

## Product Description for the Wherify Wireless Personal Locator

The Personal Locator, is a device worn on a person's wrist like a wristwatch that enables tracking of the wearer's location within the coverage of the North American cellular network using an internal autonomous/server-aided GPS receiver.

The Wherify Personal Location System embeds a pioneering, highly miniaturized location system within a light-weight wristwatch that allows consumers to easily determine the location of their children, elderly parents or other at-risk loved ones via the Internet or telephone.

Unlike any other personal location-based service available today, the Wherify Personal Location System includes Global Positioning System (GPS) and digital PCS mobile phone technology, resulting in a miniature 3.3-oz. Safety device that delivers a fast, accurate, reliable and easy-to-use safety solution.

Wherify's end-to-end solution includes the wearable device itself and a 24x7 location service that can be accessed via the Internet or by telephone to locate a child or loved one within a few feet of their exact location. The location process will typically takes less than a minute. In the event of an emergency, either the child or guardian can request an emergency 911 response, and local police will be dispatched.

The Personal Locator will operate as an IS-95B mobile station on the wireless network. When it receives the appropriate command from the Wireless network it will perform a location calculation using the internal GPS receiver and transmit the data using data services. The device will have following capabilities:

- Originate and receive digital communications to and from the IS-95B wireless network
- Receive ephemeris data from the GPS server
- Acquire and track signals from GPS satellites and perform location calculations
- Transmit and receive status and configuration data over the air and key fob serial port
- Download software through key fob serial port
- Lock and unlock the clasp mechanism electronically
- Monitor and report the status of clasp lock
- Receive and display numeric messages
- Monitor and report the status of tamper detection circuitry
- Display the time of day
- Display icons for battery level, lock status, signal strength, "Airplane" mode

The CDMA antenna used in the Wherify personal locator is a Contrawound Helical Antenna (CTHA) implemented on a PCB. It is an electrically small antenna constructed from a generalized contrawound toroidal helix made from a single continuous conductor divided into two length portions each of which are substantially the same length and which have a generalized helical pattern. The helical pitch senses of the two length portions are opposite to one another. The two length portions are insulated from one another and overlap one another on the surface of a generalized toroid. A signal is fed to

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the antenna at a port defined by the node locations where the respective length portions join one another, or at a diametrically opposite point. At the fundamental mode of operation, the antenna is a half guided wavelength in circumference. The size of the antenna is further reduced because of the slow-wave properties of the underlying generalized contrawound toroidal helix. The antenna is omnidirectional with vertical polarization with a radiation pattern similar to an electric dipole, but in a physical package that is substantially smaller.