PORTMAN

GPS&GPRS PERSONAL TRACKING GT2000

OPERATION MANUAL

REV: 2.3 (Standard, GT2000V3.1, GT2000-D2)

I. BRIEF INTRODUCTION

Personal Tracking System utilizes the GPS and GPRS functions in one unit. You can monitor the vehicle or the people location and set the system remotely. In addition, the unit will send event report if any trigger occurs.

The standard report sent by the unit includes the information: (1) unit's ID, (2) status, (3) time, (4) GPS's latitude and longitude, (5) speed, (6) direction, (7) device's status, (8) event number, and (9) report configuration parameters.

The reporting mode can be categorized as 'normal' mode, and 'power saving' mode. In normal mode, the GPS will always be activated while moving, and it can be shut off the GPS when stop (for power saving purpose). To enable the maximum power saving, user can choose the "power saving" mode. In this mode, the GPS will be activated only when there is a report to send while moving. The report parameters can be set from the PC setup program. GT-2000 can be set to go in sleep mode (while not moving), the system will cut the power of GPS module in order to save power. With build-in 3-D acceleration sensor, GT-2000 can select related reporting modes with respect to it is moving or not.

The device has built-in 4 Geofences and one immediate Geofences (in circular shapes), it will send the report to the server if the Geofence event is triggered.

The UNIT must be initialized by PC setup program in order to make communication with the remote server /call center. There are three main sections that allow users to program the device, (1) User detail (Device ID, server IP, and port, GPRS APN….) (2) Geo-fence (5 circular Geo-fence) (3) Report (Time, Distance, speed, Low battery, wakeup …)

A unique help report: user can press the Button 3 for 2 seconds after the unit power on. The unit will send the help report to server, power LED flash 5 times at the same time.

When there is no GPRS service or the server close. The unit will send short message to the preset number. The max. number of SMS message (monthly usage) and the monthly renew date can be set from the pc setup program or the remote setup program. Only 1 SMS number can be set. The reports sent via the SMS will be out again via GPRS after a valid GPRS connection is made.

GT-2000 can be configured by the PC setup program or the Over-the-Air (OTA) commands / or remote program. The unit can communicate with the server via UDP or TCP protocol. The protocol can be selected from the PC-setup program or remote server commands.
Flash memory for recording reports up to 900 reports. It can be read out from the PC setup program via serial port.

On the left side, there are two buttons (+button and –button) used to change the ring volume. Push +button for 2sec. to select shock, ring or ring &shock together modes.

Recharge battery need three hours, after finish recharging, Power LED will change to green.

Call Monitoring: user can send a SMS that included the preset password of the unit. GT-2000 will send "PASS" SMS ACK back, unit will auto answer the phone in the following 5 minutes.

Using built-in real time clock to identify the report time, when GPS signal is lost. Hence, if the report is received with "LAST KNOWN" message, the time in the report will be the real time clock, but the GPS position will be the last known valid GPS position.

Three LED indicate the status of the SYSTEM, GPRS signal and GPS signal.

SYSTEM LED: to refer the **IV. BUTTON OPERATION**

YELLOW LED: GSM/GPRS indicator. Yellow LED will flash when the device is connected to the server with valid GPRS connection. It will stay continuously on when it is in GSM mode. It will stay off if there is no GSM reception.

GREEN LED: GPS indicator. This LED will be continuously on when the unit received a valid GPS data. Note that the YELLOW and GREEN LEDs indication will not be valid until the system goes to the working mode, normally 30 seconds after power on.

II. BASIC FUNCTIONS

FUNCTIONS	APPLICATIONS
GPS	GPS receiver will output a complete position, velocity, and time (PVT) solution in the NMEA Version 3.0 protocol
GPRS, SMS	GPRS use standard TCP or UDP communicate protocol. If the GPRS service is failed, the SMS mode will be turned on for emergency use.
Button	Power button Three Buttons for call, Help, SOS….(right side) Two buttons control volume of ring and sound. (left side)
PC-setup	Initialize the unit and program the device, including Network APN, server IP address, user message, report control, and Geo-fence setting, etc … Note that Network APN and server IP details must be set before the installation.
Standard Report	Automatic report for tracking purpose: Fixed time report Fixed distance report Speeding report
History data store	900 report can be saved in unit and read from server and pc-setup

III. PANEL INSTALLATION
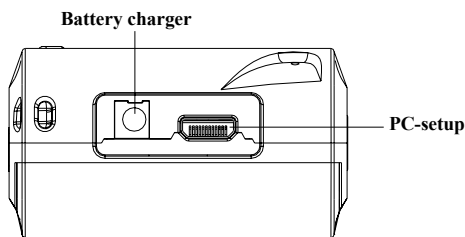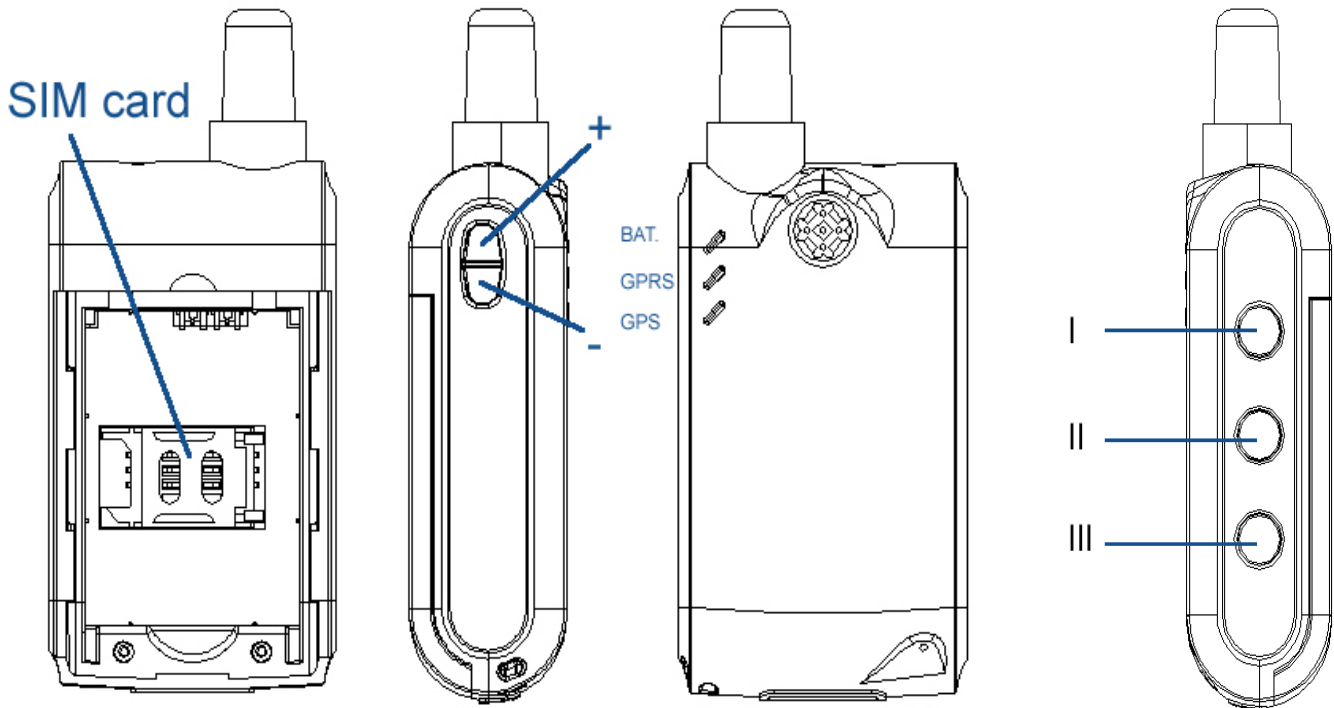
IV. BUTTON OPERATION:

Button	Indication	Functions	Conditions
Press power switch button once	Power LED flash 1time/3sec.	Power ON	Power off
	Power LED normal is green ，if low power then change to red		Low power
Press power switch button for 3sec.	Power LED off	Power OFF	Power on
	If charging then power LED is red, if charge ok then power LED change to green.		Charging
Press button1 once	Power LED change to orange	Answer the coming call.	When an incoming call is received
Press button1 once	Power LED flash 2time/3sec.	Self-Geofence ON	No incoming call is received and self-Geofence off
	Power LED restore normal	Self-Geofence OFF	No incoming call is received and self-Geofence on

Press button1 for 2sec.	Power LED flash quickly 3 times then restore normal	Send SOS report	No incoming call is received
Press button2 once	Power LED restore normal	Hang up the call.	When a call come or in communication or Dialing out
Press button2 for 2sec.	Power LED flash 2 times orange and 1 time green（if low power then red） every 3sec.	Send SOS report and into monitor mold.	No incoming call is received no in monitor mold
	Power LED restore normal	Exit monitor mold	No incoming call is received in monitor mold
Press button3 for 2sec.	Power LED flash quickly 5 times then restore normal	Send help report	No incoming call is received
	Power LED change to orange and flash quickly.		When a call come or Dialing out
Press button3 once then press button1 once within 2sec.	Power LED change to orange and flash quickly.	Auto dialing out the first telephone No. of preset by PC-setup.	No incoming call is received
Press button3 once then press button2 once within 2sec.	Power LED change to orange and flash quickly.	Auto dialing out the second telephone No. of preset by PC-setup.	No incoming call is received
Press button3 once then press button3 once within 2sec.	Power LED change to orange and flash quickly.	Auto dialing out the third telephone No. of preset by PC-setup.	No incoming call is received
Press button '-"once	As normal	Ring or sound become low	If speaking, change sound
Press button '+" once	As normal	Ring or sound become high	If speaking, change sound
Press button "+" for 2sec.	As normal	Change to vibrate, ring or ring + vibrate together modes	

Power LED indication priority：

1、call coming or communication or Dialing out

2、SOS report

3、help report

4、monitor mold

5、Self-Geofence

6、charging

7、power on/off and low power

V. PC SETUP AND SYSTEM INITIATION

PC setup Procedure:

1.) Connect the standard RS232 cable to the DB9 port.

2.) Open the PC setup program.

3.) Select the correct COM port for communication.

4.) Power on the device.

5.) Click "OK" to Start the program

　Note that, if the connection fails, please check the cable connection is secured correctly.

A. LOGIN dialog window

Connect UNIT DB9 port to the PC serial port with a standard serial cable. Select the COM port, and click "OK".

Note that: it is necessary to power on the device soon after starting the PC setup program.

PC setup program will detect the hardware for 60 seconds. If no hardware is detected, it will exit.

During the opening up screen shown as below, user can press "Esc" key to terminate the program.

B. Version No. Checking

The below interface will last until correct UNIT Version No. is checked. (You should run this program before turn on power of UNIT)

C. MAIN INTERFACE

1.[User detail]:

If the SIM card is password protected, user can input the "SIM PIN" window to set password of SIM Card.

Set UNIT ID and UNIT password of for the device.

Set Access Point Name (APN), User Name, Password. The maximum length of the APN, User name and Password is 49 characters.

TCP/UDP address and Port number of alarm center being set, UNIT will send message to these address. Note that either TCP or UDP should be selected.

Note that: the IP address and port must input correctly, otherwise it will cause fail to make a call.

UNIT can save 900 reports (900-1) recently; Click 'Export' button can export them with Excel or Text format.

Set the primary SMS Number of the server. The unit will send reports to the server if GPRS connection is failed.

Setup the max. number of the SMS can be sent out from the unit every month. By default, it will be renewed by the first date of every month.

| Initialize | Request All | Request | Apply | Apply All | Load... | Save... | Exit |

"Initialize " button: clear all data in UNIT.

Request All: read out the whole existing setting from GT8000/GT8500.

Request: read out the setting in the current page.

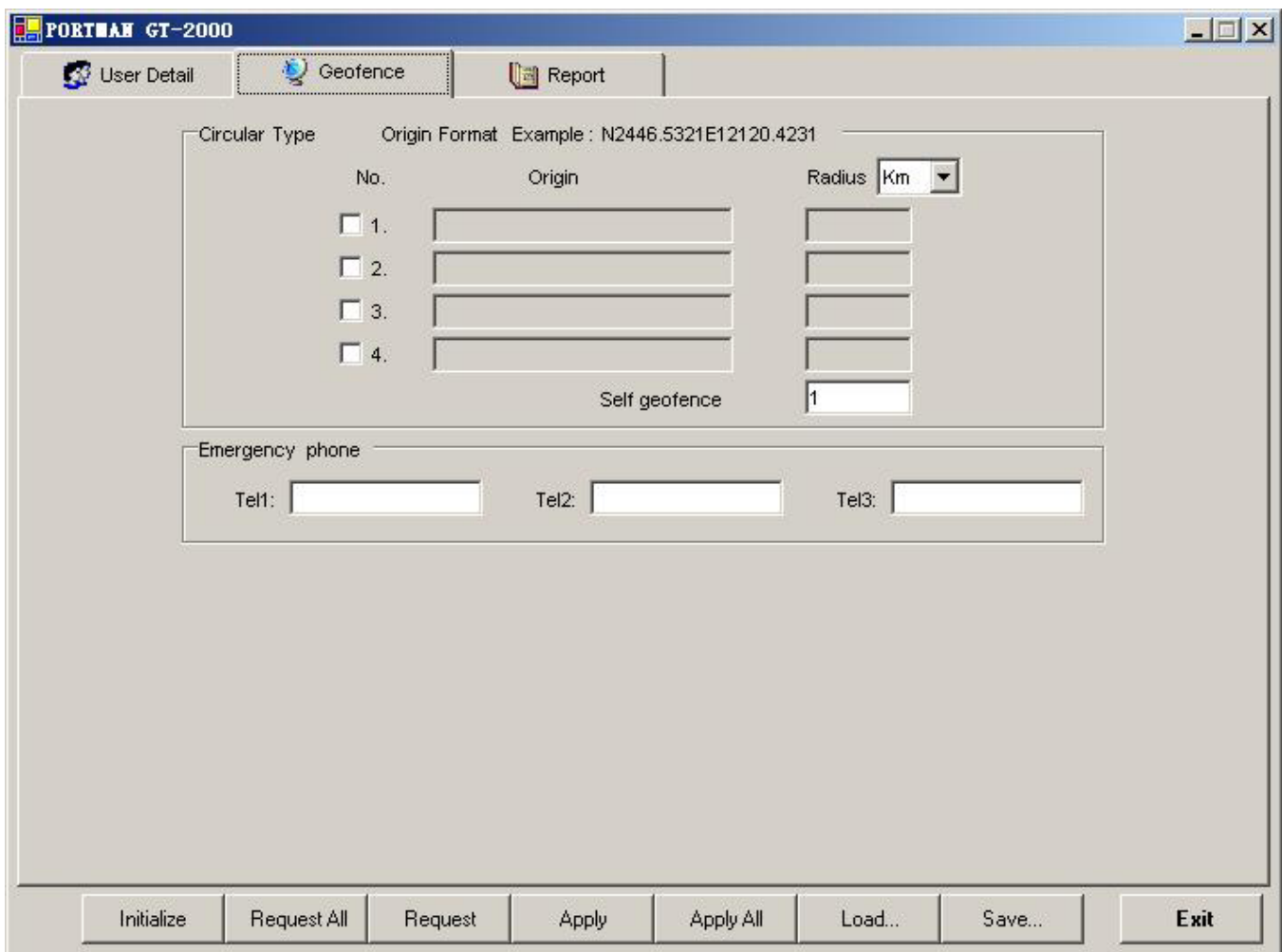Apply: transfer the setting to GT8000/GT8500 in the current pages.

Apply All: transfer the whole setting to GT8000/GT8500.

Load: load the saved configuration files.

Save: save the current configuration setting to a file.

"Exit " button: exit PC-Setup to main program.

2.[Geo-fence]:

Setup the circular Geofence parameters in this window. The format will be center of the Geofence and the related radius.

Here is the section to set the 3 telephone numbers for speed dialing. Please refer to speed dialing button operation.

3.[Report]:

Report setup can be configured in this section. To activate the function(s), please select "√" in checkbox and fill in data in the textbox. There are 2 modes for the GT-2000, first is the Normal mode, and second is the Power saving mode. In the normal mode, the GPS will be always activated if GT-2000 is in moving state. However, if in Power saving mode, GT-2000 will turn off the GPS power if there is no report to send. Note that user can configure the wakeup report if the device is in "stop" (not moving) state.

Normal mode, report will be summarized as:
(1) Fixed time report
Parameters: On/Off, and time.

(2) Fixed distance report
Parameters: On/Off, and distance. (min. distance is 0.1 km, max. distance is 100 km).

(3)Keep alive report
Parameters: On/Off, and interval time, retry times
Keep alive enable, system will send out keep alive information to server and wait acknowledge from server. If within the certain request period, there is no acknowledge back, the system will close the connection and will establish a new connection.
The parameters includes the keep alive "interval", and within this interval the retry "times".

Emergency request report:

If the user does not set the keep alive, GT-2000 might lose the GPRS connection (if it is been cut by the Network). The system will not actively re-connect to server, it will wait for a new trigger (or report) and then start the connection / then send to the server.

Special command for SMS mode:

If the GT-2000 is not in the GPRS online status, user can send command &&Y02 or &&Y04 to ask unit to connect to server. This command can be sent from any device via SMS;
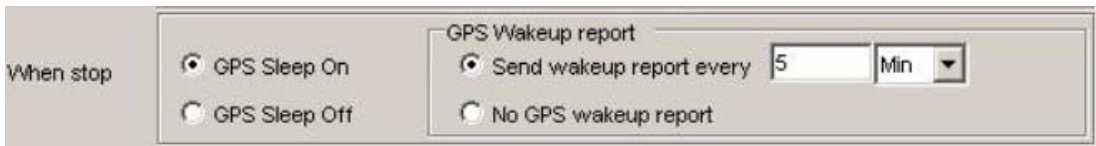
&&Y02:

When received this command, system will actively try to connect to server in next 600 seconds.

&&Y04,[connection time],[report interval]:

For example: &&Y04,3600,60

When received this command, system will connect to server in the next 3600 seconds, and send one report out every 60 seconds.
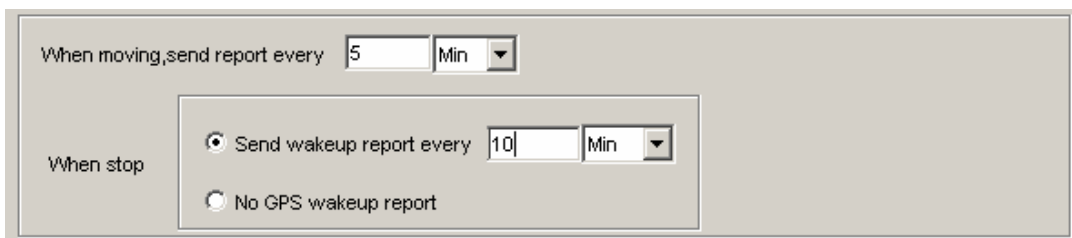
(3)GPS wakeup report:

While the device is in stop status, user can let the GPS go to sleep mode for power saving. If select GPS Sleep ON, user can setup the wakeup report configuration/ or NO GPS wakeup report.

IF select GPS Sleep OFF, GT-2000 will follow the report sending rule in "When Moving" section.

Power saving mode

While in Power saving mode, GT-2000 will cut off the GPS power if there is no report to send.

Report configuration will be listed as: the fixed time report while moving, and wakeup report / or no GPS wakeup report while stop. In this mode, in order to save power unit will cut power of GPS, only wake up GPS at the time of send report.

Low battery report:
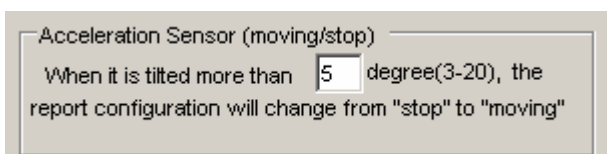
Low battery warning report (to alert user when the external battery level is low)

Parameters: On/Off, and warning battery level for report. For example, 30 to represent 30% lower level report.

The system will ignore the parameter with a value '0' to prevent continuous non-stop reporting. Low battery, unit will cut power of GPS, only call function will be activated.

Acceleration sensor:

To determine whether GT-2000 is moving or not, user can select the sensitivity of the "acceleration sensor". It is distinguished by the tilt angle of the device. If the unit tilted more than the degree set here, GT-2000 will be in moving mode. Otherwise, it will be in stop mode.

APPENDIX 1
GT2000 SPECIFICATIONS

Physical Parameters

Enclosure dimensions(mm)	94(L)*60(W)*28.5(H)
Weight	100g

Electrical

DC Supply voltage	3.6V
Recharge voltage	4.5V－20V
Current (GPRS online)	80mA
Current (GPRS transmission)	120mA
Current (Peak)	300mA
Current (Sleep)	6~12mA (when GPS is in sleep mode)

Battery

	Battery type	Battery capacity	Charge type
Battery	Lithium 3.6V	1600mAh	Built-in charge circuit

*GPRS**

Frequency Range (MHz)	900&1800 and 850&1900 models
Channel spacing (Hz)	200
GPRS connectivity	GPRS multi-slot class 8 GPRS mobile station class B
SIM card interface	3V/5V
SMS storage Capacity	40 in ME
Antenna Impedance	50ohms
Antenna Type	Embedded antenna

*GPS**

Chipset	SiRF starIII technology
Channels	20
Protocol	NMEA0183
Baud Rate	4800
Signal	L1 1575.42 MHz
Accuracy	<5 meters (50%)
Velocity	0.1 m/sec.
Reacquisition	0.1 sec average
Snap Start	1 sec average
Hot Start:	<8 sec.
Warm Start:	<38 sec.
Cold Start:	<42 sec.
Antenna Type	Embedded Omni-directional antenna

IO Connection

Four Button   One Power button,

3 speed dialing buttons

1 volume adjust button

Communication

GPRS \SMS\RS232\

Environmental

Operating Temperature   -20°C to +55°C

Storage Temperature   -40°C to +85°C

Accessories

1. Internal battery
2. PC setup cable

Additional:

1. GPS indicator (bottom LED): LED is GREEN when the unit has acquired a valid GPS signal, and it will flash when the unit is searching GPS signal.
2. If dialing out to a number fails, the unit will chirp twice.
3. If there is a GPS signal when an "SOS" report is sent, the unit will vibrate once. If there is no GPS signal when an "SOS" report is sent, the unit will vibrate twice.
4. When dialing out, the unit will chirp once*
5. When a self-geofence is set, the unit will chirp twice*
6. When a "help" report is sent, the unit will chirp three times*
7. Taxi mode on/off: Pressing "II" twice within 2 seconds will put the unit into "Taxi mode". Pressing "II" twice again within 2 seconds will take the unit out of "Taxi mode". When the unit enters "Taxi mode", the top LED will flash 3 times/3sec and unit will vibrate once every minute. When in Taxi mode, the unit will automatically vibrate every one minute. When the unit vibrates at these intervals, the user must press "II" within one minute each time, if not, the unit will automatically send an "SOS" report to the server.

The chirping acknowledgement sounds can be switched ON and OFF as desired. To switch chirping ON, press and hold "▼" for 2 seconds (it will chirp once to acknowledge that chirping is on). To switch chirping OFF, press and hold "▼" for 2 seconds (it will chirp twice to acknowledge that chirping is off).

VI Federal Communications Commission (FCC) Statement

6-1

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

VII Operation is subject to the following two conditions:

1) this device may not cause interference and

2) this device must accept any interference, including interference that may cause undesired operation of the device.

VIII FCC RF Radiation Exposure Statement:

For body worn operation, this phone has been tested and meets FCC RF exposure guidelines when used with an accessory that contains no metal and that positions the handset a minimum of 1.5 cm from the body. Use of other accessories may not ensure compliance with FCC RF exposure guidelines."