4. 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.

General Setup

LCD Display	Key in	Function
	MENU, 8,2,0	-selects NAM programming
Enter Lock ??????	222222	-Enter random 6-digit code(msL)
SVC Menu¡è¢é 1: Phone # 2: General 3: NAM	**1**	-choose 'Phone #'
Phone # 1234567890	 keypad **OK**	-Phone number setup -To change phone number, enter phone #. -store it.
Mobile ID # 1234567890	 keypad **OK**	-Mobile ID setup -To change phone number, enter phone #. -store it.
SVC Menu¡è¢é 1: Phone # 2: General 3: NAM	**2**	-choose 'GENERAL'
ESN B0000000	 **OK**	-Electronic Serial Number of the phone is displayed
CAI version 1	 **OK**	-Common Air Interface version is displayed
SCM 00001010	 **OK**	-Station Class Mark displays the power class, transmission, slotted class, dual mode.
Lock Code 0000	 4-digit code **OK**	Lock code, current status is displayed -to change, enter new code. -stores it
Slot Mode No	 *** 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.

Setting Up NAM

LCD Display	Key in	Function
Svc Menu ¡è¡é 1: Phone # 2: General 3: NAM	3	-choose 'Setup NAM'
IMSI_MCC		ImsI Moble Country Code,current code is displayed.
310	number	-to change,enter new one.
	OK	-stores it.
IMSI_MNC		ImsI Mobile Network Code,current code is displayed.
00	number	-to change,enter new one.
	OK	-stores it.
CDMA ACCOLC		CDMA Access Overload Class,current status is displayed.
0	class number	-to change,enter new one.
	OK	-stores it.
CDMA Home SID		CDMA Home system ID,current status is displayed
Yes	*** or #**	-changes the status.
	OK	-stores it.
CDMA fSID		CDMA foreign SID,current status is displayed.
Yes	*** or #**	-changes the system.
	OK	-stores it.
CDMA fNID		CDMA foreign NID,current status is displayed.
Yes	*** or #**	-changes the system.
	OK	-stores it.
HOME SID		SID written in the list,current status is displayed.
	number	-to change,enter new one.
1700	**OK**	-stores it.
NID		NID written in the list,current status is displayed.
1	number	-to change,enter new one.
	OK	-stores it.
AMPS ACCOLC		AMPS Access Overload Class,current status is displayed.
0	class number	-to change,enter new one.
	OK	-stores it.

5.Test Commands & Test Procedure List

Test Command Table

To change the phone from normal mode to test mode, you should enter the following keys :
Press [47*869#1235]

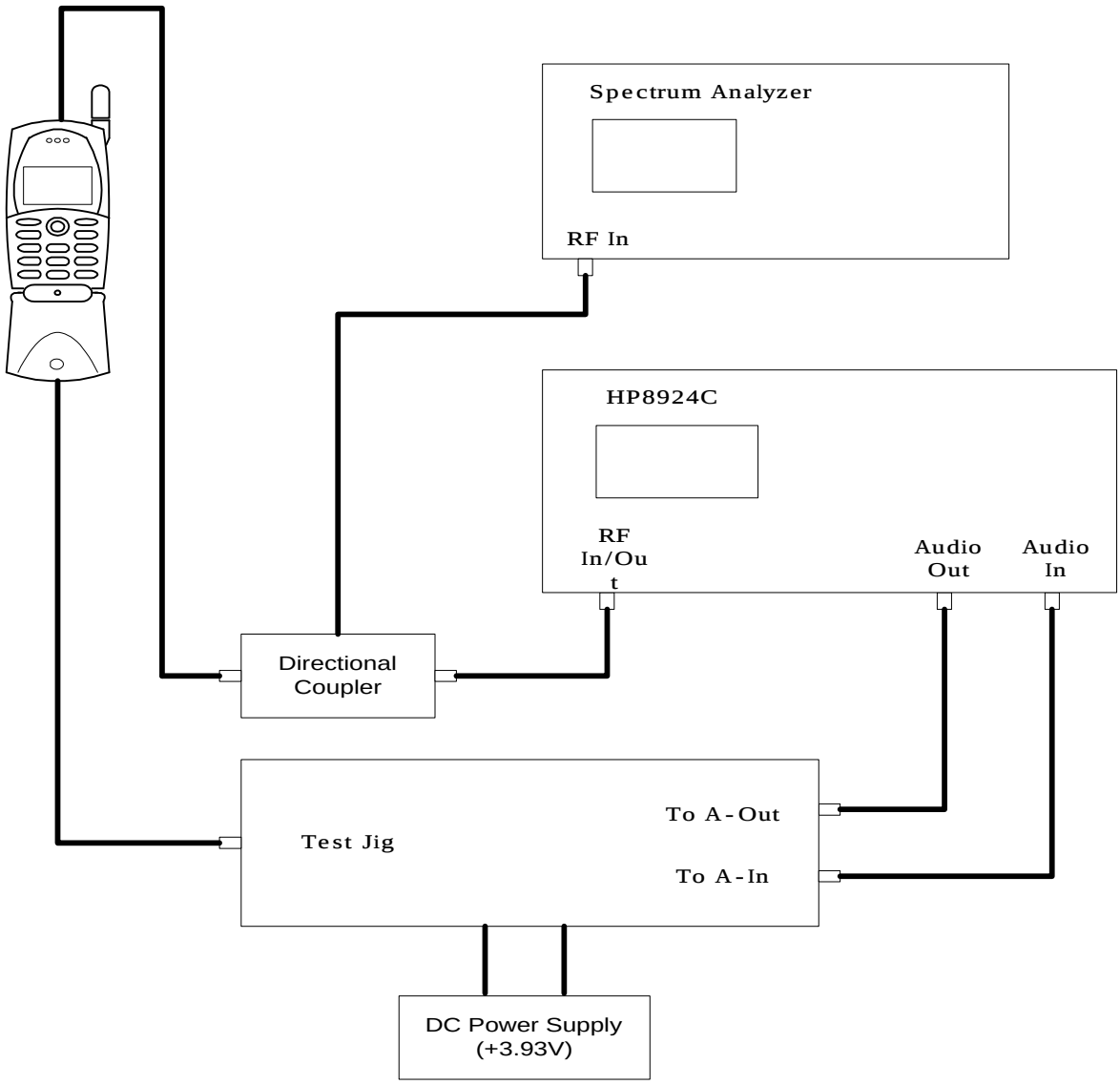
Command No	Command SW Name	Description
01(1F,0,0)	T_SUSPEND_I	Enter to test menu
02(3F,0,0)	T_RESTART_I	Escape from test menu
04(1D,0,1)	T_GET_MODE_I	Get mode CDMA/FM
07(81,0,0)	T_CARRIERON_I	Turn on the carrier
08(82,0,0)	T_CARRIEROFF_I	Turn off the carrier
09(83,4,0)	T_LOADSYN_I	Load the synthesizer for locking
10(84,1,0)	T_PWRLEVEL_I	Change RF power level
11(85,0,0)	T_RXMUTE_I	Mute rx audio
12(86,0,0)	T_RXUNMUTE_I	Unmute rx audio
13(87,0,0)	T_TXMUTE_I	Mute tx audio
14(88,0,0)	T_TXUNMUTE_I	Unmute tx audio
16(8F,0,0)	T_STON_I	Transmit a continuous Signaling Tone(ST)
17(90,0,0)	T_STOFF_I	Stop transmit a continuous Signaling Tone(ST)
18	T_LCD_CONTRAST_I	Tune LCD contrast
20(94,5,0)	T_TEST_SYS_I	Roam Test System
22(91,96,96)	T_SNDNAM_I[1)]	Display & Send NAM Information
23(95,3,4)	T_SNDVERSION_I[1)]	Display & Send Software Version
24(9F,7,8)	T_SNDESN_I[1)]	Display & return ESN
25(92,0,0)	T_BACKLIGHT_ON_I	Back-light on
26(93,0,0)	T_BACKLIGHT_OFF_I	Back-light off
27(96,0,0)	T_LAMP_ON_I	LAMP on
28(97,0,0)	T_LAMP_OFF_I	LAMP off
30(9D,15,0)	T_PLINE_I	Display and return production date
31	T_AUTOANSWER_I	Enable Auto-answer mode
32(A0,1,0)	T_SATON_I[*2)]	Enable the transmission of SAT
33(A1,0,0)	T_SATOFF_I[*]	Disable the transmission of SAT
34(A2,0,0)	T_CDATA_I	Continuously send TX Control data
38	T_PCS_CH_FLATNESS_B_ON_I	Set PCS Low power mode channel flatness
39	T_TXRAS_ADJ_BP_ON_I	View TX RAS of low power mode (not adjustable)
40(A7,3,0)	T_CDMA_RXADJ_I	Sets RX flatness of PCS mode
41	T_RXRAS_FLATNESS_I	View RX flatness of PCS mode
42(AA,1,0)	T_DTMFON_I[2)]	Turn on DTMF
43(AB,0,0)	T_DTMFOFF_I	Turn off DTMF
44(B0,0,0)	T_COMPANDORON_I	Turn on compandr
45(B1,0,0)	T_COMPANDOROF_I	Turn off compandor
46(B2,0,0)	T_FM_VCLINE_I[*]	Enter FM voice state
47(B3,3,0)	T_FM_AUD_GAIN_I	FM audio gain
48(B4,0,0)	T_VIBRATOR_ON_I	Activate a vibrator
49(B5,0,0)	T_VIBRATOR_OFF_I	Inactivate a vibrator

Command No	Command SW Name	Description
50(B6,0,4)	T_BATT_TYPE_I	Battery Type
52(B9,0,8)	T_HW_VERSION_I	View HW version
55(AC,1,0)	T_EXT_AUDIO_I	External Audio Path On/Off
57(BC,0,0)	T_MIC_ON_I	Unmute MIC Path
58(BD,0,0)	T_MIC_OFF_I	mute MIC Path
59(BE,0,0)	T_ALLPATH_I	Tune on the all audio path
60(BF,3,0)	T_FM_TX_GAIN_I[2)3)]	AMPS Tx Audio Gain Control
61(C0,3,0)	T_FM_RX_GAIN_I[2)3)]	AMPS Rx Audio Gain Control
62(C1,3,0)	T_DTMF_VOL_TX_I[2)3)]	AMPS Tx DTMF Gain Control
63(C2,3,0)	T_TX_LIMITER_I[2)3)]	AMPS Tx Limiter Gain Control
64(C3,3,0)	T_FM_SAT_LEVEL_I[2)3)]	AMPS Tx SAT level Control
65(C4,3,0)	T_FM_FREQ_SGAIN_I[2)3)]	AMPS Tx Master Gain Control
66(C5,3,0)	T_FM_ST_GAIN_I[2)3)]	AMPS Tx ST Gain Control
67(C6,0,6)	T_READ_BATT_I[1)]	Saved Low battery value read
68(C8,0,3)	T_VBATT1_I[3)]	Set the low battery position in the standby
69(C9,0,3)	T_VBATT2_I[3)]	Set the low battery position in the talking
70(CA,3,0)	T_WRITE_BATT_I[3)3)]	write a BATT
71(D1,3,0)	T_CDMA_TXADJ_I[2)]	Sets tx_agc_adj for PCS mode
72(D2,3,0)	T_FM_TXADJ_I[2)]	Sets tx_agc_adj for AMPS mode
73(D3,1,0)	T_SET_PA_R_I[2)]	Sets PA R1,R0 range bits
74	T_TXRAS_ADJ_I	View TX RAS of high power mode(not adjustable)
75(D5,0,3)	T_READ_RSSI_I[3)]	Read a RSSI
76(D6,3,0)	T_WRITE_RSSI_I[3)]	Write a RSSI
77(D7,0,3)	T_READ_TEMP_I	Read a TEMP
79(D9,1,0)	T_BUZZER_ON_I[2)]	Buzzer on
80(DA,0,0)	T_BUZZER_OFF_I	Buzzer off
81(E3,0,0)	T_VOC_PCMLPON_I	Turn on to play a PCM LOOP BACK
82(E4,0,0)	T_VOC_PCMLPOFF_I	Turn off to play a PCM LOOP BACK
83	T_BYPASS_ON_I	Set Low power mode
84	T_BYPASS_OFF_I	Set High power mode
85(E7,0,0)	T_SPEAKER_ON_I	Turn on the speaker path
86(E8,0,0)	T_SPEAKER_OFF_I	Turn off the speaker path
87(E9,0,0)	T_FM_LOOP_TEST_I	FM loop back
88(EA,3,0)	T_TRK_ADJ_I[3)]	TRK LOCAL ADJUST
89(EB,3,0)	T_CDTRK_ADJ_I	CDMA TRK LOCAL ADJUST
92(D4,5,0)	T_FM_TX_PWR_I	Adjust AMPS Power level 2~7
93(F3,4,0)	T_CH_FLATNESS_I	Adjust AMPS channel flatness
94(F4,4,0)	T_RXRAS_ADJ_I	RX RAS table (not adjustable)
97(F2,4,0)	T_PCS_CH_FLATNESS_I	Set PCS High power mode channel flatness
98(F8,3,0)	T_PCS_CH_MAX_MIN_I	Edge Channel Max/Min Power Code
99(FC,4,0)	T_SND_GAIN_I	Mic/Speaker Gain control

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

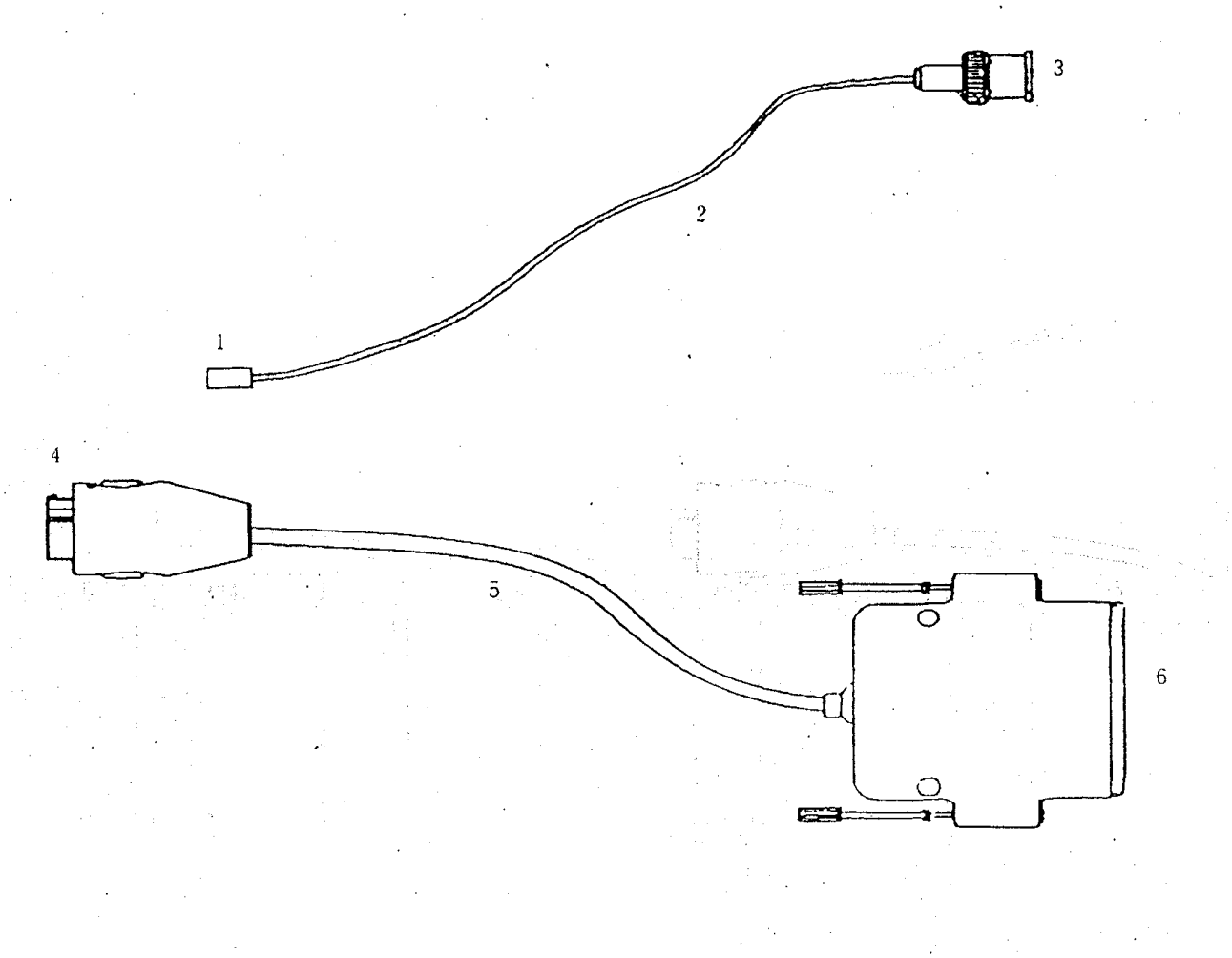
Configuration of Test



¡Ø CAUTION : The test jig and data cable has a voltage drop of 0.33V at FM Max power output, you'd better set the DC power supply to 3.93V for normal test condition. (Nominal voltage of battery is 3.6V at cellular phone)

TEST CABLE DESCRIPTION FOR SPH-N100

1. TEST CABLE

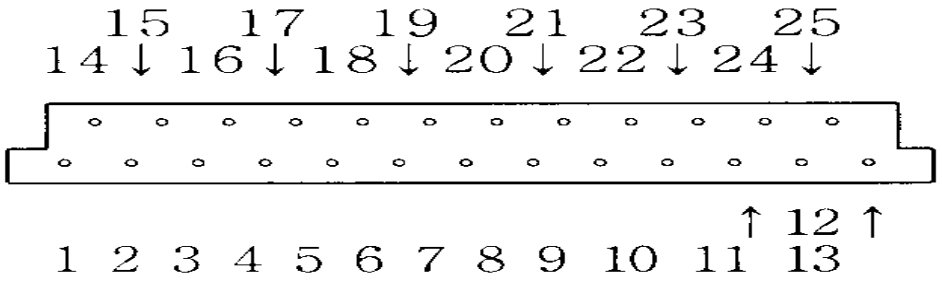


2. TEST CABLE CONNECTIONS

1	MHC 172
2	RF CABLE (1.4 dB Loss for AMPS, 2.2dB for PCS)
3	BNC CONNECTOR (RF)
4	PLUG CONNECT TO SPH-N100
5	DATA CABLE
6	Dsub 25PIN CONNECTOR (DATA)

3. Dsub 25 PIN CONNECTOR PIN DESCRIPTION (TEST CABLE 1, BACK SIDE)

DATA DESCRIPTION	Dsub CONN. PIN NO.	DATA DESCRIPTION	Dsub CONN. PIN NO.
V_F	12,21	DP_RX_DATA	8
DGND	2,4,6,13,19	HP_PWR	9
BATT	15,16,22	RI	10
C_F	3,20	CD	11
TX_AUDIO	5	RTS	14
DP_TX_DATA	7	CTS	17
RX_AUDIO	1	DTR	18



4. CONVERSION TABLE OF FREQUENCY vs CHANNEL

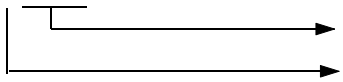
T Y P E	CHANNEL	CONVERSION EQUATION	REMARK
TX FREQUENCY	1 ¡ÂN¡Â 799 990 ¡ÂN¡Â1023	F=0.03 ¡¿ N + 825.00 F=0.03 ¡¿ (N-1023) + 825.00	N ; CH NUMBER F ; FREQUENCY **(AMPS)**
RX FREQUENCY	1 ¡ÂN¡Â 799 990 ¡ÂN¡Â1023	F=0.03 ¡¿ N + 870.00 F=0.03 ¡¿ (N-1023) + 870.00	
TX FREQUENCY	0 ¡ÂN¡Â 1199	F=0.05 ¡¿ N + 1850.00	N ; CH NUMBER F ; FREQUENCY **(PCS)**
RX FREQUENCY	0 ¡ÂN¡Â 1199	F=0.05 ¡¿ N + 1930.00	

Change to Test Mode

A. To change the phone's state from Normal Mode to Test Mode, You should enter the following keys.
"4 7 * 8 6 9 # 1 2 3 5"

B.The command "20" is mode and channel change , press "OK" to save.
"10000" or "10001" : AMPS's System A and System B

"30600"



Channel number
Mode:PCS

C. The command ¡0 1" is Suspend.

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

Channel Selection and Tx Power Output Level Control

1.AMPS(FM)

A. Enter to Test Mode (4 7 * 8 6 9 # 1 2 3 5).

B.The command "20" is mode and channel change
"10000" or "10001" : AMPS's System A and System B

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

D. "0 1" : Suspend.

E. "4 6" : Vocoder initial to Analog mode.

F. "0 9 0 3 6 3 #" : Set to '0363' channel.

G. "0 7" : Carrier On.

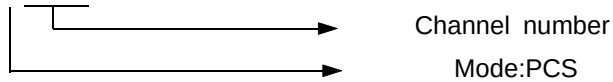
H. "9 2 * * * " : Output RF power level is set as power level 2
"* * *" means AGC level and AGC level range is from 0 to 511.

I. "1 0 2" : RF Power level control, 2(0~7) means power level .

3.PCS

A. Enter to Test Mode (4 7 * 8 6 9 # 1 2 3 5).

B. The command "20" is mode and channel change
"30600"



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

D. "0 1" : Suspend.

E. "0 9 0 6 0 0 #" : Set to '0600' channel.

F. "0 7" : Carrier On.

G. "3 4" : Spread spectrum to 1.23MHz band width.

H. "8 4" : High Power-mode On

I. "7 1 * * * " : Output RF power level is set max power
"* * *" means AGC level and AGC level range is from 000 to 511.