

SAMSUNG

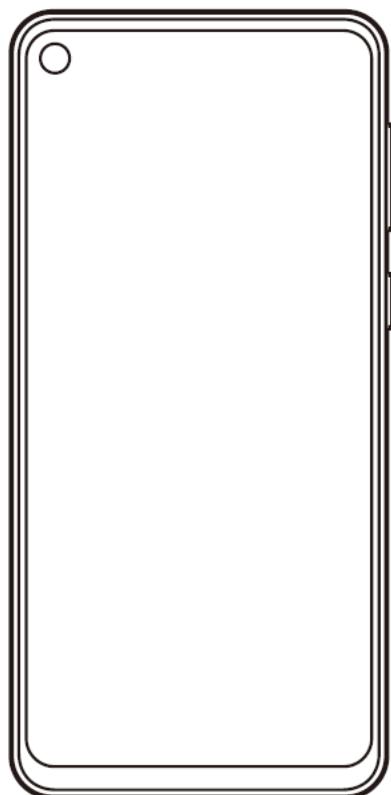
Mobile Device SM-M405F

SERVICE

Manual

Mobile Device

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1. Safety Precautions

1-1. Repair Precaution

Before attempting any repair or detailed tuning, shield the device from RF noise or static electricity discharges.

Use only demagnetized tools that are specifically designed for small electronic repairs, as most electronic parts are sensitive to electromagnetic forces.

Use only high quality screwdrivers when servicing products. Low quality screwdrivers can easily damage the heads of screws.

Use only conductor wire of the properly gauge and insulation for low resistance, because of the low margin of error of most testing equipment.

We recommend 22-gauge twisted copper wire.

Hand-soldering is not recommended, because printed circuit boards (PCBs) can be easily damaged, even with relatively low heat. Never use a soldering iron with a power rating of more than 100 watts and use only lead-free solder with a melting point below 250°C (482°F).

Prior to disassembling the battery charger for repair, ensure that the AC power is disconnected. Always use the replacement parts that are registered in the SEC system. Third-party replacement parts may not function properly.

1. Safety Precautions

1-2. ESD(Electrostatically Sensitive Devices) Precaution

Many semiconductors and ESDs in electronic devices are particularly sensitive to static discharge and can be easily damaged by it. We recommend protecting these components with conductive anti-static bags when you store or transport them.

Always use an anti-static strap or wristband and remove electrostatic buildup or dissipate static electricity from your body before repairing ESDs.

Ensure that soldering irons have AC adapter with ground wires and that the ground wires are properly connected.

Use only desoldering tools with plastic tips to prevent static discharge.

Properly shield the work environment from accidental electrostatic discharge before opening packages containing ESDs.

The potential for static electricity discharge may be increased in low humidity environments, such as air-conditioned rooms. Increase the airflow to the working area to decrease the chance of accidental static electricity discharges.

2. Specification

2-1. GSM General Specification

Item		GSM 850	EGSM 900	DCS1800	PCS1900
Freq. Band[MHz] Uplink/Downlink		824~849 869~894	880~915 925~960	1710~1785 1805~1880	1850~1910 1930~1990
ARFCN range		128~251	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	GSM/ GPRS	0.3GMSK	0.3GMSK	0.3GMSK	0.3GMSK
MS Power		33dBm ~5dBm	33dBm ~5dBm	30dBm ~0dBm	30dBm ~0dBm
Power Class		5pcl ~ 19pcl	5pcl ~ 19pcl	0pcl ~ 15pcl	0pcl ~ 15pcl
Sensitivity		-102dBm	-102dBm	-100dBm	-100dBm
TDMA Mux		8	8	8	8

2. Specification

2-2. GSM Tx Power Class

TX Power control level	GSM850	TX Power control level	EGSM900	TX Power control level	DCS1800	TX Power control level	PCS1900
5	33±2 dBm	5	33±2 dBm	0	30±3 dBm	0	30±3 dBm
6	31±2 dBm	6	31±2 dBm	1	28±3 dBm	1	28±3 dBm
7	29±2 dBm	7	29±2 dBm	2	26±3 dBm	2	26±3 dBm
8	27±2 dBm	8	27±2 dBm	3	24±3 dBm	3	24±3 dBm
9	25±2 dBm	9	25±2 dBm	4	22±3 dBm	4	22±3 dBm
10	23±2 dBm	10	23±2 dBm	5	20±3 dBm	5	20±3 dBm
11	21±2 dBm	11	21±2 dBm	6	18±3 dBm	6	18±3 dBm
12	19±2 dBm	12	19±2 dBm	7	16±3 dBm	7	16±3 dBm
13	17±2 dBm	13	17±2 dBm	8	14±3 dBm	8	14±3 dBm
14	15±2 dBm	14	15±2 dBm	9	12±4 dBm	9	12±4 dBm
15	13±2 dBm	15	13±2 dBm	10	10±4 dBm	10	10±4 dBm
16	11±3 dBm	16	11±3 dBm	11	8±4 dBm	11	8±4 dBm
17	9±3 dBm	17	9±3 dBm	12	6±4 dBm	12	6±4 dBm
18	7±3 dBm	18	7±3 dBm	13	4±4 dBm	13	4±4 dBm
19	5±3 dBm	19	5±3 dBm	14	2±5 dBm	14	2±5 dBm
-	-	-	-	15	0±5 dBm	15	0±5 dBm

2. Specification

2-3. WCDMA General Specification

Item	WCDMA2100	WCDMA850	WCDMA900
Freq. Band[MHz] Uplink/Downlink	1922~1977 2112~2167	824~849 869~894	880~915 925~960
ARFCN range	UL: 9612~9888 DL: 10562~10838	UL: 4132~4233 DL: 4357~4458	UL: 2712~2863 DL: 2937~3088
Tx/Rx spacing	190MHz	45MHz	45MHz
Mod. Bit rate/ Bit Period	3.84 Mcps	3.84 Mcps	3.84 Mcps
Time Slot Period/ Frame Period	FrameLength:10ms Slotlength:0.667ms	FrameLength:10ms Slotlength:0.667ms	FrameLength:10ms Slotlength:0.667ms
Modulation	QPSK/HQPSK	QPSK/HQPSK	QPSK/HQPSK
MS Power (dBm)	24dBm~50dBm	24dBm~50dBm	24dBm~50dBm
Power Class	3(max+24dBm)	3(max+24dBm)	3(max+24dBm)
Sensitivity	-106.7dBm	-106.7dBm	-106.7dBm

2. Specification

2-4-1. LTE General Specification

Item	Band1 (FDD)	Band3 (FDD)	Band5 (FDD)	Band8 (FDD)
Freq. Band[MHz] UL/DL	1920~1980 2110~2170	1710~1785 1805~1880	824~849 869~894	880~915 925~960
ARFCN range UL/DL	18000~18599 0~599	19200~19949 1200~1949	20400~20649 2400~2649	21450~21799 3450~3799
Tx/Rx spacing	190MHz	95MHz	45MHz	45MHz
TCXO Frequency	38.4MHz	38.4MHz	38.4MHz	38.4MHz
Modulation	QPSK/16-QAM/64-QAM	QPSK/16-QAM/64-QAM	QPSK/16-QAM/64-QAM	QPSK/16-QAM/64-QAM
MS Power	-40dBm~ 25dBm	-40dBm~ 25dBm	-40dBm~ 25dBm	-40dBm~ 25dBm
Power Class	3 (max: 23 ±2dBm)	3 (max: 23 ±2dBm)	3 (max: 23 ±2dBm)	3 (max: 23 ±2dBm)
Sensitivity(QPSK, BW 10MHz) (dBm)	-96.3(BW : 10 MHz)	-93.3(BW : 10 MHz)	-94.3(BW : 10 MHz)	--93.3(BW : 10 MHz)

Item	Band40 (TDD)	Band41 (TDD)
Freq. Band[MHz] Uplink/Downlink	2300~2400	2555~2655
ARFCN range	38650~39649	40240~41240
Tx/Rx spacing	/	/
TCXO Frequency	38.4MHz	38.4MHz
Modulation	QPSK/16-QAM /64-QAM	QPSK/16-QAM /64-QAM
MS Power	-40dBm~ 25dBm	-40dBm~ 25dBm
Power Class	3 (max: 23 ±2dBm)	3 (max: 23 ±2dBm)
Sensitivity(QPSK, BW 10MHz) (dBm)	-96.3(BW : 10MHz)	-94.3(BW : 10MHz)

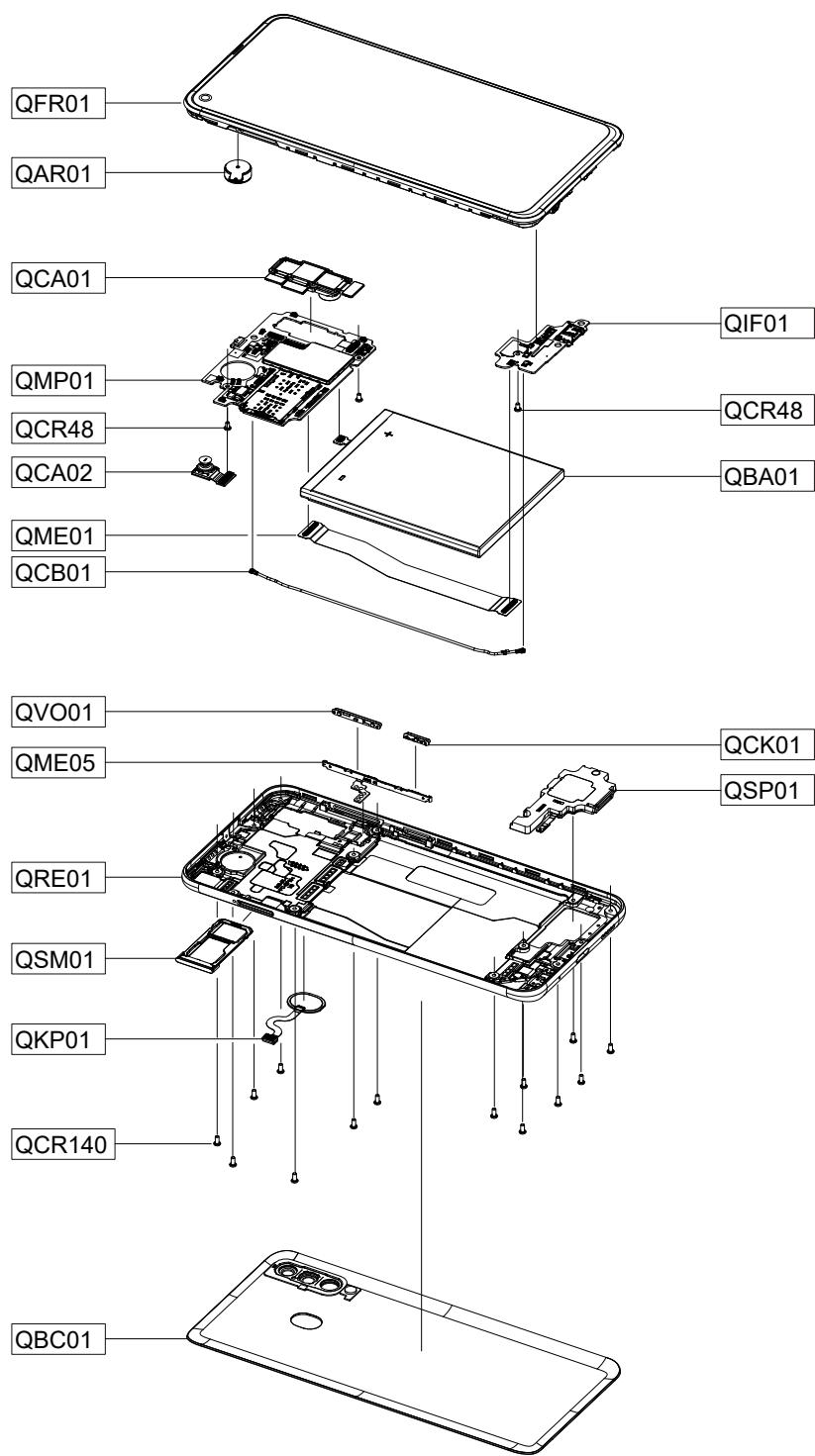
3. Product Function

Main Function

Item	Description
OS	Android V9.0
RF	[2G] GSM : GSM850 / GSM900 / DCS 1800 / PCS 1900 [3G] WCDMA : B1 / B5 / B8 [4G] LTE FDD : B1 / B3 / B5 / B8 LTE TDD : B40 / B41
Battery	3,500mAh
Base Band	SM6150 / 2GHz, 1.7GHz
Other RF	GPS, Glonass, Beidou, Galileo, BT 5.0, USB 2.0, Wi-Fi 802.11 a/b/g/n/ac (2.4G+5GHz), NFC
Camera	Camera: 3EA Camera (32M+5M+8M) with LED Flash, 16MP FF (Front)
LCD	6.3" FHD+, 2340 x 1080
RAM	6GB
Storage	128GB
Sensor	Accelerometer, Fingerprint Sensor, Gyro Sensor, Geomagnetic Sensor, Hall sensor, RGB Light Sensor, Proximity Sensor
Accessory	Charger : 5V/2A or 9 V/1.67 A Data cable : USB Type-C Earjack : Type-C

4. Exploded View and Parts List

4-1. Cellular phone Exploded View



※ SVC REPAIR TAPE
QRT01

5. MAIN Electrical Parts List

Parts Code	Design LOC	Description
0202-002125	R3010,R5007,R5029	PB-SHORT-0603
0202-002125	R5041,R6013,R6036	PB-SHORT-0603
0202-002126	R6039	PB-SHORT-1005
0404-001250	D6000	DIODE-SCHOTTKY
0404-001646	D7000	DIODE-SCHOTTKY
0406-001506	ZD1001	DIODE-TVS
0406-001561	ZD6020,ZD6026	DIODE-TVS
0406-001592	D3000,D3001,D3002	DIODE-TVS
0406-001592	ZD3007,ZD3008,ZD3009	DIODE-TVS
0406-001592	ZD3011,ZD3012	DIODE-TVS
0406-001728	ZD1000,ZD6001	DIODE-TVS
0406-001743	ZD6003,ZD6004,ZD6005	DIODE-TVS
0406-001743	ZD6017,ZD6018,ZD6019	DIODE-TVS
0406-001763	ZD6021,ZD6022,ZD6023	DIODE-TVS
0406-001763	ZD6024,ZD6025,ZD6027	DIODE-TVS
0406-001780	ZD4000	DIODE-TVS
0406-001797	ZD4002	DIODE-TVS
0406-001808	ZD6016	DIODE-TVS
0406-001809	ZD4001,ZD6013,ZD6014	DIODE-TVS
0505-003234	Q5002,TR5001,TR7000	FET-SILICON
0601-003768	LED5000	LED
0801-003639	U4000	IC
1001-001755	U4001,U5006	IC
1001-002042	U2089	IC
1001-002062	U3006	IC
1001-002063	U1001	IC
1009-001076	U3007	IC
1108-000659	UME6000	MEMORY
1201-003869	U3005	IC
1201-003984	U2000	IC
1201-004109	PAM2000	IC
1201-004135	U1004	IC
1201-004200	U8000	IC
1201-004219	U1000	IC
1201-004229	U8015	IC
1203-008719	U3000	IC
1203-008859	U7002	IC
1203-008865	U7001	IC

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5. MAIN Electrical Parts List

1203-008867	U3016,U8004	IC
1203-009054	U6002	IC
1203-009220	U7000	IC
1203-009240	U2001	IC
1203-009246	U5003	IC
1203-009247	U5004	IC
1203-009252	U7003	IC
1205-005217	C7033	IC
1205-005731	U3021	IC
1205-005833	U2009	IC
1205-005881	U3004	IC
1205-006111	UCP4000	AP
1209-002450	U3003	IC
1209-002513	U3008	IC
1209-002621	U3001	IC
1404-001664	TH5000	THERMISTOR
1404-001724	TH2000,TH4000	THERMISTOR
1404-001724	THM3000	THERMISTOR
1405-001458	VR6000	VARISTOR
2007-003015	R3004,R3009,R6028	R-CHIP
2007-003015	R6029	R-CHIP
2007-007107	R5000	R-CHIP
2007-007142	R7003,R7011	R-CHIP
2007-007313	R5001	R-CHIP
2007-007741	R3002,R3006,R3007	R-CHIP
2007-007741	R4029,R5008,R6001	R-CHIP
2007-007741	R6004,R6022	R-CHIP
2007-008056	R1006,R1007	R-CHIP
2007-008210	R4018	R-CHIP
2007-008263	R4026	R-CHIP
2007-008420	R4017,R4023,R4024	R-CHIP
2007-008420	R5011,R7001	R-CHIP
2007-008483	R5002	R-CHIP
2007-008531	R5017,R7000,R7004	R-CHIP
2007-008531	R7005	R-CHIP
2007-008588	R3012,R3013,R4006	R-CHIP
2007-008588	R4008,R4009,R4010	R-CHIP
2007-008588	R4011,R4012,R4027	R-CHIP
2007-008588	R4028,R4031,R4032	R-CHIP

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2007-008588	R4033,R4034,R4037	R-CHIP
2007-008588	R4038	R-CHIP
2007-008766	R4016	R-CHIP
2007-008774	R6006,R6007,R6008	R-CHIP
2007-008774	R6009,R6010,R6012	R-CHIP
2007-008774	R6015,R6017,R6020	R-CHIP
2007-008774	R6021,R6024	R-CHIP
2007-008785	R1005	R-CHIP
2007-008798	R8000,R8001	R-CHIP
2007-008808	R7006	R-CHIP
2007-009111	R3001,R5006	R-CHIP
2007-009157	R4015,R5027	R-CHIP
2007-009171	R3008	R-CHIP
2007-009201	R4019,R4020,R8021	R-CHIP
2007-009212	R3005,R4021,R4022	R-CHIP
2007-009212	R4042,R5021,R5022	R-CHIP
2007-009212	R6018	R-CHIP
2007-009314	R6035	R-CHIP
2007-009315	R6005	R-CHIP
2007-009352	R7007,R8014,R8015	R-CHIP
2007-009361	R1008	R-CHIP
2007-009408	R4013,R4014,R6000	R-CHIP
2007-009766	R8044	R-CHIP
2007-009801	R7012	R-CHIP
2007-009805	R1000,R1001,R1002	R-CHIP
2007-009805	R2000	R-CHIP
2007-009807	R6037	R-CHIP
2007-009920	R4002,R6002,R6003	R-CHIP
2007-009954	R6038	R-CHIP
2007-009969	R3016,R3021,R4001	R-CHIP
2007-010233	R4025	R-CHIP
2007-010685	R5004,R5014	R-CHIP
2007-011043	R4000	R-CHIP
2203-000311	C7057	C-CERAMIC,CHIP
2203-000425	C7045	C-CERAMIC,CHIP
2203-000812	C7034	C-CERAMIC,CHIP
2203-000995	C3082,C3089	C-CERAMIC,CHIP
2203-001072	C3086	C-CERAMIC,CHIP
2203-005682	C1002,C1008,C1038	C-CERAMIC,CHIP

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2203-005682	C1046,C2026,C2063	C-CERAMIC,CHIP
2203-005682	C2068,C2075,C2103	C-CERAMIC,CHIP
2203-005682	C3061,C3062,C3063	C-CERAMIC,CHIP
2203-005682	C7040,C7048,C7053	C-CERAMIC,CHIP
2203-005717	C1012,C1025,C1027	C-CERAMIC,CHIP
2203-005717	C1110,C2065,C2079	C-CERAMIC,CHIP
2203-005725	C1028,C3015,C3033	C-CERAMIC,CHIP
2203-005725	C7024	C-CERAMIC,CHIP
2203-005726	C4075,C8058	C-CERAMIC,CHIP
2203-005729	C7009	C-CERAMIC,CHIP
2203-005731	C3010,C7049,C7050	C-CERAMIC,CHIP
2203-005731	C7078,C7079	C-CERAMIC,CHIP
2203-005732	C8035,C8055	C-CERAMIC,CHIP
2203-005736	C1006,C1020,C1035	C-CERAMIC,CHIP
2203-005736	C1043,C1125,C1131	C-CERAMIC,CHIP
2203-005736	C2000,C2024,C2032	C-CERAMIC,CHIP
2203-005736	C2035,C2036,C2038	C-CERAMIC,CHIP
2203-005736	C2092,C2116,C3006	C-CERAMIC,CHIP
2203-005736	C3024,C3044,C3045	C-CERAMIC,CHIP
2203-005736	C3046,C3047,C3048	C-CERAMIC,CHIP
2203-005736	C3050,C3051,C3052	C-CERAMIC,CHIP
2203-005736	C3057,C3058	C-CERAMIC,CHIP
2203-005777	C1026,C1042,C1052	C-CERAMIC,CHIP
2203-005777	C1069,C1070,C2100	C-CERAMIC,CHIP
2203-005789	C1009,C1010,C1032	C-CERAMIC,CHIP
2203-005789	C1048,C1067,C1094	C-CERAMIC,CHIP
2203-005789	C2039,C2040,C2052	C-CERAMIC,CHIP
2203-005789	C2053,C2064,C2099	C-CERAMIC,CHIP
2203-005789	C3008	C-CERAMIC,CHIP
2203-005792	C1051,C1077,C2078	C-CERAMIC,CHIP
2203-006120	C6053,C6054	C-CERAMIC,CHIP
2203-006123	C3007,C3013,C3067	C-CERAMIC,CHIP
2203-006194	C6052	C-CERAMIC,CHIP
2203-006305	C1033,C3005,C3040	C-CERAMIC,CHIP
2203-006305	C7010	C-CERAMIC,CHIP
2203-006318	C2098	C-CERAMIC,CHIP
2203-006400	C1004,C1007,C2061	C-CERAMIC,CHIP
2203-006400	C3083,C3085,C5029	C-CERAMIC,CHIP
2203-006400	C5095	C-CERAMIC,CHIP

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5. MAIN Electrical Parts List

2203-006423	C2003,C2004,C2006	C-CERAMIC,CHIP
2203-006423	C2007,C2008,C2009	C-CERAMIC,CHIP
2203-006423	C2010,C2011,C2012	C-CERAMIC,CHIP
2203-006423	C2013,C2015,C2016	C-CERAMIC,CHIP
2203-006423	C2017,C2019,C2020	C-CERAMIC,CHIP
2203-006423	C2021,C2022,C3001	C-CERAMIC,CHIP
2203-006423	C3016,C3059,C4077	C-CERAMIC,CHIP
2203-006423	C6001,C6003,C6004	C-CERAMIC,CHIP
2203-006423	C6005,C7025,C8000	C-CERAMIC,CHIP
2203-006556	C1039,C1045,C2074	C-CERAMIC,CHIP
2203-006556	C2082	C-CERAMIC,CHIP
2203-006604	C3020,C3041	C-CERAMIC,CHIP
2203-006642	C8001,C8004	C-CERAMIC,CHIP
2203-006665	C1050	C-CERAMIC,CHIP
2203-006753	C3087	C-CERAMIC,CHIP
2203-006839	C1000,C1005,C1092	C-CERAMIC,CHIP
2203-006839	C1114,C2060,C2115	C-CERAMIC,CHIP
2203-006839	C3074,C3081,C4020	C-CERAMIC,CHIP
2203-006839	C4021,C4086,C4095	C-CERAMIC,CHIP
2203-006839	C4096,C5022,C5100	C-CERAMIC,CHIP
2203-006839	C5115,C8006	C-CERAMIC,CHIP
2203-006844	C3038	C-CERAMIC,CHIP
2203-006846	C1076	C-CERAMIC,CHIP
2203-006979	C3019,C3023,C3025	C-CERAMIC,CHIP
2203-006979	C3026,C3027,C3034	C-CERAMIC,CHIP
2203-006979	C3093	C-CERAMIC,CHIP
2203-007143	C6029	C-CERAMIC,CHIP
2203-007210	C4029,C4038,C4039	C-CERAMIC,CHIP
2203-007279	C2057,C7015	C-CERAMIC,CHIP
2203-007317	C2002,C2056,C3002	C-CERAMIC,CHIP
2203-007317	C7012	C-CERAMIC,CHIP
2203-007391	C3036,C3049,C3060	C-CERAMIC,CHIP
2203-007391	C3076,C6050,C6051	C-CERAMIC,CHIP
2203-007393	C2005,C2014,C2018	C-CERAMIC,CHIP
2203-007393	C2023,C2059,C3028	C-CERAMIC,CHIP
2203-007393	C3029,C3031,C3037	C-CERAMIC,CHIP
2203-007393	C3077,C3080,C4010	C-CERAMIC,CHIP
2203-007393	C5074,C5076,C5077	C-CERAMIC,CHIP
2203-007393	C5078,C5120,C5124	C-CERAMIC,CHIP

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2203-007393	C5126,C6010,C6012	C-CERAMIC,CHIP
2203-007393	C6013,C6015,C6023	C-CERAMIC,CHIP
2203-007393	C6024,C6073,C6074	C-CERAMIC,CHIP
2203-007393	C6077,C7016,C7017	C-CERAMIC,CHIP
2203-007393	C7020,C7021,C7022	C-CERAMIC,CHIP
2203-007393	C7029	C-CERAMIC,CHIP
2203-007456	C5083,C6000,C8014	C-CERAMIC,CHIP
2203-007474	C5105,C5106,C5110	C-CERAMIC,CHIP
2203-007474	C5129,C7026,C9101	C-CERAMIC,CHIP
2203-007544	C3042,C3043	C-CERAMIC,CHIP
2203-007781	C7032	C-CERAMIC,CHIP
2203-007796	C3017,C3018,C3021	C-CERAMIC,CHIP
2203-007796	C3022,C3030,C3032	C-CERAMIC,CHIP
2203-007796	C3070,C3071,C3072	C-CERAMIC,CHIP
2203-007796	C4000,C4001,C4002	C-CERAMIC,CHIP
2203-007796	C4003,C4004,C4005	C-CERAMIC,CHIP
2203-007796	C4006,C4007,C4008	C-CERAMIC,CHIP
2203-007796	C4009,C4011,C4012	C-CERAMIC,CHIP
2203-007796	C4014,C4016,C4017	C-CERAMIC,CHIP
2203-007796	C4018,C4022,C4024	C-CERAMIC,CHIP
2203-007796	C4025,C4026,C4027	C-CERAMIC,CHIP
2203-007796	C4028,C4030,C4031	C-CERAMIC,CHIP
2203-007796	C4032,C4035,C4042	C-CERAMIC,CHIP
2203-007796	C4044,C4045,C4047	C-CERAMIC,CHIP
2203-007796	C4049,C4050,C4051	C-CERAMIC,CHIP
2203-007796	C4052,C4053,C4054	C-CERAMIC,CHIP
2203-007796	C4055,C4056,C4057	C-CERAMIC,CHIP
2203-007796	C4058,C4059,C4060	C-CERAMIC,CHIP
2203-007796	C4061,C4062,C4068	C-CERAMIC,CHIP
2203-007796	C4069,C4070,C4071	C-CERAMIC,CHIP
2203-007796	C4072,C5068,C5069	C-CERAMIC,CHIP
2203-007796	C5070,C5071,C5072	C-CERAMIC,CHIP
2203-007796	C5073,C5075,C5079	C-CERAMIC,CHIP
2203-007796	C5092,C5104,C5107	C-CERAMIC,CHIP
2203-007796	C5108,C5109,C5112	C-CERAMIC,CHIP
2203-007796	C5113,C5114,C5116	C-CERAMIC,CHIP
2203-007796	C5117,C5119,C5121	C-CERAMIC,CHIP
2203-007796	C5122,C5128,C6002	C-CERAMIC,CHIP
2203-007796	C6006,C6007,C6008	C-CERAMIC,CHIP

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5. MAIN Electrical Parts List

2203-007796	C6009,C6014,C6016	C-CERAMIC,CHIP
2203-007796	C6017,C6020,C6021	C-CERAMIC,CHIP
2203-007796	C6025,C6026,C6027	C-CERAMIC,CHIP
2203-007796	C6028,C6043,C6044	C-CERAMIC,CHIP
2203-007796	C6046,C7002,C7003	C-CERAMIC,CHIP
2203-007796	C7007,C7013,C7014	C-CERAMIC,CHIP
2203-007796	C7018,C7019,C7027	C-CERAMIC,CHIP
2203-007796	C7036,C7039,C8056	C-CERAMIC,CHIP
2203-007796	C8059	C-CERAMIC,CHIP
2203-008095	C3069,C4063	C-CERAMIC,CHIP
2203-008097	C5019,C8020	C-CERAMIC,CHIP
2203-008242	C7005	C-CERAMIC,CHIP
2203-008529	C1016,C1047	C-CERAMIC,CHIP
2203-008654	C5004,C6045	C-CERAMIC,CHIP
2203-008749	C5055,C7044	C-CERAMIC,CHIP
2203-008860	C3011,C4015,C4019	C-CERAMIC,CHIP
2203-008860	C4023,C5000,C5002	C-CERAMIC,CHIP
2203-008860	C5021,C5023,C5025	C-CERAMIC,CHIP
2203-008860	C5027,C5035,C5040	C-CERAMIC,CHIP
2203-008860	C5042,C5044,C5045	C-CERAMIC,CHIP
2203-008860	C5047,C5050,C5081	C-CERAMIC,CHIP
2203-008860	C5084,C5086,C5088	C-CERAMIC,CHIP
2203-008860	C5097,C5098,C5101	C-CERAMIC,CHIP
2203-008860	C7035,C7038,C7041	C-CERAMIC,CHIP
2203-008860	C7042,C7072,C8015	C-CERAMIC,CHIP
2203-008860	C8022,C8057	C-CERAMIC,CHIP
2203-008876	C1041,C1044,C2076	C-CERAMIC,CHIP
2203-008876	C2080,C3014,C3035	C-CERAMIC,CHIP
2203-008876	C3054,C3073,C3075	C-CERAMIC,CHIP
2203-008876	C3078,C3079,C7000	C-CERAMIC,CHIP
2203-008876	C7028,C7030,C7031	C-CERAMIC,CHIP
2203-008876	C8003,C9081,C9082	C-CERAMIC,CHIP
2203-009064	C4033,C4034,C4040	C-CERAMIC,CHIP
2203-009064	C4041,C4066,C4067	C-CERAMIC,CHIP
2203-009064	C6022	C-CERAMIC,CHIP
2203-009167	C3084,C3088	C-CERAMIC,CHIP
2203-009444	C8060	C-CERAMIC,CHIP
2203-009618	C4076,C8010,C8061	C-CERAMIC,CHIP
2203-009733	C4043,C5026,C5028	C-CERAMIC,CHIP

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5. MAIN Electrical Parts List

2203-009733	C5032,C5033,C5036	C-CERAMIC,CHIP
2203-009733	C5038,C5049,C5052	C-CERAMIC,CHIP
2203-009733	C5056,C5064,C5065	C-CERAMIC,CHIP
2203-009733	C5066,C5085,C5090	C-CERAMIC,CHIP
2203-009733	C5096,C5103,C5111	C-CERAMIC,CHIP
2203-009733	C6072,C7001,C7006	C-CERAMIC,CHIP
2203-009733	C7008,C7011,C7043	C-CERAMIC,CHIP
2203-009733	C7046,C7047,C7051	C-CERAMIC,CHIP
2203-009733	C7052,C7062,C8008	C-CERAMIC,CHIP
2203-009733	C8051	C-CERAMIC,CHIP
2203-009735	C4073,C4074	C-CERAMIC,CHIP
2203-009787	C5067	C-CERAMIC,CHIP
2203-009812	C8044,C8062	C-CERAMIC,CHIP
2203-009858	C8005,C8007	C-CERAMIC,CHIP
2203-010085	C5087,C5094	C-CERAMIC,CHIP
2703-002649	L1002	INDUCTOR-SMD
2703-002858	L2053	INDUCTOR-SMD
2703-002900	L2002	INDUCTOR-SMD
2703-002903	L1011,L1012,L1018	INDUCTOR-SMD
2703-002903	L3013	INDUCTOR-SMD
2703-002907	L1053,L2018,L2022	INDUCTOR-SMD
2703-002951	L1050	INDUCTOR-SMD
2703-002953	L1021	INDUCTOR-SMD
2703-002959	L3009	INDUCTOR-SMD
2703-002999	L2028	INDUCTOR-SMD
2703-004012	L2001,L2003,L2045	INDUCTOR-SMD
2703-004013	L1008,L2038	INDUCTOR-SMD
2703-004014	L1028,L1030,L1057	INDUCTOR-SMD
2703-004014	L2005,L2010	INDUCTOR-SMD
2703-004018	L1001	INDUCTOR-SMD
2703-004032	L2051	INDUCTOR-SMD
2703-004033	L1039,L2047	INDUCTOR-SMD
2703-004034	L2008,L3000,L3001	INDUCTOR-SMD
2703-004034	L3003	INDUCTOR-SMD
2703-004035	L2012,L2048	INDUCTOR-SMD
2703-004038	L1007,L2006,L3002	INDUCTOR-SMD
2703-004286	L1005,L1043,L2034	INDUCTOR-SMD
2703-004286	L2035,L2042	INDUCTOR-SMD
2703-004287	L1037,L1045,L2032	INDUCTOR-SMD

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5. MAIN Electrical Parts List

2703-004288	L2026	INDUCTOR-SMD
2703-004289	L1003	INDUCTOR-SMD
2703-004295	L1000	INDUCTOR-SMD
2703-004299	L2046	INDUCTOR-SMD
2703-004302	L1015,L1032,L2021	INDUCTOR-SMD
2703-004302	L3015	INDUCTOR-SMD
2703-004328	L1035	INDUCTOR-SMD
2703-004362	L2015	INDUCTOR-SMD
2703-004703	L2014	INDUCTOR-SMD
2703-004763	L1009	INDUCTOR-SMD
2703-004853	L1013,L3010,L8018	INDUCTOR-SMD
2703-004862	L1038	INDUCTOR-SMD
2703-004911	L1044	INDUCTOR-SMD
2703-005066	L2013	INDUCTOR-SMD
2703-005085	L2019	INDUCTOR-SMD
2703-005118	L7008	INDUCTOR-SMD
2703-005200	L7007	INDUCTOR-SMD
2703-005233	L8005,L8017	INDUCTOR-SMD
2703-005505	L5019,L8000,L8001	INDUCTOR-SMD
2703-005555	L3017,L3018	INDUCTOR-SMD
2703-005581	L5007	INDUCTOR-SMD
2703-005660	L5000,L5002,L5003	INDUCTOR-SMD
2703-005660	L5006,L5008,L5010	INDUCTOR-SMD
2703-005660	L5011,L5015,L5016	INDUCTOR-SMD
2703-005660	L5020,L5022,L5023	INDUCTOR-SMD
2801-005481	OSC5000	CRYSTAL-UNIT
2901-001690	C4091	FILTER-EMI
2903-001576	F3000	FILTER-CERAMIC
2904-002257	F2002	FILTER-SAW
2904-002260	F1000	FILTER-SAW
2904-002350	F2003	FILTER-SAW
2904-002355	F3002,F3003	FILTER-SAW
2904-002381	F3009	FILTER-SAW
2904-002397	F2005,F2006	FILTER-SAW
2911-000430	C2070	FILTER
2911-000452	F1001	FILTER
3003-001210	MIC8001	MIC-CONDENSOR
3301-002122	L8003,L8004	CORE-FERRITE
3301-002223	L7000,L7001,L7002	CORE-FERRITE

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5. MAIN Electrical Parts List

3301-002223	L7009	CORE-FERRITE
3301-002235	L2037,L3810,L3811	CORE-FERRITE
3301-002237	L1017,L8002	CORE-FERRITE
3301-002238	L3011	CORE-FERRITE
3301-002243	L7003,L7004,L7005	CORE-FERRITE
3301-002243	L7010,L7011	CORE-FERRITE
3301-002254	L6002,L7006	CORE-FERRITE
3301-002331	L5004	CORE-FERRITE
3705-001937	RFS1000	CONNECTOR-COAXIAL
3709-001892	SIM6000	CONNECTOR-CARD
3710-004008	SOC5000	CONNECTOR-SOCKET
3710-004344	SOC6000,SOC7000	CONNECTOR-SOCKET
3711-008508	HDC7000	CONNECTOR-HEADER
3711-008511	HDC7001	CONNECTOR-HEADER
3711-008931	HDC7002,HDC7003	CONNECTOR-HEADER
3711-008997	HEA3001	CONNECTOR-HEADER
3712-001604	ANT2000,ANT2002	CONNECTOR
3712-001604	ANT3002,ANT3011	CONNECTOR
3712-001621	ANT3000,ANT3003	CONNECTOR
3712-001621	ANT3004,ANT3006	CONNECTOR
3712-001621	ANT3007,ANT3008	CONNECTOR
3712-001621	ANT3010	CONNECTOR
3712-001626	ANT1000,ANT1001	CONNECTOR
3712-001626	ANT1003,ANT1004	CONNECTOR
3712-001626	ANT1005,ANT1006	CONNECTOR
3712-001626	ANT1007	CONNECTOR
3712-001799	ANT8000,ANT8001	CONNECTOR
4709-002196	F2001	RF-MODULE
4709-002226	F1002	RF-MODULE
4709-002285	DIF3000	RF-MODULE
4709-002412	F1007	RF-MODULE
4709-002464	F1004	RF-MODULE
4709-002484	F2000	RF-MODULE
GH60-00010A	CON1000	PCC1007AW
GH61-14598A	SUS1000	SUS-A6060-PLATE
GH62-00042A	GA6000	JSM-TSL-2-2-1.5BK
GH63-17278A	SC1003	SC-A6060-BT
GH63-17279A	SC1002	SC-A6060-RF
GH63-17280A	SC1001	SC-A6060-PMIC

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5. MAIN Electrical Parts List

GH63-17281A	SC1000	SC-A6060-APT
GH63-17282A	SC1004	SC-A6060-AP
GH02-18349A	SC1004SP	TAPE CONDUCTIVE-GRAFITE SHIELDCAN AP

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

6. Level 1 Repair

6-1. S/W Update

6-1-1. Preparation

- S/W Update program : **Fenrir 5.17.xxxx**
- Mobile Phone
- Data Cable

* Settings

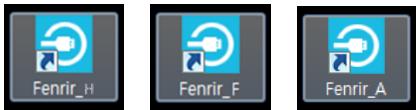


Data Cable : GH39-02002A

6. Level 1 Repair

6-1-2. How to use 'Fenrir' S/W update program.

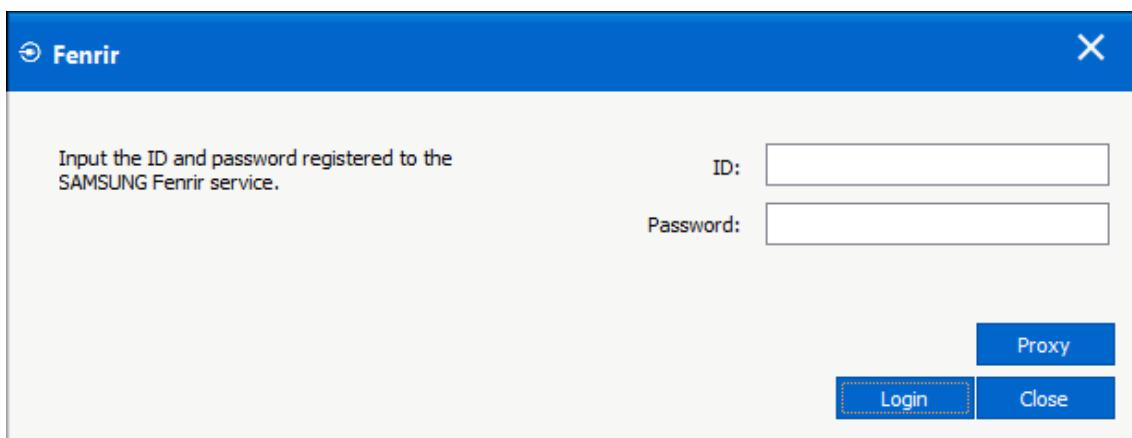
1) Launch Fenrir by clicking on the icon on the desktop



- SVH (Fenrir_Home) : It uses Home binary which does not have user data area in the memory when flashed to a device. (Keep user data)
- SVC (Fenrir_Factory) : It uses Factory binary which erases all user data in the memory when flashed to a device. (Clear user data)
- SVA (Fenrir_All) : It uses Factory and Home binaries. you can download Home and Factory binary in a PC(but requires double HDD storage and NW traffic)

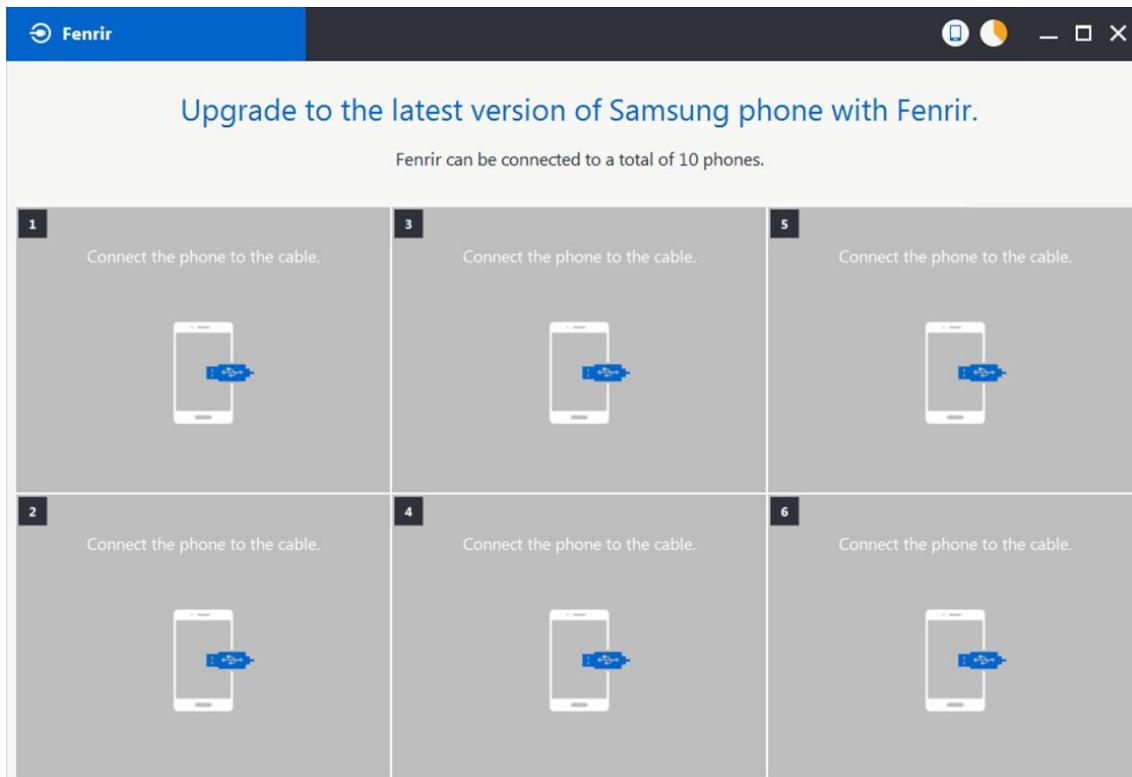
2) Input ID & password

※ You need to reset the ID information in case of PC change and format and repair, hard disk change



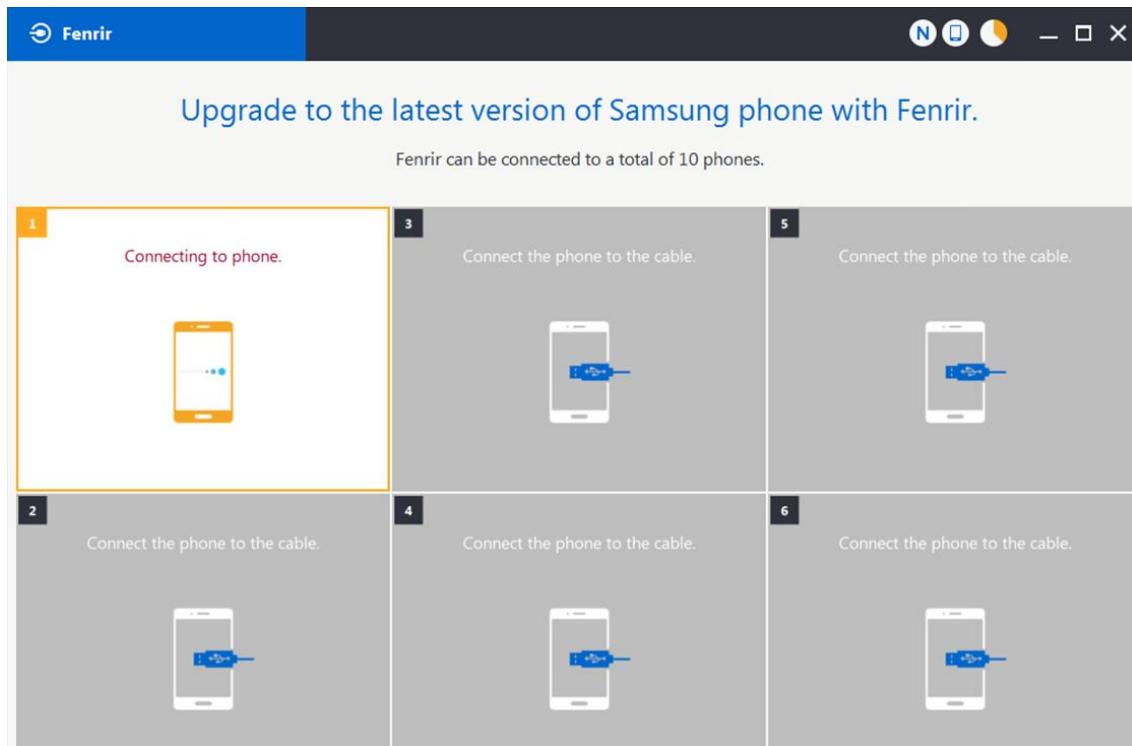
6. Level 1 Repair

- 3) Ensure device has sufficient charge (at least 20%) to start firmware update.



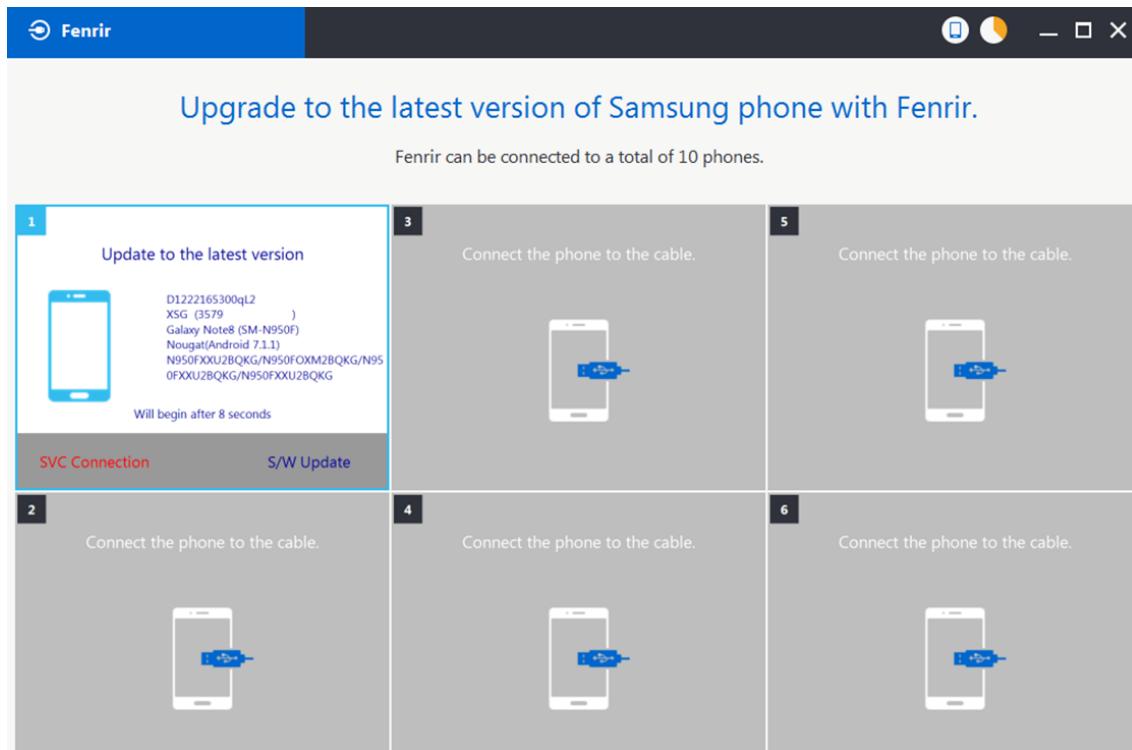
- 4) Connect the device to PC via data cable.

- 5) Upon USB connection, you will be presented with below screen.

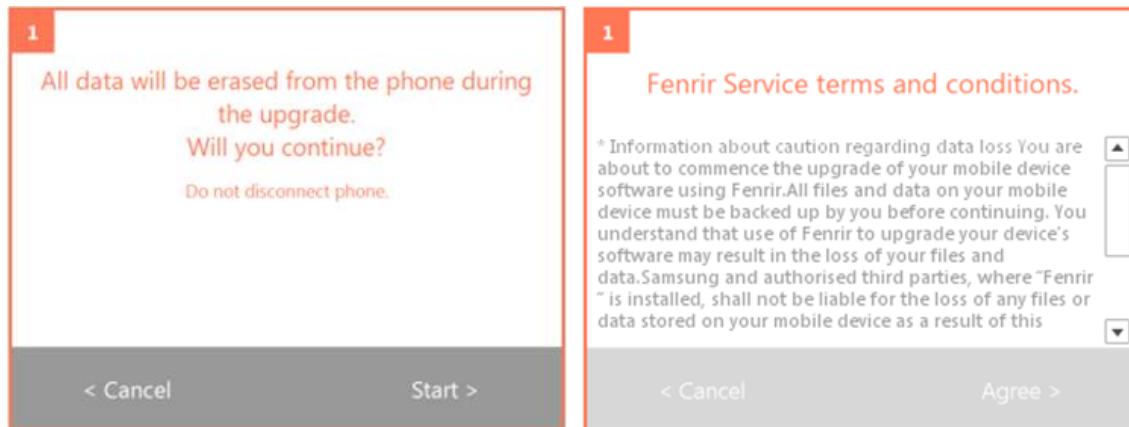


6. Level 1 Repair

6) Once device is detected, you will be presented with below screen. To update S/W, select "S/W Update" or to exit select "SVC Connection". If you select "SVC Connection", only Fenrir connection history (record) will be stored in the FUS server to support warranty validation. (This is known as "Service Connection" history)

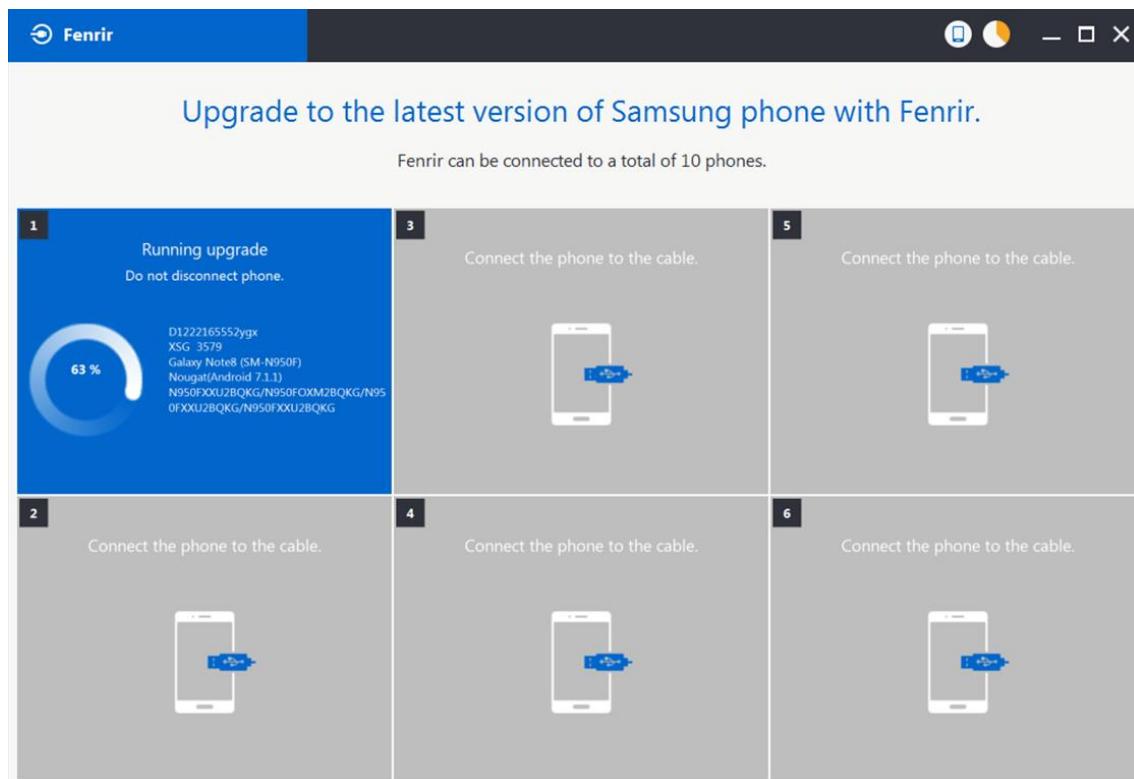


7) Once Fenrir starts, application will display the below screen. And select the Start button & Agree button.

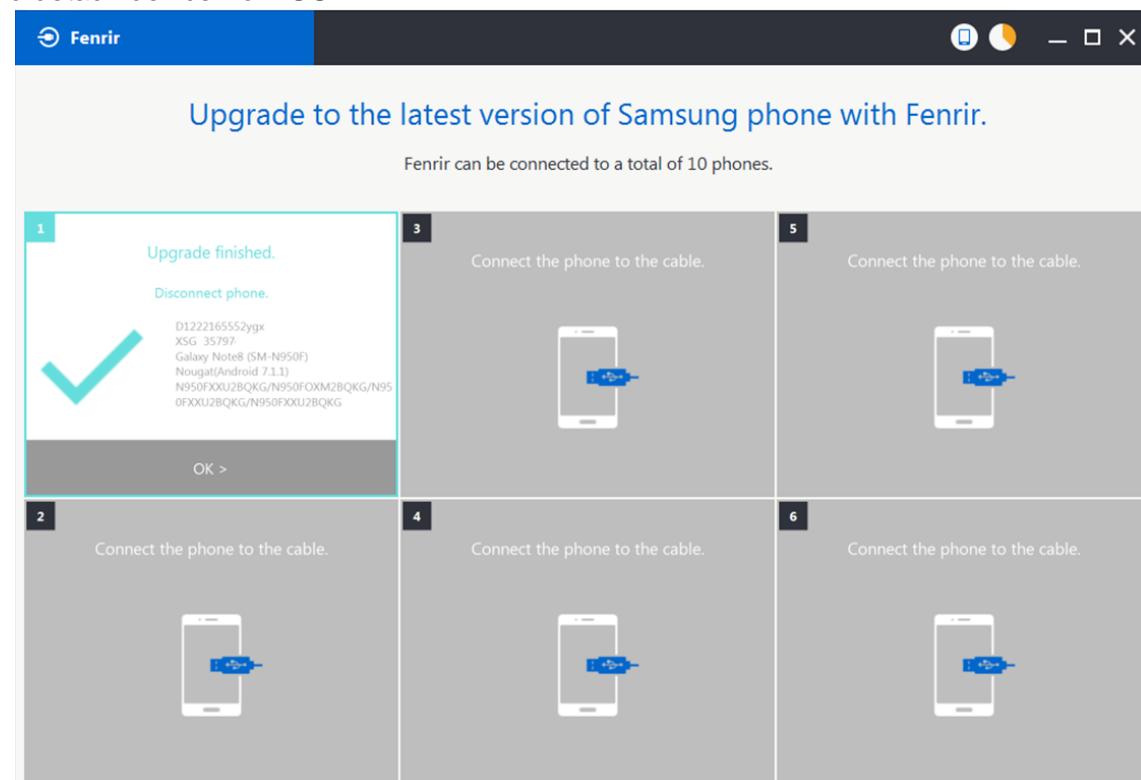


6. Level 1 Repair

8) The status circle increases as the update installs. The update process takes approximately 5-10 minutes to complete. Do not disconnect the device from USB during processing.



9) Once complete, application will present the below screen indicating update complete. Click Ok and detach device from USB.



6. Level 1 Repair

6-2. How to use 'Odin' program

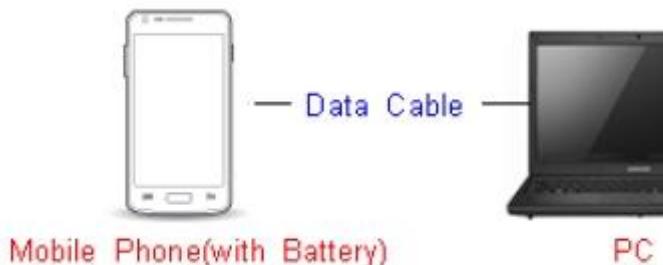
※ S/W Update via Fenrir is mandatory.

Below is the method to use 'Odin' program in any specific case.

6-2-1. Preparation

- Installation program : [Odin3 v3.13.2.exe or above](#)
- Mobile Phone
- Data Cable
- S/W Binary files (downloaded from GSPN)

※ Settings

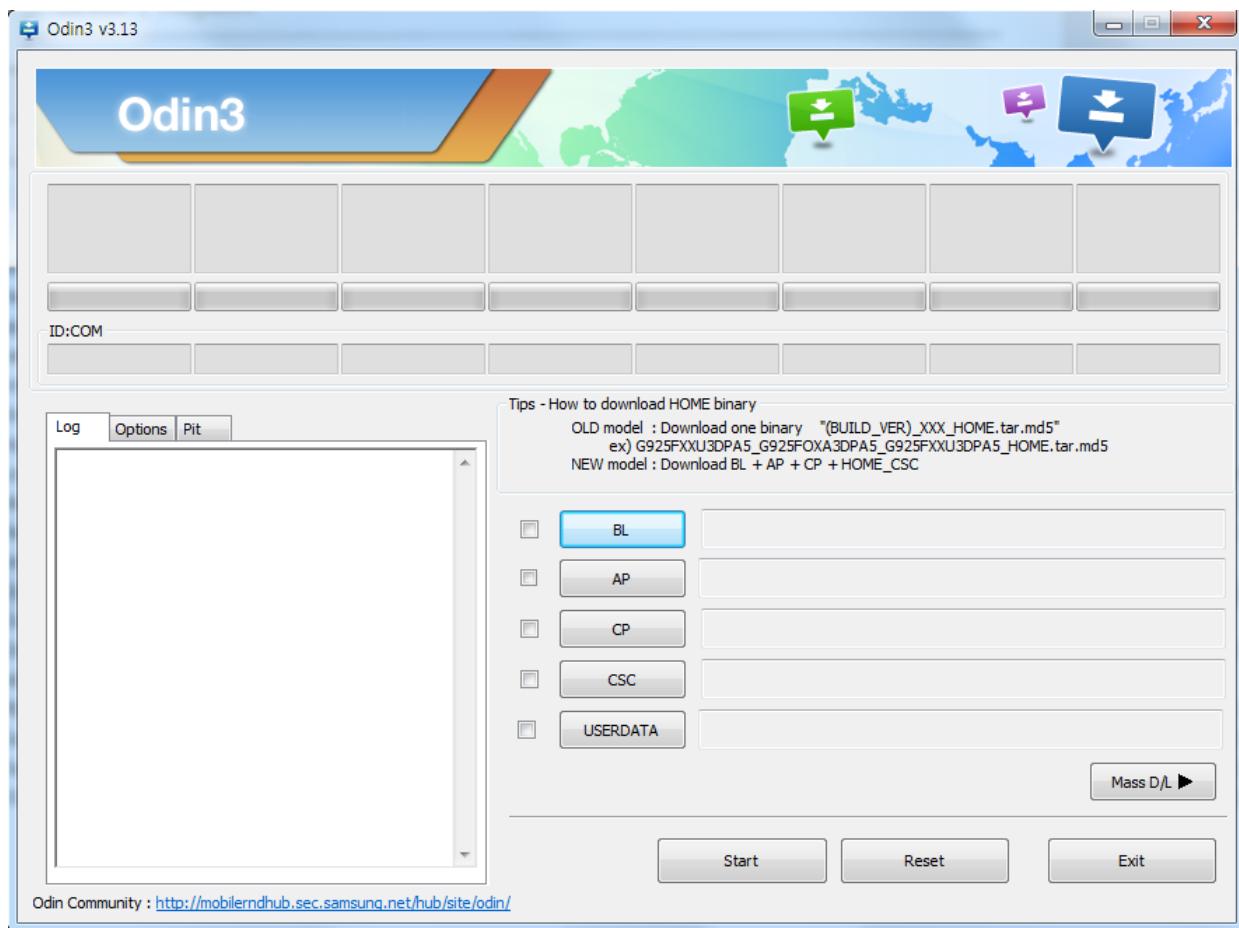


Data Cable : [GH39-02002A](#)

6. Level 1 Repair

6-2-2. S/W Installation Program (Downloader program)

Open up the S/W Installation Program by executing the "[Odin3 v3.13.2.exe](#)"



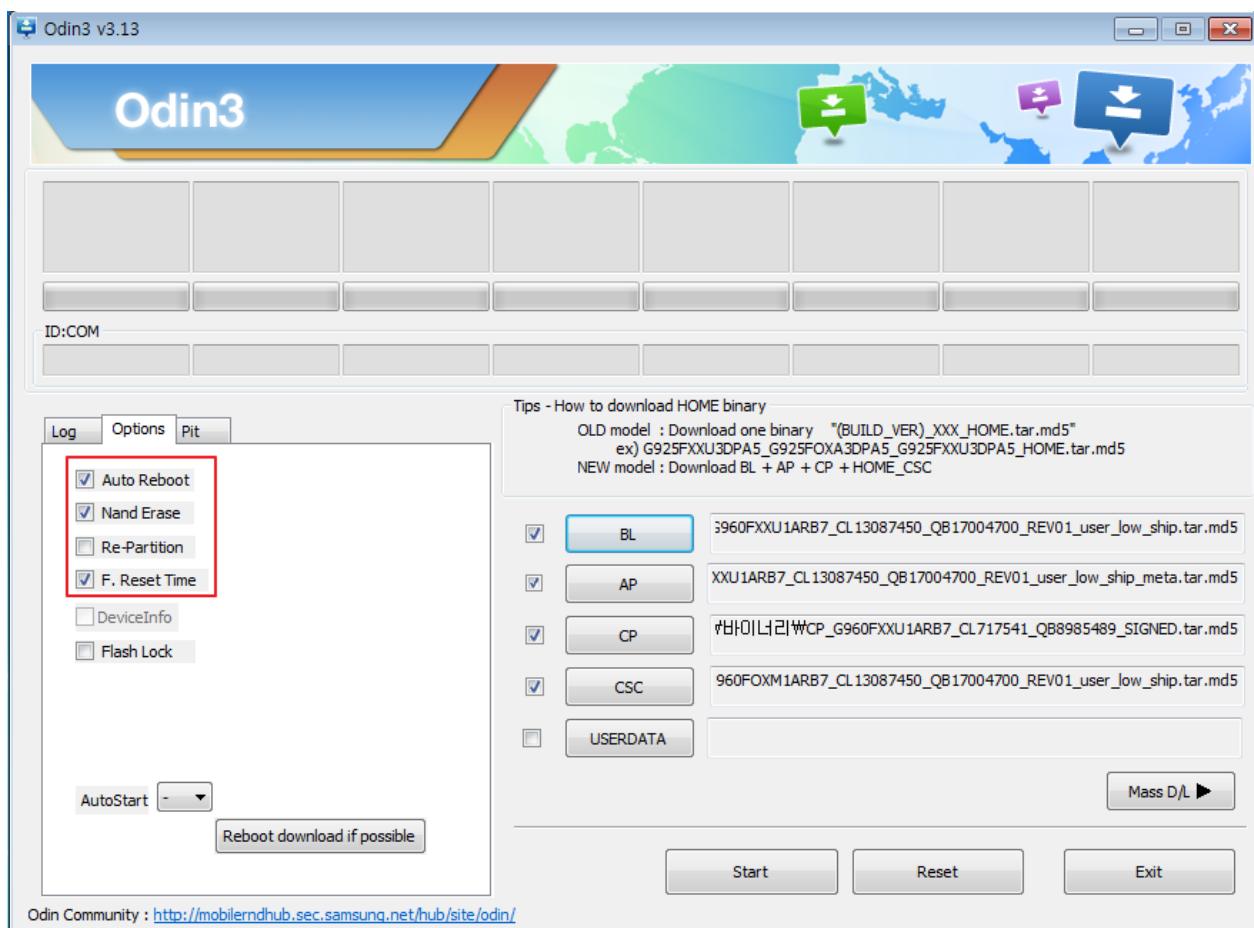
6. Level 1 Repair

1. Enable the check mark by click on the following options

- Check Auto Reboot, F. Reset Time, Nand Erase

- Check BL, AP, CP, CSC Files

* Note : "Odin v3.13.2 or above" checks MD5 checksum just after file selection.



6. Level 1 Repair

2. Enter into Download Mode

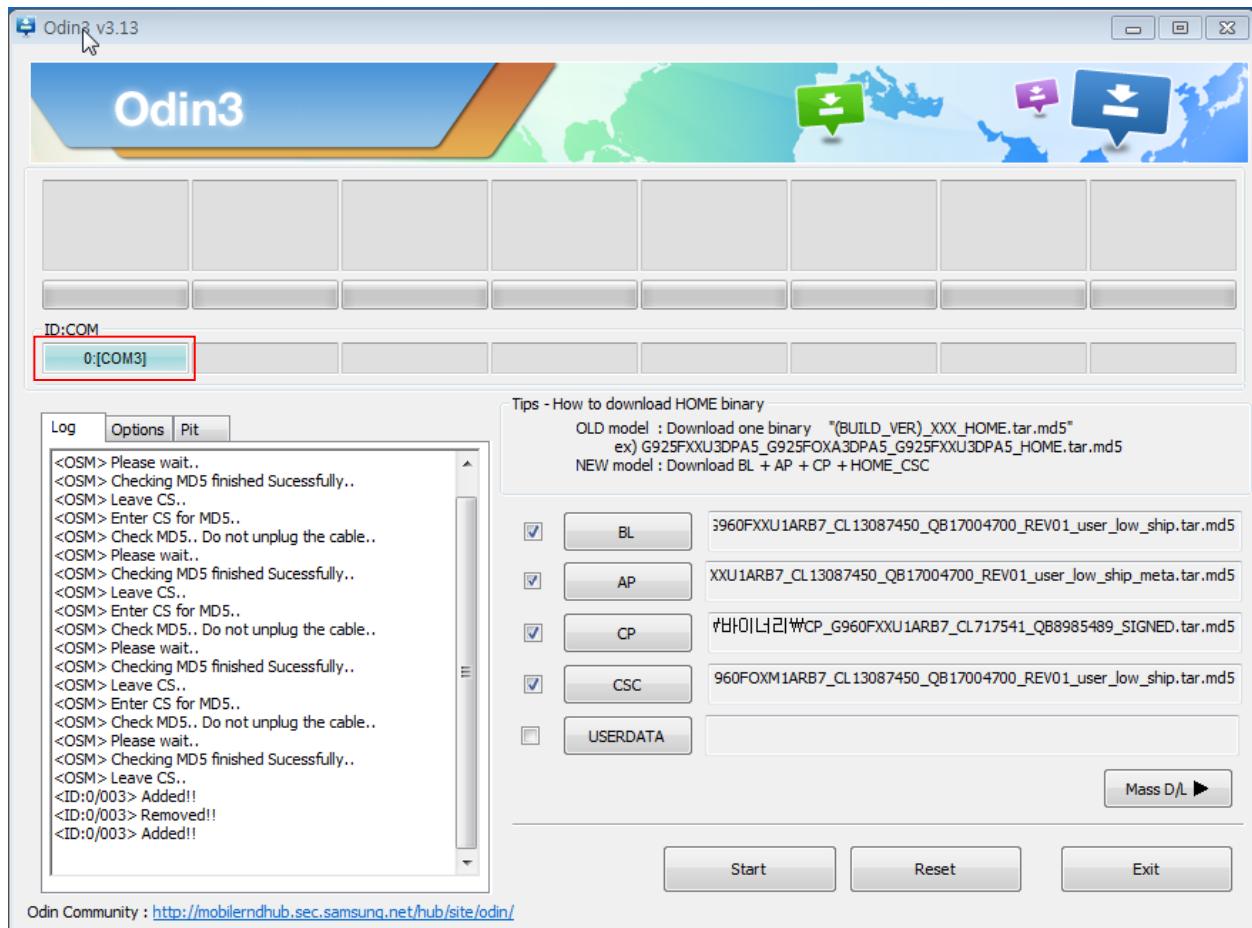
- Enter into Download Mode by pressing Volume up button , Volume down button and connecting USB cable
- Press Volume Up button to download mode.



6. Level 1 Repair

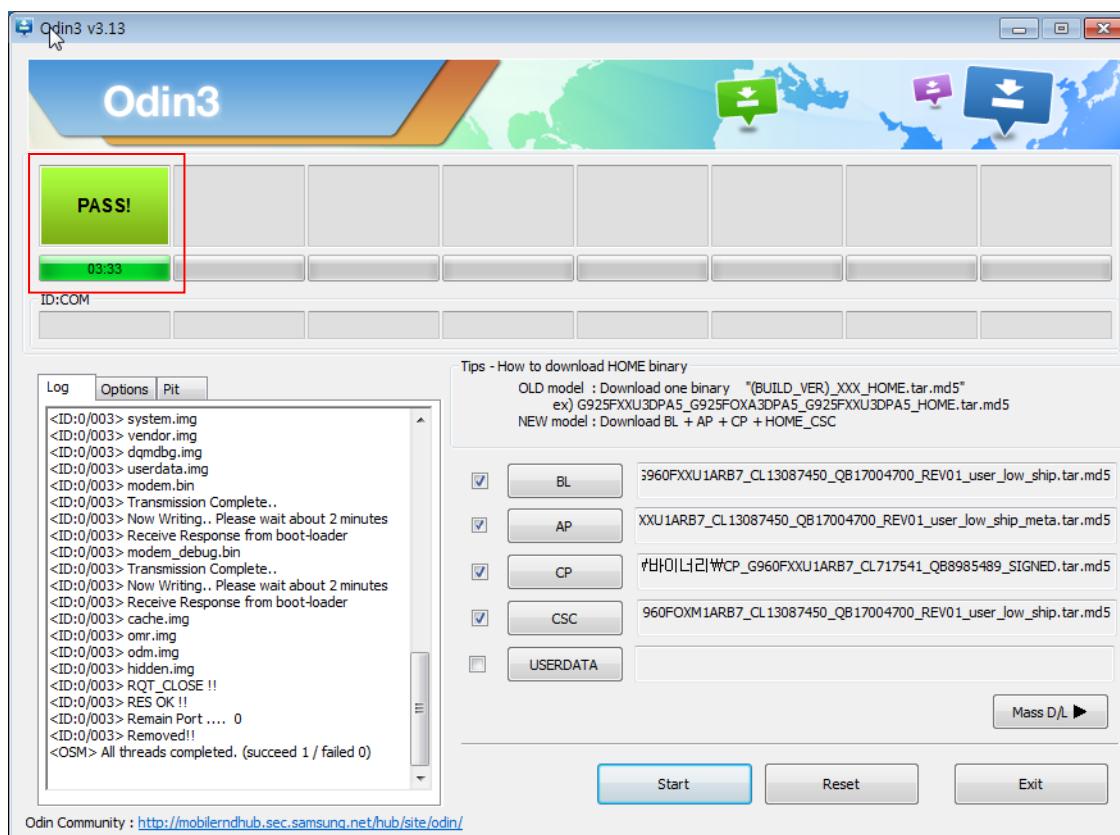
3. Connect the device to PC via Data Cable.

Make sure that the one of communication ports [ID:COM] box is highlighted in sky blue.
The device is now connected with the PC and ready to download the binary files in it.



6. Level 1 Repair

4. Start downloading the binary files into the device by clicking Start button on the screen.
The green colored "PASS!" sign will appear on the upper-left box if the binary files have been successfully downloaded into the device.



5. Disconnect the device from the Data cable.

6. Once the device boots up, you can check the version of the binary file or name by pressing the following code in sequence; ***#1234#**

You can perform Factory data Reset by Settings → General Management → Reset

*** Caution. Never disconnect during the S/W downloading.**

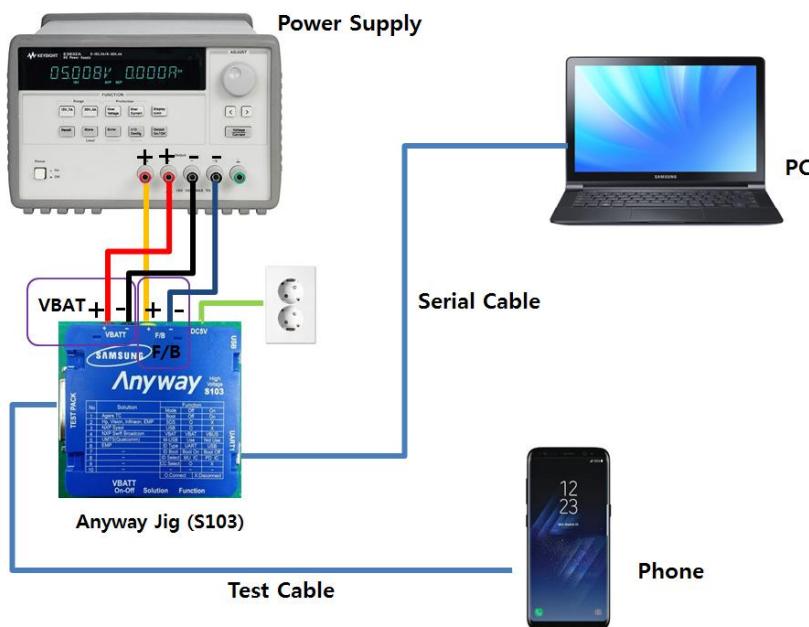
6. Level 1 Repair

6-3. IMEI writing

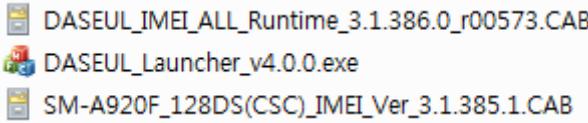
6-3-1. Preparation

- New IMEI writing Program has been released.
- Supported Model : Models which CAB files are uploaded on HHPsvc INI File category, instead of ini file.
- Refer to below IMEI writing procedure.

- H/W



- S/W

① Library Install	To use Daseul, library files should be installed. Refer to SVC Bulletin “(11-82) Daseul (New IMEI writing Program) Library Install guide_rev1.0”
② Launcher	DASEUL_Launcher_v4.0.0 or higher -Uploaded on HHPsvc Notice
③ Runtime File	1. DASEUL_IMEI_ALL_Runtime_3.1.386.0_r00573.CAB or higher -Uploaded on HHPsvc Notice 2. Make ‘modelName’ folder at the same position with launcher & Runtime file.  DASEUL_IMEI_ALL_Runtime_3.1.386.0_r00573.CAB DASEUL_Launcher_v4.0.0.exe SM-A920F_128DS(CSC)_IMEI_Ver_3.1.385.1.CAB
④ Model File	Copy Model File under the ‘ SM-A6060 ’ folder

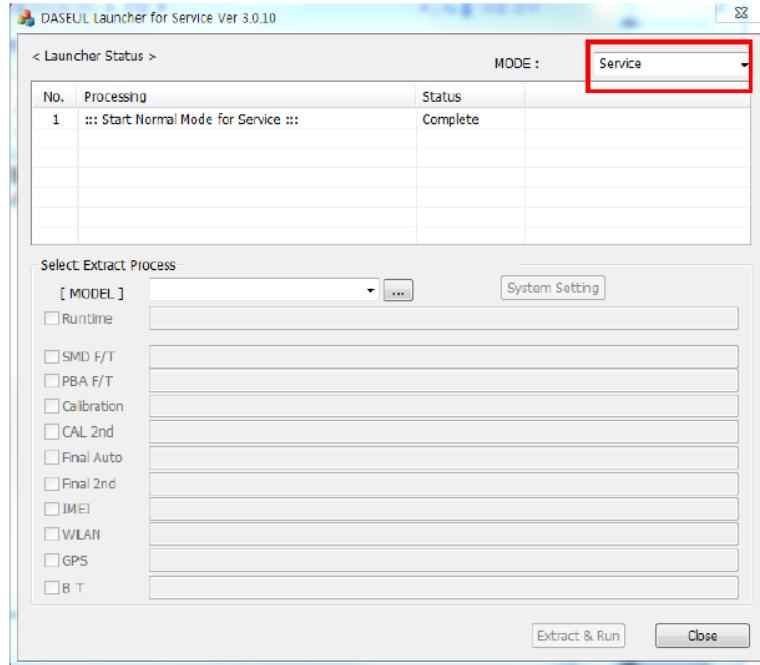
6. Level 1 Repair

6-3-2. IMEI writing Process

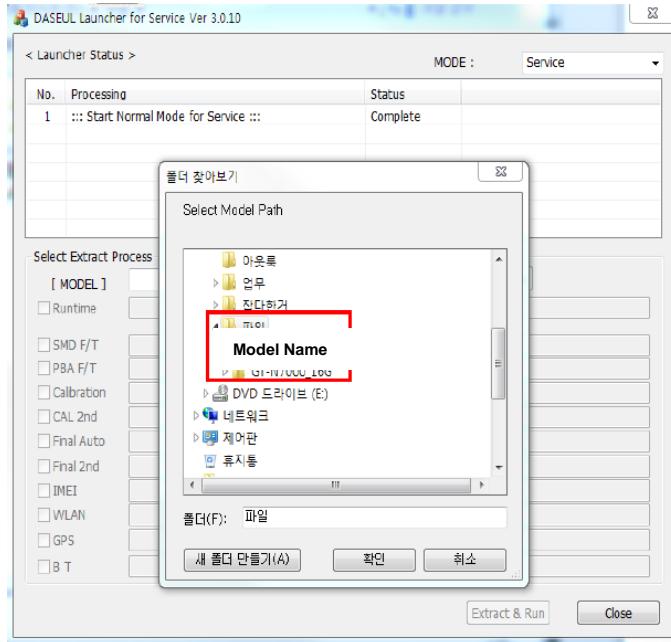
1. Run DASEUL_Launcher_v4.0.0

 DASEUL_Launcher_v4.0.0.exe

2. Select Service Mode

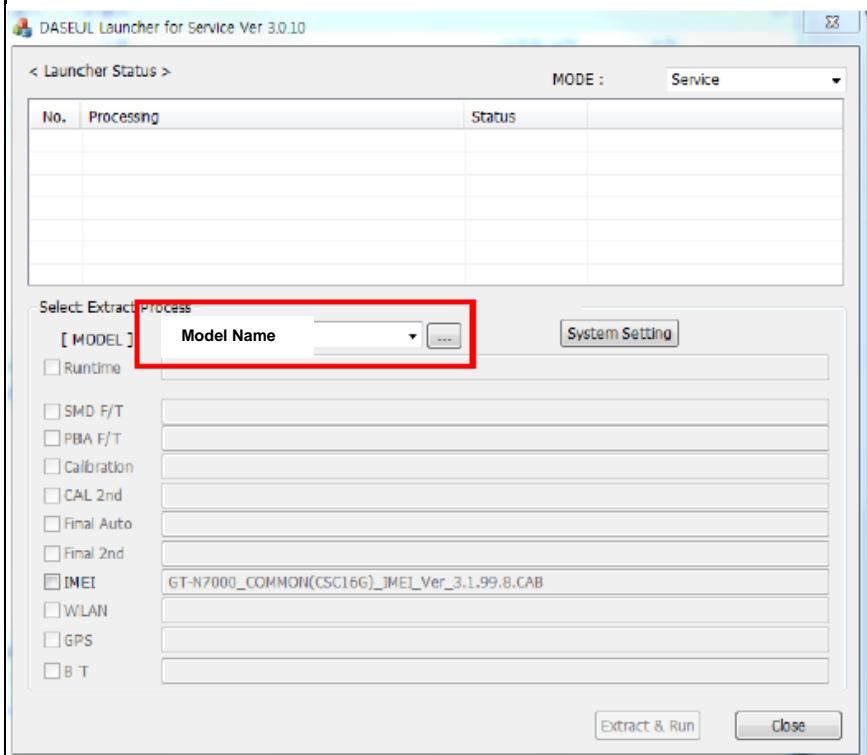


3. Click and Select folder where the Launcher exists



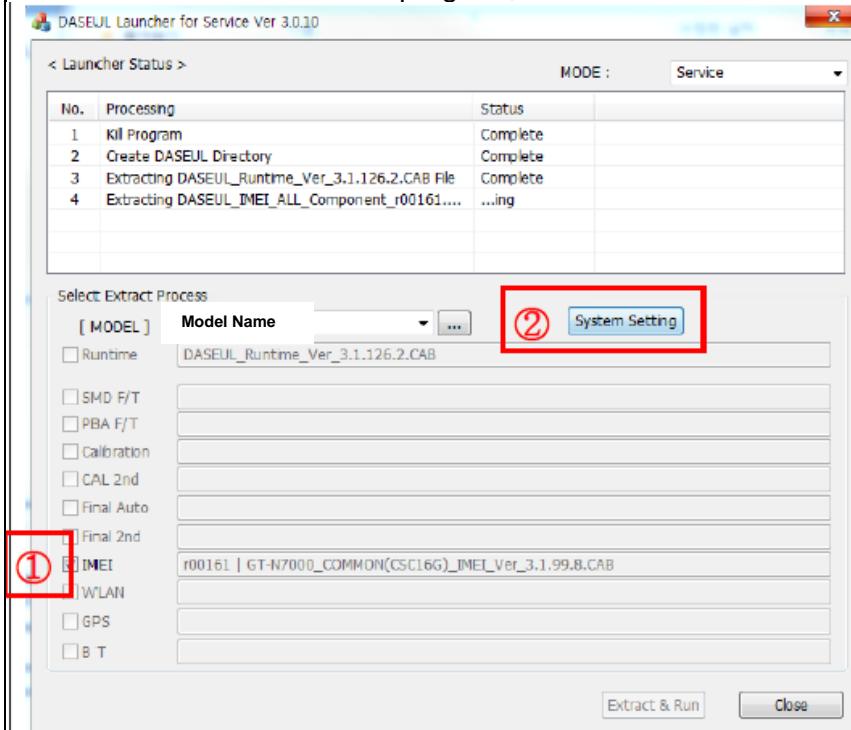
6. Level 1 Repair

4. Select Model



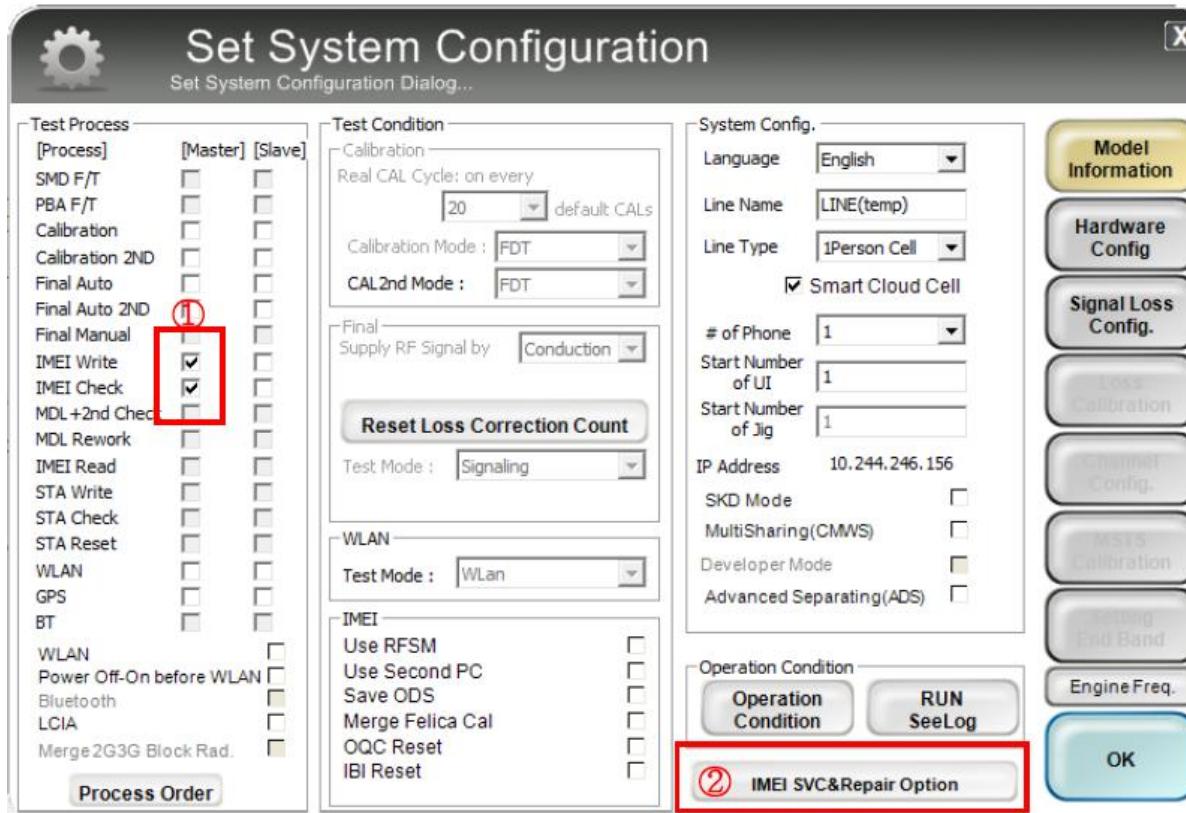
5. Check IMEI and click System Setting

*Once you setup the setting, you don't have to do it again, unless there is change.
From second run of the IMEI program, check IMEI and click Extract & Run.

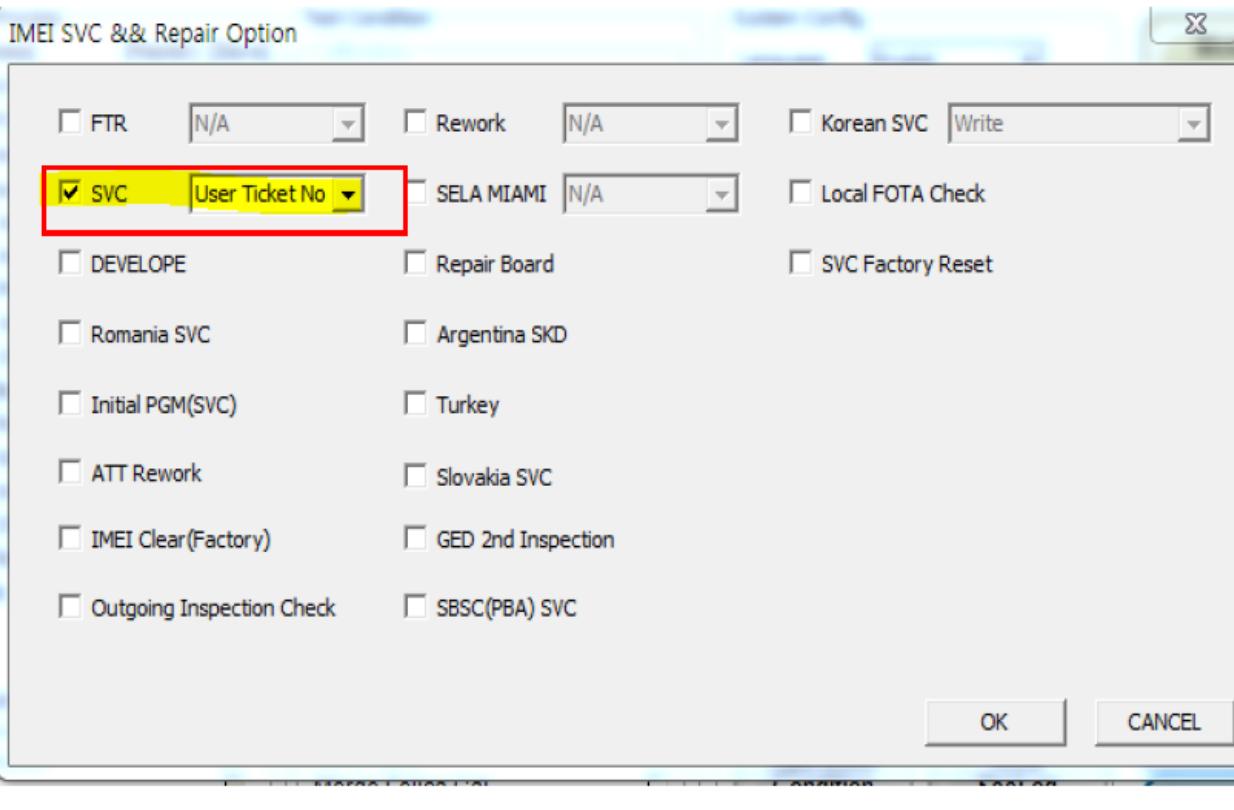


6. Level 1 Repair

6. Check IMEI Write / IMEI Check and click IMEI SVC & Repair Option.

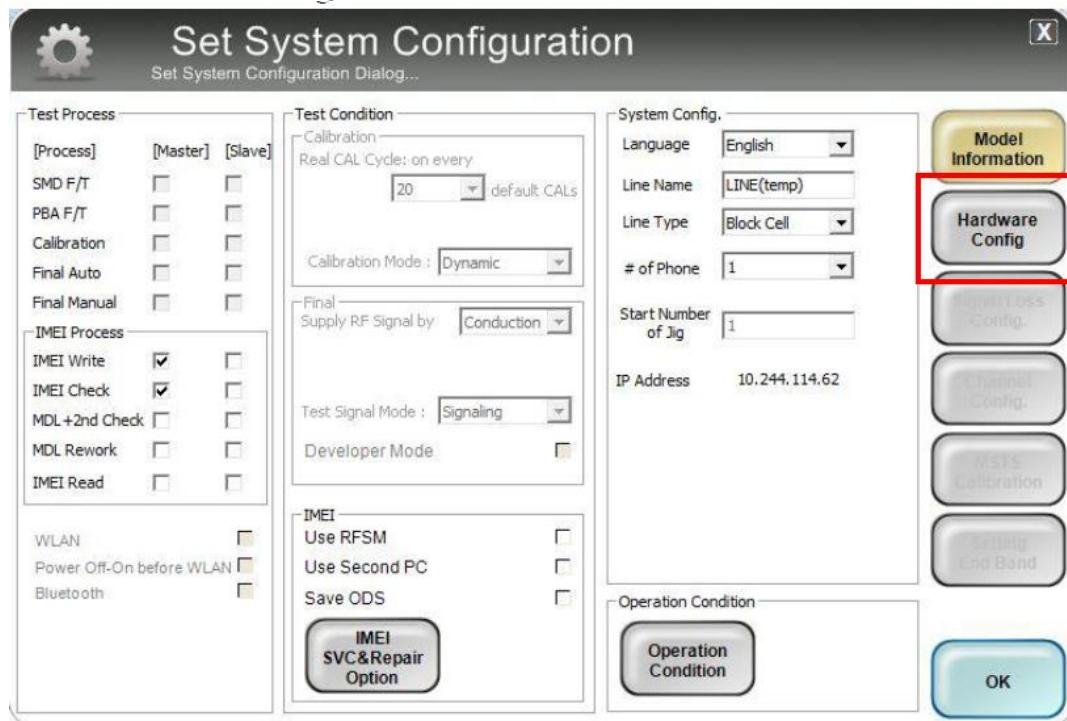


7. Check 'SVC , User Ticket No' and click OK

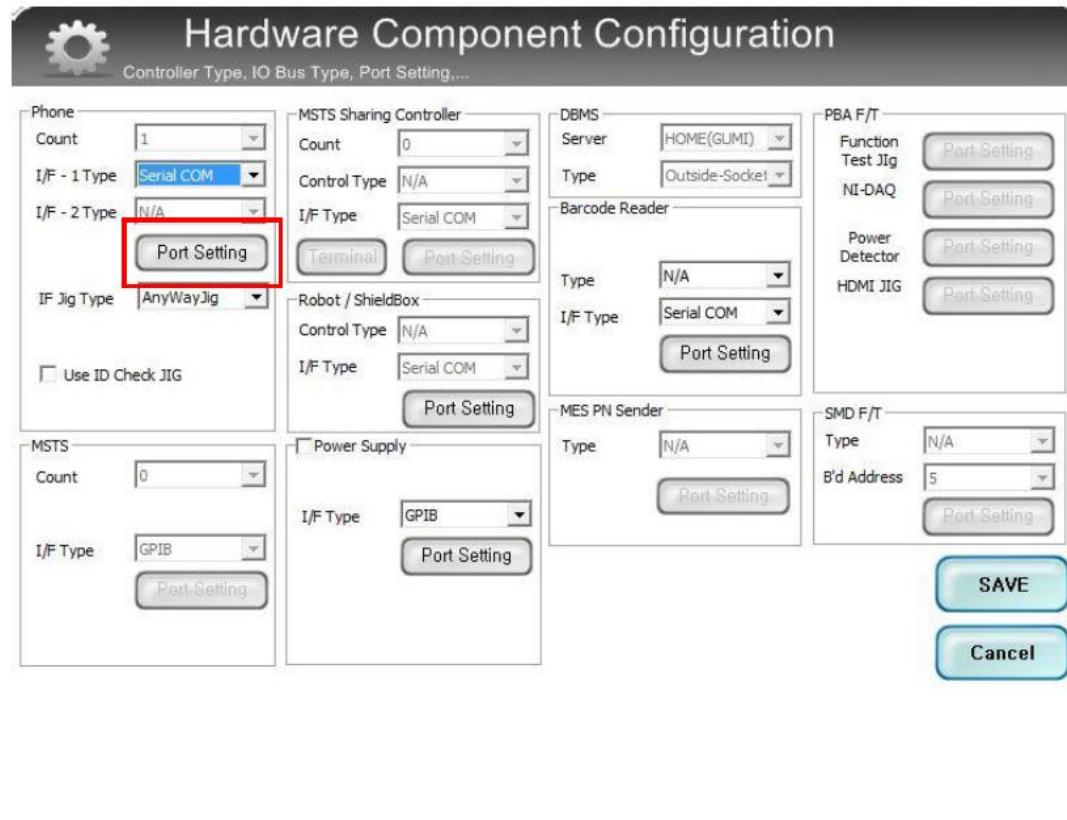


6. Level 1 Repair

8. Click 'Hardware Config'

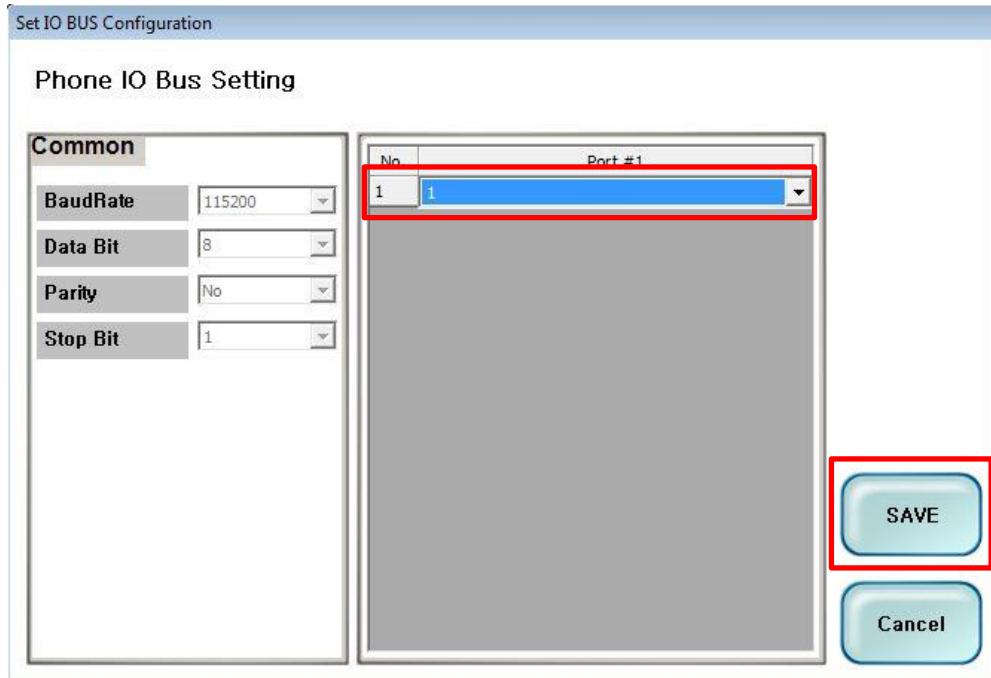


9. Click 'Port Setting'

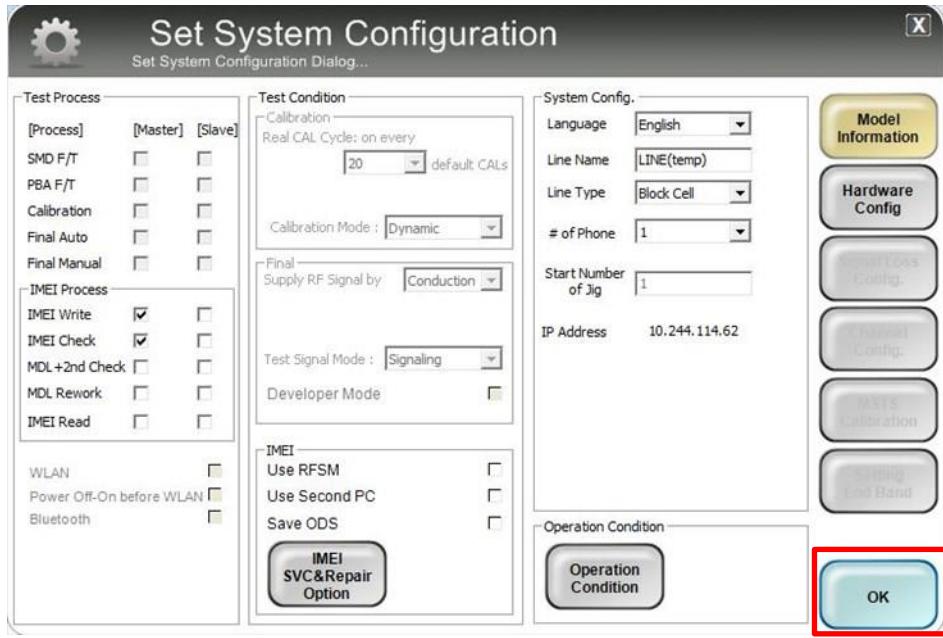


6. Level 1 Repair

10. Select Port Number and SAVE

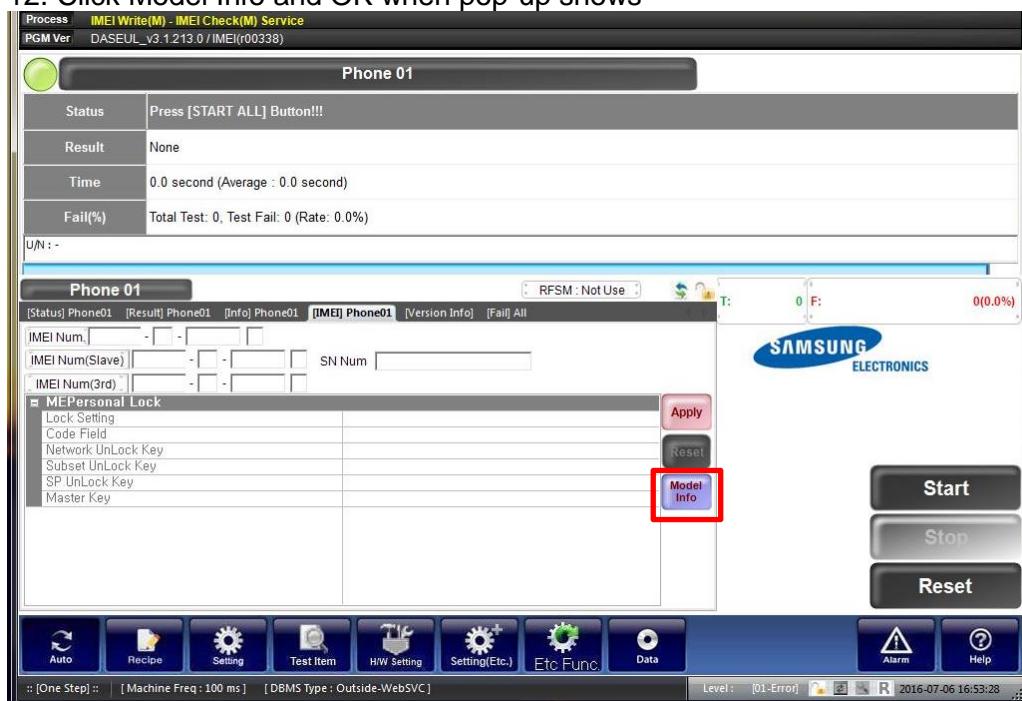


11. Click OK to proceed



6. Level 1 Repair

12. Click Model Info and OK when pop-up shows



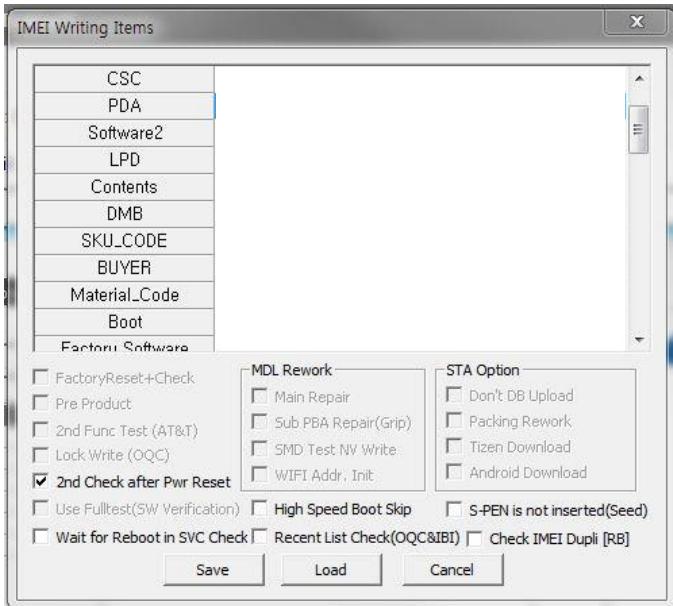
13. Click OK



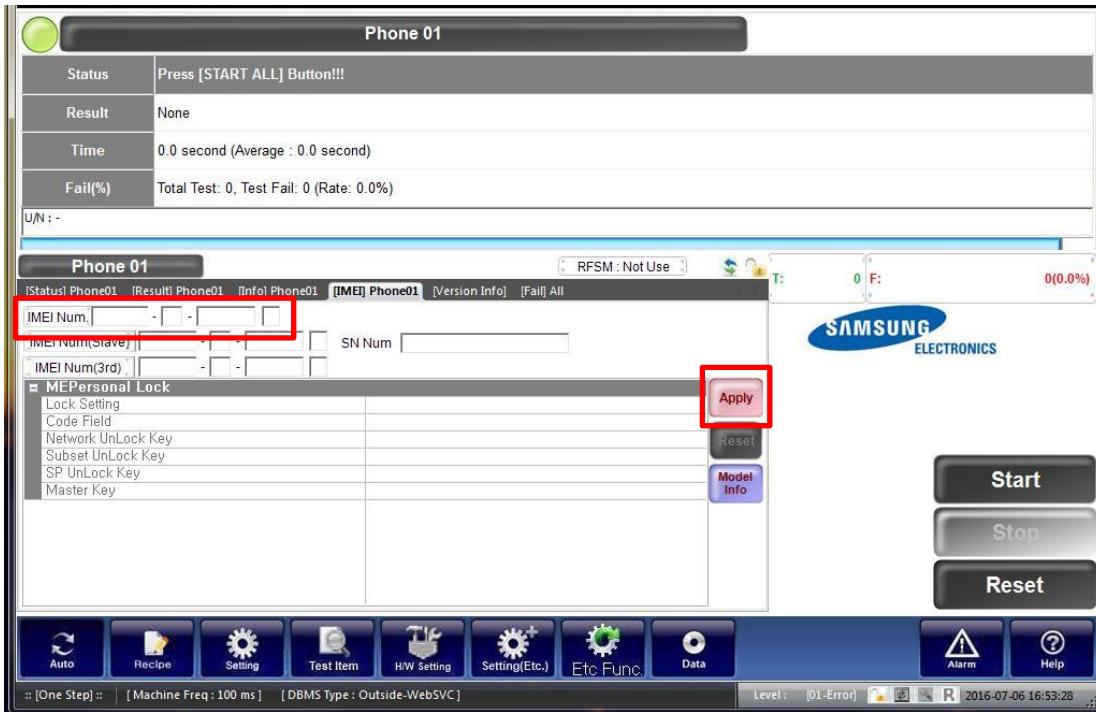
6. Level 1 Repair

14. Input SKU_CODE and BUYER, then click Save button.

※ Refer to HHPsvc→IMEI Review to check SKU Code and buyer

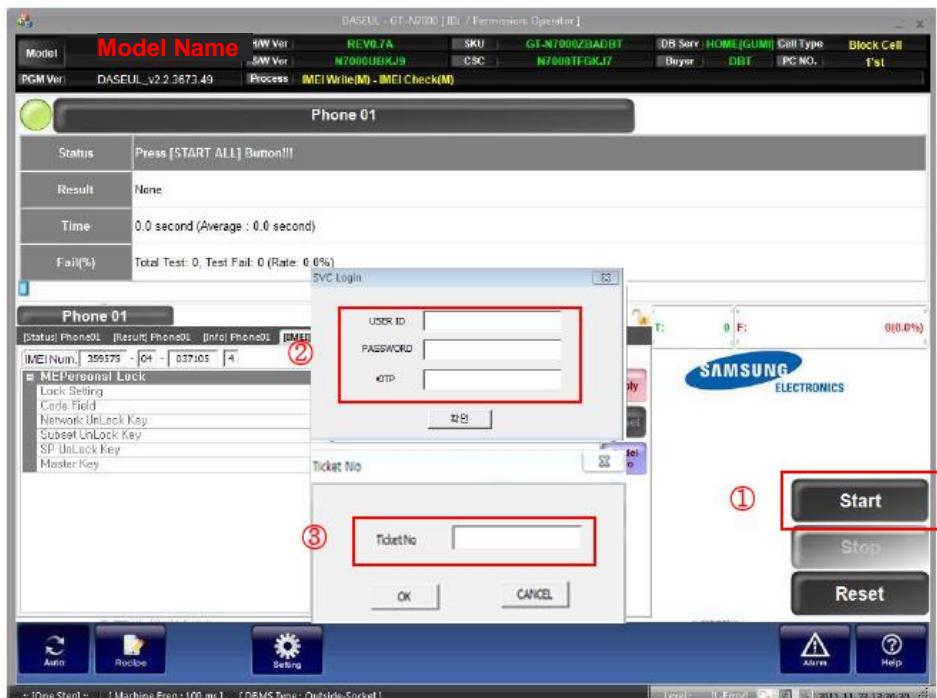


15. Input IMEI Number and click Apply



6. Level 1 Repair

16. ① Click Start → ②Input IMEI writing ID and Password & OTP → ③Input Ticket No



※ OTP(One time Password) : OTP is valid for 6 hours.

After that, you can get new OTP by click the “Forgotten your IMEI OTP PW or Create new IMEI OTP PW” button.

☞ OTP Location : GSPN → Knowledge → HHP svc → Home

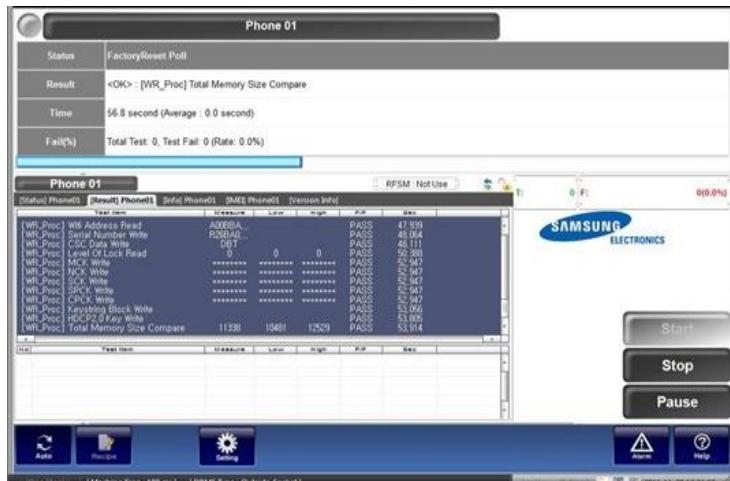


6. Level 1 Repair

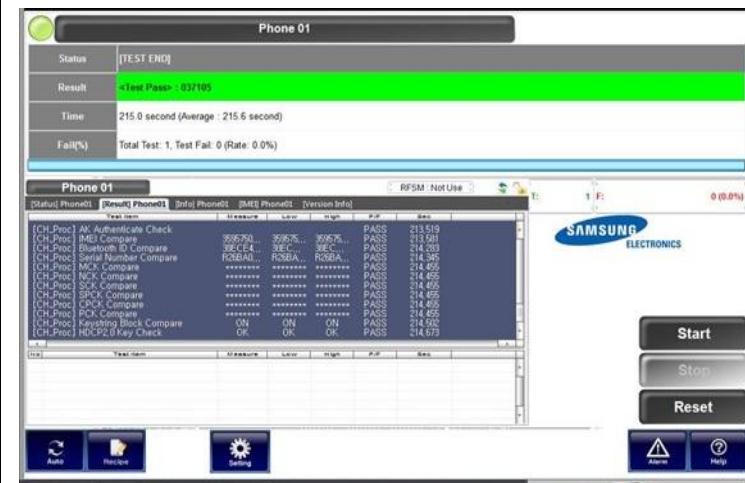
17. Connect the phone to Anyway JIG

- * When you connect the phone, the phone should be turned off.
After connecting the phone, the phone will be booted automatically.

18. IMEI Writing Proceeding

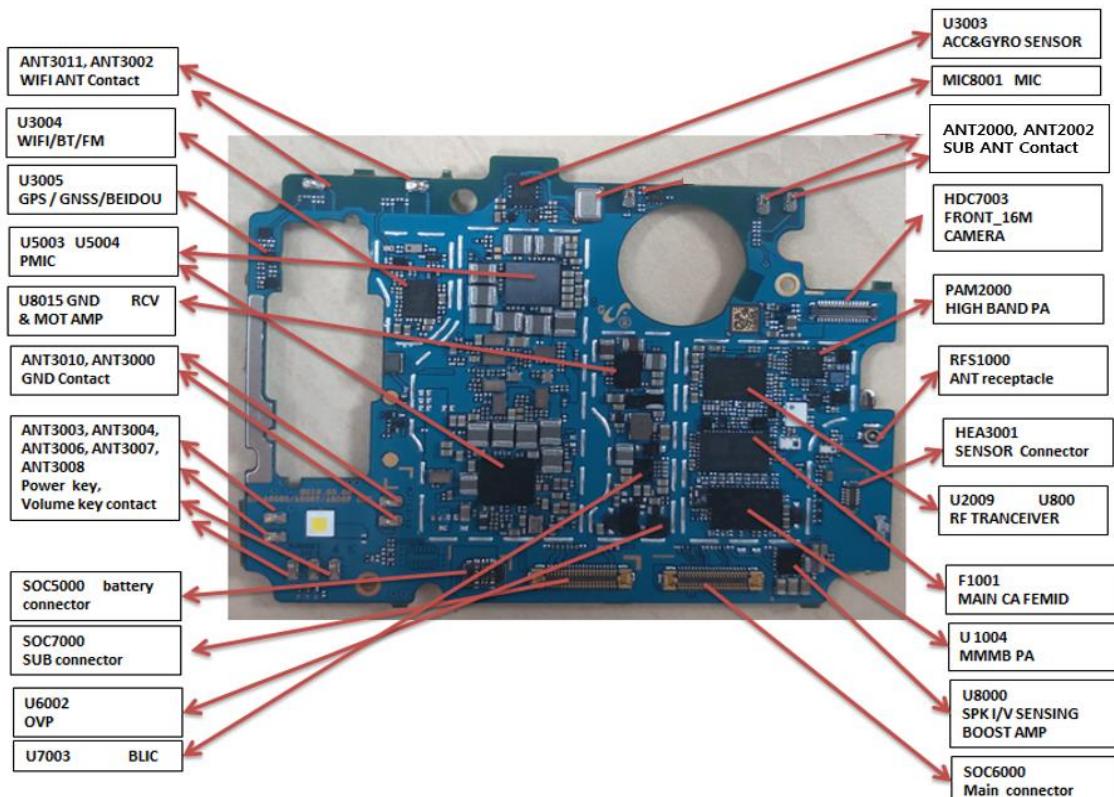
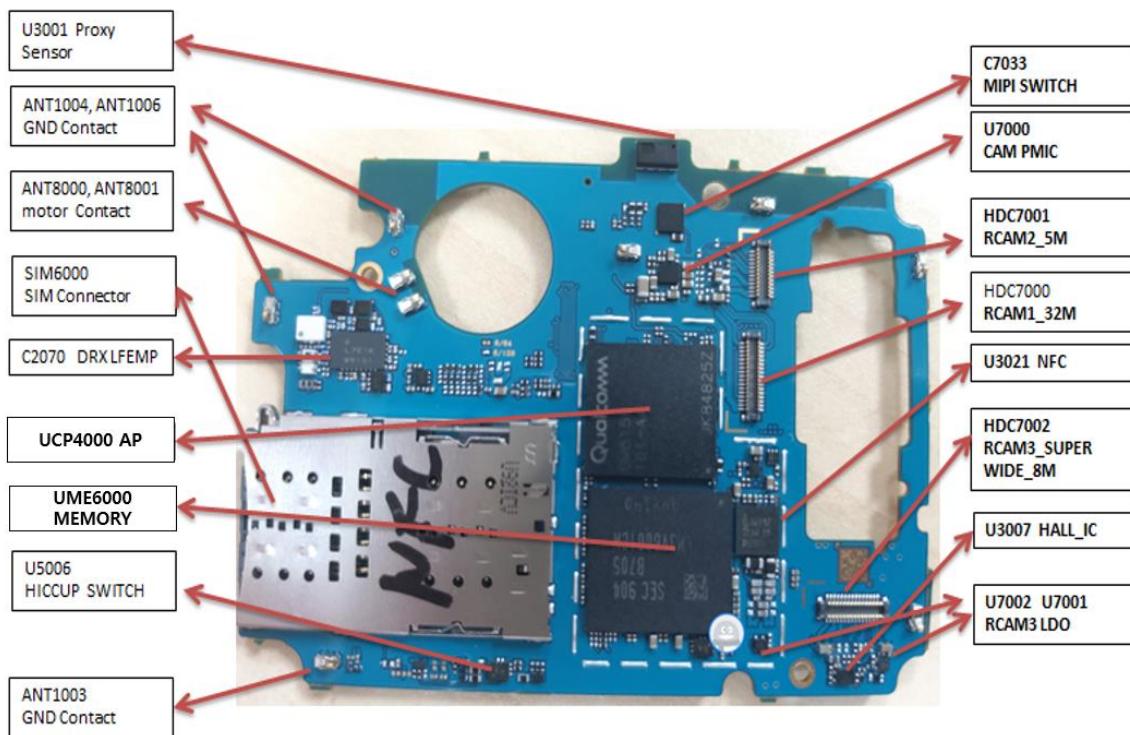


19. IMEI Writing Success

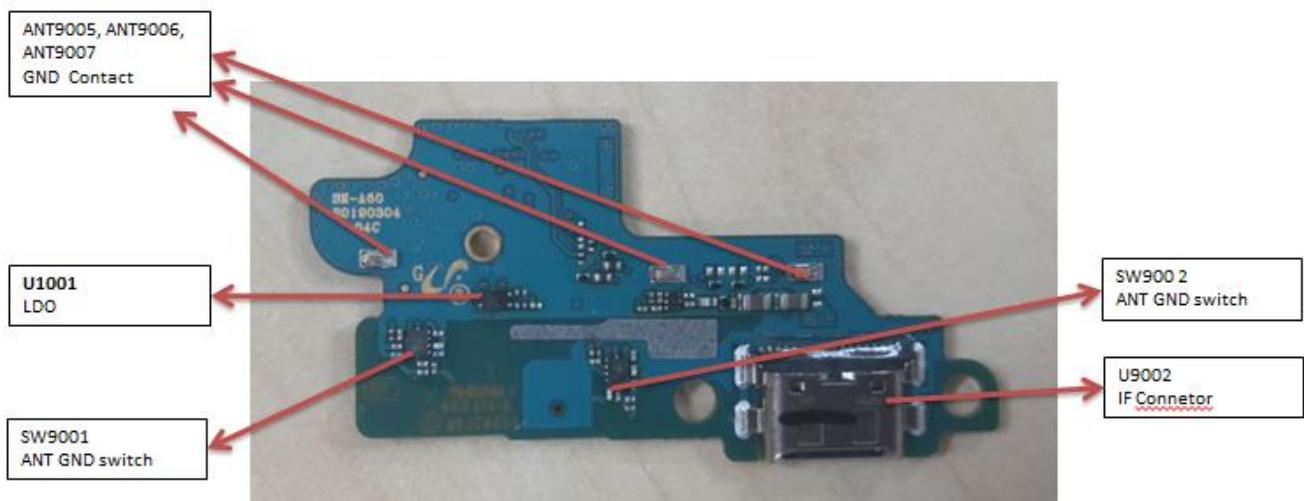
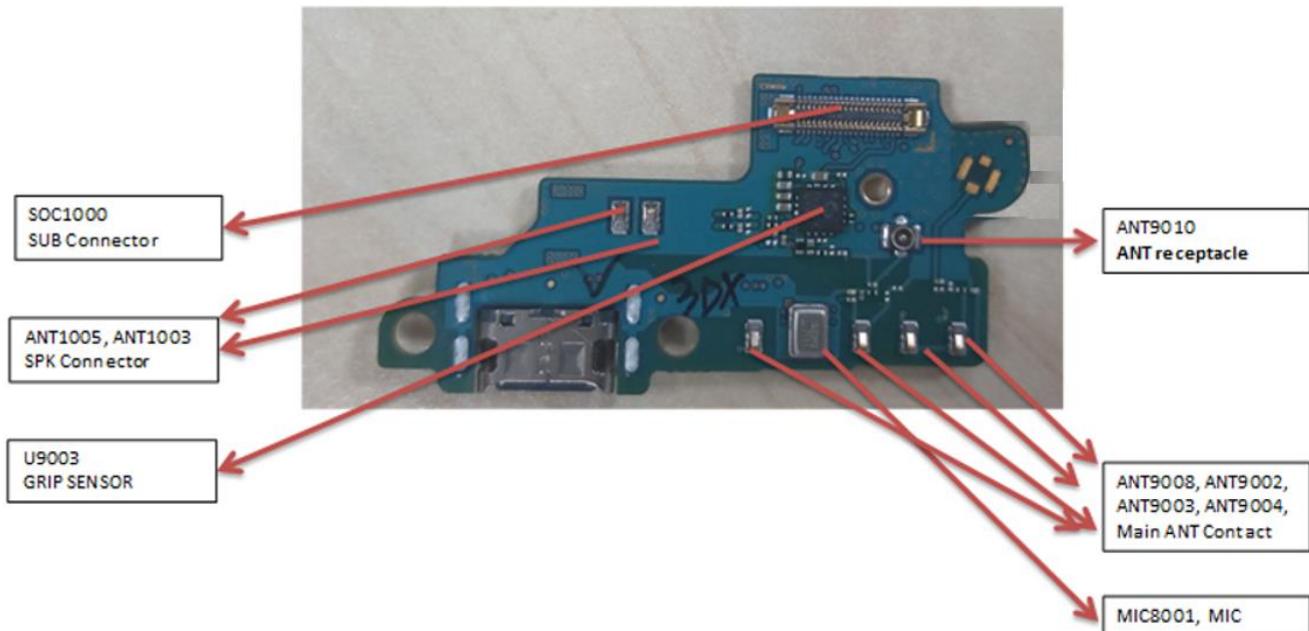


8. Level 3 Repair

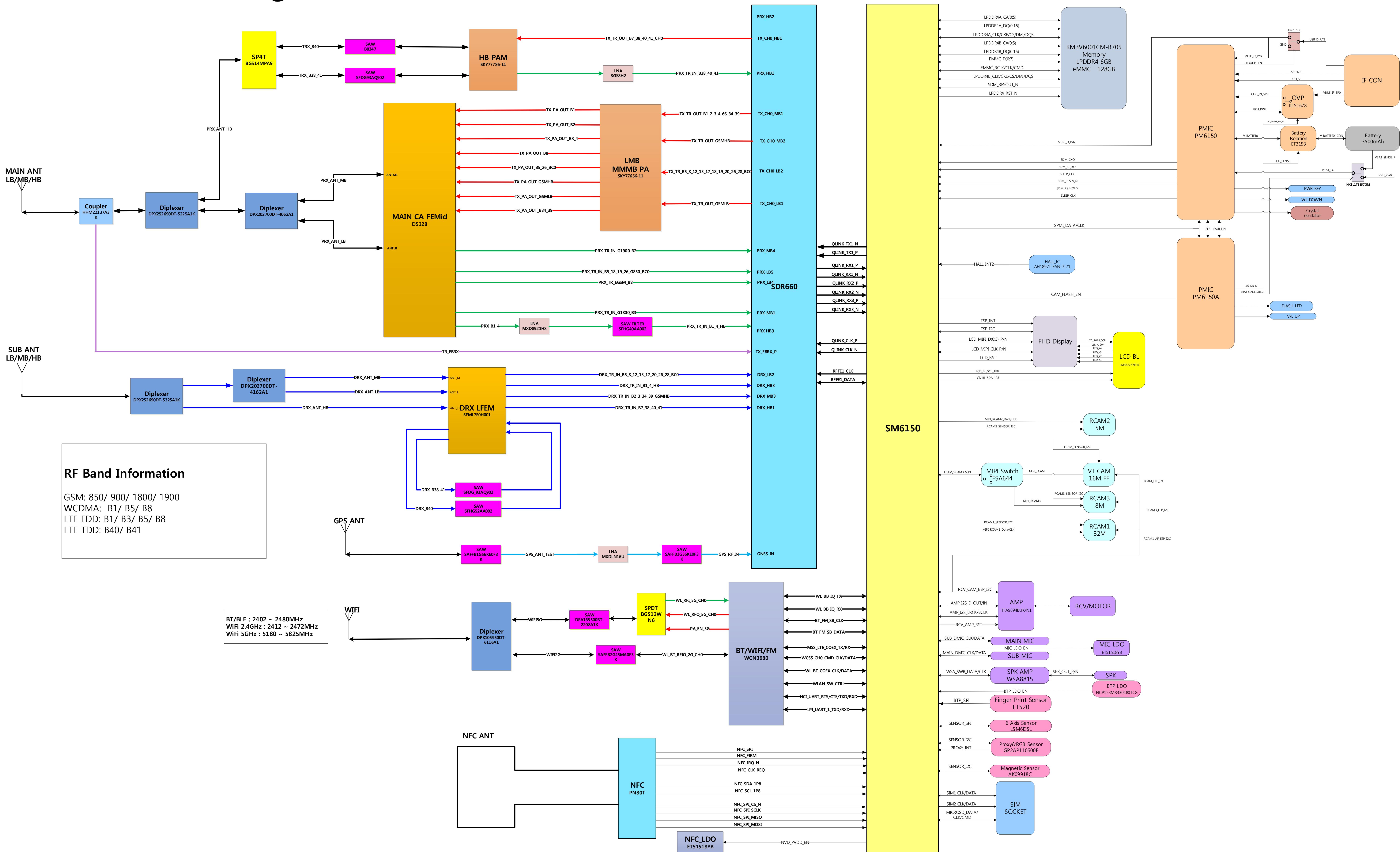
8-1. Components Layout

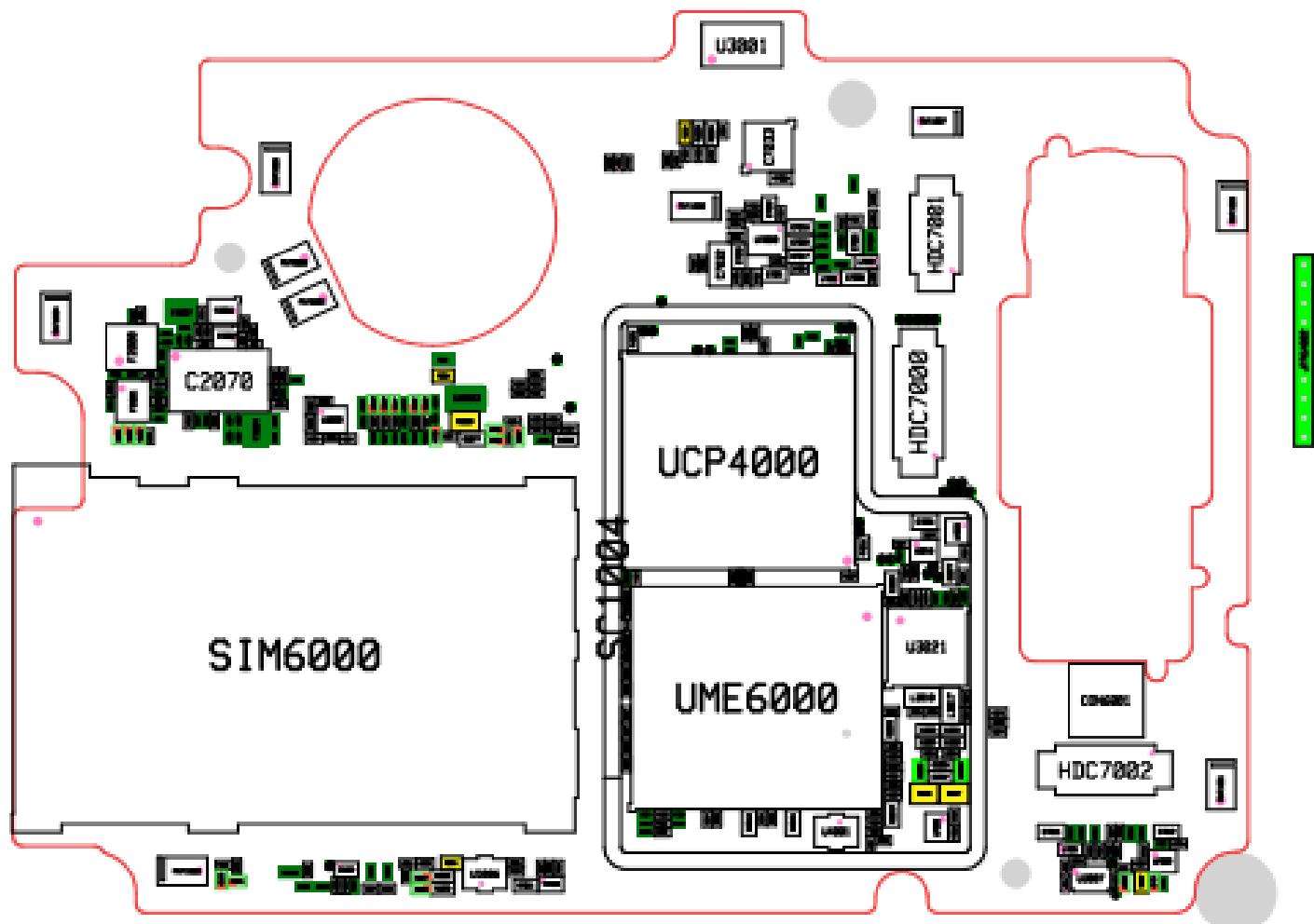


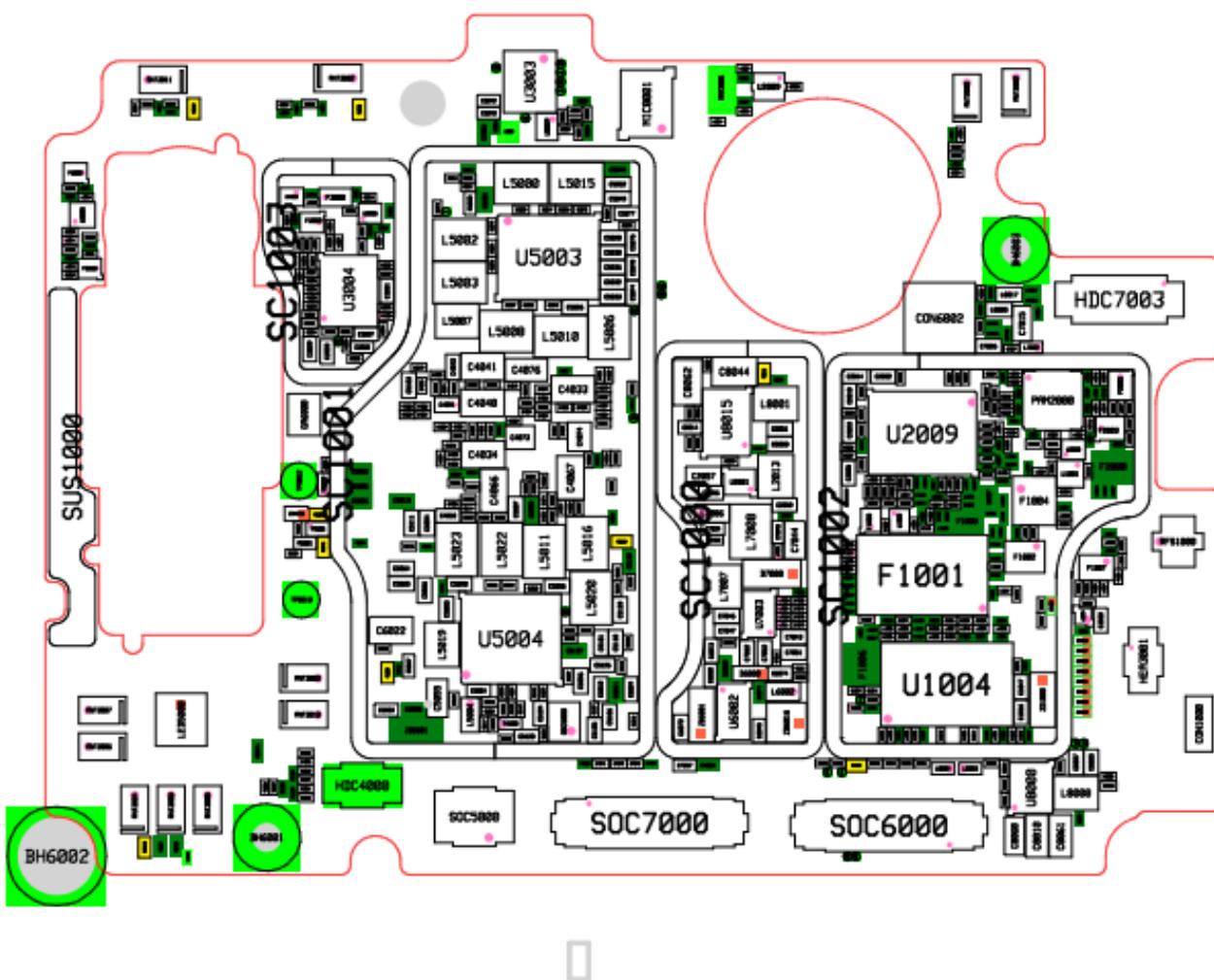
8. Level 3 Repair



SM-M405F REV0.1 Block Diagram

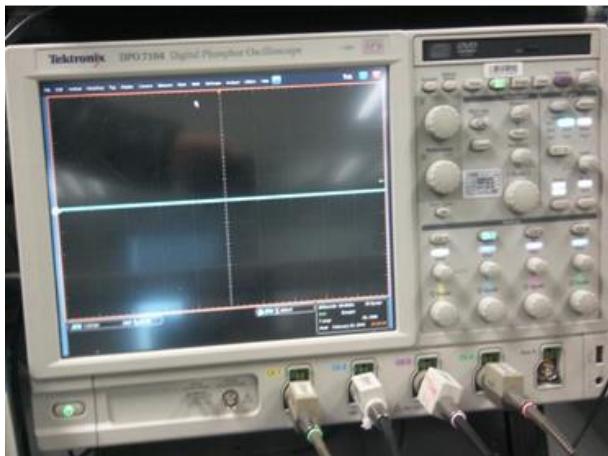






8. Level 3 Repair

8-3. Flow chart of Troubleshooting.



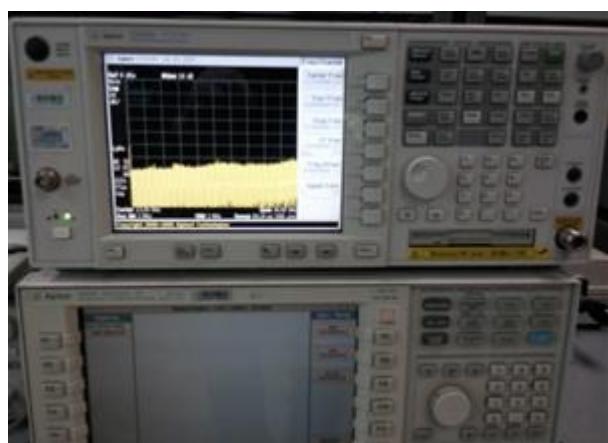
Oscilloscope

Digital Multimeter



Power Supply

+ driver, ESD Safe Tweezer

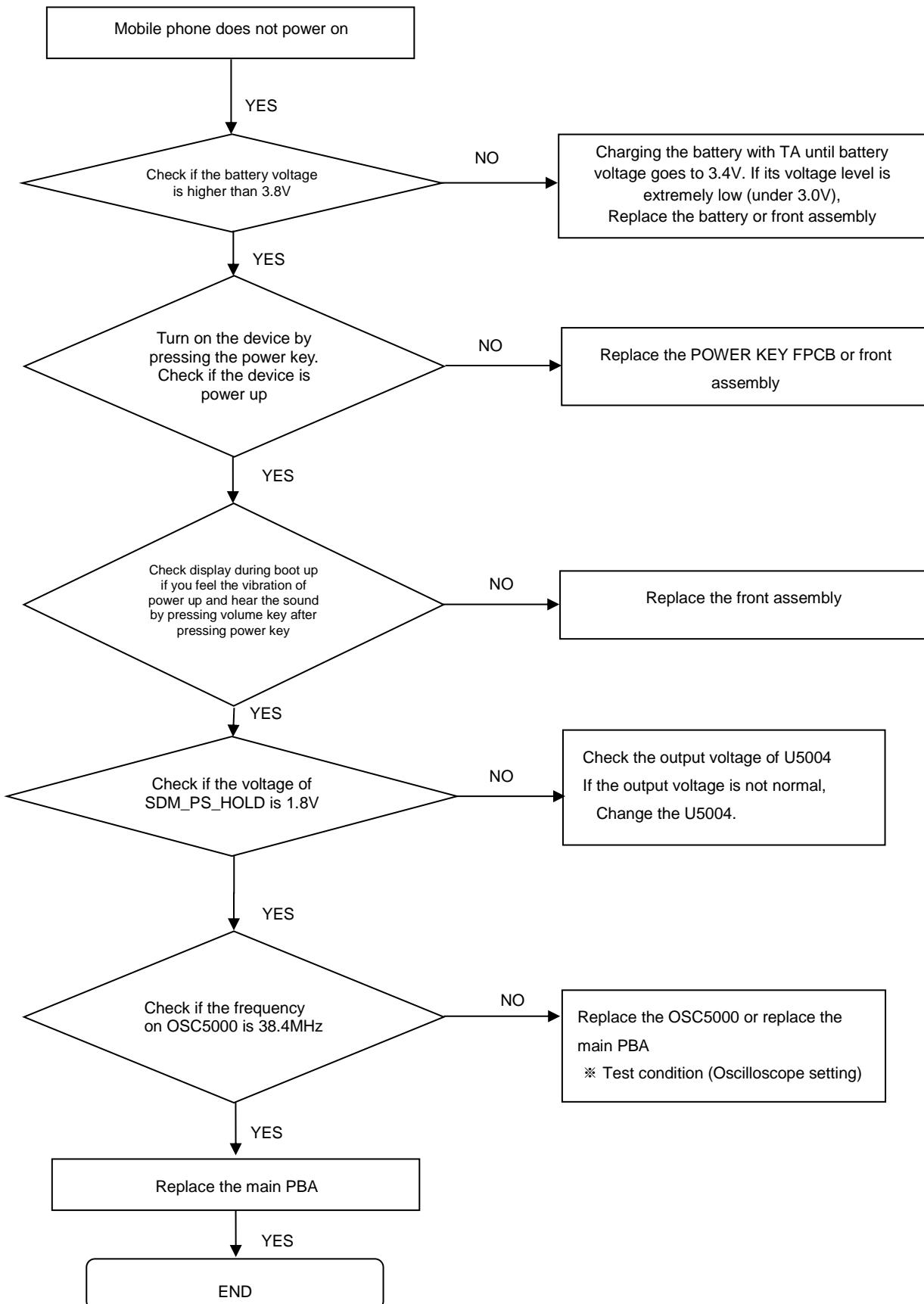


8960 & Spectrum Analyzer

Soldering iron

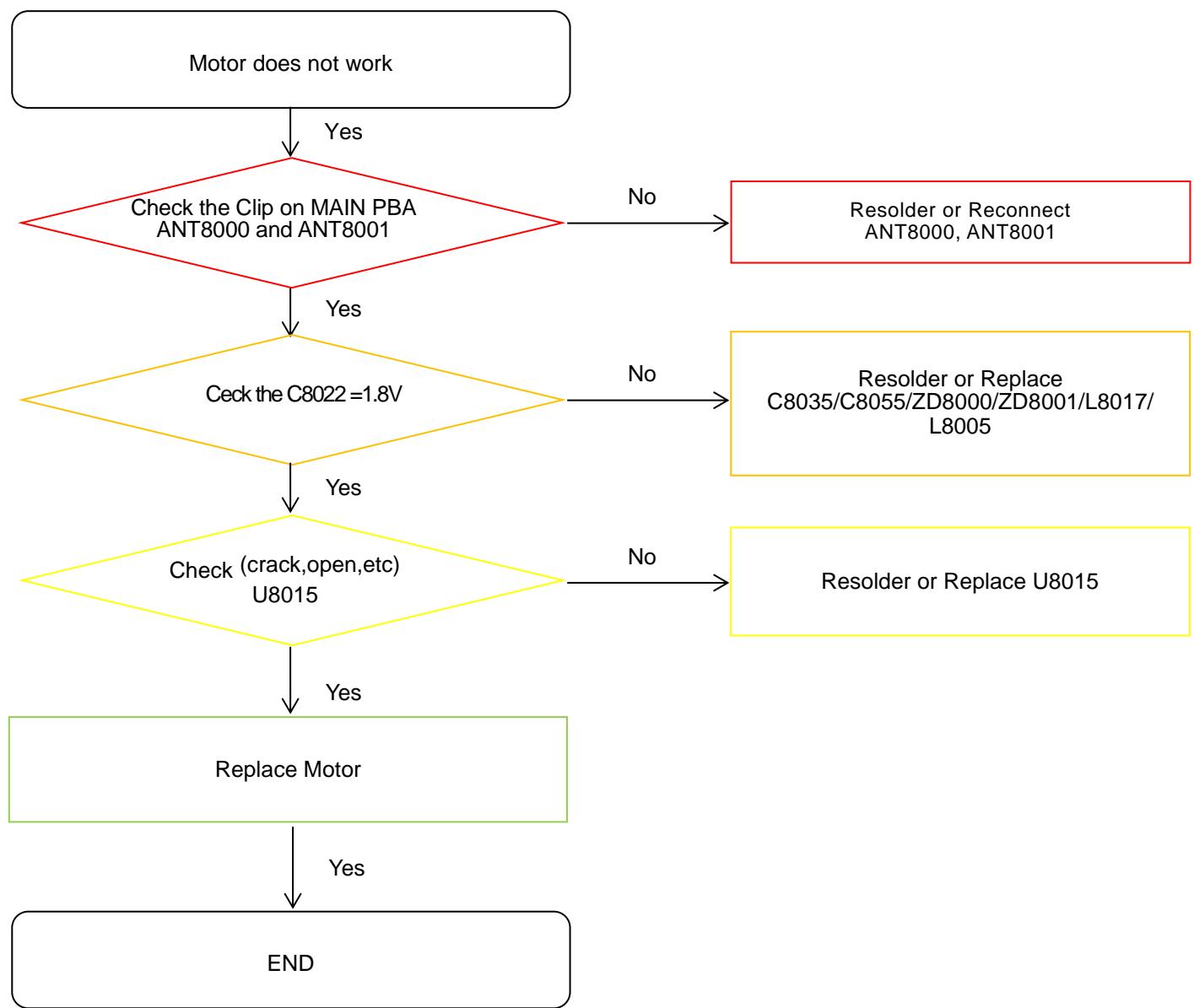
8. Level 3 Repair

8-4-1. Power on



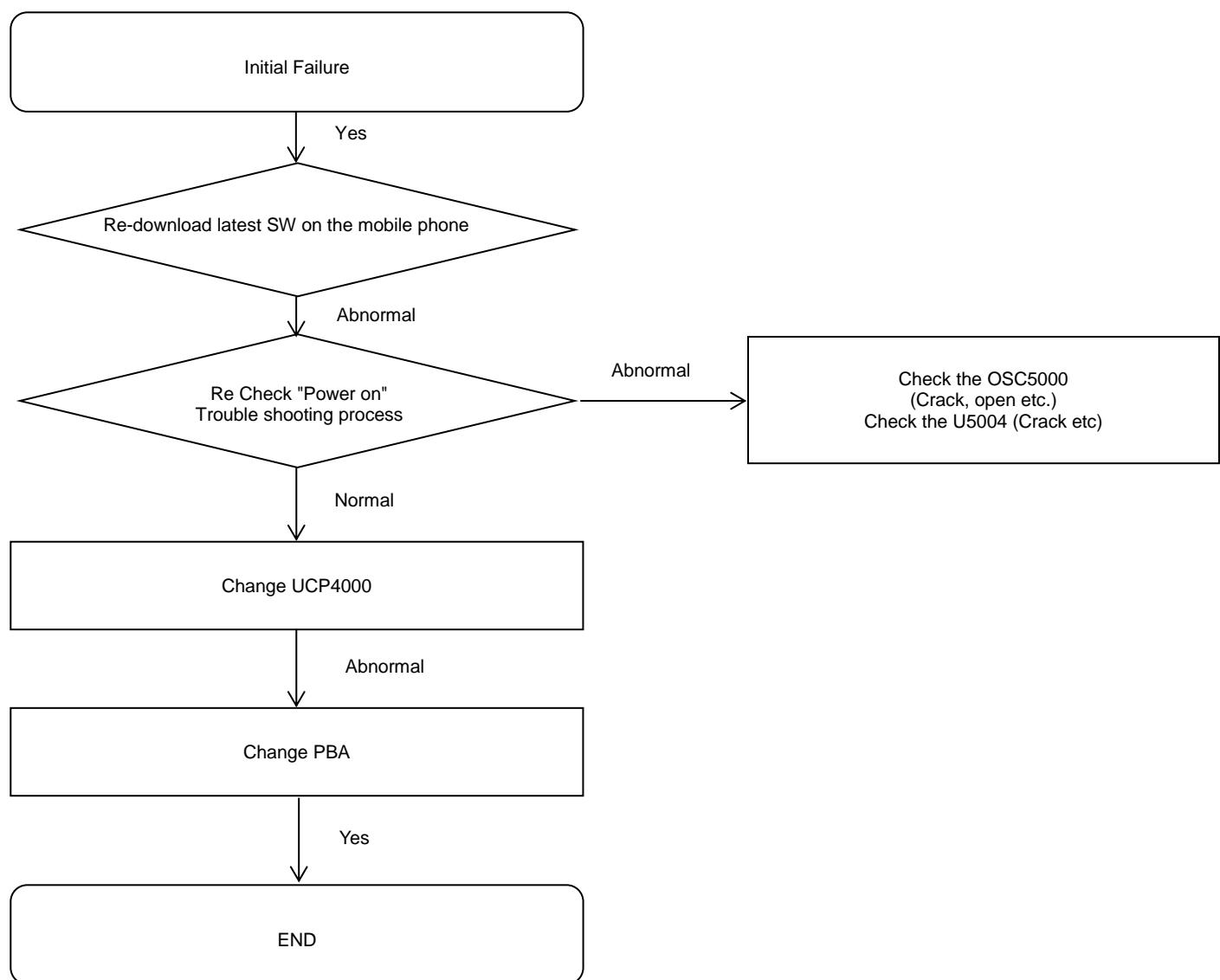
8. Level 3 Repair

8-4-2. Motor



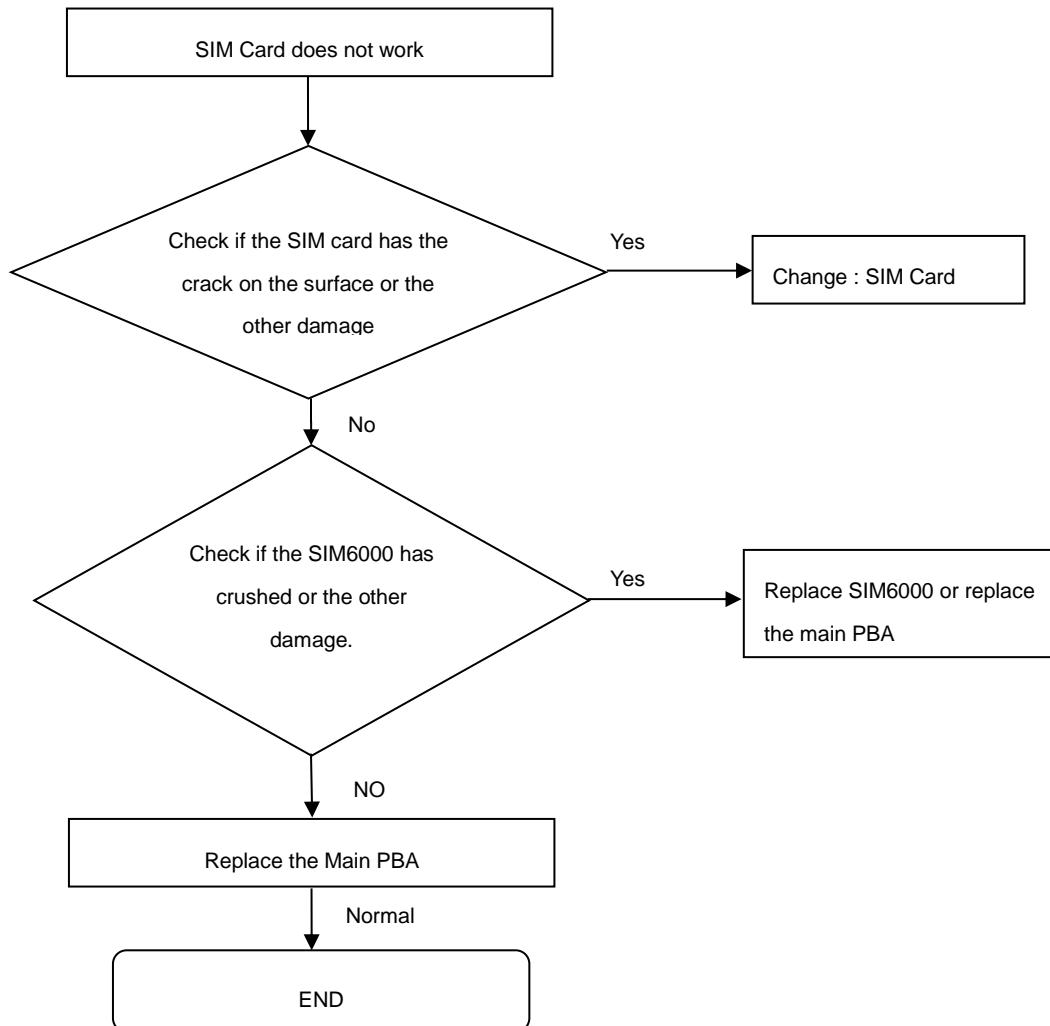
8. Level 3 Repair

8-4-3. initial



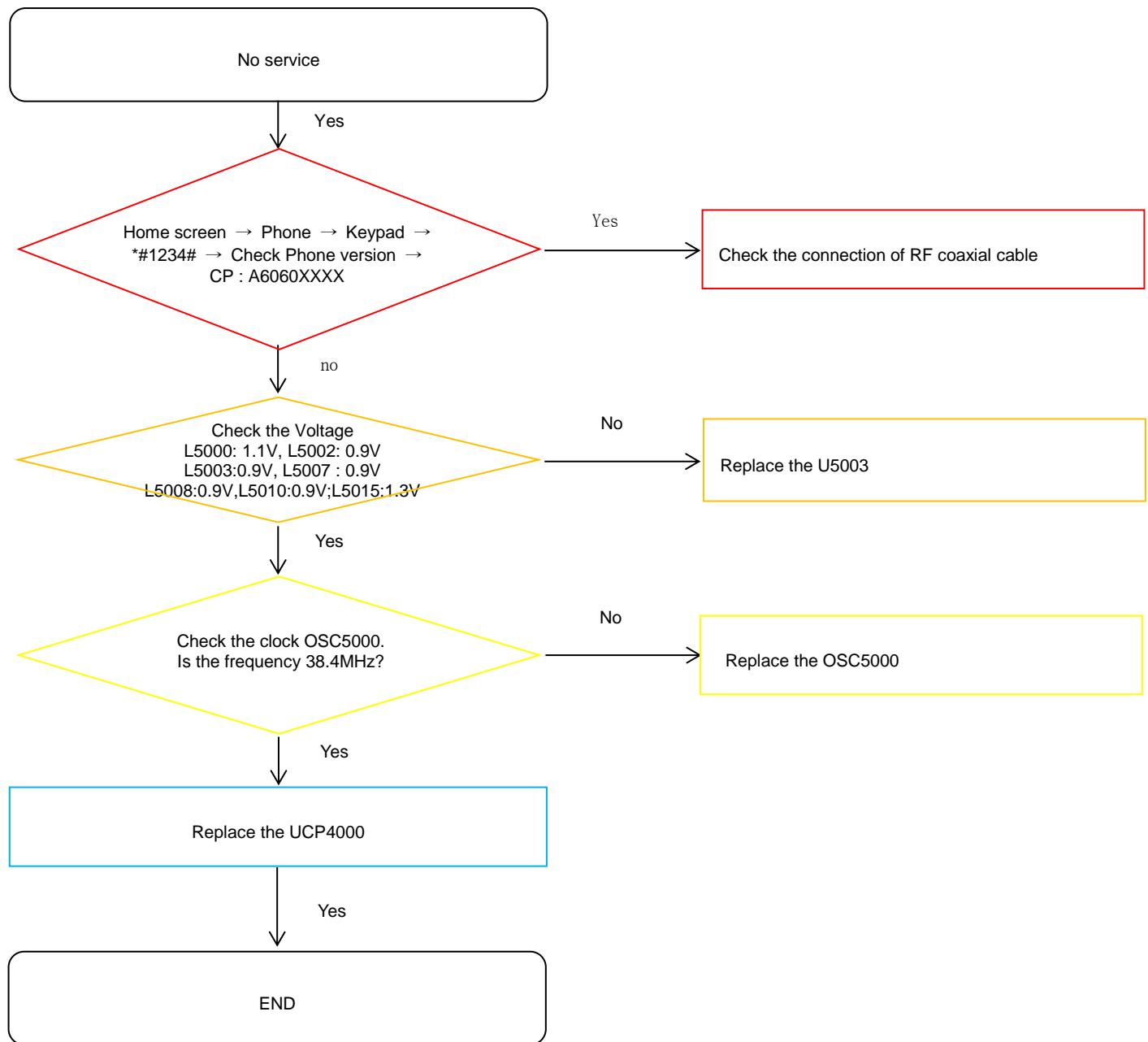
8. Level 3 Repair

8-4-4. SIM PART



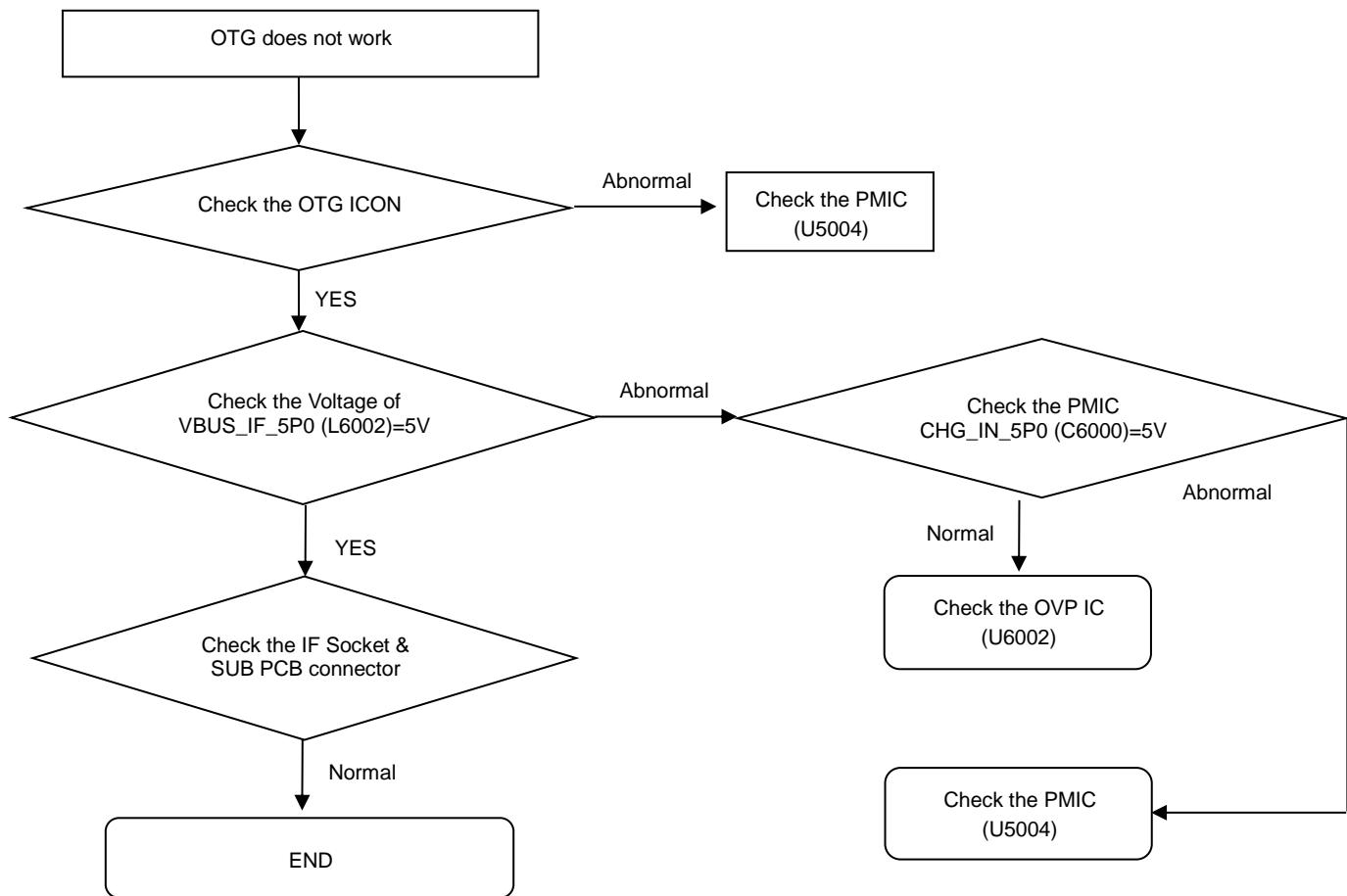
8. Level 3 Repair

8-4-5. No Service



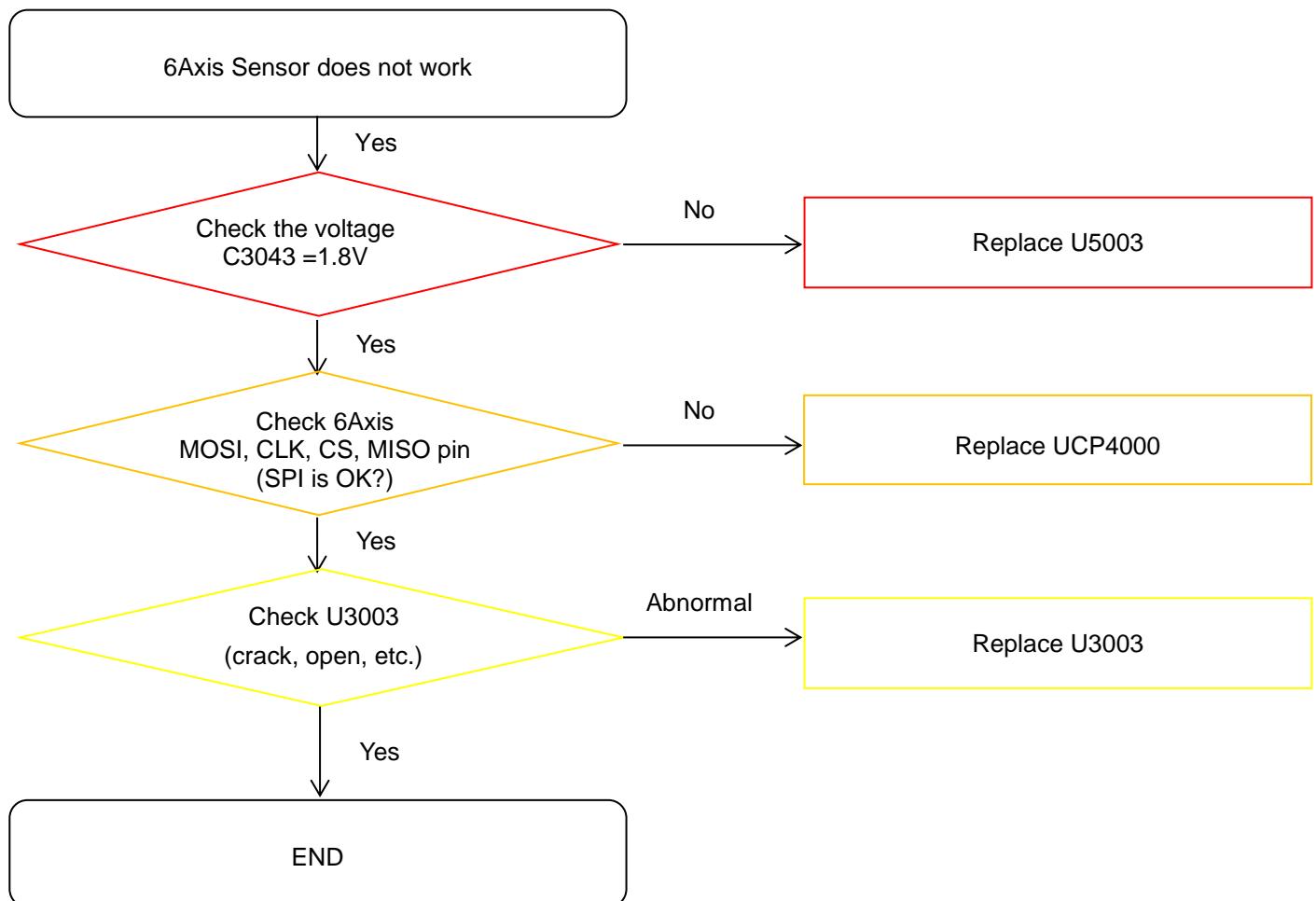
8. Level 3 Repair

8-4-6. OTG



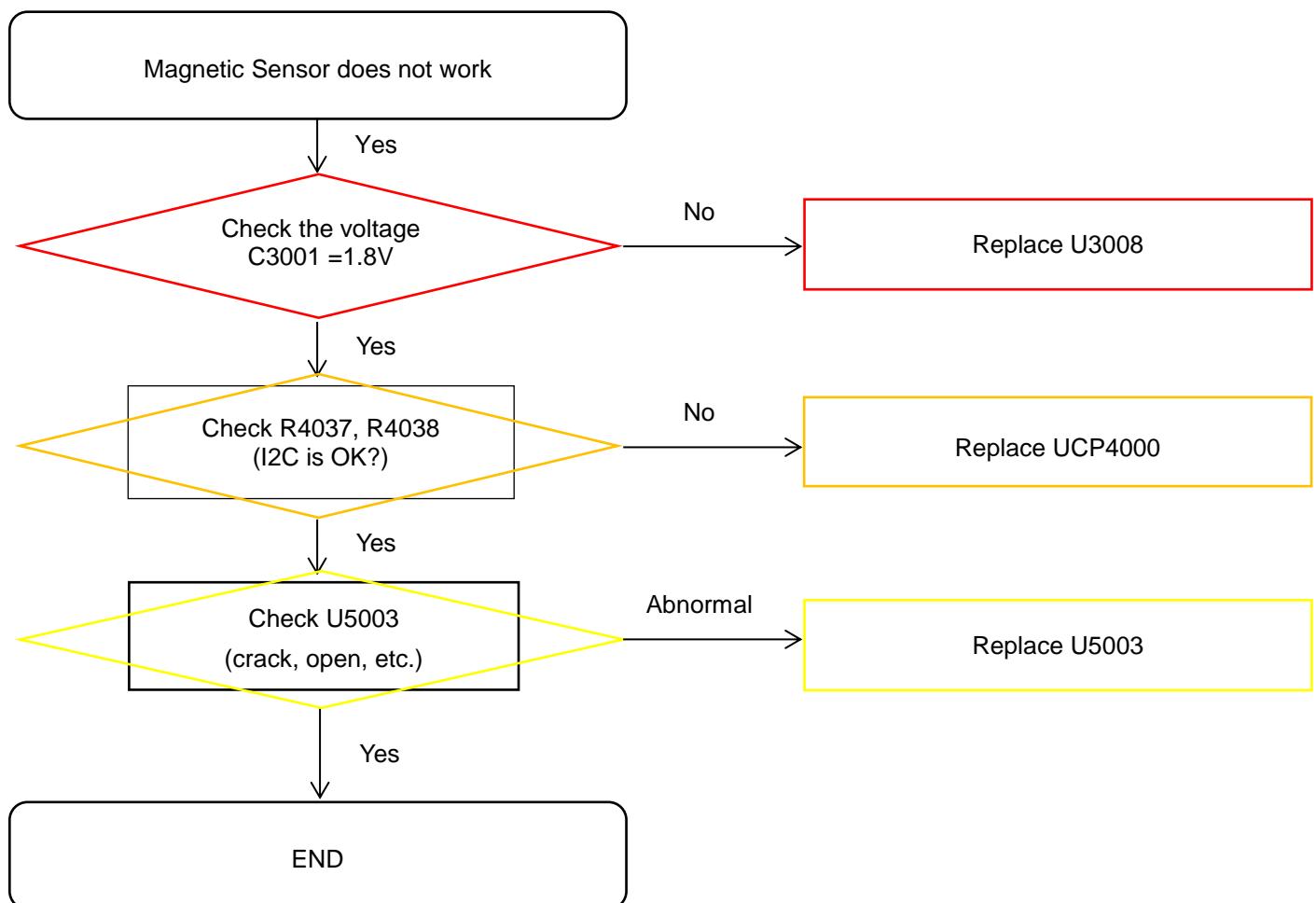
8. Level 3 Repair

8-4-7. 6Axis sensor



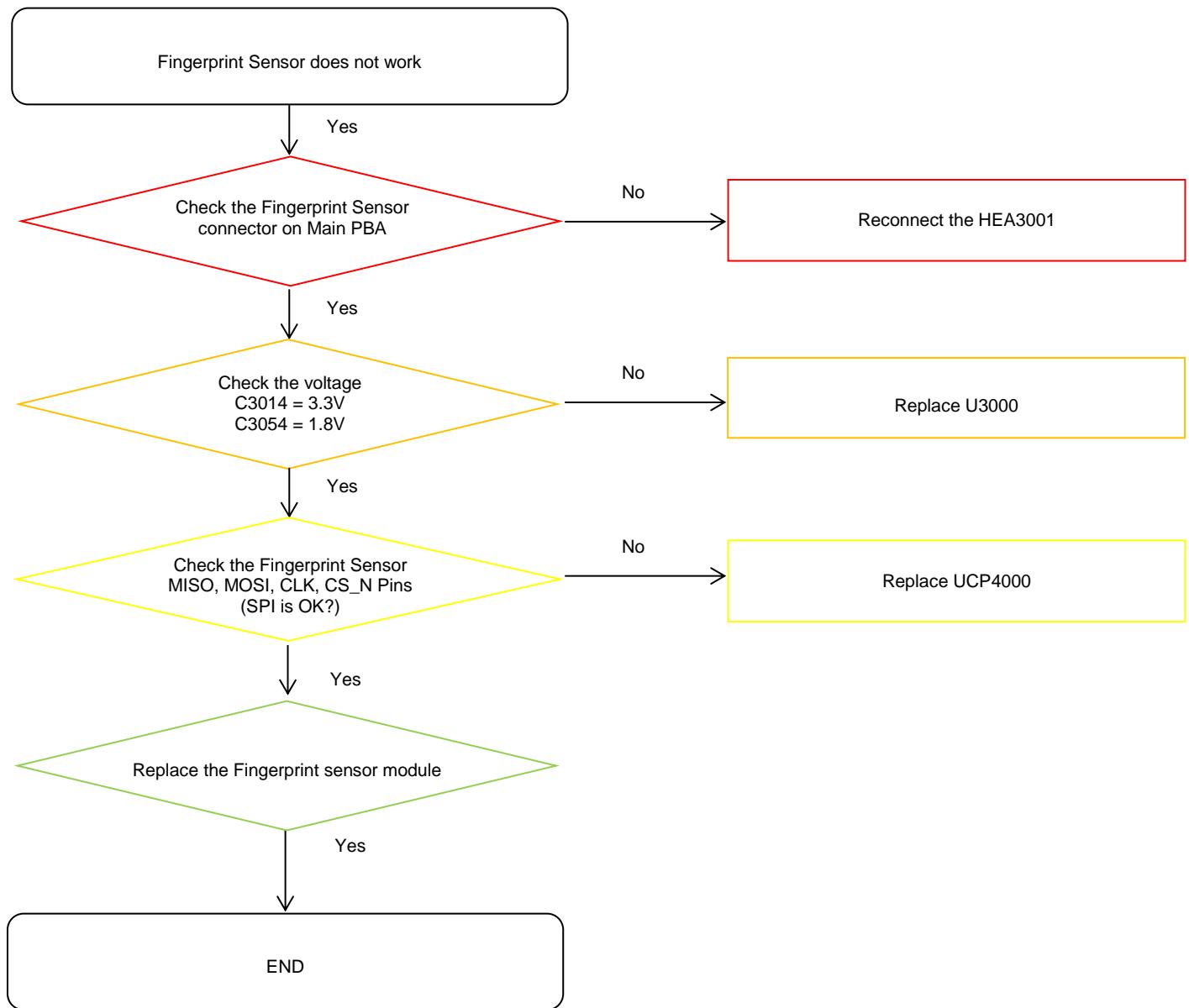
8. Level 3 Repair

8-4-8. Magnetic sensor



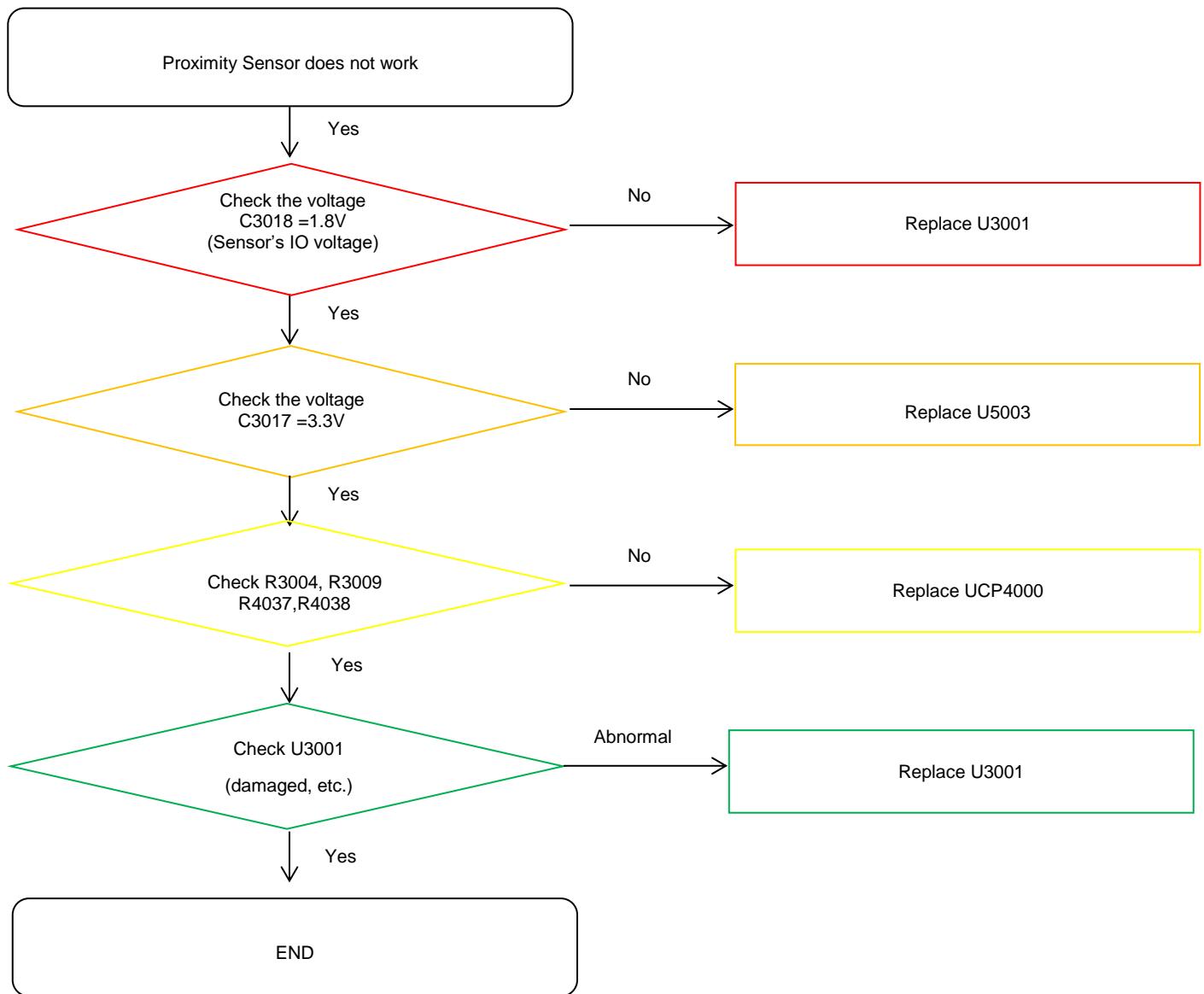
8. Level 3 Repair

8-4-9. Fingerprint Sensor



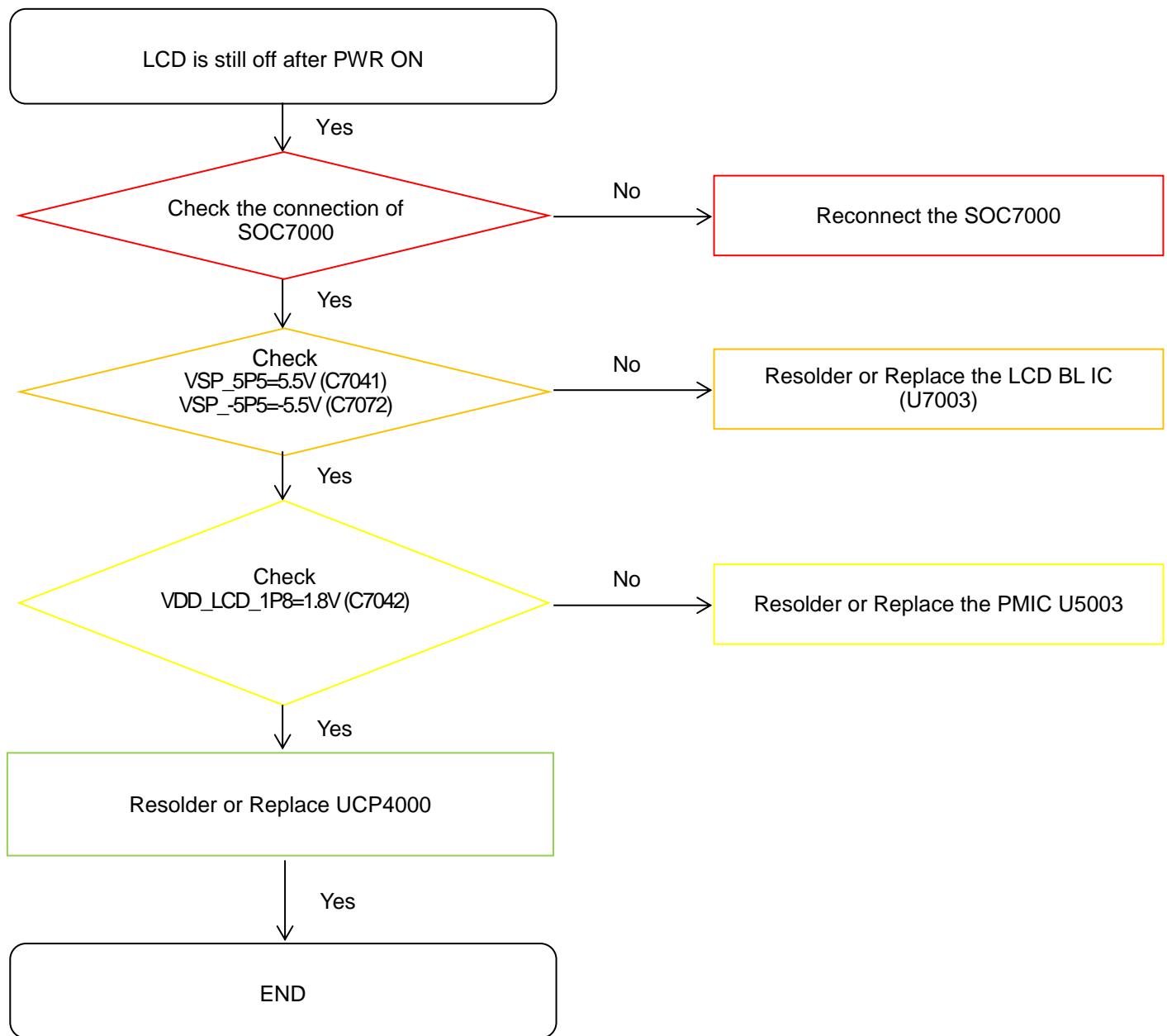
8. Level 3 Repair

8-4-10. Proximity + RGB sensor



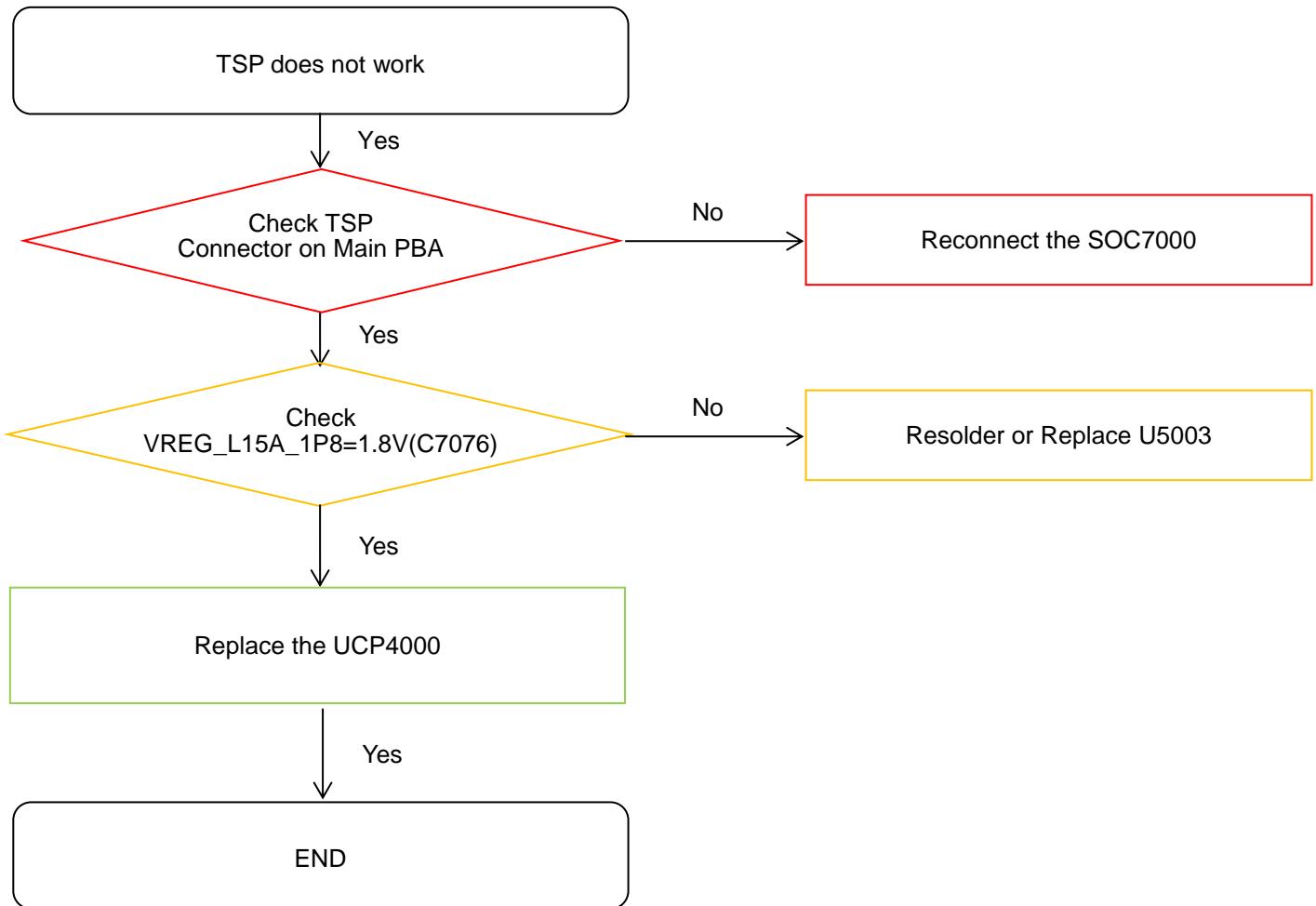
8. Level 3 Repair

8-4-11. Display



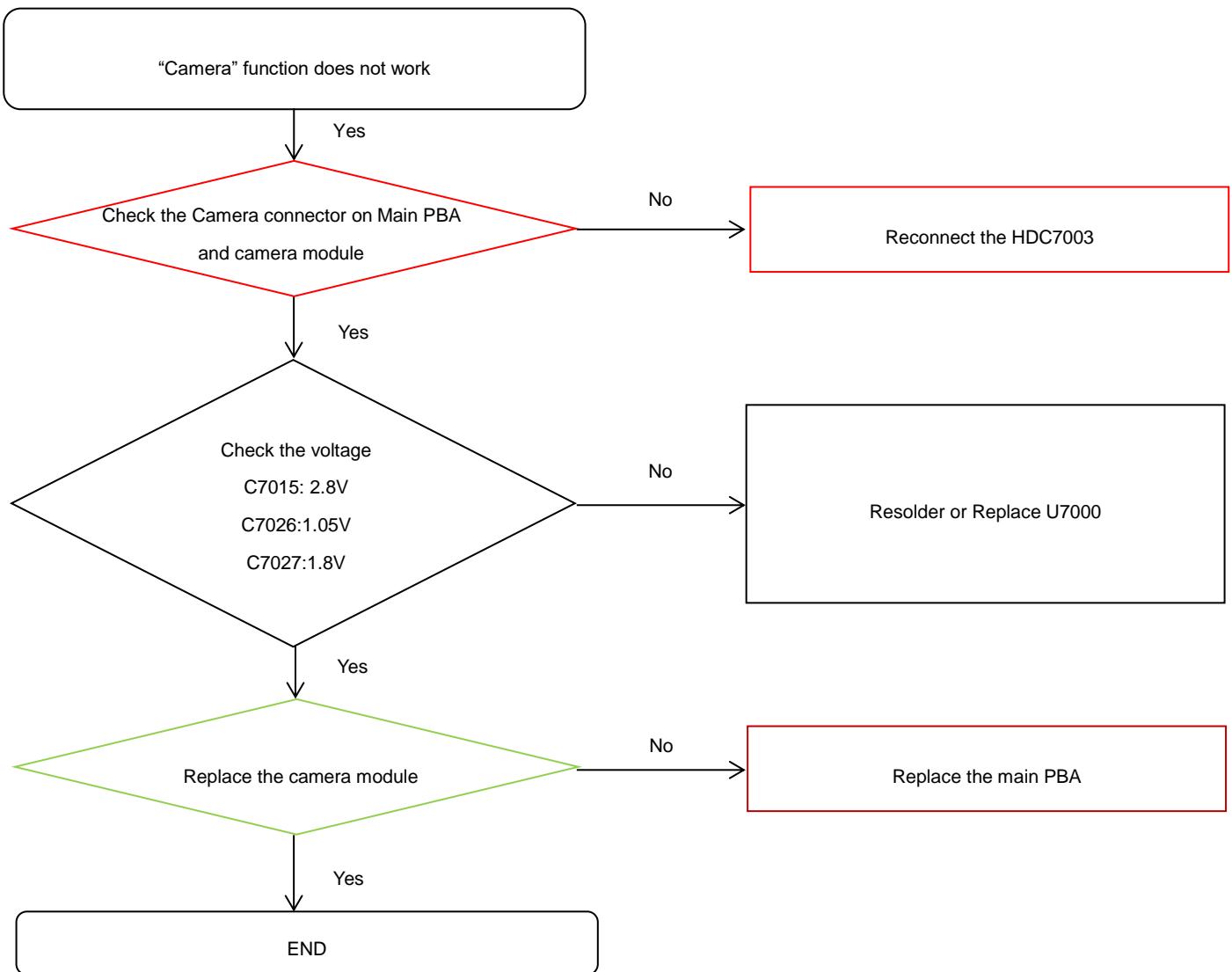
8. Level 3 Repair

8-4-12. TSP



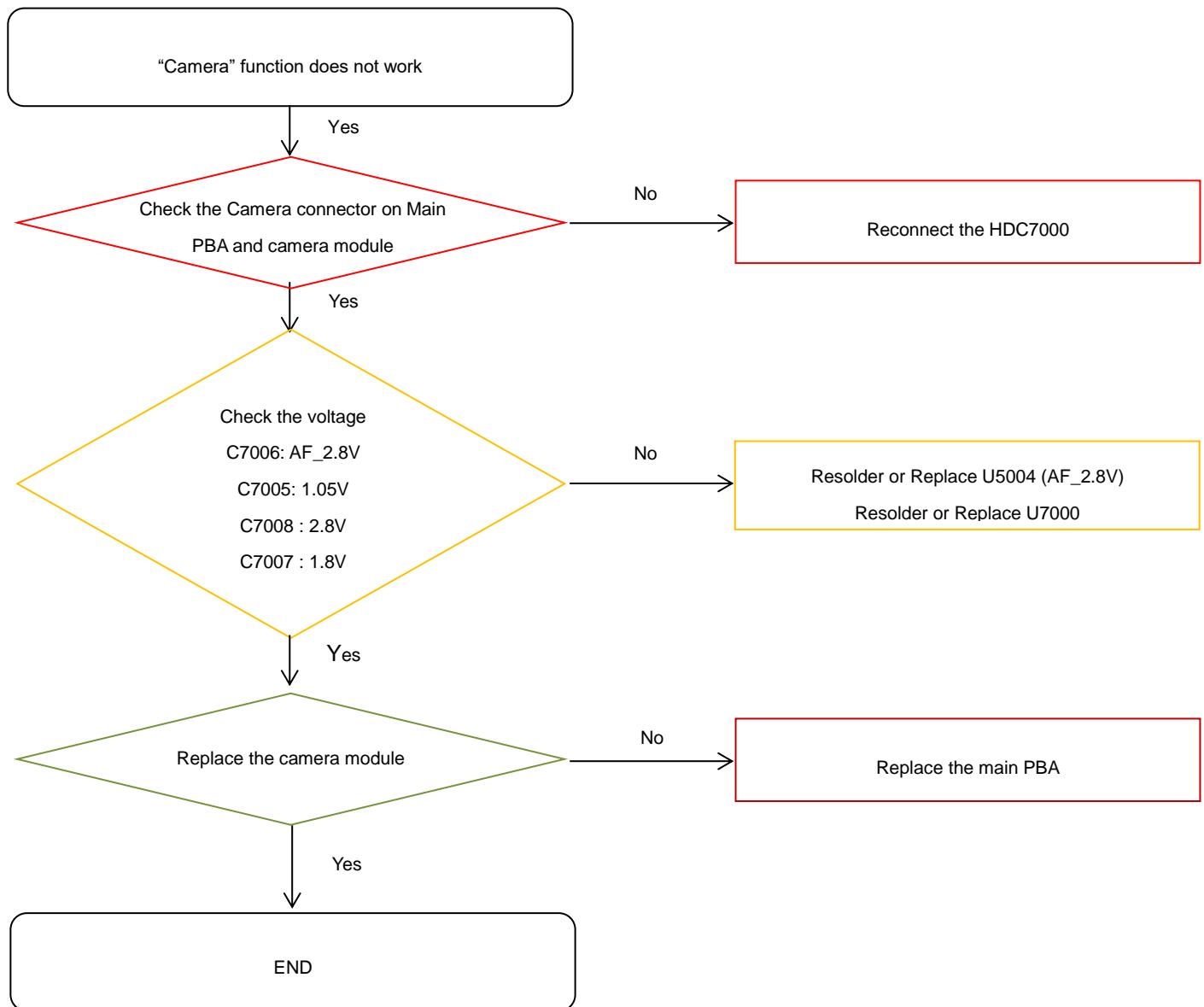
8. Level 3 Repair

8-4-13. VT CAMERA



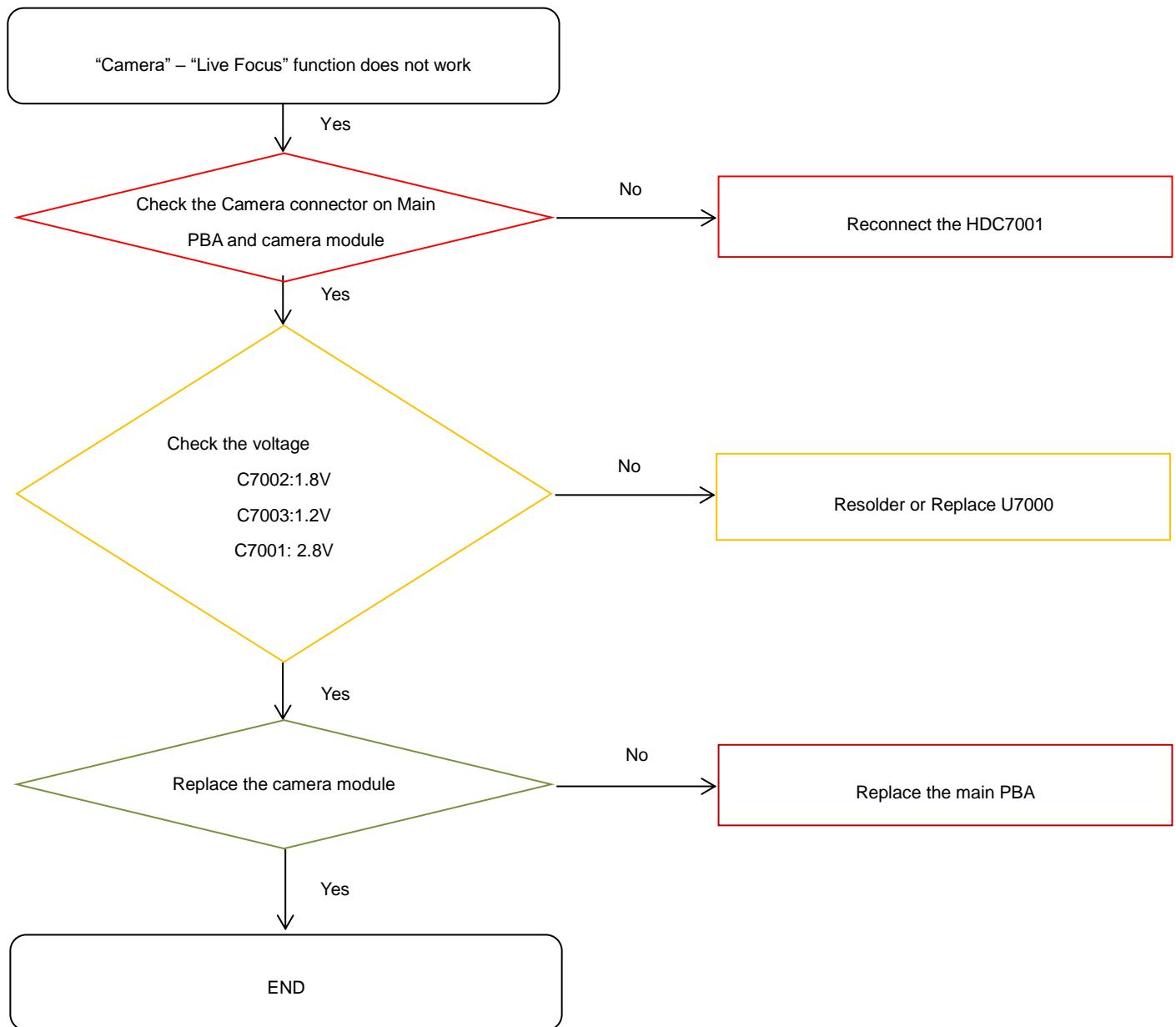
8. Level 3 Repair

8-4-14. 24M REAR CAMERA



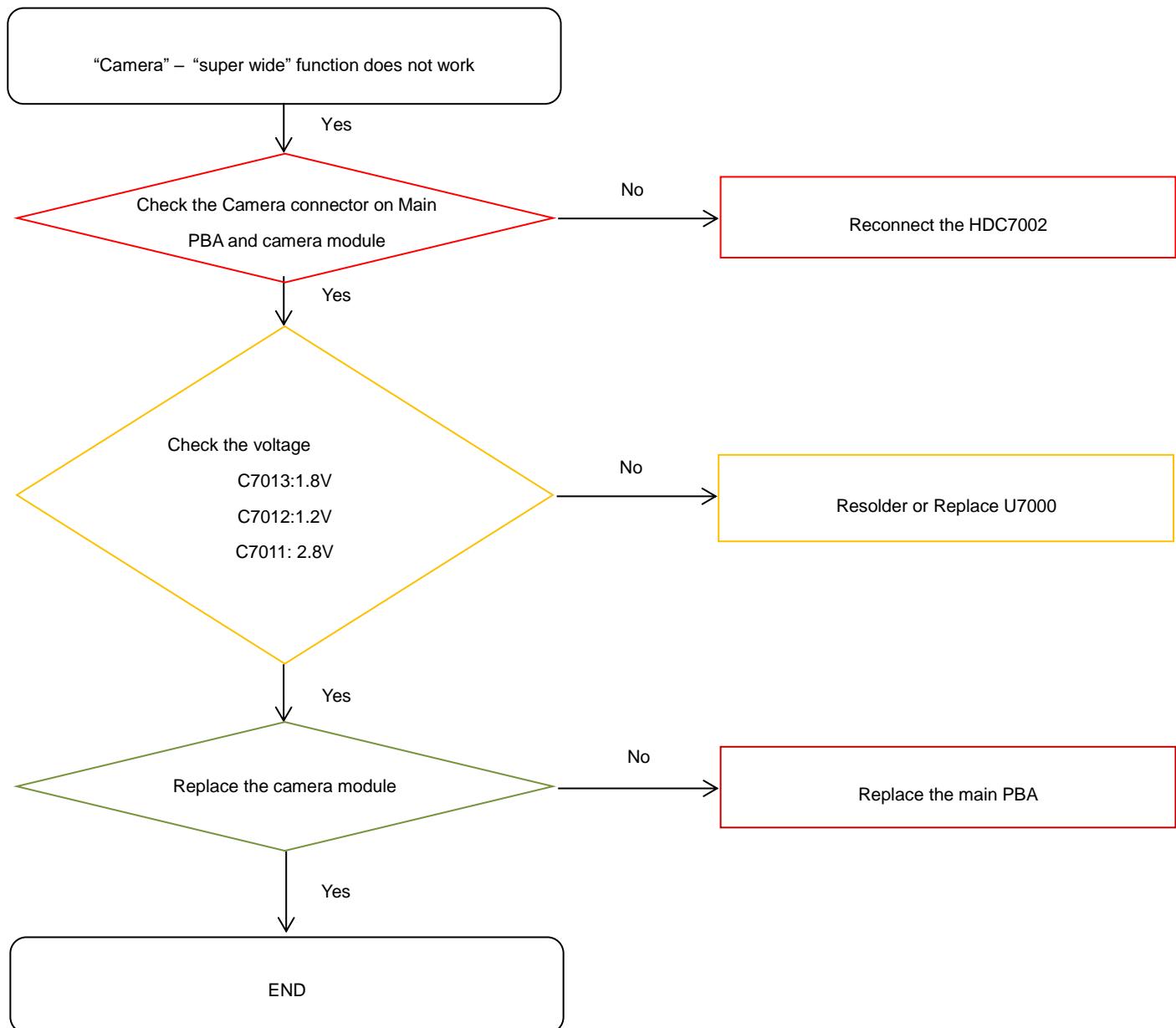
8. Level 3 Repair

8-4-15. 5M REAR CAMERA



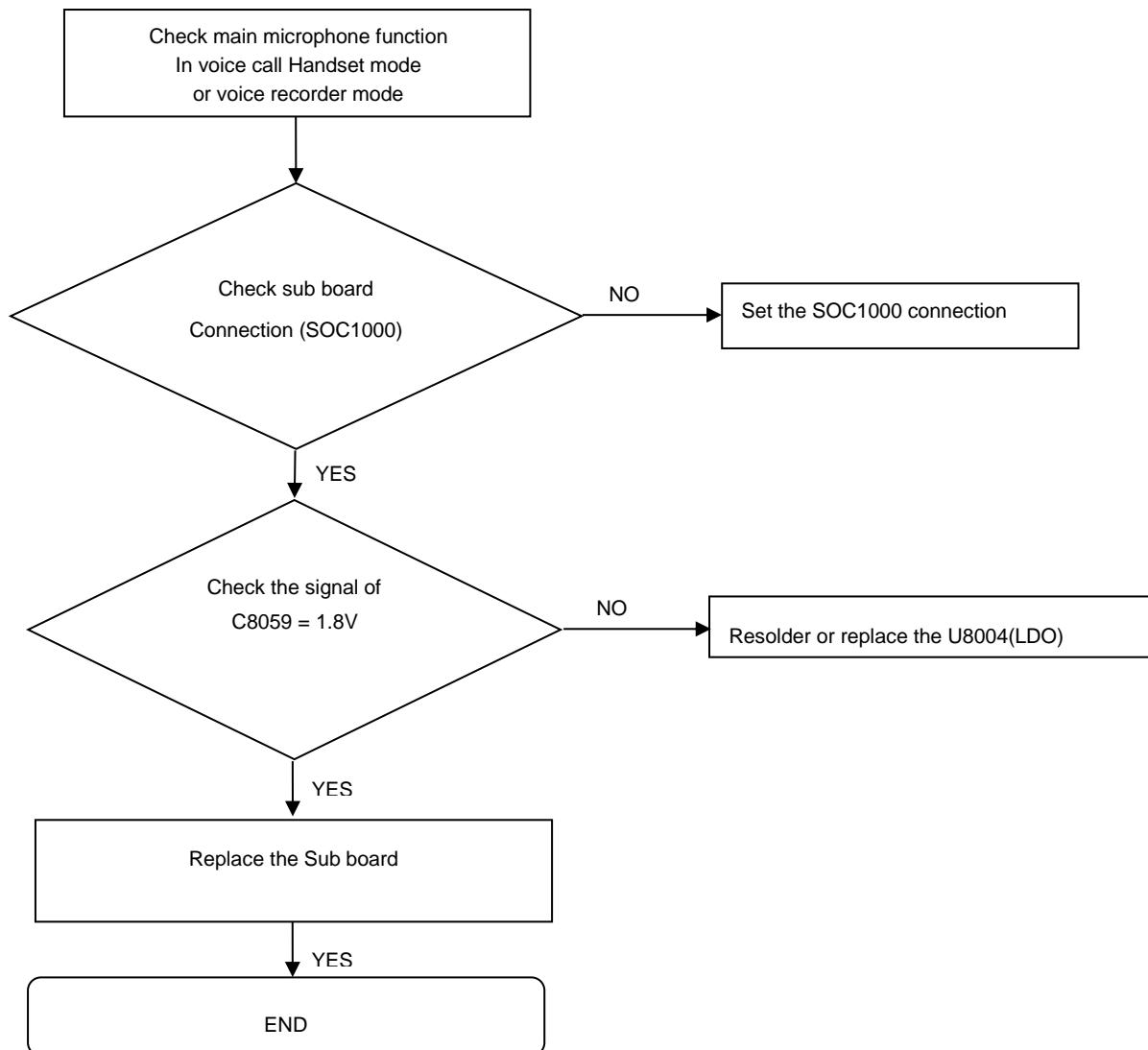
8. Level 3 Repair

8-4-16. 10M REAR CAMERA



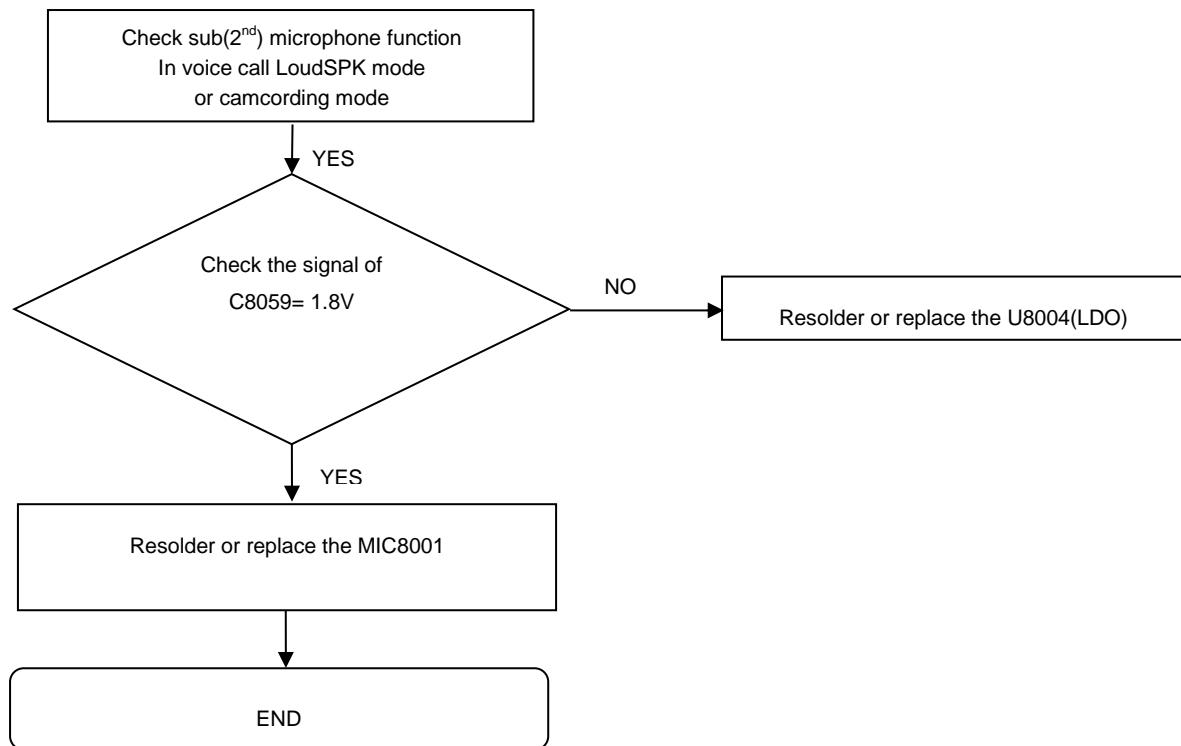
8. Level 3 Repair

8-4-17-1. Main MIC



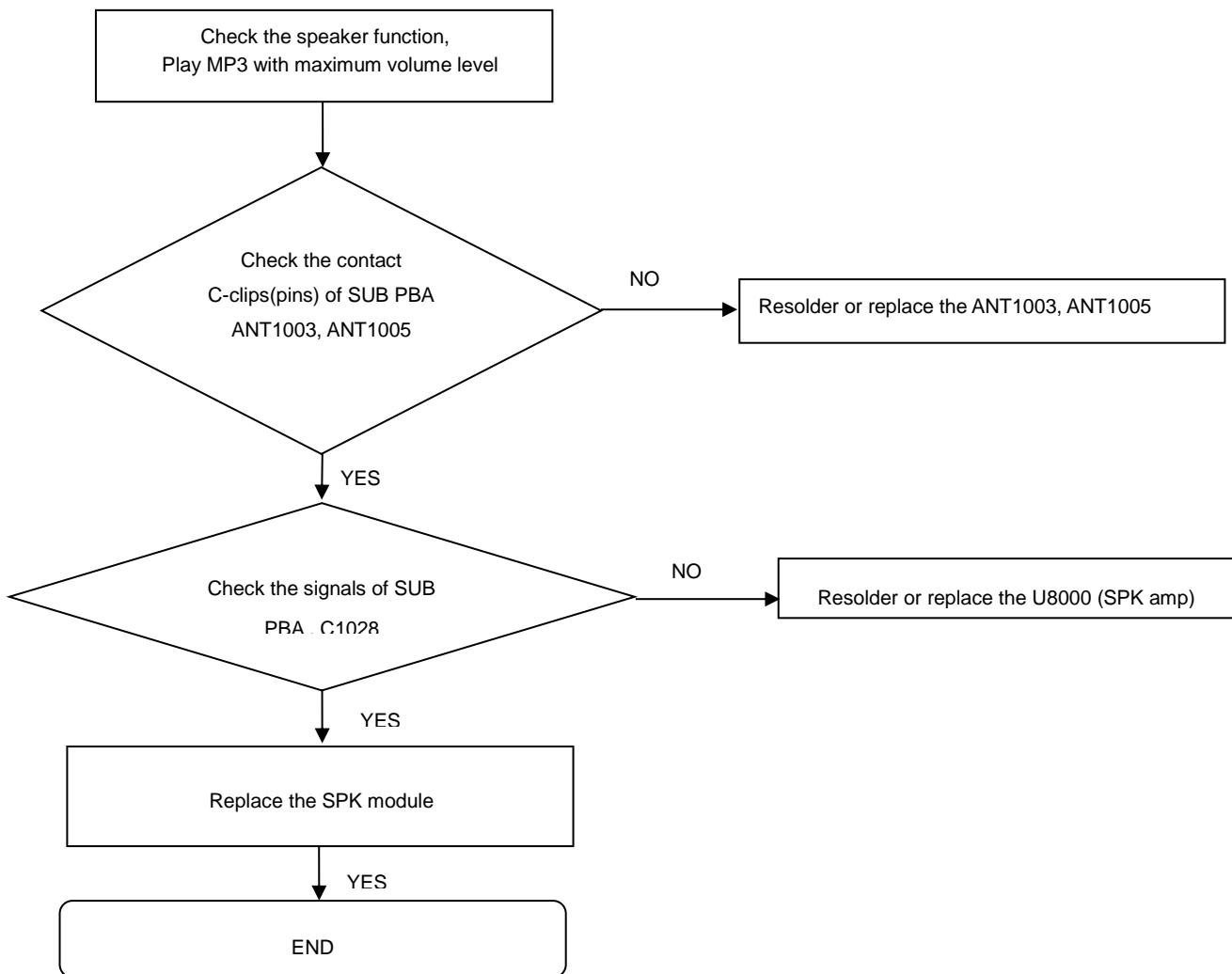
8. Level 3 Repair

8-4-17-2. Sub(2nd) MIC



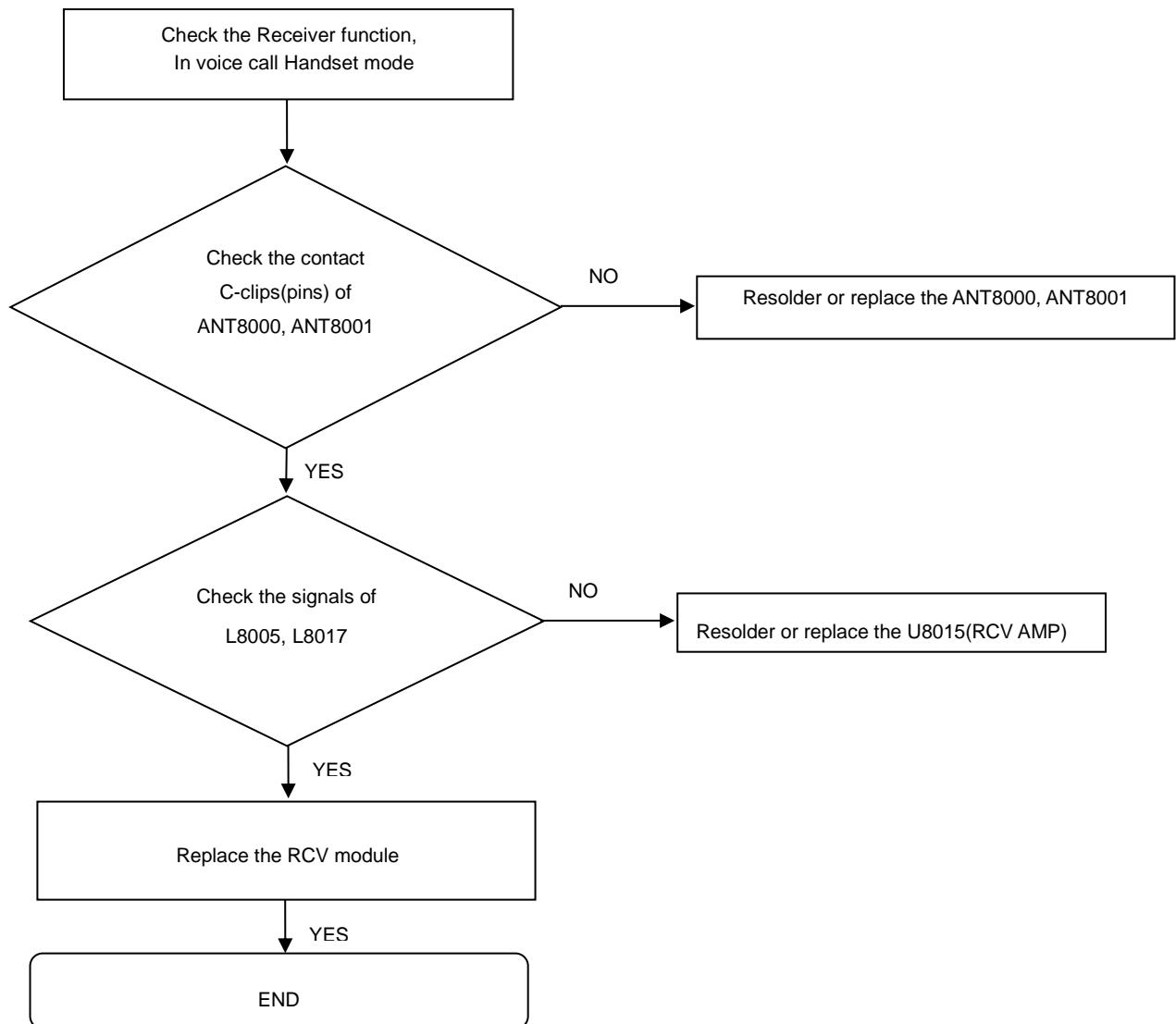
8. Level 3 Repair

8-4-18. Speaker part



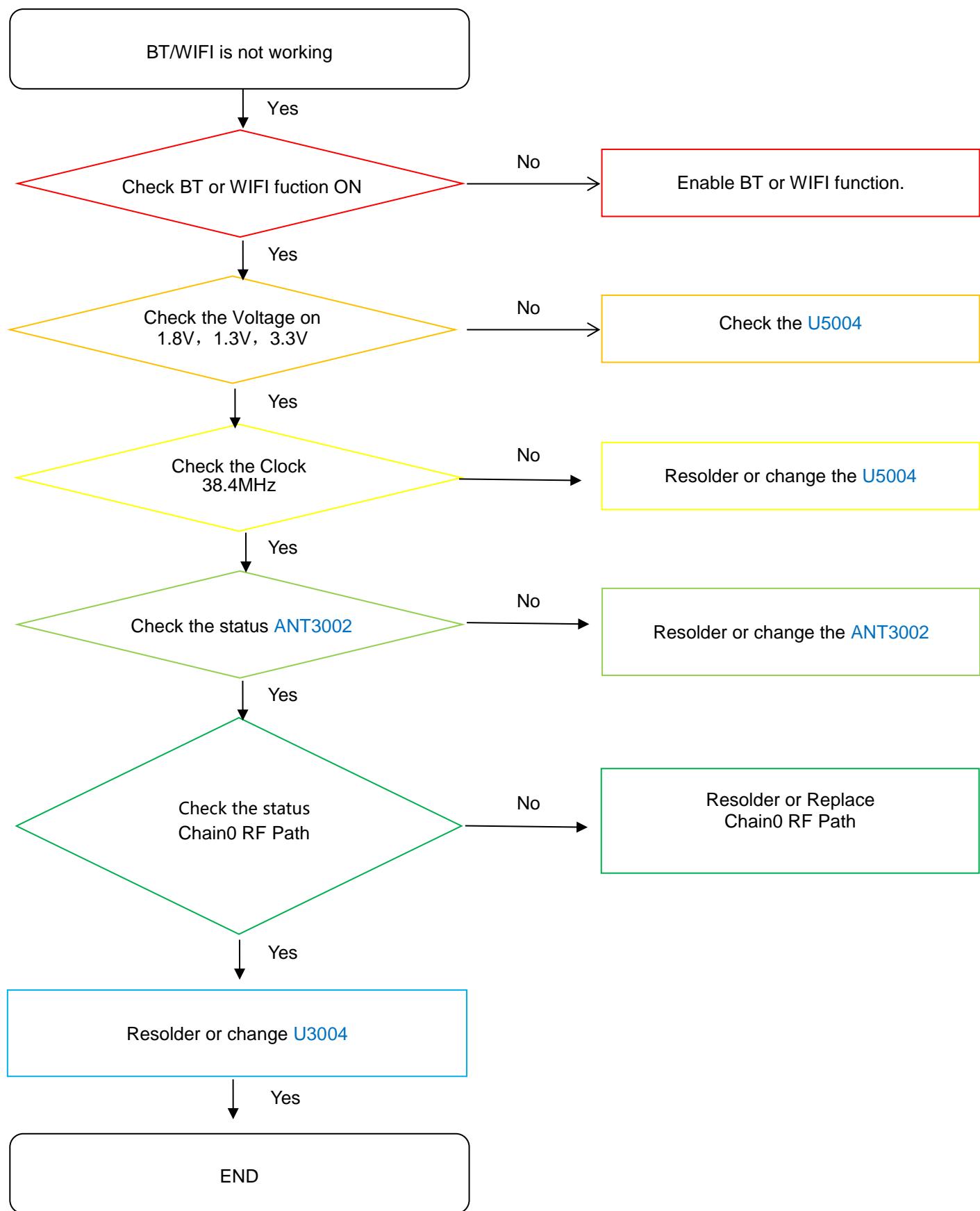
8. Level 3 Repair

8-4-19. Receiver part



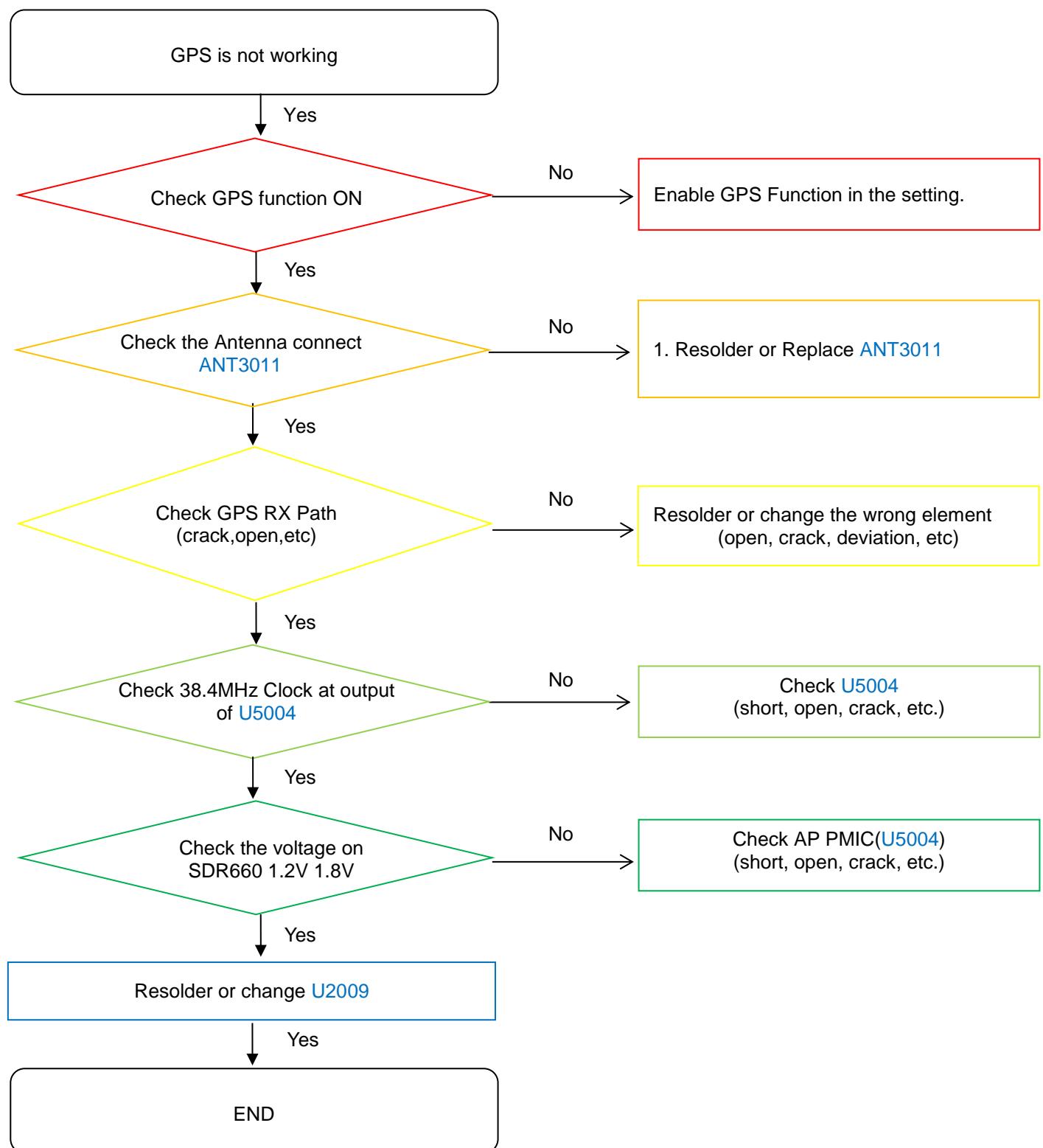
8. Level 3 Repair

8-4-20. BT/WIFI



8. Level 3 Repair

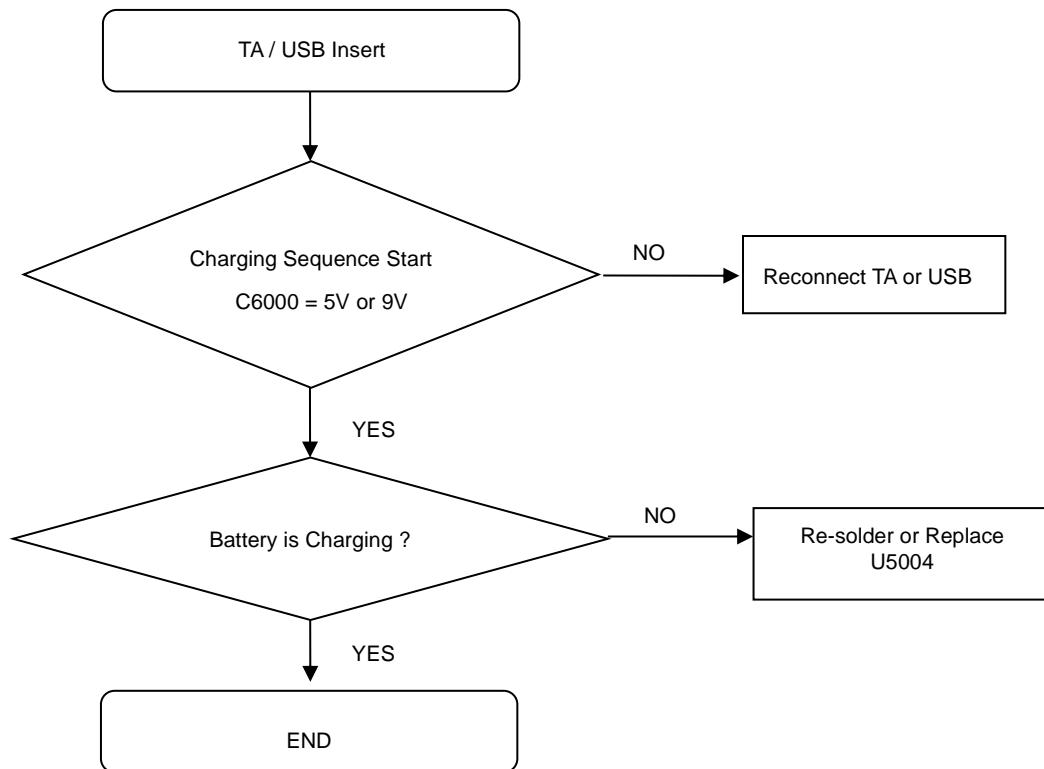
8-4-21. GPS



8. Level 3 Repair

8-4-22. Charging Part

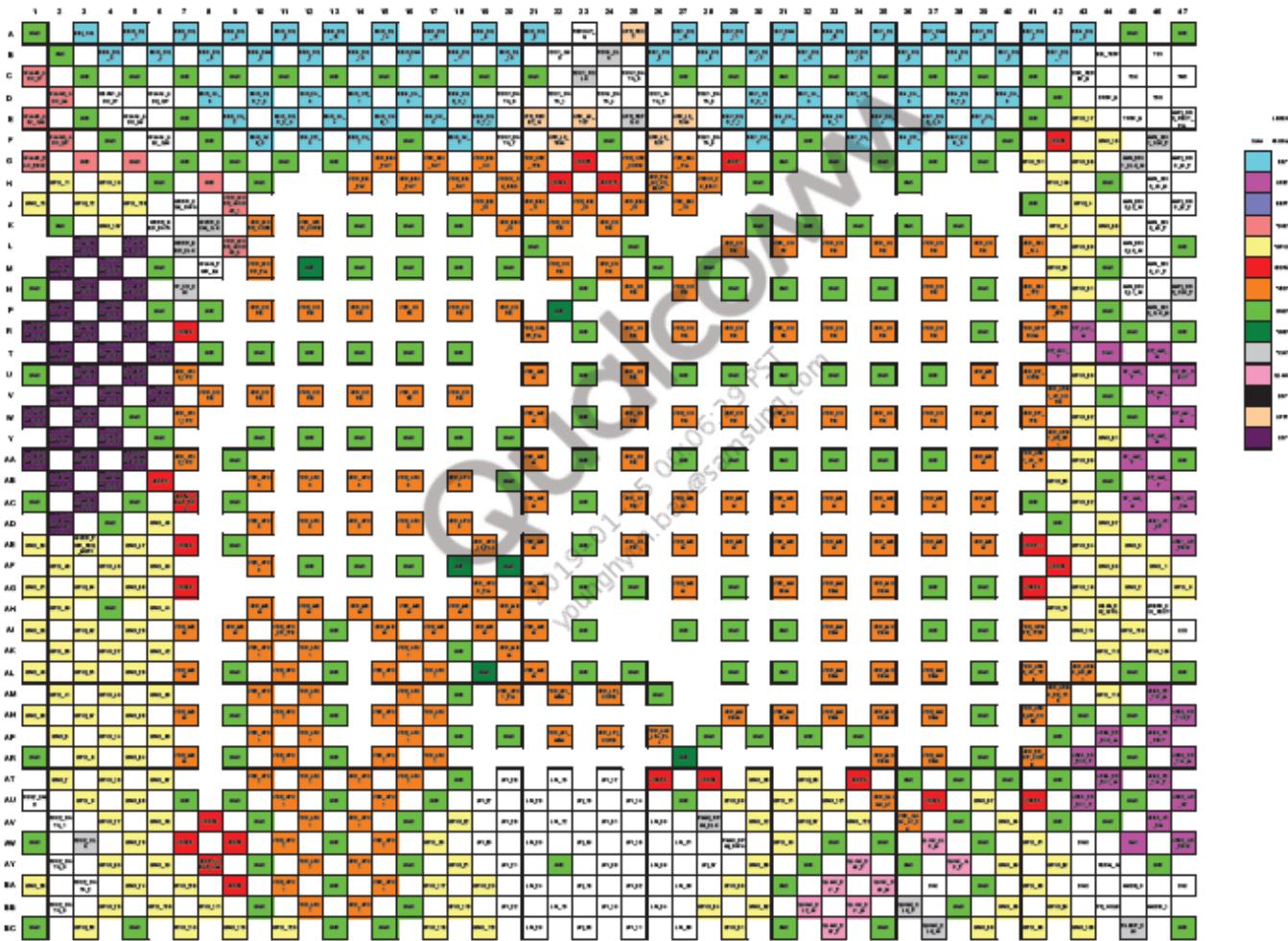
Wire Charging (Normal/Fast)



8. Level 3 Repair

8-5. Service Schematics

- NC Point(Top View)



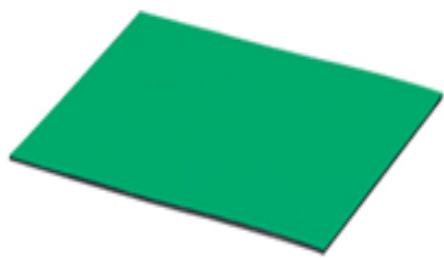
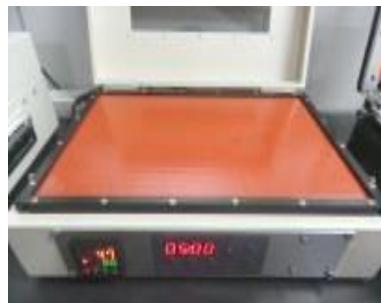
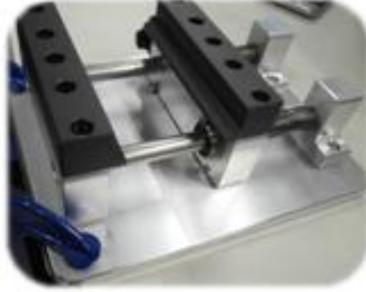
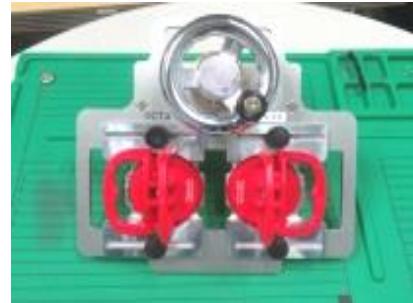
7. Level 2 Repair

7-1. Components on the Rear Case



7. Level 2 Repair

7-2. Pre-requisite

	
Tweezers / Disass'y Stick / Screw Driver	Anti-static Gloves
	
Anti-static Mat	Hot Plate
	
A OCTA Disassembly Holder	OCTA Disassembly Upper
	
Ethyl Alcohol	Cotton Swab

7. Level 2 Repair

7-3. Parts which must be changed after repair

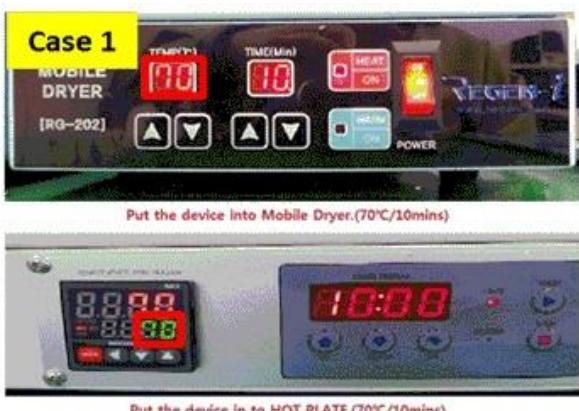
BOM description & part code	Image	Remarks
TAPE DOUBLE FACE BACK COVER ALL [GH02-18491A]		Replace for Back Glass Or Finger print sensor repair
TAPE DOUBLE FACE FINGER DECO [GH02-18492A]		

7. Level 2 Repair

7-4. Disassembly

1

- Put the device in the chamber as following below heating condition.
- SOC 68%↓: 75°C/15~20 minute
 - SOC 68%↑: 75°C/15~20 minute
- * Please confirm the heating condition released lastly, and follow it.



2

- Detach the Back Glass. And Finger sensor.
- 1) Detach the left side of Back glass.
 - 2) Detach the Finger sensor connector.



* Caution

Be care of scratch.

* Caution

Be care of scratch.

3

- Unscrew 14 Points and disassemble SIM Tray from device.



4

- Disassemble 他 HE Rear.
(Use disassemble hole left/right side of Rear to detach it)



Rear Top disassemble hole.

* Caution

Be care of Rear damage.

* Caution

- 1) Be care of scratch.
- 2) Be care of Rear and connector damage.

7. Level 2 Repair

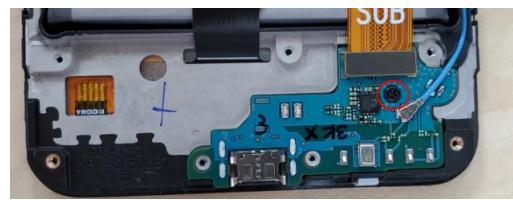
5

Finally Disassemble The Rear.



6

Unscrew PBA 2point. And SUB PBA 1Point.



※ Caution

- 1) Be care of scratch.
- 2) Be care of Rear and connector damage.
- 3) Be careful not to damage the PBA.

7

1 coaxial cable, Battery connector and the other connectors. (7 Points)



8

Disassemble Main PBA and Main FPCB.



※ Caution

- 1) Be care of scratch.
- 2) Be care of connector/cable damage.

※ Caution

- Be care of Main PBA damage.

7. Level 2 Repair

9

Detach other components.



※ Caution

Be care of SUB PBA damage.

7. Level 2 Repair

7-5. Assembly

1

Attach SUB PBA on Front.



2

Screw 1 point in SUB PBA.

* Torque Value : 1.25kgf.cm±4%



※ Caution

Be care of coaxial cable damage.

※ Caution

Be care of chip damage nearby screw point.

3

Attach components on Front. (Motor)



4

Attach Main PBA On Front.



※ Caution

Be care of FPCB damage and tilt.

※ Caution

Be care of PBA and Connector damage.

7. Level 2 Repair

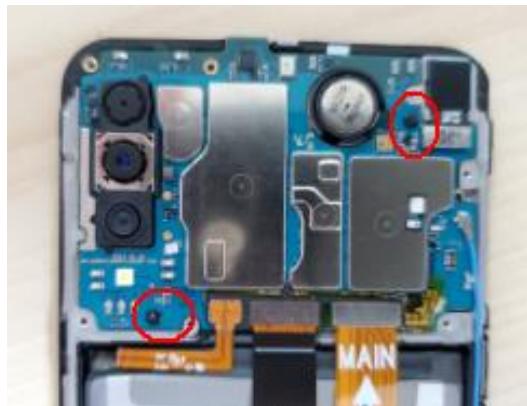
5

Attach coaxial cable, Battery connect and the other connectors. Assemble Main FPCB and Front Camera.



6

Screw 2point in Main PBA.
* Torque Value : 1.25kgf.cm±4%



※ Caution

Be care of FPCB damage.

※ Caution

Be care of PBA damage.

7

Assemble the REAR Assy in sequence.



8

Attach 14EA Screws on the Rear.

* Torque Value : 1.25kgf.cm±4%



※ Caution

Be care of scratch and REAR damage.

※ Caution

Be care of scratch and tilt.

7. Level 2 Repair

9

Attach finger sensor on the TOP Rear.



10

Attach the back glass outside tape on the rear case.



* Caution

Be care of scratch and tilt.

* Caution

Be care of scratch and tilt.

11

Attach the finger tape on the back glass.



12

Attach the back glass on the Top REAR side.



* Caution

Be care of scratch and tilt.

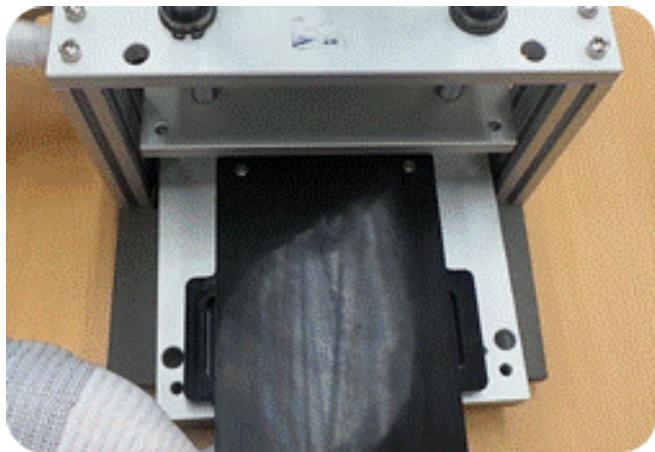
* Caution

Be care of scratch.

7. Level 2 Repair

13

Press Back Glass.
Pressing force : 5.5kgf/cm
Pressing time : 12s



* Caution

Be care of scratch.

9. Reference Abbreviation

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

SAMSUNG