
2203-006423	C541	C-CER,CHIP
2203-006423	C542	C-CER,CHIP
2203-006462	C301	C-CER,CHIP
2203-006556	C370	C-CER,CHIP
2203-006556	C464	C-CER,CHIP
2203-006556	C640	C-CER,CHIP
2203-006556	C641	C-CER,CHIP
2203-006562	C125	C-CER,CHIP
2203-006562	C126	C-CER,CHIP
2203-006562	C128	C-CER,CHIP
2203-006562	C371	C-CER,CHIP
2203-006562	C412	C-CER,CHIP
2203-006562	C452	C-CER,CHIP
2203-006562	C453	C-CER,CHIP
2203-006562	C454	C-CER,CHIP
2203-006562	C455	C-CER,CHIP
2203-006562	C547	C-CER,CHIP
2203-006562	C550	C-CER,CHIP
2203-006562	C609	C-CER,CHIP
2203-006562	C612	C-CER,CHIP
2203-006562	C614	C-CER,CHIP
2203-006562	C617	C-CER,CHIP
2203-006562	C622	C-CER,CHIP
2203-006562	C623	C-CER,CHIP
2203-006562	C632	C-CER,CHIP
2203-006562	C633	C-CER,CHIP
2203-006562	C634	C-CER,CHIP
2203-006562	C639	C-CER,CHIP
2203-006562	C711	C-CER,CHIP
2203-006562	C712	C-CER,CHIP
2203-006562	C713	C-CER,CHIP
2203-006562	C714	C-CER,CHIP
2203-006562	C715	C-CER,CHIP
2203-006562	C725	C-CER,CHIP
2203-006611	L102	C-CER,CHIP
2203-006611	L104	C-CER,CHIP
2203-006611	L106	C-CER,CHIP
2203-006611	L107	C-CER,CHIP

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SEC Code	Design LOC	Description
2203-006668	C300	C-CER,CHIP
2203-006824	C270	C-CER,CHIP
2203-006824	C271	C-CER,CHIP
2203-006824	C422	C-CER,CHIP
2203-006824	C426	C-CER,CHIP
2203-006824	C427	C-CER,CHIP
2203-006824	C429	C-CER,CHIP
2203-006825	C234	C-CER,CHIP
2203-006825	C334	C-CER,CHIP
2203-006825	C364	C-CER,CHIP
2203-006838	C303	C-CER,CHIP
2203-006838	C304	C-CER,CHIP
2203-006838	C602	C-CER,CHIP
2203-006838	C613	C-CER,CHIP
2203-006838	C631	C-CER,CHIP
2203-006839	C450	C-CER,CHIP
2203-006839	C451	C-CER,CHIP
2203-006839	C458	C-CER,CHIP
2203-006839	C500	C-CER,CHIP
2203-006839	C504	C-CER,CHIP
2203-006839	C508	C-CER,CHIP
2203-006839	C510	C-CER,CHIP
2203-006839	C513	C-CER,CHIP
2203-006839	C516	C-CER,CHIP
2203-006839	C517	C-CER,CHIP
2203-006841	C459	C-CER,CHIP
2203-006841	C460	C-CER,CHIP
2203-006841	C603	C-CER,CHIP
2203-006872	C127	C-CER,CHIP
2203-006872	C425	C-CER,CHIP
2203-006872	C428	C-CER,CHIP
2203-006872	C430	C-CER,CHIP
2203-006872	C437	C-CER,CHIP
2203-006872	C524	C-CER,CHIP
2203-006872	C525	C-CER,CHIP
2203-006872	C637	C-CER,CHIP
2203-006978	C619	C-CER,CHIP
2203-006978	C620	C-CER,CHIP
2203-006979	C204	C-CER,CHIP
2203-006979	C238	C-CER,CHIP
2203-006979	C260	C-CER,CHIP
2203-007133	C433	C-CER,CHIP
2203-007133	C435	C-CER,CHIP
2203-007173	C509	C-CER,CHIP
2203-007270	C511	C-CER,CHIP
2203-007270	C512	C-CER,CHIP
2404-001225	C534	C-TA,CHIP

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2404-001225	C535	C-TA,CHIP
2404-001339	TA400	C-TA,CHIP
2404-001339	TA401	C-TA,CHIP
2404-001339	TA402	C-TA,CHIP
2404-001339	TA403	C-TA,CHIP
2404-001339	TA406	C-TA,CHIP
2404-001381	TA502	C-TA,CHIP
2404-001381	TA600	C-TA,CHIP
2404-001381	TA701	C-TA,CHIP
2404-001465	TA503	C-TA,CHIP
2404-001465	TA504	C-TA,CHIP
2404-001474	TA100	C-TA,CHIP
2404-001474	TA602	C-TA,CHIP
2404-001474	TA700	C-TA,CHIP
2703-001749	L200	INDUCTOR-SMD
2703-002155	L100	INDUCTOR-SMD
2703-002176	L113	INDUCTOR-SMD
2703-002369	L202	INDUCTOR-SMD
2703-002714	L502	INDUCTOR-SMD
2703-002714	L503	INDUCTOR-SMD
2703-002793	L105	INDUCTOR-SMD
2703-002793	L108	INDUCTOR-SMD
2703-002795	C112	INDUCTOR-SMD
2703-002795	C115	INDUCTOR-SMD
2703-002798	L201	INDUCTOR-SMD
2703-002872	L400	INDUCTOR-SMD
2703-002872	L401	INDUCTOR-SMD
2703-002872	L402	INDUCTOR-SMD
2703-002903	L208	INDUCTOR-SMD
2703-002906	L205	INDUCTOR-SMD
2703-002917	L206	INDUCTOR-SMD
2703-003182	L604	INDUCTOR-SMD
2703-003260	L605	INDUCTOR-SMD
2703-003285	L603	INDUCTOR-SMD
2703-003293	L109	INDUCTOR-SMD
2801-004339	OSC400	CRYSTAL-SMD
2801-004458	OSC401	CRYSTAL-SMD
2809-001280	OSC100	OSCILLATOR-VCTCXO
2901-001353	F705	FILTER-EMI/ESD
2901-001353	F706	FILTER-EMI/ESD
2901-001353	F707	FILTER-EMI/ESD
2901-001409	F700	FILTER-EMI SMD
2901-001409	F701	FILTER-EMI SMD
2901-001409	F702	FILTER-EMI SMD
2901-001409	F703	FILTER-EMI SMD
2901-001409	F704	FILTER-EMI SMD
2901-001412	F708	FILTER-EMI/ESD

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2901-001498	F709	FILTER-EMI/ESD
2904-001634	F101	FILTER-SAW
2904-001635	F102	FILTER-SAW
2904-001658	F200	FILTER-SAW
2904-001702	U201	FILTER-SAW
2904-001719	F100	FILTER-SAW
2910-000039	DUP200	DUPLEXER-FBAR
3301-001158	L500	BEAD-SMD
3301-001158	L501	BEAD-SMD
3301-001756	L504	BEAD-SMD
3301-001756	L505	BEAD-SMD
3301-001778	L600	CORE-FERRITE BEAD
3301-001778	L601	CORE-FERRITE BEAD
3705-001421	RFS101	CONNECTOR-COAXIAL
3705-001448	RFS100	CONNECTOR-COAXIAL
3709-001391	SIM400	CONNECTOR-CARD EDGE
3709-001464	CD400	CONNECTOR-CARD EDGE
3710-002523	IFC600	SOCKET-INTERFACE
3711-005581	HDC702	HEADER-BOARD TO BOARD
3711-005930	HDC700	HEADER-BOARD TO BOARD
3711-005976	HDC703	HEADER-BOARD TO BOARD
3711-006326	HDC701	HEADER-BOARD TO BOARD
3711-006348	BTC700	HEADER-BATTERY
4302-001130	BAT400	BATTERY-LI(2ND)
4709-001399	F201	COUPLER-DIRECTION
4709-001645	U101	BLUETOOTH MODULE
GH70-03349A	SC100	IPR SHIELD-CAN CLIP
GH70-03349A	SC101	IPR SHIELD-CAN CLIP
GH70-03349A	SC102	IPR SHIELD-CAN CLIP
GH70-03349A	SC103	IPR SHIELD-CAN CLIP
GH70-03349A	SC104	IPR SHIELD-CAN CLIP
GH70-03349A	SC105	IPR SHIELD-CAN CLIP
GH70-03349A	SC106	IPR SHIELD-CAN CLIP
GH70-03349A	SC107	IPR SHIELD-CAN CLIP
GH70-03349A	SC108	IPR SHIELD-CAN CLIP
GH70-03349A	SC109	IPR SHIELD-CAN CLIP
GH70-03349A	SC110	IPR SHIELD-CAN CLIP
GH70-03349A	SC111	IPR SHIELD-CAN CLIP
GH70-03349A	SC112	IPR SHIELD-CAN CLIP

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