Emergency Portable Cellular Telephone

ECG2111

Operating Instructions

Draft Version 1.0
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SAFETY INFORMATION

EXPOSURE TO RADIO FREQUENCY SIGNALS

In August 1996, the Federal Communications Commission (FCC) adopted RF exposure guidelines with safety levels for handheld wireless phones. 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 bodies;

ANSI C95.1(1992)*
NCRP Report 86(1986)*
ICNIRP(1996)*

* American National Standards Institute; National Council on Radiation Protection and Measurements; International Commission on Non-Ionizing Radiation Protection

Those standards were based on comprehensive and periodic evaluations of the relevant scientific literature. Over 120 scientists, engineers, and physicians from universities, government health agencies, and industry reviewed the available body of research to develop the ANSI Standard (C95.1). The design of your phone complies with the FCC guidelines in addition to those standards.

ANTENNA CARE

Use only the supplied or an approved antenna. Unauthorized antennas, modifications, or attachments could damage the phone and may violate FCC regulations.

BODY-WORN OPERATION

This device is designed to use as a speakerphone which uses a loudspeaker and a high-sensitivity microphone. Accordingly, voice call is designed to be made while holding the device by hand or worn on the body by using a particular belt clip.

For body worn operation, this phone has been tested and meets the FCC RF exposure guidelines when used with the accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines.

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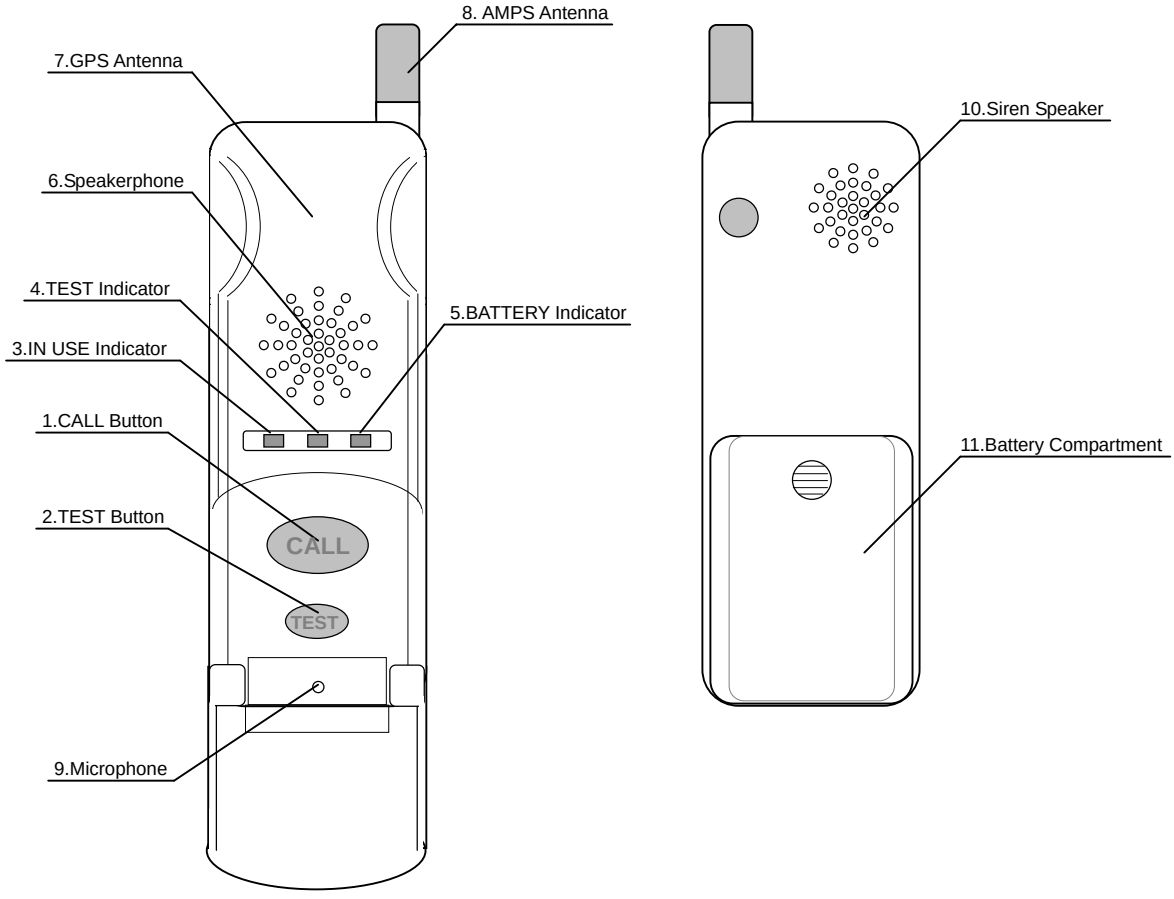
1. Overview

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 user'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. Features

- GPS based location technology
- Built-in High sensitivity GPS receiver
- Voice speakerphone backup capability
- AMPS based wireless technology in the US
- Nationwide coverage (over 95% geographic of the USA)
- Built-in siren to summon nearby help
- Large control button operation
- Test button for testing internal circuit, battery status, GPS lat/lon communication functions, etc;
- Five years battery life under normal conditions

1.2. Controls



(1) CALL Button
Emergency Call Origination will be initiated when pushed for 1 second.
After connecting with Emergency Response Center (ERC), the unit acts according to a command received from ERC. If the unit was not able to connect with ERC, it does dialing to 911.
VMS: Veterans Monitor System

(2) TEST Button
This button will be used to test the unit.
a) Battery status
b) Communication between AMPS cpu and GPS module
c) Actual operation with the AMPS RSSI level and the control channel detection

(3) IN USE Indicator
This LED Indicates the Operation condition:
Flashing Green:
Indicates the call in progress and till Help-Enroute established.
Solid Green:
Indicates the active Help-Enroute command is received.

(4) TEST Indicator
This LED indicates the Self Test condition:
Flashing Green:
Indicates the GPS module communication is error.
Or+
Indicates the AMPS RSSI Signal is too weak or No Service.
Solid Green:
Indicates the GPS module communication is OK.
And
Indicates the AMPS RSSI Signal is acceptable and the control channel was detected.

(5) BATTERY Indicator
This LED indicates the Battery status:
Flashing Green:
Indicates the Battery status is low.
Solid Green:
Indicates the Battery status is acceptable.

(6) Speakerphone
Even in case the location by using GPS cannot be caught, it is possible to make voice call to ERC operator or 911 operator by using Speakerphone and Microphone without lifting up this unit near users ear.

(7) GPS Antenna

(8) AMPS Antenna

(9) Microphone

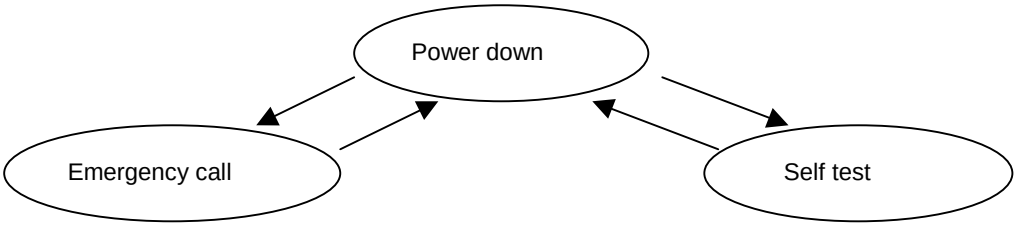
(10) Siren Speaker
The unit sounds siren in the following cases;
1) In case Activate Siren command is received from Emergency Response Center (ERC).
2) In case connection cannot be made to ERC to 911.
3) In case TEST button is held for 4 seconds to make Siren test
A period of siren is ON (2sec), OFF (8sec)

(11) Battery Compartment

(12) External Input
By connecting EMERGENCY BUTTON (Optional) prepared outside to this terminal, it is possible to make the operation same as pressing VMS (Emergency Call) of unit itself.

2. Operation

In unit operation, there are the following three independent modes;
- Power down mode
- Emergency call mode
- Self test mode



The following describes each mode;

2.1. Power Down Mode

In this mode, all the circuits in the phone are being off to save battery. And this is also the mode where VMS (Emergency Call) button or TEST button are waiting for being pushed.

Since large-capacity Primary Lithium Ion Batteries are incorporated, as to battery life, even if monthly test by using TEST button (Please refer to the TEST Mode mentioned below) is made, it is sufficiently possible to make Emergency Calls five years later without replacing batteries.

2.2. Emergency Call Mode

2.2.1. Initiating a Call

The unit does not have a conventional cellular keypad Rather, it has a large "Emergency call button" design in order to simplify its use. When the phone is in Power down mode, holding VMS button for 1 second will initiate an emergency calling process.

2.2.2. Establishing Position

The unit 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).

After obtained the location, the unit 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.

When the phone initiates an Emergency call, the DISPATCH LED will be flashing the call in progress and till Help-Enroute established. 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 (ERC) 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 location information 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.

Retry sequence is as follows:

1) ERC-1 Access (Preferred system)
   | Fail
2) ERC-1 Access (Non-Preferred system)
   | Fail
3) ERC-2 Access (Preferred system)
   | Fail
4) ERC-2 Access (Non-Preferred system)
   | Fail
5) 911 Access (Preferred system)
   | Fail
6) 911 Access (Non-Preferred system)
   | Fail
7) Sounds Siren (ON: 2sec, OFF: 8sec)
   |
   will go to 1)

2.2.3. Voice Conversation

The unit 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 unit may be on the ground or floor. A speakerphone 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.

2.2.4. Emergency Response Center (ERC)

The Emergency Response Center (ERC) consists of emergency call response personnel and links to local emergency response institutions (e.g. Police, Fire, Hospital, Ambulance, etc.).

Once a user emergency button has been pressed on the unit, the ERC will be contacted via the cellular network. The transmitted data from the unit will include the raw GPS data, the unit electronic serial number (ESN), and the unit mobile identification number (MIN). The ERC system will then convert the raw GPS data (latitude/longitude) to a location and user information will be mapped on the dispatch console of the ERC.

After the GPS data is received from the unit, the unit and ERC will then optionally be linked via the cellular traffic channel for two-way voice communication. This will be via a speakerphone arrangement incorporated in the unit.

2.3. Self Test Mode

When the unit is in Power Down mode, press and hold TEST button for one second. Then, the PHONE starts Self-Test for the following three items (GPS Module, AMPS RSSI, Battery).

2.3.1. Indication by using TEST LED (Flashing/Solid)

2.3.1.1. GPS Module Test

This test checks whether receive circuit of GPS module operates properly and checks whether Communication between MAIN CPU and GPS module is made properly.
If an error is detected, the status becomes flashing TEST LED (Green).

2.3.1.2. AMPS RSSI Test

This test is to check whether RSSI (Received Signal Strength Indicator) is at a reasonable level and check whether it is possible to detect Control Channel so that Phone can become SERVICE status.
If the status remains “No Service” and cannot become SERVICE status, TEST LED (Green) becomes flashing.
When the communication with GPS module is normal and that PHONE was able to become SERVICE status, TEST LED (Green) becomes SOLID and proceed to Battery Test.

It takes about 8 to 10 seconds to complete these two tests

2.3.2. Indication by using BATTERY LED (Flashing/Solid)

2.3.2.1. Battery Condition Test

This test checks whether battery level is at useable level or at low-battery level so that battery replacement is necessary.
When battery level is at Low level and battery replacement is required, BATTERY LED (Green) becomes flashing.
When battery level is at an acceptable level, BATTERY LED (Green) becomes SOLID state.

When TEST button is pressed under this state, unit is turned off and the mode becomes Power Down mode.
Otherwise the unit will be turned off automatically after 10 seconds, then enter to Power Down Mode.

2.3.3. Siren Test

When the unit is in Power Down mode, press and hold TEST button for four seconds. The phone sounds siren.
A siren will be stopped when a user press TEST button again or 5 minutes elapsed.

3. General Specifications

AMPS:

Frequency Range:	
Transmit:	824.040 to 848.970 MHz
Receive:	869.040 to 893.970 MHz
Number of RF Channels:	832 Channels, Full Duplex
Channel Spacing:	30 KHz
Duplex Spacing:	45 MHz
Frequency Stability:	within 2.5PPM
RF Power Output:	Max. 0.6 W

AMPS and GPS	
Operating Temperature:	0 to +50 degree Celsius
Battery:	Primary Lithium Ion (CR123A) x 2
Supply Voltage:	6 V DC nominal
Dimensions (W x H x D):	49mm x 131.5mm x 34.5mm
Weight:	Approx. 160 g

** Subject to change without notice.*

4. NOTICE FOR USING Emergency Portable Cellular Telephone

This unit has a hands-free function.
Hold it in your hand away from your ear, or use it while it is still on your waist. It can also be used while it is on a desk.

Loud sounds are sometimes emitted from the speakerphone of this unit.
Never use it while holding it against your ear.