

**SAMSUNG**

# GSM TELEPHONE

## SGH-C120

# ***SERVICE*** *Manual*

### GSM TELEPHONE



### CONTENTS

1. Specification
2. Flow Chart of Troubleshooting
3. Exploded Views and Parts List
4. Electrical Parts List
5. PCB Diagrams
6. Block Diagrams

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# 1. SGH-C120 Specification

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## 1-1. GSM General Specification

	<b>GSM900 Phase 1</b>	<b>EGSM 900 Phase 2</b>	<b>DCS1800 Phase 1</b>
Freq. Band[MHz] Uplink/Downlink	890~915 935~960	880~915 925~960	1710~1785 1805~1880
ARFCN range	1~124	0~124 & 975~1023	512~885
Tx/Rx spacing	45MHz	45MHz	95MHz
Mod. Bit rate/ Bit Period	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
Modulation	0.3GMSK	0.3GMSK	0.3GMSK
MS Power	33dBm~13dBm	33dBm~5dBm	30dBm~0dBm
Power Class	5pcl ~ 15pcl	5pcl ~ 19pcl	0pcl ~ 15pcl
Sensitivity	-102dBm	-102dBm	-100dBm
TDMA Mux	8	8	8
Cell Radius	35Km	35Km	2Km

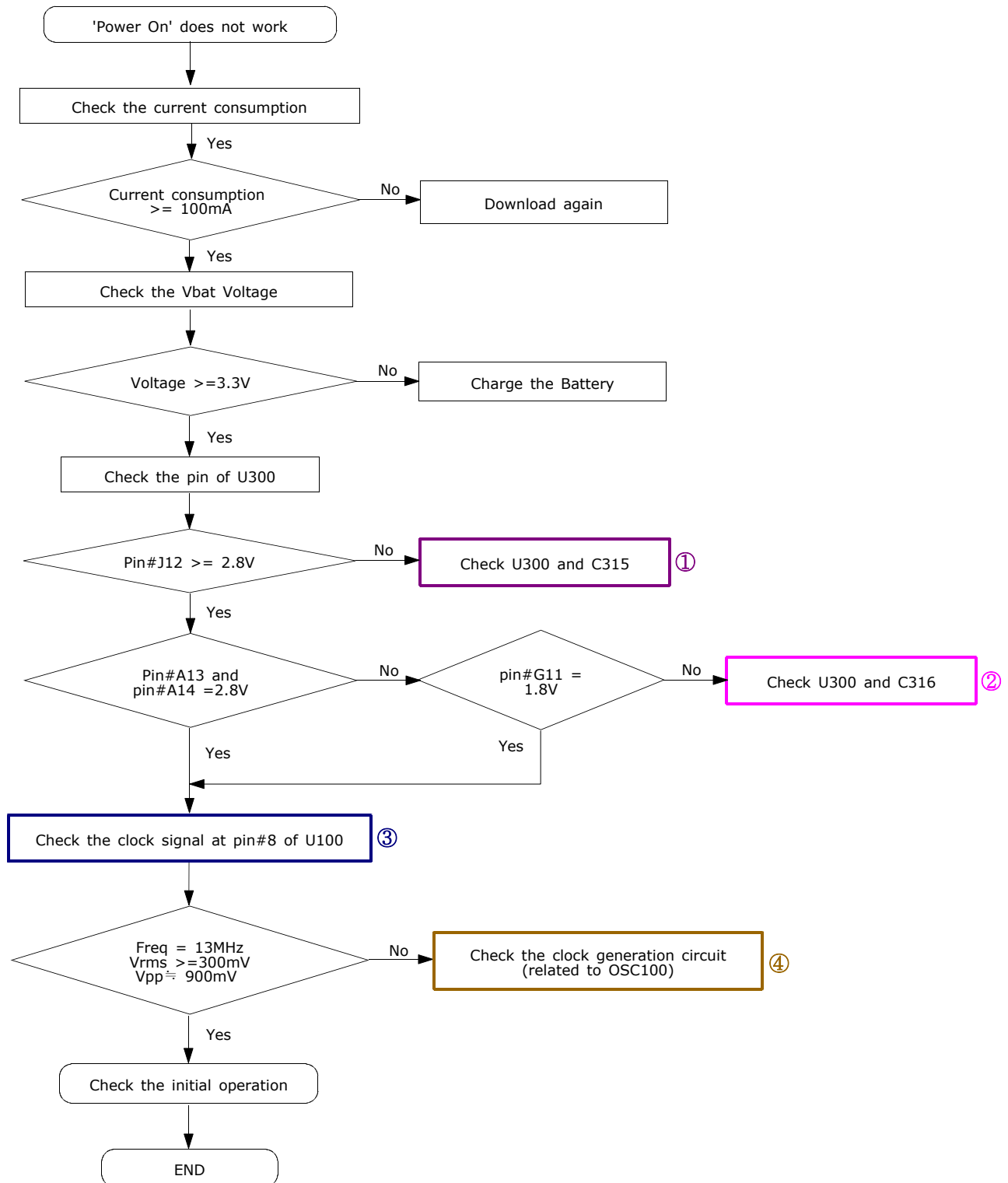
**1-2. GSM TX power class**

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

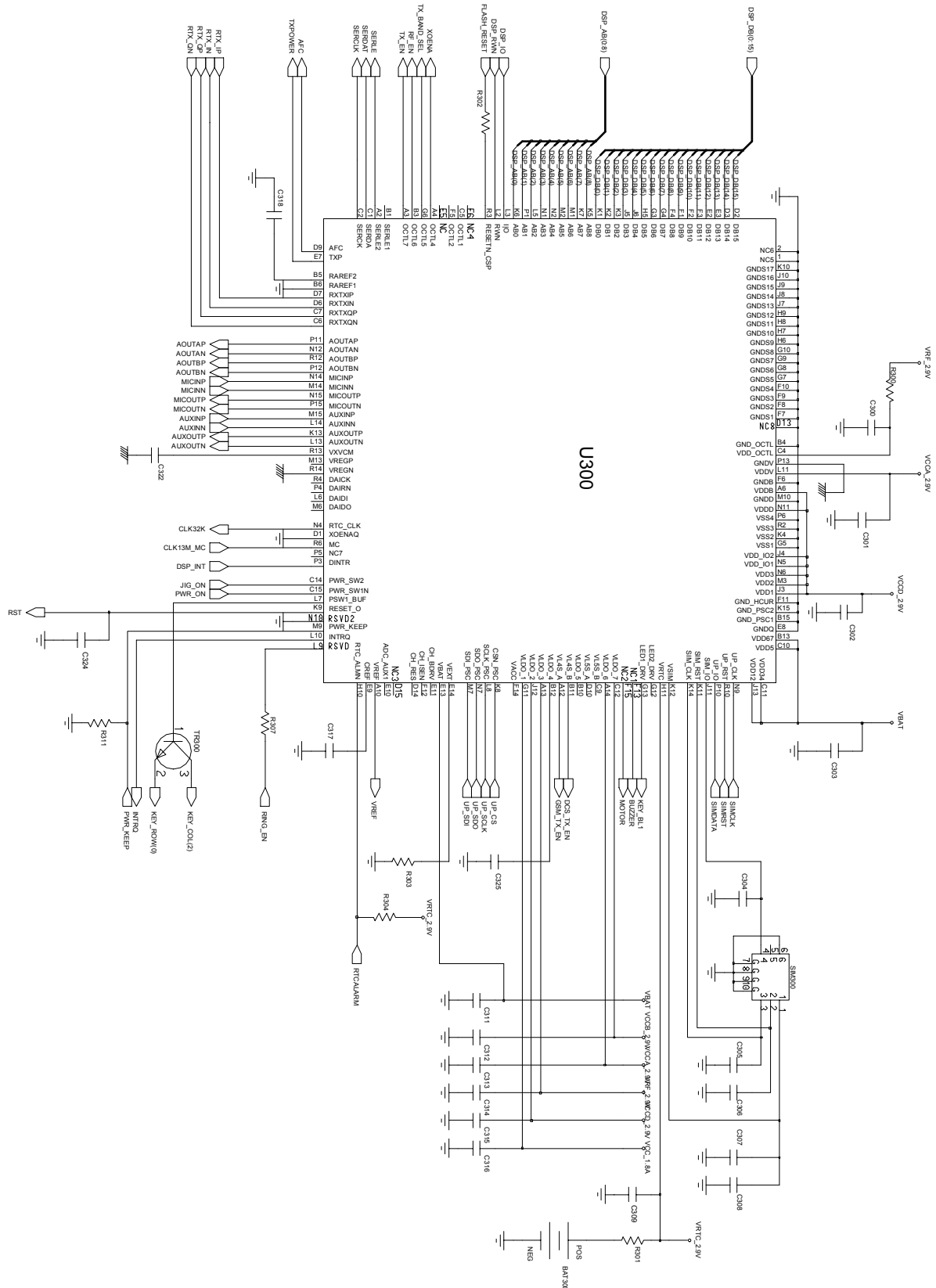
## 2. SGH-C120 Flow Chart of Troubleshooting

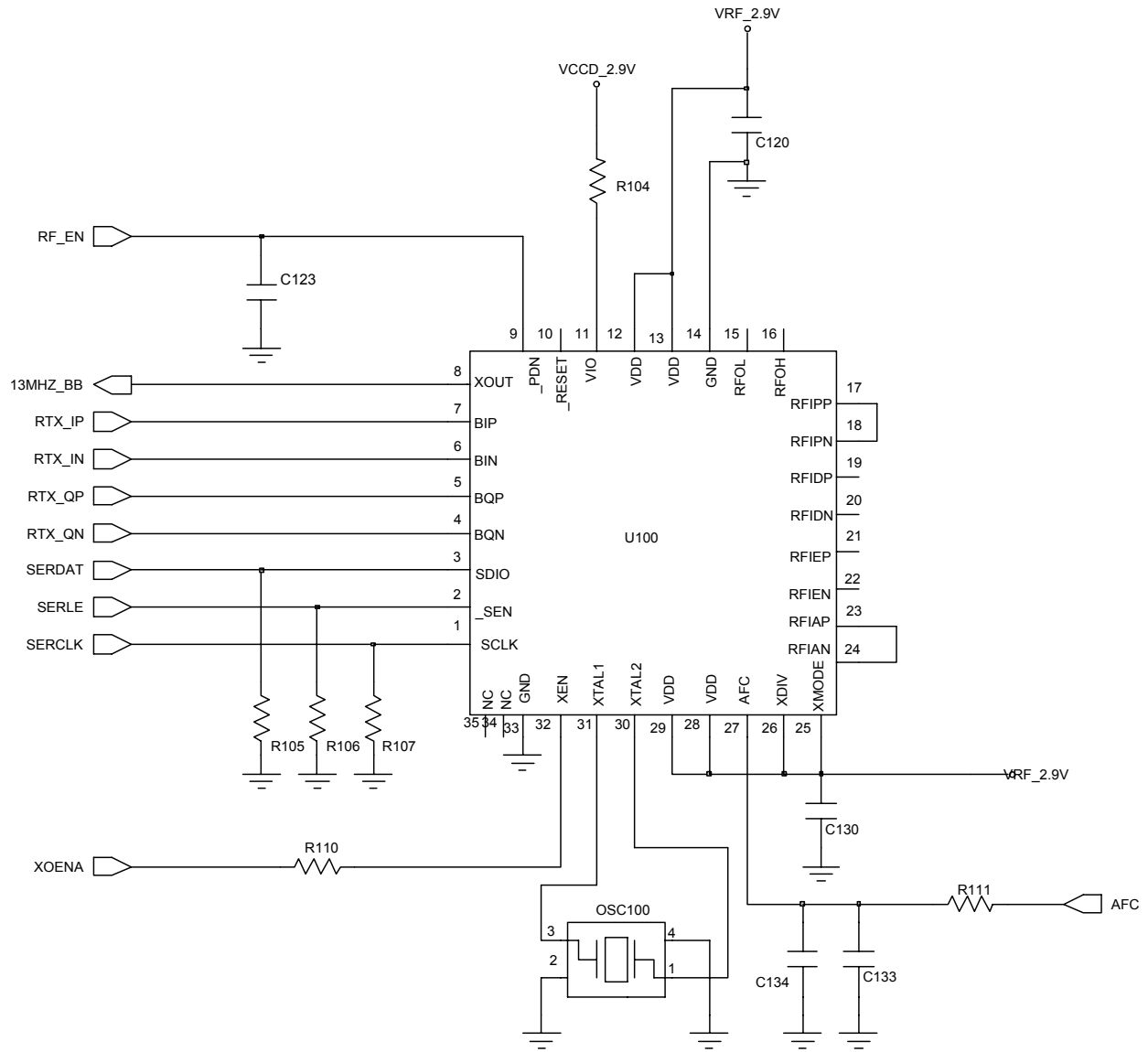
### 2-1.Baseband

#### 2-1-1. Power ON



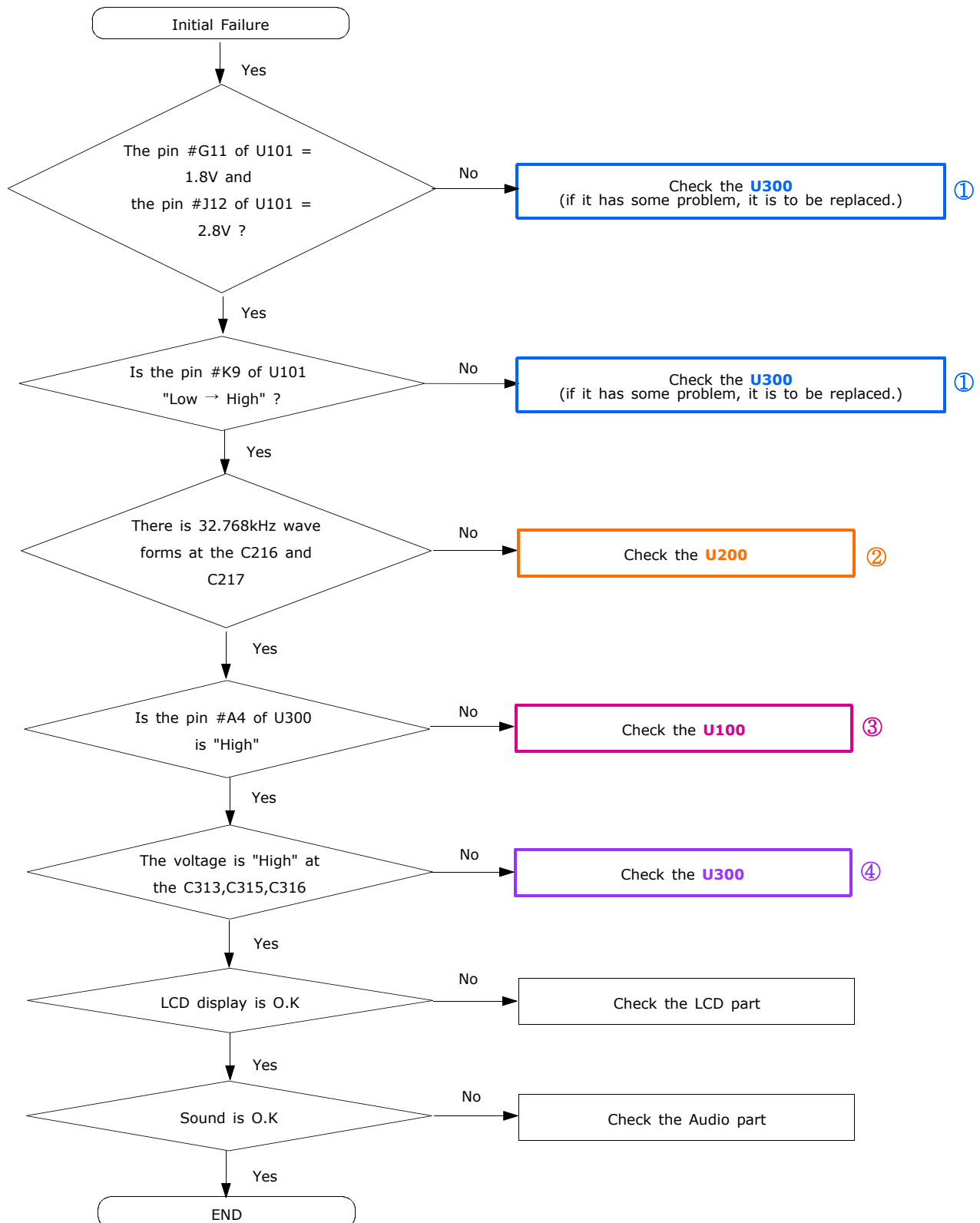


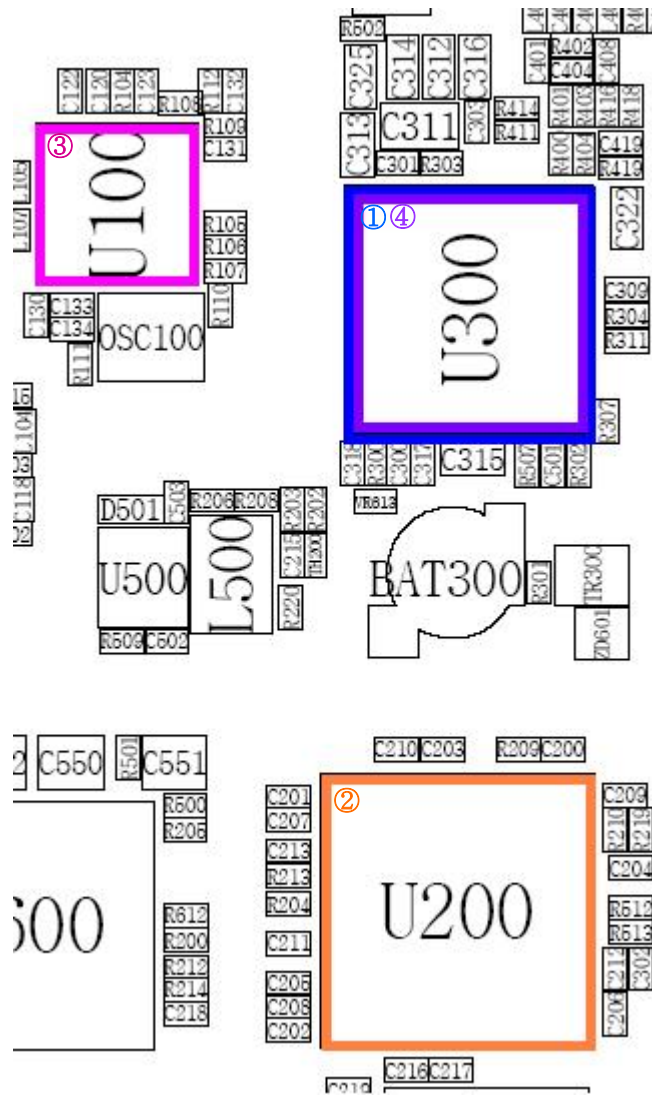






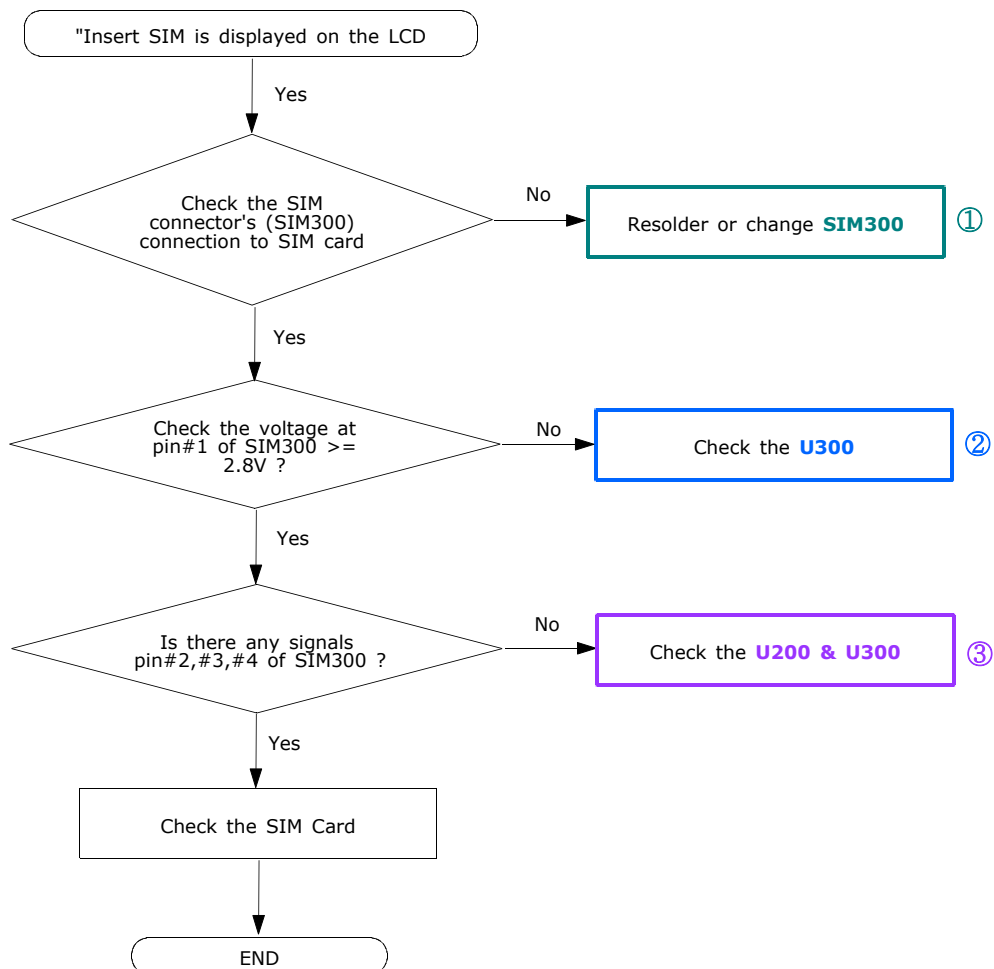
## 2-1-2. Initial





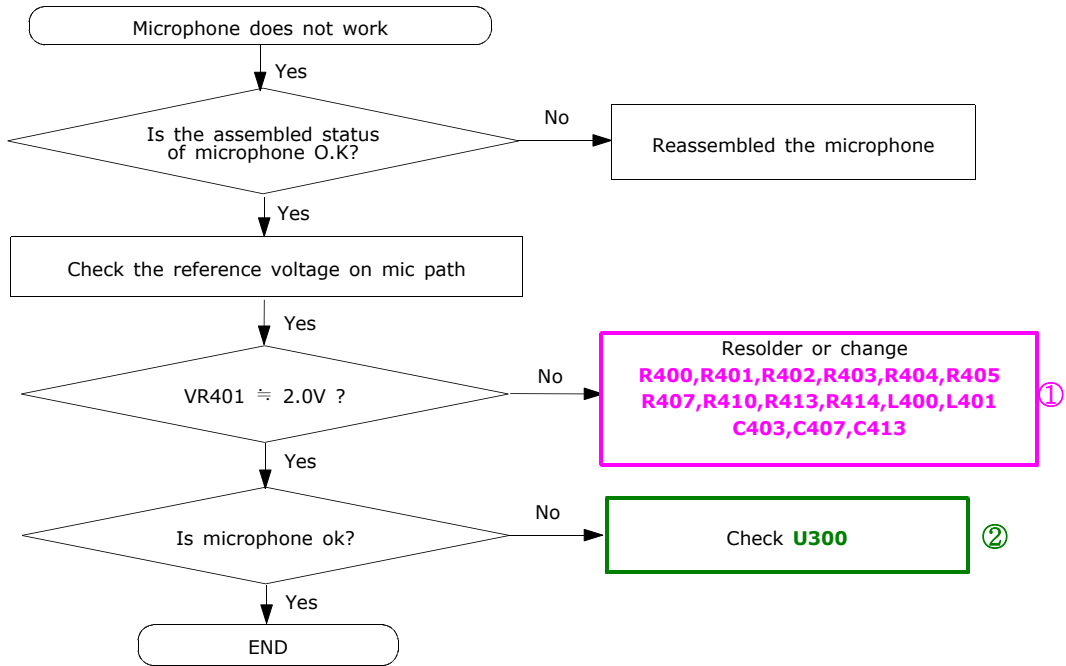


### 2-1-3. Sim Part



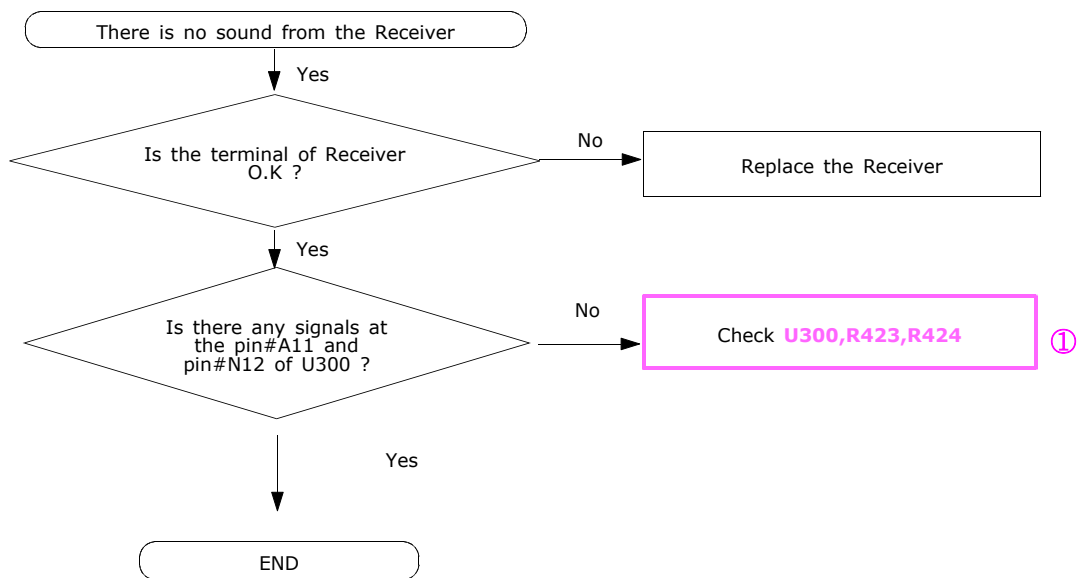


## 2-1-4. Microphone Part

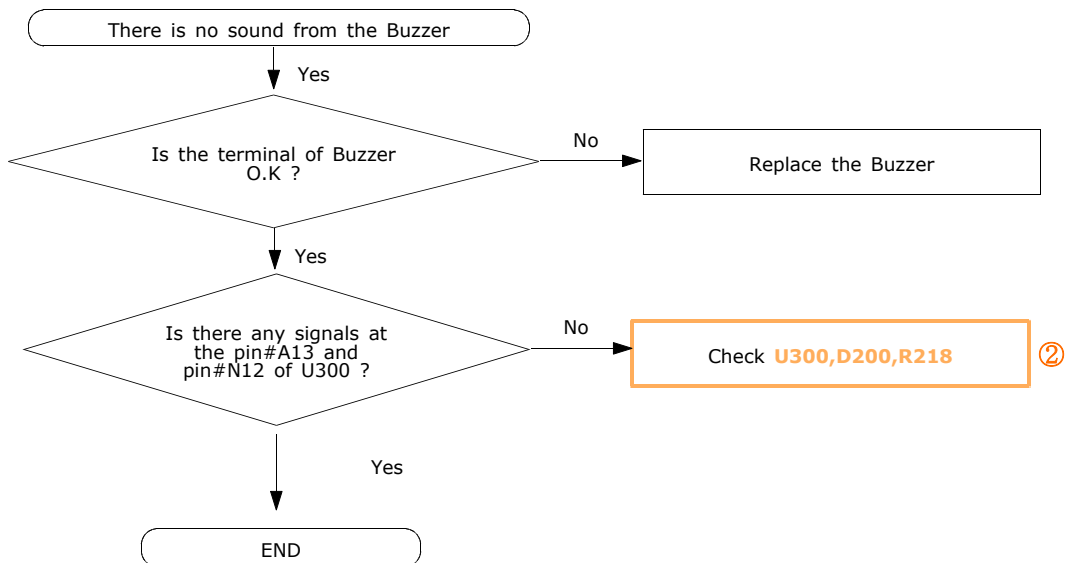




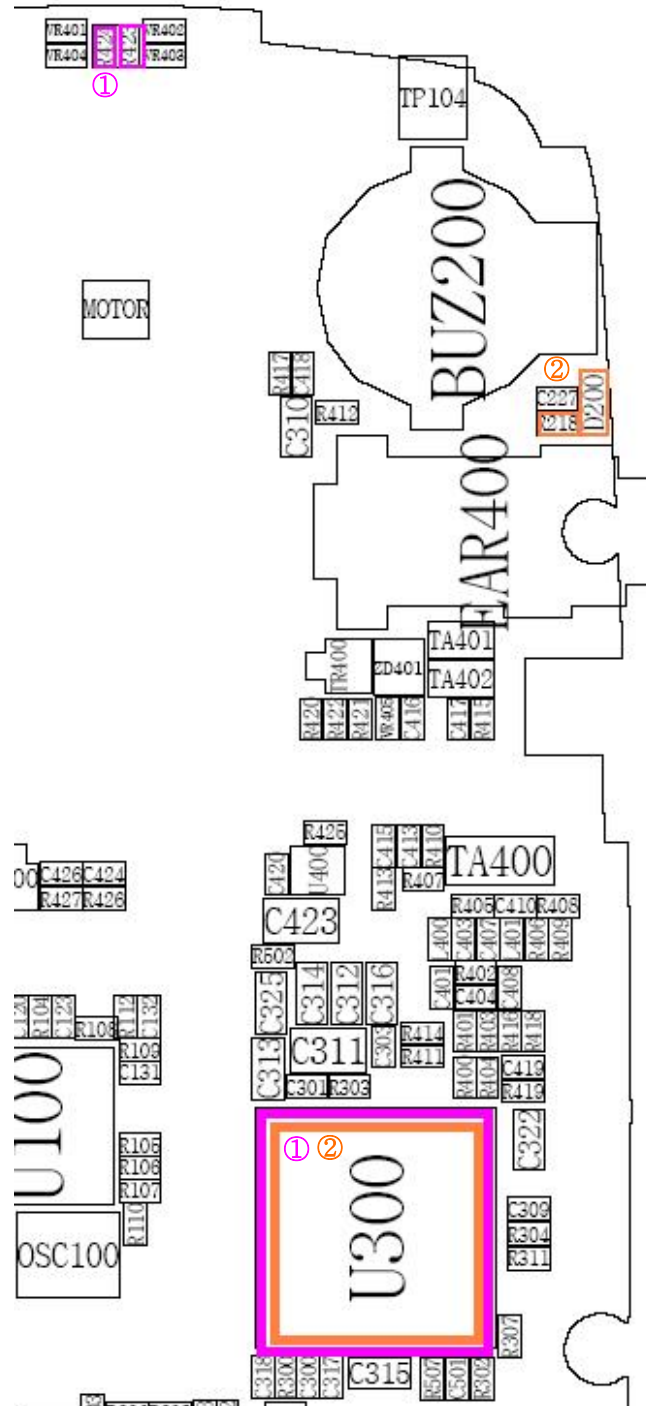
## 2-1-5. Receiver Part



## 2-1-6. Buzzer Part





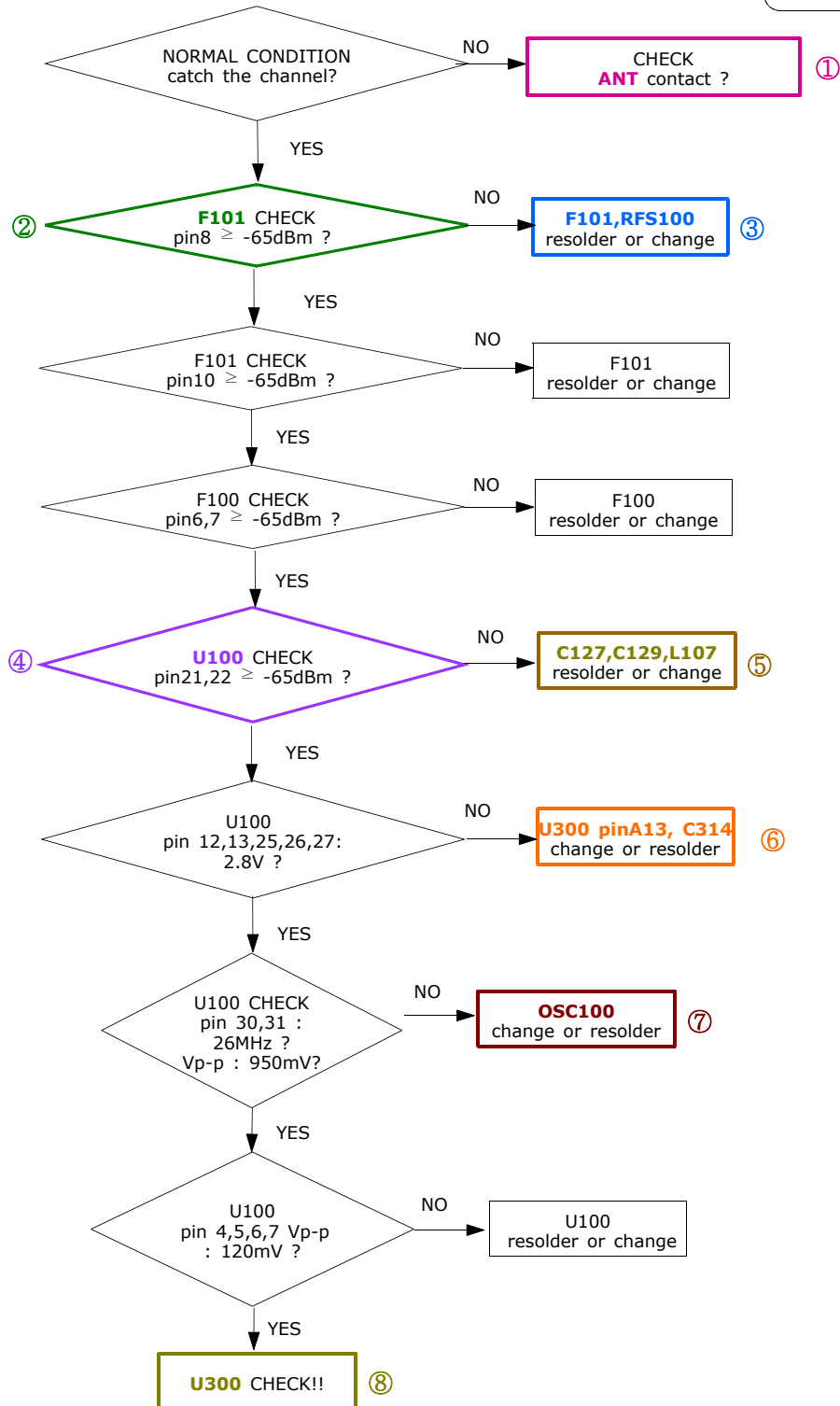




## 2-2.RF

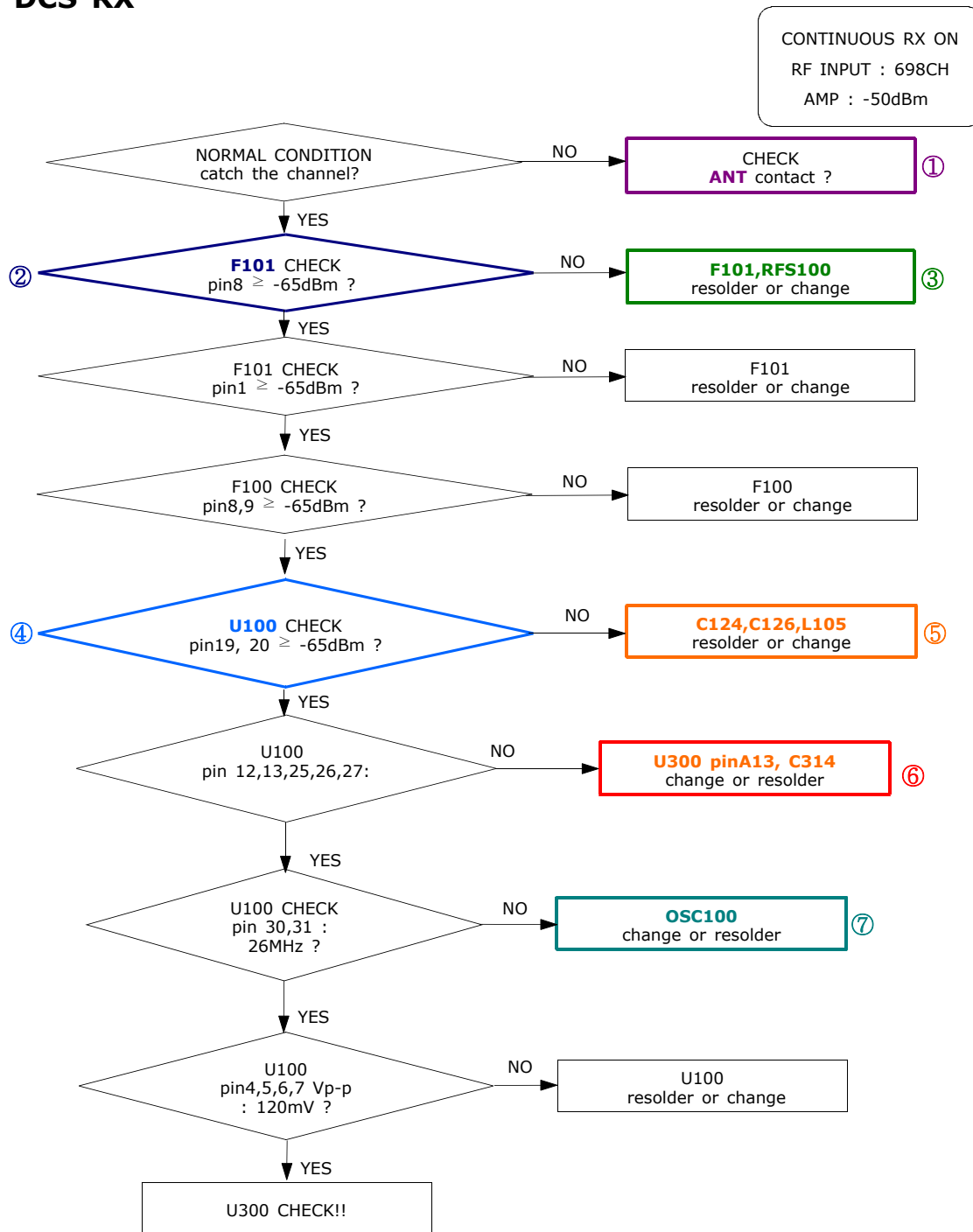
### 2-2-1. EGSM RX

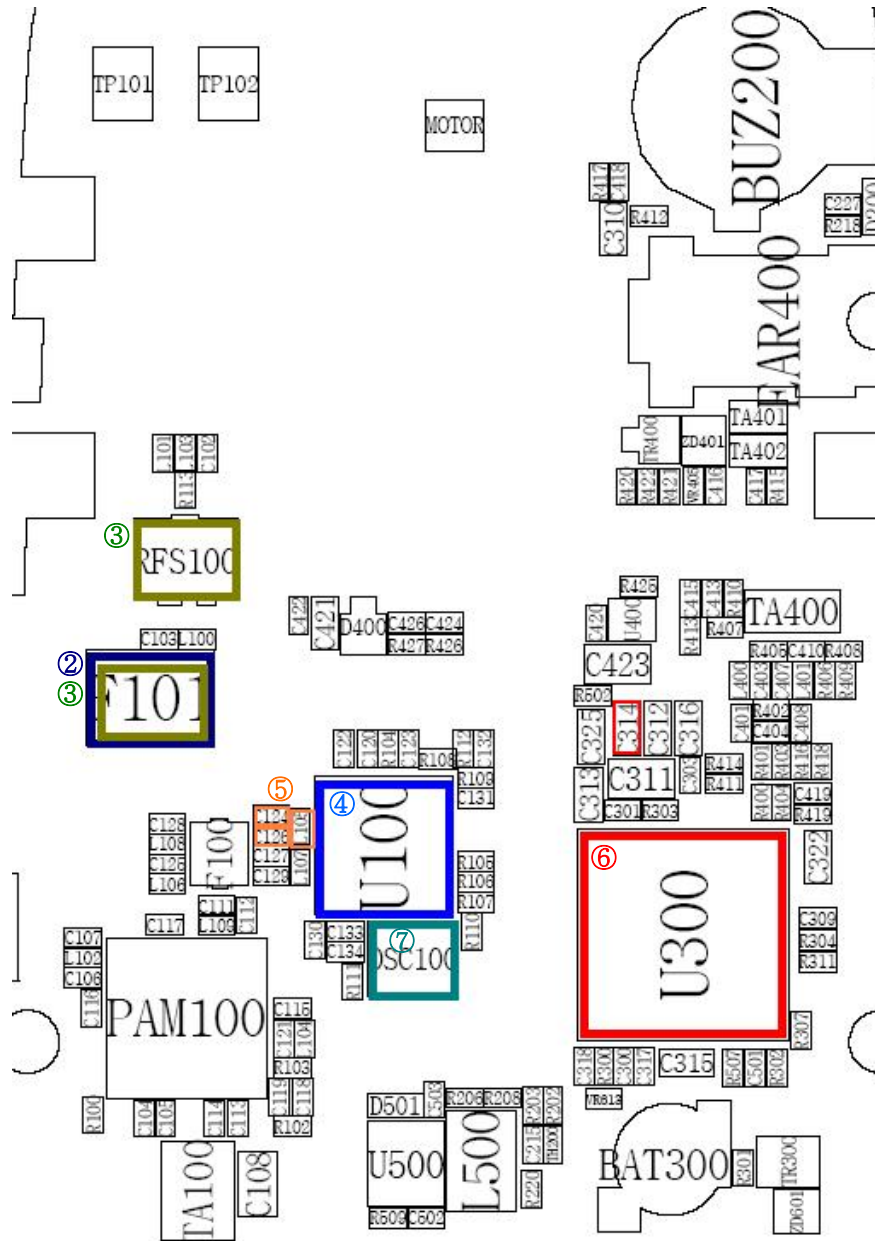
CONTINUOUS RX ON  
RF INPUT : 62CH  
AMP : -50dBm



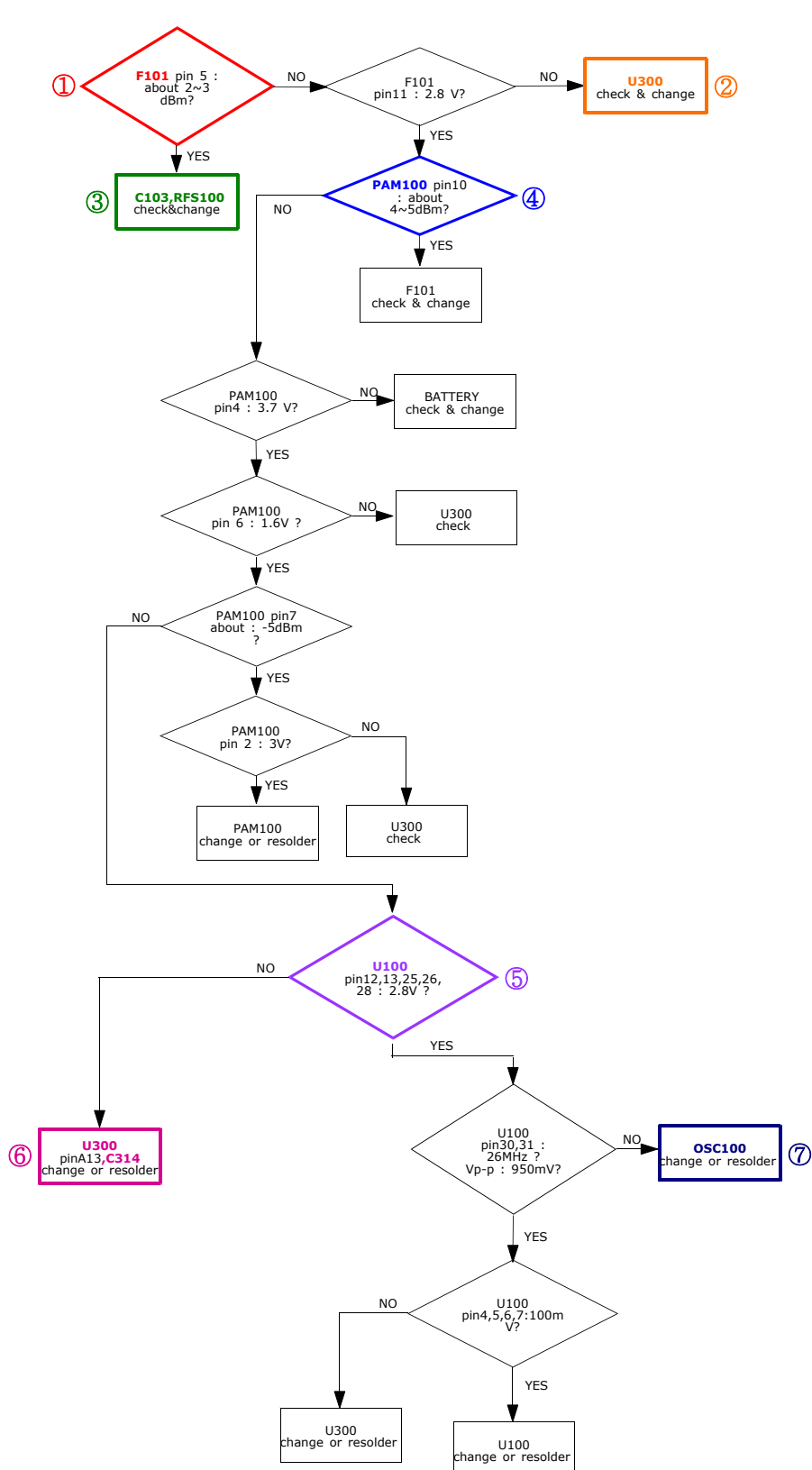


## 2-2-2. DCS RX

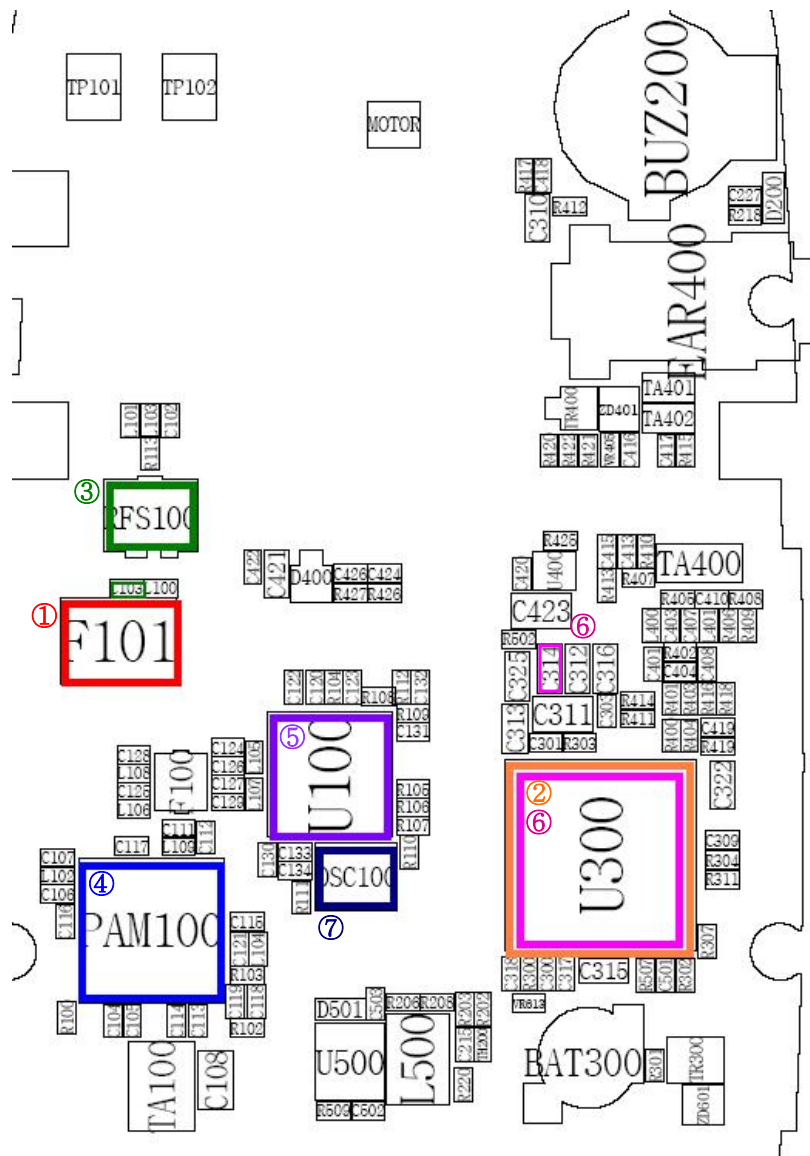




## 2-2-3. EGSM TX

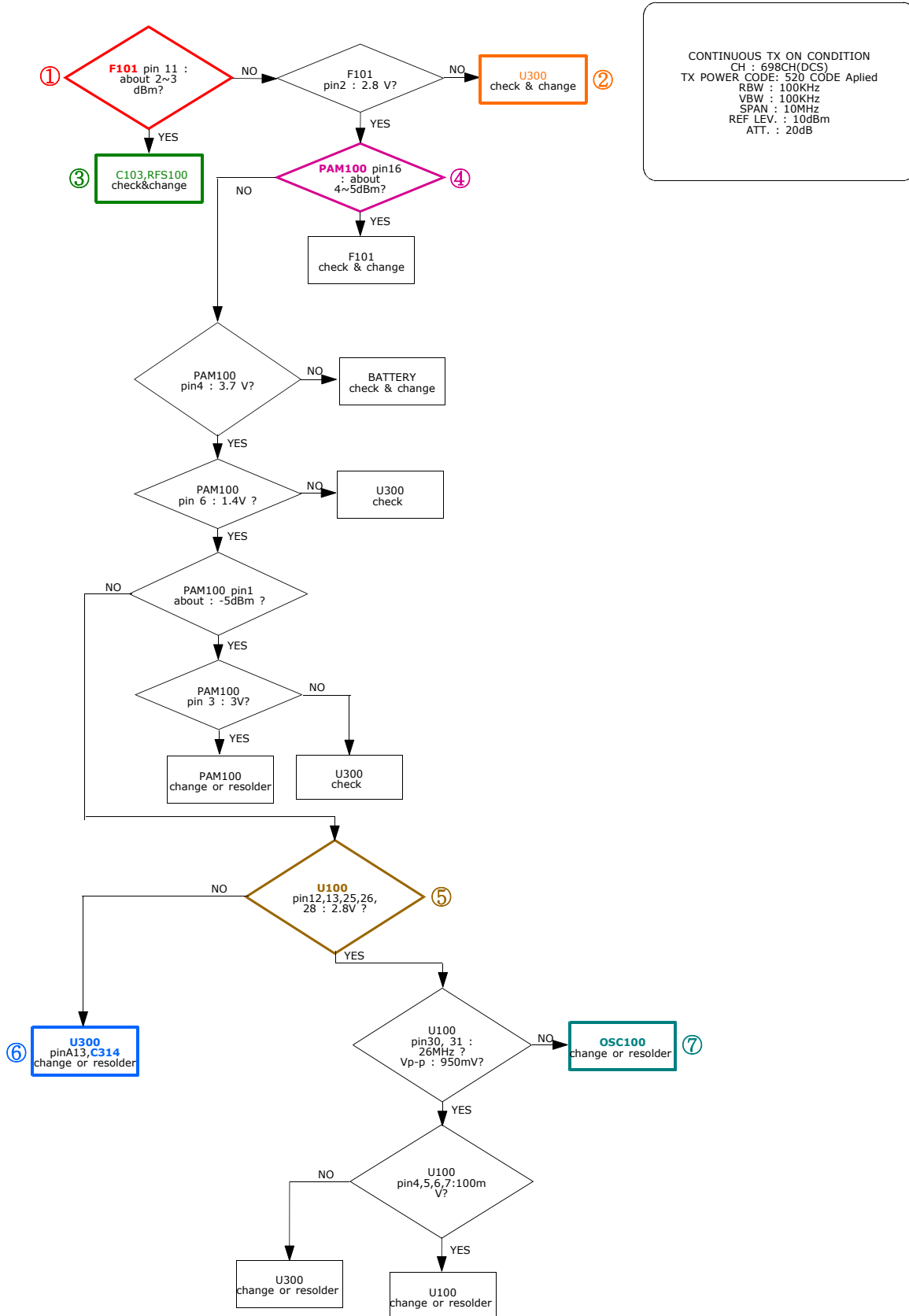


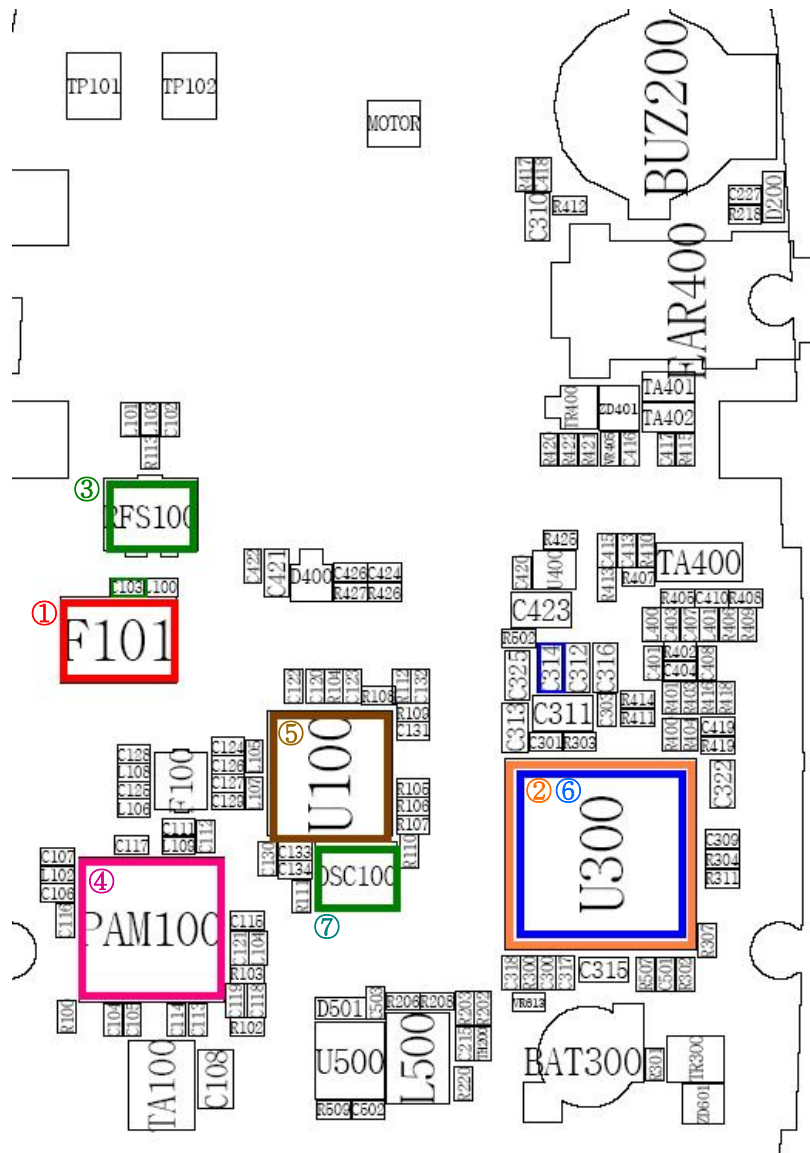
CONTINUOUS TX ON CONDITION  
TX POWER DAC: 600 CODE APPLIED  
CH : 62  
RBW : 100KHz  
VBW : 100KHz  
SPAN : 10MHz  
REF LEV. : 10dBm  
ATT. : 20dB

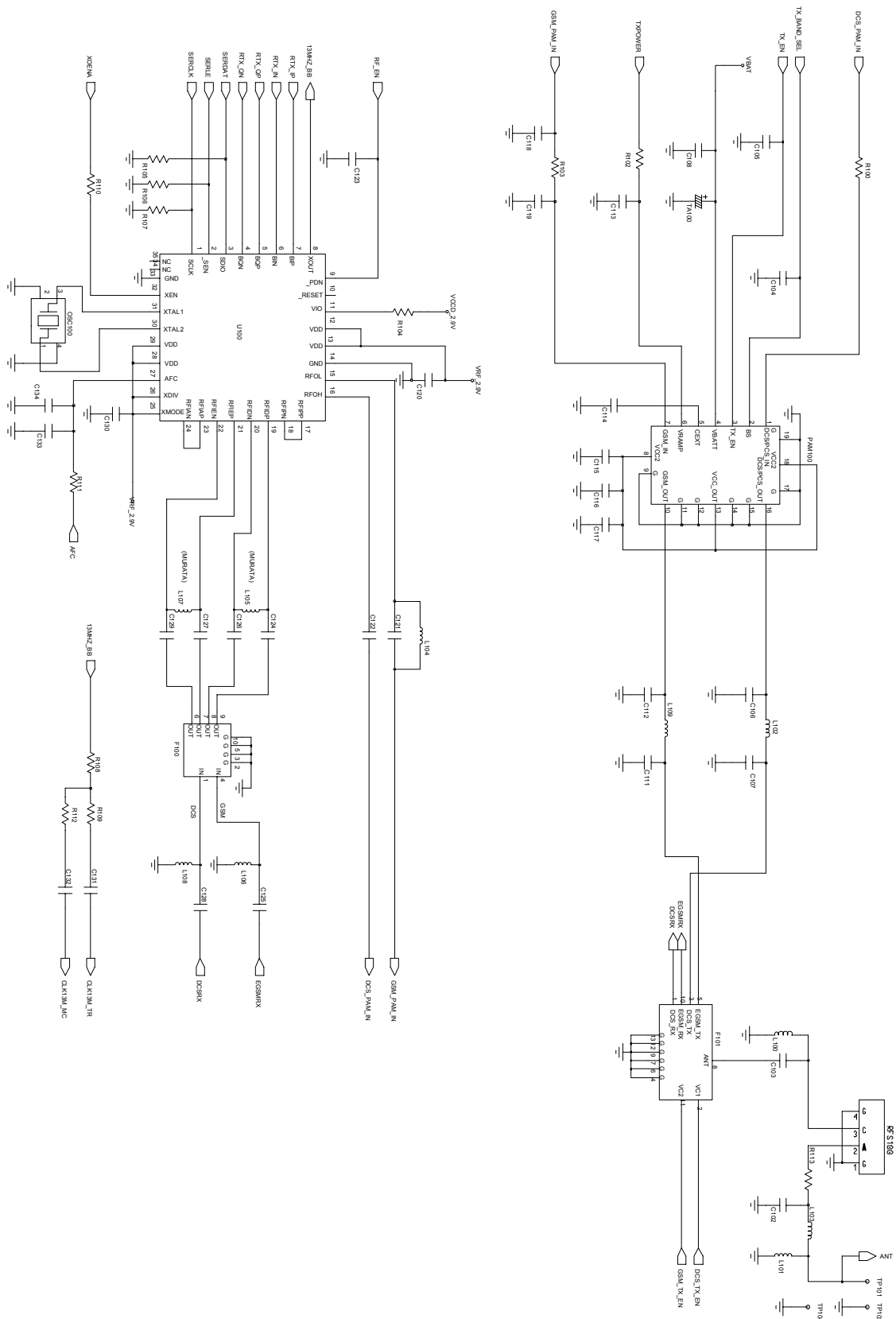




## 2-2-4. DCS TX





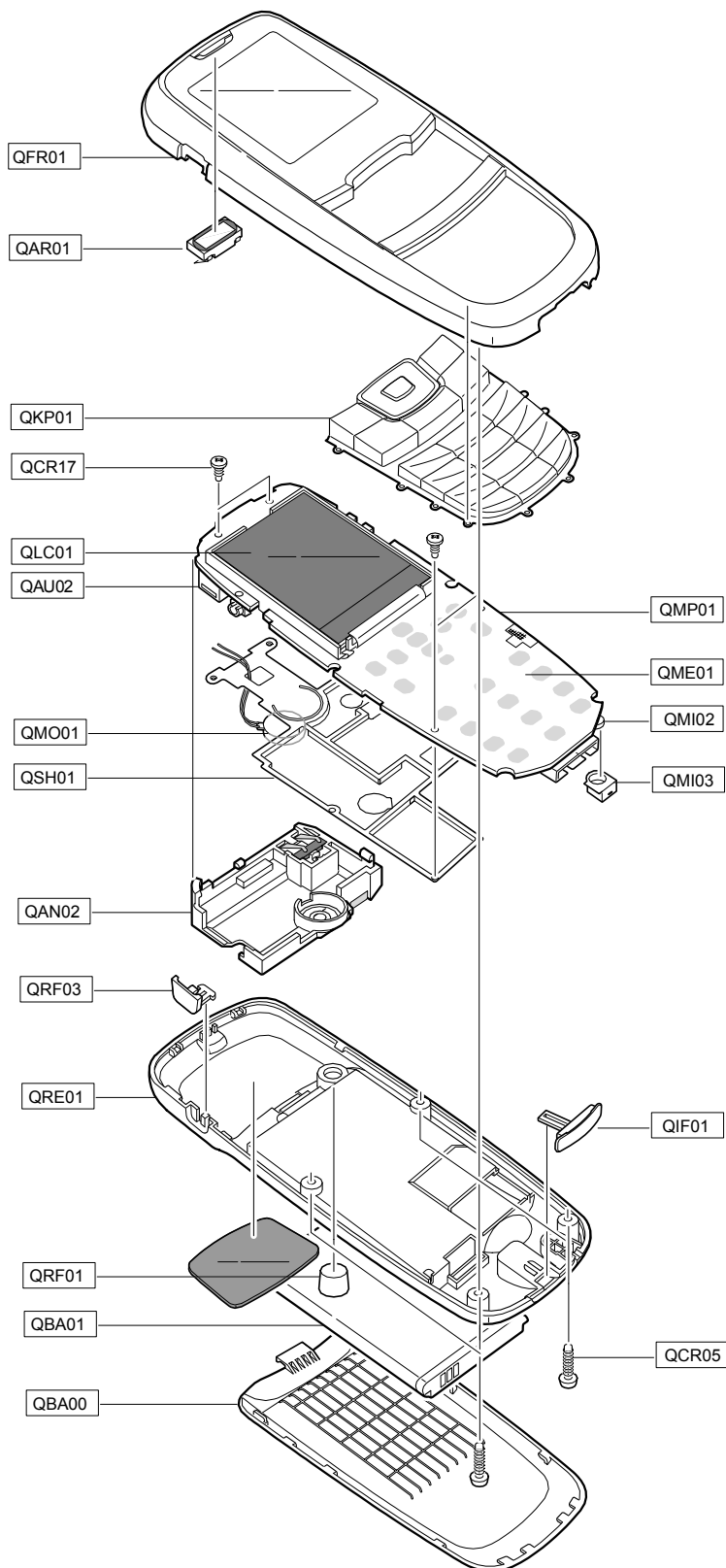


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## 3. SGH-C120 Exploded View and Parts List

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### 3-1. Cellular phone Exploded View

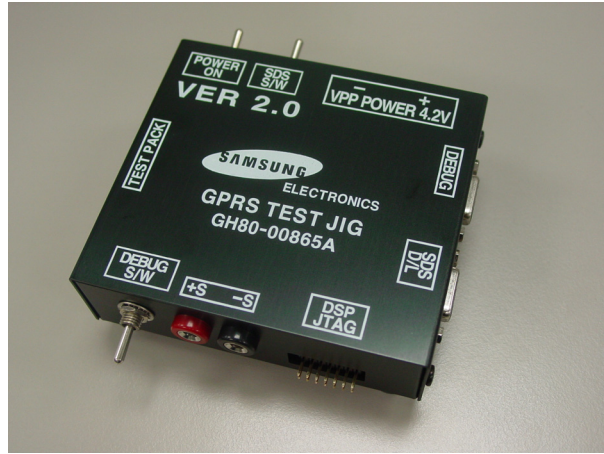


### 3-2. Cellular phone Parts list

Location No		Description	Sec Code
QAN02		ANTENNA-SGHC120,GRAY	GH42-00651A
QAR01		AUDIO-RECEIVER	3009-001145
QAU02		RMO-BUZZER HOLDER V2	GH73-05637A
QBA00		PMO-BATT COVER	GH72-24322A
QBA01		BATTERY-800MAH,BLK,ENG,M	GH43-01850A
QCR05		SCREW-MACHINE	6001-001478
QCR17		SCREW-MACHINE	6001-001460
QFR01		MEC-FRONT COVER	GH75-07865A
QIF01		PMO-IF COVER	GH72-24321A
QKP01		MEC-KEYPAD(FAM/WKS)	GH75-07866A
QLC01		LCD-MODULE,SGHC120	GH07-00772A
QME01		UNIT-METAL DOME	GH59-02424A
QMI02		UNIT-MIC ASS`Y	GH59-00595A
QMI03		MEC-MIC HOLDER	GH75-07869A
QMO01		MOTOR DC-SGHE720	GH31-00136A
QMP01		PBA MAIN-SGHC120	GH92-02344A
QRF01		RMO-RF COVER	GH73-05308A
QSH01		MEC-SHIELD CAN REAR	GH75-07868A
QRE01		MEC-REAR COVER	GH75-07867A
	QRF03	PMO-EAR COVER	GH72-24320A

<b>Description</b>	<b>Sec Code</b>
BAG PE	6902-000297
CHARGER-SGHN288 TA(U.K)	GH44-00171C
LABEL(P)-WATER SOAK	GH68-02026A
MANUAL-USER	GH68-07911A
LABEL(R)-MAIN (EU)	GH68-08401A
BOX(P)-UNIT MAIN (SEA)	GH69-03312B
CUSHION-CASE TA3	GH69-03332A
MPR-SPONGE SPEAKER	GH74-02589A
MPR-TAPE ESD	GH74-18148A
MPR-TAPE J_TAG SHORT	GH74-18149A

### 3-3. Test Jig (GH80-00865A)



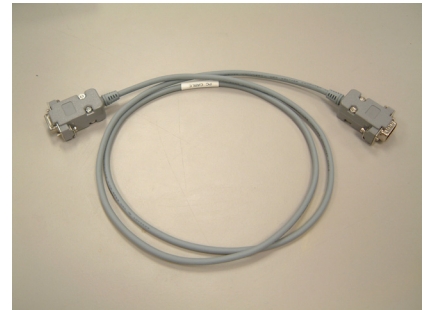
3-3-1. RF Test Cable  
(GH39-00397A)



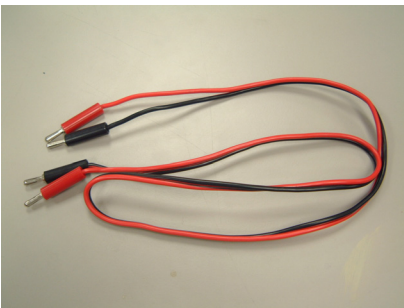
3-3-2. Test Cable  
(GH39-00127A)



3-3-3. Serial Cable



3-3-4. Power Supply Cable



3-3-5. DATA CABLE  
(GH39-00159A)



3-3-6. TA  
(GH44-00184A)



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## 4. SGH-C120 MAIN Electrical Parts List

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SEC Code	Design LOC	Discription	STATUS
0403-001427	ZD502	DIODE-ZENER	SA
0403-001547	ZD503	DIODE-ZENER	SA
0404-001172	D200	DIODE-SCHOTTKY	SA
0404-001172	D501	DIODE-SCHOTTKY	SA
0406-001083	ZD500	DIODE-TVS	SA
0406-001083	ZD501	DIODE-TVS	SA
0406-001190	ZD401	DIODE-TVS	SA
0406-001194	ZD601	DIODE-TVS	SA
0406-001210	ZD402	DIODE-TVS	SA
0406-001210	ZD403	DIODE-TVS	SA
0406-001210	ZD602	DIODE-TVS	SA
0406-001210	ZD603	DIODE-TVS	SA
0406-001210	ZD604	DIODE-TVS	SA
0407-001002	D400	DIODE-ARRAY	SA
0501-000225	TR400	TR-SMALL SIGNAL	SA
0504-000168	TR300	TR-DIGITAL	SA
0601-002119	LED611	LED	SA
0601-002119	LED612	LED	SA
0801-000796	U501	IC-CMOS LOGIC	SA
1109-001218	UME600	IC-MCP	SA
1201-002260	PAM100	IC-POWER AMP	SA
1203-003109	U301	IC-BATTERY	SA
1203-003737	U400	IC-POSI.FIXED REG.	SA
1203-003897	UCP300	IC-POWER SUPERVISOR	SA



SEC Code	Design LOC	Discription	STATUS
1203-003936	U500	IC-DC/DC CONVERTER	SA
1205-002683	U100	IC-TRANSCIEVER	SA
1404-001221	TH200	THERMISTOR-NTC	SA
1405-001082	VR405	VARISTOR	SA
1405-001082	VR410	VARISTOR	SA
1405-001082	VR411	VARISTOR	SA
1405-001082	VR500	VARISTOR	SA
1405-001082	VR501	VARISTOR	SA
1405-001082	VR502	VARISTOR	SA
1405-001082	VR503	VARISTOR	SA
1405-001082	VR504	VARISTOR	SA
1405-001082	VR602	VARISTOR	SA
1405-001082	VR603	VARISTOR	SA
1405-001082	VR604	VARISTOR	SA
1405-001082	VR606	VARISTOR	SA
1405-001082	VR607	VARISTOR	SA
1405-001082	VR608	VARISTOR	SA
1405-001082	VR609	VARISTOR	SA
1405-001082	VR611	VARISTOR	SA
1405-001082	VR613	VARISTOR	SA
1405-001093	VR505	VARISTOR	SA
1405-001093	VR601	VARISTOR	SA
1405-001108	VR403	VARISTOR	SA
1405-001108	VR404	VARISTOR	SA

SEC Code	Design LOC	Discription	STATUS
1405-001108	VR612	VARISTOR	SA
2007-000140	R208	R-CHIP	SA
2007-000140	R417	R-CHIP	SA
2007-000140	R420	R-CHIP	SA
2007-000140	R426	R-CHIP	SA
2007-000140	R515	R-CHIP	SA
2007-000140	R516	R-CHIP	SA
2007-000140	R517	R-CHIP	SA
2007-000140	R518	R-CHIP	SA
2007-000140	R519	R-CHIP	SA
2007-000140	R520	R-CHIP	SA
2007-000140	R521	R-CHIP	SA
2007-000140	R522	R-CHIP	SA
2007-000140	R523	R-CHIP	SA
2007-000140	R525	R-CHIP	SA
2007-000140	R527	R-CHIP	SA
2007-000140	R528	R-CHIP	SA
2007-000140	R530	R-CHIP	SA
2007-000142	R406	R-CHIP	SA
2007-000145	R422	R-CHIP	SA
2007-000148	R111	R-CHIP	SA
2007-000148	R402	R-CHIP	SA
2007-000153	R524	R-CHIP	SA
2007-000157	R200	R-CHIP	SA

<b>SEC Code</b>	<b>Design LOC</b>	<b>Discription</b>	<b>STATUS</b>
2007-000157	R204	R-CHIP	SA
2007-000157	R306	R-CHIP	SA
2007-000162	R209	R-CHIP	SA
2007-000162	R213	R-CHIP	SA
2007-000162	R529	R-CHIP	SA
2007-000167	R304	R-CHIP	SA
2007-000171	R100	R-CHIP	SA
2007-000171	R108	R-CHIP	SA
2007-000171	R110	R-CHIP	SA
2007-000171	R205	R-CHIP	SA
2007-000171	R206	R-CHIP	SA
2007-000171	R210	R-CHIP	SA
2007-000171	R219	R-CHIP	SA
2007-000171	R300	R-CHIP	SA
2007-000171	R303	R-CHIP	SA
2007-000171	R307	R-CHIP	SA
2007-000171	R408	R-CHIP	SA
2007-000171	R409	R-CHIP	SA
2007-000171	R416	R-CHIP	SA
2007-000171	R418	R-CHIP	SA
2007-000171	R419	R-CHIP	SA
2007-000171	R425	R-CHIP	SA
2007-000171	R500	R-CHIP	SA
2007-000171	R501	R-CHIP	SA

SEC Code	Design LOC	Discription	STATUS
2007-000171	R502	R-CHIP	SA
2007-000171	R507	R-CHIP	SA
2007-000171	R526	R-CHIP	SA
2007-000171	R611	R-CHIP	SA
2007-000171	R612	R-CHIP	SA
2007-000172	R201	R-CHIP	SA
2007-000172	R302	R-CHIP	SA
2007-000172	R613	R-CHIP	SA
2007-000173	R412	R-CHIP	SA
2007-000173	R415	R-CHIP	SA
2007-000566	R510	R-CHIP	SA
2007-000566	R511	R-CHIP	SA
2007-000566	R512	R-CHIP	SA
2007-000566	R513	R-CHIP	SA
2007-000566	R514	R-CHIP	SA
2007-000566	R531	R-CHIP	SA
2007-001288	R509	R-CHIP	SA
2007-001298	R103	R-CHIP	SA
2007-001308	R112	R-CHIP	SA
2007-001313	R102	R-CHIP	SA
2007-001317	R407	R-CHIP	SA
2007-001320	R405	R-CHIP	SA
2007-001320	R410	R-CHIP	SA
2007-001333	R421	R-CHIP	SA

SEC Code	Design LOC	Discription	STATUS
2007-002797	R104	R-CHIP	SA
2007-002797	R109	R-CHIP	SA
2007-002965	R614	R-CHIP	SA
2007-002965	R615	R-CHIP	SA
2007-003015	R218	R-CHIP	SA
2007-007142	R301	R-CHIP	SA
2007-007142	R309	R-CHIP	SA
2007-007142	R401	R-CHIP	SA
2007-007142	R403	R-CHIP	SA
2007-007142	R413	R-CHIP	SA
2007-007197	R423	R-CHIP	SA
2007-007197	R424	R-CHIP	SA
2007-007308	R212	R-CHIP	SA
2007-007308	R214	R-CHIP	SA
2007-007480	R202	R-CHIP	SA
2007-007489	R400	R-CHIP	SA
2007-007489	R404	R-CHIP	SA
2007-007538	R203	R-CHIP	SA
2007-007538	R411	R-CHIP	SA
2007-007538	R414	R-CHIP	SA
2007-008263	R310	R-CHIP	SA
2203-000233	C123	C-CER,CHIP	SA
2203-000233	C135	C-CER,CHIP	SA
2203-000233	C309	C-CER,CHIP	SA

SEC Code	Design LOC	Discription	STATUS
2203-000233	C324	C-CER,CHIP	SA
2203-000233	C410	C-CER,CHIP	SA
2203-000254	C117	C-CER,CHIP	SA
2203-000254	C200	C-CER,CHIP	SA
2203-000254	C201	C-CER,CHIP	SA
2203-000254	C202	C-CER,CHIP	SA
2203-000254	C203	C-CER,CHIP	SA
2203-000254	C208	C-CER,CHIP	SA
2203-000254	C209	C-CER,CHIP	SA
2203-000254	C210	C-CER,CHIP	SA
2203-000254	C211	C-CER,CHIP	SA
2203-000254	C212	C-CER,CHIP	SA
2203-000254	C214	C-CER,CHIP	SA
2203-000254	C301	C-CER,CHIP	SA
2203-000254	C317	C-CER,CHIP	SA
2203-000254	C603	C-CER,CHIP	SA
2203-000278	C122	C-CER,CHIP	SA
2203-000278	C125	C-CER,CHIP	SA
2203-000330	C216	C-CER,CHIP	SA
2203-000330	C217	C-CER,CHIP	SA
2203-000386	C131	C-CER,CHIP	SA
2203-000425	C406	C-CER,CHIP	SA
2203-000438	C104	C-CER,CHIP	SA
2203-000438	C105	C-CER,CHIP	SA

SEC Code	Design LOC	Discription	STATUS
2203-000438	C115	C-CER,CHIP	SA
2203-000530	C113	C-CER,CHIP	SA
2203-000628	C405	C-CER,CHIP	SA
2203-000679	C207	C-CER,CHIP	SA
2203-000679	C419	C-CER,CHIP	SA
2203-000696	C102	C-CER,CHIP	SA
2203-000696	C127	C-CER,CHIP	SA
2203-000696	C129	C-CER,CHIP	SA
2203-000812	C304	C-CER,CHIP	SA
2203-000812	C305	C-CER,CHIP	SA
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2203-000995	C103	C-CER,CHIP	SA
2203-000995	C116	C-CER,CHIP	SA
2203-000995	C404	C-CER,CHIP	SA
2203-001017	C128	C-CER,CHIP	SA
2203-001072	C300	C-CER,CHIP	SA

SEC Code	Design LOC	Discription	STATUS
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2203-001072	C418	C-CER,CHIP	SA
2203-001385	C111	C-CER,CHIP	SA
2203-001405	C206	C-CER,CHIP	SA
2203-001412	C132	C-CER,CHIP	SA
2203-001598	C308	C-CER,CHIP	SA
2203-001598	C311	C-CER,CHIP	SA
2203-005061	C205	C-CER,CHIP	SA
2203-005061	C307	C-CER,CHIP	SA
2203-005061	C318	C-CER,CHIP	SA
2203-005061	C319	C-CER,CHIP	SA
2203-005061	C422	C-CER,CHIP	SA
2203-005061	C600	C-CER,CHIP	SA
2203-005061	C601	C-CER,CHIP	SA
2203-005061	C602	C-CER,CHIP	SA
2203-005234	C106	C-CER,CHIP	SA
2203-005234	C124	C-CER,CHIP	SA
2203-005234	C126	C-CER,CHIP	SA
2203-005481	C114	C-CER,CHIP	SA
2203-005482	C120	C-CER,CHIP	SA
2203-005482	C130	C-CER,CHIP	SA
2203-005482	C133	C-CER,CHIP	SA
2203-005482	C302	C-CER,CHIP	SA
2203-006053	C326	C-CER,CHIP	SA



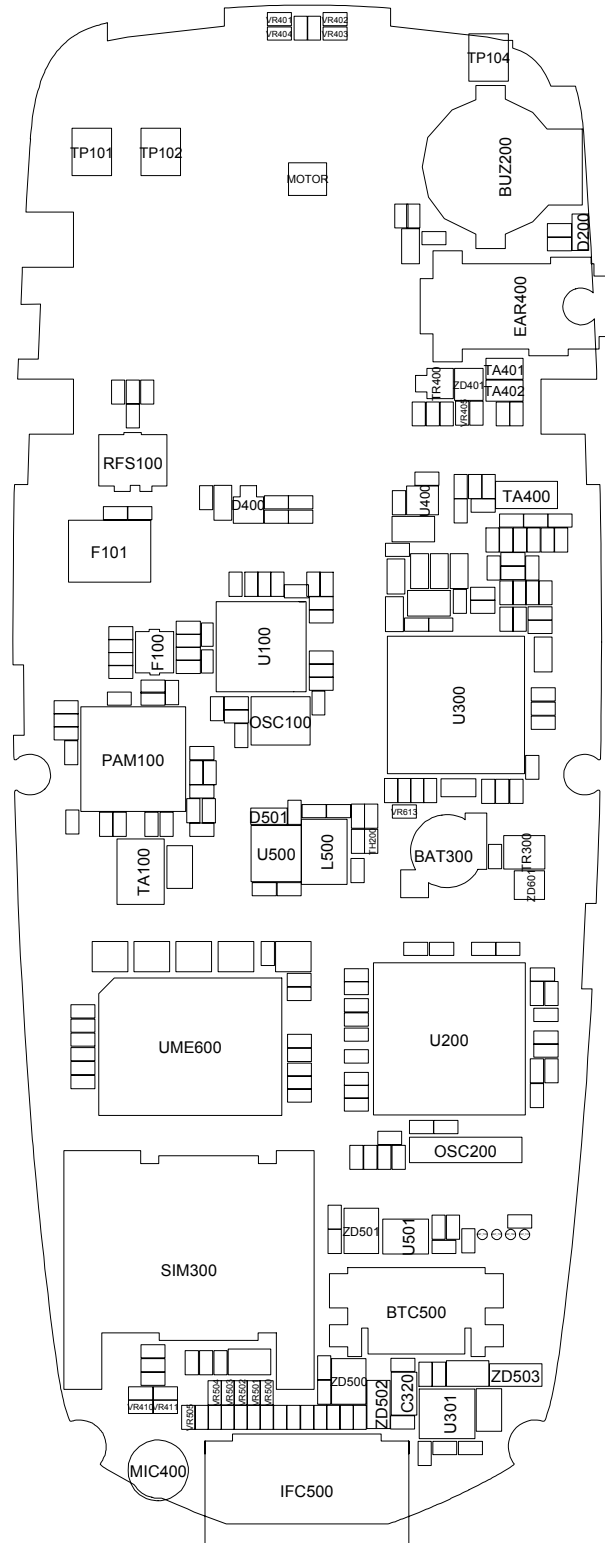
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2203-006141	C312	C-CER,CHIP	SA
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2203-006141	C314	C-CER,CHIP	SA
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2203-006141	C316	C-CER,CHIP	SA
2203-006141	C322	C-CER,CHIP	SA
2203-006141	C325	C-CER,CHIP	SA
2203-006141	C421	C-CER,CHIP	SA
2203-006257	C323	C-CER,CHIP	SA
2203-006260	C204	C-CER,CHIP	SA
2203-006260	C213	C-CER,CHIP	SA
2203-006260	C403	C-CER,CHIP	SA
2203-006260	C407	C-CER,CHIP	SA
2203-006260	C413	C-CER,CHIP	SA
2203-006348	C503	C-CER,CHIP	SA
2203-006361	C108	C-CER,CHIP	SA
2203-006361	C320	C-CER,CHIP	SA
2203-006361	C423	C-CER,CHIP	SA
2203-006361	C504	C-CER,CHIP	SA
2203-006438	C218	C-CER,CHIP	SA
2203-006562	C303	C-CER,CHIP	SA
2203-006562	C502	C-CER,CHIP	SA
2404-001151	TA400	C-TA,CHIP	SA
2404-001225	TA401	C-TA,CHIP	SA

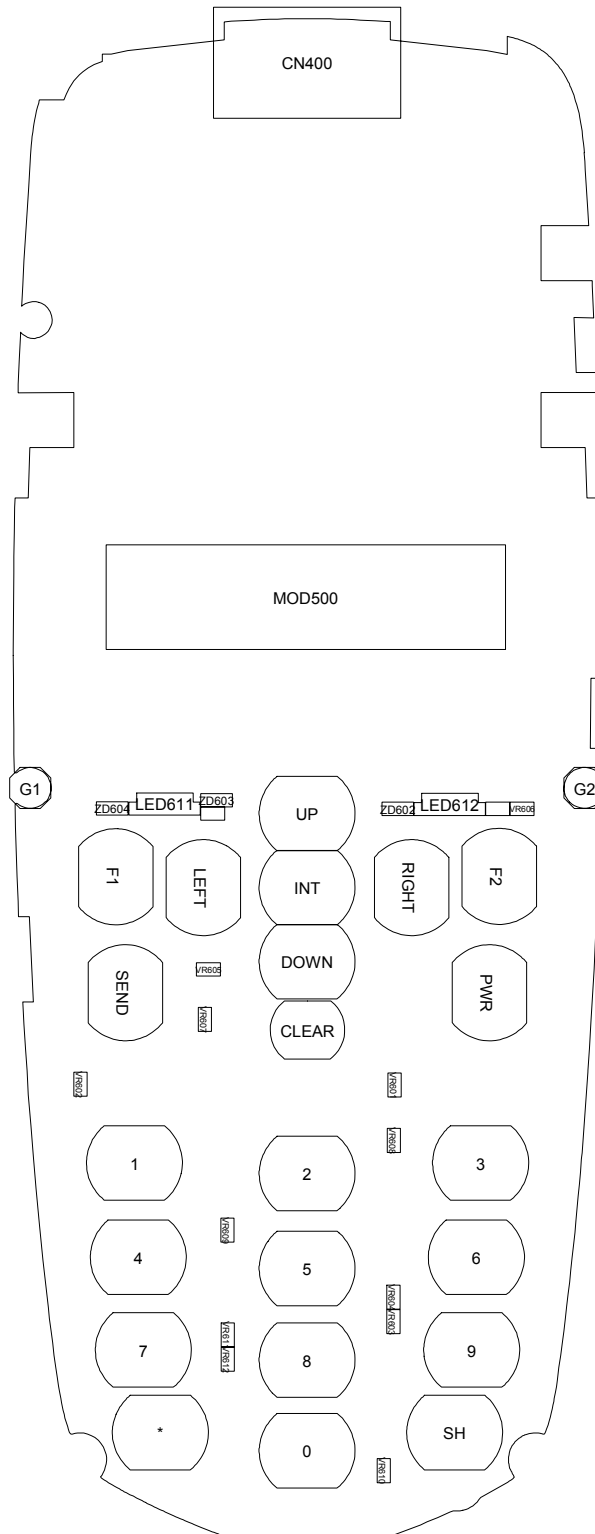
SEC Code	Design LOC	Discription	STATUS
2404-001225	TA402	C-TA,CHIP	SA
2404-001412	TA100	C-TA,CHIP	SA
2503-001053	C550	C-NETWORK	SA
2503-001053	C552	C-NETWORK	SA
2503-001053	C553	C-NETWORK	SA
2503-001053	C554	C-NETWORK	SA
2703-001178	L103	INDUCTOR-SMD	SA
2703-001178	L109	INDUCTOR-SMD	SA
2703-002170	L108	INDUCTOR-SMD	SA
2703-002199	L106	INDUCTOR-SMD	SA
2703-002202	L400	INDUCTOR-SMD	SA
2703-002202	L401	INDUCTOR-SMD	SA
2703-002208	L102	INDUCTOR-SMD	SA
2703-002269	L100	INDUCTOR-SMD	SA
2703-002524	L500	INDUCTOR-SMD	SA
2703-002544	L101	INDUCTOR-SMD	SA
2703-002544	L105	INDUCTOR-SMD	SA
2703-002558	L107	INDUCTOR-SMD	SA
2801-003856	OSC200	CRYSTAL-SMD	SA
2801-004426	OSC100	CRYSTAL-SMD	SA
2904-001523	F100	FILTER-SAW	SA
2909-001252	F101	DUPLEXER-ASM	SA
3002-001098	BUZ200	BUZZER-MAGNETIC	SA
3705-001358	RFS100	CONNECTOR-COAXIAL	SA

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SEC Code	Design LOC	Discription	STATUS
3709-001298	SIM300	CONNECTOR-CARD EDGE	SA
3710-001611	IFC500	CONNECTOR-INTERFACE	SA
3711-005901	BTC500	CONNECTOR-BATTERY	SA
3722-002067	EAR400	JACK-EAR PHONE	SA
4302-001130	BAT300	BATTERY-LI(2ND)	SA
GH09-00039A	UCP200	IC MICOM	SA

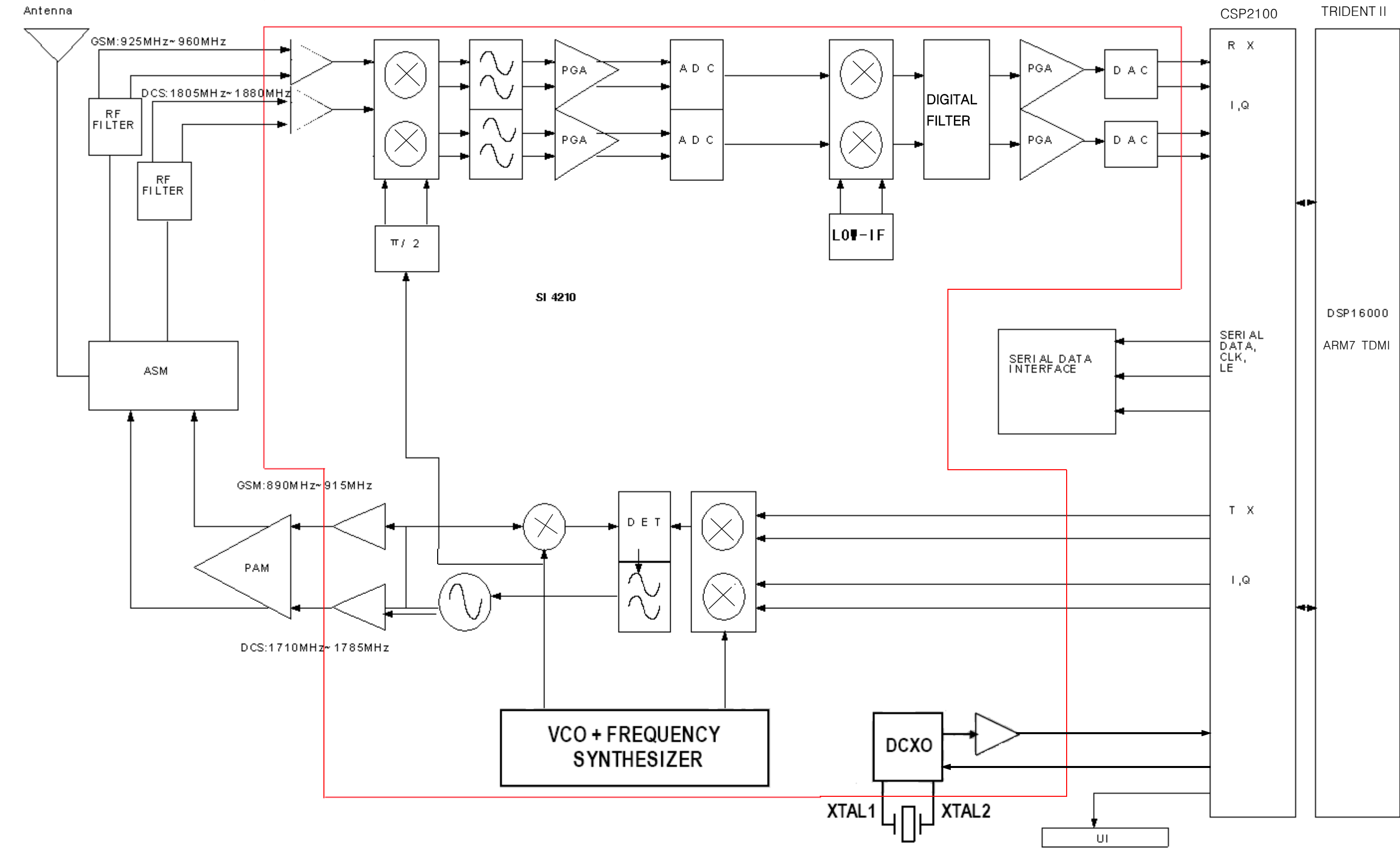
## 5. SGH-C120 PCB Diagrams



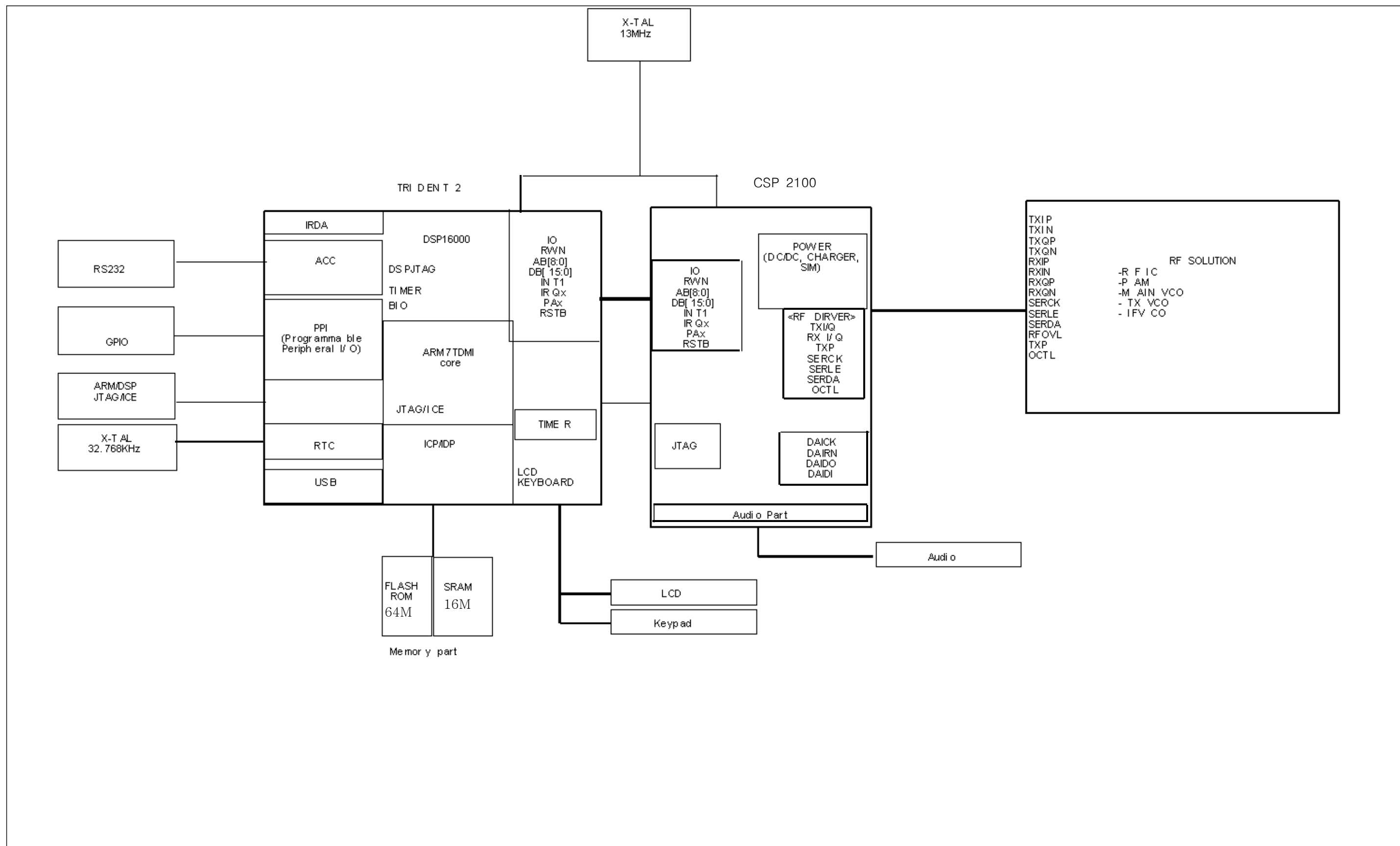


6. SGH-C120 Block Diagrams

6-1. RF Solution Block Diagram



## 6-2. Base Band Solution Block Diagram



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