Model: VMMS (FCC ID: AMWUH053)

Personal Guardian Handheld unit (PGH)
Operation Specification

Revision 0.5

FCC RF EXPOSURE INFORMATION

In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order FCC 96-326 adopted an updated safety standard for human exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters. Those guidelines are consistent with the safety standard previously set by both U.S. and international standards bodies. The design of this phone complies with the FCC guidelines and these international standards.

Use only the supplied or an approved antenna. Unauthorized antennas, modifications, or attachments could impair call quality, damage the phone, or result in violation of FCC regulations.

Do not use the phone with a damaged antenna. If a damaged antenna comes into contact with the skin, a minor burn may result. Please contact yourlocal dealer for replacement antenna.

Body-worn Operation

This device was tested for typical body-worn operations using the belt-clip supplied with the product. To comply with RF exposure requirements, a minimum separation distance of 2.2 mm. must be maintained between the user's body and the belt-clip/holster, including the antenna.

The use of other belt-clip/holsters and other non-accessories may not comply with FCC RF Exposure requirements and should be avoided.

NOTES:
Change or modifications to this product not expressly approved by GOEKEN GROUP CORP, or operation of this product in any way other than as detailed by this operation guide, could void your authority to operate this product.

Uniden Corporation

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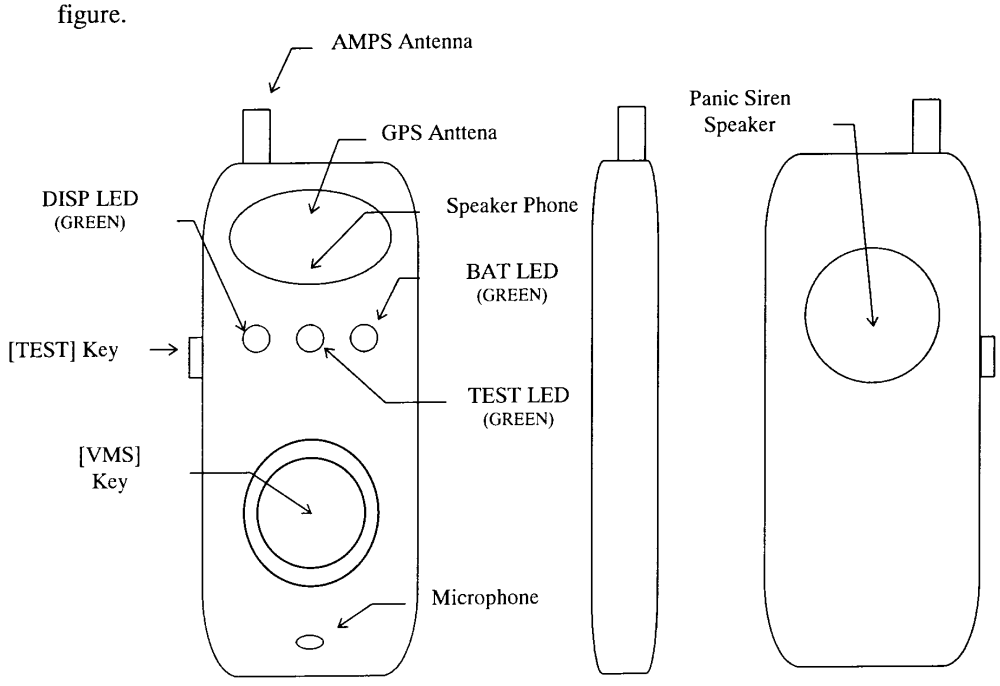
1. Overview

This phone will enable a user to place a call to the Emergency Response Center (ERC) in order to report an emergency condition, automatically provide global positioning, and dispatch to the USSR's location with minimal effort to the user. Upon activation , the terminal device will place the call via the local cellular system to the emergency reporting center utilizing pre-programmed, stored area code, NNX, and number. Once the call is completed to the emergency center, the terminal device will then automatically provide latitude and longitude positioning through GPS (Global Positioning System) via the selected cellular traffic channel. Once the latitude and longitude data is sent/received, the ERC will have the option to open up the cellular traffic channel for voice use via a speakerphone arrangement in the terminal device allowing the user to converse with personnel at the ERC.

1.1. Functional View of Phone

The following figure is a simplified functional view of the phone to show what kind of keys, indications etc. on the phone, and the actual appearance of the phone is different from this figure.



1.2. Indications

Indication	Functions
DISP LED **(Only Emergency Mode)**	Indicate the Operation condition: ***Flashing Green*:** Indicates the call in progress and till Help-Enroute established. ***Solid Green*:** Indicates the Activate Help-Enroute command is received.
TEST LED **(Only Self Test Mode)**	Indicate the Self Test condition. ***Flashing Green*:** Indicates the GPS module communication is error. Indicates the Signal too weak or No service ***Solid Green*:** Indicate the GPS module communication is OK. Indicates the AMPS Signal is acceptable or strong. **Note)** 1) GPS does check actual receiving. 2) AMPS will check the actual operation with the RSSI and the control channel detection.
BAT LED **(Only Self Test Mode)**	Indicate the Battery Status: ***Flashing Green*:** Indicates the Battery Status is low. ***Solid Green*:** Indicates the Batter Status is acceptable.

1.3. Keys

Key	Functions
[VMS] **Meaning of VMS is Veterans Monitor System.**	Emergency Call Origination
[TEST]	1) Battery Status check. 2) GPS does check the communication with MCU, and check actual receiving. 3) AMPS will check the actual operation with the RSSI and the control channel detection.

Note:

Keys function when push for 1 second.

VMS key is activated, and de-activated in 911 mode.

TEST key is activated./ de-activated.

1.4. Tones

Tone	Description	Source
Panic Siren	**Loud Panic siren** 1) The Activate Siren Command received from Emergency Response Center (ERC). A period of a siren is ON:2sec, OFF:8sec. 2) A siren sounds when not be able to connected to ERC or 911. **Low level Panic siren** A siren sounds in an end of Self Test Mode.	Panic siren speaker
Pacifier Beep	Beep when an emergency call is established	Ear speaker

1.5. Speaker Phone and Microphone

Speaker Phone and Microphone	Description
Active Mode	An initial value in ERC connection. The Activate Speaker Phone Command received from Emergency Response Center (ERC). When PGH was connected with 911. (Need to MIC gain control)
De-Active Mode	The De-Activate Speaker Phone Command received from Emergency Response Center (ERC). Except a state shown the active mode.

1.6. Feature List

No.	Item	Functions
1	Emergency Call Mode	[VMS] key press ERC number dialing. PGH acts according to a command from ERC. When PGH was not able to connect with ERC, it does dialing to 911. A siren sounds when not be able to connected to ERC or 911.
2	Self Test Mode	1) Battery Status check. 2) GPS does check the communication with MCU, and check actual receiving. 3) AMPS will check the actual operation with the RSSI and the control channel detection.

2. Operation

There are 3 distinctive modes of operation in the phone:

- Power down mode
- Emergency Call mode
- Self Test mode

This section describes the operation of each mode.

2.1. Power Down Mode

In Power down mode, all of the phone's circuits are turned off to conserve the battery. The battery life will be the standard shelf live of the alkaline batteries, typically 1 year. As the panic phone will be mostly stored in an unattended manner, active battery condition monitoring will deplete battery life very significantly without good operational advantage. The design for maximum battery life with user activated self-test is considered to be most optimum.

In power-down mode, the phone waits for a key press and enters other mode based on the entered key sequence.

2.2. Emergency Call Mode

2.2.1. Initiating a Call

The PGH does not have a conventional cellular keypad Rather, it has a large "one button" design in order to simplify its use. When the phone is in Power down mode, holding the **[VMS]** key for 1sec will place an emergency call. When the phone is powered on, it will turn on DISP LED. The DISP LED is flashing (1s interval) the call in progress and till Help-Enroute established. And then the phone makes a pacifier beep for 1sec.

In this mode, cutting by key operation is prohibited.

The PGH incorporates a built-in Global Positioning System (GPS) receiver. The GPS receiver is used to establish the position of the user (in latitude and longitude format).

The PGH will place a call to the Emergency Response Center (ERC) utilizing a pre-programmed, stored area code, NNX, and number via the local cellular telephone company. If the call cannot be completed via the preferred system (A or B) the unit will automatically try the other system (A or B)

Once an emergency call is established to the Emergency Response Center and the users identification (ESN, MIN) has been sent (utilizing DTMF tones as the encoding/signaling medium) to the ERC (utilizing DTMF tones as the encoding/signaling medium) enabling the ERC personnel to determine the users identity. The stored location is then sent to the ERC and

then dispatch appropriate response teams. At no time will the GPS receiver and the AMPS transmitter operate simultaneously.

When PGH was not able to connect with ERC, it does dialing to 911.
The speaker phone shall be activated for the call. (Need to MIC gain control)
When PGH connects with 911, cutting by holding the **[VMS]** key (1sec) operation is possible.

When not be able to connected to ERC or 911.
PGH sounds a loud Panic Siren (5min).

Retry sequence in the following.

1) ERC-1(B-SYSTEM) Origination (Retry 5 Times)
↓ Error
2) ERC-2(B-SYSTEM) Origination (Retry 5 Times)
↓ Error
3) 911 (B-SYSTEM) Origination (Retry 5 Times)
↓ Error
4) 911 (A-SYSTEM) Origination (Retry 5 Times)
↓
5) Panic Siren (5min)
↓
1) Continue until the battery will be used up.

※ When connecting to ERC-2, if Re-Calculate Location Req. will be occurred, it will connect to the 2) ERC-2 again.
※ In case if it can not be connected to ERC-2, it will go to 3) 911(B) as per the sequence. Please confirm if our understanding is correct or not.

A Retry sequence repeats until battery is exhausted.
In Emergency mode, cutting by **[VMS]** key operation is prohibited.
※ When PGH evaluation stage, cutting by holding the **[VMS]** key (1sec) operation is possible.

2.2.2. Voice Conversation

The PGH incorporates a built-in speakerphone arrangement. A speakerphone arrangement is preferred for this service in order to provide a viable means of voice communication between a user and ERC personnel. During an emergency, the user may be incapacitated or fallen and the PGH may be on the ground or floor. A speaker phone would, at least enable the ERC personnel to be able to listen to the user or their surroundings. In addition, the user would have the ability to converse with the ERC personnel without having the device up to their ear. The speakerphone would be optionally switched in to the cellular traffic channel by the ERC immediately after the ESN, MIN and latitude/longitude information was sent and acknowledged.
After this, PGH is controlled from ERC by DTMF command messages.

2.2.3. DTMF Message

When a phone connects with ERC, communicate according to Point-to-Point DTMF Protocol by Personal Guardian Handheld unit Specification and Operation [Ver 2.1 4.0 Process Flows] .

2.2.3.1. Hello Tone

The ERC detects the ring and subsequently sends a periodic *hello tone* [DTMF #1#] to the PGH. The hello tone shall be considered by the PGH as an Identification Request Command with sequence number 0. The hello tone shall be sent 1 time per second until the PGH responds with the identification response message.

The PGH shall wait 30sec (starting from the send) for the Hello Tone. If the timer expires the PGH shall drop the existing call and re-initiate a second call. If three calls are attempted without receiving the Hello Tone the PGH shall initiate a call to 911 in voice mode.

2.2.3.2. Identification Request Command Message

This call initiation and setup procedure is complete once the PGH ID request response message is received by the ERC. Subsequent commands will be issued by the ERC as needed.

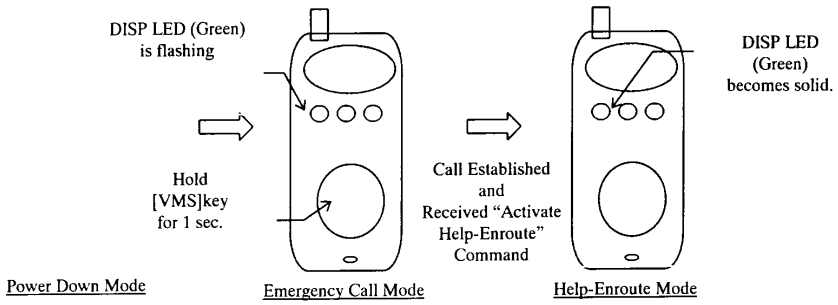
2.2.3.3. Location Request Command Message

The ERC uses the Location Request Command message to solicit the PGH location. The PGH responds to the Location Request Command with the Location Request Response. The response contains the GPS latitude and longitude values. In addition the response contains a GPS signal strength indicator.

2.2.3.4. Activate Help-Enroute Indicators Command Message

The DISP LED will flashing (1s interval) and When the PGH received a "Activate Help-

Enroute" command from ERC, then DISP LED turns to solid Green.
The ERC consists of emergency call response personnel and links to local emergency response institutions (e.g. Police, Fire, Hospital, Ambulance, etc.).



2.2.3.5. Activate Speaker / De-Activate Speaker Request Command Message

Voice mode is enabled by activating the PGH speaker phone. De-Activate Speaker Request Command Message. Similarly voice mode is de-activated by disabling the PGH speaker phone.

2.2.3.6. Activate Siren / De-Activate Siren Request Command Message

The PGH siren can be activated and de-activated by ERC. PGH will stop the siren during encoding of DTMF. If the siren is activated, the speaker phone will be de-activated.
A period of a siren is ON:2sec, OFF:8sec.

2.2.3.7. Re-calculate Location Request Command Message

The ERC may request the PGH to recalculate its location. When the PGH receives the Re-calculate Location Request message it shall drop the current call, disable the AMPS transceiver, enable the GPS receiver and obtain its location.
The PGH shall attempt to determine its location up to the period of time contained in the request message. As soon as the PGH obtains a new location reading or upon timing out the PGH shall re-initiate a call.

2.2.3.8. Mobile Status Request Command Message

It may be desirable to determine the status of the PGH device. This includes the RSSI, battery, speaker and siren status.

2.2.3.9. Shutdown Mobile Request Command Message

To shutdown the PGH, when the ERC from a Shutdown Request Command message. The PGH responds with a Shutdown Request Response message. The PGH shall then end the call and power down (about 5sec later).

When it received a message of Activate Help-Enroute Command, it is time-out for 30min.
When it received a message of Activate Siren Command, it is time-out for siren period.
Siren or Help-Enroute indication is left even if it receive a message of Shutdown command.

2.2.3.10. Dial 911 Request Command Message

The ERC may direct the PGH to dial 911. The PGH responds with a Dial 911 response message.
The PGH shall then end the call and dial 911.
The speaker phone shall be activated for the call. (Need to MIC gain control)

2.2.3.11. Partial Shutdown Request Command Message

When the mobile receives the partial shutdown message it shall send the response message, drop the call and go into receive mode for the duration specified in the command message.
While in receive mode the PGH is able to receive incoming cellular calls.
PGH does autoanswer with Incoming call.
PGH does not do a DMP communication with this conversation mode.

2.2.4. The end of call.

In Emergency mode, cutting by **[VMS]** key operation is prohibited. When PGH connects with 911, cutting by holding the **[VMS]** key (1sec) operation is possible.

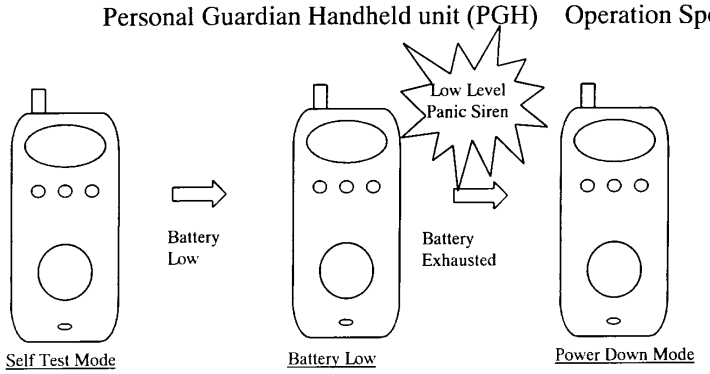
After a call is established, when the PGH received Shutdown Command, or the other party hangs up, the call will be released. When it received a message of Siren or Help-Enroute Command, it is time-out for Siren Period or 30min, Siren or Help-Enroute indication is left even if it receive a message of Shutdown command, and the PGH will then go back to Power Down mode.

2.3. Self Test Mode

When the PGH is in Power Down mode, holding the **[TEST]** key for 1sec will let the phone do the self-test.
Cutting by holding the **[TEST]** key (1sec) operation is possible.

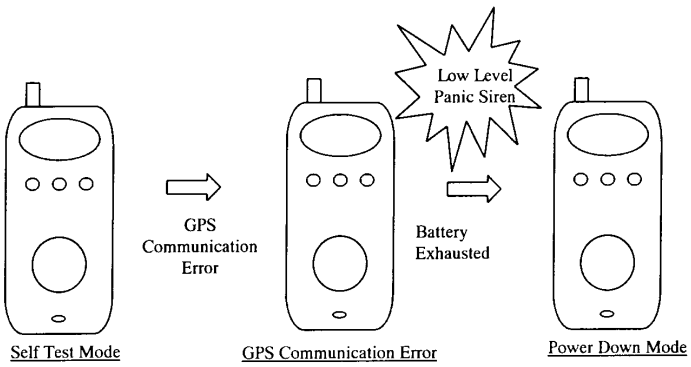
2.3.1. Battery Condition Test

The PGH will check the battery level.
If a battery level is reasonable, BATT LED turns on two or three seconds later.
If low battery is detected, BAT LED (Green) will be flashing.
Next, executes GPS Module Test.
When a check of GPS and AMPS is finished, Intermittent low level Panic Siren will be beeping until battery is exhausted.
This is to ensure that the user replaces the batteries. The user can remove the batteries at any time.


Low Level
Panic Siren
Battery
Low
Battery
Exhausted
Self Test Mode
Battery Low
Power Down Mode

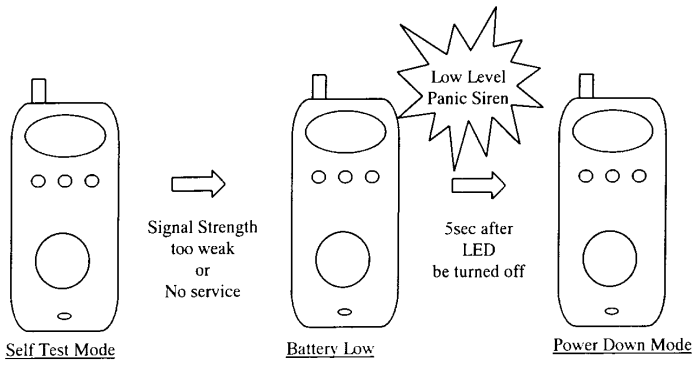
2.3.2. GPS Module Test

GPS does check actual receiving, check the communication with MCU in the first place. When GPS Communication is right, check actual receiving test.
When GPS actual receiving test is right, and executes AMPS signal strength Test.
If GPS communication error is detected, TEST LED(Green) will be flashing Intermittent low level Panic Siren will be beeping until battery is exhausted
Please repair a product.



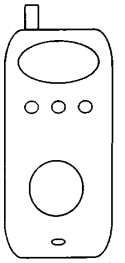
2.3.3. AMPS Signal Strength Test

AMPS will check the actual operation with the RSSI and the control channel detection.
If AMPS signal is reasonable, TEST LED turns on, and low level Panic Siren will be beeping, will be turned off automatically 5sec, then go back to Power Down mode.
If AMPS Signal too weak or No service, TEST LED(Green) will be flashing Intermittent low level Panic Siren will be beeping, will be turned off automatically 5sec, then go back to Power Down mode.
Please confirm an AMPS service area.



2.3.4. In Self Test Mode

While the Self Test Mode is active, pressing and holding the **[VMS]** key simultaneously for 1sec, will turn on the Emergency Mode.



Hold [VMS] key for 1 sec.

Self Test Mode

Emergency Call Mode

3. Cellular Phone Parameters

The phone has a non-volatile memory to store the cellular phone parameters.
These parameters are required to register to a cellular system, originate and receive a call.
The following chart is a list of the proposed default values for the cellular phone parameters.

Parameters	Acronym	Proposed default values
Electric Serial Number	ESN	A unique serial number will be assigned to each phone.
System Selection		B Prefer A Attempt a call origination through B System first. If fails, try System A.
Mobile Identification Number	MIN	A unique identification number will be assigned to each phone.
Authentication Key	A-Key	Will be initialized to all '0's
Emergency Number (ERC-1)		ERC-1="XXX-XXX-XXXX"
Emergency Number (ERC-2)		ERC-2="XXX-XXX-XXXX" ※PGH memorizes the ERC-2 number in FLASH ROM temporarily.