

SAMSUNG

GSM TELEPHONE

SGH-X461

SERVICE *Manual*

GSM TELEPHONE



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1. SGH-X461 Specification

1-1. GSM General Specification

	GSM900 Phase 1	EGSM 900 Phase 2	DCS1800 Phase 1	PCS1900
Freq. Band[MHz] Uplink/Downlink	890~915 935~960	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range	1~124	0~124 & 975~1023	512~885	512~810
Tx/Rx spacing	45MHz	45MHz	95MHz	80MHz
Mod. Bit rate/ Bit Period	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us	270.833kbps 3.692us
Time Slot Period/Frame Period	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms	576.9us 4.615ms
Modulation	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK
MS Power	33dBm~13dBm	33dBm~5dBm	30dBm~0dBm	30dBm~0dBm
Power Class	5pcl ~ 15pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl
Sensitivity	-102dBm	-102dBm	-100dBm	-100dBm
TDMA Mux	8	8	8	8
Cell Radius	35Km	35Km	2Km	-

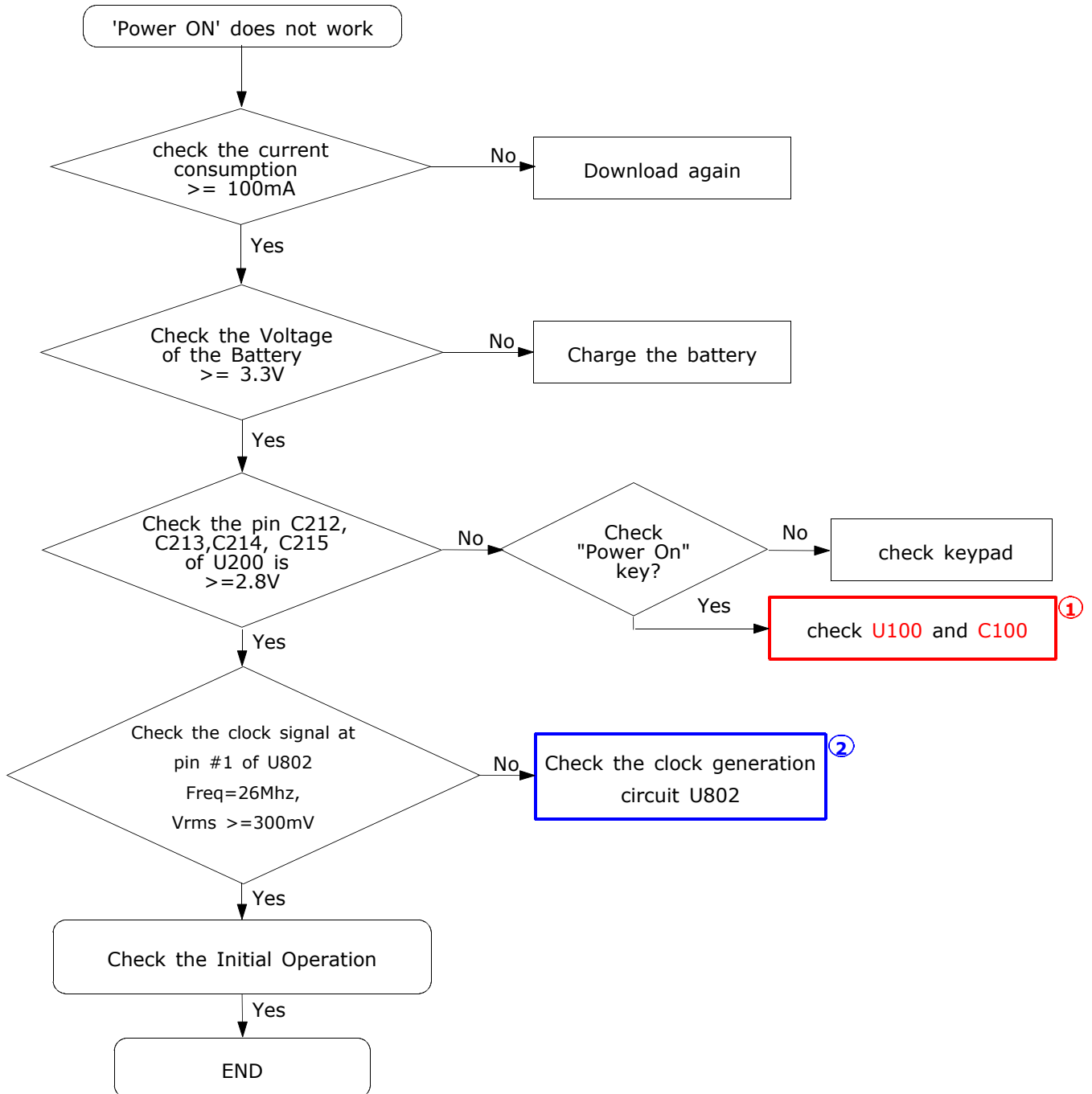
1-2. GSM Tx Power Class

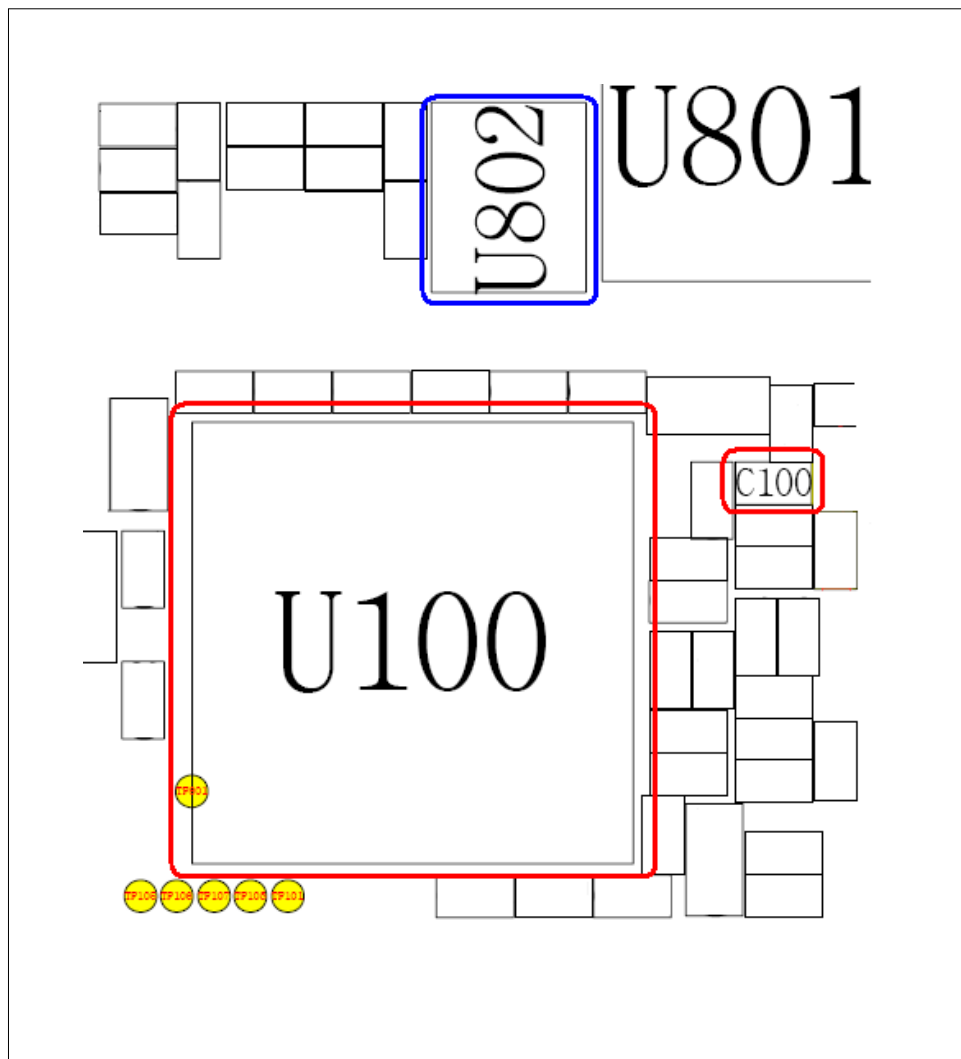
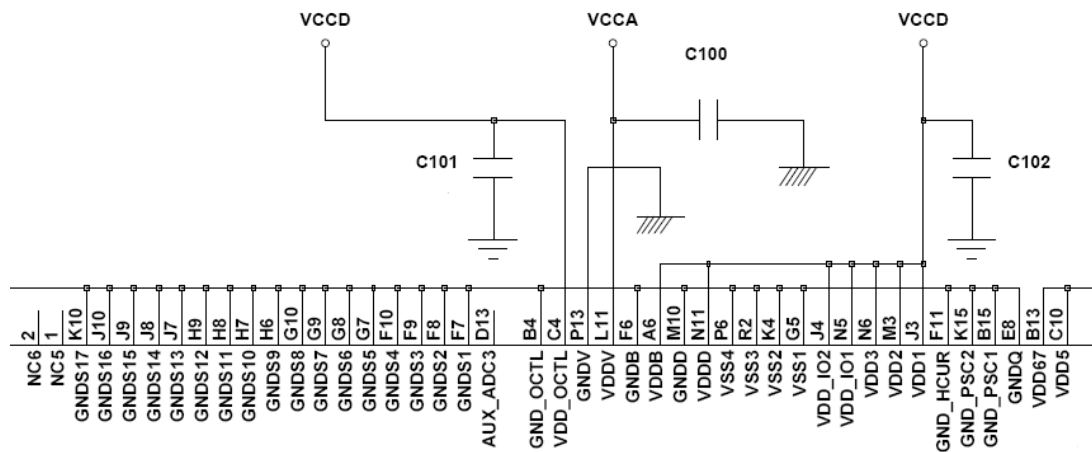
TX Power control level	GSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
5	33±2 dBm	0	30±3 dBm	0	30±3 dBm
6	31±2 dBm	1	28±3 dBm	1	28±3 dBm
7	29±2 dBm	2	26±3 dBm	2	26±3 dBm
8	27±2 dBm	3	24±3 dBm	3	24±3 dBm
9	25±2 dBm	4	22±3 dBm	4	22±3 dBm
10	23±2 dBm	5	20±3 dBm	5	20±3 dBm
11	21±2 dBm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

2. SGH-X461 Flow Chart of Troubleshooting

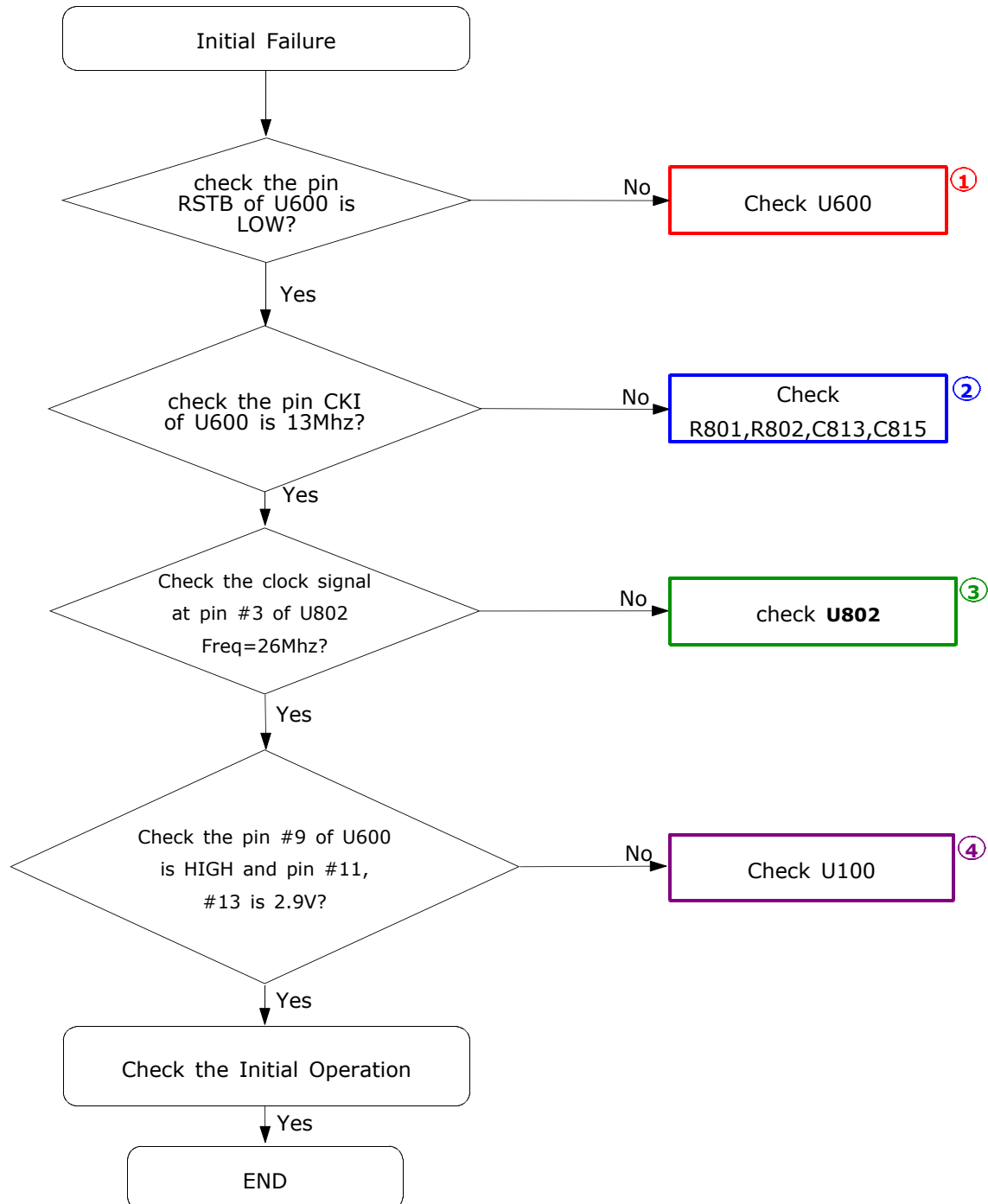
2-1. Baseband

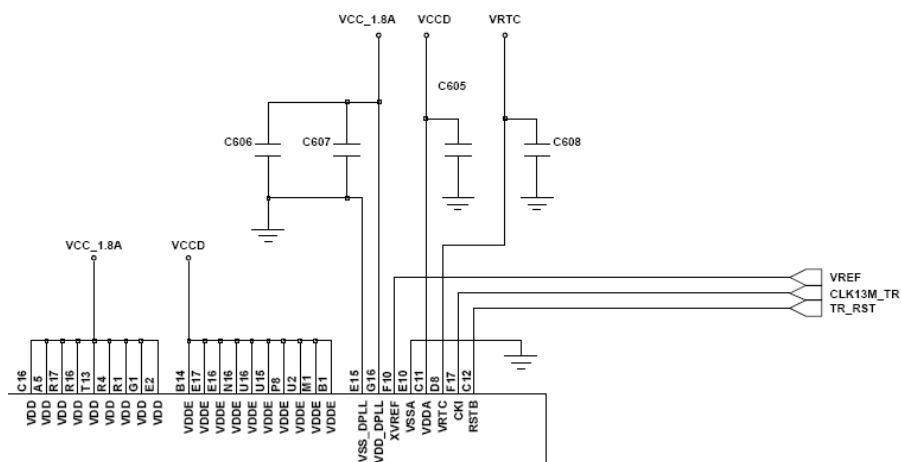
2-1-1. Power ON



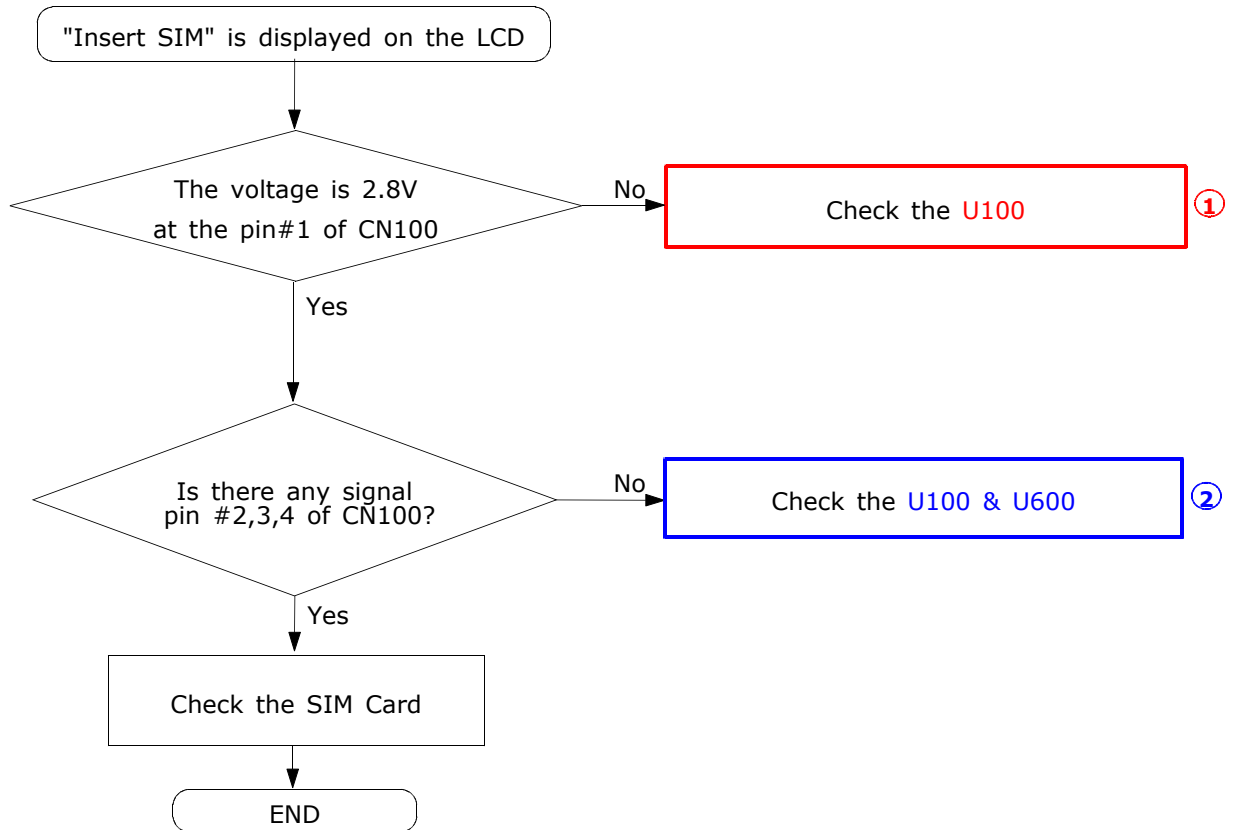


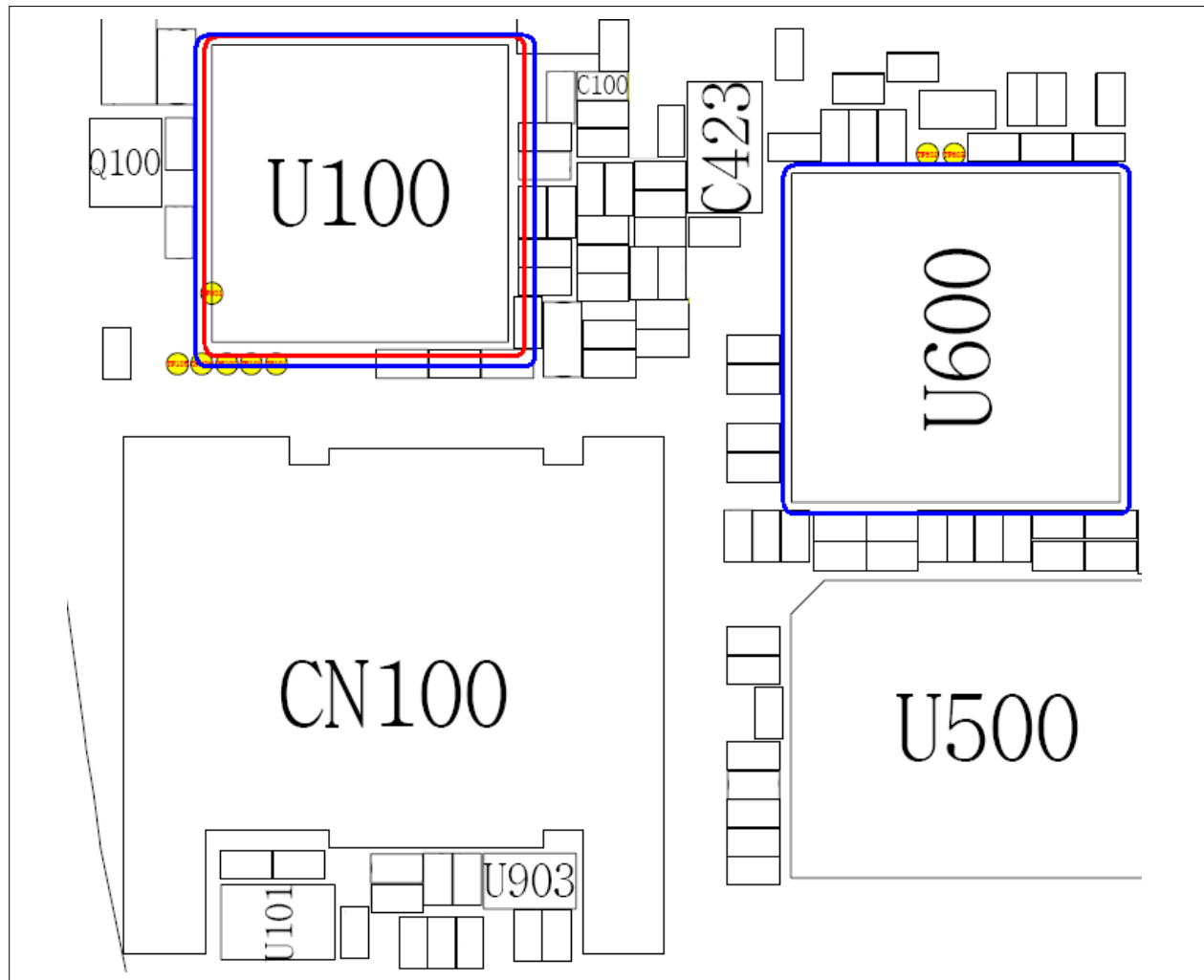
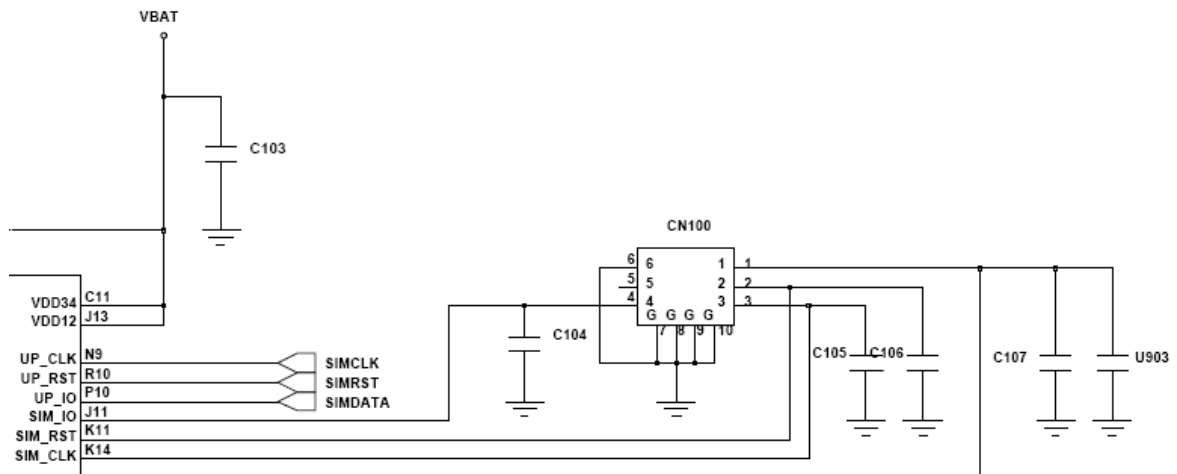
2-1-2. Initial





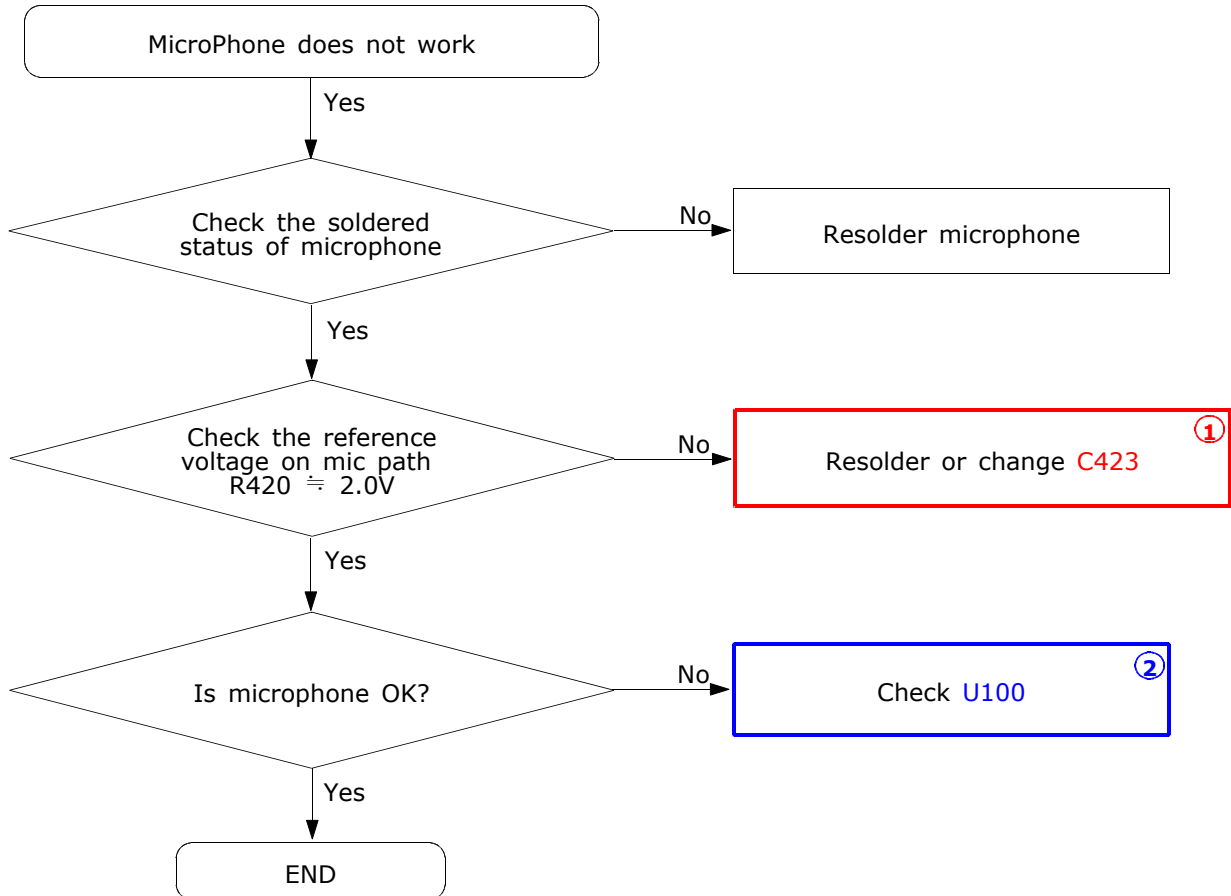
2-1-3. Sim Part

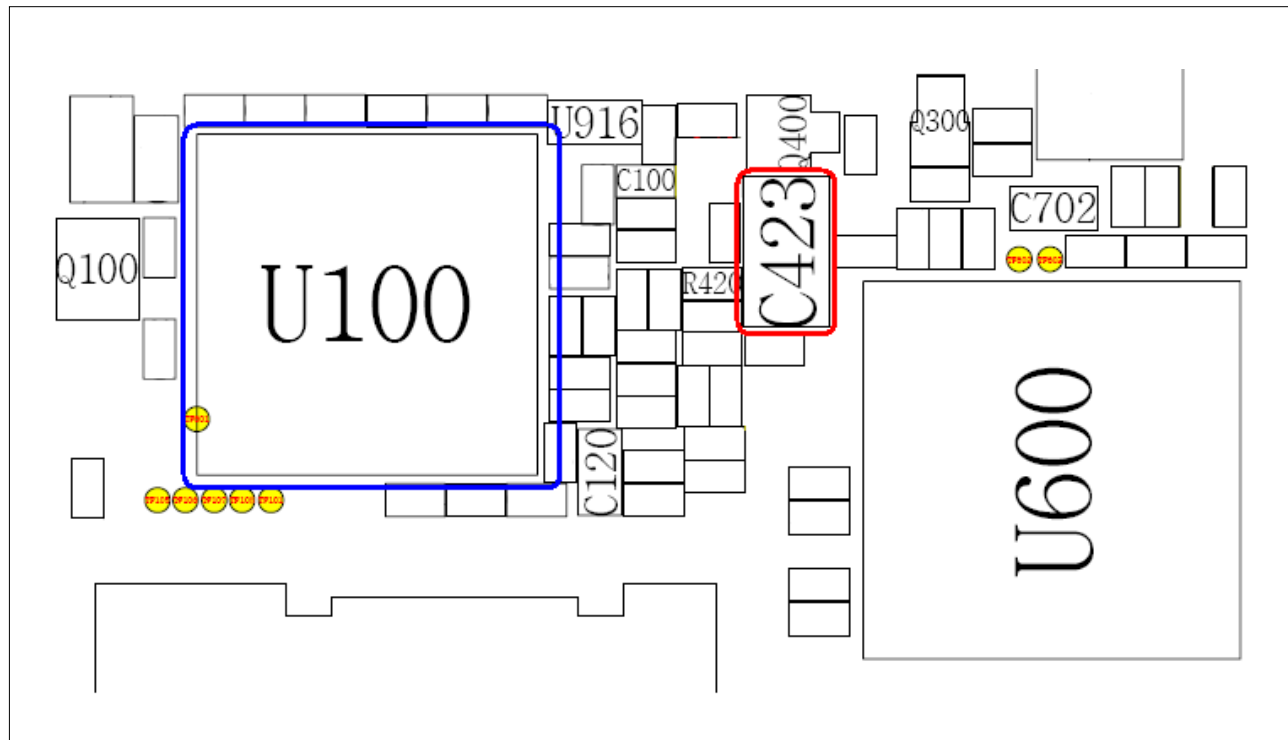
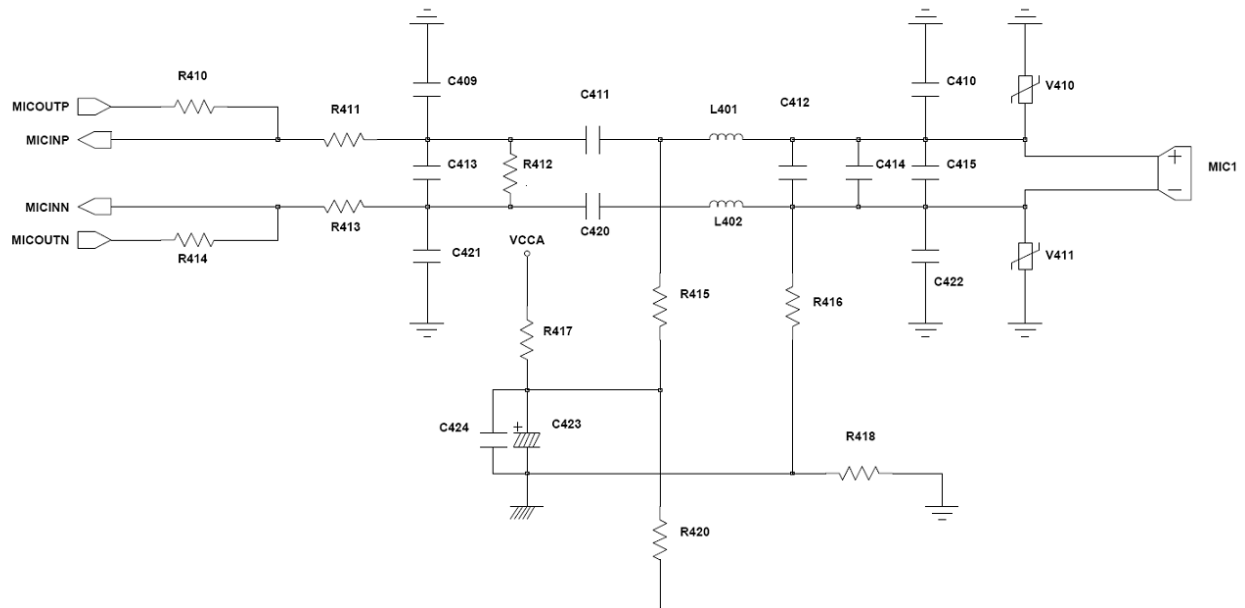




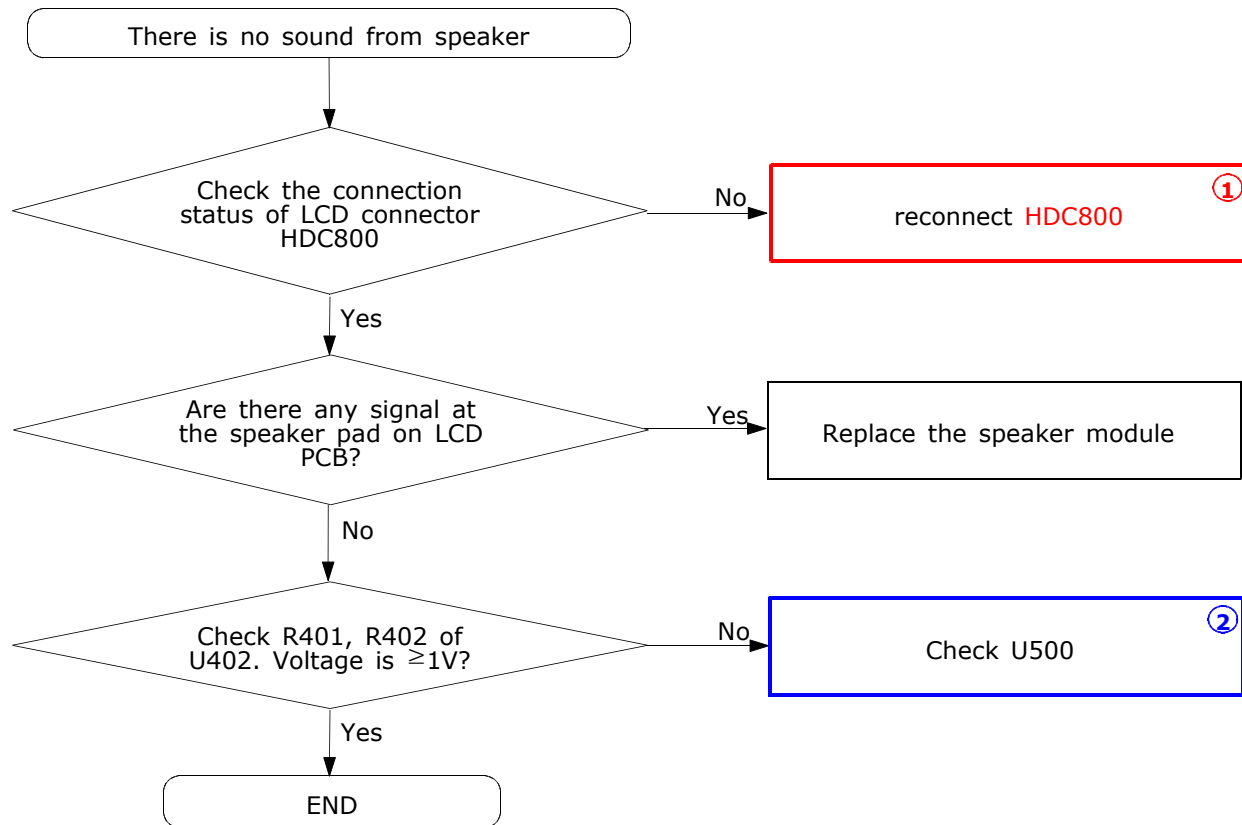
2-1-4. Microphone Part

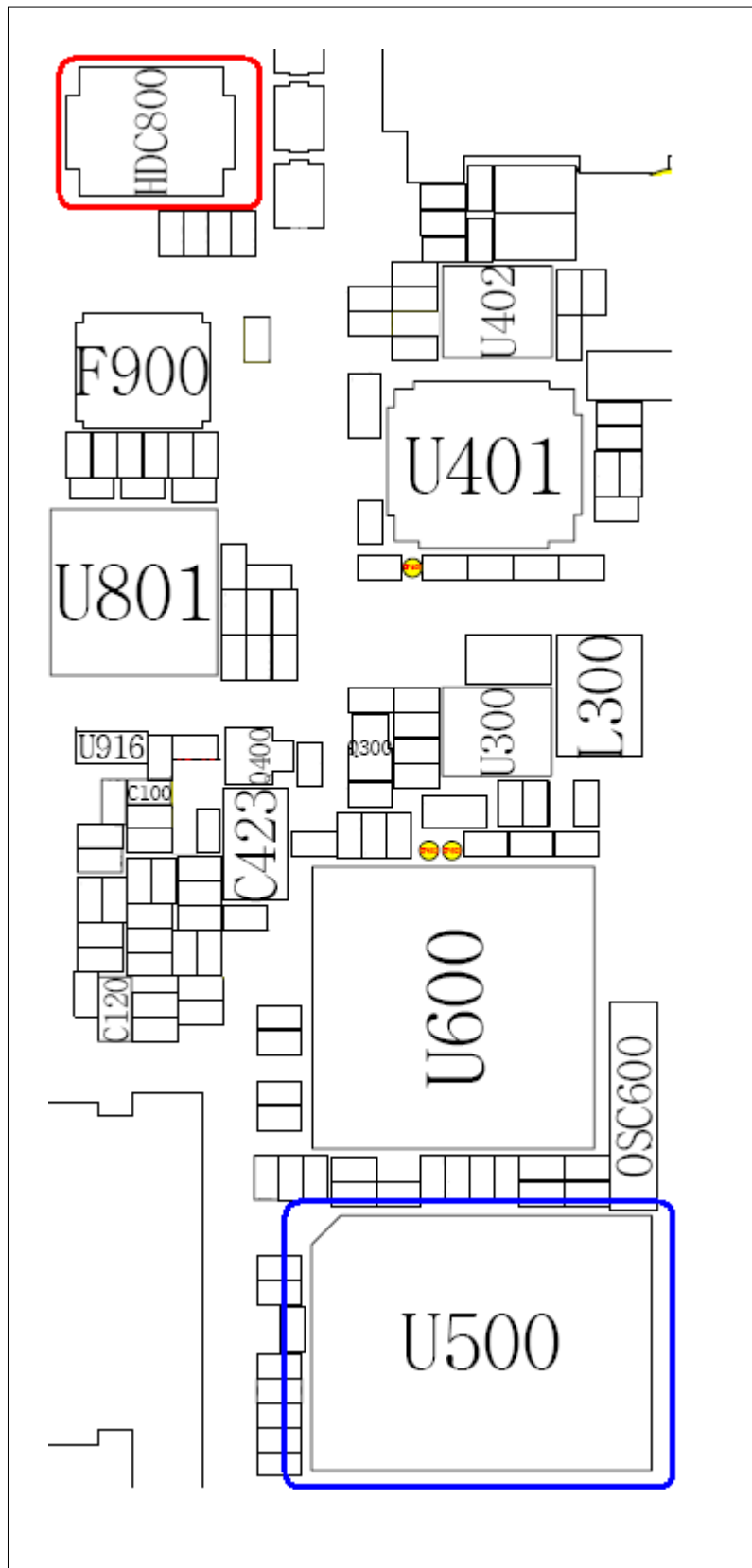
* Call with Sim before testing.



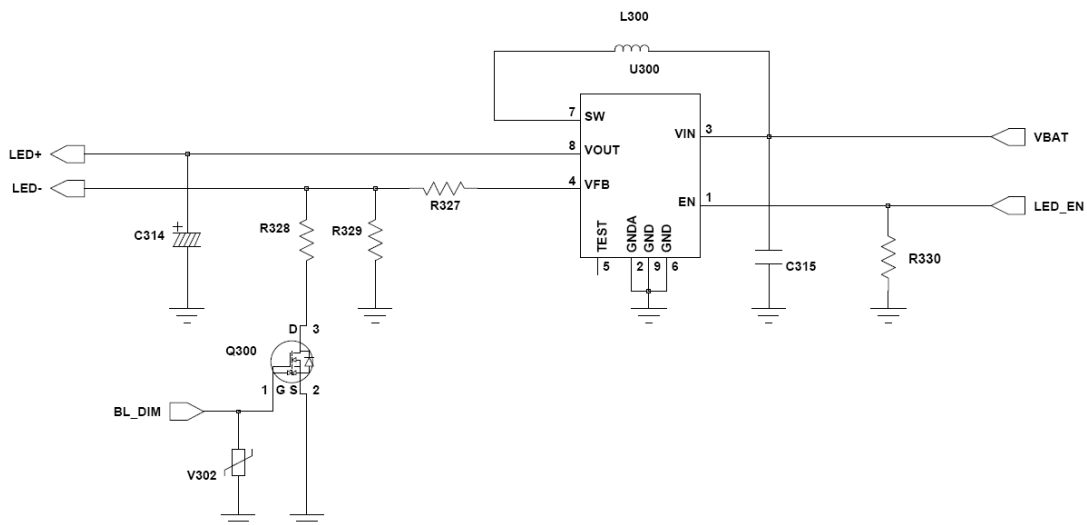
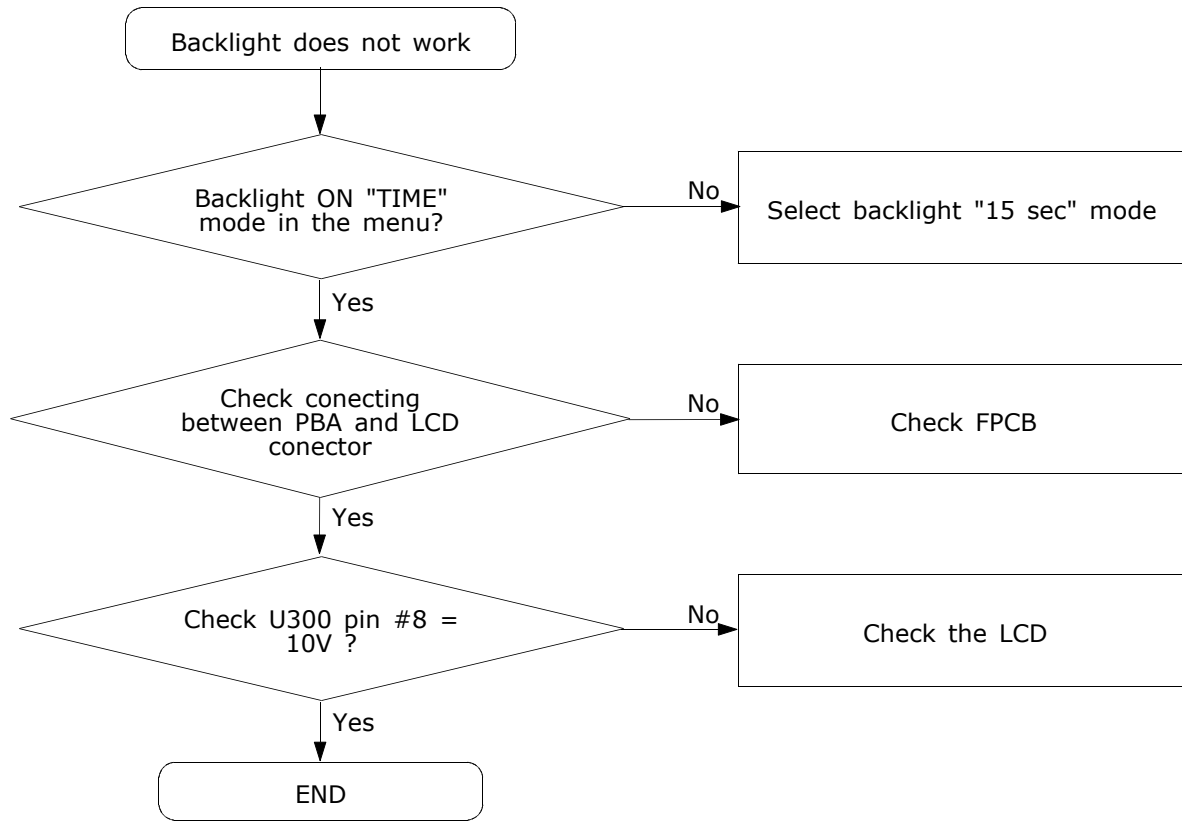


2-1-5. Speaker Part



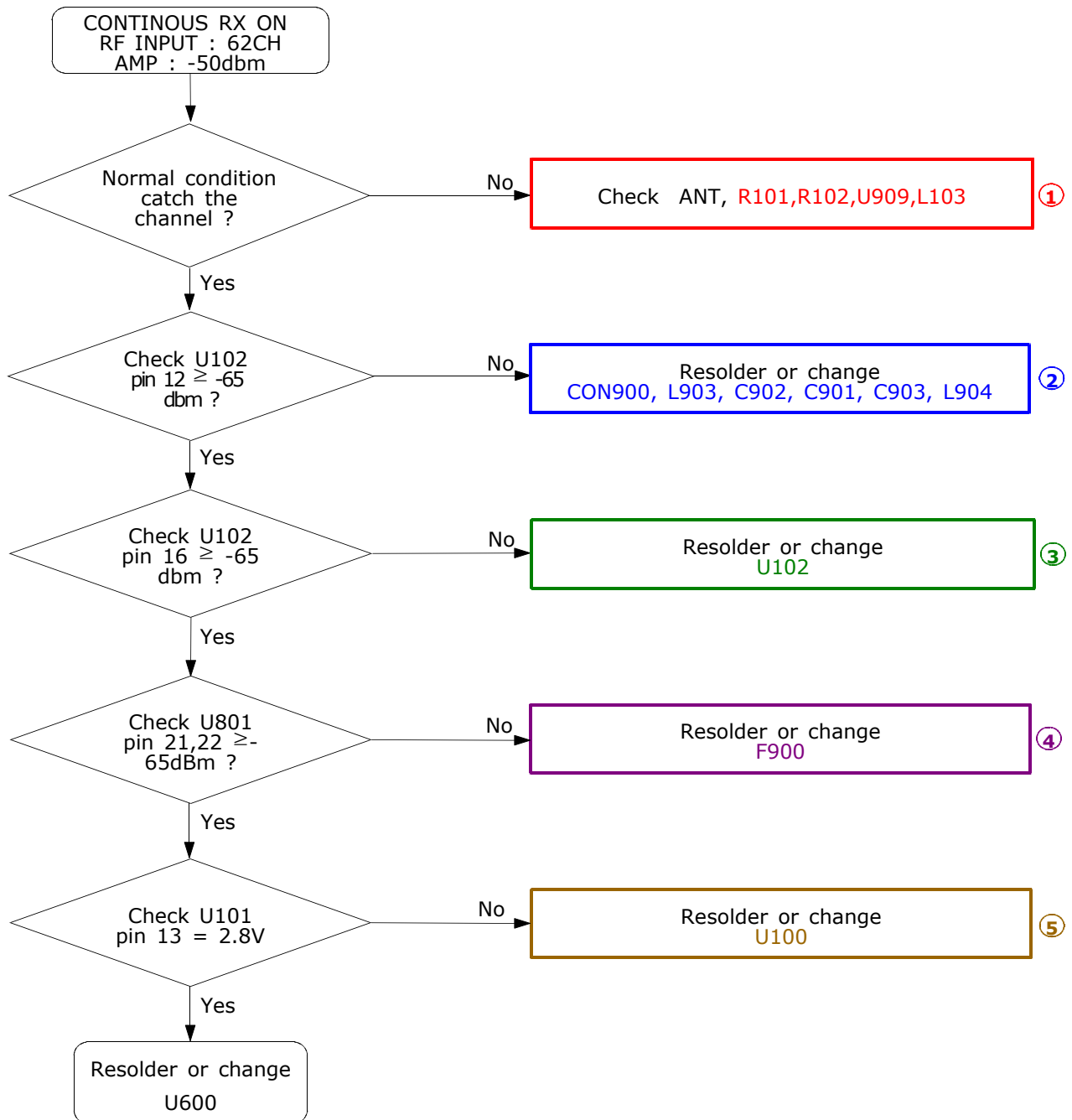


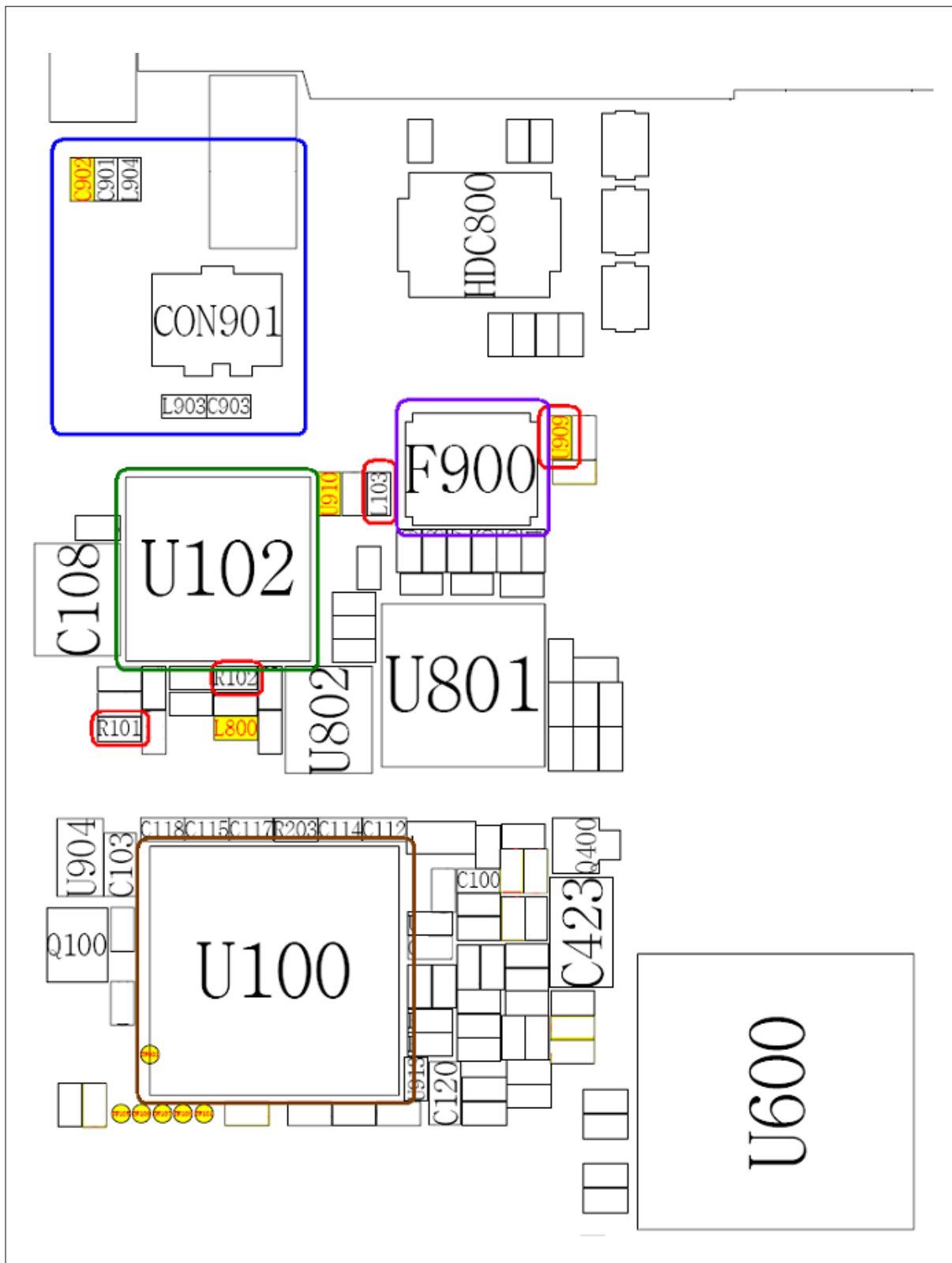
2-1-6. LCD backlight



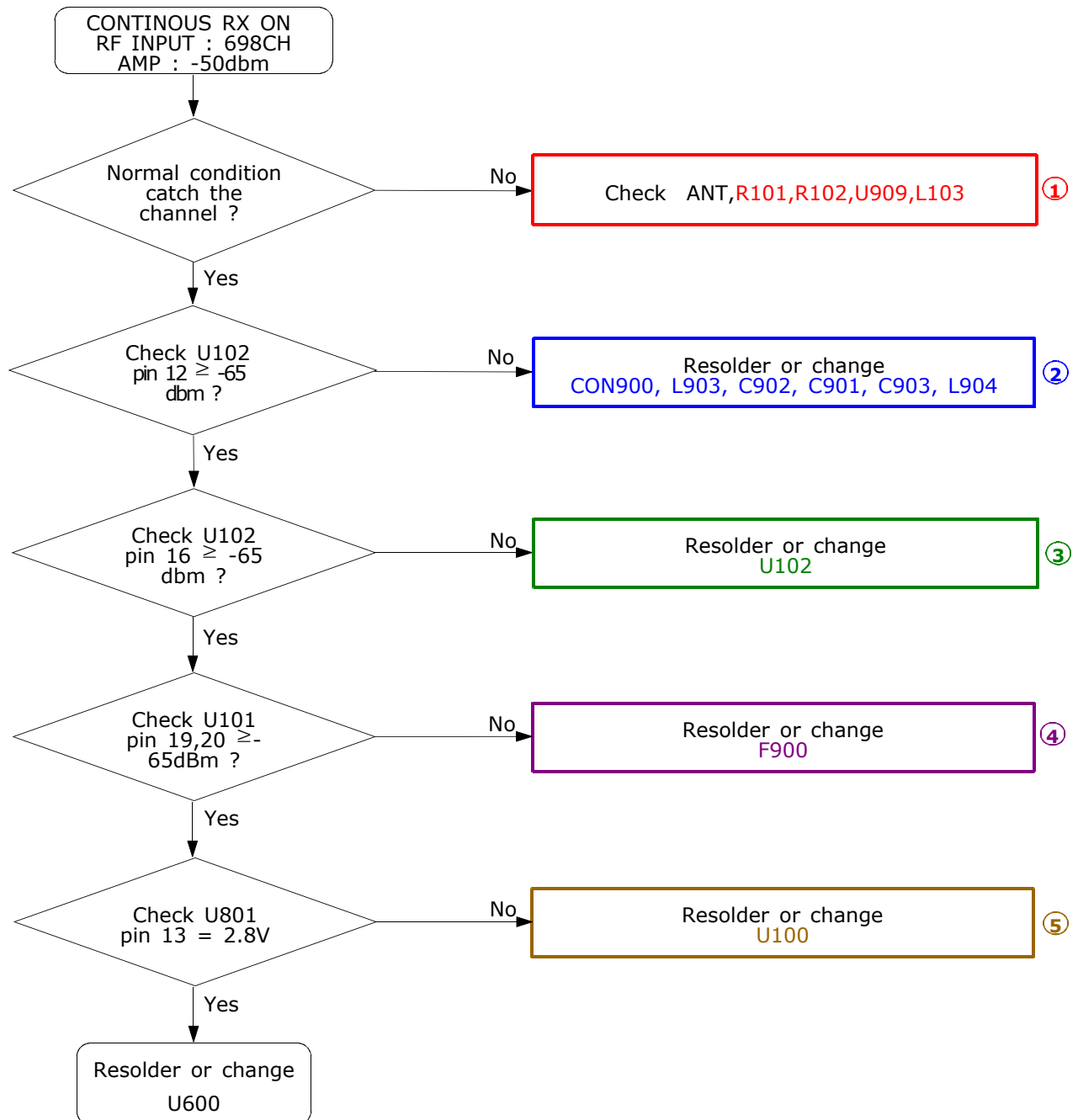
2-2. RF

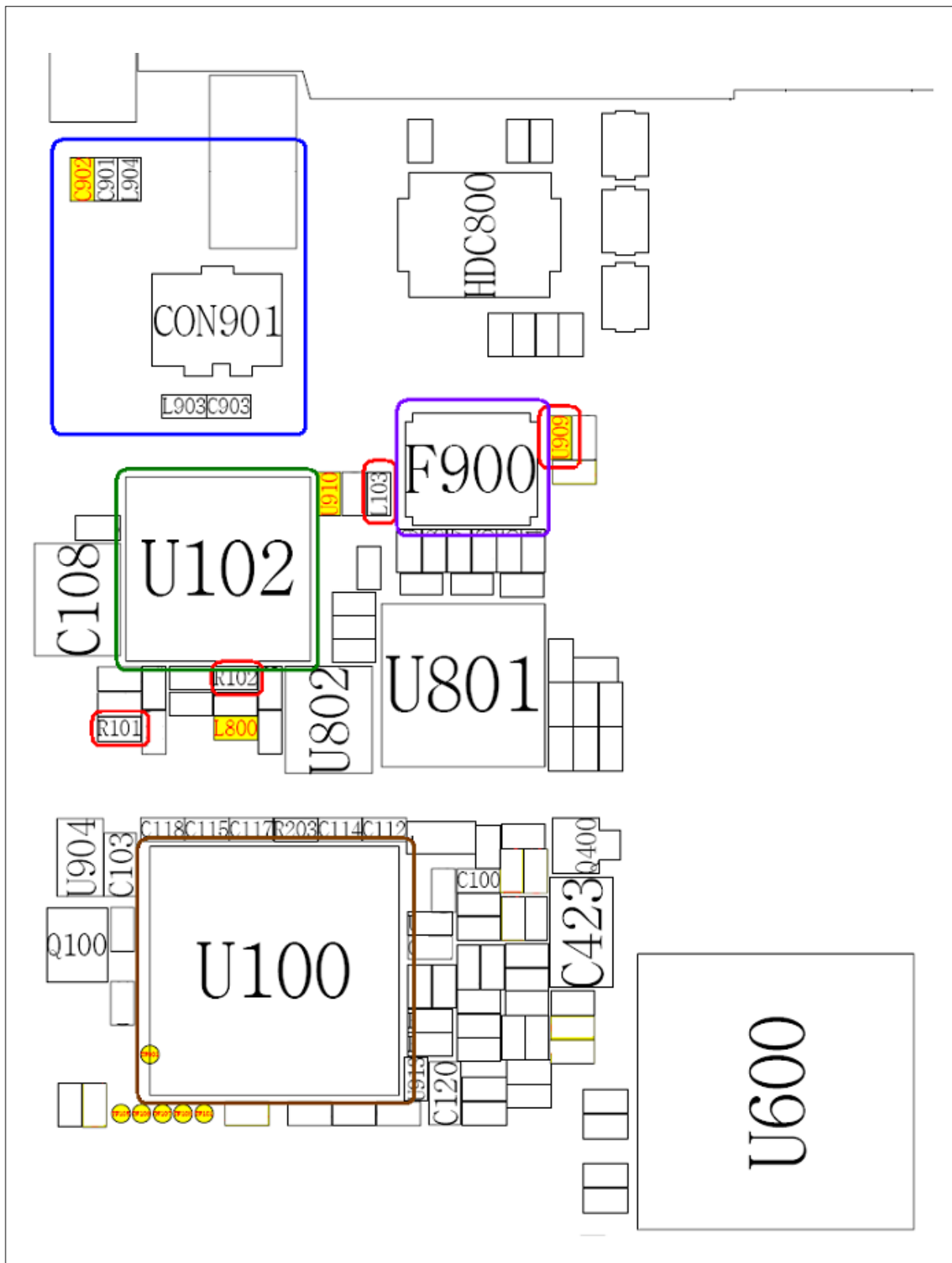
2-2-1. GSM Rx



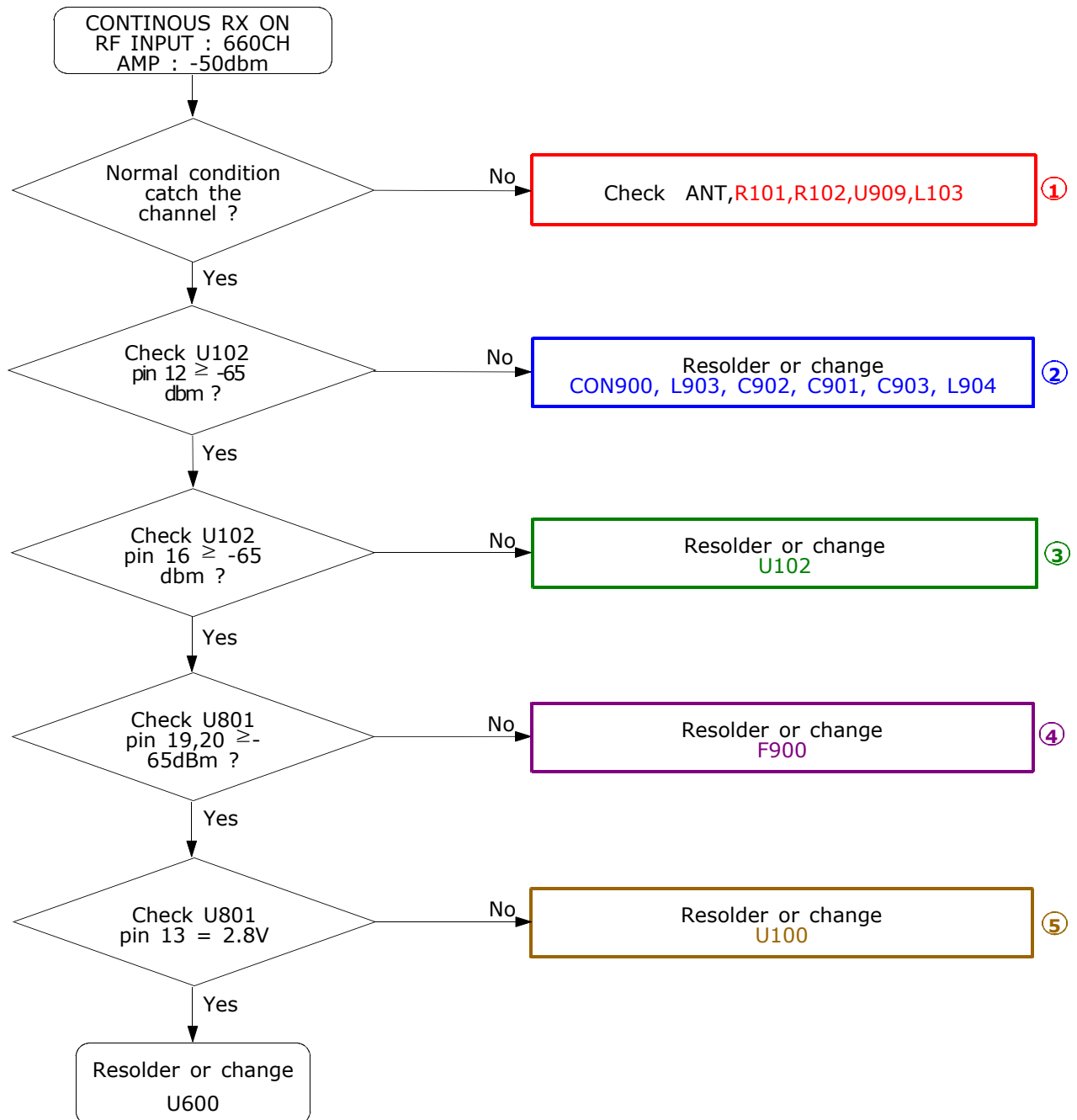


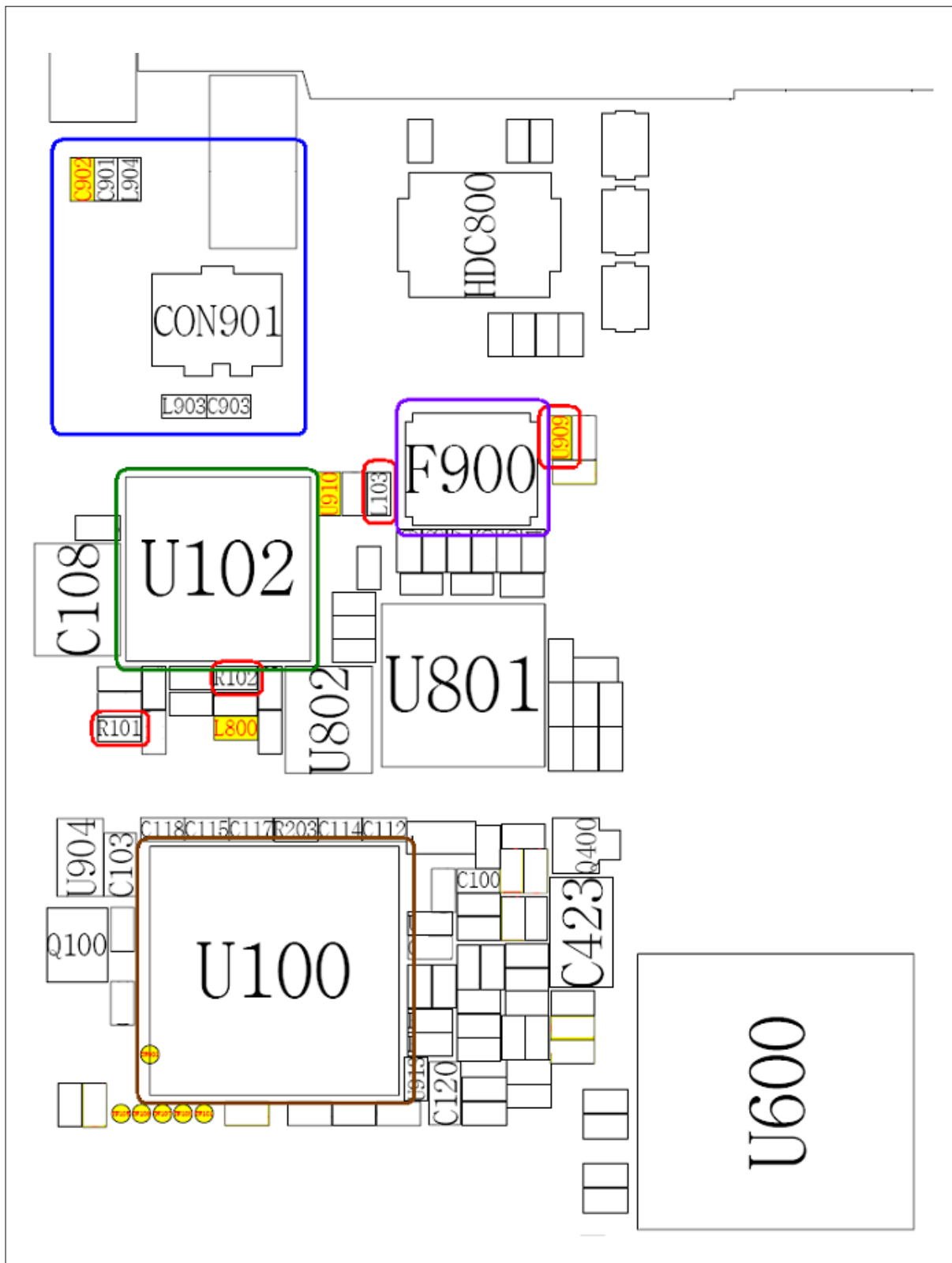
2-2-2. DCS Rx

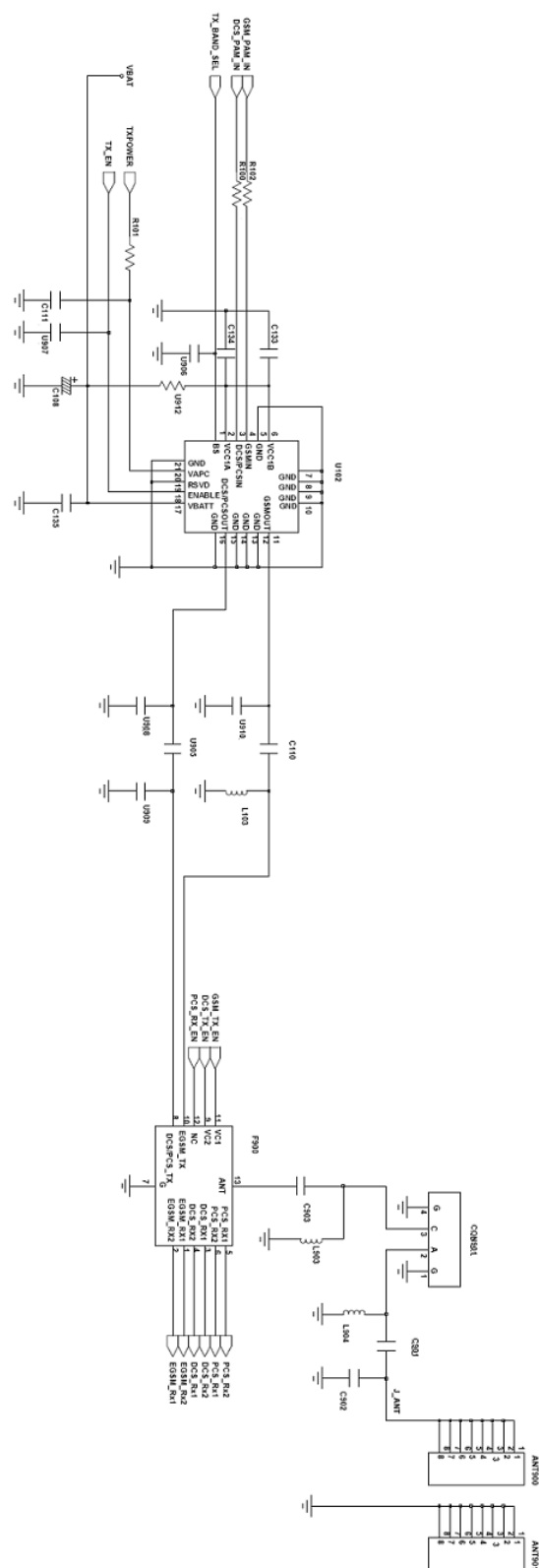




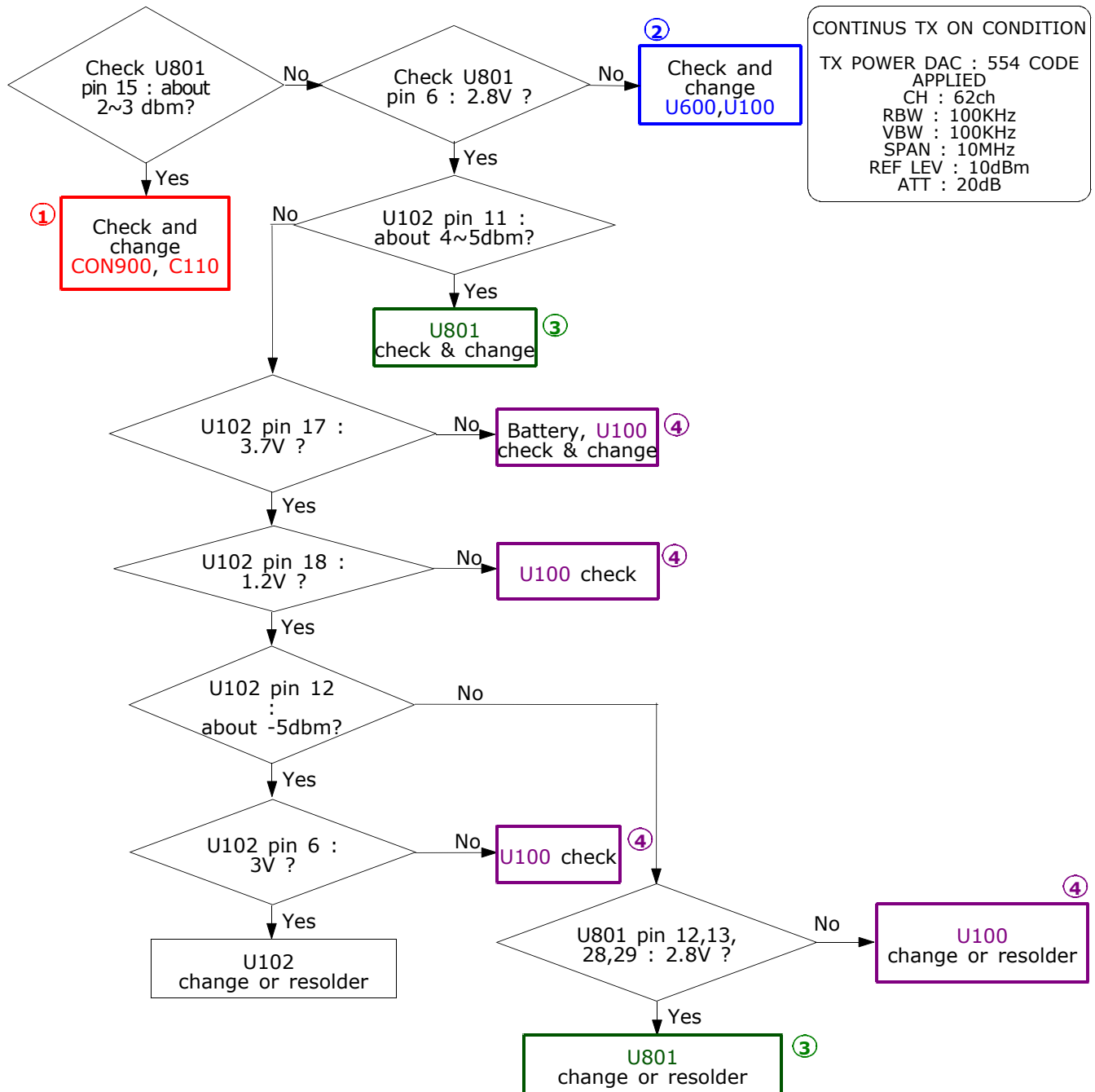
2-2-3. PCS Rx

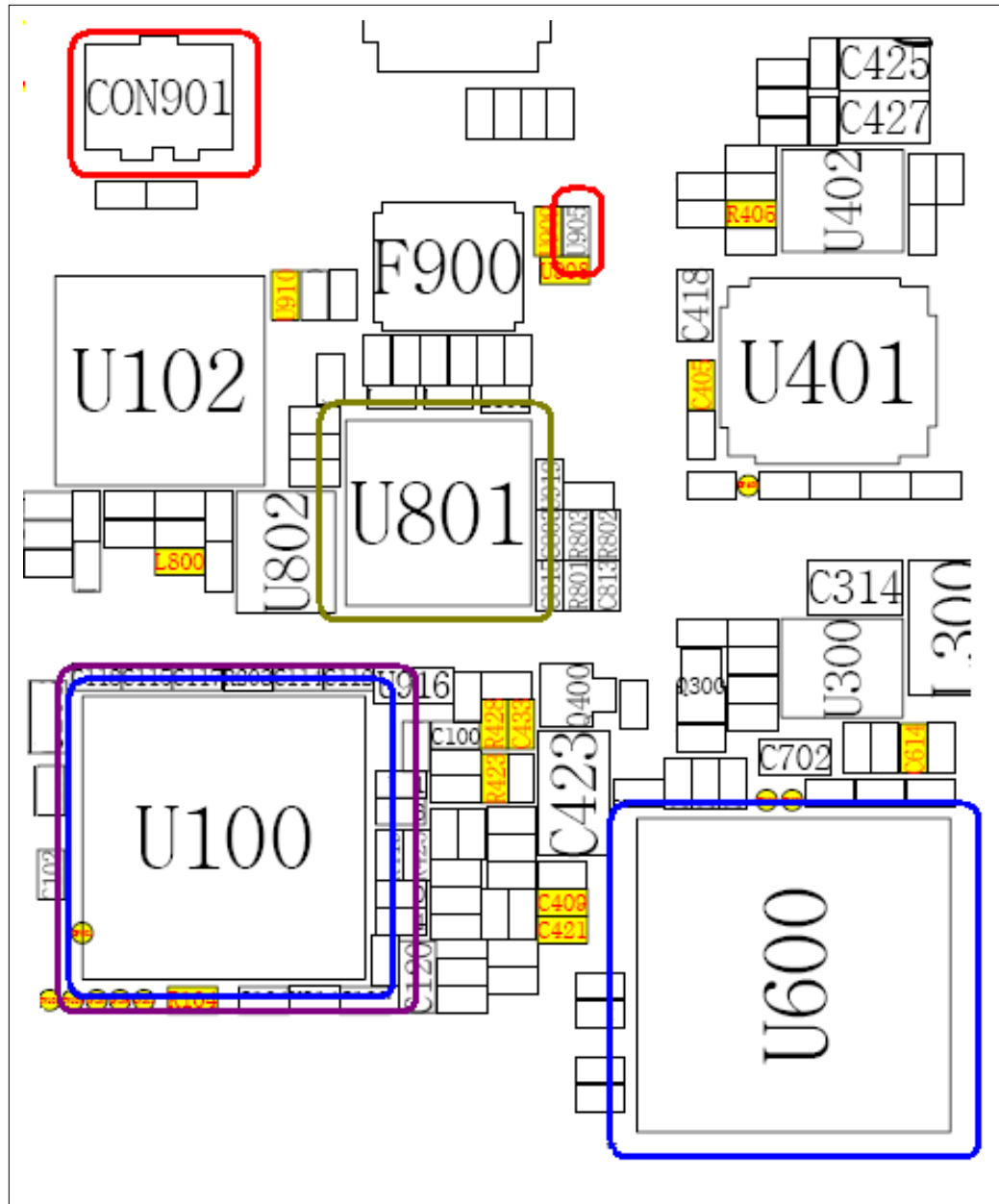




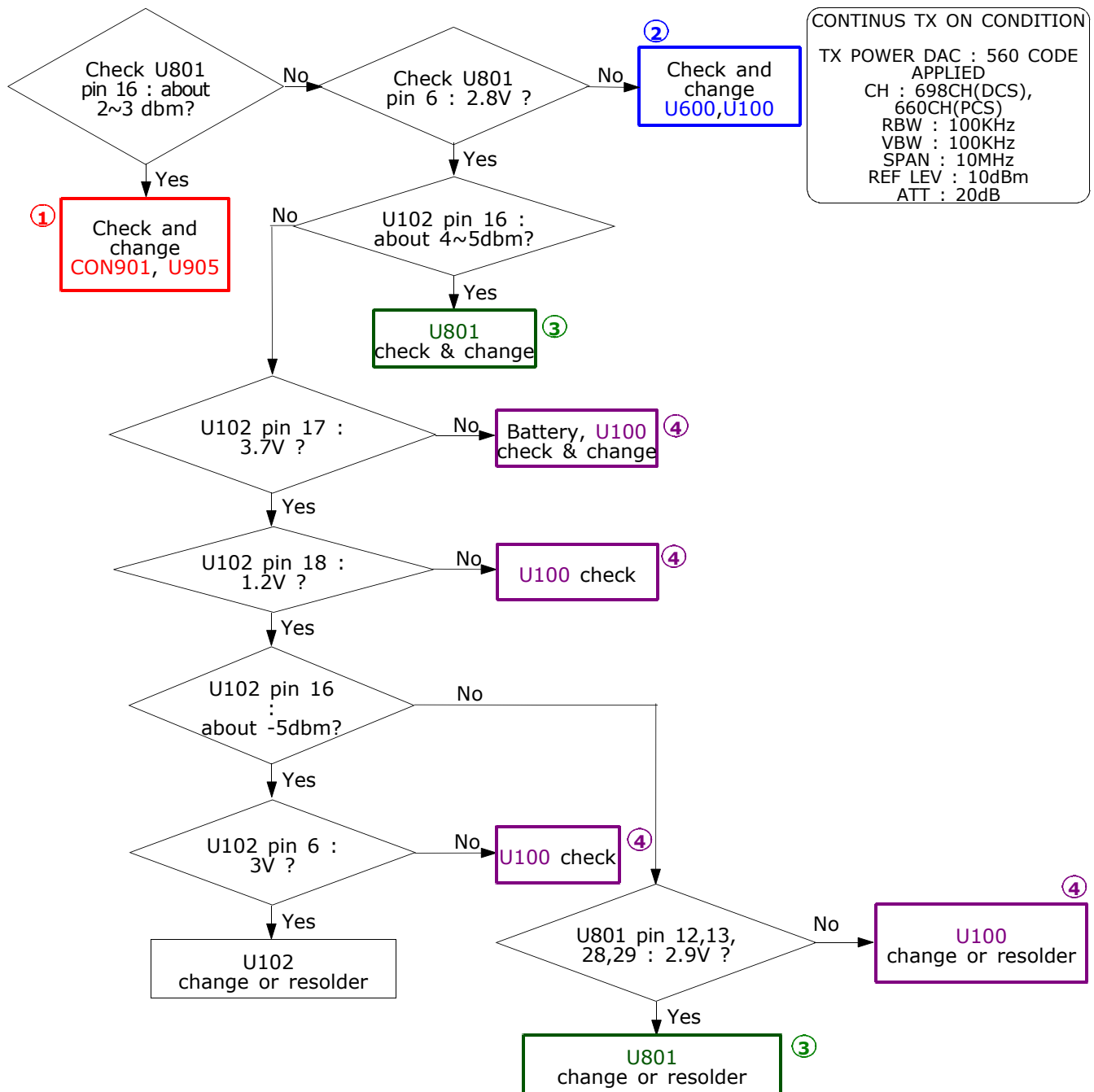


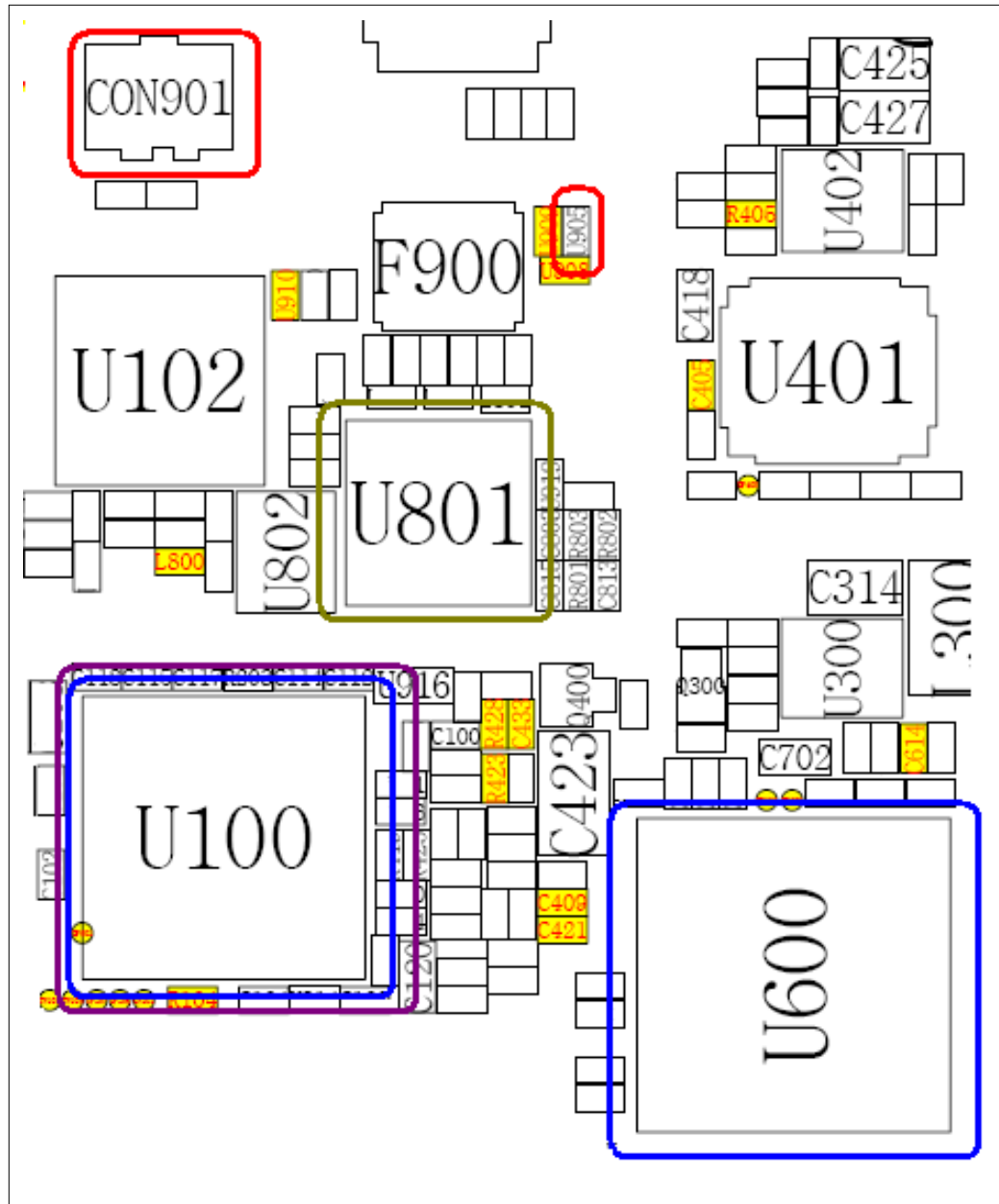
2-2-4. GSM Tx





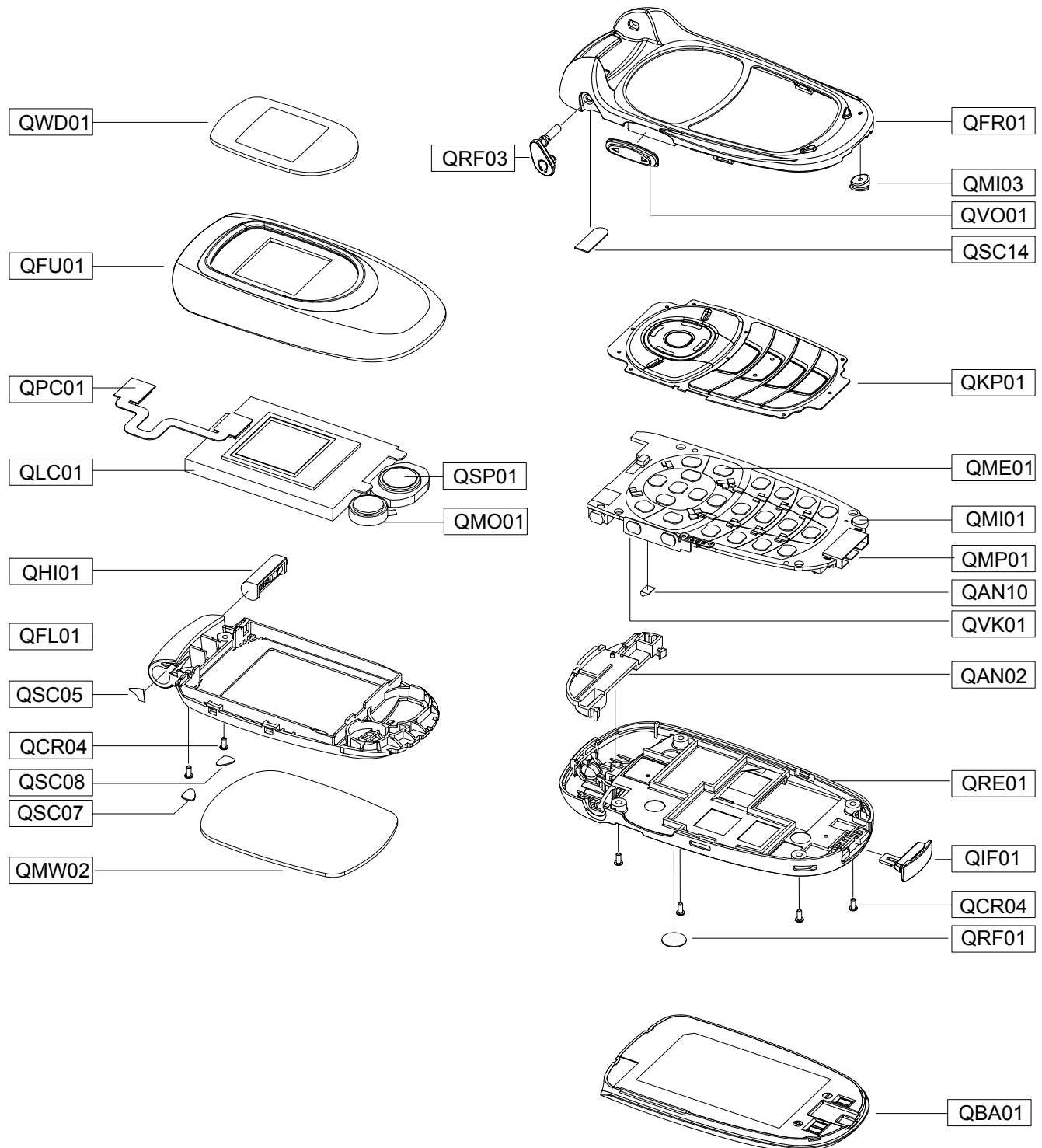
2-2-5. DCS/PCS Tx





3. SGH-X461 Exploded View and its Parts list

3-1. Cellular phone Exploded View



3-2. Cellular phone Parts list

Location NO.		Description	SEC CODE
QAN02		INTENNA-SGHX461	GH42-00784A
QAN10		ASSY-CUSHION-RUBBER CON ANT	GH98-00745A
QBA01		BATTERY-800MAH,SIL,EU,M	GH43-02406A
QCR04		SCREW-MACHINE	6001-001479
QFU01		MEC-CASE UPPER FOLDER	GH75-09277A
QIF01		PMO-COVER IF	GH72-29254A
QKP01		MEC-KEYPAD(SER/SIL)	GH75-09659A
QLC01		MEA-LCD MODULE KIT(X461)	GH97-05657A
QME01		UNIT-METAL DOME	GH59-03024A
QMI01		MICROPHONE-ASSY-SGHX460	GH30-00119A
QMO01		MOTOR DC-SGHZ130	GH31-00154C
QMP01		PBA MAIN-SGHX461	GH92-02648A
QMW02		PCT-COVER MAIN WINDOW	GH72-29259A
QPC01		PCB-CON TO CON	GH41-01180A
QRE01		MEC-CASE REAR	GH75-09264A
QRF01		MPR-TAPE RF SHEET	GH74-21105A
QSC05		MPR-TAPE FOLDER SIDE L	GH74-21104A
QSC07		MPR-TAPE COVER SCREW L	GH74-21102A
QSC08		MPR-TAPE COVER SCREW R	GH74-21103A
QSC14		MPR-FRONT HINGE SHEET	GH74-08736A
QSP01		SPEAKER	3001-001957
QVK01		UNIT-VOLUME KEY	GH59-01419A
QVO01		PMO-VOLUME KEY	GH72-29255A
QWD01		PCT-COVER SUB WINDOW	GH72-29258A
QFR01		MEC-CASE FRONT	GH75-09263A
	QRF03	PMO-COVER EAR JACK	GH72-29253A
	QMI03	RMO-MIC RUBBER	GH73-03058A
QFL01		MEC-CASE LOWER FOLDER	GH75-09278A
	QHI01	MEC-HINGE	GH75-04948A

Description	SEC CODE
BAG PE	6902-000634
ADAPTOR-TAD	GH44-00482A
LABEL(P)-IMEI	GH68-01335D
LABEL(P)-WATER SOAK	GH68-02026A
LABEL(R)-MAIN(SEK)	GH68-09315C
MANUAL USERS-EU UKRAINIAN	GH68-09677A
BOX(P)-UNIT(EU)	GH69-03665A
CUSHION-CASE(EU)	GH69-03795A
IPR-LOCKER SPRING	GH70-00228A
MPR-MAIN WIN BOHO VINYL	GH74-09036A
MPR-BOHO VINYL W/SUB OUT	GH74-09046A
MPR-LOWER BOHO VINYL	GH74-09047A
MPR-BOHO VINYL SUB WIN R	GH74-13248A
MPR-BOHO VINYL REAR	GH74-14235A
MPR-TAPE VOLUME KEY	GH74-17547A
MPR-PORON MOTOR	GH74-19143A
MPR-TAPE IC A	GH74-22279A
MPR-TAPE IC A	GH74-22279A
MPR-CUSHION CONT REAR	GH74-22281A
MPR-TAPE GASKET PCB A	GH74-22725A
MPR-TAPE GASKET PCB B	GH74-22726A
MPR-TAPE CON LCD	GH74-23098A
MPR-VINYL BOHO MAIN INNER	GH74-23099A
MPR-VINYL BOHO MAIN OUTER	GH74-23100A
MPR-CUSHION PCB U	GH74-23102A

3-3. Test Jig (GH80-03304A)



3-3-1. RF Test Cable
(GH39-00283A)



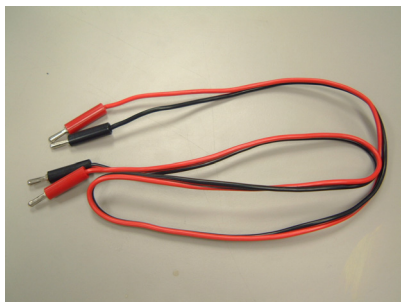
3-3-5. DATA CABLE
(GH39-00127A)



3-3-3. Serial Cable



3-3-4. Power Supply Cable



3-3-2. Test Cable
(GH39-00304A)



3-3-6. TA
(GH44-00954A)



4. SGH-X461 MAIN Electrical Parts List

Ddsign LOC	Discription	SEC Code	STATUS
ANT800	NPR-ANTENNA CONTACT	GH71-04813A	SA
BAT100	BATTERY-LI(2ND)	4302-001130	SA
C100	C-CER,CHIP	2203-000254	SA
C101	C-CER,CHIP	2203-001072	SA
C102	C-CER,CHIP	2203-005482	SA
C103	C-CER,CHIP	2203-006324	SA
C104	C-CER,CHIP	2203-000995	SA
C105	C-CER,CHIP	2203-000812	SA
C106	C-CER,CHIP	2203-000812	SA
C107	C-CER,CHIP	2203-002709	SNA
C109	C-CER,CHIP	2203-000233	SA
C112	C-CER,CHIP	2203-006562	SA
C113	C-CER,CHIP	2203-006562	SA
C114	C-CER,CHIP	2203-006562	SA
C115	C-CER,CHIP	2203-006562	SA
C116	C-CER,CHIP	2203-006562	SA
C117	C-CER,CHIP	2203-000254	SA
C118	C-CER,CHIP	2203-002709	SNA
C119	C-CER,CHIP	2203-000254	SA
C120	C-CER,CHIP	2203-005819	SA
C123	C-CER,CHIP	2203-005617	SNA
C124	C-TA,CHIP	2404-001415	SA
C125	C-TA,CHIP	2404-001240	SA
C126	C-CER,CHIP	2203-006183	SA
C127	C-CER,CHIP	2203-006183	SA
C200	C-CER,CHIP	2203-000254	SA
C201	C-CER,CHIP	2203-005482	SA
C202	C-CER,CHIP	2203-005482	SA
C203	C-CER,CHIP	2203-000359	SA
C204	C-CER,CHIP	2203-000359	SA
C205	C-TA,CHIP	2404-001450	SA
C206	C-CER,CHIP	2203-006562	SA
C217	C-CER,CHIP	2203-006257	SA
C218	C-CER,CHIP	2203-006257	SA
C300	CONNECTOR-INTERFACE	3710-002115	SA
C302	C-CER,CHIP	2203-000854	SA
C303	C-TA,CHIP	2404-001415	SA
C400	C-CER,CHIP	2203-000940	SA
C401	C-TA,CHIP	2404-001415	SA
C402	C-CER,CHIP	2203-002709	SNA
C403	C-CER,CHIP	2203-002709	SNA
C404	C-CER,CHIP	2203-006091	SA
C406	C-CER,CHIP	2203-000585	SA
C407	C-CER,CHIP	2203-006260	SA
C408	C-CER,CHIP	2203-002709	SNA
C410	C-CER,CHIP	2203-000812	SA
C411	C-CER,CHIP	2203-006260	SA

Ddsign LOC	Discription	SEC Code	STATUS
C412	C-CER,CHIP	2203-000812	SA
C413	C-CER,CHIP	2203-000995	SA
C414	C-CER,CHIP	2203-000628	SA
C415	C-CER,CHIP	2203-000425	SA
C416	C-CER,CHIP	2203-006190	SA
C417	C-CER,CHIP	2203-000438	SA
C418	C-CER,CHIP	2203-006824	SA
C419	C-CER,CHIP	2203-002709	SNA
C420	C-CER,CHIP	2203-006260	SA
C422	C-CER,CHIP	2203-000812	SA
C423	C-TA,CHIP	2404-001414	SA
C424	C-CER,CHIP	2203-000233	SA
C425	C-TA,CHIP	2404-001105	SA
C426	C-CER,CHIP	2203-006260	SA
C427	C-TA,CHIP	2404-001105	SA
C428	C-CER,CHIP	2203-000628	SA
C429	C-CER,CHIP	2203-001405	SA
C430	C-CER,CHIP	2203-000812	SA
C431	C-CER,CHIP	2203-001072	SA
C432	C-CER,CHIP	2203-001072	SA
C501	C-CER,CHIP	2203-000233	SA
C502	C-CER,CHIP	2203-002709	SNA
C503	C-CER,CHIP	2203-000233	SA
C504	C-CER,CHIP	2203-002709	SNA
C600	C-CER,CHIP	2203-000254	SA
C601	C-CER,CHIP	2203-000254	SA
C602	C-CER,CHIP	2203-000254	SA
C603	C-CER,CHIP	2203-000254	SA
C604	C-CER,CHIP	2203-006260	SA
C605	C-CER,CHIP	2203-002709	SNA
C606	C-CER,CHIP	2203-000679	SA
C607	C-CER,CHIP	2203-000254	SA
C608	C-CER,CHIP	2203-001405	SA
C609	C-CER,CHIP	2203-000254	SA
C610	C-CER,CHIP	2203-000254	SA
C611	C-CER,CHIP	2203-000254	SA
C612	C-CER,CHIP	2203-000254	SA
C613	C-CER,CHIP	2203-006260	SA
C615	C-CER,CHIP	2203-000330	SA
C616	C-CER,CHIP	2203-000330	SA
C617	C-CER,CHIP	2203-006626	SA
C702	C-CER,CHIP	2203-006324	SA
C703	C-CER,CHIP	2203-005482	SA
C704	C-CER,CHIP	2203-006048	SA
C800	C-CER,CHIP	2203-000278	SA
C801	C-CER,CHIP	2203-000854	SA
C802	C-CER,CHIP	2203-000254	SA

Ddsign LOC	Discription	SEC Code	STATUS
C803	C-CER,CHIP	2203-000995	SA
C805	C-CER,CHIP	2203-000254	SA
C806	C-CER,CHIP	2203-000438	SA
C808	C-CER,CHIP	2203-005234	SA
C809	C-TA,CHIP	2404-001449	SA
C810	C-CER,CHIP	2203-000254	SA
C811	C-CER,CHIP	2203-000530	SA
C812	C-CER,CHIP	2203-000438	SA
C813	C-CER,CHIP	2203-005482	SA
C814	C-CER,CHIP	2203-000854	SA
C815	C-CER,CHIP	2203-000278	SA
C816	C-CER,CHIP	2203-000233	SA
C817	C-CER,CHIP	2203-000466	SA
C818	C-CER,CHIP	2203-000466	SA
C819	C-CER,CHIP	2203-005234	SA
C820	C-CER,CHIP	2203-005234	SA
C821	C-CER,CHIP	2203-005281	SA
C822	C-CER,CHIP	2203-005281	SA
C823	C-CER,CHIP	2203-005482	SA
C824	C-CER,CHIP	2203-000386	SA
C825	C-CER,CHIP	2203-001412	SA
C826	C-CER,CHIP	2203-000254	SA
C827	C-CER,CHIP	2203-000278	SA
C828	C-CER,CHIP	2203-005482	SA
CN100	CONNECTOR-CARD EDGE	3709-001336	SA
CN401	JACK-EAR PHONE	3722-002067	SA
CON800	CONNECTOR-COAXIAL	3705-001358	SA
D200	DIODE-TVS	0406-001231	SA
D600	DIODE-TVS	0406-001231	SA
D601	DIODE-TVS	0406-001231	SA
D602	DIODE-TVS	0406-001231	SA
D603	DIODE-TVS	0406-001231	SA
D604	DIODE-TVS	0406-001231	SA
D700	DIODE-TVS	0406-001210	SA
D701	DIODE-TVS	0406-001210	SA
D702	DIODE-TVS	0406-001210	SA
F200	FILTER-EMI SMD	2901-001311	SA
F201	FILTER-EMI SMD	2901-001311	SA
F202	FILTER-EMI SMD	2901-001311	SA
F800	DUPLEXER-FEM	2911-000030	SNA
HDC200	HEADER-BOARD TO BOARD	3711-006118	SNA
L200	INDUCTOR-SMD	2703-002339	SA
L301	BEAD-SMD	3301-001659	SA
L401	INDUCTOR-SMD	2703-002202	SA
L402	INDUCTOR-SMD	2703-002202	SA
L701	BEAD-SMD	3301-001729	SA
L801	INDUCTOR-SMD	2703-001180	SA

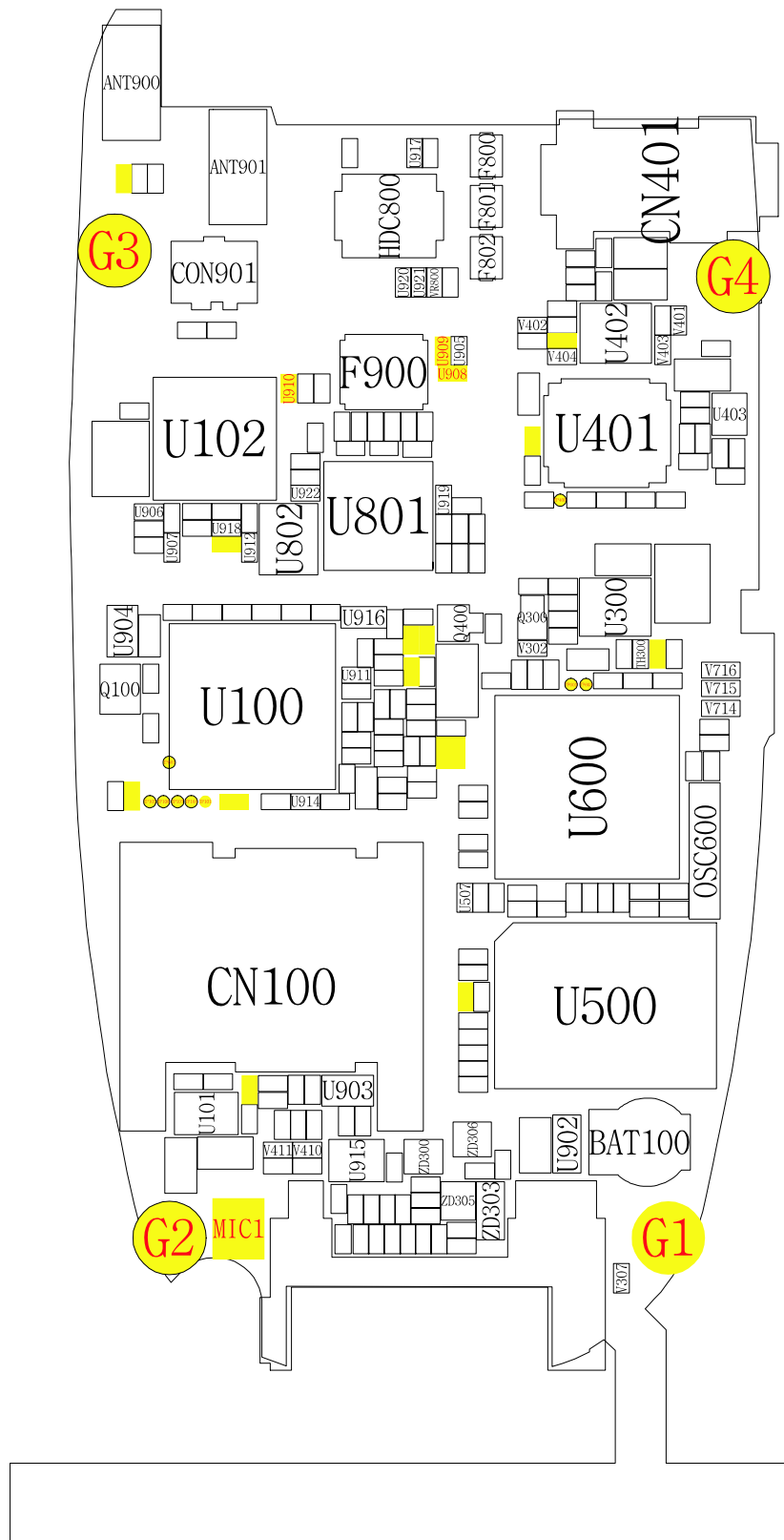
Ddsign LOC	Discription	SEC Code	STATUS
L802	INDUCTOR-SMD	2703-002268	SA
L803	INDUCTOR-SMD	2703-002201	SA
L804	INDUCTOR-SMD	2703-002202	SA
L805	INDUCTOR-SMD	2703-002205	SA
L807	INDUCTOR-SMD	2703-002170	SA
L808	INDUCTOR-SMD	2703-002544	SA
L809	INDUCTOR-SMD	2703-002558	SA
LED700	LED	0601-002037	SA
LED701	LED	0601-002037	SA
LED702	LED	0601-002037	SA
LED703	LED	0601-002037	SA
LED704	LED	0601-002037	SA
LED705	LED	0601-002037	SA
LED706	LED	0601-002037	SA
LED707	LED	0601-002037	SA
LED708	LED	0601-002037	SA
LED709	LED	0601-002037	SA
LED710	LED	0601-002037	SA
LED711	LED	0601-002037	SA
OSC600	CRYSTAL-SMD	2801-003856	SA
OSC800	CRYSTAL-SMD	2801-004426	SA
Q100	TR-DIGITAL	0504-000168	SA
Q200	FET-SILICON	0505-001518	SA
Q400	TR-SMALL SIGNAL	0501-000225	SA
R103	R-CHIP	2007-000172	SA
R105	R-CHIP	2007-000172	SA
R106	R-CHIP	2007-000162	SA
R108	R-CHIP	2007-007142	SA
R109	R-CHIP	2007-000154	SA
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R113	R-CHIP	2007-007142	SA
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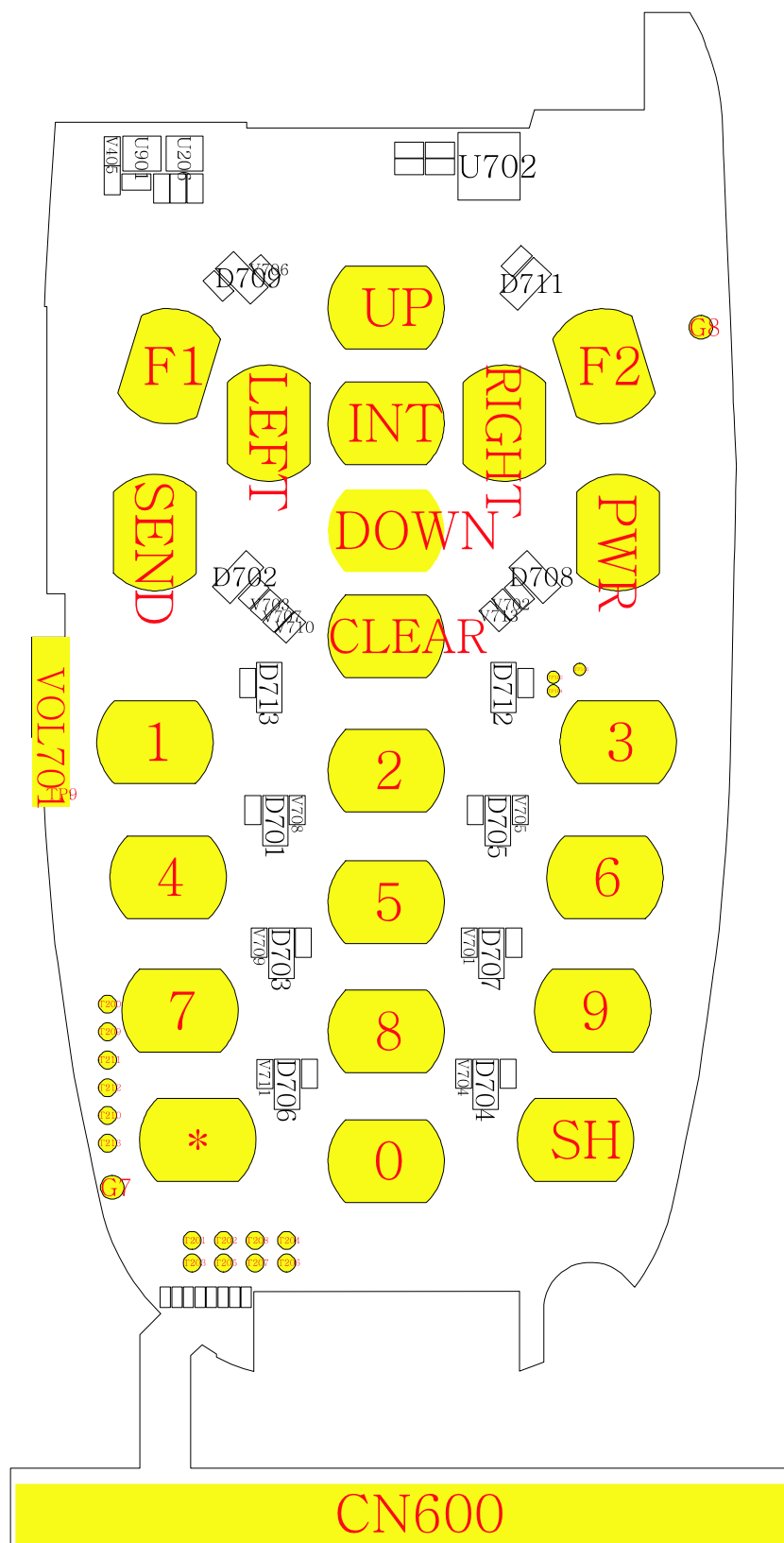
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R406	R-CHIP	2007-001329	SA
R407	R-CHIP	2007-000171	SA
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R415	R-CHIP	2007-001320	SA
R416	R-CHIP	2007-000142	SNA
R417	R-CHIP	2007-001317	SA
R418	R-CHIP	2007-000171	SA
R419	R-CHIP	2007-007590	SA
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R421	R-CHIP	2007-001291	SA
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R430	R-CHIP	2007-001333	SA
R431	R-CHIP	2007-000145	SA
R501	R-CHIP	2007-000172	SA
R502	R-CHIP	2007-000171	SA
R600	R-CHIP	2007-000157	SA
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R801	R-CHIP	2007-002970	SA
R802	R-CHIP	2007-000171	SA
R803	R-CHIP	2007-007306	SA
R804	R-CHIP	2007-000171	SA
R805	R-CHIP	2007-002797	SA
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TH300	THERMISTOR-NTC	1404-001221	SA
U100	IC-POWER SUPERVISOR	1203-003304	SA
U101	IC-BATTERY	1203-003663	SA
U102	IC-CMOS LOGIC	0801-000796	SA
U200	IC-DC/DC CONVERTER	1203-004004	SA
U201	IC-POSI.FIXED REG.	1203-003754	SA
U401	IC-MELODY	1204-002161	SA
U402	IC-ANALOG SWITCH	1001-001371	SA
U403	IC-ANALOG SWITCH	1001-001231	SA
U500	IC-MCP	1108-000010	SA
U507	C-CER,CHIP	2203-000254	SA
U600	IC MICOM-SGHX480	GH09-00036A	SA
U702	IC-HALL EFFECT S/W	1009-001010	SA
U800	IC-POWER AMP	1201-002218	SA
U801	IC-TRANSCIEVER	1205-002683	SA

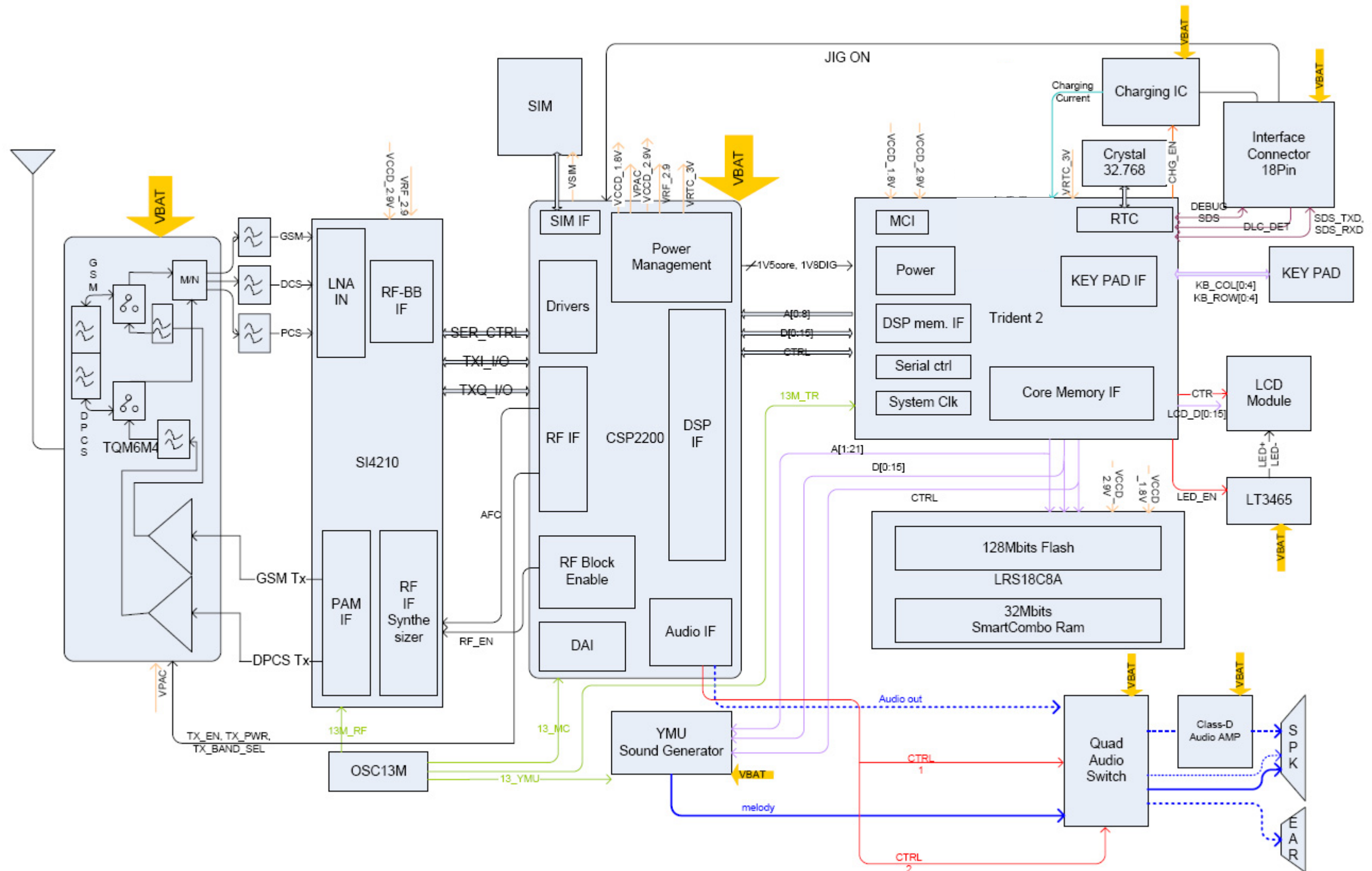
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V404	VARISTOR	1405-001108	SA
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V411	VARISTOR	1405-001082	SA
VR200	VARISTOR	1405-001082	SA
VR700	VARISTOR	1405-001082	SA
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VR709	VARISTOR	1405-001082	SA
VR710	VARISTOR	1405-001082	SA
VR711	VARISTOR	1405-001082	SA
ZD300	DIODE-TVS	0406-001190	SA
ZD301	DIODE-ZENER	0403-001547	SA
ZD305	DIODE-TVS	0406-001190	SA
ZD306	DIODE-TVS	0406-001190	SA
ZD400	DIODE-TVS	0406-001190	SA

5. SGH-X461 PCB Diagrams



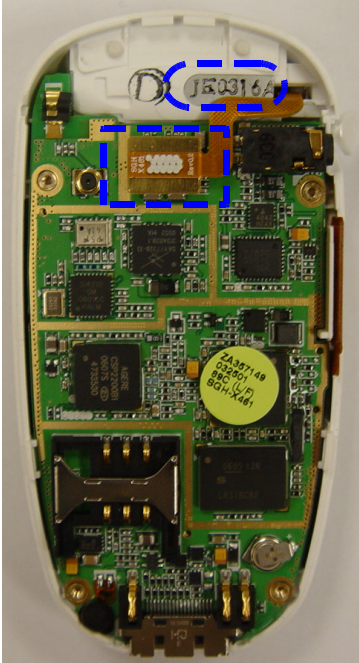
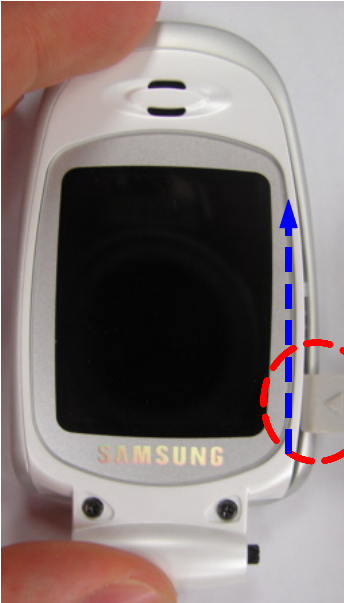


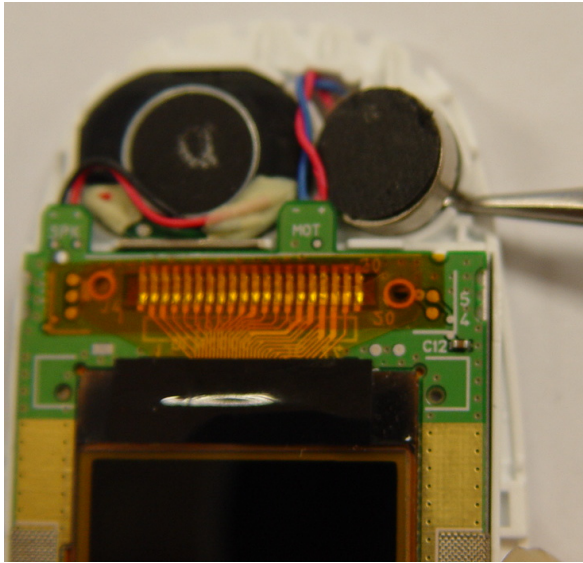
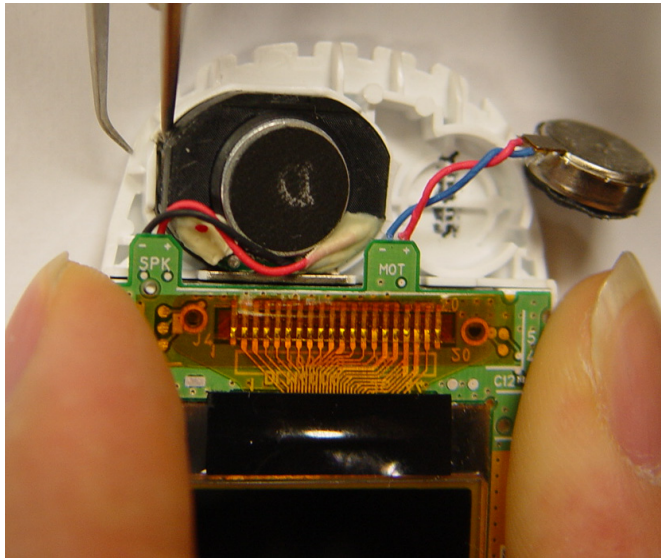
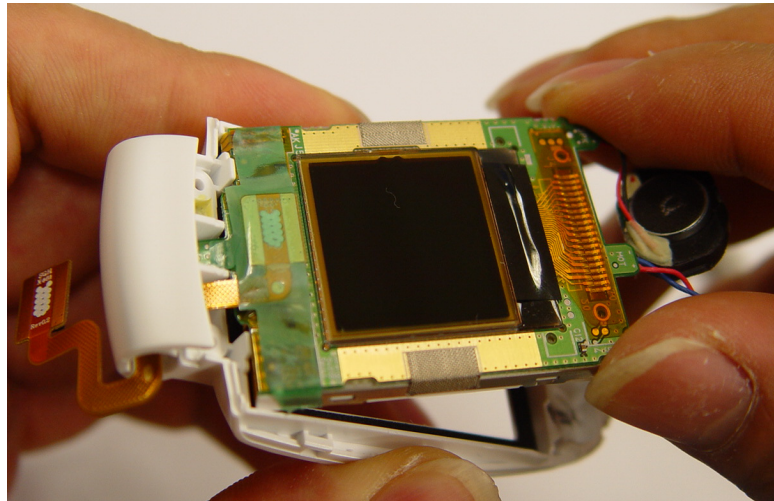
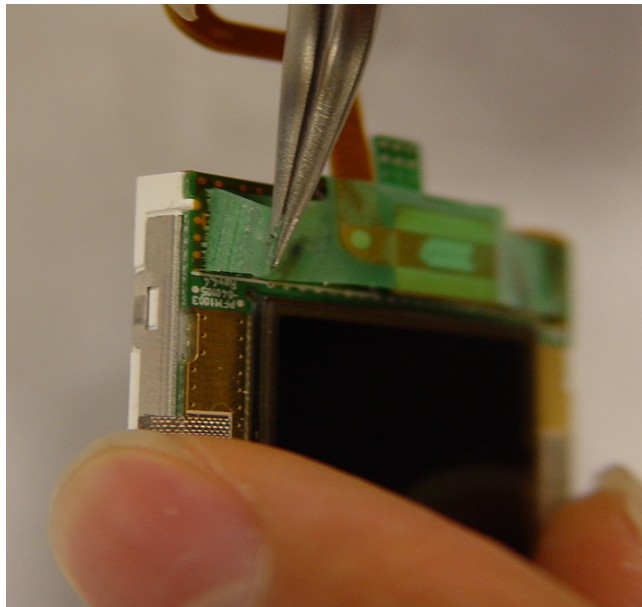
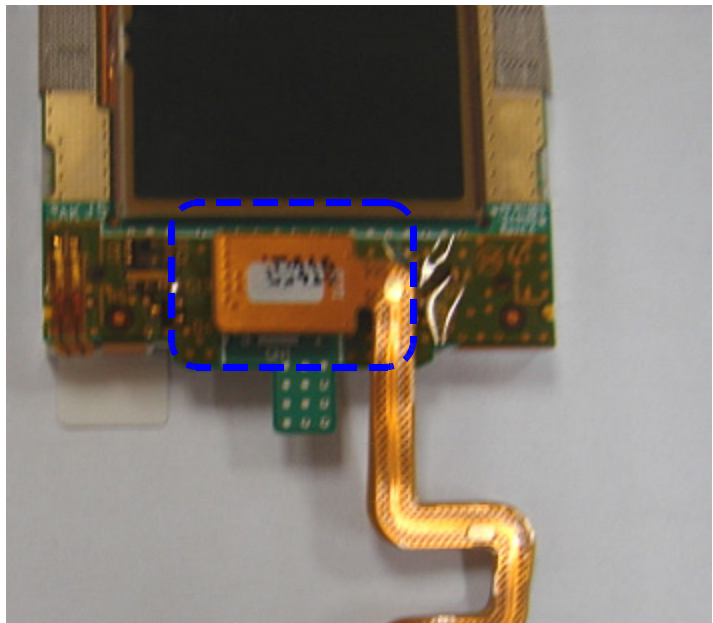
6. SGH-X461 Block Diagrams



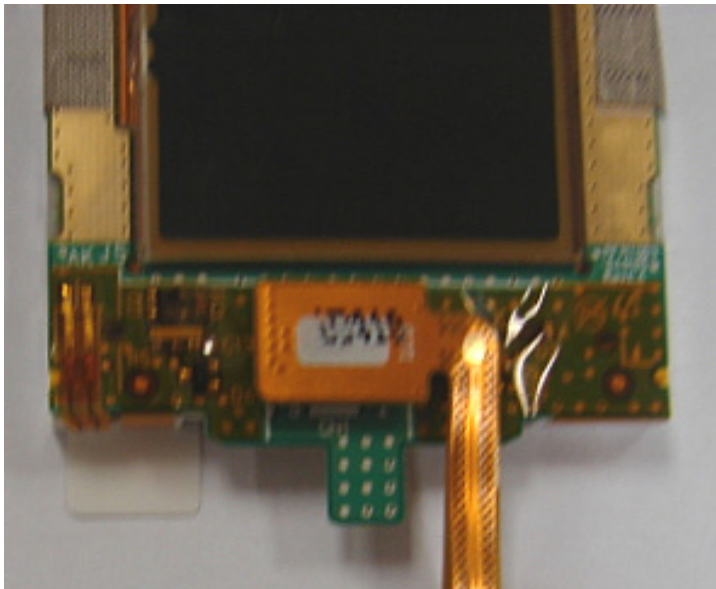
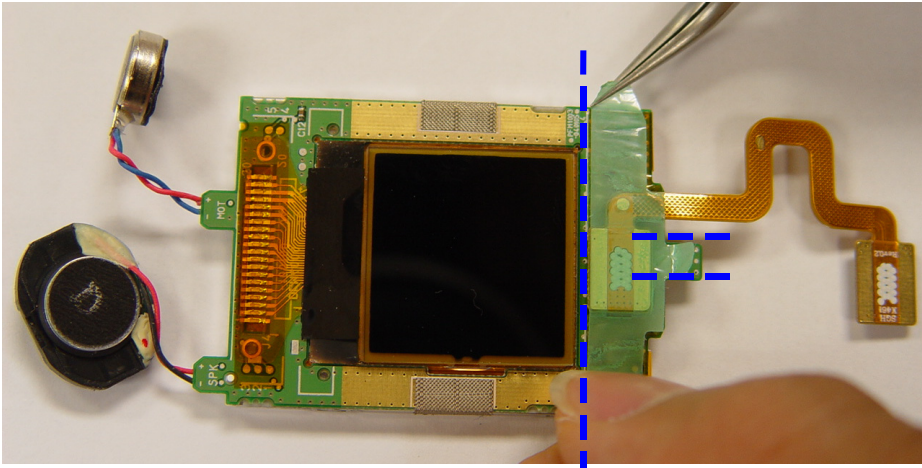
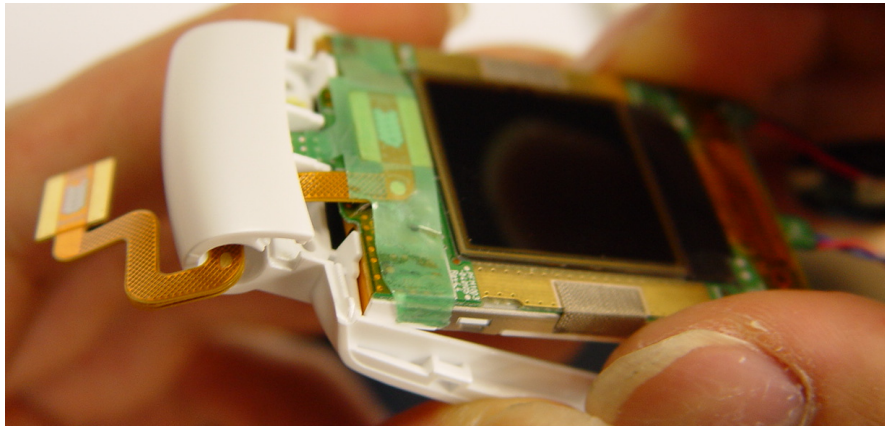
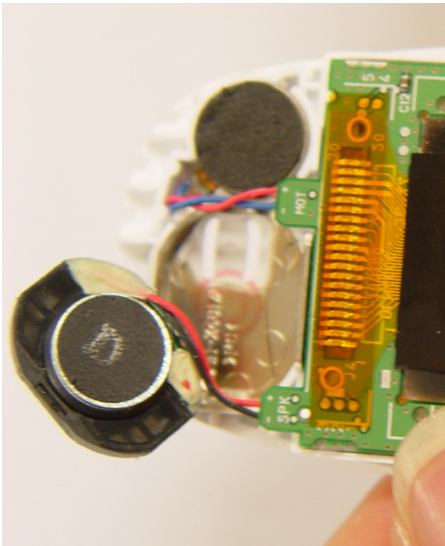
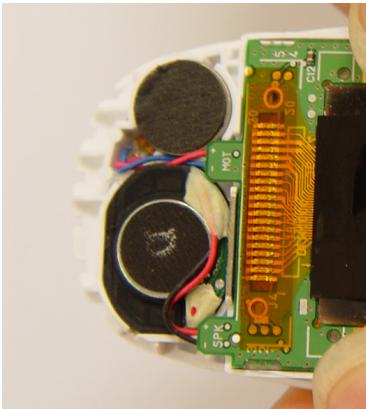
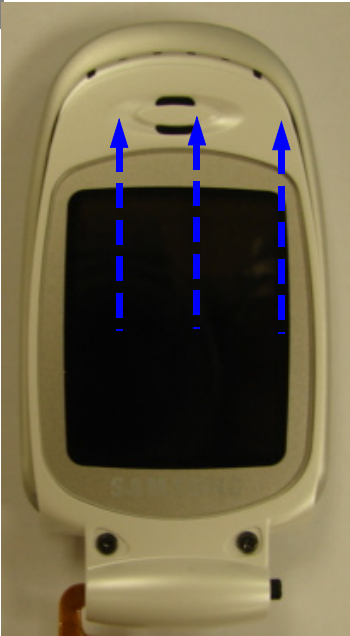
7. SGH-X461 Exploded and assembling View

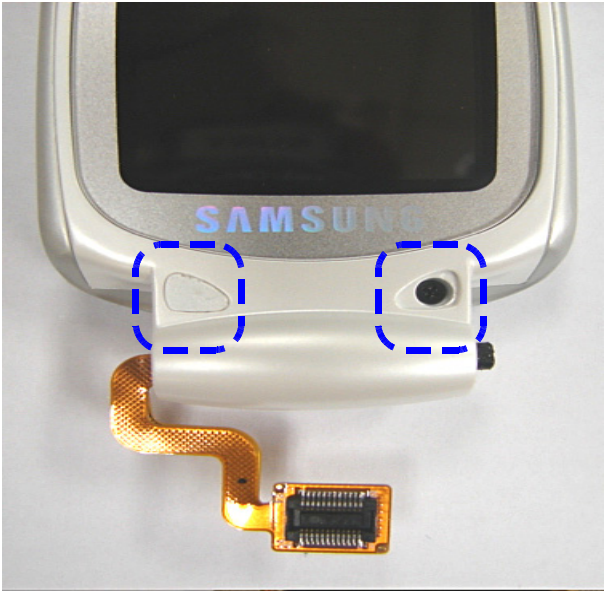
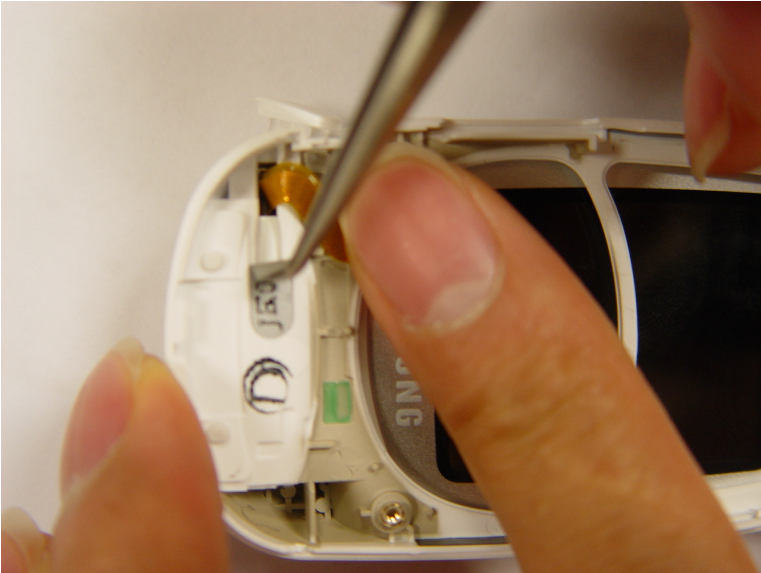
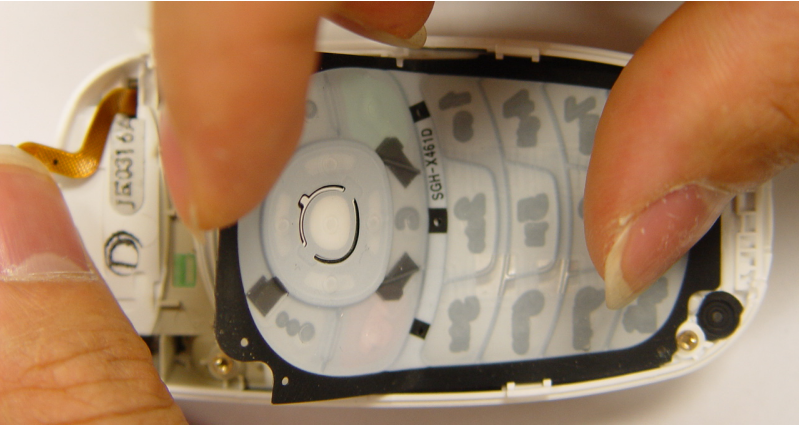
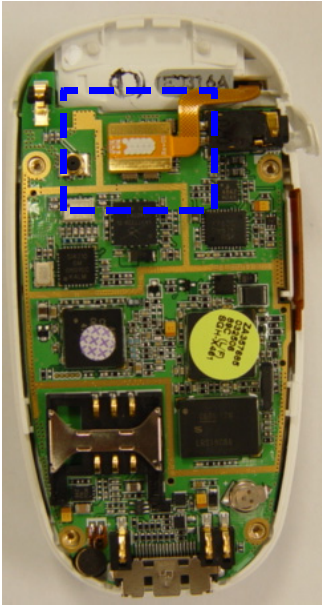
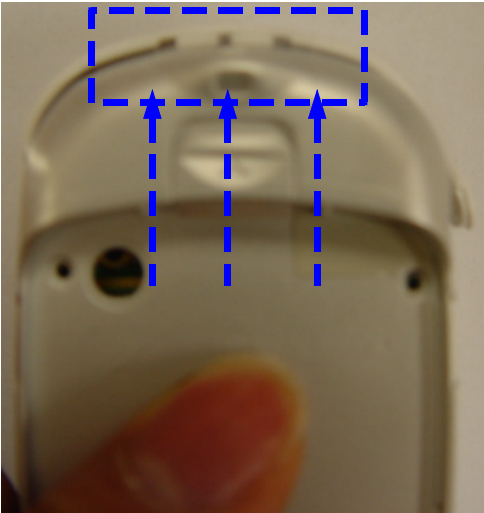
7-1. Disassembly

1  1) Loosen the screw of 4 point.	2  1) It uses assembly stick and the HOOK of the right side lower part confidential talk it disjoints with the outer side which it will call. 2) The HOOK gets wider and it catches it lifts it disjoints with REAR by the hand.	3  1) After connector we disjoining PBA. 2) Remove the foreign object projection Tape. 3) Remove the Key Pad by using a pinset.
1. Be care of scratch and molding damage.	1. When we disjoint Rear, be care of scratch and molding damage.	When we disjoining a connector and PBA, be care of damage.
4  1) Push the hinge and disjoint from Front.	5  1) Remove a screw cap by using a pinset. 2) Loosen a screw by using a driver.	6  1) By using a assembly stick we disjoint between Folder Upper and lower (it's same process right and left)
1) When we disjoint the Front, be care of body transformation.	1) Be care of scratch.	1) Be care of scratch and molding damage.

7  1) Remove a Motor tape by using a pinset.	8  1) Remove a speaker by using a pinset.	9  1) Seperate the LCD Assembly from the folder Lower
1) Be care of scratch and molding damage.	1) Be care of scratch and molding damage.	1) Be care of scratch and molding damage.
10  1) Remove the insulated tape.	 1) Remove the CON TO CON.	
1) Be care of scratch and molding damage.	1) Be care of scratch and molding damage.	

7-2. Assembly

1  1) Insert the CON TO CON into the LCD connector.	2  1) Stick the insulated tape with arrangement of this picture. 2) Push the tape smoothly.	3  1) Insert the FPCB at hole and fixed LCD.
1) Be care of wire arrangement and damage.	1) Be care of wire arrangement and damage.	1) Be care of wire arrangement and damage.
4  1) Wire must not rid on LCD bracket guide. The wire arrangement must be like this picture.	5  1) Inter a Speaker and pushing.	6  1) Insert the folder assembly into the upper. 2) Push the lower in the direction of an arrow. 3) Finally push the HOOK.
1) Be care of wire arrangement and damage.	1) Be care of wire arrangement and damage.	1) Be care of wire arrangement and damage.

7  1) Insert the screw and put on the screw cap.	8  1) Insert Folder hinge into Front.	9  1) Sticking the foreign object projection Tape by using a pinset.
1) Be care of wire arrangement and damage.	1) Be care of wire arrangement and damage.	1) Be care of wire arrangement and damage.
10  1) Insert Keypad and Side Key.	11  1) Inter a PBA into the Front and assembling connector.	12  1) Push the in direction of an arrow after comparing the FRONT HOOK with a REAR.
1) Be care of wire arrangement and damage.	1) Be care of wire arrangement and damage.	1) Be care of wire arrangement and damage.

13 1) Insert the the FRONT HOOK to the REAR HOOK.(it's same process right and left)	14 1) Sticking a screw this 4 point at the Rear.	
1) Be care of wire arrangement and damage.	1) Be care of wire arrangement and damage.	

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