

3. NAM PROGRAMMING

NAM features can be programmed as follows:

Notes:

- If you enter the NAM program mode, each item shows the currently stored data. Go to the next item by pressing **OK**.
- You can modify the data by entering a new data.
- If you enter a wrong digit, press **CLR** to delete the last digit. Press and hold **CLR** to delete all digits.
- To scroll items backwards or forwards, press the **VOLUME** button on the left side of the phone.

General Setup

LCD Display	Key in	Function
47*869#08#9 NAM program 1:General 2:Setup NAM1	47*869#08#9 1	-select NAM programming -choose 'GENERAL'
ESN B0000000	Volume-	Electronic Serial Number of the phone
CAI version 2	Volume	-The version of Common Air Interface supported by the mobile
VOC8/13/EVRC SO_VOIC_EVRC	Volume	evrc, voice08k, voice13k
SCM 00101010	Volume	-Station Class Mark displays the power class(bit0~1), transmission(bit2), slotted class(bit5), dual mode(bit6).
Lock Code 0000	(0000) 4-digit code OK	-Lock code, current status is displayed to change, enter new code. -stores it
Slot Mode Yes	* or # OK	-Slot mode. 'Yes' indicates the slot mode. changes the status. -stores it.
Slot Index 2	0-7 OK	-Slot mode index. The higher, the longer sleeping time to change, enter new one. -stores it.
Pref NAM1... Digital pref	OK	-Preferred system selection for NAM1 changes the system. -stores it.

LCD Display	Key in	Function
Pref NAM2... Digital pref	OK	-Preferred system selection for NAM2 changes the system. -stores it.
Pref NAM3... Digital pref	OK	-Preferred system selection for NAM3 changes the system. -stores it.
Pref NAM4... Digital pref	OK	-Preferred system selection for NAM4 changes the system. -stores it.

Setting Up NAM1

LCD Display	Key in	Function
NAM Program 1:General 2:Setup NAM1 3:Setup NAM2 4:Setup NAM3 5:Setup NAM4	2	Choose 'Setup NAM1.'
Setup NAM1 1:Phone # 2.FM 2:CDMA	2	Choose 'Phone #'
Phone # 1234567890	phone number OK	Phone number currently used. - to change, enter new one. - store it.
Mobile ID # 3003003000	mobile ID number OK	Mobile ID number currently used. - to change, enter new one. - store it.
Setup NAM1 1:Phone # 2.FM 2:CDMA	2	- Choose 'FM'
FM Home SID 4369	ID number OK	System ID for home, current status is displayed. - to change, enter new one. - store it.
FM 1st Chn 333	Channel number OK	Current 1st paging channel. - to change, enter new one. - store it.
FM Acq SID1 4	ID number OK	Acquisition system ID 1, Current status is displayed. - to change, enter new one. - store it.
FM Acq SID2 0	ID number OK	Acquisition system ID 2, Current status is displayed. - to change, enter new one. - store it.
FM Acq SID3 0	ID number OK	Acquisition system ID 3, Current status is displayed. - to change, enter new one. - store it.
FM Acq SID4 0	ID number OK	Acquisition system ID 4, Current status is displayed. - to change, enter new one. - store it.
FM Acq SID5 0	ID number OK	Acquisition system ID 5, Current status is displayed. - to change, enter new one. - store it.

LCD Display	Key in	Function
FM Acq SID6 0	ID number OK	Acquisition system ID 6, Current status is displayed. - to change, enter new one. - store it.
FM LockSID 1 0	ID number OK	Lock system ID 1, current status is displayed. - to change, enter new one. - store it.
FM LockSID 2 0	ID number OK	Lock system ID 2, current status is displayed. - to change, enter new one. - store it.
FM LockSID 3 0	ID number OK	Lock system ID 3, current status is displayed. - to change, enter new one. - store it.
FM LockSID 4 0	ID number OK	Lock system ID 4, current status is displayed. - to change, enter new one. - store it.
FM LockSID 5 0	ID number OK	Lock system ID 5, current status is displayed. - to change, enter new one. - store it.
FM LockSID 6 0	ID number OK	Lock system ID 6, current status is displayed. - to change, enter new one. - store it.
Auto Reg Yes	* or # OK	FM Registration, current status is displayed. - changes the status 'YES' to enable, 'NO' to disable - store it.
FM pref. Yes	* or # OK	Preferred system selection, current status is displayed. - changes the status 'YES' to enable, 'NO' to disable - store it.
FM ACCOLC 0	* or # OK	Current Access Overload Class. - change the status. - store it.
Setup NAM1 1:Phone # 2.FM 2:CDMA	3	- Choose 'CDMA'
IMSI_MCC 000	number OK	IMSI Mobile Country Code, current code is displayed. - to change, enter new one. - stores it.
IMSI_MNC 00	number OK	IMSI Mobile Network Code, current code is displayed. - to change, enter new one. - stores it.

LCD Display	Key in	Function
CDMA pref.. A only	* or # OK	Preferred system selection, current system is displayed. - changes the system. - stores it.
CDMA ACCOLC 0	class number OK	CDMA Access Overload Class, current status is displayed. - to change, enter new one. - stores it.
Pchn Sys A 779	channel number OK	Preferred channel currently used under system A - to change, enter new one. - stores it.
Pchn Sys B 779	channel number OK	Preferred channel currently used under system B - to change, enter new one. - stores it.
Schn Sys A 738	channel number OK	Second channel currently used under system A - to change, enter new one. - stores it.
Schn Sys B 738	channel number OK	Second channel currently used under system B - to change, enter new one. - stores it.
CD Acq SID 1 0	ID number OK	1st Acquisition system ID, current status is displayed. - to change, enter new one. - stores it.
CD Acq SID 2 0	ID number OK	2nd Acquisition system ID, current status is displayed. - to change, enter new one. - stores it.
CD Acq SID 3 0	ID number OK	3rd Acquisition system ID, current status is displayed. - to change, enter new one. - stores it.
CD Acq SID 4 0	ID number OK	4th Acquisition system ID, current status is displayed. - to change, enter new one. - stores it.
CD Acq SID 5 0	ID number OK	5th Acquisition system ID, current status is displayed. - to change, enter new one. - stores it.
CD Acq SID 6 0	ID number OK	6th Acquisition system ID, current status is displayed. - to change, enter new one. - stores it.
CD lockSID 1 0	ID number OK	1st lock system ID,current status is displayed. - to change, enter new one. - stores it.
CD lockSID 2 0	ID number OK	2nd lock system ID,current status is displayed. - to change, enter new one. - stores it.

LCD Display	Key in	Function
CD lockSID 3 0	ID number OK	3rd lock system ID,current status is displayed. - to change, enter new one. - stores it.
CD lockSID 4 0	ID number OK	4th lock system ID,current status is displayed. - to change, enter new one. - stores it.
CD lockSID 5 0	ID number OK	5th lock system ID,current status is displayed. - to change, enter new one. - stores it.
CD lockSID 6 0	ID number OK	6th lock system ID,current status is displayed. - to change, enter new one. - stores it.
CDMA HomeSID Yes	* or # OK	CDMA Home system ID, current status is displayed - changes the status. - stores it.
CDMA fSID Yes	* or # OK	CDMA foreign SID, current status is displayed. - changes the system. - stores it.
CDMA fNID Yes	* or # OK	CDMA foreign NID, current status is displayed. - changes the system. - stores it.
SID #1 2222	number OK	first SID written in the list, current status is displayed. - to change, enter new one. - stores it.
NID #1 1	number OK	first NID written in the list, current status is displayed. - to change, enter new one. - stores it.
SID #2 2222	number OK	2nd SID written in the list, current status is displayed. - to change, enter new one. - stores it.
NID #2 2	number OK	2nd NID written in the list, current status is displayed - to change, enter new one. - stores it.
SID #3 2222	number OK	3rd SID written in the list, current status is displayed. - to change, enter new one. - stores it.
NID #3 3	number OK	3rd SID written in the list, current status is displayed. - to change, enter new one. - stores it.
SID #4 2222	number OK	4th SID written in the list, current status is displayed. - to change, enter new one. - stores it.

LCD Display	Key in	Function
NID #4 3	number OK	4th NID written in the list, current status is displayed. - to change, enter new one. - stores it.
Setup NAM1 1:Phone # 2:FM 2:CDMA		LCD return to the NAM1 setup mode.

Setting Up NAM2

LCD Display	Key in	Function
NAM Program 1:General 2:Setup NAM1 3:Setup NAM2	3	-Choose 'Setup NAM2'
The NAM2 setup program is the same as 'NAM1'.		

Setting Up NAM3

LCD Display	Key in	Function
NAM Program 3:Setup NAM2 4:Setup NAM3	4	-Choose 'Setup NAM3'.
The NAM3 setup program is the same as 'NAM1'.		

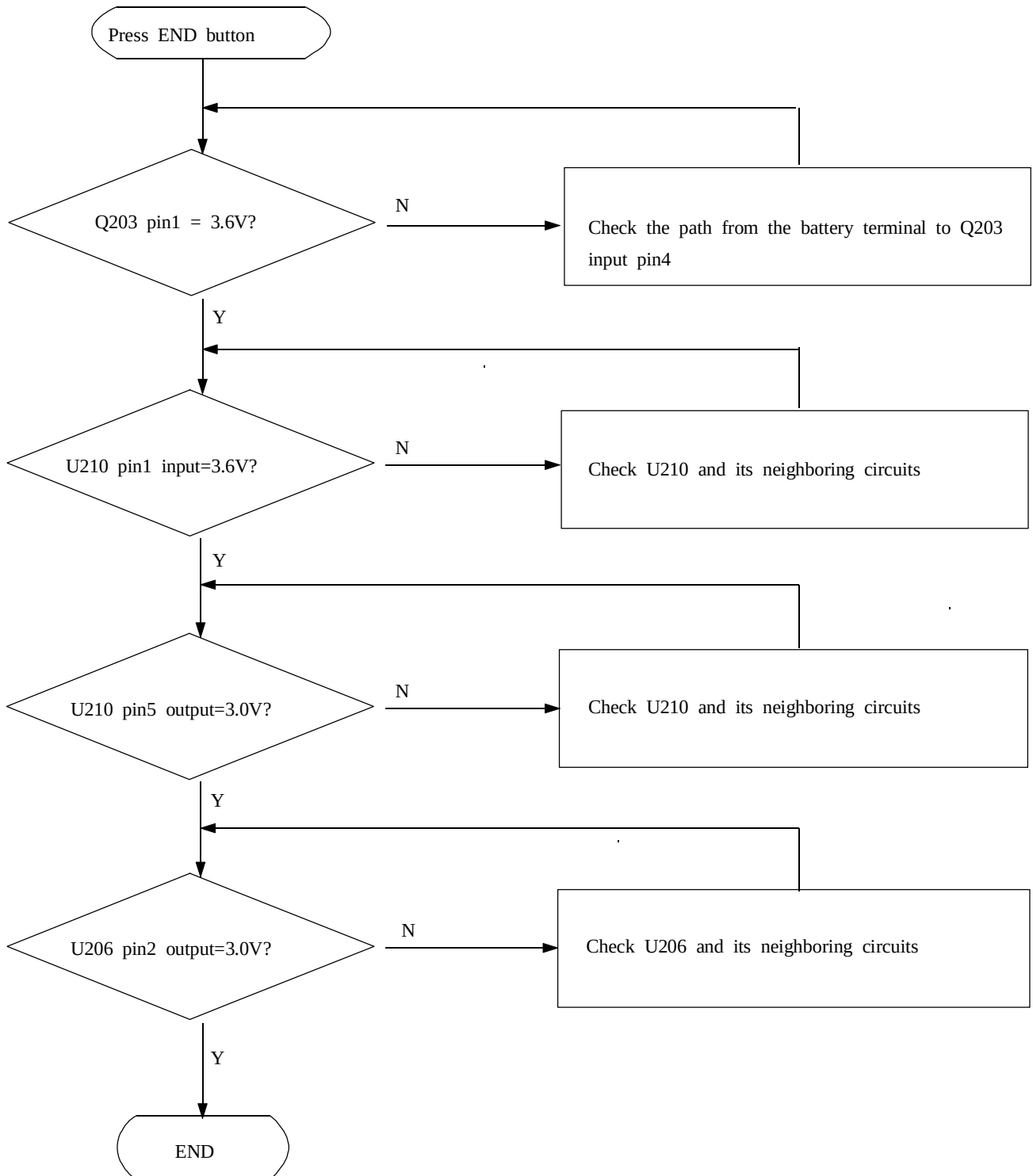
Setting Up NAM4

LCD Display	Key in	Function
NAM Program 5:Setup NAM4	5	-Choose 'Setup NAM4'
The NAM4 setup program is the same as 'NAM1'.		

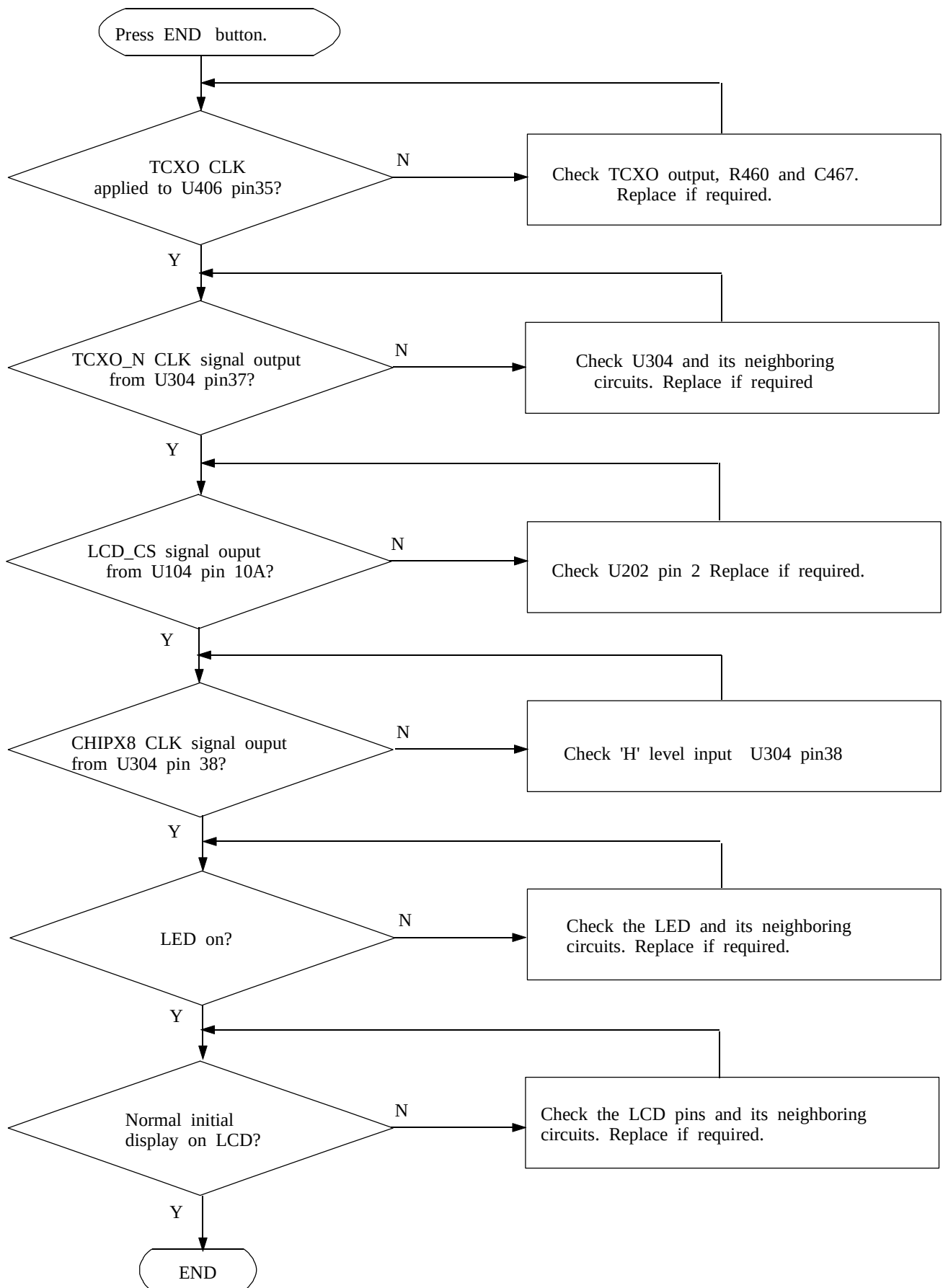
4. Troubleshooting

Logic Section

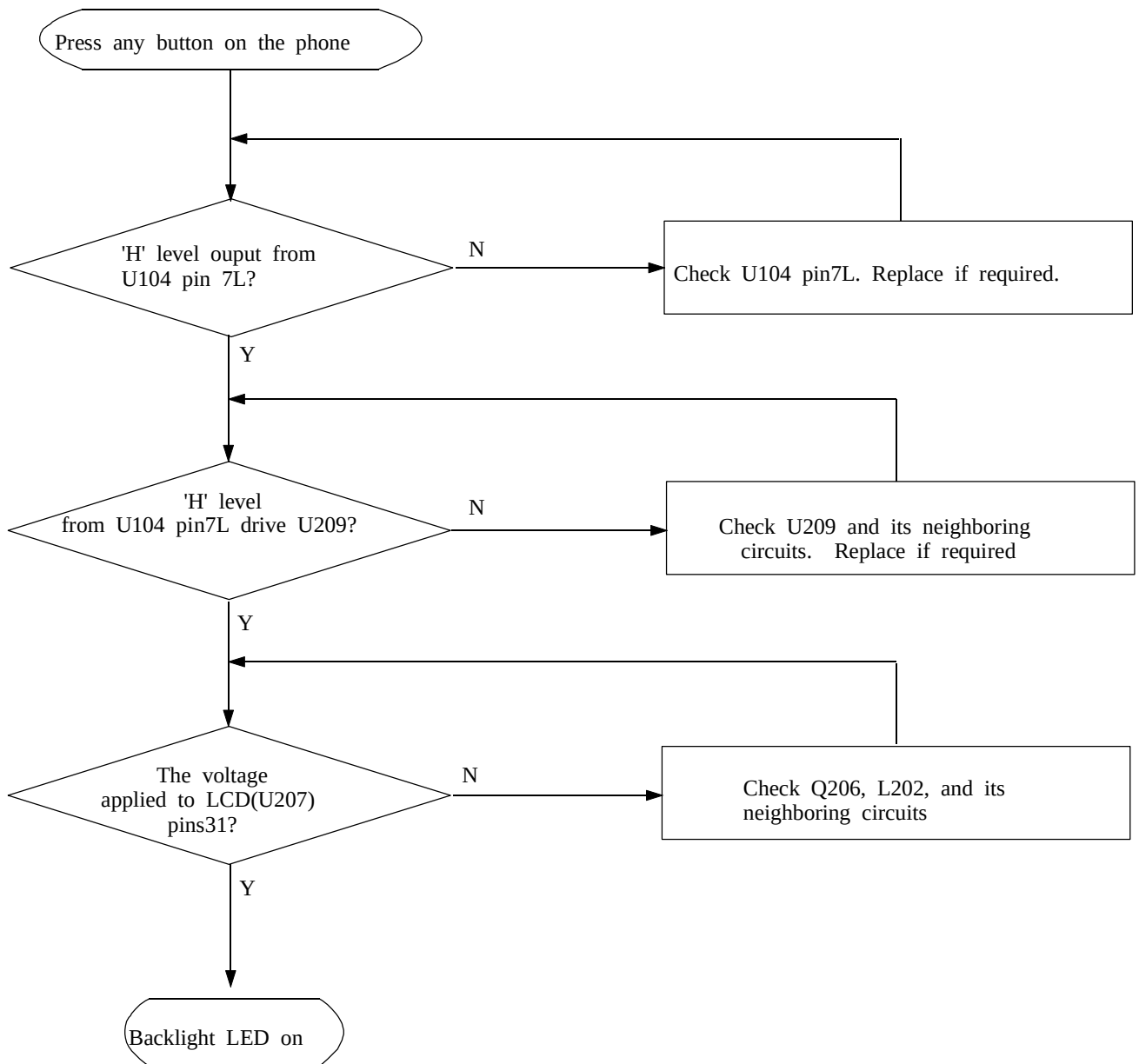
No Power



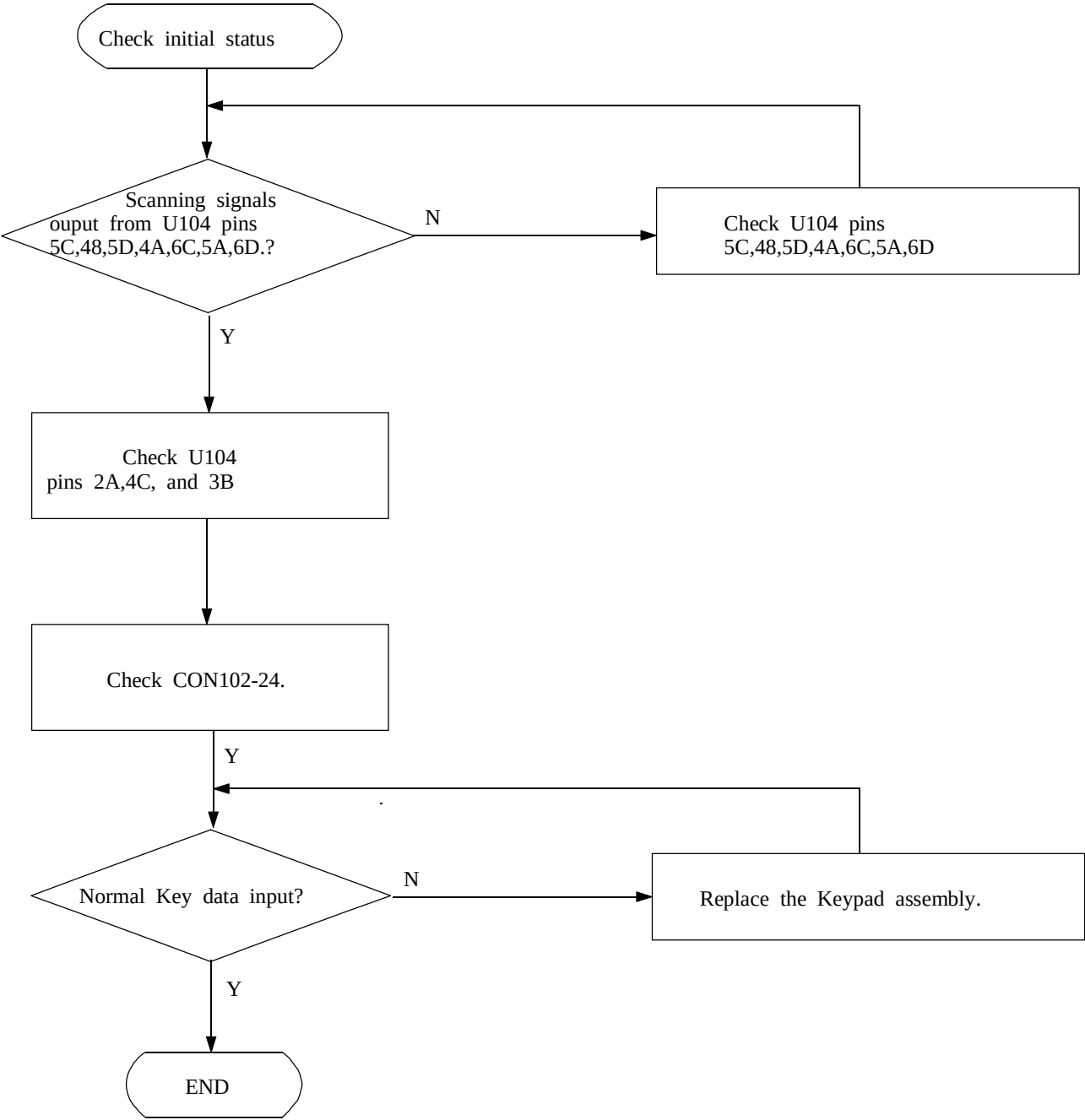
Abnormal initial operation(Normal +3.0V voltage source)



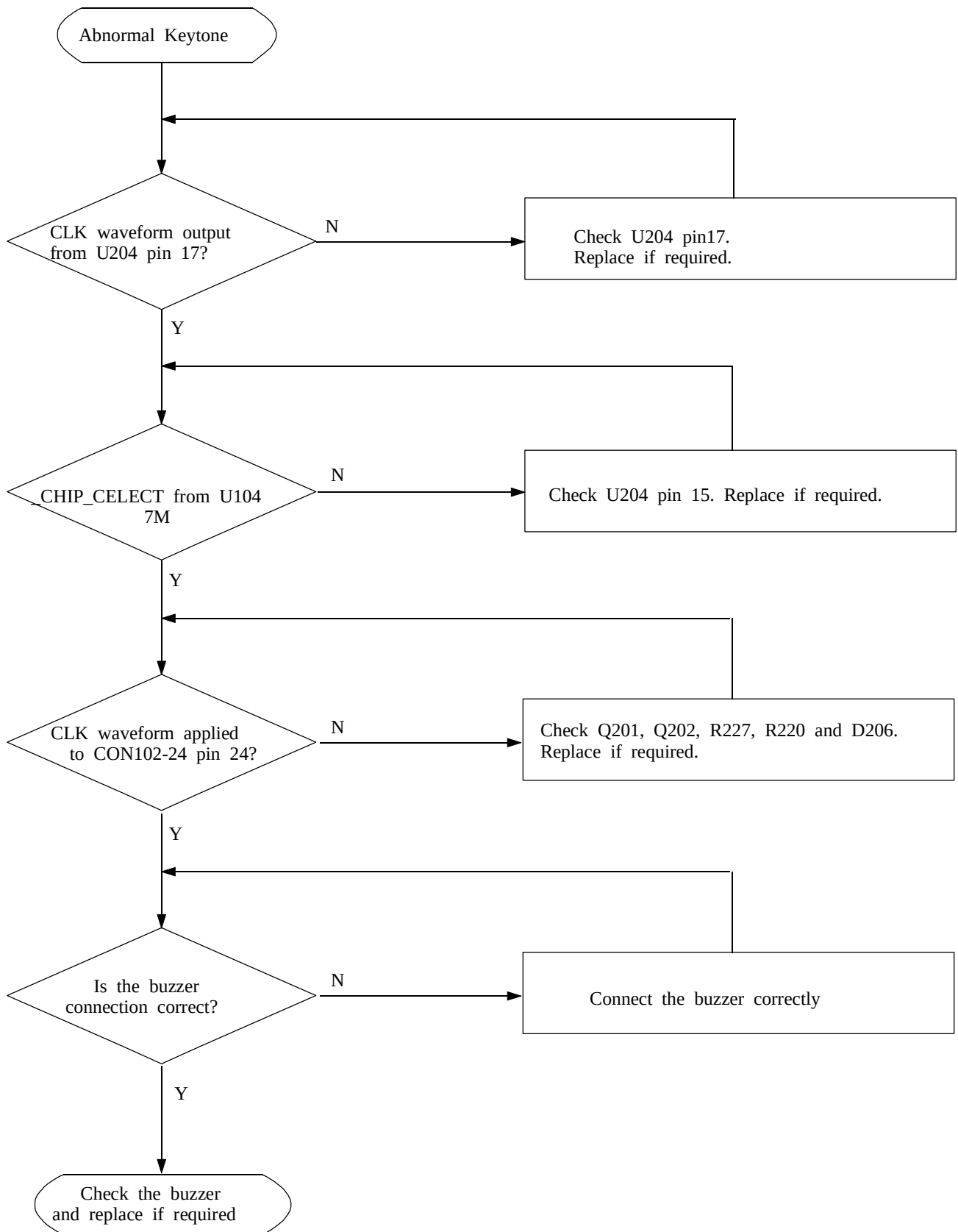
Abnormal Backlight Operation



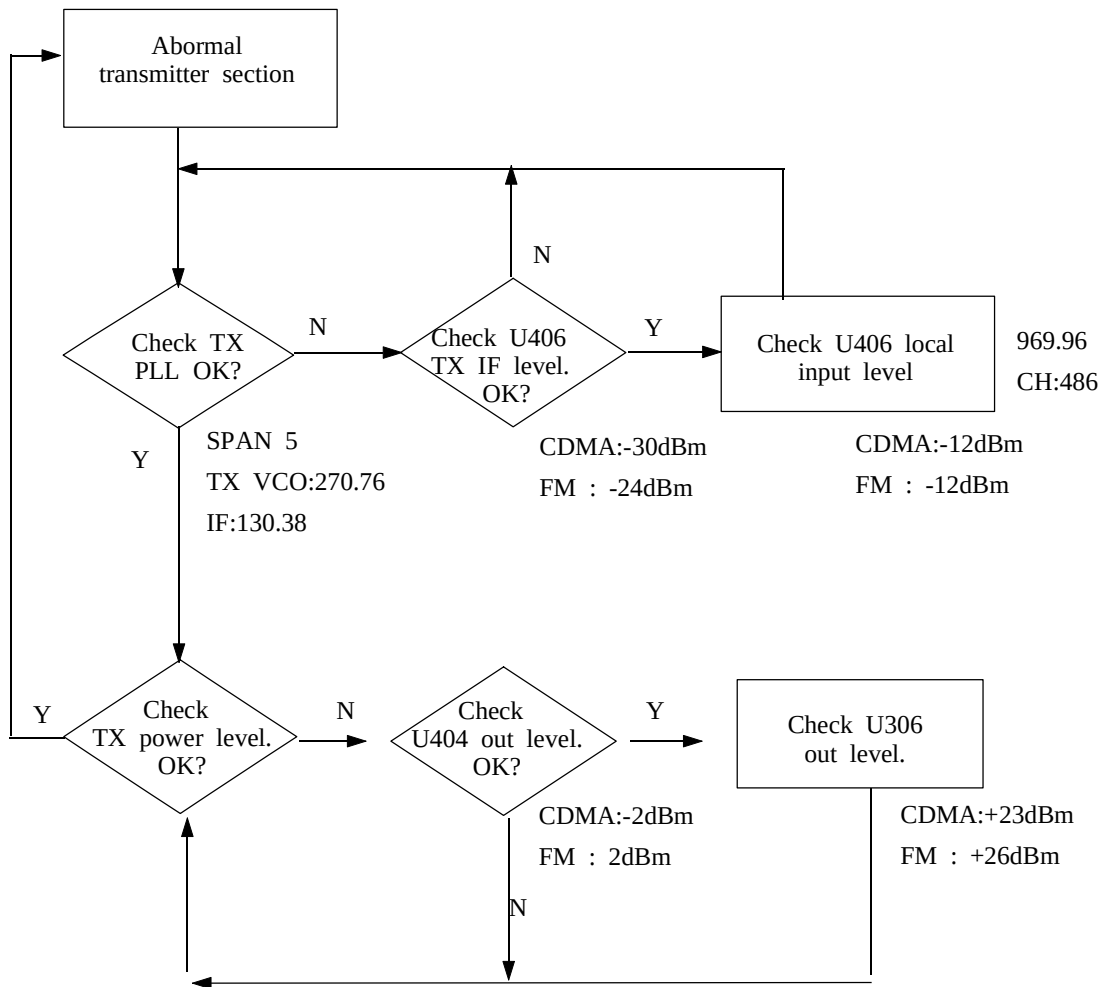
Abnormal Key Data Input



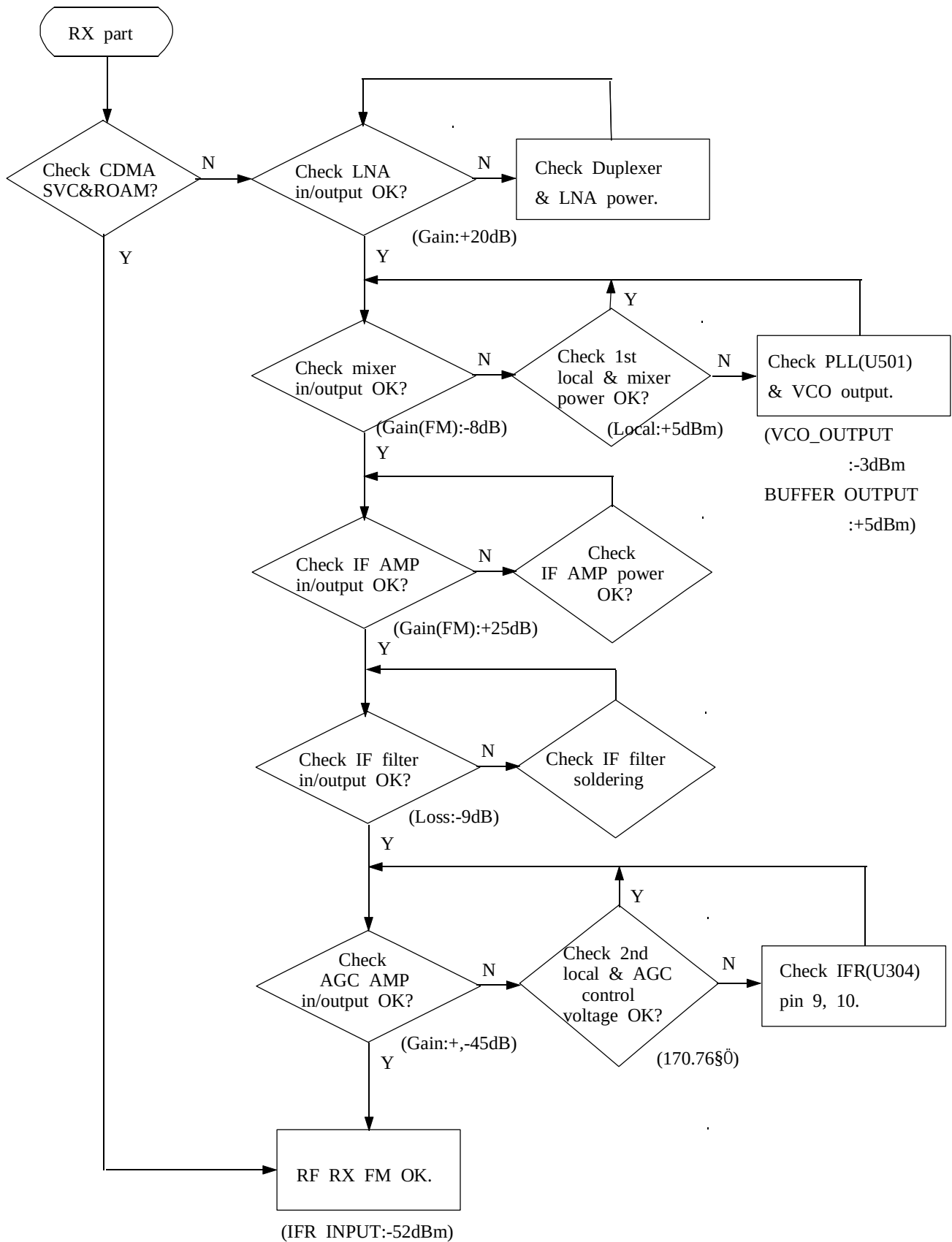
Abnormal Key Tone



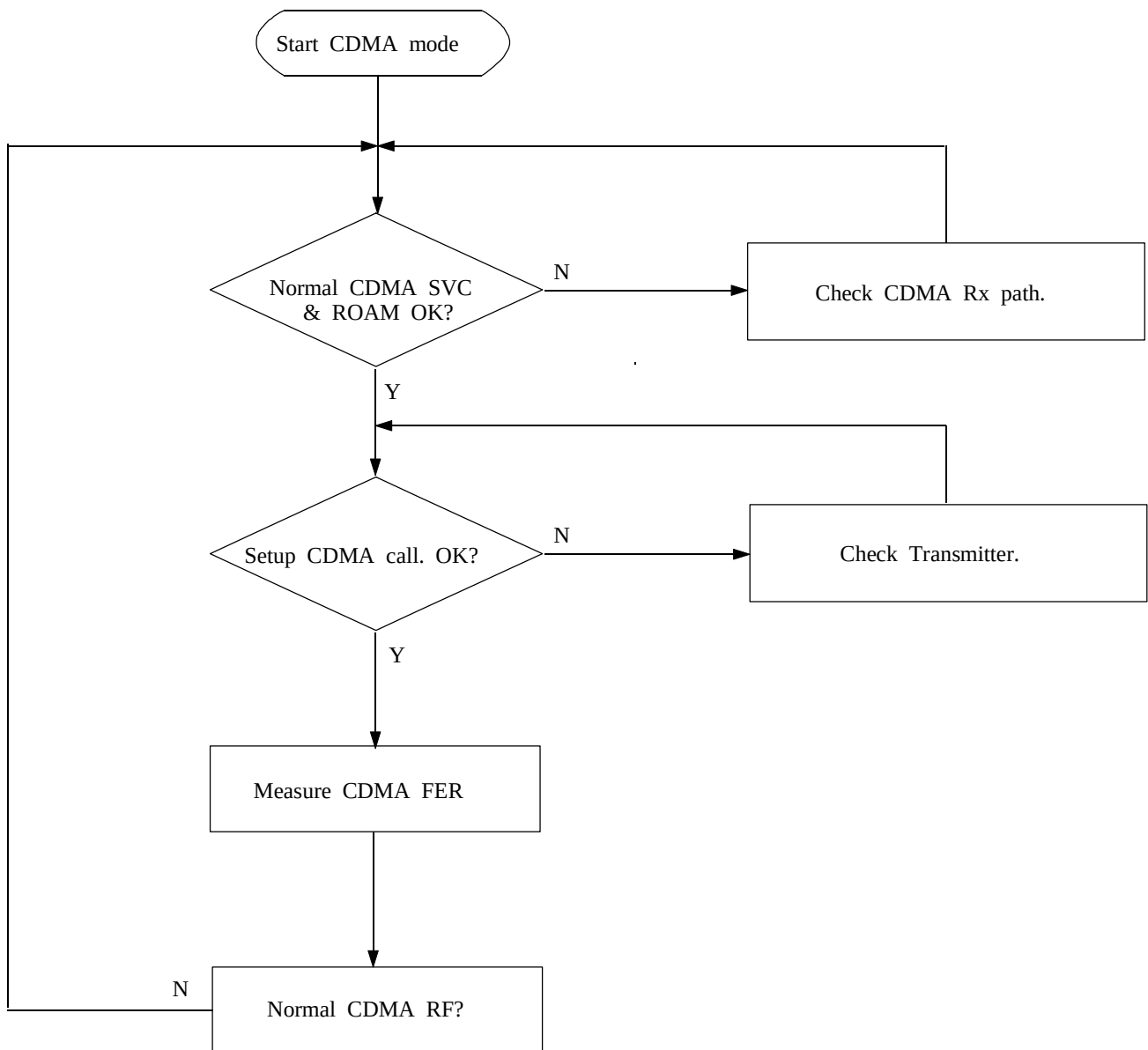
Transmitter Section



M Receiver SectionF



CDMA Receiver Section



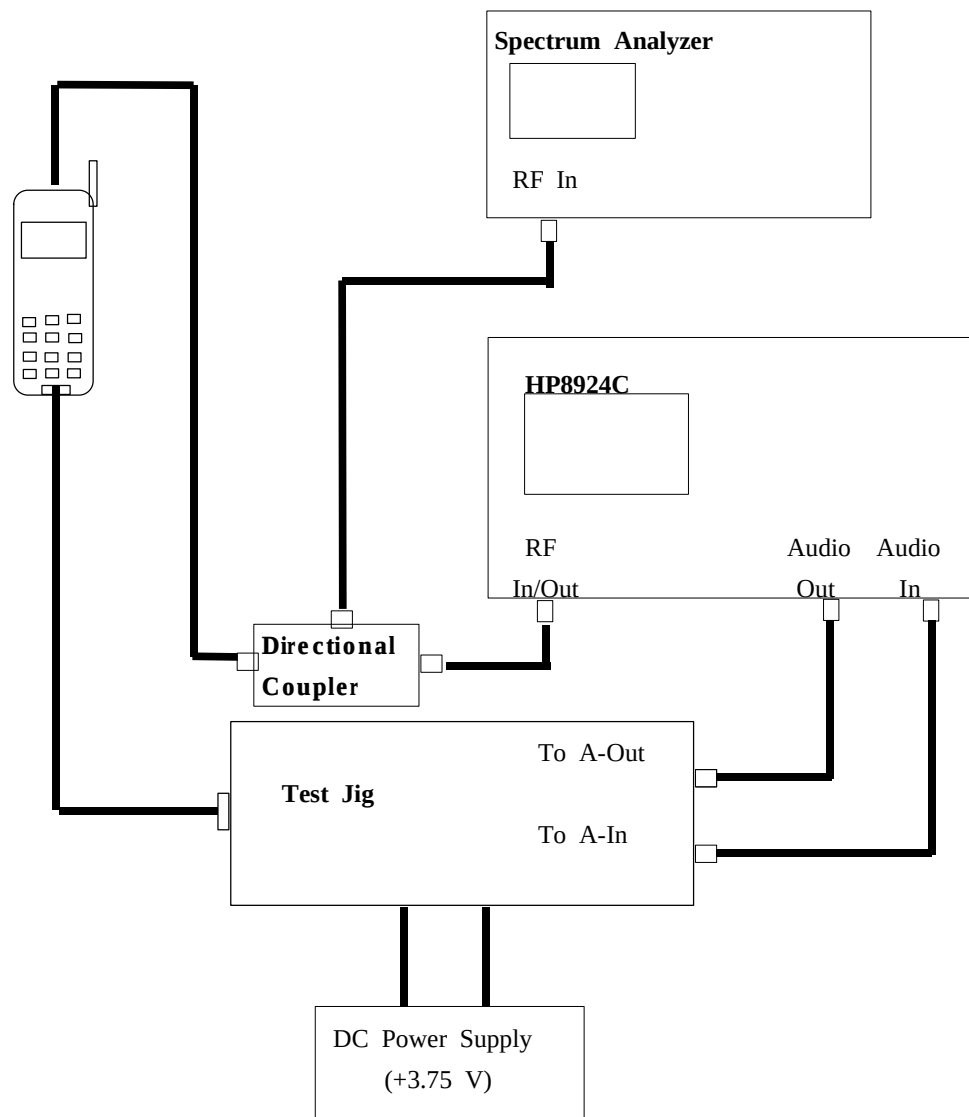
5. TEST PROCEDURE

TUNE-UP PROCEDURE

List of Equipment

- DC Power Supply
- Test Jig
- Test Cable
- CDMA Mobile Station Test Set HP8924C, HP83236A, CMD-80, etc
- Spectrum Analyzer(include CDMA test mode) HP8596E

Configuration of Test



Change to Test Mode

A. To change the phone from Normal Mode to test Mode, You should enter the following keys.

" * 7 5 9 # 8 1 3 5 8 0 "

B. The command 0 1"(Suspend) is entered to start test.

C. To finish the Test Mode, You should enter the command "0 2".

Channel Selection and Tx Power Output level Control

1. CDMA

A. You should change the phone from Normal Mode to Test mode

B. The command ;°0 1"(Suspend) is entered to start test.

C. You should enter the following keys.

" 0 9 X X X X #, 0 7, 7 1 X X X #, 3 4 "

- If you enter the command "0 9", You can select the channel

ex) 0 9 0 3 6 3 (under-bar means channel number)

- The command "0 7means Carrier On (Carrier Off : 0 8)

- If you enter the command "7 1", You can control the power output level. Following under-bar means AGC code, 000 to 511. And you can control the power output level using Volume Up/Down Keys.

ex) 7 1 4 7 5

- If you enter the command "3 4", You can spread spectrum to 1.23bandwidth.

D. After enter the command "7 4" and control the Tx Power Output Level to be 0.0dBm using Volume Up/Down keys, press "OK" key to store Data in EEPROM.

2. FM

A. You must change the phone from Normal Mode to FM Test mode

B. The command [0 1] (suspend) is entered to start test.

C. You should enter the following keys.

[0 9 X X X X #, 0 7, 9 7 X X X]

- If you enter the command [0 9], You can select the channel.
- The command [0 7] means Carrier On (Carrier Off : 0 8)
- If you enter the command [9 7], You can control the power output level. Following under-bar means AGC code. And you can control the power output level using [SEND] or [END] key
ex) 9 7 4 5

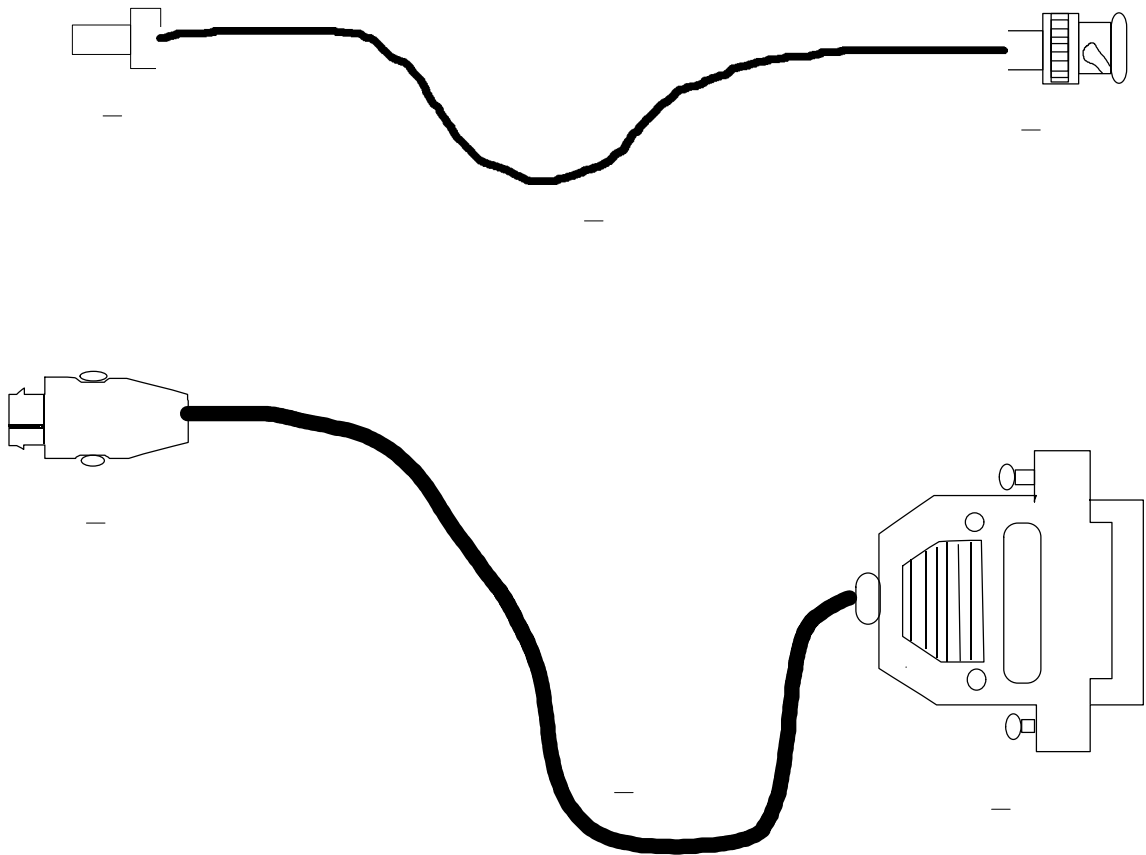
D. Control the TX Power Output Level using [SEND] or [END] key.

When you press [OK] key to store Data in EEPROM, enter next power level control step automatically.

LEVEL	LCD Display	TX OUTPUT POWER	STORE
2	TXpwr[02]	+26dBm +2/-4dB	OK
3	TXpwr[03]	+24dBm +2/-4dB	OK
4	TXpwr[04]	+20dBm +2/-4dB	OK
5	TXpwr[05]	+16dBm +2/-4dB	OK
6	TXpwr[06]	+12dBm +2/-4dB	OK
7	TXpwr[07]	+08dBm +2/-4dB	OK

TEST CABLE DESCRIPTION FOR SCH-620

1. TEST CABLE

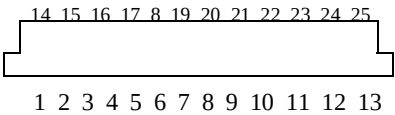


2. TEST CABLE CONNECTIONS

1	RF TEST CONNECTOR
2	BNC CONNECTOR (RF)
3	RF CABLE
4	D-sub 25PIN CONNECTOR (DATA)
5	DATA CABLE
6	PLUG CONNECT TO SCH-620

3. D-sub 25 PIN CONNECTOR PIN DESCRIPTION (TEST CABLE 1, BACK SIDE)

DATA DESCRIPTION	Dsub CONN. PIN NO.
Vcc	4, 5, 6
GND	13, 23, 24, 25
PW ON/OFF	7
TX AUDIO	10
TX DATA	22
RX AUDIO	12
RX DATA	21
RSSI	8



4. CONVERSION TABLE OF FREQUENCY vs CHANNEL

T Y P E	CHANNEL	CONVERSION EQUATION	REMARK
TX FREQUENCY	1 N 799 990 N 1023	F=0.03 N + 825.00 F=0.03 (N-1023) + 825.00	N ; CH NUMBER F ; FREQUENCY
RX FREQUENCY	1 N 799 990 N 1023	F=0.03 N + 870.00 F=0.03 (N-1023) + 870.00	

FM MODE

TEST ITEM	STEP	PROCEDURE
1. PREPARE	a	Connect the test equipment
	b	Select FM Mode : Choose 'Analog Only' in the General NAM program, and Press [OK]
	c	Enter the test mode: press [* 7 5 9 # 8 1 3 5 8 0]
	d	Press [0 1] : You must do it at first in FM test mode.
	e	If you press a wrong key, press [#] key and then enter new command.
	f	To exit the test mode at any time : press [0 2]
2. RF power	a	Set the channel 383: press [0 9 0 3 8 3]
	b	Turn the carrier on and set the power level 2. : press [0 7 1 0 2]
	c	Measure the RF Power Output : +26dBm +2/-4 dBm Note 1 : In the case of using the antenna cable, must compensate for the cable loss. Note 2 : To prevent from damage the HHP, must measure by calibrated test equipment. Warning ! Adjustments without calibrated equipment can result in excessive heat and will void the warranty.
	d	Power level control mode is [1 0 X] Adjust power level by using [SEND] or [END] key, and store :press[9 7]
	e	Then measure the power output for each level by pressing [OK] or [↵] at every step.
	f	Then turn carrier off : press [0 8]
3. TX Frequency	a	Set the channel 383: press [0 9 0 3 8 3]
	b	Turn the carrier on : press [0 7]
	c	Measure the tx frequency : 836.49MHz ± 2.5 ppm (±2090Hz)
	d	Turn the carrier off : press [0 8]

TEST ITEM	STEP	PROCEDURE
4. Voice Deviation	a	Set the channel 383 : [0 9 3 8 3]
	b	Send the RF power, and set TX audio unmute : press [0 7 4 6 4 5 1 4]
	c	Turn the carrier on, and set the power level 2
	d	Set the audio generator output to 1, 3.0 Vrms. Measure the TX voice deviation by using the HPF of 20 and LPF of 99. (Spec : 2.9 10%)
	e	To adjust the peak deviation, Press [6 3] and use the [SEND] or [END] key
	f	Store the peak deviation : press [OK]
	g	Set the audio generator output to 1, 100Vrms
	h	To adjust the compressor off deviation : press [4 5], and use [SEND] or [END] key. (Spec : 2.9 0.2)
	i	Store the compressor on deviation : press [OK]
	j	To adjust the compressor off deviation : press [4 4], and use [SEND] or [END] key. (Spec : 2.9 0.2)
	k	Store the compressor on deviation : press [OK]
	l	Turn the carrier off, and TX mute : [0 8 1 3]
5. ST Deviation	a	Set the channel 383: press [0 9 0 3 8 3]
	b	Turn the carrier on and set the power level 2.
	c	Set ST : press [1 6]
	d	Measure the TX ST deviation by using the HPF of 20 and the LPF of 15. (spec : 8 10%)
	e	To adjust the deviation ; press [0 6], and use [SEND] or [END] key.
	f	Store the deviation code in EEPROM : press [OK]
	g	Turn the ST and the carrier off : press [1 7 0 8]

TEST ITEM	STEP	PROCEDURE
6. SAT Deviation	a	Set the channel 383 : [0 9 3 8 3]
	b	Turn the carrier on, and set the power level 2
	c	Set the Voice State and SAT on : press[4 6 3 2 1]
	d	Measure the TX SAT deviation by using the HPF of 20 and the BPF of 6. (spec : 2 10%)
	e	To adjust the deviation within specification : press [6 4], and use [SEND] or [END] key.
	f	Store the deviation code in EEPROM : press [OK]
	g	Turn the SAT and the carrier off : press [3 3 0 8]
7. WBD Deviation	a	Set the channel and carrier on : [0 9 0 3 8 3 0 7]
	b	WBD on : [3 4]
	c	Measure the WBD deviation by using the HPF of 20 and the LPF of 99. (spec : 8 10%)
	d	To adjust the WBD deviation : press [6 5], and [SEND] or [END] key.
	e	Store the deviation code in EEPROM : press [OK]
	f	Turn the carrier off : press [0 8]
8. RX Audio	a	Set the equipment as below. RF frequency : 881.49 Input RF level : -80 dBm Modulation frequency : 1 Frequency deviation : 8
	b	Set the channel 383 and the Voice State : press [0 9 0 3 8 3 4 6]
	c	Set the RX audio unmute : press [1 2]
	d	Set compandor on : press [4 4]
	e	Adjust the expandor on audio level : press [6 1] Use [SEND] or [END] key.
	f	Store the expandor on audio level ; press [OK]
	g	Finish the test and exit test mode : press [0 2]

CDMA MODE

TEST ITEM	STEP	PROCEDURE
1. PREPARE	a b c d f	Connect the test equipment Select FM Mode : Choose 'CDMA Only' in the General NAM program, and Press [OK] Enter the test mode : press [* 7 5 9 # 8 1 3 5 8 0] If you press a wrong key, press [#] key and then enter new command. To exit the test mode at any time : press [0 2]
2. FREQUENCY ACCURACY	a b c d e	Set the channel 363: press [0 9 0 3 6 3] Turn the carrier on and set the power level. : press [0 7 7 1 X X X] Measure the frequency accuracy (spec: 300Hz) To adjust the Frequency Accuracy : press [8 9] and use volume key Store the Frequency Accuracy in EEPROM: Press [OK]
3. OCCUPIED CDMA BAND WIDTH	a b c	Set the channel 363: press [0 9 0 3 6 3] Turn the carrier on and set the power level. : press [0 7 3 4 7 1 X X X] Measure the Band Width. (spec: 1.32)
4. LIMITATIONS ON EMISSIONS	a b c	Set the channel 363: press [0 9 0 3 6 3] Turn the carrier on and set the power level. : press [0 7 3 4 7 1 X X X] Measure the spurious at F_c900 , $F_c1.98$, $2F_c$, $3F_c$, $1/2F_c$ spec: F_c900 below 42dBc/30 $F_c1.98$ below 54dBc/30 Outside Receive Band $43+10\log(PY)$ PY: Mean output power in watts
5. GATED POWER & TIME	a b c d e	Set the Service option: 2 Set the Data Rate: Eighth (1200bps) Registering: HHP --> HP8924C Call : HP8924C --> HHP Measure the Gated Power & Time spec: Gated Power at least 20dB Gated Time - Rising Time: below 6us Falling Time: below 6us Burst Time: below 1.25ms