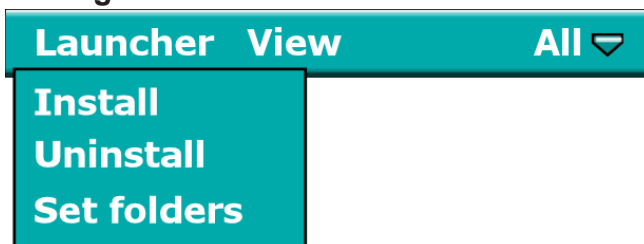# Handset Test Commands

Introduction

The Handset Test Command mode of the phone is provided primarily for service personnel without access to equipment capable of exercising Test Commands over a computer connection. This mode collects input from the user and packages it in the format required by the Test Command component within the phone.

Application Installation*

The user needs to install the Handset Test Command application before it can be accessed. Obtain the file, "testcmdui.sis", file from your local Motorola service representative. Use the following procedure to properly install the handset test command application.

1. Copy the testcmdui file into a memory card (SD or MMC) and insure that the card is inserted in the phone.

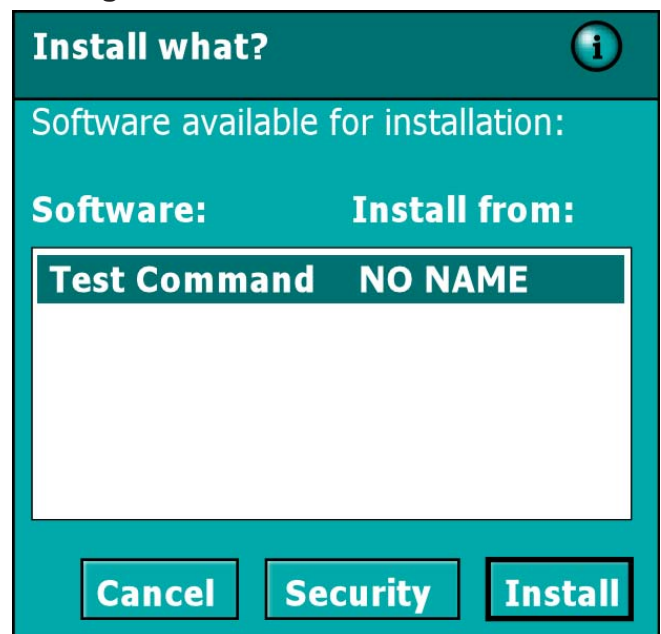2. From the App Launcher screen, select *Install* from the Launcher drop down list

Figure 1. Launcher Menu

*Test application can only be loaded if application loading is not secured.

3. The user will be prompt with a list of software installation files.

4. Highlight *Test Command* and select *Install*

Figure 2. Install Window

5. When installation is complete, the Test Command icon will be displayed in the App Launcher screen.

Figure 3. Test Command Icon

Handset Test Command Mode Entry

Follow these procedures to launch the handset test command aplication.
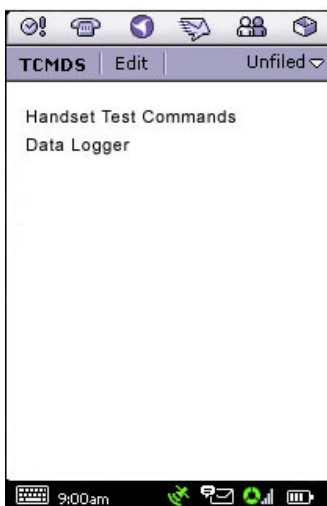
1.   Under the App Launcher screeen select the Handset test command icon.

2.   The user will then be prompt to input a password

Figure 4. Password Prompt

3.   The password is 0HTCMD#
      Note: Password is case sensitive

4.   Once the application is launched, the user is presented with a list of sub applications
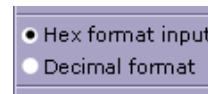
Figure 5. Sub Applications

5.   Choose Handset Test Commands to enter the Test command Opcode screen

Figure 6. Main Entry Screen

6.   Before entering any commands, the user will should select the data input format under the *Edit* menu

Figure 6. Input Format

7.   The user can select Hexidecimal or decimal.

8.   Under the Edit menu, the user can also clear a field or all fields

9.   The *Back* key will return the user to the App Launcher screen

Entry Method

Once the test command mode is entered, two prompts are used to collect command request information from the user. The opcode entry prompt (Figure 5) allows the entry of either an entire command as described in this section, or entry of a partial command. If a partial command is entered, the user will be prompted to enter the remaining required information via an appropriate number of field entry prompts (Figure 7). Selecting Test with no data entered in the opcode or field entry screen will cause a parse error (unless the field is optional).

The comma is used to delimit fields on the opcode entry prompt and is not allowed on the field entry prompt. On the opcode entry prompt, it is not legal to have a comma immediately follow another comma.

Opcode entry

The opcode entry prompt allows the user to enter the opcode for the test command, or the opcode plus additional parameters delimited by the "," character.

The user may select *Test* after entering the opcode. If the opcode requires further parameters, the list of Fields shall be shown starting with 1. After all the fields are entered the user shall select *Test*. The results are then shown on the screen.

Figure 7. Fields entered Separately
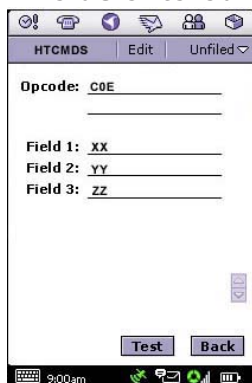
The *Back* selection will clear the command contents and return the user to the opcode prompt.

If the user chooses to enter the entire command with the necessary parameters in the Opcode prompt, "," delimiters will be used.

Figure 8. Fields Entered with Delimiter
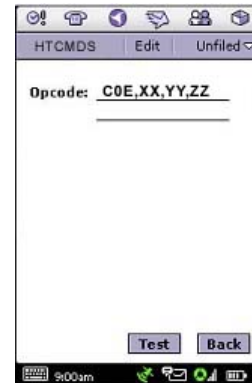
Entering Data

When the User wants to enter the Fields, they shall click the Keyboard Icon at the bottom of the screen to input the values.

Figure 9. Keyboard Entry

They can also use the Stylus, depending on the settings selected by the user in the control panel.

Figure 10. Stylus Entry
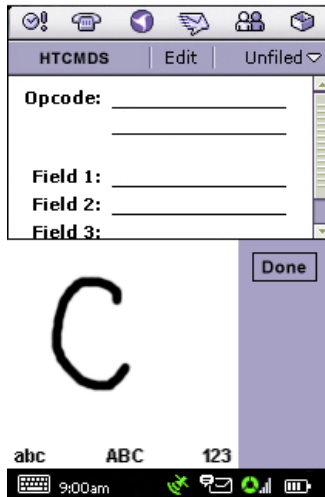
The user shall enter values in Hex or Decimal. The following values shall be allowed for each entry method:
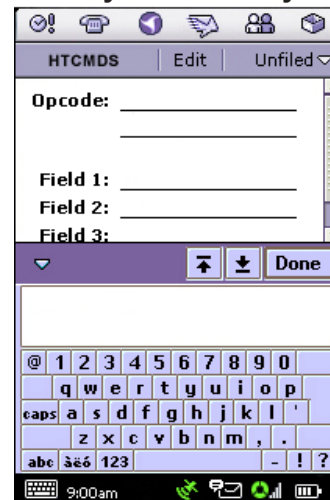
*   Hex: A to F and 0 to 9. (not case sensitive)
*   Decimal: 0 to 9

When the user presses, "Test", the values shall be checked whether they match the values that are allowed. If not, they shall get an Error Message as follows:

Figure 11. Invalid Entry
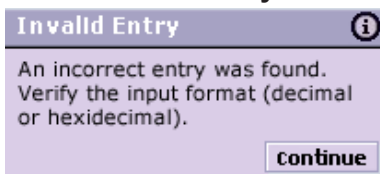
After the user presses, "Continue", they shall be taken back to the field where the incorrect entry method was found.

If command processing takes more than 2 seconds a message will display, "Running Test..."

Result Screen

The display of the output shall always be in Hexadecimal Format.

Figure 12. Results Screen

Pressing the "Back" Key shall always take the user back to the Main Entry Screen as shown in Figure 6

Table 1. Handset Test Command Summary

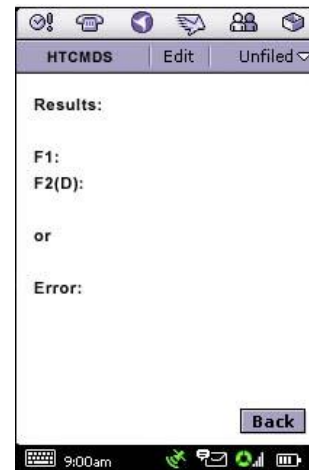| Opcode Hexadecimal	Opcode Decimal	Opcode Mnemonic	Key Entry Format	Op Code Description
0	0	AUD_TN_LST	0 *<Action> * <Tone Identifier>OK	Generate/disable predefined tone
3	3	AUD_CTRL	3 *<Device/Process> * <Action>OK	Control various audio functions; enable/disable vibrator
4	4	AUD_LPB	4 *<Loopback Type> * <Action>OK	Enable audio loopback
5	5	AUD_LVL	5 *<Get/Set>*<Volume>OK	Set audio level
6	6	AUD_PATH	6 *<Input Path>*<Output Path>*<RX Mute>*<TX Mute>OK	Change audio path
7	7	CARRIER	7 * <Option> * <Action> OK	Enable GSM TX carrier
0A	10	CP_MODE	10 * <Set/Get> * <Sub-mode> OK	Set Call Processing Mode
12	18	INVM	18 * <level> OK	Master clear or reset
14	20	LOAD_SYN	20 * <Channel> * 0 OK	Set GSM channel
22	34	RESTART	34 * OK	Generate a software restart
2D	45	SET_RF_PWR	45 * <Power level> OK	Set GSM Power level
36	54	SUSPEND	54 OK	Terminate normal mode and enter test mode
37	55	TST_DISP	55 * <Parameter> * <Parameter Data> OK	Display predefined patterns
39	57	VERSION	57 *<version Type>OK	Retrieve SW version information
3E	62	LEDS	62 * <LED> * <Action> * <Data> OK	Control status LEDs
C0B	3083	WLOAD_SYN	3083 * <RX_FREQ_ID> * <TX_FREQ_ID> OK	Set WCDMA channels
C0E	3086	W_CARRIER	3086 * <Channel ID> * <Action> * <Tx Pwr> * <Max Pwr> * <Min Pwr> * <Data Pattern> * <Channelization> * <Scrambling> * <DPCCH Spread Factor> * <DPDCH Spread Factor> * <Channelization Code> * <Scrambling Code> OK	Enable WCDMA TX carrier

Table 2. Standard Response Codes

Opcode (Hexadecimal)	Opcode (Decimal)	Response Field Definition
0000b (0x00)	0	parse error (no data follows): invalid data length for command
0001b (0x01)	1	parse error (no data follows): inadequate security level for command/parameter
0010b (0x02)	2	parser error (no data follows): command/parameter not supported for current protocol (CDMA, GSM, TDMA)
0011b (0x03)	3	parse error (no data follows): command/parameter not supported for current mode (normal, test mode, handset test mode)
0100b (0x04)	4	parse error (no data follows): unsupported/invalid opcode
0101b (0x05)	5	parse error (no data follows): unsupported/invalid parameter for opcode
0110b (0x06)	6	command response: generic success (no data follows)
0111b (0x07)	7	command response: generic failure (no data follows)
1000b (0x08)	8	command response: data follows
1001b (0x09)	9	unsolicited/multiple response: data follows (sequence tag is 0)
1010b (0x0A)	10	error: couldn't allocate memory
1011b (0x0B)	11	error: internal task error
1100b (0x0C)	12	error: Test Command task timed out waiting for response from another SW component
1101b (0x0D)	13	CDMA: parse error (no data follows): command/parameter not supported for current sub-mode TDMA: command not supported in current Call Stack Test Mode
1110b (0x0E)	14	error: length specified in command header greater than length received by transport layer
1111b (0x0F)	15	error: irrecoverable error; phone state has been lost. Phone is being powered down

Table 3. Field and Parameter descriptions

Opcode (Decimal)	Opcode Mnemonic	Field	Description
0	AUD_TN_LST	Field 1	0 = stop a tone
			1 = start a tone
		Field 2	55 through 64 = DTMF tones, refer to table xx for more tones
3	AUD_CTRL	Field 1	0 = Vibrator
			2 = Echo canceling
			3 = Noise suppressor
		Field 2	0 = Disable
			1 = Enable
4	AUD_LPB	Field 1	0 = PCAP loopback
			6 = CODEC loopback
			7 = VOCODER (speech) loopback
		Field 2	0 = Disable Audio loopback
			1 = Enable Audio loopback
		Field 3	This field is valid only for VOCODER loopback
			0 = AMR 4.75
			1 = AMR 5.15
			2 = AMR 5.90
			3 = AMR 6.70
			4 = AMR 7.40
			5 = AMR 7.95
			6 = AMR 10.20
			7 = AMR 12.20
			8 = Full Rate
			16 = Enhanced Full Rate
			32 = Half Rate
5	AUD_LVL	Field 1	0 = Set the volume specified
		Field 2	0 = lowest, 7 = loudest

Table 3. Field and Parameter descriptions - continued

Opcode (Decimal)	Opcode Mnemonic	Field	Description
6	AUD_PATH	Field 1	0 = As is. 1 = Mute input path 2 = Internal (handset) mic 3 = Ext audio input (CE Bus) 4 = Boom (headset) mic 5 = Ext digital audio (USB) 7 = Bluetooth time slot 1 audio input 8 = Bluetooth time slot 2 audio input 9 = Bluetooth time slot 3 audio input
		Field 2	0 = As is 1 = Mute output path 2 = Internal (handset) Speaker 3 = Alert 4 = Ext audio output (CE Bus) 5 = Speakerphone 6 = Boom (headset) speaker
7	CARRIER	Field 1	0 = All zeroes 1 = All ones 2 = pseudo random sequence w/midamble 0 3 = pseudo random sequence w/midamble 1 4 = pseudo random sequence w/midamble 2 5 = pseudo random sequence w/midamble 3 6 = pseudo random sequence w/midamble 4 7 = pseudo random sequence w/midamble 5 8 = pseudo random sequence w/midamble 6 9 = pseudo random sequence w/midamble 7 10 = RACH BURST 12 = pseudo random sequence w/midamble 0 two time slot 13 = pseudo random sequence w/midamble 0 three time slot
		Field 2	0 = disable 1 = enable

Table 3. Field and Parameter descriptions - continued

Opcode (Decimal)	Opcode Mnemonic	Field	Description
10	CP_MODE	Field 1	0=set submode 1=get submode
		Field 2	5 = GSM 1900 6 = GSM dual band GSM900/GSM1800 8 = WCDMA Region 1 10 = Automatic - Dual mode: WCDMA region 1 and GSM dual band GSM900/GSM1800.a
18	INVM	Field 1	0 = Master Reset 1 = Master Clear
20	LOAD_SYN	Field 1	Channel number in decimal. Valid channel numbers are: • 1-124 (PGSM 900 MHz) • 0, 975-1023 (EGSM 900 MHz) • 512-885 (DCS 1800 MHz) • 512-810 (PCS 1900 MHz)
		Field 2	Reserved for future use and TDMA; set to 0.
34	RESTART	Field 1	As is
45	SET_RF_PWR	Field 1	PA power level (0-19)
54	SUSPEND	Field 1	As is
55	TST_DISP	Field 1	2 = Display Predefined Pattern 9 = Turn On/Off the Front Light
		Field 2 (Data)	Data for 2, 000 = All pixels off (all black) 001 = All pixels on (all white) 005 = Grey scale block: 16 level, Black to white 006 = Horizontal Zebra Line 014 = Eight Color Box Pattern Data for 9, 000 = Front Light Off 001 = Front Light On, Full Intensity

Table 3. Field and Parameter descriptions - continued

Opcode (Decimal)	Opcode Mnemonic	Field	Description
57	VERSION	Field 1	016000 = DSP Version
			017000 = User (login) pf process that created this file
			017001 = Build time (universal) in ISO-8601 format
			017002 = Clearcase view tag name
			017003 = Product base label from Clearcase config spec
			017004 = Product ID
			017005 = Version Number
			017006 = Build commentary
			018000 = Flash Booter version number (P2K Booter Only)
62	LEDS	Field 1	0 = Keypad Backlight LED
			3 = Red LED
			4 = Green LED
		Field 2	3 = Set duty cycle (Red/Green LEDS Only)
		Field 3	Duty Cycle setup,
			000 = Off
			012 = ON
3083	WLOAD_SYN	Field 1	UARFCN for Receive Frequency ID. Valid values are between 0 and 16383. If TX_FREQ_ID is set to 0xFFFF, then RX_FREQ_ID must take values between 190*5 and 16383. **Note:** If a valid TX_FREQ_ID will be entered, RX_FREQ_ID must be set to FFFF.
		Field 2	UARFCN for Transmit Frequency ID. Valid values are between 0 and 16383. If it is set to 0xFFFF the TEST_TASK will derive the TX_FREQ_ID from the RX_FREQ_ID. **Note:** If a valid RX_FREQ_ID is entered, TX_FREQ_ID must be set to FFFF.

Table 3. Field and Parameter descriptions - continued

Opcode (Decimal)	Opcode Mnemonic	Field	Description
3086	W_CARRIER	Field 1	Channel identifier (0-16383).
		Field 2	0 = Enable carrier. 1 = Disable carrier.
		Field 3	Initial transmit power (dBm). -128 dBm to 127 dBm
		Field 4	Maximum transmit power (dBm). -128 dBm to 127 dBm
		Field 5	Minimum transmit power (dBm). -128 dBm to 127 dBm
		Field 6	0 = All 0s. 1 = All 1s. 2 = PN9. 3 = PN15.
		Field 7	0 = Disable spreading. 1 = Enable spreading.
		Field 8	0 = Disable scrambling. 1 = Enable long scrambling. 2 = Enable short scrambling.
		Field 9	0 = SF256, slot format 0. 1 = SF256, slot format 1. ... 5 = SF256, slot format 5.
		Field 10	0 = SF256, slot format 0. 1 = SF128, slot format 1. ... 6 = SF4, slot format 6.
		Field 11	Channelization Code Number.
		Field 12	Scrambling Code Number.