LTE Tracker

MH 1000 User Manual

Revision: 1.00

Document Title	*MH 1000 User manual*
Version	*1.00*
Finale Date	*2018-03-29*
Status	*Released*
Document Control ID	*TRACKER MH 1000*

Contents

1 Introduction

MH 1000 is a powerful GPS locator which is designed for vehicle, human, pets and assets tracking. It works on WCDMA B2/B5 and LTE B2/B4/B5/B12/B13 with superior receiving sensitivity. Its location can be real time or schedule tracked by backend server or specified terminals. Based on the embedded wireless tracking protocol, MH 1000 can communicate with the backend server through LTE and WCDMA network, and transfer reports of emergency, Geo-fencing, device status and scheduled GPS position etc… Service provider is easy to setup their tracking platform based on the functional wireless tracking protocol.

2 Product Overview

2.1 Appearance

Figure 1-1

2.2 Buttons/12PIN Interface Description

Button /12PIN Interface Description	
KEY/interface	Description
Power Key	Power on MH 1000 Power off MH 1000 (If power key is enabled)
Function Key	SOS mode Long press the key to active SOS alarm

12PIN interface	Connect a 3.7V Li-ion or Li-Polymer battery can power on MH 1000 Backend server developer or administrator can use the data cable to configure MH 1000 (by RD or engineer not by end user).
Reset Key	Click the key will turn off internal VBAT when OS is abnormal, and then press Power Key to restart MH 1000.
Test Key	In the condition of different percentage of battery, Click the key has a corresponding sound.

2.3 LED Description

Figure 1-2

There are four LED lights in MH 1000 device, the description as following.

Light	Event	State
Power LED	In charging	Slow flash
	Fully charged	Dark
	Battery is low	Fast flash
LTE LED	Device off	Dark
	Network has been registered	Slow flash
	No Network	Fast flash
	A call is active	Solid
GPS LED	GPS signal valid	Fast flash
	GPS turned off, GPS signal invalid	Dark
	Power key was pressed and prepare to	Solid

	power on	

3 Getting Started

3.1 Parts List

Name	Picture	Remark
MH 1000 Locater		The LTE/GPS locator.
MH 1000 charging Dock		It used to be charging for the MH 1000.

3.2 Battery Charging

The following items are suggestion for battery charge, please pay more attention.

- During the charging process, the Power LED light will slow flash. When the battery is fully charged, the Power LED light will be Ever-dark.
- You can charge the battery using charging dock which connects MH 1000 device with the Adapter.
- Charging will last about 5 hours.

Note: If the MH 1000 device is firstly used, please make sure the battery is fully charged, which will make the life of battery much longer.

3.3 MH 1000 Charging Dock

MH 1000 Charging Dock is a base with an AC Adapter.
The charging dock is used for device charging , which can be used for charging at the any time (by end user)..

Figure 2-1

Figure 2-2

3.4 Power on/Power off

Figure 2-2

Power on:

- Press the Power key at least 3 seconds and release it to power on MH 1000 device. Note that, the Power LED light will light for a moment and then turn off.

Power off:

- Press the power key about 3 seconds; Power LED light will light for a moment and then turn off, which indicates that MH 1000 device has been powered off.

Note: the user can not power off MH 1000 if the power key is disabled by protocol.

4 Frequency

WCDMA:Band2、Band5
LTE:Band2、Band4、Band5、Band12、Band13
GPS:1575.42MHz
WIFI:2.4GHz

5 Trouble shooting and Safety info

5.1 Trouble shooting

Trouble	Possible Reason	Solution

Messages can't be reported to the backend server by Mobile network.	APN is wrong. Some APN can not visit the internet directly.	Ask the network operator for the right APN.
	The IP address or port of the backend server is wrong.	Make sure the IP address for the backend server is an identified address in the internet.
Unable to power off MH 1000.	The function of power key was disabled by AT+GTFKS.	Enable the function of power key by AT+GTFKS.
Battery can not be charged	The battery has not been used for too long time and has been locked.	Using a external power source with 3.6V to 4.2V DC power supply to active the battery or apply for after sale help.
MH 1000 can't fix GPS successfully.	The GPS signal is weak.	Please move MH 1000 to a place with open sky.
		It is better to let the top surface face to the sky. (The same surface with indication LED)

5.2 Safety info

The following items are suggestion for safety use, please pay more attention.

- Please do not disassemble the device by yourself.
- Please do not put the device on the overheating or too humid place, avoid exposure to direct sunlight. Too high temperature will damage the device or even cause the battery explosion.
- Please do not use MH 1000 on the airplane or near medical equipment.

FCC Caution.

§ 15.19 Labelling requirements.

This device complies with part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

§ 15.21 Information to user.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

§ 15.105 Information to the user.

Note: 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.

Radio Frequency (RF) Energy

This phone is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the United States.

During SAR testing, this device was set to transmit at its highest certified power level in all tested frequency bands, and placed in positions that simulate RF exposure in usage against the head with no separation, and near the body with the separation of 5 mm. Although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. This is because the phone is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

The exposure standard for wireless devices employing a unit of measurement is known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg.

This device is complied with SAR for general population /uncontrolled exposure limits in ANSI/IEEE C95.1-1992 and had been tested in accordance with the measurement methods and procedures specified in IEEE1528.

The FCC has granted an Equipment Authorization for this model phone with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this model phone is on file with the FCC and can be found under the Display Grant section of www.fcc.gov/oet/ea/fccid after searching on FCC ID: ZKQ-MHA.

For this device, the highest reported SAR value for usage near the body is 1.496W/kg.

SAR compliance for body-worn operation is based on a separation distance of 5 mm between the unit and the human body. Carry this device at least 5 mm away from your body to ensure RF exposure level compliant or lower to the reported level. To support body-worn operation, choose the belt clips or holsters, which do not contain metallic components, to maintain a separation of 5 mm between this device and your body.
RF exposure compliance with any body-worn accessory, which contains metal, was not tested and certified, and using such body-worn accessory should be avoided.

IC Caution.

This device complies with Industry Canada license-exempt RSS standard(s). 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.

This Class B digital apparatus complies with Canadian ICES-003.

IC: 8414B-MHA

IC Radiation Exposure Statement

This EUT is in compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528 and IEC 62209. This equipment should be installed and operated with minimum distance of 5mm between the radiator and your body. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Radio frequency (RF) energy

This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the United States and Industry Canada.

During SAR testing, this device is set to transmit at its highest certified power level in all tested frequency bands, and placed in positions that simulate RF exposure in usage against the head with no separation, and near the body with the separation of 0 mm. Although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value. This is because the device is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

The exposure standard for wireless devices employing a unit of measurement is known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/kg and 1.6 W/kg by Industry Canada.

This device is in compliance with SAR for general population /uncontrolled exposure limits in ANSI/IEEE C95.1-1992 and Canada RSS 102 and had been tested in accordance with the measurement methods and procedures specified in IEEE1528 and Canada RSS 102. This device has been tested and meets the FCC and IC RF exposure guidelines when tested with the device directly contacted to the body.

For this device, the highest reported SAR value for usage near the body is 1.496 W/kg.

While there may be differences between the SAR levels of various devices and at various positions, they all meet the government requirement.

SAR compliance for body-worn operation is based on a separation distance of 5 mm between the unit and the human body. Carry this device at least 5 mm away from your body to ensure RF exposure level compliant or lower to the reported level. To support body-worn operation, choose the belt clips or holsters that do not contain metallic components to maintain a separation of 5 mm between this device and your body.

RF exposure compliance with any body-worn accessory, which contains metal, was not tested and certified, and using such body-worn accessory should be avoided.

Remarque IC

Cet appareil est conforme aux Normes RSS d'Industy Canada. Son utilisation est soumise à deux conditions:

(1) Ce dispositif ne peut pas provoquer d'interférences, et

(2) Ce dispositif doit accepter toutes les interférences reçues, y compris les interférences susceptibles de provoquer un fonctionnement non souhaité.

Cet appareil de classe B est conforme à la norme canadienne ICES-003.

IC : 8414B-MHA

Déclaration d'exposition IC

Cet EUT est conforme aux valeurs SAR à la norme SAR pour le grand public ainsi qu'aux limites d'exposition non règlementée IC RSS-102 et a été testé selon les méthodes et procédures spécifiées par les Normes IEEE 1528 et IEC 62209. Cet appareil devrait être installé et utilisé en respectant une distance minimale de 1,0 cm avec votre corps. Cet appareil et son (ses) antenne (s) ne doivent pas être situés à proximité l'un de l'autre et ne doivent pas fonctionner en même temps qu'une autre antenne ou qu'un autre émetteur.

Énergie radioélectrique

Cet appareil est conçu et fabriqué de façon à ne pas dépasser les limites d'émission pour l'exposition à l'énergie de radiofréquence (RF) fixées par la Federal Communications Commission des États-Unis et Industrie Canada.

Au cours des essais SAR, cet appareil est configuré pour transmettre des données à son niveau de puissance le plus élevé à toutes les bandes de fréquences testées et placées dans l'ensemble des positions simulant l'exposition aux radiofréquences contre la tête et près du corps, avec une séparation de 0 mm. Bien que le DAS soit déterminé par le niveau de puissance le plus élevé, le niveau SAR réel de l'appareil en fonctionnement peut être bien inférieur à la valeur maximale indiquée. Cela est dû au fait que l'appareil est conçu pour fonctionner à plusieurs niveaux d'alimentation, pour s'adapter aux capacités des différents réseaux électriques. De manière général, plus vous vous trouverez pès d'une station sans fil, plus la fréquence de transmission sera basse.

La norme d'exposition pour les dispositifs sans fil employant une unité de mesure est connue sous le nom de taux d'absorption spécifique (SAR). La limite SAR fixée par la FCC est de 1,6 W / kg et de 1,6 W / kg par Industry Canada.

Cet appareil est conforme à la norme SAR pour le grand public ainsi qu'aux limites d'exposition non règlementées ANSI / IEEE C95.1-1992 et Canada RSS 102, et a été testé conformément aux méthodes et procédures spécifiées par les Normes IEEE1528 et Canada RSS 102. Ce dispositif a été testé et respecte les directives FCC et IC sur l'exposition aux radiofréquences lorsqu'il est testé en contact direct avec le corps.
Pour cet appareil, la valeur SAR la plus élevée pour une utilisation près du corps est de 1.209 W/kg.

Bien qu'il puisse exister des différences entre les niveaux de SAR selon les dispositifs et les emplacements où ils sont utilisés, tous répondent aux exigences Gouvernementales.

La valeur SAR déclarée conforme est une distance de 5 mm entre l'unité et le corps humain. Eloignez cet appareil à une distance d'au moins 5 mm de votre corps pour vous assurer que le niveau d'exposition aux RF est conforme ou inférieur au niveau indiqué. Vous pouvez également opter pour un étui ne contenant aucun composant métallique, pour maintenir une séparation de 5 mm entre cet appareil et votre corps.

Pour tout appareil contenant du métal, la conformité de l'exposition aux radiofréquences n'a pas encore été testée / certifiée de manière précise.

Règlementations FCC

Cet appareil est conforme avec les règles FCC Partie 15. Son utilisation est soumise à deux conditions : (1) cet appareil ne doit pas provoquer d'interférence dangereuse et (2) il doit accepter toute interférence reçue, incluant une interférence qui peut provoquer un fonctionnement indésiré.

Ce matériel a été testé et jugé conforme aux normes de la classe B concernant les équipements numériques, selon l'article 15 de la réglementation de la FCC. Ces limitations sont conçues pour offrir une protection raisonnable contre les interférences dans une installation résidentielle. Cet équipement produit, utilise et peut émettre de l'énergie sous forme de radiofréquences ; s'il n'est pas utilisé conformément aux instructions, il peut produire des interférences nuisibles aux communications radio. Toutefois, rien ne garantit l'absence d'interférences dans une installation particulière. Si l'utilisateur constate des interférences lors de la réception d'émissions de radio ou de télévision (pour le vérifier, il suffit d'allumer, puis d'éteindre l'appareil), pour les éliminer il devra prendre l'une ou plusieurs des mesures suivantes:

- Réorienter ou déplacer l'antenne de réception.
- Augmenter la distance entre l'équipement et le récepteur.
- Connecter l'équipement à une prise située sur un circuit différent de celui du récepteur.
- Demander de l'aide au revendeur ou à un technicien radio ou télévision expérimenté.