

nanoCOW™ (nanoCELL-On-Wheels)

PTI's new "nanoCOW" is a miniature mobile phone network "Cell On Wheels", that enables voice, text and data communications when commercial networks fail. As has been seen over and over again, when disaster strikes, the public telephone networks get overwhelmed and crash.

Designed and built to provide emergency communications for citizens in distress and to support public safety officials on the scene, nanoCOWs are autonomous cellular sites that can be "dropped" into any location; providing local cell service in a matter of minutes.

Once deployed, the nanoCOWs are equipped with a built in power plant that can keep them in service for weeks at a time.

Recognizing the increasing need to quickly establish communications with victims in a crisis and considering the network failures associated with natural disasters, PTI designed the nanoCOWs to bridge the communications gap between first responders when they need it most.



The nanoCOW™ design team learned an important lesson during Superstorm Sandy - establishing an emergency cell site was easy when compared to the effort needed to re-fuel the generators to keep the sites powered up.

PTI's nanoCOWs address the power problem by combining:

extremely efficient cell site technology (ultra low electrical power consumption), with an **extremely efficient power plant**.

The result is unattended nanoCOW™ cell sites that operate for weeks without the need to refuel.

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Smart Car power plant: Many power generator systems were evaluated for the nanoCOW™ project. Wind and solar power were self-evident selections, as they are proven “trickle power” battery chargers and a good match for lead acid car battery charging. To increase storage capacity, multiple deep cycle marine batteries can be chained together.

When there is not enough wind or sun, the Smart Car’s three-cylinder engine efficiently charges the batteries using less than a cup of gas. With nine gallons of gas in the tank, the nanoCOWs can run for weeks without the need for re-fuel.

nanoCOWs are tiny, light-weight Mercedes Smart Cars that can be transported on trailers, lifted by helicopters or driven into freight elevators for roof top placement.

Once activated, the nanoCOW™ can begin to collect E-911 calls and text messages immediately; improving situational awareness.

nanoCOWs can broadcast public safety text alerts to all phones in the immediate area, providing directions to victims, first responders or both.

nanoCOW™ systems can be configured to support all current wireless technologies including: GSM, CDMA, text, WiFi, 2G, 3G and LTE.



PTI Operations Center and Satellite Earth Station

Each nanoCOW includes satellite backhaul connections to PTI’s earth station NOCs located outside of the crisis area. Once received by the NOC, voice, text and data can be routed to the PSTN, the Internet or other nanoCOWs in the field.

PTI also developed a remote control system for the nanoCOWs that monitors battery levels and sends text message alerts when the power is getting low. Using the PTI remote control application on your phone, you can start your nanoCOW™ remotely and turn it off when the batteries are charged.



Complete remote power plant monitoring and controls: battery voltage, fuel level, remote engine start, charging current and auto start when battery voltage goes below pre-set level.

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