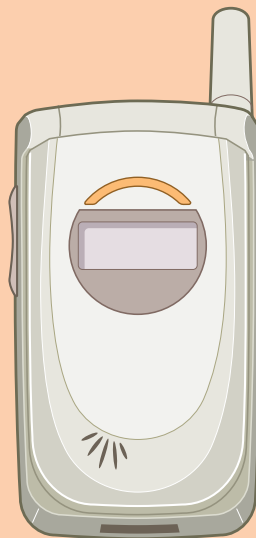


# GSM PHONE SERVICE MANUAL

MODEL : VG100 Series





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# 1. Introduction

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VG100 is a folder type mobile phone operated in the GSM Digital Cellular Mobile Radio System, which is the Pan-European mobile cellular standard. VG100 has the operation band of GSM 900 and DCS 1800. GSM Phase II features are fully supported and parts of the GSM Phase II+ features are also supported. About the SIM Toolkit, VG100 supports up to Class 3 including Class 1, 2. For speech communication, VG100 supports Full Rate(FR), Enhanced Full Rate(EFR) and Half Rate(HR). For easy text, eZi Text is implemented and WAP protocol is adopted for internet connection.

**Memo**

## 2. Specification

### 2.1 HW Features

Item	Description	Remark
Supporting standard	GSM 900/DCS 1800 Dual Band E-GSM Phase 2 and Phase 2+ SIM Toolkit : Class 1,2,3	
Frequency range	E-GSM TX : 880 - 915 MHz E-GSM RX : 925 - 960 MHz DCS 1800 TX : 1710 - 1785 MHz DCS 1800 RX : 1805 - 1880 MHz	
Battery	1. Capacity Standard : Li-ion, 750 mAh Slim : Li-ion, 620 mAh	
Display	Full graphic type Dual LCD Main LCD Pixels : 128 x 96 Ext. LCD Pixels : 96 x 32	
7 Color LED		Sub LCD Backlight
Antenna	Fixed type	
PC synchronization	Applied	
Speech coding	FR, EFR, HR	
Data & Fax	Built-in	
Vibrator	Built-in	
Dual Speaker	Applied (4 pole)	
Portable Handsfree (Ear-Phone)	Built-in	
Travel charger	Built-in	
Options	Cigarette Lighter Adapter Data communication kit Battery Charger	Some optional items may be basic items depending on country.

## 2.2 SW Features

Function	Detail Item	Comments
Normal features	Last dialed number	20 entry
	Last received number	10 entry
	Last missed number	10 entry
	Scratch pad memory	1
Call	Call waiting	Yes(network dependent)
Audio	Earpiece volume	5 level
	Mute on& Mute off	Yes
Cell broadcast	CB option	On / Off
	Read topics	SIM / Phone
	Languages	Same as number of language
Supplementary services	Call barring	All calls All outgoing calls All outgoing international calls All outgoing int. calls except to home country All incoming calls All incoming calls when roaming
Short Message	Write message	Send/Store
	Output message	Send/Save/Extract Number/ Delete/Delete All
	Input message	Reply/Forward/Extract number/ Delete/Delete All
	Status report	Delete/Delete All
	Call voicemail	
	Cell broadcast	CB Option(On/Off)/Read Topics(SIM/ Phone)/Languages



Function	Detail Item	Comments
	Memory status	
	Settings	Status report / Message type Expiry period / SMS center Voice center / Alert
Multi-band	Support of multi-band & mode	GSM 900 EGSM DCS1800
Miscellaneous function	Development & test facility	
	Field test facility	
	Display software version	
Text input	Language	English Simplified chinese Traditional chinese
	eZi text	Predictive word input
Scheduler	View day	
	Make	Schedule Call Memo Anniversary
	Delete	
	View all	
WAP	WAP	
World time	Setting local time	
	Number of selectable cities	61 Cities
Calculator	Operator	Addition Subtraction Multiplication Division
Unit converter	Length conversion Weight conversion Volumes conversion Surface conversion	

Specification

Function	Detail Item	Comments
Pink schedule		
Bio Rhythm	View with Friend Special day Input	My Birthday Friend's Birthday
Game	1EA (minimum)	Mole (possible to be 1 more)

## 3. Disassembly Instruction

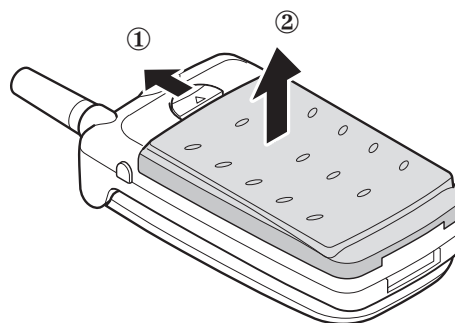
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### 3.1 Before Disassembly

---

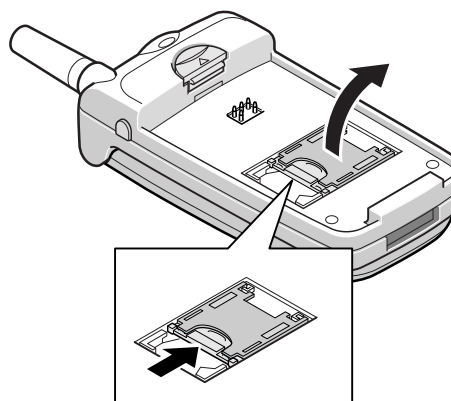
1. Remove the battery. To do so:

- ① Pull the battery lock above the battery toward the top of the phone and hold it in the position.
- ② Lift the battery away.

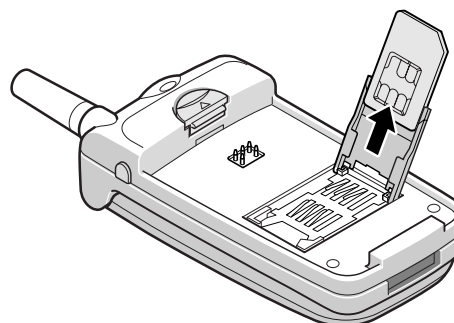


2. Remove the SIM card. To do so:

- ① Slide the ivory lock in the SIM card holder to unlock the SIM card holder and lift it up.



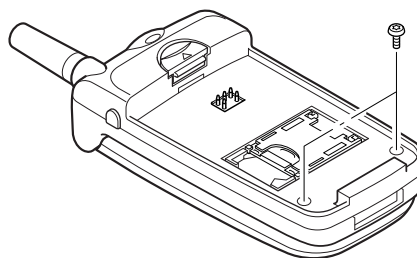
- ② Remove the SIM card, then replace the card holder. Keep the SIM card in a safe place.



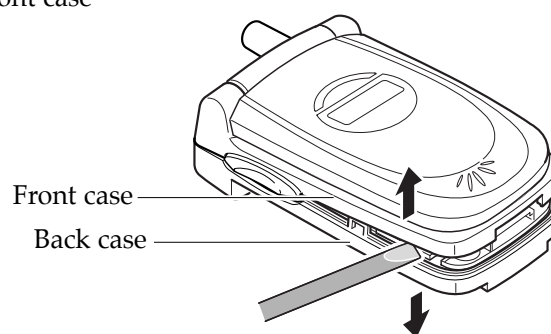
## 3.2 Main Frame

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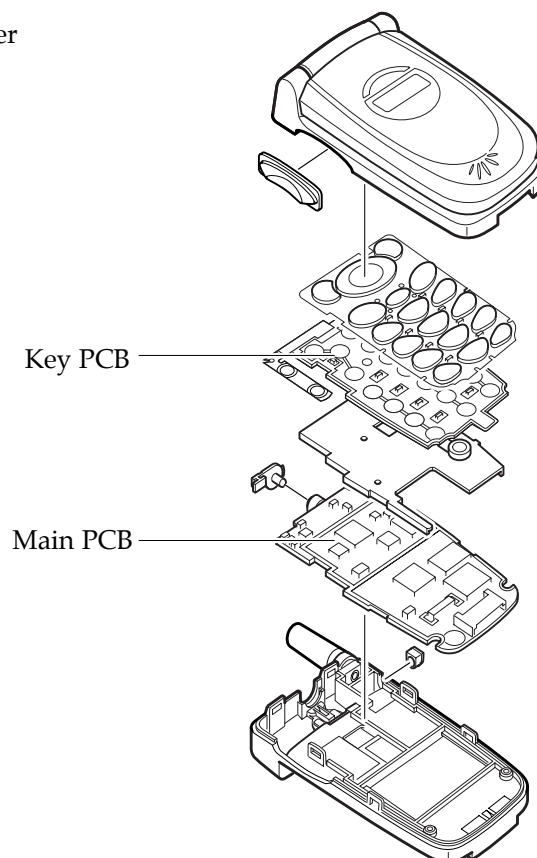
1. Remove the two screws on the back of the phone.



2. Insert a small ' - ' type driver between the front case and the back case, and lift up the front case.



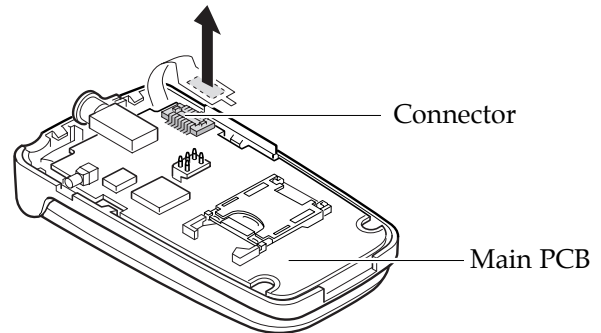
3. Now, you can replace the PCBs and the other components.



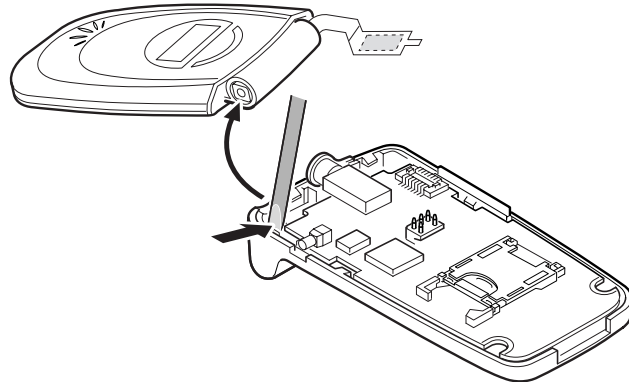
### 3.3 Folder

---

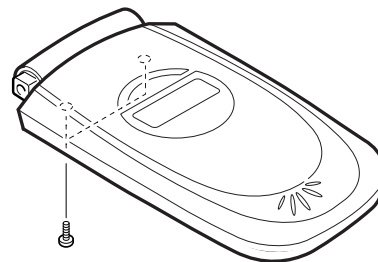
1. Remove the back case as described at Steps 1 and 2 under Main Frame Disassembly on page 3-2.
2. Unplug the connector shown at right from the main PCB.



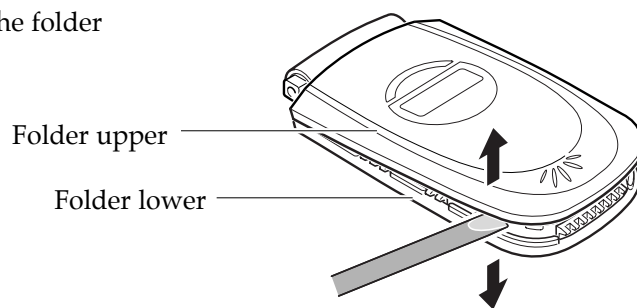
3. Unhook the folder from the main frame.



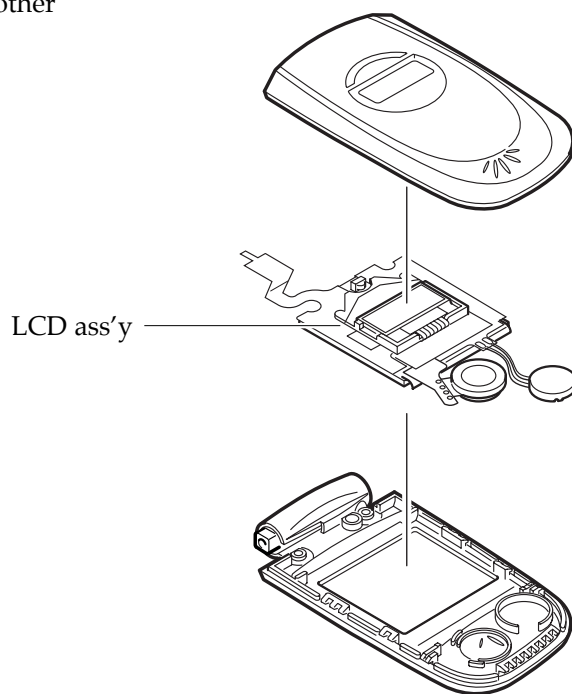
4. Remove the two screws from the folder.



5. Insert a small ' - ' type driver between the folder upper and the folder lower, and lift up the folder upper.

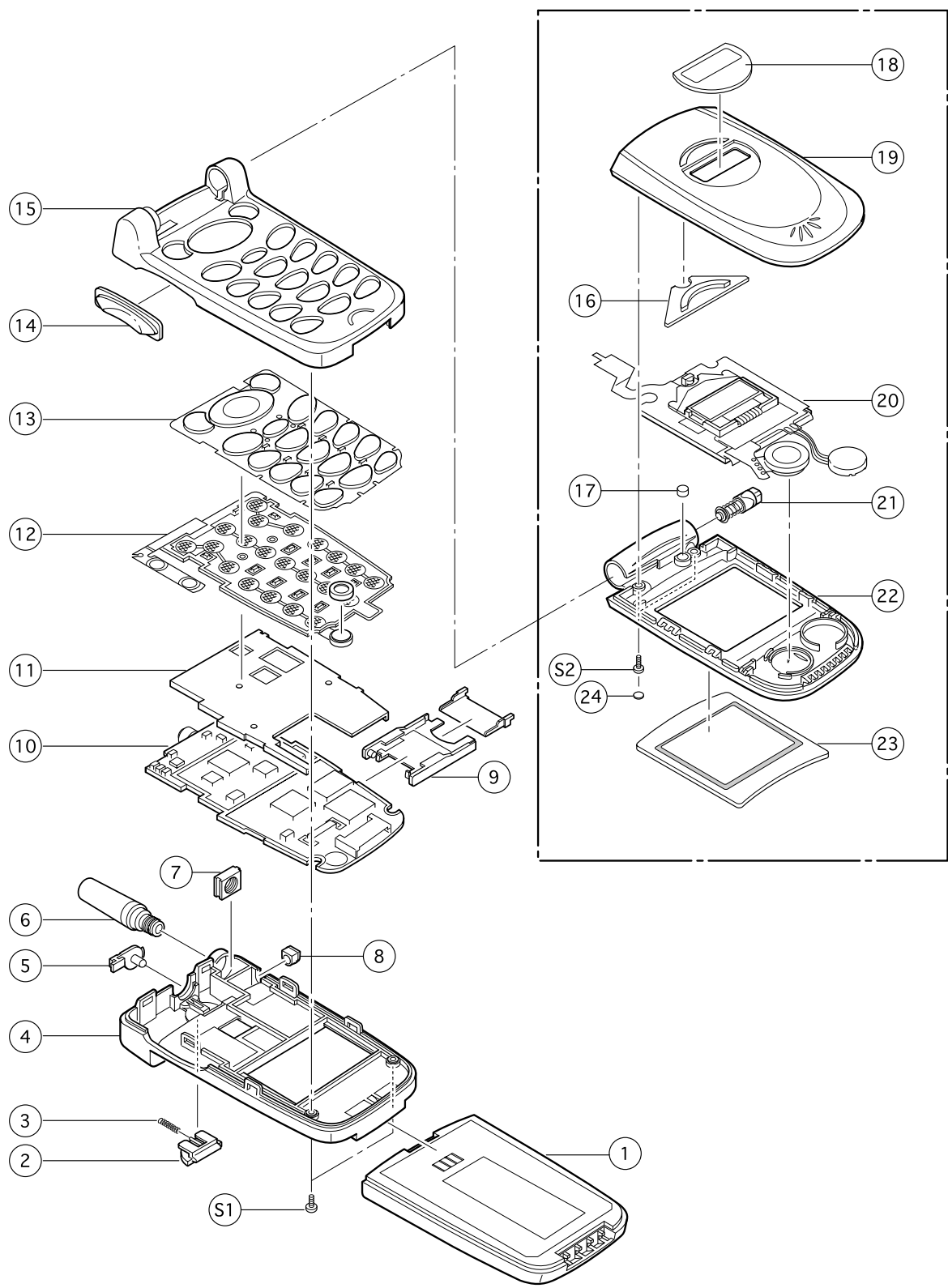


6. Now, you can remove the LCD ass'y and the other components.



# 3.4. Exploded View and Parts List

## 3.4.1 Exploded View



### 3.4.2 Mechanical Parts List

---

NO.	DESCRIPTION	Q'TY
1	Battery package	1
2	BATT. Locker	1
3	Spring knob	1
4	REAR CASE	1
5	Rubber, ear jack	1
6	Antenna	1
7	Antenna bracket	1
8	ANTJACK RUBBER	1
9	SIM connector	1
10	MAIN PBA	1
11	SHIELD CAN	1
12	KEY PBA	1
13	Key pad	1
14	Side key	1
15	Front case	1
16	LED LENS	1
17	Magnetic	1
18	LCD WINDOW(SUB)	1
19	Folder, Upper	1
20	LCD module	1
21	Hinge	1
22	Folder, Lower	1
23	LCD WINDOW (MAIN)	1
24	Cover screw	2
S1	Screw (M1.6 x 5.8)	2
S2	Screw (M1.6 x 3.4)	2



## 4. Data Kit & Test Method

---

### 4.1 Data Kit

---

#### 4.1.1 Download Equipment

1. Download Cable
2. Desktop or Notebook PC
3. Download monitor program
4. VG100 mobile phone

#### 4.1.2 Download Procedure

##### DOWNLOAD ENVIRONMENT

To download software of VG100, the following working environments should be prepared:

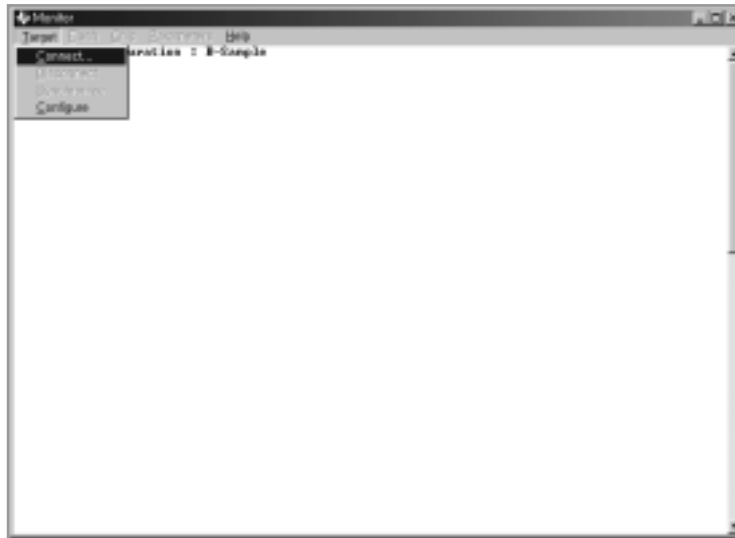
- VG100 download cable, Interface JIG, is connected to only COM1 serial port of the desktop or notebook PC.
- VG100 download monitor program is copied to the desktop PC or notebook PC.
- Target software is downloaded to the VG100 mobile phone.

##### **Warning**

You MUST use the download cable kit (Interface JIG) and UART download monitor program. Otherwise, downloading process won't work properly.

## DOWNLOAD PROCEDURE

1. Unzip VG100 UART Download monitor program (monitor641.zip) in the PC.
2. Execute **monitor641.exe**. And then select **Target** menu. Then, choose **Connect** from the **Target** menu.



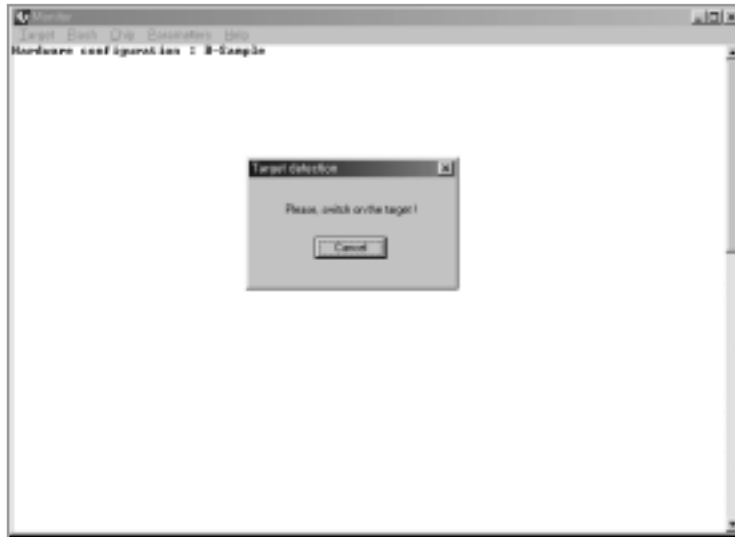
<Figure 1>

3. A table will be displayed as shown in <Figure 2>. Then press the arrow-button and choose a correct serial port. And press **OK** button.



<Figure 2>

4. As the following window shown in <Figure 3> is displayed, connect VG100 phone to the download cable, (Interface JIG) and press power on key of VG100. If the connection is succeeded, the following screen will show the contents as shown in <Figure 4>.

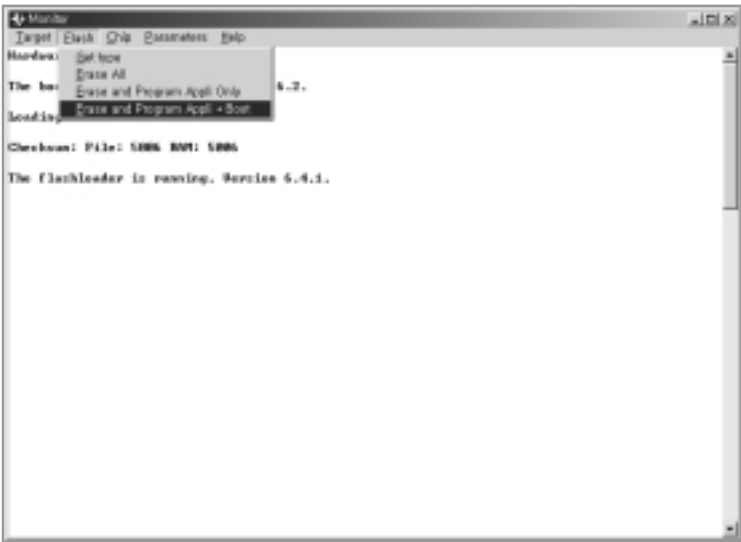


&lt;Figure 3&gt;



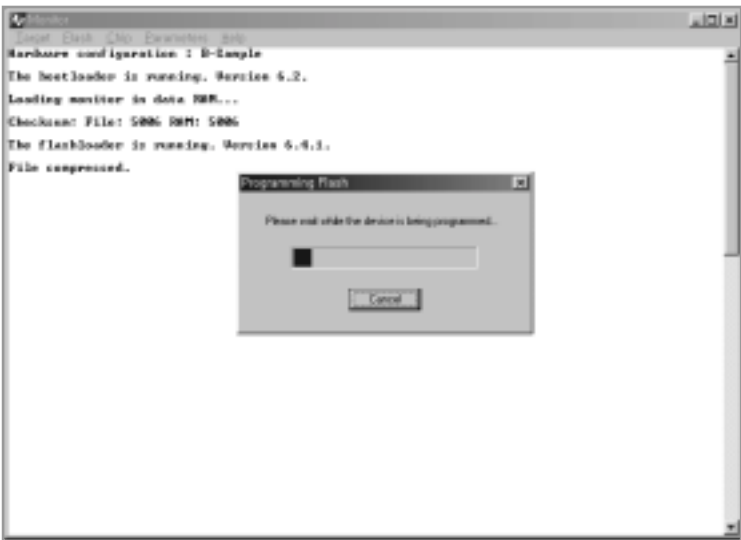
&lt;Figure 4&gt;

5. Click on **Flash** on the top menu and select **Erase and Program Appli+Boot** item as shown in <Figure 5>.



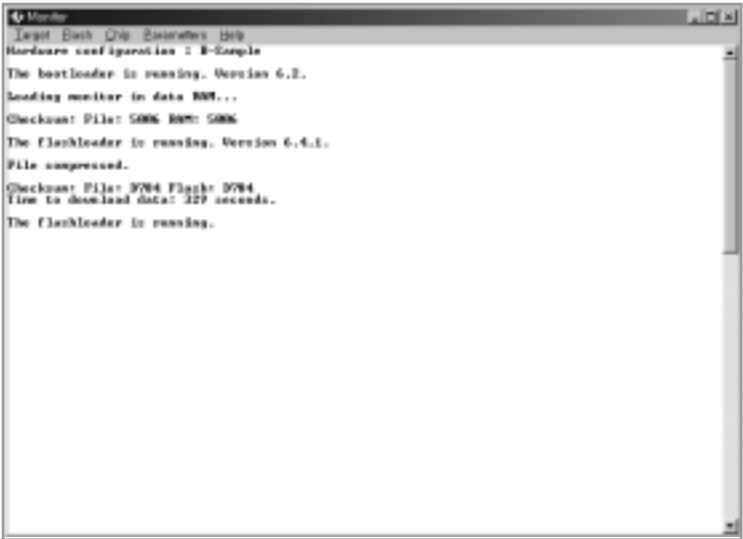
<Figure 5>

6. Choose the target SW that you want to download. And then you can see the following window in <Fingure 6>.



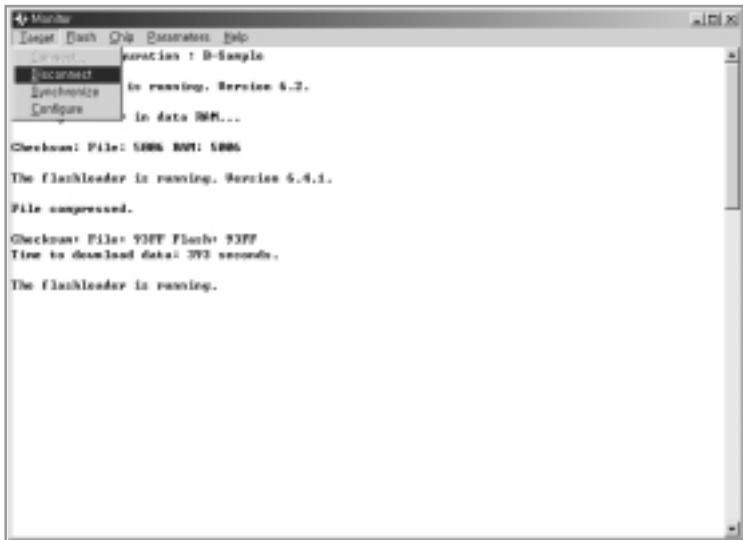
<Figure 6>

7. If the downloading procedure is succeeded, then the following window is shown.



<Figure 7>

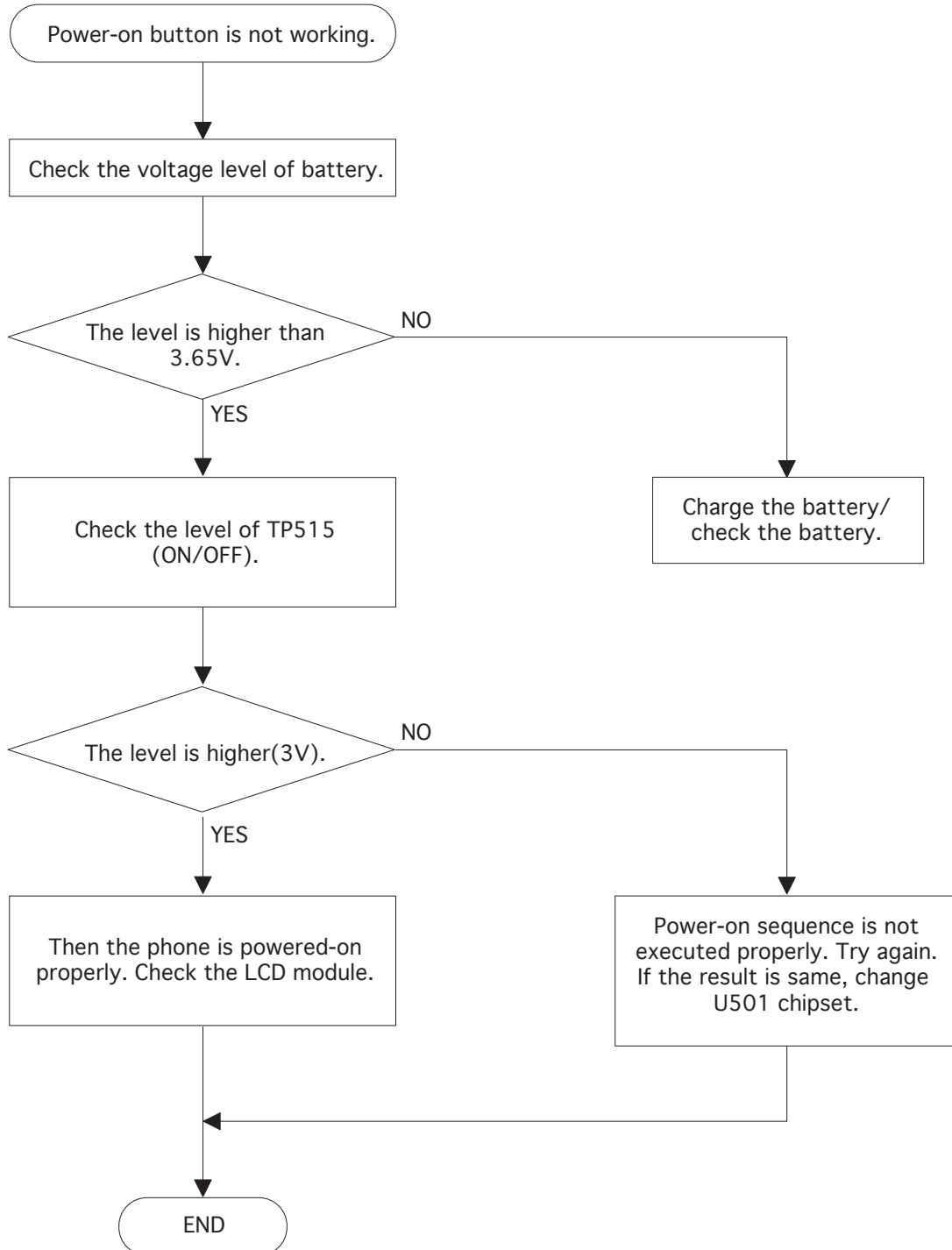
8. Press the Disconnect of Target menu, and seperate the phone from Download cable.



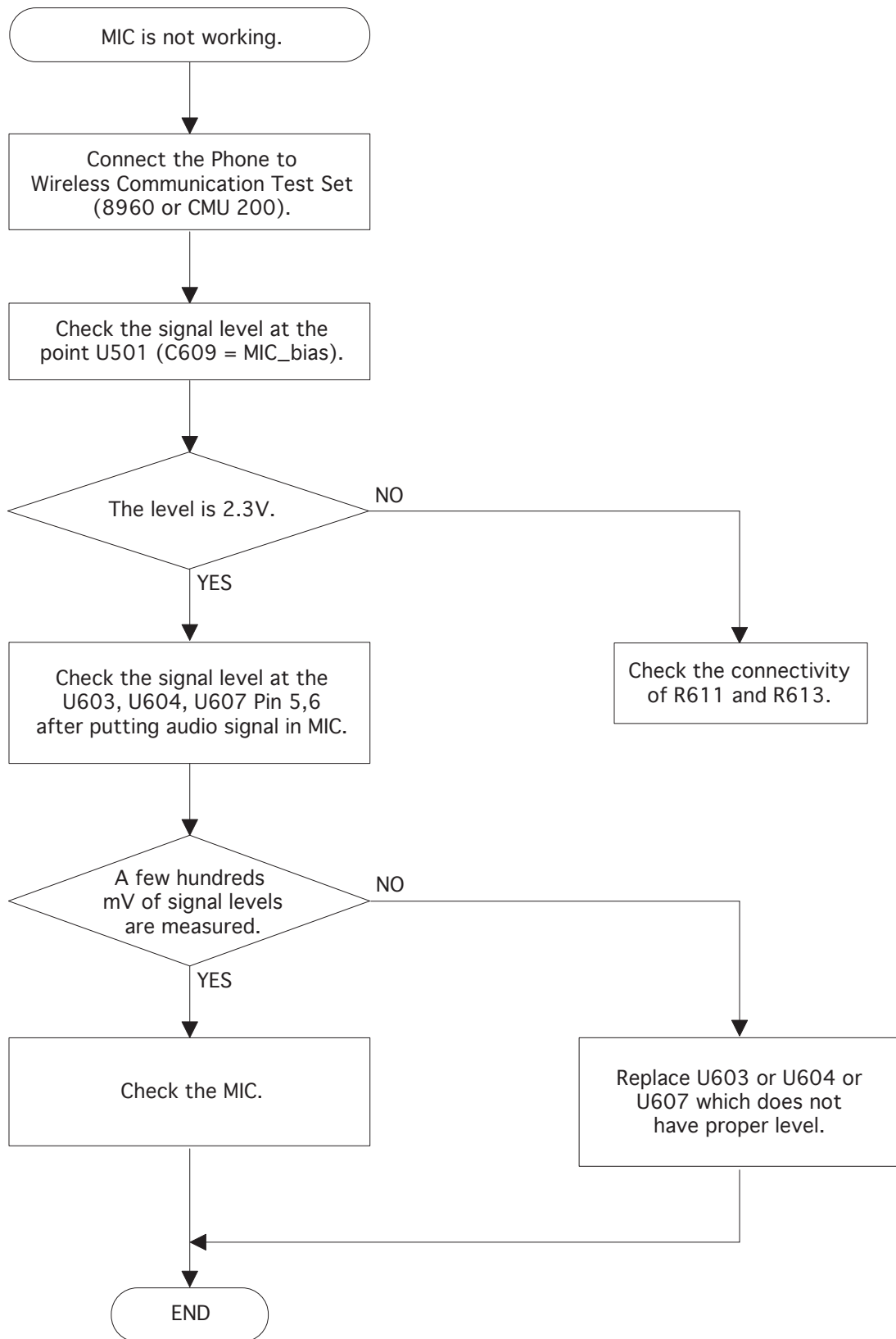
<Figure 8>

## 5. Trouble Shooting

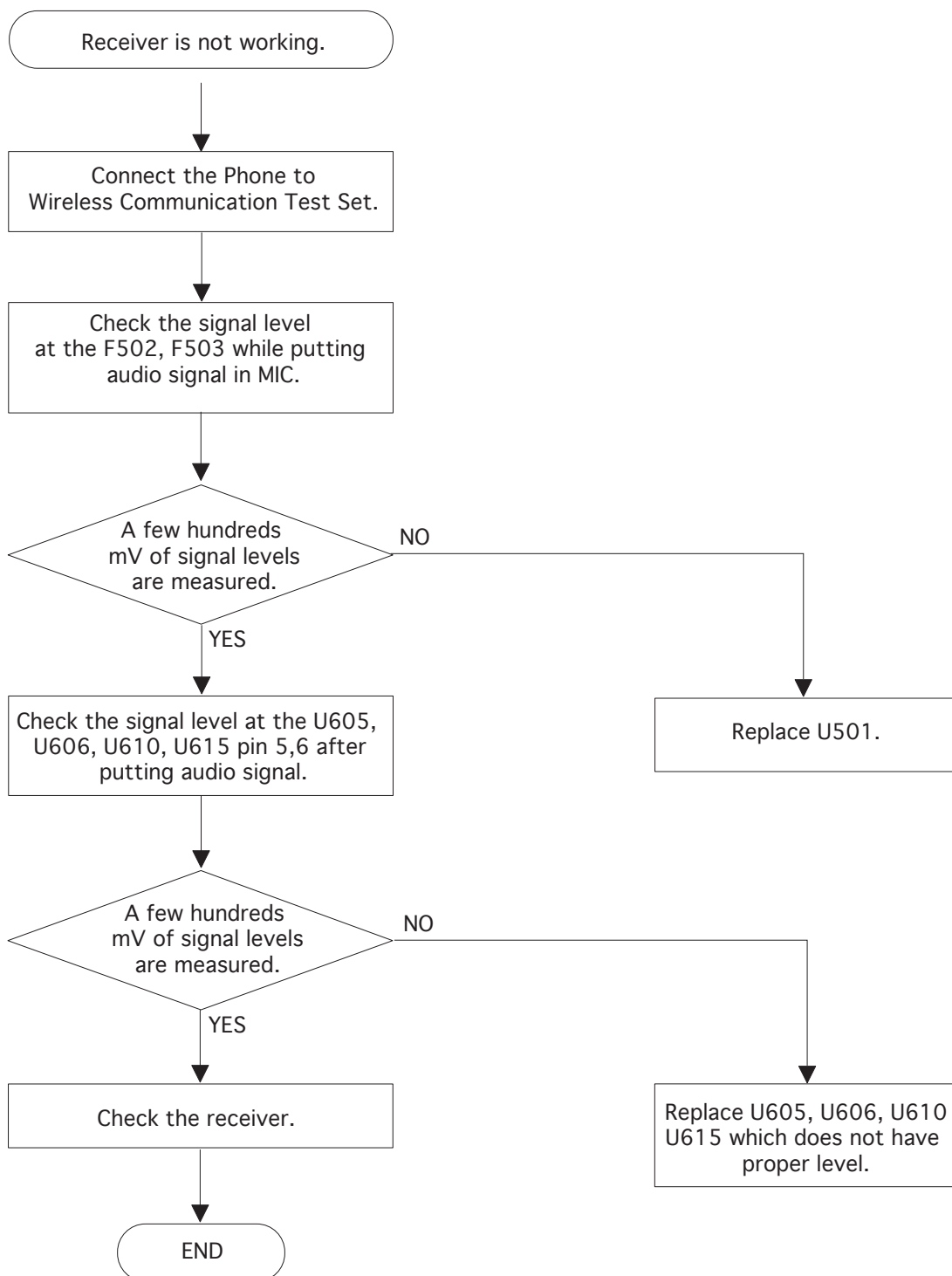
### 5.1 Power-on Trouble



## 5.2 MIC Trouble

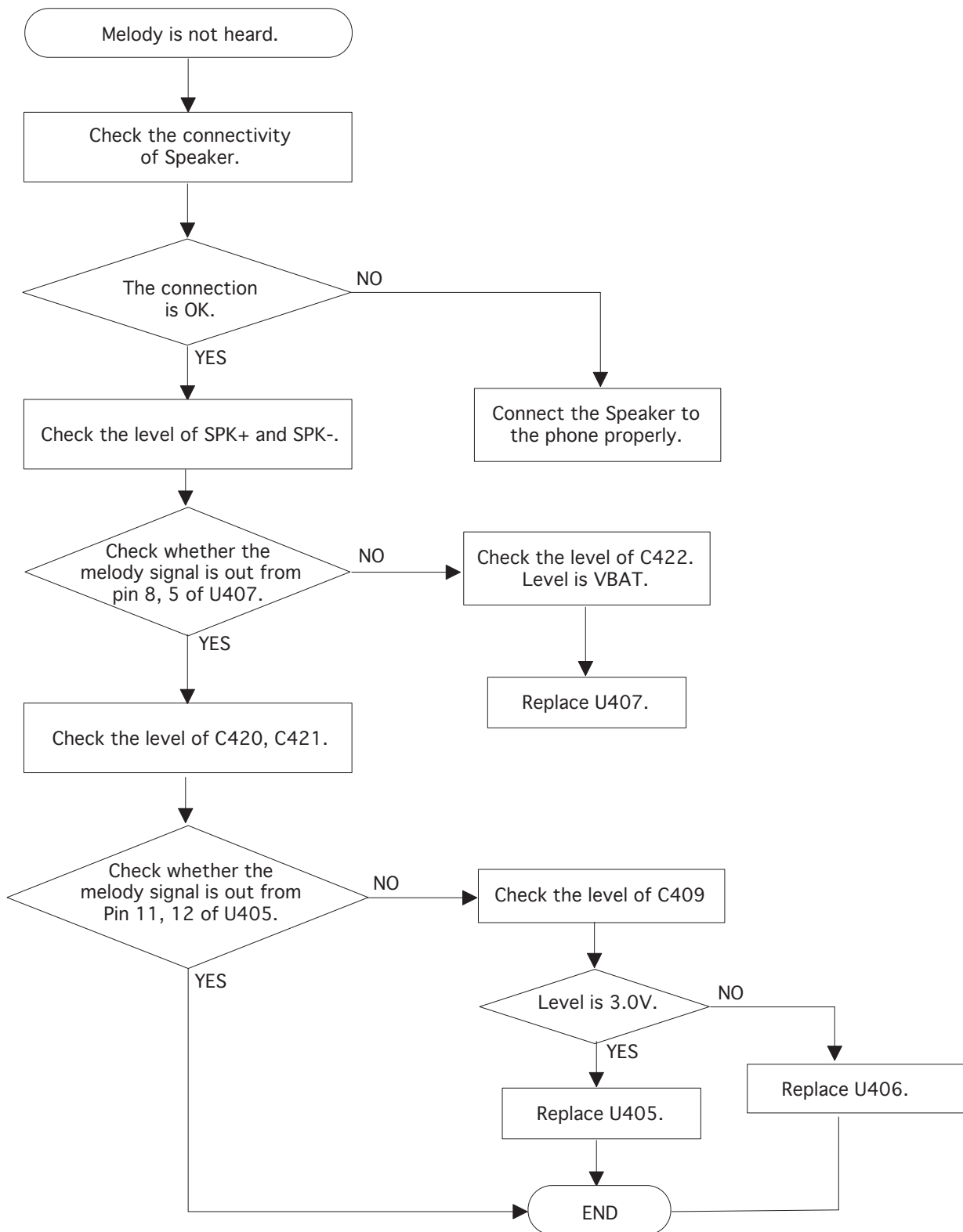


## 5.3 Receiver Trouble

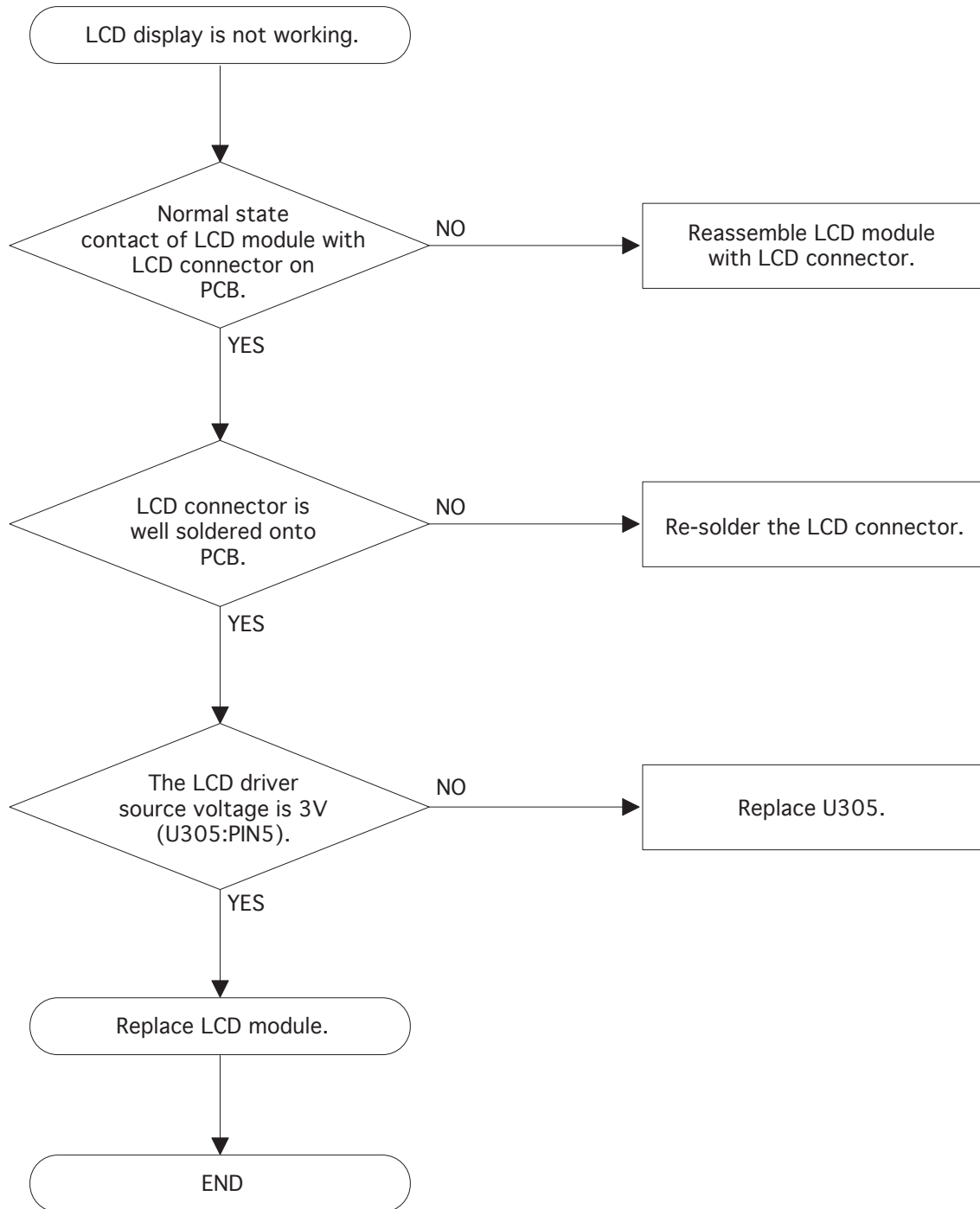




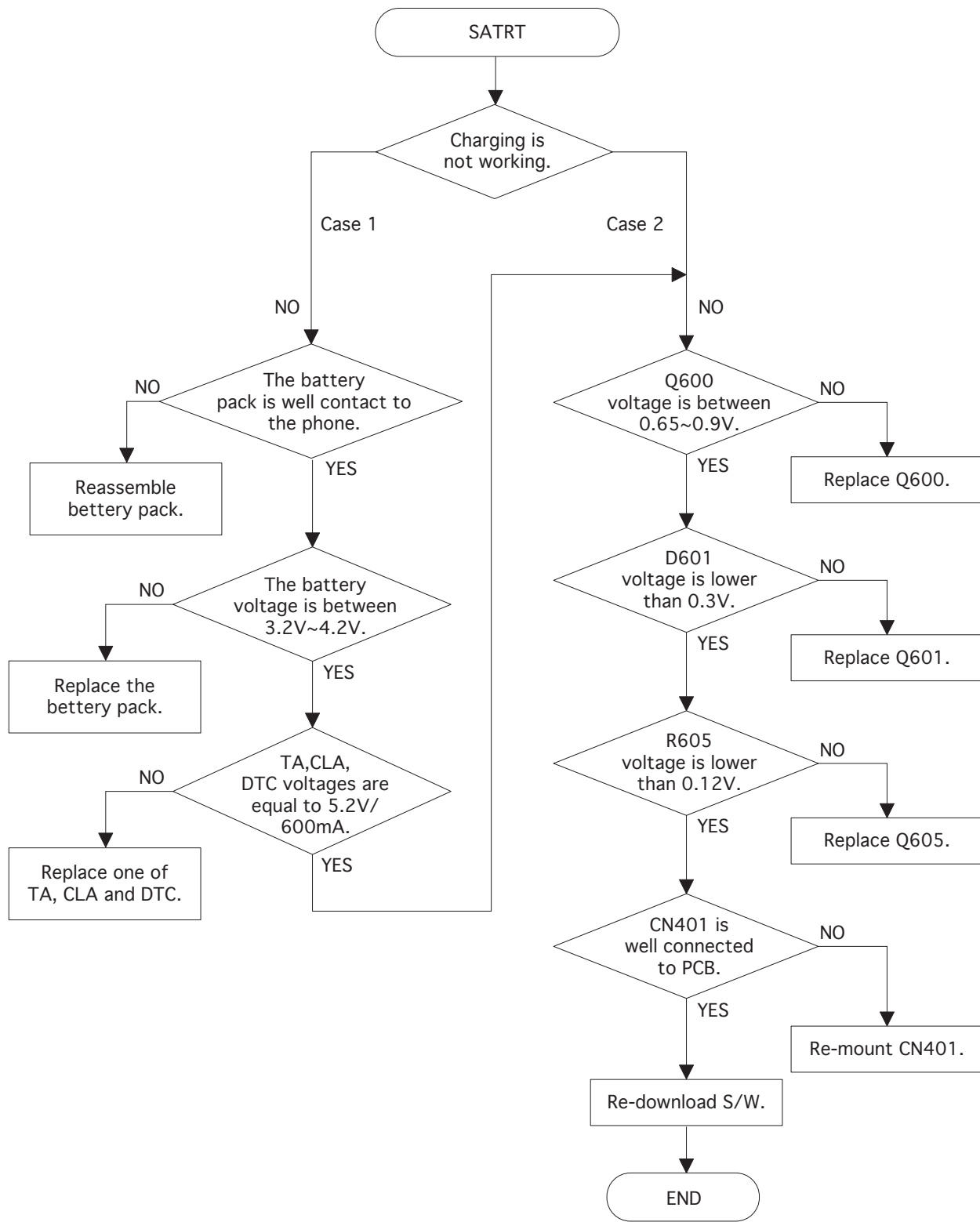
## 5.4 Melody Trouble



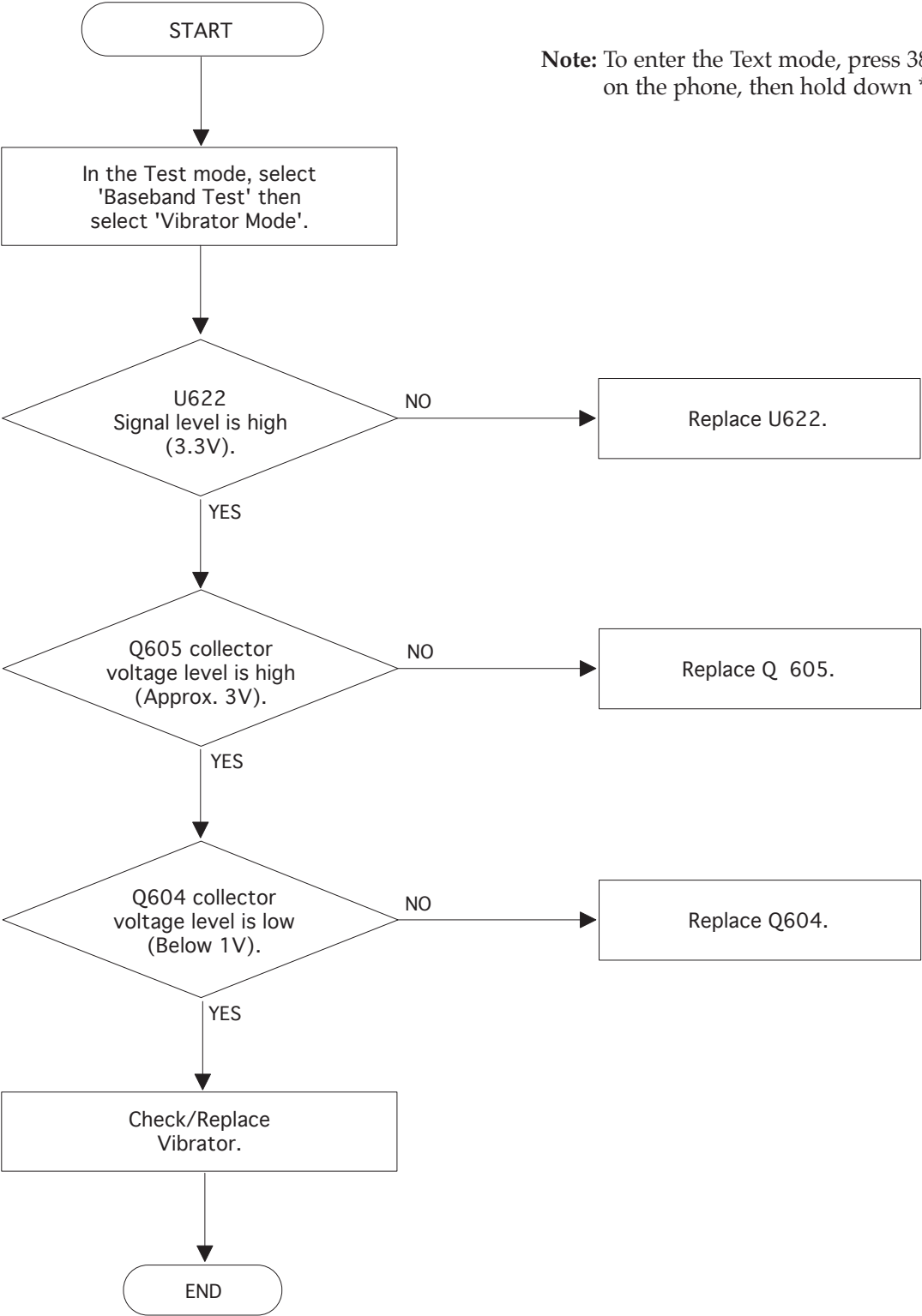
## 5.5 LCD Trouble



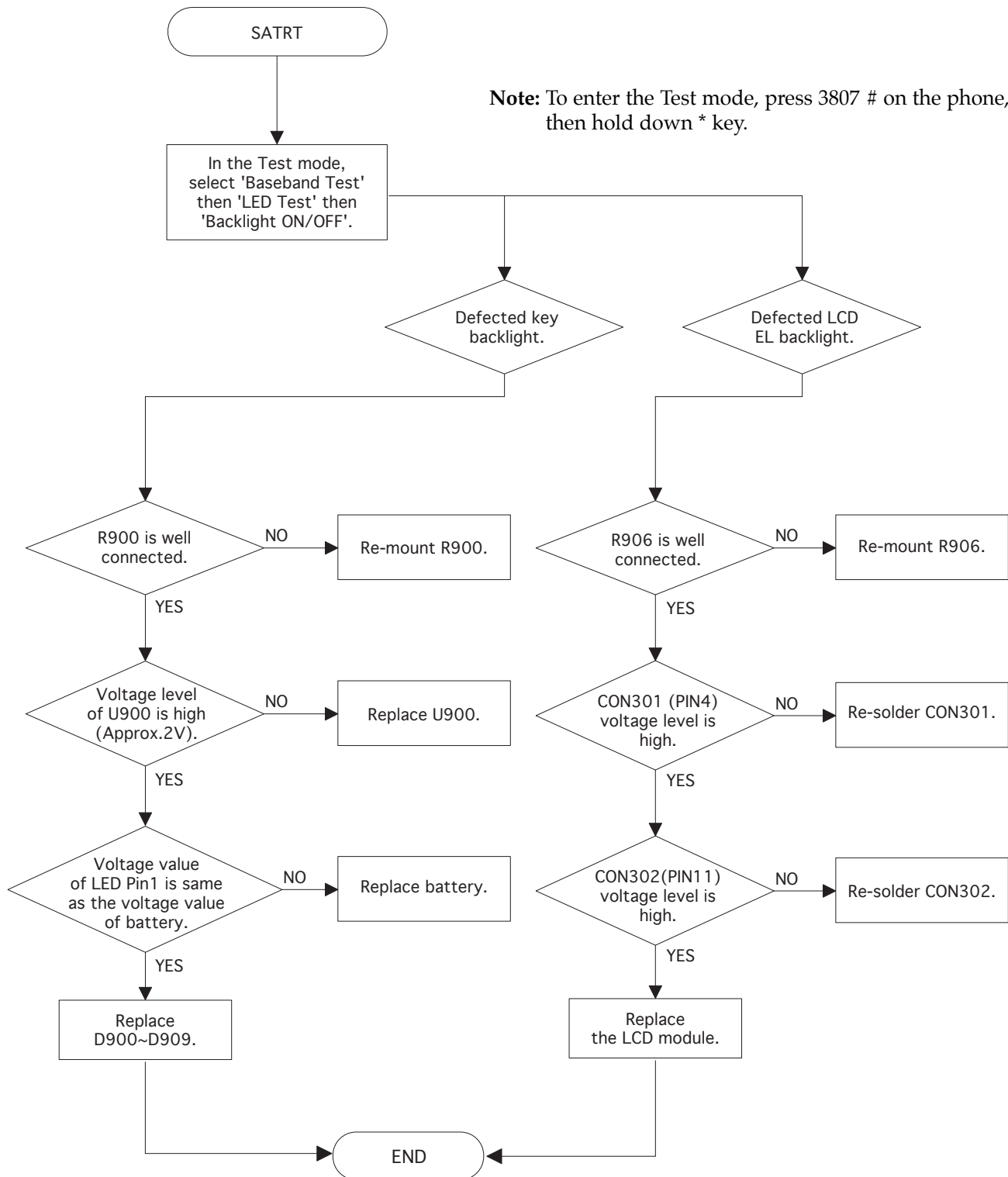
## 5.6 Charge Trouble



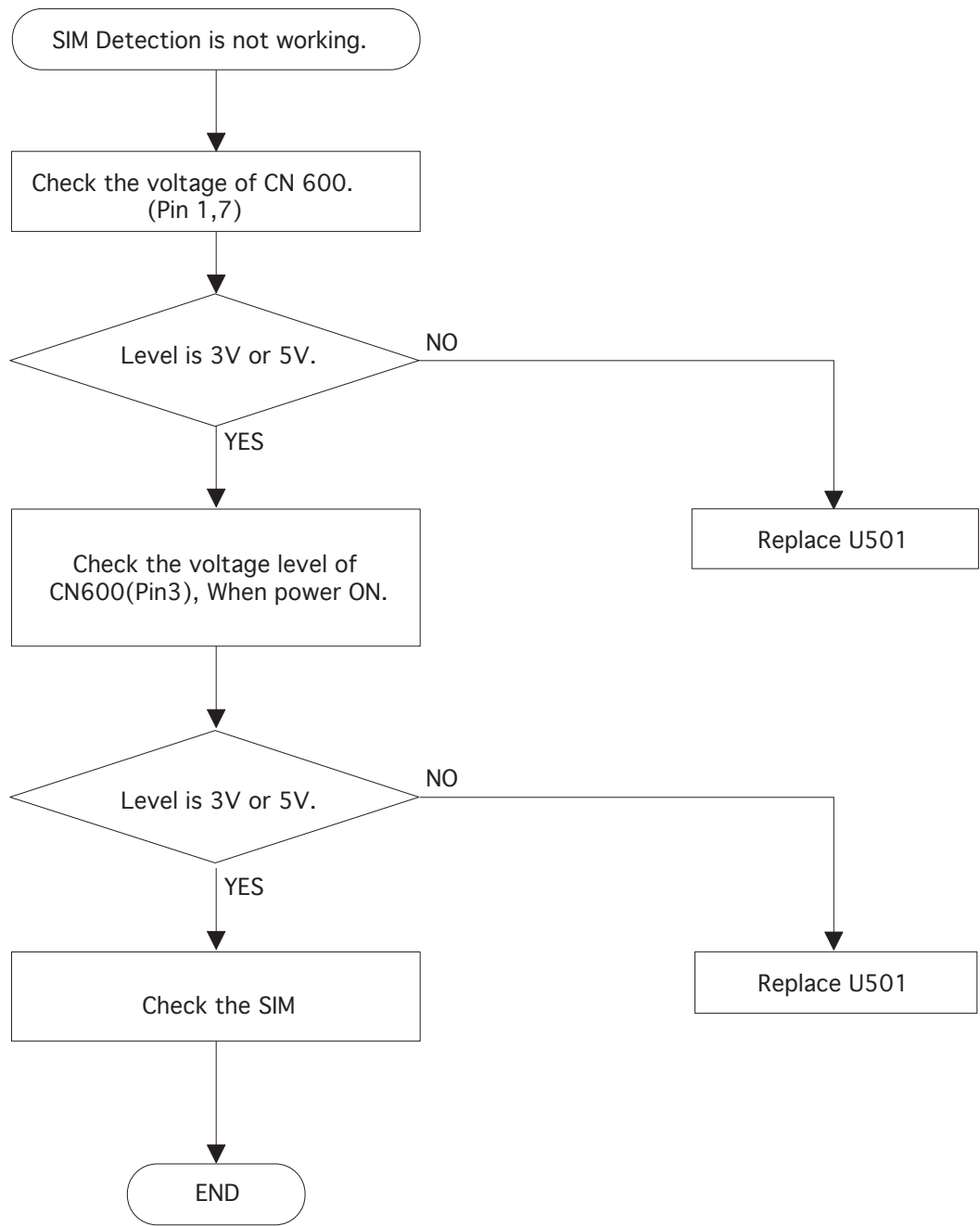
## 5.7 Vibrator Trouble



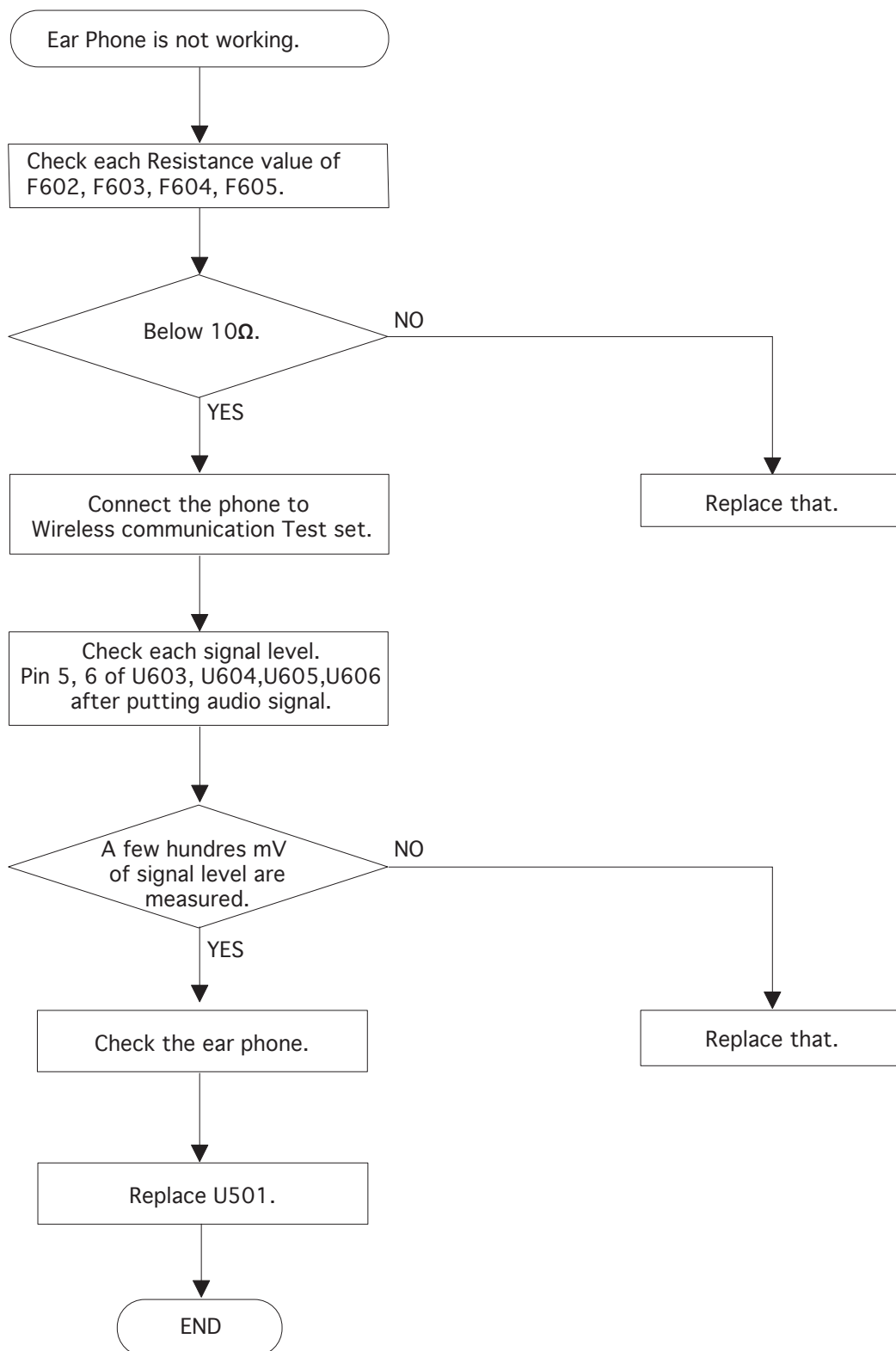
## 5.8 Backlight Trouble



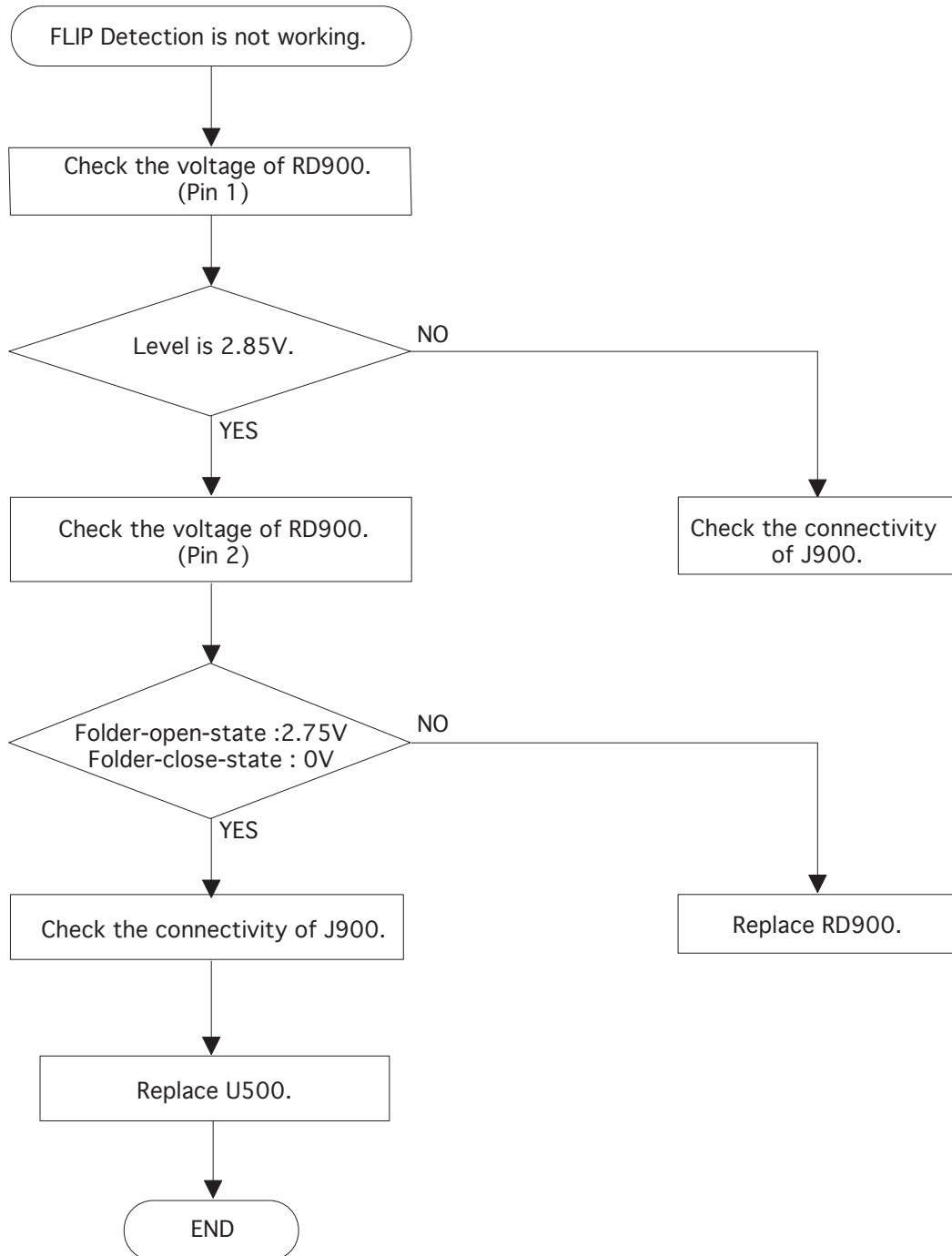
## 5.9 SIM Detection Trouble



## 5.10 Ear Phone Trouble

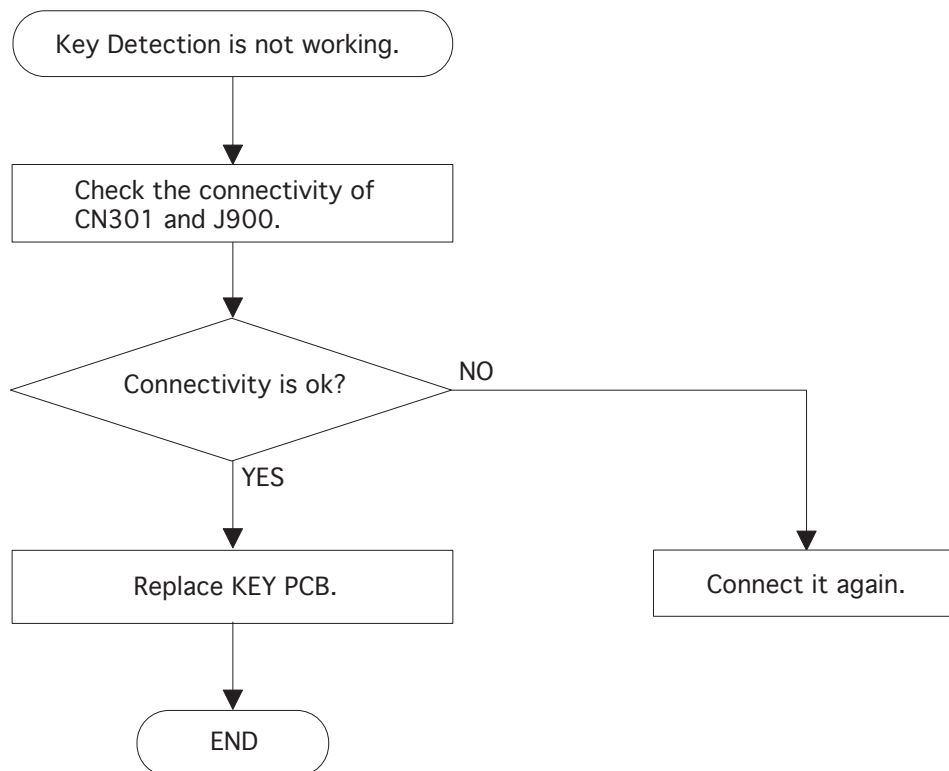


## 5.11 FLIP Detection Trouble

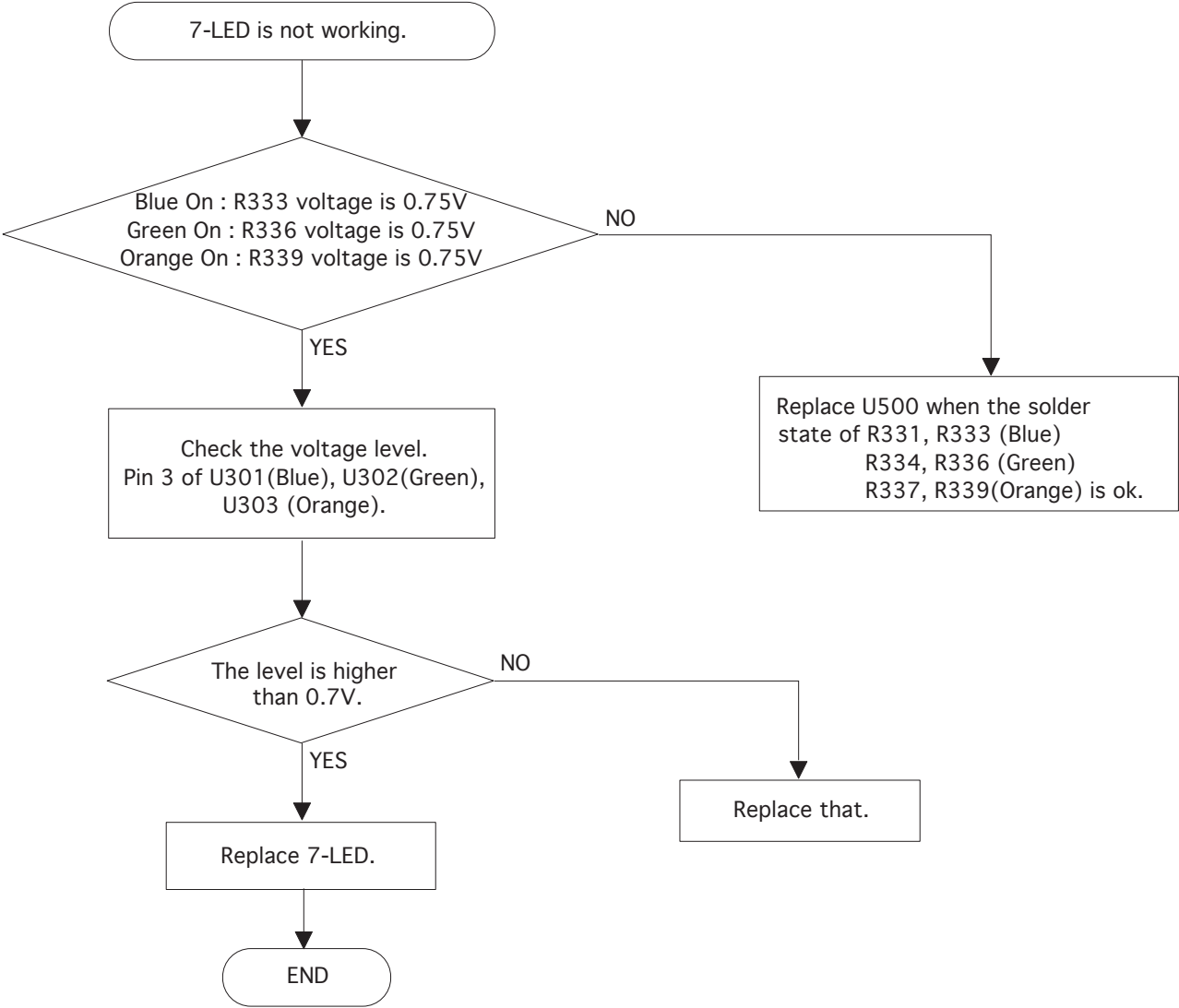




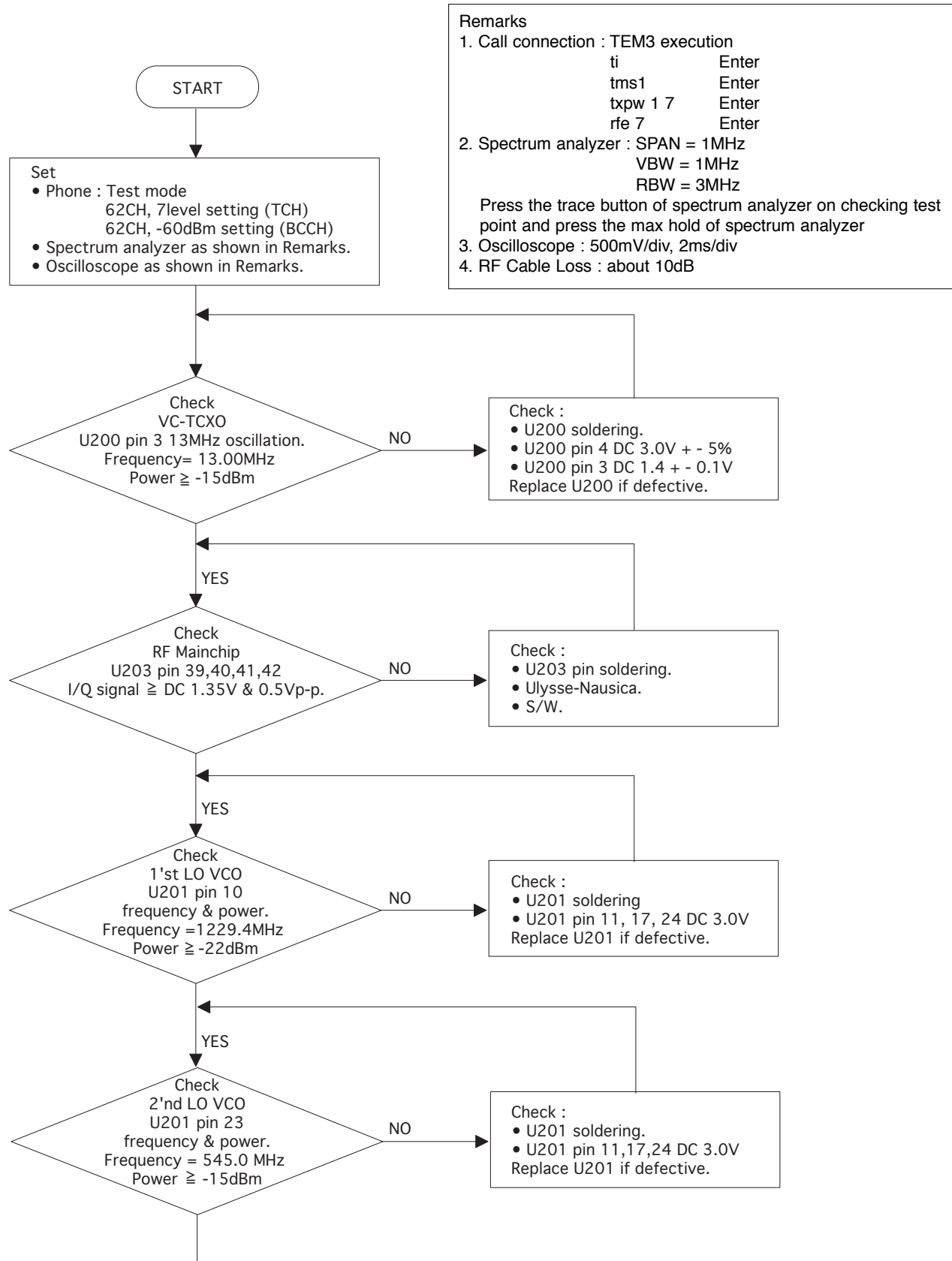
## 5.12 KEY Detection Trouble

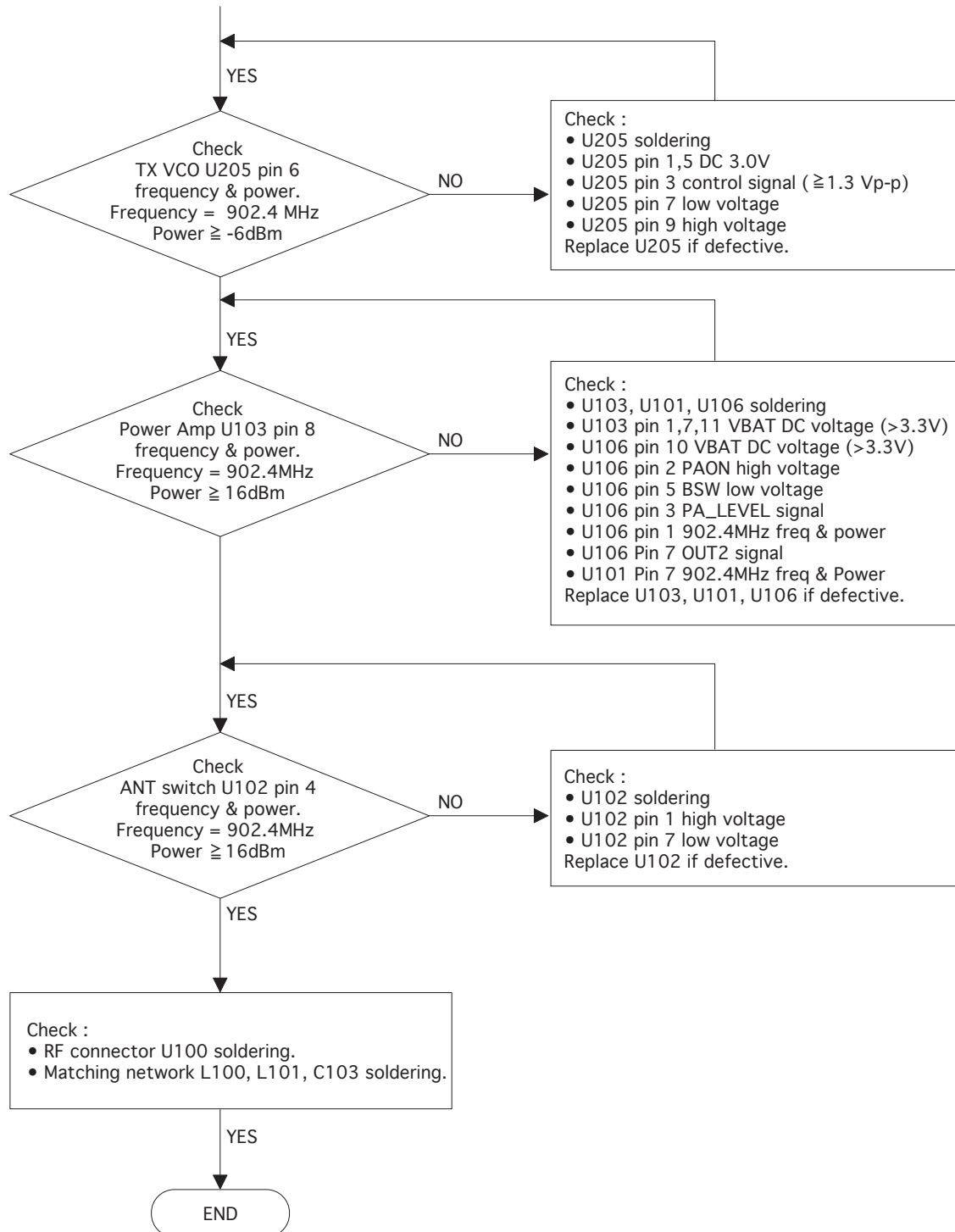


### 5.13 7-LED Trouble

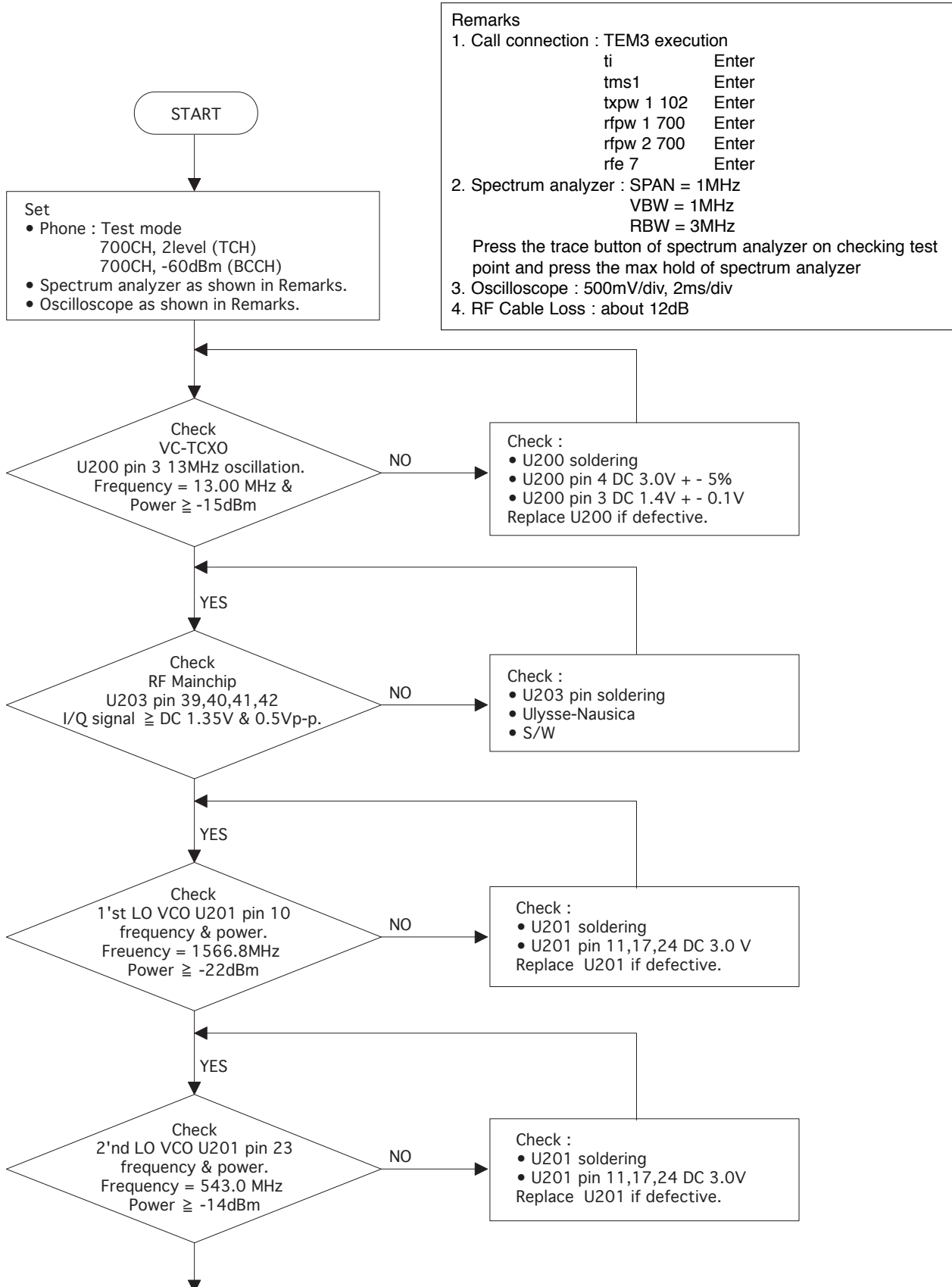


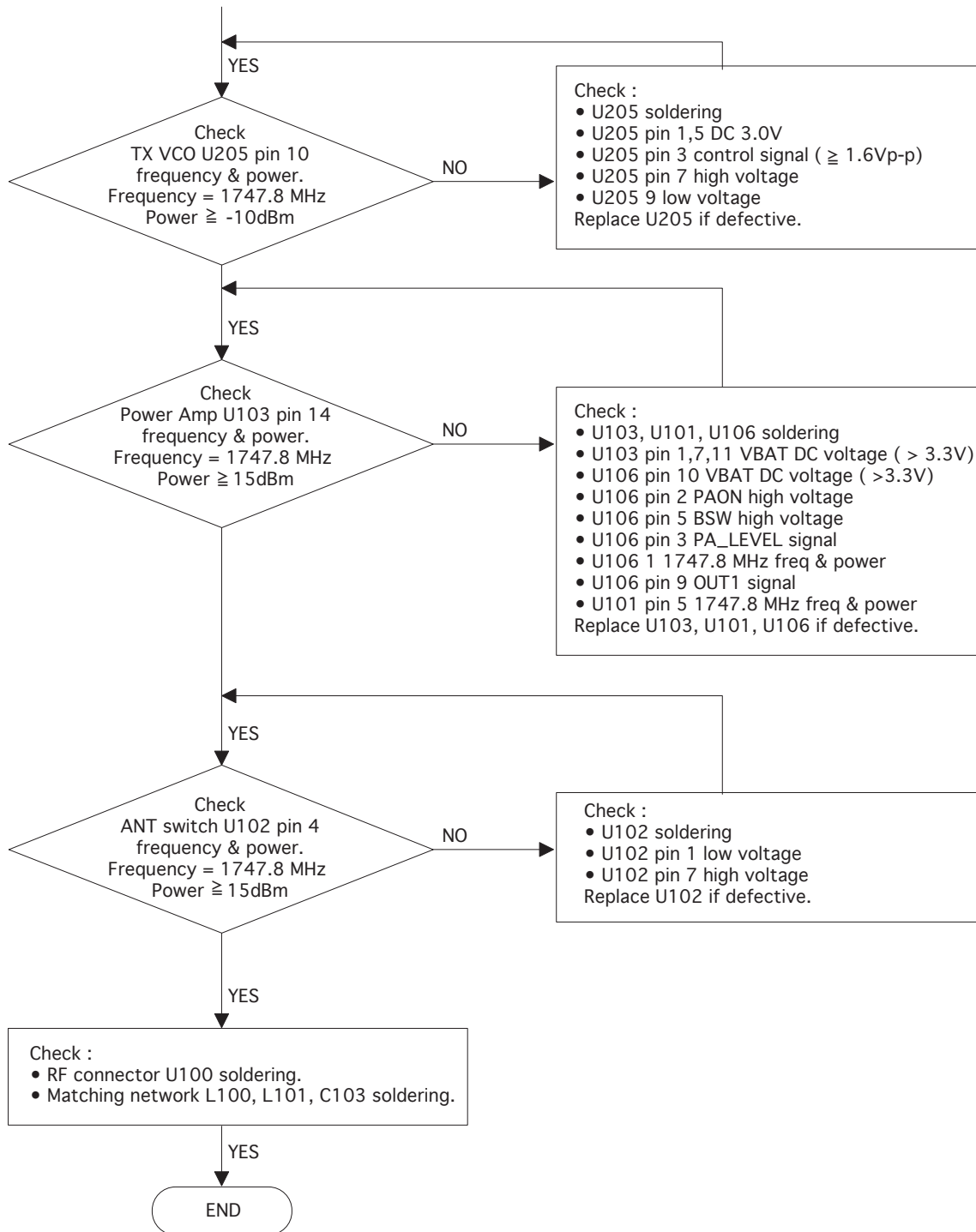
## 5.14 TX Power Trouble (E-GSM)



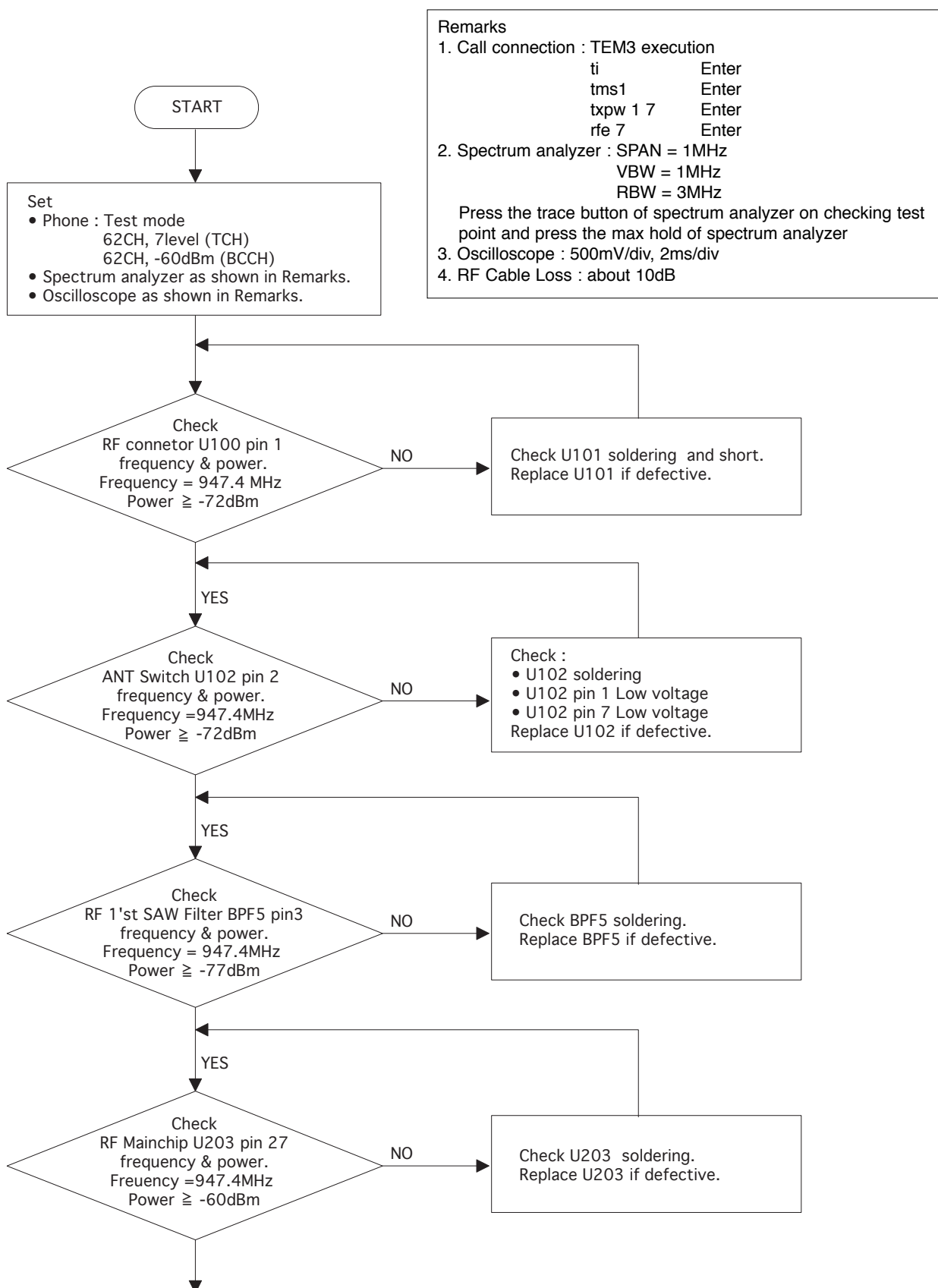


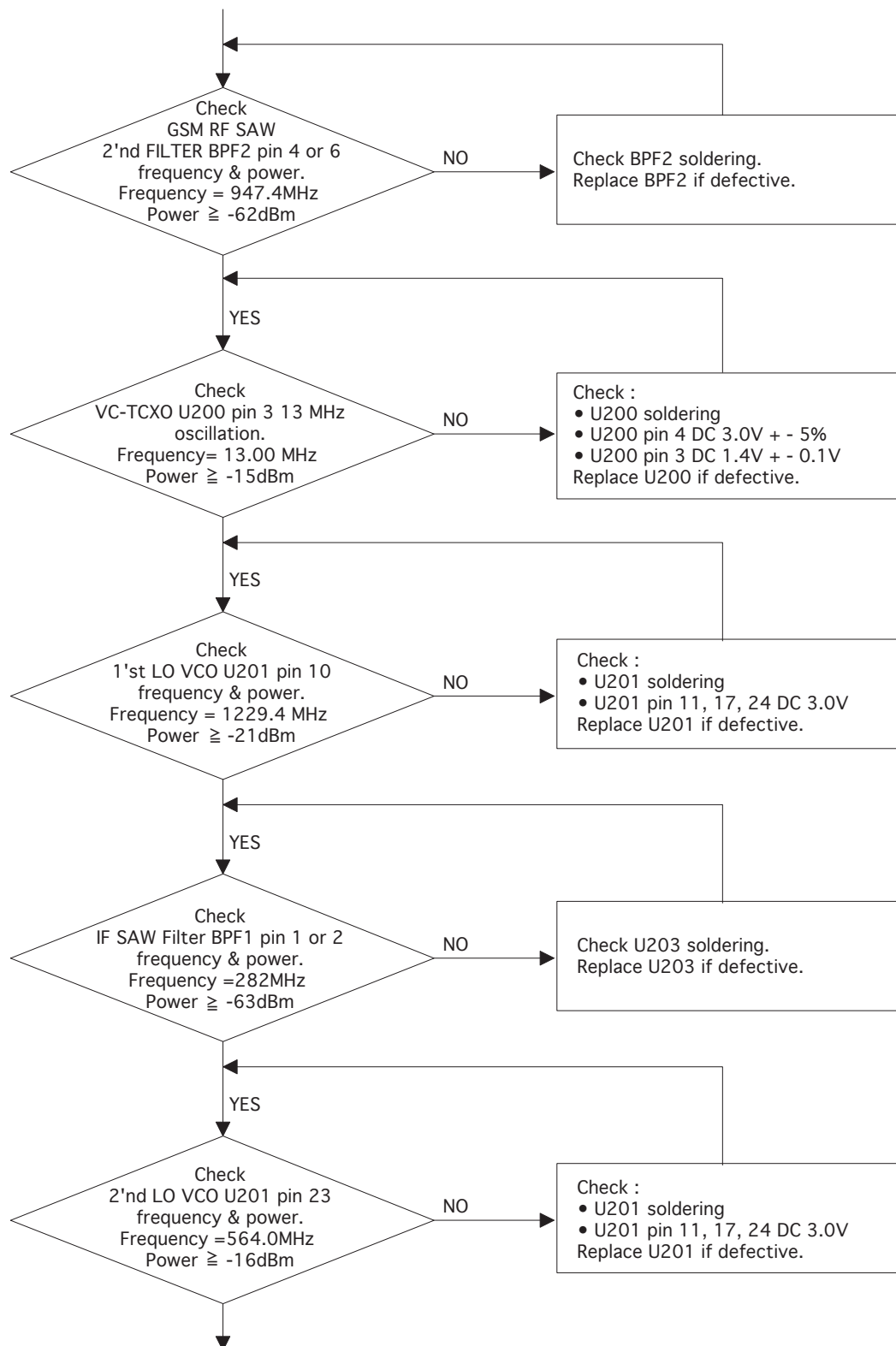
## 5.15 TX Power Trouble (DCS)



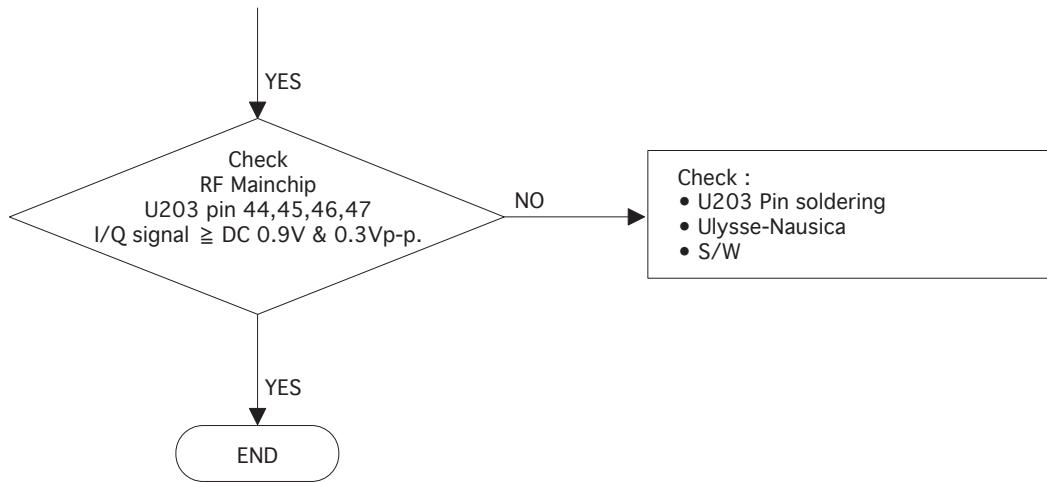


## 5.16 RX Sensitivity Trouble (E-GSM)

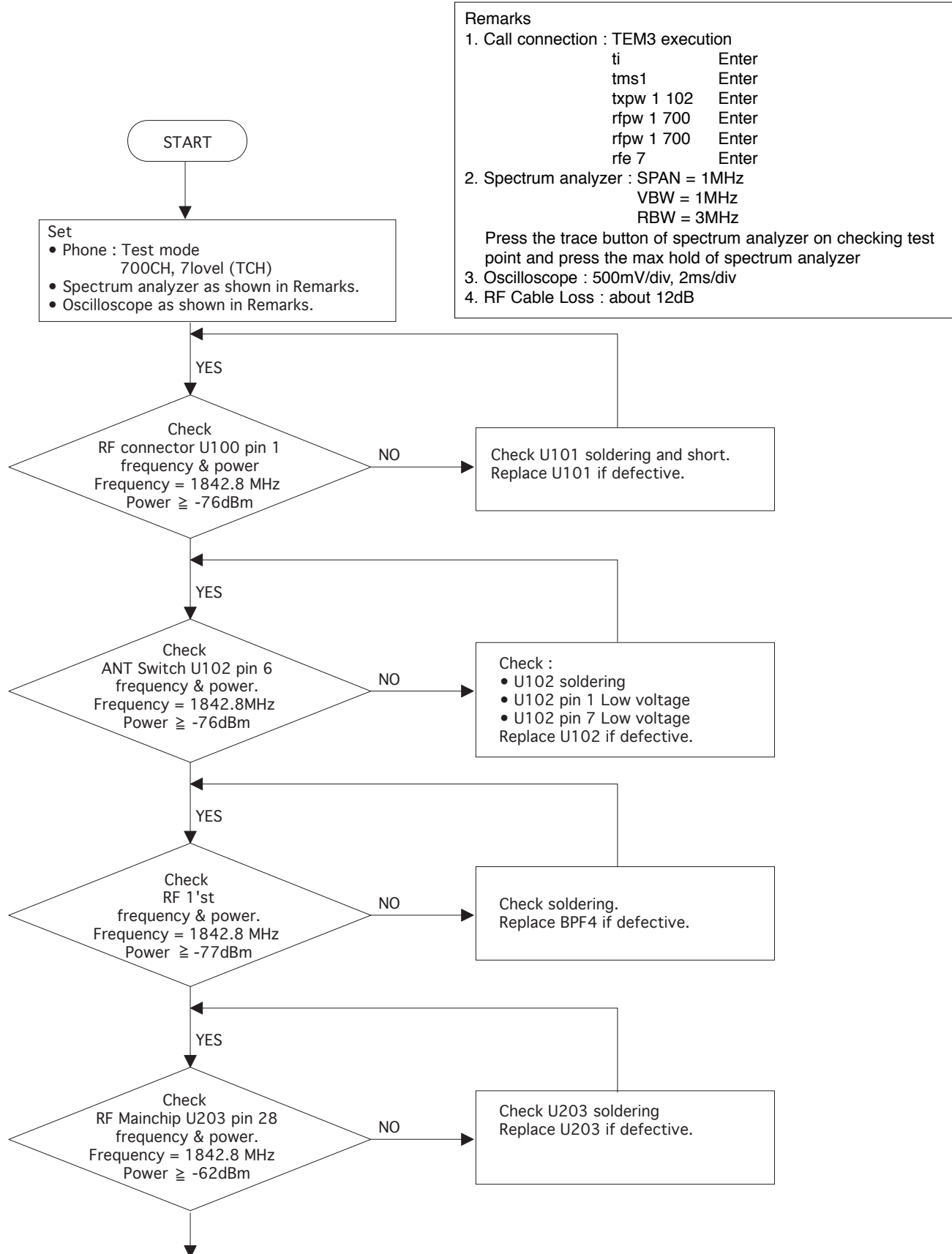


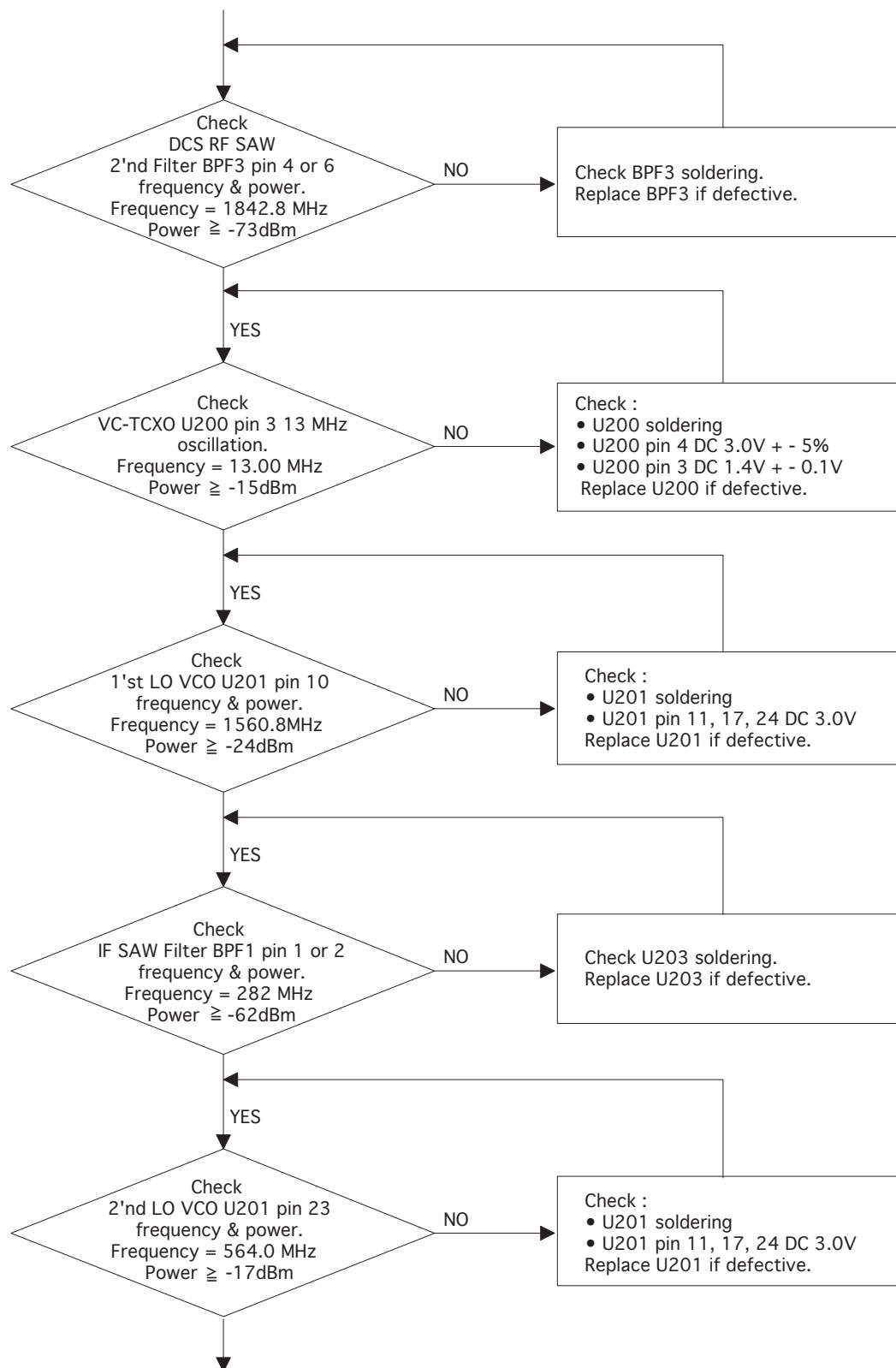


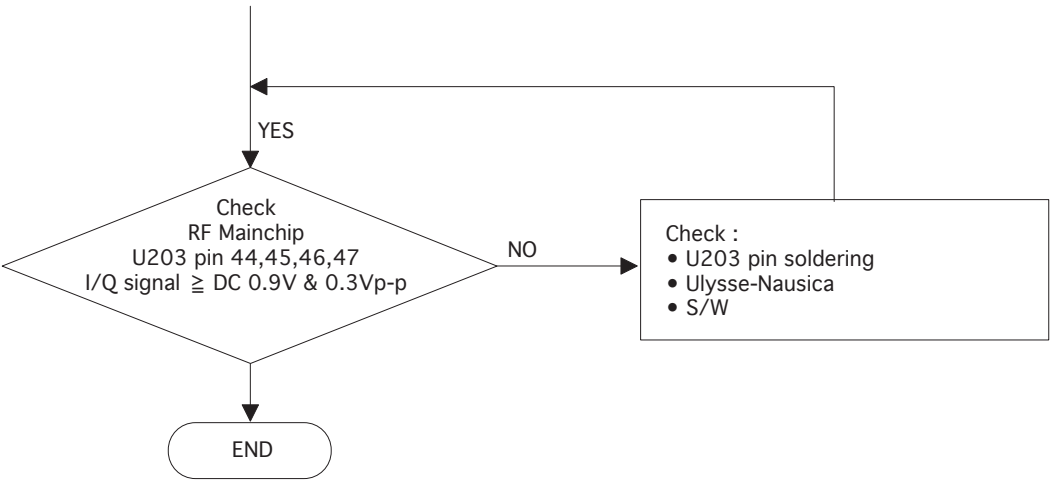




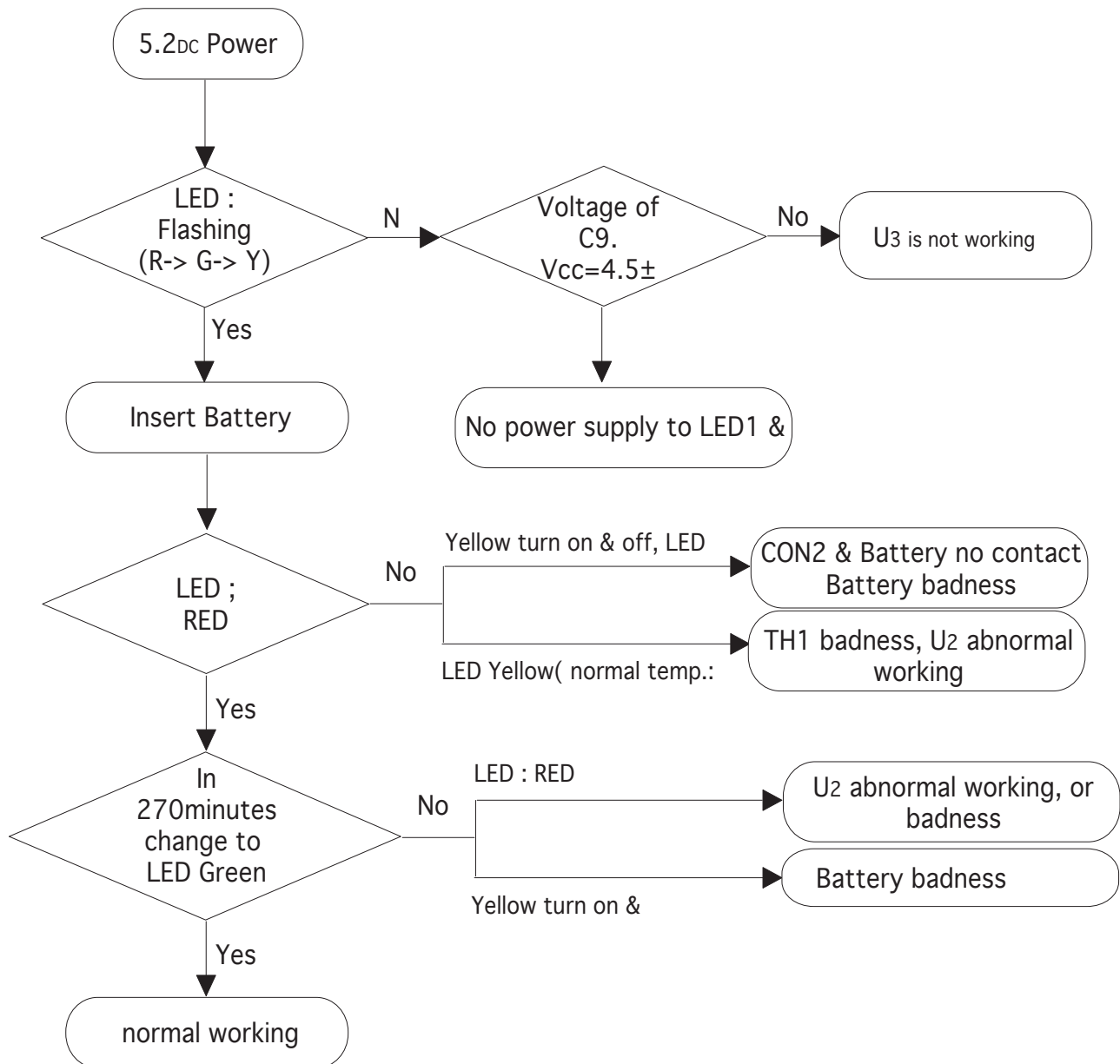
## 5.17 RX Sensitivity Trouble (DCS)







## 5.18 BATT Charger Trouble



**Memo**





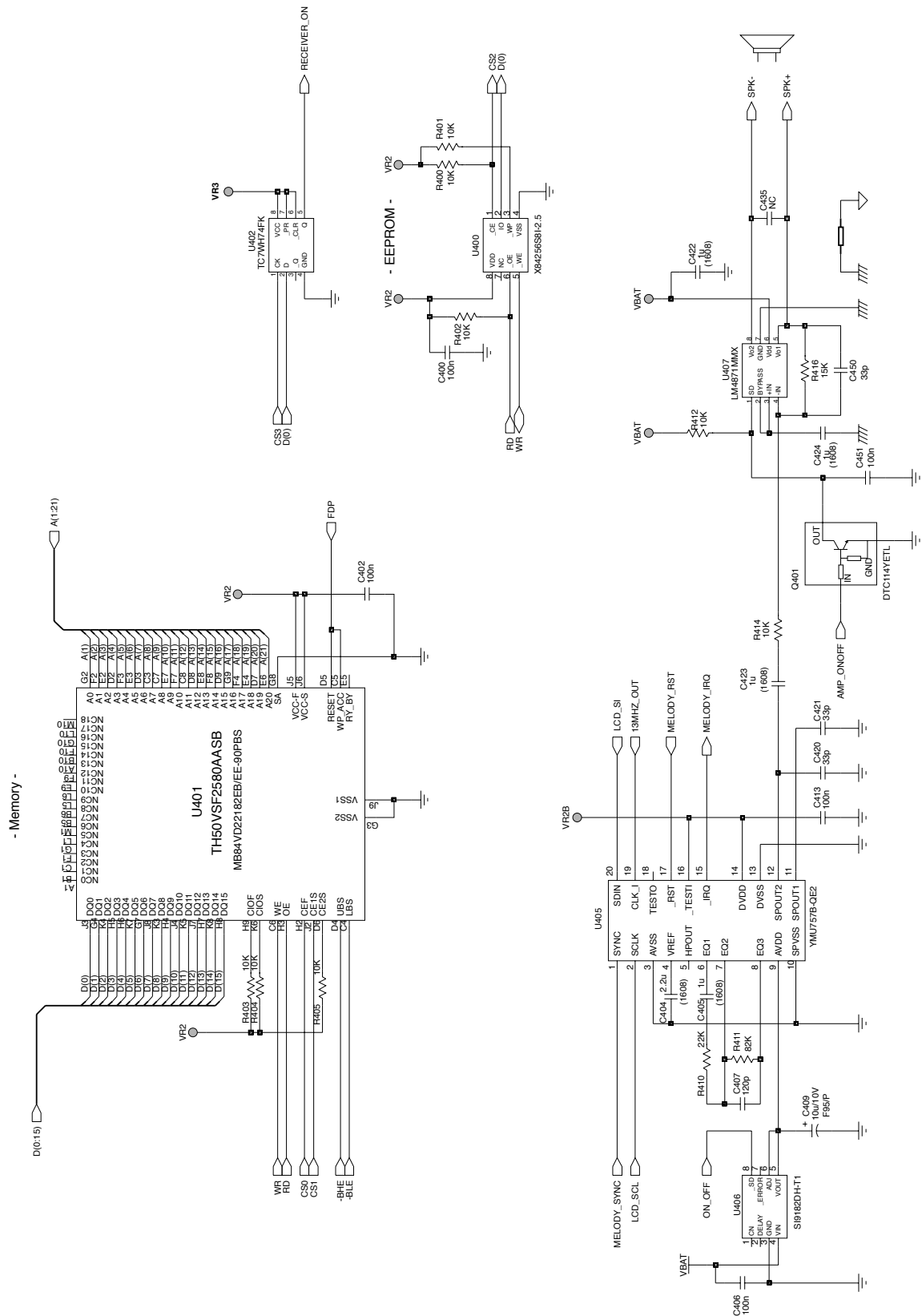


## 7.1 Key Pad

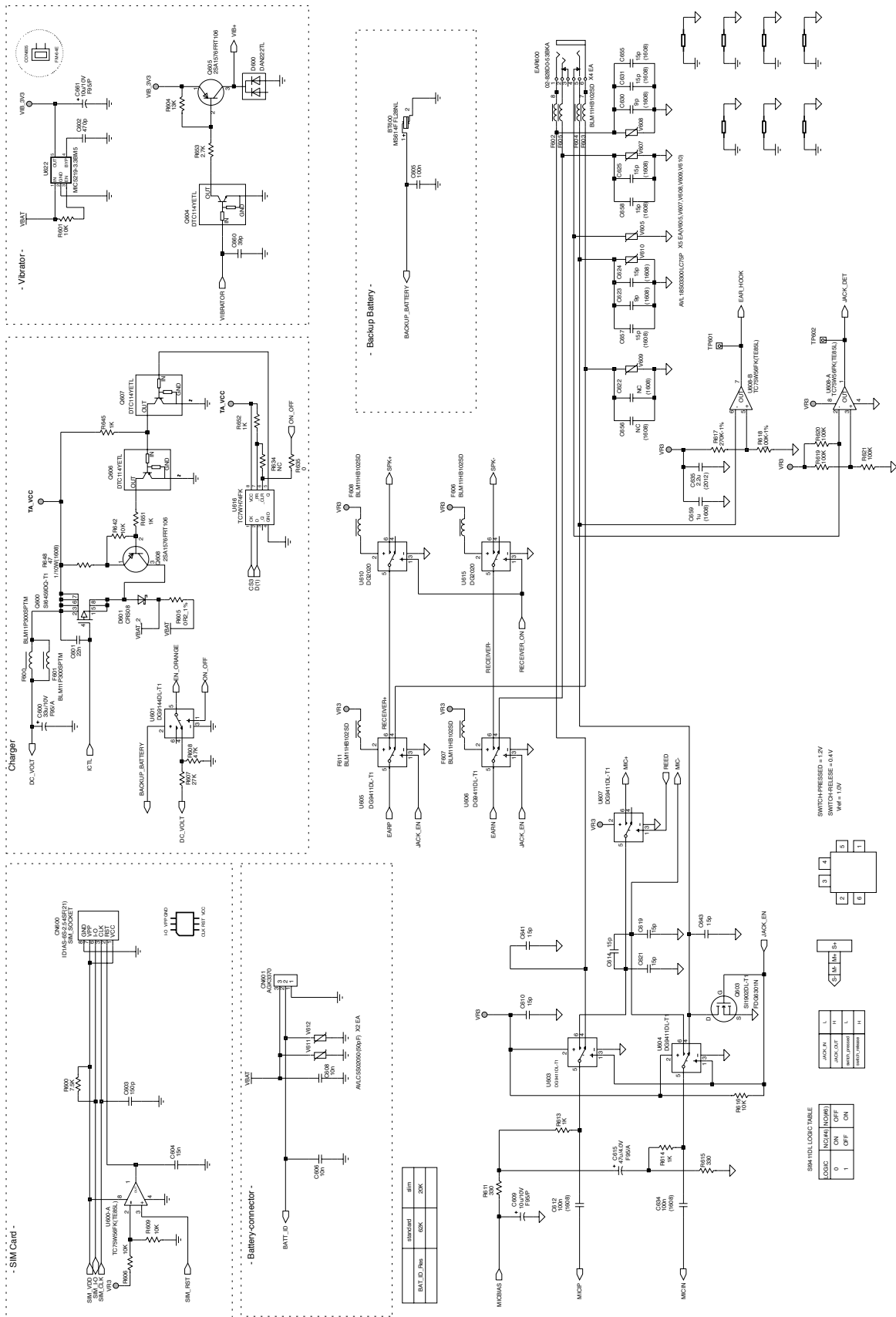


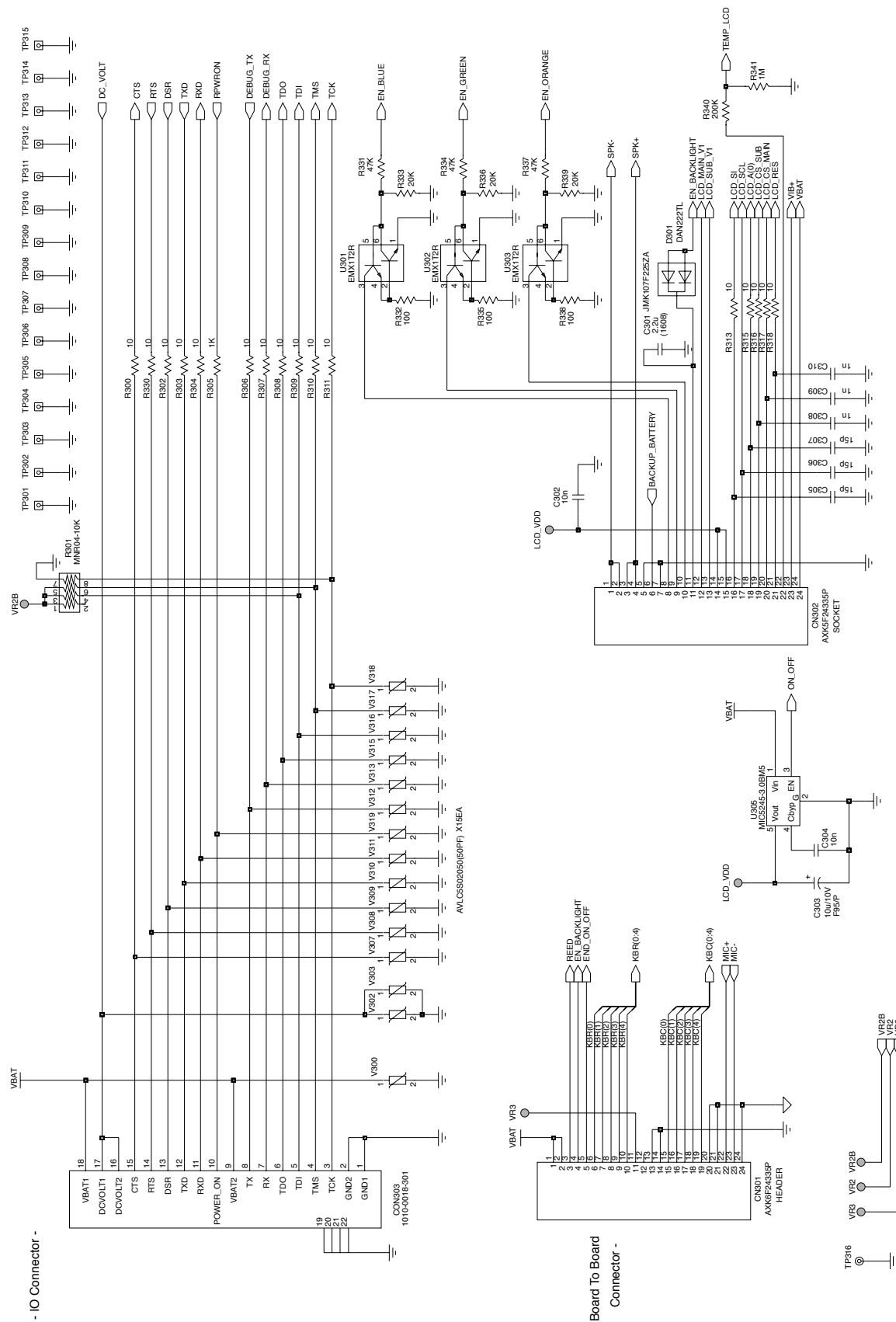


### 7.2.2 Memory & Melody

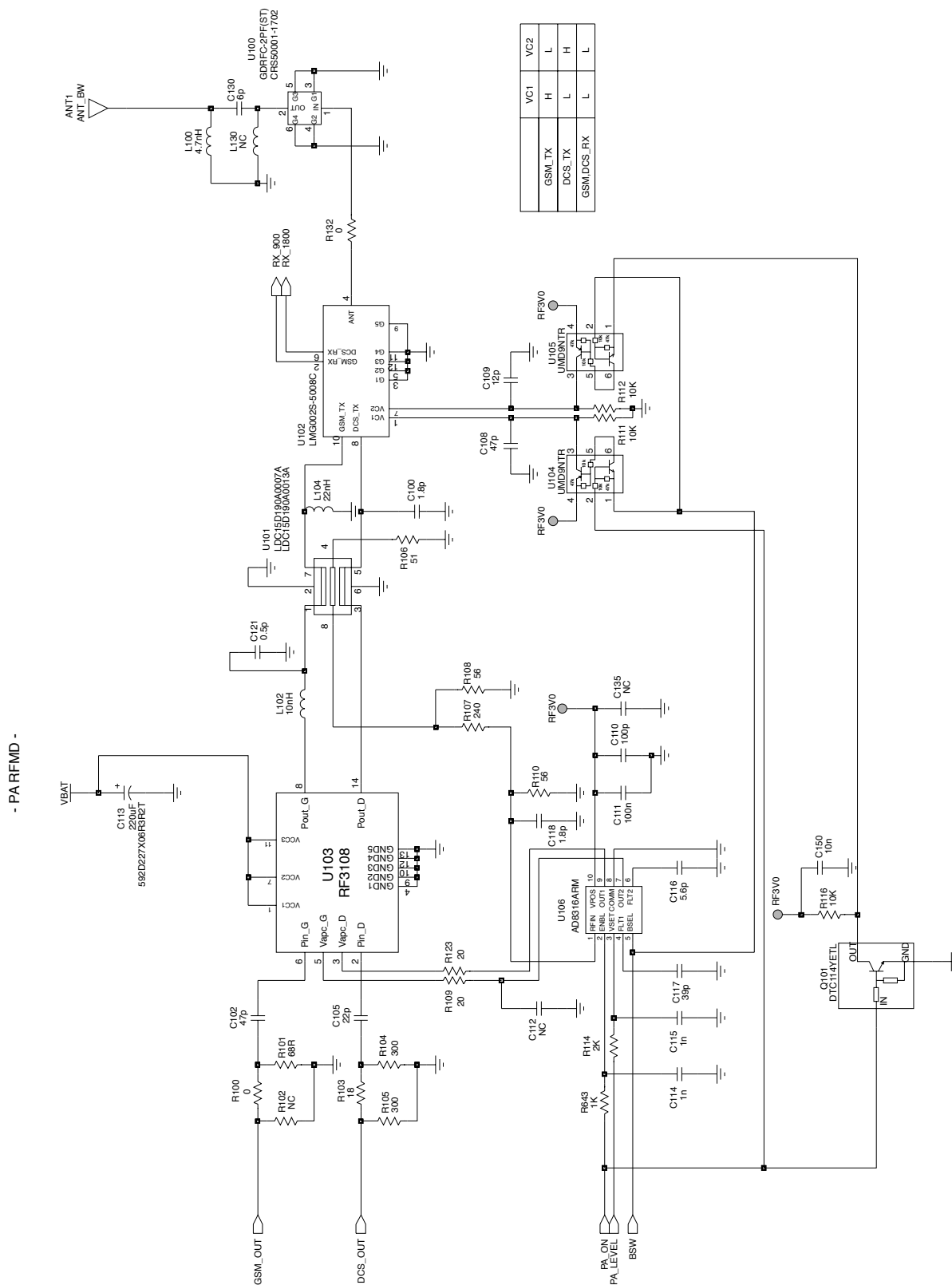


7.2.3 Audio & Peripheral Circuit

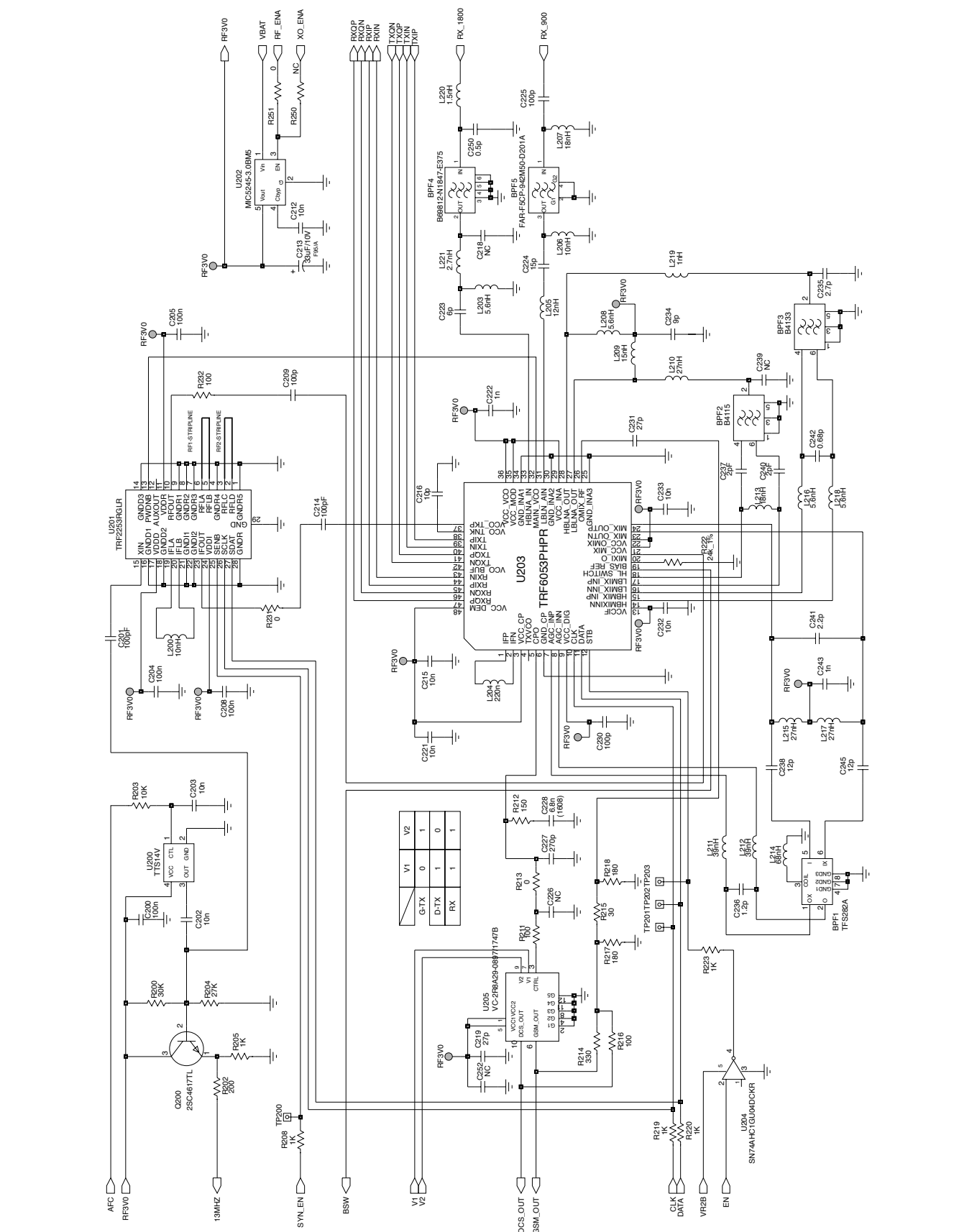




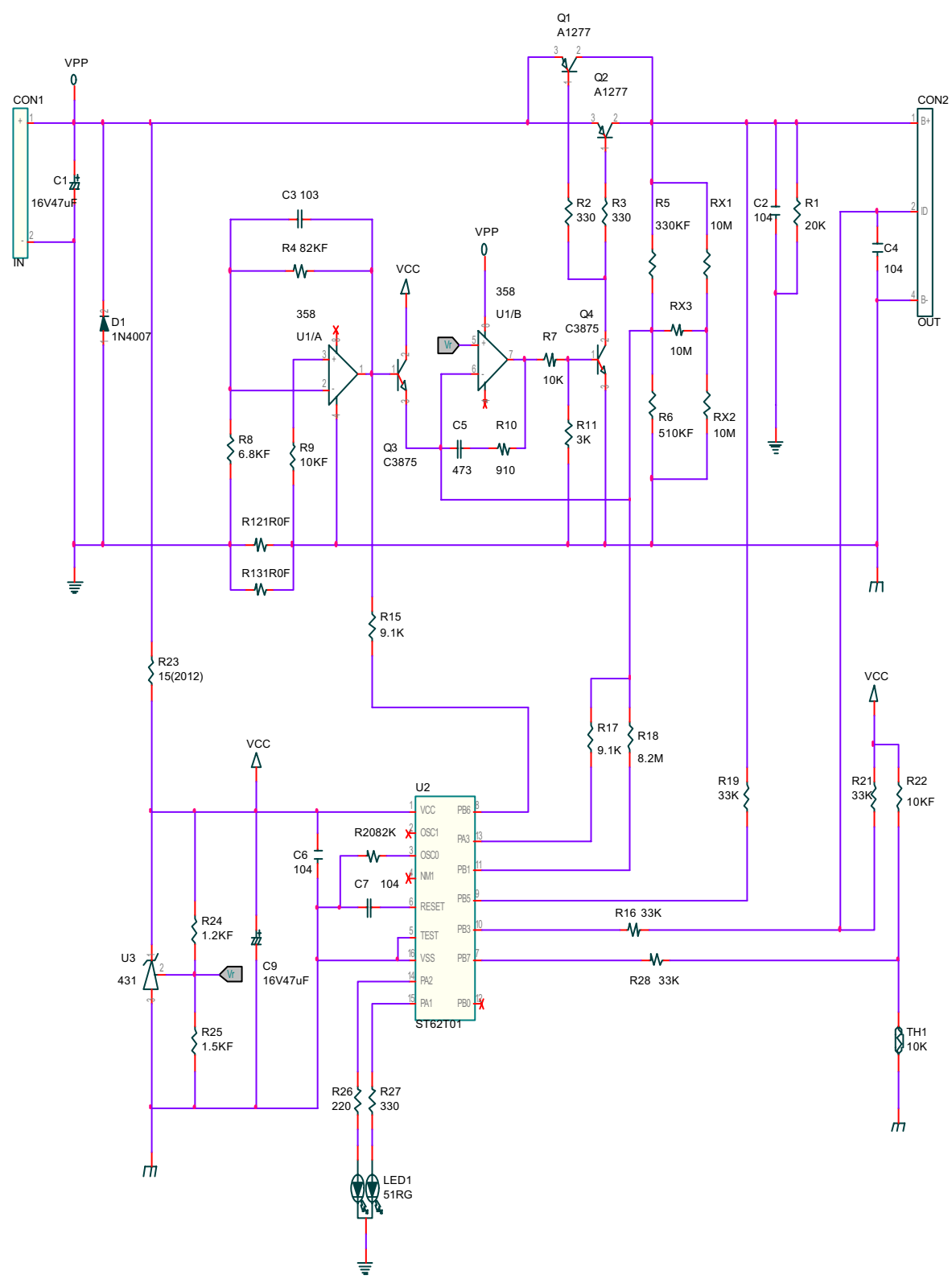
### 7.3.1 RF PAM



### 7.3.2 RF Main IC



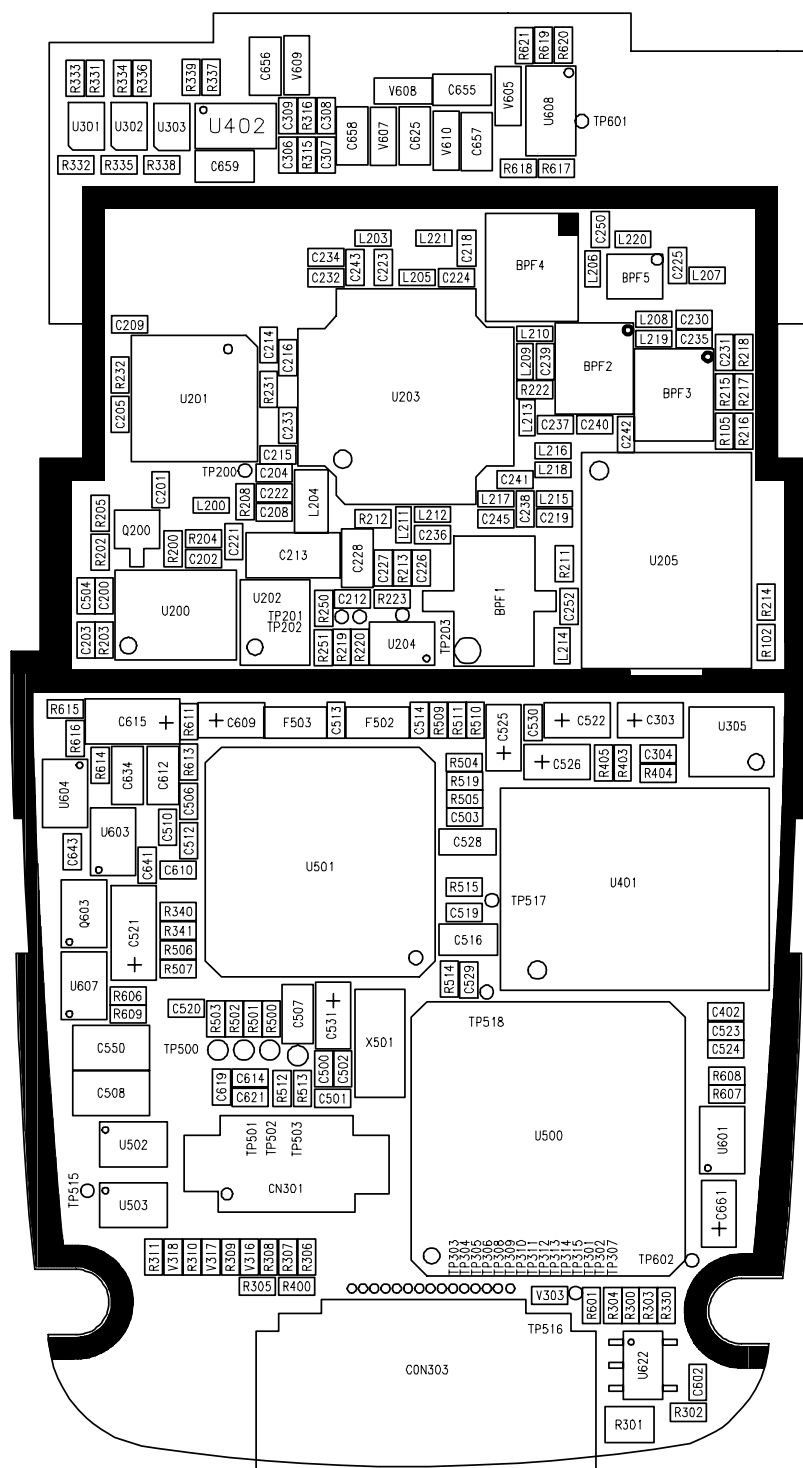
# 7.4 BATT Charger



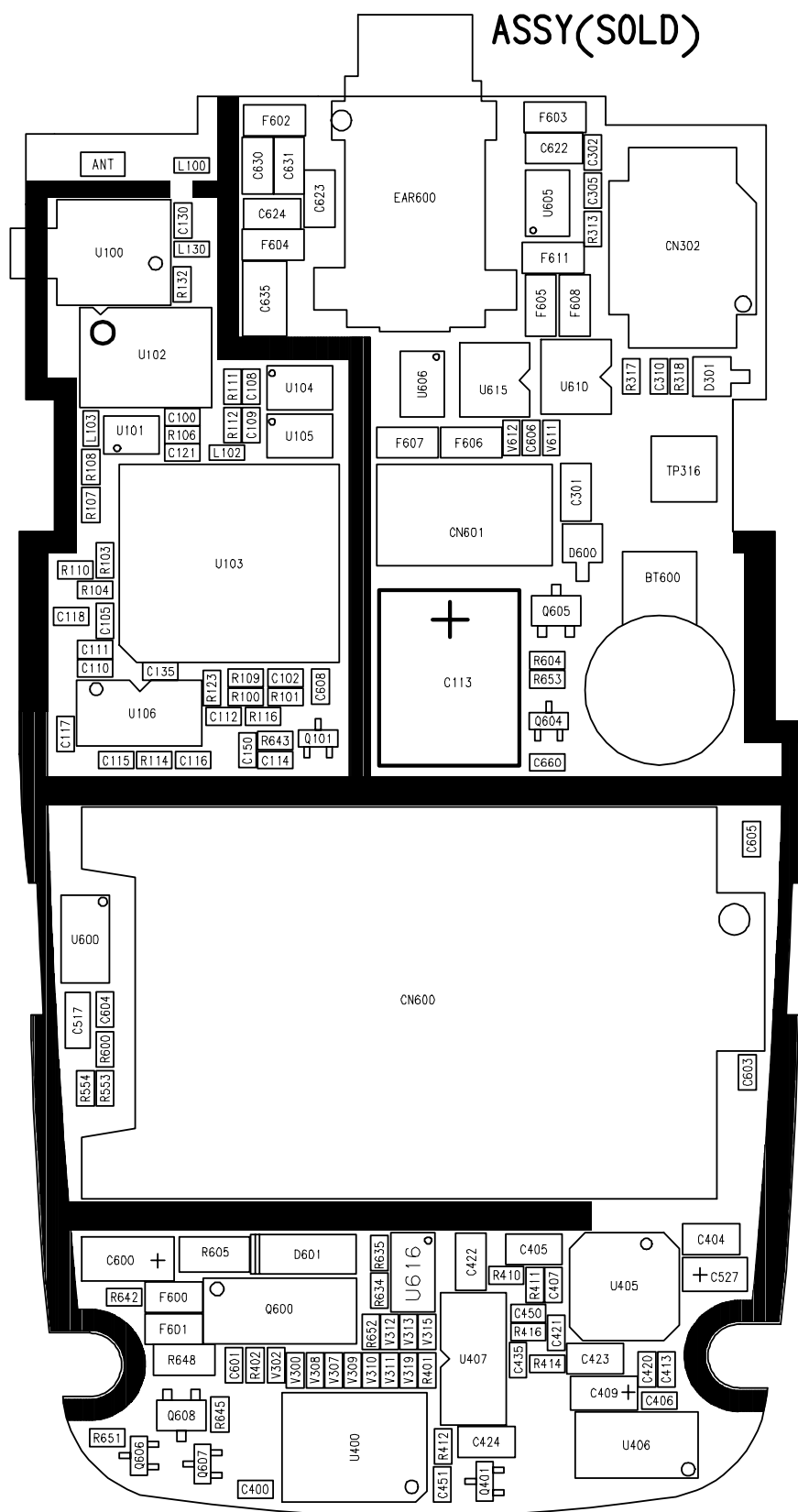


## 8.1 Main PCB

ASSY(COMP)

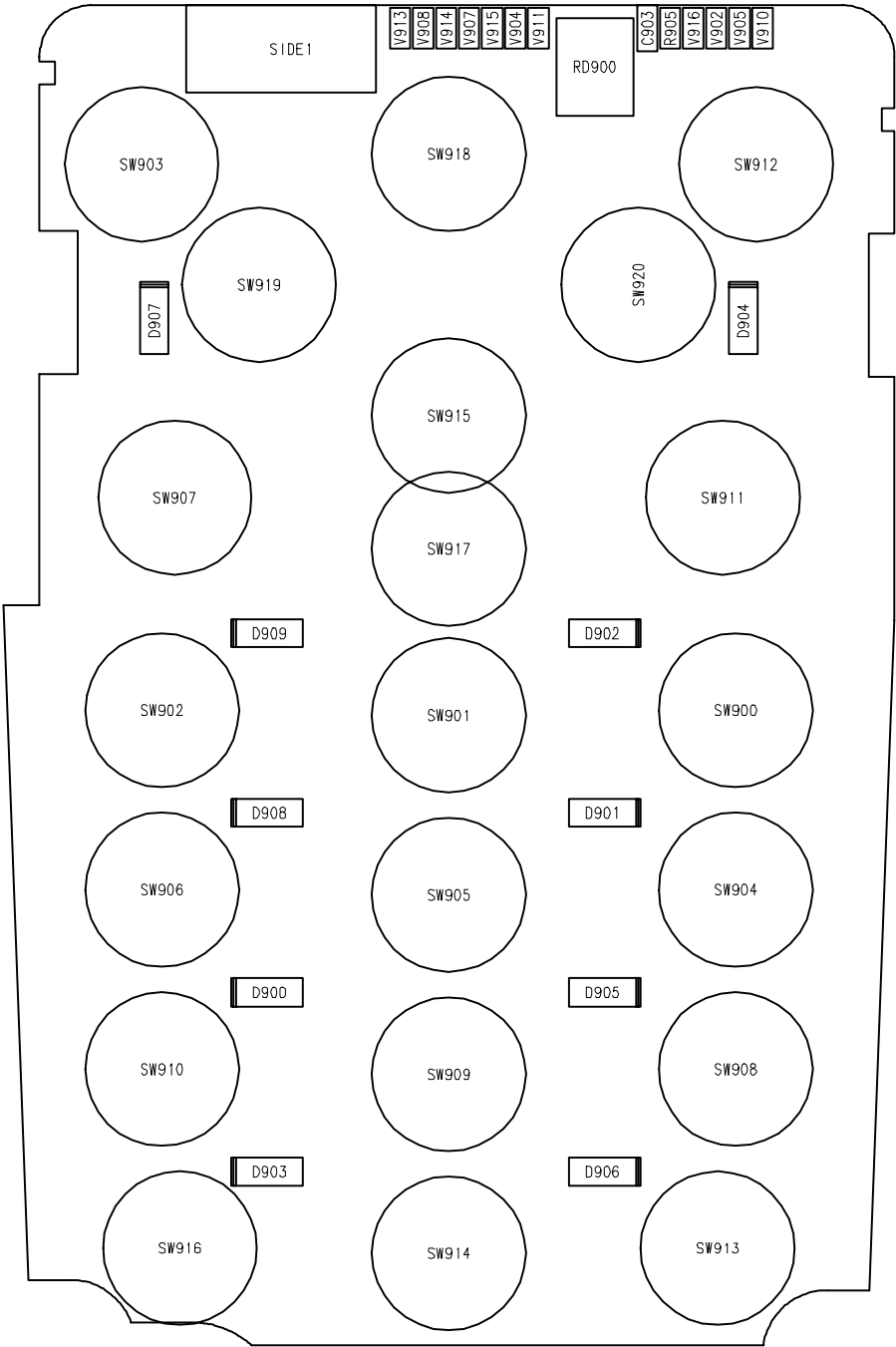


### Bottom View

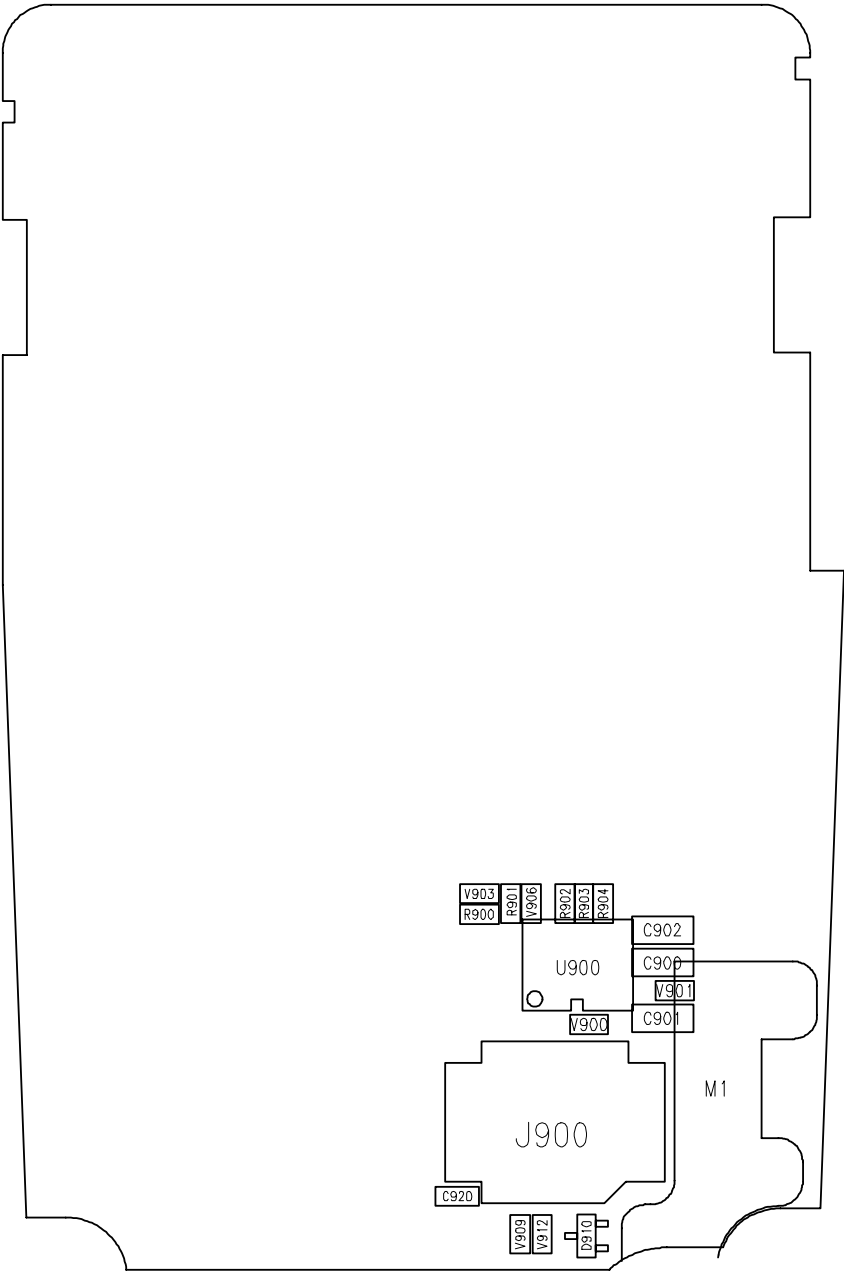


8.2 Key PCB

Top View

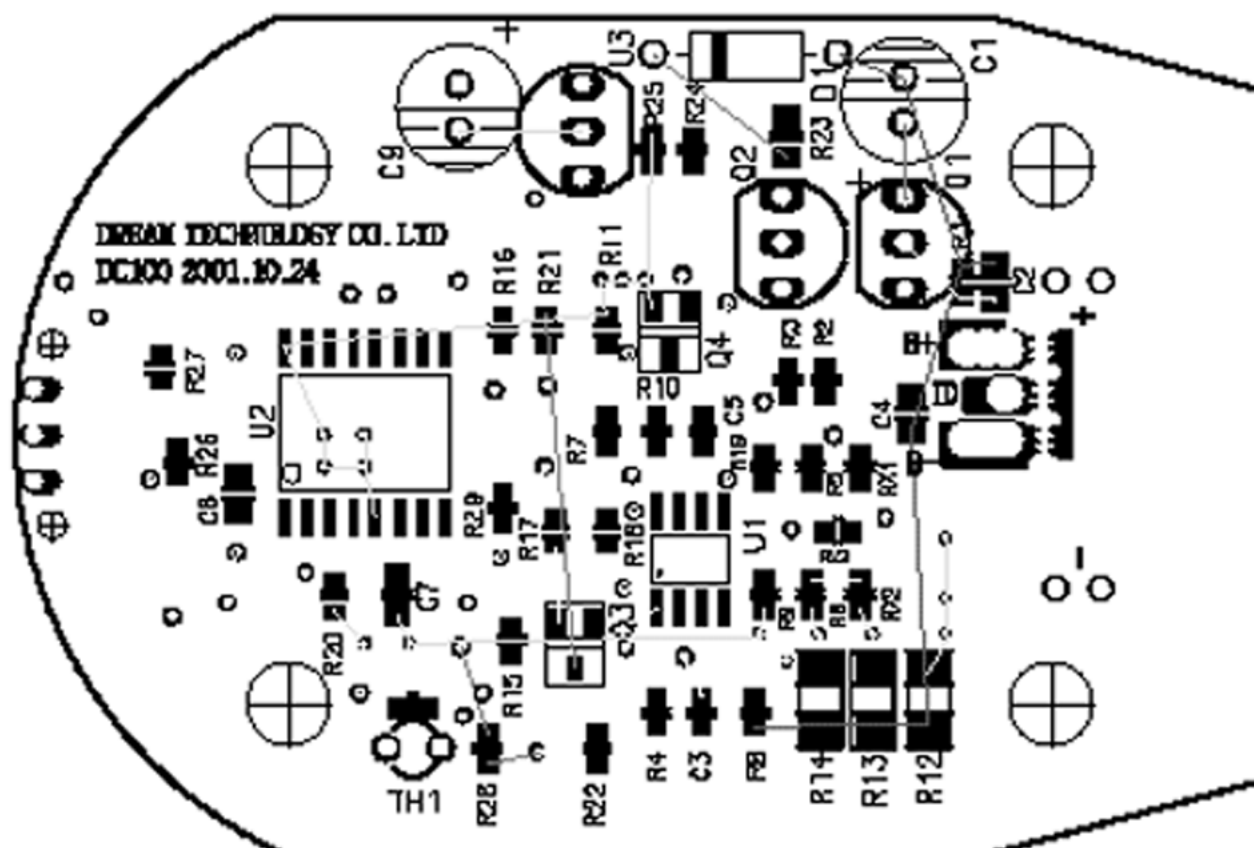


Bottom View

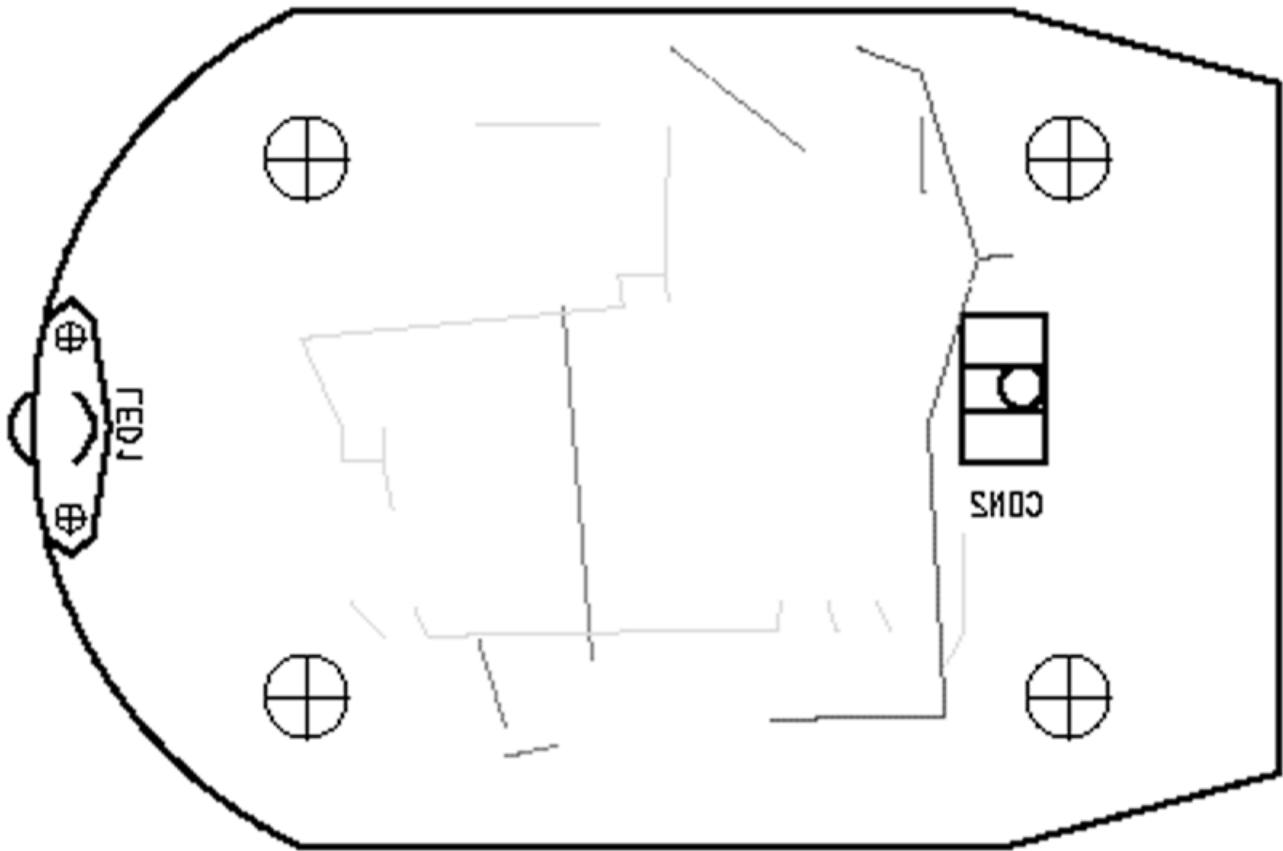


### 8.3 BATT Charger

Top View



Bottom View



## 9. Electrical Parts List

### 9.1 RF Part List

REF. NO	DESCRIPTION	PART NUMBER
U103	POWER AMP MODULE	RF3108
U203	RF MAIN CHIP	TRF6053PHPR
U201	PLL IC	TRF2253RGLR
U106	APC IC	AD8316ARM
U101	DUAL COUPLER	LDC15D190A0007A LDC15D190A0013A
U202	LDO 3.0V, ( LOW CURRENT )	MIC5245-3.0BM5
U204	INVERTER	SN74AHC1GU04DCKR
U200	VCTCXO, 13MHz	TTS14V
U205	DUAL TX VCO	VC-2R8A29-0897/1747B
BPF1	IF SAW FILTER 282MHz	TFS282A
BPF2	RF SAW FILTER SINGLE	B4115
BPF3	RF SAW FILTER SINGLE	B4133
BPF5	RF SAW FILTER, GSM Single ended	FAR-F5CP-942M50-D201A
BPF4	MMC FILTER	B69812-N1847-E375
U102	ANT SWITCH	LMG002S-5008C
U100	Coaxial Connectors with switch	GDRFC-2PF(ST) CRS50001-1702
Q101	TR	DTC114YETL
U104 U105	TR DUAL TYPE	UMD9NTR
Q200	TR, NPN	2SC4617TL
C213	TAN_CAP, 33uF/10V (A)	F951A336MAAQ2
C113	TAN_CAP, 220uF/6.3V	592D227X06R3R2T
C250 C121	CAP.CERAMIC CHIP 0.5 pF	GRM36COG 0R5C 50PN
C242	CAP.CERAMIC CHIP 0.68 pF	GRM36COG R68C 50PN
C236	CAP.CERAMIC CHIP 1.2 pF	GRM36COG 1R2C 50PN
C100 C118	CAP.CERAMIC CHIP 1.8 pF	GRM36COG 1R8C 50PN
C237 C240	CAP.CERAMIC CHIP 2 pF	GRM36COG 020C 50PN
C241	CAP.CERAMIC CHIP 2.2 pF	GRM36COG 2R2C 50PN
C235	CAP.CERAMIC CHIP 2.7 pF	GRM36COG 2R7C 50PN
C223 C130	CAP.CERAMIC CHIP 6 pF	GRM36C0G 060D 50PN
C116	CAP.CERAMIC CHIP 5.6 pF	GRM36COG 5R6C 50PN
C234	CAP.CERAMIC CHIP 9 pF	GRM36COG 090D 50PN
C216	CAP.CERAMIC CHIP 10 pF	GRM36COG 100D 50PN
C109 C238 C245	CAP.CERAMIC CHIP 12 pF	GRM36C0G 120J 50PN

REF. NO	DESCRIPTION	PART NUMBER
C224	CAP.CERAMIC CHIP 15 pF	GRM36C0G 150J 50PN
C105	CAP.CERAMIC CHIP 22 pF	GRM36COG 220J 50PN
C219 C231	CAP.CERAMIC CHIP 27 pF	GRM36COG 270J 50PN
C117	CAP.CERAMIC CHIP 39 pF	GRM36C0G 390J 50PN
C102 C108	CAP.CERAMIC CHIP 47 pF	GRM36COG 470J 50PN
C110 C201 C209 C214	CAP.CERAMIC CHIP 100 pF	GRM36COG 101J 50PN
C225 C230		
C227	CAP.CERAMIC CHIP 270 pF	GRM36COG 271J 50PN
C114 C115 C222 C243	CAP.CERAMIC CHIP 1000 pF(1N)	GRM36X7R 102K 50PN
C150 C202 C203 C212	CAP.CERAMIC CHIP 0.01 uF(10N)	GRM36X7R 103K 16PN
C215 C221 C232 C233		
C111 C200 C204 C205 C208	CAP.CERAMIC CHIP 0.1 uF(100N)	GRM36Y5V 104Z 16PN
C228	CAP.CERAMIC CHIP 6.8N, 1608	GRM39X7R 682K 16PN
C104 C112 C135 C218	CAP. CERAMIC CHIP	N.C
C239 C252 C226		
R100 R132 R213 R231 R251	RES. CHIP 0 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ000
R103	RES. CHIP 18 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ180
R123 R109	RES. CHIP 20 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ200
R215	RES. CHIP 30 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ300
R101	RES. CHIP 68 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ680
R106	RES. CHIP 51 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ510
R108 R110	RES. CHIP 56 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ560
R211 R216 R232	RES. CHIP 100 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ101
R212	RES. CHIP 150 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ151
R217 R218	RES. CHIP 180 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ181
R202	RES. CHIP 200 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ201
R107	RES. CHIP 240 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ241
R104 R105	RES. CHIP 300 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ301
R214	RES. CHIP 330 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ331
R205 R208 R219 R220 R223	RES. CHIP 1 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ102
R114	RES. CHIP 2 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ202
R111 R112 R116 R203	RES. CHIP 10 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ103
R204	RES. CHIP 27 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ273
R200	RES. CHIP 30 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ303
R222	RES. CHIP 24 Kohm +-1%(F) 1/16W 1005(0402)	MCR01MZSF2402(1%)
R102 R250	RES. CHIP	N.C



REF. NO	DESCRIPTION	PART NUMBER
L219	CHIP INDUCTOR(1005), 1nH	AML1005H1N0ST
L220	CHIP INDUCTOR(1005), 1.5nH	AML1005H1N5ST
L221	CHIP INDUCTOR(1005), 2.7nH	AML1005H2N7ST
L100	CHIP INDUCTOR(1005), 4.7nH	AML1005H4N7ST
L203 L208 L216 L218	CHIP INDUCTOR(1005), 5.6nH	AML1005H5N6ST
L200 L206 L102	CHIP INDUCTOR(1005), 10nH	AML1005H10NJT
L205	CHIP INDUCTOR(1005), 12nH	AML1005H12NJT
L209	CHIP INDUCTOR(1005), 15nH	AML1005H15NJT
L207 L213	CHIP INDUCTOR(1005), 18nH	AML1005H18NJT
L104	CHIP INDUCTOR(1005), 22nH	AML1005H22NJT
L210 L215 L217	CHIP INDUCTOR(1005), 27nH	AML1005H27NJT
L211 L212	CHIP INDUCTOR(1005), 39nH	AML1005H39NJT
L214	CHIP INDUCTOR(1005), 68nH	AML1005H68NJT
L204	CHIP INDUCTOR(1608), 220nH	HK1608 R22J
L130	INDUCTOR. CHIP	N.C

## 9.2 Base Band Part List

REF. NO	DESCRIPTION	PART NUMBER
U500	BASEBAND MAIN CHIP 1 (HERC-ROM-20)	F741529AGHHR
U501	BASEBAND MAIN CHIP 2 (NAUSICA)	TWL3011GGMR
U401	MCP 32M FLASH MEMORY+4M SRAM	TH50VSF2580AASB
		MB84VD22182EB/EE-90PBS
U400	EEPROM	X84256S8I-2.5
U405	MELODY IC	YMU757B-QE2
U305	LDO 3.0V, ( LOW CURRENT )	MIC5245-3.0BM5
U406	LDO 3.0V, ( FOR MELODY )	SI9182DH-T1
U622	LDO 3.3V, (For Driving VIB)	MIC5219-3.3BM5
U407	Audio Power Amplifier	LM4871MMX
U600 U608	COMPARATOR, DUAL	TC75W56FK(TE85L)
U502 U503 U601 U603	ANALOG SWITCH	DG9411DL-T1
U604 U605 U606 U607		
U610 U615	ANALOG SWITCH	DG2020
X501	X-TAL, 32.768KHz, 30ppm, 4.1x 0.3 x1.4t	CC5V
D601	DIODE	CRS08
D600,D301	DIODE	DAN222TL
Q600	TR P-MOSFET	SI6459DQ-T1
Q603	TR N-MOSFET	SI1902DL-T1
		FDG6301N
Q401 Q604 Q606 Q607	TR	DTC114YETL
Q605 Q608	TR, PNP	2SA1576FRT106
U301 U302 U303	TR, DUAL TYPE	EMX1T2R
U402 U616	D-FLIP FLOP	TC7WH74FK
C303 C409 C522 C525	TAN_CAP, 10uF/10V (P)	F951A106MPAAQ2
C526 C527 C531 C609		
C661		
C600	TAN_CAP, 33uF/10V (A)	F951A336MAAQ2
C521 C615	TAN_CAP, 47uF/4.0V (A)	F950G476MAAQ2
V300 V302 V303 V307	VARISTOR, 1005Size (HIGH SPEED,60pF)	AVLC5S02050(50pF)
V308 V309		
V310 V311 V312 V313		
V315 V316 V317 V318		
V319 V611 V612		
V605 V607 V608 V609 V610	VARISTOR, 1608Size (HIGH SPEED, 75pF)	AVL18S03300LC75P
F600 F601	FERRITE BEADS, 1608	BLM 11P 300SPTM

REF. NO	DESCRIPTION	PART NUMBER
F502 F503 F602 F603 F604 F605 F606 F607 F608 F611 CON303	FERRITE BEADS, 1608  SYSTEM I/O CONNECTOR, 18Pin, (DTC Charge, No terminal)	BLM 11HB 102SD  1010-0018-301
CN302	B2B CONNECTOR, FOR LCD, 24Pin, Socket (1.5t)	AXK5F24335P
CN301	B2B CONNECTOR, B2B, 24Pin, Header (2.0t)	AXK6F24335P
CN600	SIM CONNECTOR	ID1AS-6S-2.54SF(21)
CN601	BATTERY CONNECTOR	AGK3370
EAR600	EAR_JACK	02-828D0-53BKA
C501 C502	CAP.CERAMIC CHIP 12 pF	GRM36C0G 120J 50PN
C305 C306 C307 C503 C506 C510 C512 C513 C514 C610 C614 C619 C621 C641 C643	CAP.CERAMIC CHIP 15 pF	GRM36C0G 150J 50PN
C420 C421 C450	CAP.CERAMIC CHIP 33 pF	GRM36C0G 330J 50PN
C660	CAP.CERAMIC CHIP 39 pF	GRM36C0G 390J 50PN
C500	CAP.CERAMIC CHIP 100 pF	GRM36COG 101J 50PN
C407	CAP.CERAMIC CHIP 120 pF	GRM36COG 121J 50PN
C603	CAP.CERAMIC CHIP 150 pF	GRM36COG 151J 50PN
C602	CAP.CERAMIC CHIP 470 pF	GRM36COG 471J 50PN
C308 C309 C310 C504	CAP.CERAMIC CHIP 1000 pF(1N)	GRM36X7R 102K 50PN
C302 C304C606 C608	CAP.CERAMIC CHIP 0.01 uF(10N)	GRM36X7R 103K 16PN
C604	CAP.CERAMIC CHIP 15n	GRM36X7R 153K 16PN
C601	CAP.CERAMIC CHIP 22n	GRM36X7R 223K 16PN
C400 C402 C406 C413 C451 C519 C520 C523 C524 C529 C530 C605	CAP.CERAMIC CHIP 0.1 uF(100N)	GRM36Y5V 104Z 16PN
C623 C630	CAP.CERAMIC CHIP 9 pF, 1608	GRM39COG 090D 50
C624 C625 C631 C655 C657 C658	CAP.CERAMIC CHIP 15 pF, 1608	GRM39COG 150J 50
C405 C422 C423 C424 C507 C659	CAP.CERAMIC CHIP 1 uF, 1608	GRM39Y5V 105Z 10PT
C517 C528 C612 C634	CAP.CERAMIC CHIP 100 nF,1608	EMK107BJ104KA-T
C516	CAP.CERAMIC CHIP 220 nF, 1608	LMK107BJ224KA-T
C508 C550 C635	CAP.CERAMIC CHIP 2.2 nF, 2012	LMK212BJ225MG-T
C301 C404	CAP.CERAMIC CHIP 2.2 uF, 1608	JMK107F225ZA
C435	CAP. CERAMIC CHIP	N.C

REF. NO	DESCRIPTION	PART NUMBER
C622 C656	"CAP. CERAMIC CHIP, 1608"	N.C
R500 R501 R502 R503	RES. CHIP 0 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ000
R635		
R300 R302 R303 R304	RES. CHIP 10 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ100
R306 R307 R308 R309		
R310 R311 R313 R315		
R316 R317 R318 R330		
R332 R335 R338	RES. CHIP 100 ohm+-5%(J) 1/16W 1005(0402)	MCR01MZSJ10%
R648	RES. CHIP 47 ohm +-5%(J) 1/10W 1608(0603)	MCR03EZHJ470
R611 R615	RES. CHIP 330 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ331
R305 R613 R614 R643	RES. CHIP 1 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ102
R651 R652 R645		
R653	RES. CHIP 2.7 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ272
R600	RES. CHIP 7.5 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ752
R400 R401 R402 R403	RES. CHIP 10 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ103
R404 R405 R412 R414		
R504 R506 R507 R601		
R606 R609 R616 R642		
R604	RES. CHIP 13 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ133
R416	RES. CHIP 15 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ153
R514 R515 R333	RES. CHIP 20 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ203
R336 R339		
R410	RES. CHIP 22 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ223
R607	RES. CHIP 27 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ273
R331 R334 R337 R608	RES. CHIP 47 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ473
R411	RES. CHIP 82 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ823
R511 R619 R620 R621	RES. CHIP 100 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ104
R519	RES. CHIP 120 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ124
R340	RES. CHIP 200 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ204
R505	RES. CHIP 220 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ224
R509 R510	RES. CHIP 510 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ514
R341 R512 R513	RES. CHIP 1 Mohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ105
R618	RES. CHIP 100 Kohm +-1%(F) 1/16W 1005(0402)	MCR01MZSF1003(1%)
R617	RES. CHIP 270 Kohm +-1%(F) 1/16W 1005(0402)	MCR01MZSF2703(1%)
R605	RES. CHIP 0.2 ohm +-1%	RLC20R20FTP
R301	4-RESISTOR ARRAY	MNR04-10K
R553 R554 R634	RES. CHIP	N.C

### 9.3 Key Part List

REF. NO	DESCRIPTION	PART NUMBER
RD900	HALL SWITCH	A3210ELH
D900 D901 D902 D903 D904	LED KEY, DEEP BLUE,0.4t	HL005-B11 D905 D906 D907
D905 D906 D907 D908 D909		(λ :460~465mmcd)
U900	TR, DUAL TYPE	IMX9
V900 V901 V913 V914	VARISTOR, 1005Size	AVLC 5S 02 050(50pF)
V915		
V902 V903 V904 V905	N.C	
V906 V907 V908 V909		
V910 V911 V912 V916		
J900	B2B CONNECTOR, B2B, 24Pin, Socket (2.0t)	AXK5F24535P
C920	CAP.CERAMIC CHIP 15 pF (0402)	GRM36C0G 150J 50PN
C903	CAP.CERAMIC CHIP 0.1 uF(100N)	GRM36Y5V 104Z 16PN
C900 C901 C902	CAP.CERAMIC CHIP 15 pF (1608)	GRM39C0G 150J 50
R902 R903 R904	RES. CHIP 30 ohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ300
R900	RES. CHIP 1 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ102
R905	RES. CHIP 47 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ473
R901	RES. CHIP 100 Kohm +-5%(J) 1/16W 1005(0402)	MCR01MZSJ104
D910	DIODE	DAN222TL

## 9.4 BATT Charger Part List

REF. NO	DESCRIPTION	PART NUMBER
C1	ELE-CAP, 4x5x2.5, 16V/47uF, 85°C	SE16V47uF
C2	CHIP CAPACITOR, 2012,104,Z50V	MCH21 2F 104Z
C3	CHIP CAPACITOR, 1608,103,Z,50V	MCH18 2F 103Z
C4	CHIP CAPACITOR, 2012,104,Z50V	MCH21 2F 104Z
C5	CHIP CAPACITOR, 1608,473,Z,50V	MCH18 2F 473Z
C6-C7	CHIP CAPACITOR, 2012,104,Z50V	MCH21 2F 104Z
C9	ELE-CAP, 4x5x2.5, 16V/47uF, 85°C	SE16V47uF
CON1	CONNECTOR SOCKET, 18-PIN	1005-0018-305
CON2	CONNECTOR, 5-PIN	AGK-3370
D1	RECTIFIER DIODE, 1N4007,1000V/1A	1N4007
LED1	LED-DUAL COLOR, Vr 4V/ 85mW/ 1fp 50mA	HDL-51RG
PCB-MAIN	DOUBLE, FR-4, t=1.2	PCB-MAIN
PCB-SUB	DOUBLE, FR-4, t=1.2	PCB-SUB
PIN HEADER	CONNECTION PIN, 2-PIN	PII03-115-02A
Q1-Q2	TR,PNP, TO-92, 500mA, 625mW	2SC1277-AT
Q3-Q4	TR,NPN, SOT-23,150mA, 150mW	2SC5343SF-Y
R1	CHIP-RESISTOR, 1608, 20Kohm,J	RC0603JR-07 20K
R2-R3	CHIP-RESISTOR, 1608, 330Kohm,J	RC0603JR-07 330R
R4	CHIP-RESISTOR, 1608, 82Kohm,F	RC0603FR-07 82K
R5	CHIP-RESISTOR, 1608, 330Kohm,F	RC0603FR-07 330K
R6	CHIP-RESISTOR, 1608, 510Kohm,F	RC0603FR-07 510K
R7	CHIP-RESISTOR, 1608, 10Kohm,J	RC0603JR-07 10K
R8	CHIP-RESISTOR, 1608, 6.8Kohm,F	RC0603FR-07 6K8
R9	CHIP-RESISTOR, 1608, 10Kohm,F	RC0603FR-07 10K
R10	CHIP-RESISTOR, 1608, 910Kohm,J	RC0603JR-07 910R
R11	CHIP-RESISTOR, 1608, 8Kohm,J	RC0603JR-07 3K
R12-R13	CHIP-RESISTOR, 3216, 1ohm,F	RC1206FR-07 1R0
R15	CHIP-RESISTOR, 1608, 9.1Kohm,J	RC0603JR-07 9K1
R16	CHIP-RESISTOR, 1608, 33Kohm,J	RC0603JR-07 33K
R17	CHIP-RESISTOR, 1608, 9.1Kohm,J	RC0603JR-07 9K1

REF. NO	DESCRIPTION	PART NUMBER
R18	CHIP-RESISTOR, 1608, 8.2Mohm,J	RC0603JR-07 8M2
R19	CHIP-RESISTOR, 1608, 33Kohm,J	RC0603JR-07 33K
R20	CHIP-RESISTOR, 1608, 82Kohm,F	RC0603FR-07 82K
R21	CHIP-RESISTOR, 1608, 33Kohm,J	RC0603JR-07 33K
R22	CHIP-RESISTOR, 1608, 10Kohm,F	RC0603FR-07 10K
R23	CHIP-RESISTOR, 2012, 15ohm,J	RC0805JR-07 15R
R24	CHIP-RESISTOR, 1608, 1.2Kohm,F	RC0603FR-07 1K2
R25	CHIP-RESISTOR, 1608, 1.5Kohm,F	RC0603FR-07 1K5
R26	CHIP-RESISTOR, 1608, 220ohm,J	RC0603JR-07 220R
R27	CHIP-RESISTOR, 1608, 330Kohm,J	RC0603JR-07 330R
R28	CHIP-RESISTOR, 1608, 33Kohm,J	RC0603JR-07 33K
RX1	CHIP-RESISTOR, 1608, 10Mohm,J	RC0603JR-07 10M
TH1	THERMISTOR, NTC, 10Kohm,25°C	ECTH RB 103H 3970GB
U1	SHUNT REGULATOR, LM431 0.5%	SL431B
U2	IC-QUAD OP AMP, LM358,8SOP,36V	S358
U4	IC-MCU, 8BIT,ROM=4K,28SOP	ST62T01C6
X2-X3	CHIP-RESISTOR, 1608, 10Mohm,J	RC0603JR-07 10M

**Memo**