

MEITRACK MT90G/MT90L User Guide





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1 Copyright and Disclaimer

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2 Product Introduction

The MT90G/MT90L is a 3G/4G personal tracker and specially designed for the elderly, children, pets, and lone workers. It has the following functions:

- Two-way calling
- Press the SOS button to call the designated contact in case of emergency.
- Low power consumption and long standby time
- Polygonal geo-fence alert
- Man down alert

2.1 Product Features

2.1.1 Man Down Alert

This function is applicable for the elderly and children. When one falls down, the tracker will send a man down alert and the situation will be notified to the designated contact.

You can use any of the following ways to enable the function:

- 1. Send the command **0000,A29,1,10,1** to the tracker by SMS.
- On the Meitrack Manager interface, click the Authorize tab page, select Fall down, and set a contact's phone number.



Note:

1. To avoid misinformation, the tracker will detect the effectiveness of man down alerts. After the device falls to the ground, if it detects any angle changes and no movement for more than 3 seconds, it will vibrate and make sounds (for 10 seconds by default). In this way, you can press any button of the device to clear the man down alert as required. If no button is pressed after the vibration and sounds stop, a man down alert will be



generated.

2. For details about the man down alert, see section 7.2 "Setting the Man Down Alert – A29."

2.1.2 Power-Saving Mode

This function is applicable for outdoor workers who need positioning at specific places instead of frequent positioning and require long battery life.

Set the following items to enable the power-saving mode.

- 1. Enable the deep sleep mode.
- 2. Disable the 3D Shake Wake Up function.
- 3. Set the heartbeat packet reporting interval.



The following table describes the device's standby time in the power-saving mode:

Heartbeat Packet Reporting Interval	Working Hour (Hour)
(GPS Valid) (Minute)	
10	50
20	80
30	110
60	140

Note:

- 1. The heartbeat positioning mode will be enabled after you enable the deep sleep mode and disable the 3D Shake Wake Up function. The minimum heartbeat packet reporting interval is 10 minutes.
- 2. In this mode, heartbeat packets may be delayed. After the device is woken up, you need to enable the GPS module first and then a heartbeat packet can be sent. If the GPS is invalid for more than five minutes, an invalid heartbeat packet will be sent. If the GPS is valid, a valid heartbeat packet will be sent. Therefore, the heartbeat packet reporting interval will be affected by GPS positioning time.

3 Product Functions and Specifications

3.1 Product Functions

3.1.1 Position Tracking

- GPS + WCDMA/LBS positioning
- Real-time location query



- Track by time interval
- Track by distance
- Track by mobile phone
- Speeding alert
- Cornering report

3.1.2 Emergency Alert

SOS alert

3.1.3 Other Functions

- SMS/GPRS/UMTS (TCP/UDP) communication (Meitrack protocol)
- GPS blind spot alert
- Over-the-Air (OTA) update
- Low power alert for internal battery
- 3D shake wakeup
- Listen-in/Two-way calling
- Polygonal geo-fence
- Stop Moving and Start Moving alerts
- Online Parameter Editor
- Super long battery life

3.2 Specifications

Item	Specifications
Dimension	77 mm x 47 mm x 20 mm
Weight	76g
Charging voltage	Micro USB charging port: DC 4.2–5.5 V/400 mA
	Magnetic charging connector: DC 4.2–5.5 V/400 mA
Backup battery	Removable 1100 mAh/3.7 V lithium-ion battery (compatible with Nokia BL-5C
	battery)
Power consumption	Current in standby mode: 60 mA
	Current in deep sleep mode: 5 mA
Operating temperature	-20°C to 55°C
Operating humidity	5%–95%
Working hour	180 hours in power-saving mode
	20 hours in normal mode
LED indicator	2 indicators showing power, WCDMA/GSM, and GPS status
Button/Switch	5 buttons/switches
Microphone/Speaker	Internal microphone and speaker
Memory	8 MB buffer (Store 130,000 GPS Logs, 8,000 GPRS/UMTS cache records, and 256
	SMS cache records)
Sensor	3-axis accelerometer
Frequency band	MT90G:



GSM: 850/900/1800/1900MHz WCDMA: MT90G_E:900/2100MHz MT90G_A:850/1900MHz MT90G_AU:850/900/2100MHz MT90G_JP:800/900/2100MHz MT90G:800/850/900/1900/2100MHz MT90L: MT90L_E: 2G GSM: 900/1800MHZ 3G WCDMA: B1/B8 4G FDD: B1/B3/B8/B20/B28 MT90L_A: 3G WCDMA: B2/B4/B5 4G FDD: B2/B4/B5/B12 2.5m Positioning accuracy

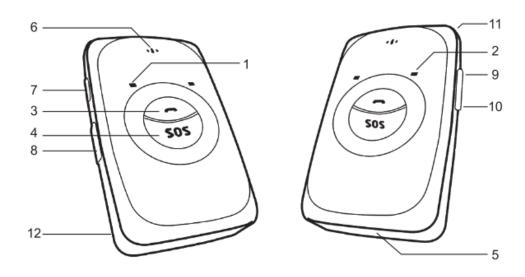
4 MT90G/MT90L and Accessories

- MT90G/MT90L tracker
- A battery
- USB cable
- Travel adapter (charger)
- Screwdriver
- CD and MEITRACK MT90G/MT90L Quick Start Guide
- Lanyard
- Magnetic charging connector (optional)



5 About the MT90G/MT90L

5.1 Appearance



No.	Item	Description
1	GPS indicator (blue)	Indicates GPS and battery status. For details, see the section 5.2 "LED
		Indicator."
2	WCDMA/GSM indicator	Indicates WCDMA/GSM status. For details, see the section 5.2 "LED
	(green)	Indicator."
3	Answer/Hang-up button	When a call is coming in, press the button to answer the telephone.
		When one is calling, press the button to end the telephone
		conversation.
		When there is no incoming call or telephone conversation and the
		GPRS/UMTS function is enabled, press and hold down the button for
		2 seconds. The device will beep once and vibrate, and a GPRS/UMTS
		message will be sent to the server.
4	SOS button	Press and hold down the button for 2 seconds in the case of
		emergency. The device will beep once and vibrate. The device will
		also dial three authorized phone numbers in sequence. It will stop
		dialing when one phone number answers. Meanwhile, the device
		will send an SMS with positioning information to authorized phone
		numbers. If the GPRS/UMTS function is enabled, the device will send
		a GPRS/UMTS message to the server.
		In the sleep mode, press the button to wake the device up.
5	Microphone	It will operate automatically when the listen-in and call functions are used.
6	Speaker	It will operate automatically when the call function is used.
7	Power button	• When the device is turned off, press and hold down the button for 2
		seconds. The device will make a sound and vibrate, indicating that it



		!!! had a seed an
		will be turned on.
		• When the device is turned on, press and hold down the button for 2
		seconds. The device will make a sound, indicating that it will be
		turned off.
		In the sleep mode, press the button to wake the device up. Then the
		power indicator will blink for 10 seconds.
8	Micro USB port	Used for charging the device, configuring parameters, and upgrading
		software.
		If the device is charged by optional magnetic charging connector, you
		need to remove the USB rubber cover and then plug the magnetic
		charging connector into the USB port.
9	Volume up/GPS Log button	During the telephone conversation, press the button to turn up the
		device; press and hold down the button for 2 seconds to start the
		hands-free conversation.
		• In the standby mode, press and hold down the button for 2 seconds.
		The device will beep once and the GPS log function will be
		automatically enabled. (The device will record routes every 30
		seconds when the GPS is valid and the records can be exported by
		computer.)
		In this standby mode, press and hold down the button for 2 seconds
		again. The device will beep twice and the GPS log function will be
		disabled automatically.
		Note: To avoid misoperations, you can disable the GPS Log button by
		using Meitrack Manager (default: enable).
10	Volume down/GPRS/UMTS	During the telephone conversation, press the button to turn down
	button	the device.
		• In the standby mode, press and hold down the button for 2 seconds.
		The device will beep once and the GPRS/UMTS function will be
		enabled automatically. (Please ensure that GPRS/UMTS parameters
		have been set. The default GPRS/UMTS message interval is 10
		minutes.)
		 In this standby mode, press and hold down the button for 2 seconds
		again. The device will beep twice and the GPRS/UMTS function will
		be disabled automatically.
		Note: To avoid misoperations, you can disable the GPRS/UMTS button by
		using Meitrack Manager (default: disable).
11	Lanyard hole	Place the lanyard through the hole.
12	Battery cover	After removing the battery cover, install the battery and SIM card.
12	Duttery cover	The removing the battery cover, install the battery and slivi cald.

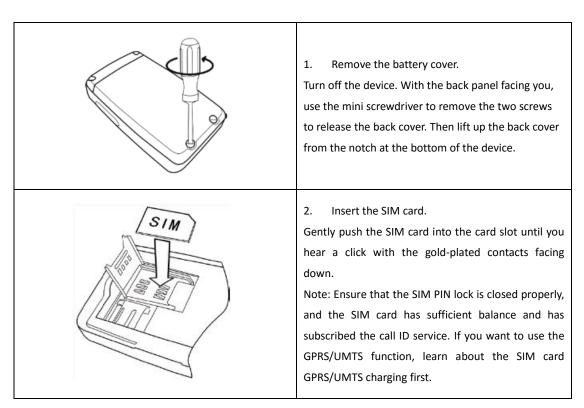
5.2 LED Indicator

To start the MT90G/MT90L, press and hold down the power button for 3–5 seconds. Then the blue and green indicators will blink on for 1 second and blink off for 1 second simultaneously.

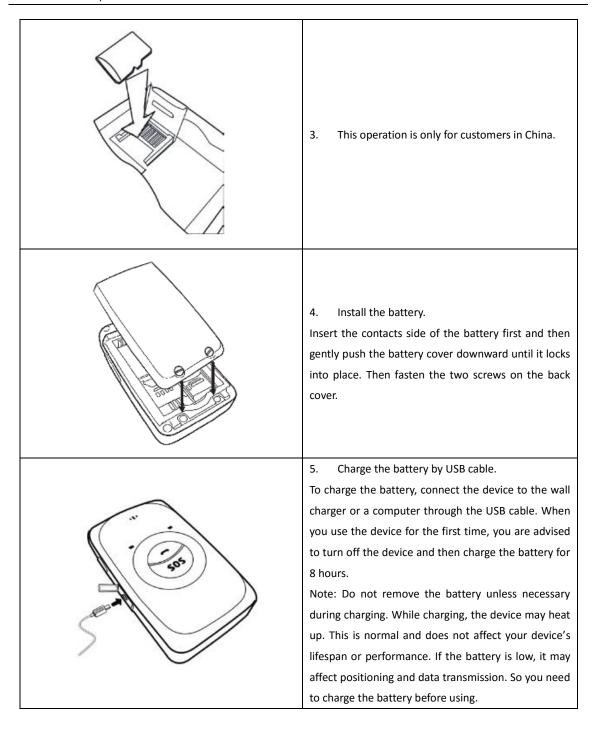


GPS Indicator (Blue)		
Indicator Status	Description	
Steady on	The device is charging.	
Blink (every 5 seconds)	The device is in sleep mode.	
Blink (1 second on and 1 second off)	The GPS is invalid or the device is initializing.	
Off	The GPS is valid.	
Blink (0.3 seconds on and 0.3 seconds off)	The battery power is low.	
WCDMA/GSM Indicator (Green)		
Indicator Status	Description	
Steady on	A call is coming in or a call is being made.	
Blink (every 5 seconds)	The device is in sleep mode.	
Blink (1 second on and 1 second off)	No signal is received, or the device is initializing.	
Off	The device is connected to the WCDMA/GSM network.	

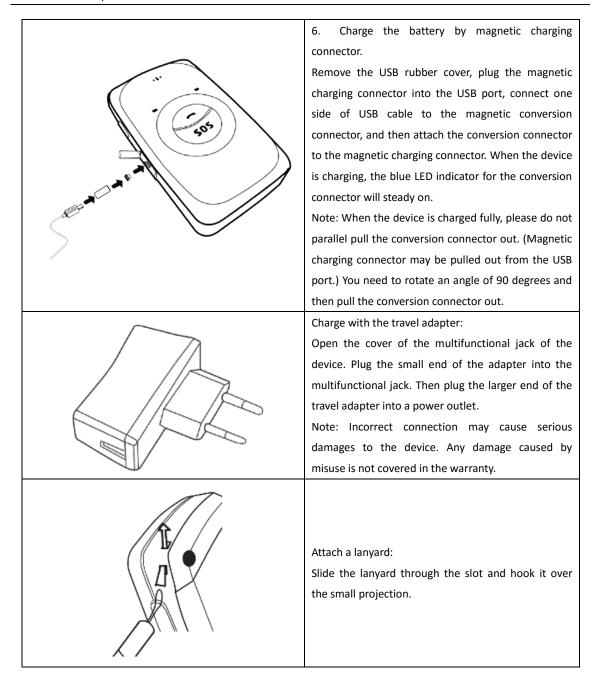
6 First Use











Once you have installed the battery and SIM card, you can turn on your device and start using it. Please read the following instructions to know more about its functions.

7 Quick Operation Command

Before use, common parameters must be set by SMS command or Meitrack Manager

7.1 Tracking by Mobile Phone

This section describes how to query device's current location, ensuring that the GPS is working normally.

Call the device's SIM card number, and hang up after the dial tone rings 2–3 times. The device will reply to an SMS with a map link.

Click the SMS link. The device's location will be displayed on Google Maps on your mobile phone.



Note: If an authorized phone number was set by SMS command A71, only this phone number can receive SMS reports.



SMS example:

 $Now, 110727\ 02: 48, V, 16, 23 Km/h, 61\%, http://maps.google.com/maps? f=q\&hl=en\&q=22.540103, 114.082329$ The following table describes the SMS format:

Parameter	Description	Remarks
Now	Indicates the current location.	SMS header: indicates the current
		location or the alert type.
		For details about the SMS header, see the
		MEITRACK SMS Protocol and MEITRACK
		GPRS/UMTS Protocol.
110727 02:48	Indicates the date and time in YYMMDD	None
	hh:mm format.	
V	The GPS is invalid.	A = Valid
		V = Invalid
16	Indicates the WCDMA/GSM signal	Value: 1–32
	strength.	The larger the value is, the stronger the
		signal is. If the value is greater than 12,
		GPRS/UMTS reaches the normal level.
23Km/h	Indicates the speed.	Unit: km/h
61%	Indicates the remaining battery power.	None
http://maps.google.com/	Indicates the map link.	None
maps?f=q&hl=en&q=22.5	Latitude: 22.540103	
40103,114.082329	Longitude: 114.082329	

If there is no valid GPS available, the tracker will reply to the most recent valid position, along with WCDMA/GSM LBS information by AGPS.

If your mobile phone does not support HTTP, enter the latitude and longitude on Google Maps to query a location.





Note: The default tracker password is **0000**, which can be changed by using Meitrack Manager or SMS command. After the password is changed successfully by using an SMS command, only the authorized phone number can receive SMS reports. The common format of an SMS command is: *Password,Command,Parameter*.

7.2 Setting the Man Down Alert – A29

This command is used to enable or disable the man down alert.

1. Send the following SMS text to the embedded SIM card phone number: 0000,A29,Switch,Time,Grade.

Tip: "," should be an English comma and no space exists before and after the comma.

Switch: Whether to enable the man down alert detection function. The value is **0** or **1**. When the parameter value is **1**, the man down alert is enabled. When the parameter value is **0**, the man down alarm is disabled. The default value is **0**.

Time: indicates the buzzing and vibration time after the device falls to the ground. During this period, you can press any button of the device to clear the alert, so as to avoid misinformation. If no button is pressed during this period, a man down alert will be generated or the tracker will call the designated contact. Unit: second; value range: 0–255; default value: 10.

Grade: indicates the man down alert level. Value range: 0–3; default value: 1. The smaller the value is, the higher the alert probability is.

2. The device will automatically reply to the following SMS: IMEI,A29,OK.

Example:

Sending: 0000,A29,1,10,1

Reply: 0123456678901,A29,OK

7.3 Setting SOS Phone Numbers – A71

This command is used to set SOS phone numbers. When you dial a phone number, an SMS report about the location will be received.

SMS text:

0000,A71,Phone number 1,Phone number 2,Phone number 3

Send the text to the embedded SIM card phone number.

Tip: "," should be an English comma and no space exists before and after the comma.

• The MT90G/MT90L will automatically reply to the SMS: IMEI,A71,OK. It indiates that the SOS phone number is set successfully.



Note:

Phone number: Contains a maximum of 16 bytes. If no phone numbers are set, leave them blank. Phone numbers are empty by default.

Phone number 1/2/3: SOS phone numbers. When you call the tracker by using these phone numbers, you will receive SMS notification about the location, geo-fence alert and low power alert.

When you press the SOS button, the MT90G/MT90L will dial three authorized phone numbers in sequence. It
will stop dialing when one phone number answers, and then will send alert information to the phone
numbers.

Note: The phone numbers are blank by default. The phone numbers that are set must be separated by comma (",") to avoid setting failures. No comma is required next to the last phone number. For example:

0000,A71,13500000000,,

0000,A71,13500000000,13600000000,

0000,A71,13500000000,13600000000,13700000000

Reply: 353358017784062,A71,OK

To clear all phone numbers, send 0000,A71.

If this function is unavailable, please add your Country and Area Code before your phone number when you set the preset phone numbers, or consult your local mobile operator.

7.4 Setting Listen-in Phone Numbers – A72

The command is used to listen in to the surrounding environment. After the setting, the device is allowed to confidentially and automatically answer a phone and enters listen-in state for one-way communication.

Note: If **Auto Answer Incoming Call** and **Listen-in** are set for a same phone number, only **Auto Answer Incoming Call** takes effect.

To implement the listen-in function, do not set **Auto Answer Incoming Call** for the phone number, or clear all phone numbers by sending **0000,A71**.

SMS text:

0000,A72,Listen-in phone number 1,Listen-in phone number 2

Send the text to the embedded SIM card phone number.

- The MT90G/MT90L automatically replies to the SMS: IMEI,A72,OK. It indiates that the listen-in number is set successfully.
- When you call the tracker by using the preset listen-in phone number, the tracker will answer the call automatically and enter the listen-in state. Meanwhile, the device will not make any noise.

Note:

Phone number: A maximum of two listen-in phone numbers can be set. Each phone number contains at most 16 digits. If only one monitor number is set, the number must be separated by a comma (",") to avoid setting failures. If no phone numbers are set and commas are remained, phone numbers set before will be deleted. The phone numbers are blank by default.

Example:

Sending: 0000,A72,1384444444,13855555555

Reply: 353358017784062,A72,OK

To clear all monitor numbers, send 0000,A72.



7.5 Setting the Smart Sleep Mode – A73

This command is used to enable the smart sleep mode, prolonging standby time to 160 hours.

SMS text:

0000,A73,Sleep level

Send the text to the embedded SIM card phone number.

The MT90G/MT90L automatically replies to the SMS: IMEI,A73,OK. It indicates that the sleep mode is set successfully.

• To enable the GPS Log or scheduled tracking function, disable the sleep mode.

Description:

When the sleep level is **0**, the sleep mode is disabled (default).

When the sleep level is **1**, the tracker enters the normal sleep mode. The WCDMA/GSM module always works, and the GPS module occasionally enters the sleep mode. The tracker works 25% longer in the normal sleep mode than that in the normal working mode. This mode is not recommended for short interval tracking; this will affect the route precision.

When the sleep level is **2**, the tracker enters deep sleep mode. If no event (SOS, button triggered, incoming calls, or SMSs) is triggered after five minutes, the GPS module will stop and the WCDMA/GSM and MCU modules will enter sleep mode. Once an event is triggered, the GPS, WCDMA/GSM, and MCU modules will be woken up.

Note:

- 1. The tracker can enter normal sleep mode under vibration, while 3D shake cannot wake the tracker up from normal sleep mode.
- 2. In deep sleep mode, you can enable or disable the 3D shake wakeup function by Meitrack Manager.

In any condition, you can use an SMS or a GPRS/UMTS command to disable the sleep mode, and then the tracker exits the sleep mode and switches back to the normal working mode.

In deep sleep mode, if you want to obtain the location by SMS/call and the GPS is invalid within five minutes, the device will reply to an SMS with a map link instead of location information.

After the device enters deep sleep mode, functions of Track By Time Interval, Track By Distance, and GPSLog are not available until you manually disable the sleep mode.

The device can be woken up from the sleep mode by pressing a key, call, or SMS. After an event is handled, the device will enter sleep mode again.

Example:

Sending: 0000,A73,2

Reply: 353358017784062,A73,OK

7.6 Setting the SMS Time Zone - B35

This command is used to set the time zone of an SMS report. The default time zone of the tracker is GMT 0.

To change the time zone, follow the following instructions:

SMS text:

0000.B35.SMS minute

Send the text to the embedded SIM card phone number.

• The MT90G/MT90L automatically replies to the SMS: IMEI,B35,OK. It indicates that the time zone is set successfully.

Note: The time zone is in unit of minutes. The default time zone of the tracker is GMT 0, and the time zone of SMS reports is different from that of GPRS/UMTS data packets. The GPS Log time zone is GMT 0.



When SMS minute is 0, the time zone is GMT 0 (default time zone).

When SMS minute is a value ranging from -32768 to 32767, set time zones. Set the China time zone value to 480.

Example:

Sending: 0000,B35,480

Reply: 353358017784062,B35,OK (The time zone is set to Beijing time successfully.)

The digit is your MT90G/MT90L 's IMEI number.

8 Configuring Device Parameters by Meitrack Manager

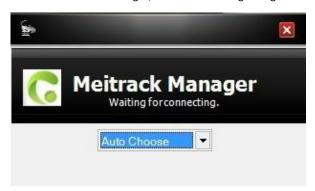
This section describes how to use Meitrack Manager to configure the MT90G/MT90L on a computer.

Procedure:

- 1. Install the USB driver and Meitrack Manager.
- 2. Connect the MT90G/MT90L to a computer with the USB cable.



3. Run Meitrack Manager, then the following dialog box will appear.



4. Turn on the device, then Meitrack Manager will detect the device model automatically and the parameter page will appear accordingly.

For details about Meitrack Manager, see the MEITRACK Manager User Guide.

Note: The CD delivered with the tracker contains Meitrack Manager. The software language will be automatically switched according to the operating system language. Press **Ctrl + L** to manually switch the language.

9 Logging In to MS03 Tracking System

Visit http://ms03.trackingmate.com, enter the user name and password, and log in to the MS03. (Purchase the login account from your provider.)

For more information about how to add a tracker, see the *MEITRACK GPS Tracking System MS03 User Guide* (chapter 4 "Getting Started").

The MS03 supports the following functions:



- Track by time interval or distance.
- Query historical trips.
- Set polygonal geo-fences.
- Bind driver and vehicle information.
- View various reports.
- Send commands in batches.
- Support OTA updates.

For details, see the MEITRACK GPS Tracking System MS03 User Guide.

10 Safety and Usage Instructions

Use only Meitrack-approved accessories.

Incompatible accessories may cause serious injuries or damages to your device.

Handle the battery and charger carefully.

- Use batteries specified by Meitrack and chargers exclusively designed for your device. Incompatible batteries and chargers may cause serious injuries or damages to your device.
- Do NOT place batteries or devices on fire or in heating devices, such as microwave ovens, ovens, or radiators.
 Batteries may explode when overheated.

11 Battery Disposal



(Waste Electrical and Electronic Equipment Directive – Applicable in European Union and other European countries with separate battery return system.)

This symbol in the manual indicates that this product and its accessories (such as chargers, batteries and the USB cable) cannot be disposed of with other household wastes when they reach the end of their life. If batteries are not properly disposed of, these wastes may cause harm to human health and the environment. To prevent the harm, please dispose of or recycle them separately from other waste so as to boost resource recycling and reuse.

If you have any questions, do not hesitate to email us at info@meitrack.com.

FCC Warning:

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 generats, 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:

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

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

SAR

Specific Absorption Rate (SAR) information:

This PERSONAL GPS TRACKER meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. FCC RF Exposure Information and Statement the SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: Smartphone (FCC ID: 2AT3F-MT90L) has also been tested against this SAR limit. This device was tested for typical body-worn operations with the back of the product kept 0mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain a 0mm separation distance between the user's body and the back of the product.

The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.

