SWAVE HH-E HANDHELD SECURE WIDEBAND SOLDIER RADIO

SWave Enhanced Handheld (HH-E) is the new frontier of soldier radios, providing the smallest reconfigurable radio based to the market. Its dimensions, light weight, power and versatility are all offered in an affordable device.

SWave HH-E is a body-worn radio for soldier and commander use at either Platoon or Section level. It offers simultaneous voice and data communications at the tactical edge of the battlefield network. The unit provides a single-channel reconfigurable radio delivering wideband secure voice/data services for current and future tactical communication needs.

Compliant with the US JTNC (former JTRS) Software Communications Architecture (SCA), SWave HH-E supports both legacy and new waveforms, thus providing interoperability with fielded radios and new generation C4ISR systems. It operates in the 30MHz to 512MHz frequency range with 5W peak RF output power.

Radio performance is best-in-breed and comply with state-of-the-art wideband networking WFs as the SelfNET® Soldier.

KEY BENEFITS

▪ Support of NB and WB Mobile Ad-hoc Network (MANET) waveforms
▪ Embedded security capability with fully programmable COMSEC and TRANSEC
▪ Seamless interoperability with legacy analog radios
▪ JTNC SCA/ESSOR SDR platform architecture
▪ Supports multiple mission plans
▪ Position Location Information (PLI) enables situational awareness and blue force tracking
▪ Small, ruggedized, lightweight chassis
▪ Embedded C2 applications
▪ Built-in speaker/microphone
▪ Portable and vehicle mounting flexibility
COMSEC protection is provided via an AES-256 crypto engine by dedicated cryptographic circuit. Continuous transmission of Position Location Information (PLI) enables situational awareness and blue force tracking. A built-in full IP stack allows seamless integration with external networks and IP-based applications.

Swave HH-E Hand-Held radio is the ancestor of a family of empowered hand-held products focused on achieving enhanced interoperability with manifold radios, waveforms, crypto modes/fill devices. Target interoperability waveforms are EZ-PRR Waveform, enhanced wideband MANET Waveform and NB-AW MANET waveforms.

An easy-to-use user interface, with backlit graphic display and keypad, provides full control for both operational and system administration duties. Ethernet or USB and serial interfaces are available. HH-E uses a Li-ion battery pack.

HH-E takes advantage of the dedicated NMS-2K management suite SW tool, tailored to exploit radio flexible configuration capabilities and versatility to support every fielded scenario.

NMS-2K encompasses Services Planning System, to design and configure SDR radio networks, Tactical Network Monitoring and Element Manager Systems, to keep each radio network and its performances under control.

HH-E supports remote management via SNMP interface. Key Management System and SDR Filler complete the management toolset.
DELIVERY PACKAGE

SWave HH-E is delivered in a basic soldier configuration in addition to the valuable options yielded by the dismounted accessories set and vehicle ancillaries.

**Basic configuration**
- Data Terminal/Smartphone
- Configuration and Control Tool
- SWave HH-E Radio
- SWave HH-E User Manual

SWave HH-E is supplied with user manuals, headset and data/remote-control cable.

A wide range of ancillary options is available to cope with soldier system requirements, including dual-channel PTT headset, ITE HP headset and a choice of antennas to meet different mission needs (VHF, UHF wideband). Vehicular kit for long-haul communication is also available.

**Dismounted accessories**
- Dual PTT Headset/(HPI-2005/01)
- Wireless PTT Interface
- ITE HP Headset (731-2434/02)
- Light Patrol Standard Headset (H-300-4856-01)
- Data cables kit (HPI-2007/01)
- Multiple Battery Charger (HPI-2004/01)
- AC Depot Battery Charger (HPI-2003/01)
- Antennas
  - V/UHF whip antennas (2100768M0019)
  - body-worn UHF (2100824M0011)
  - GPS antenna (2100047M0376)

**Vehicle Configuration**
The HH-E can be configured as vehicular radio system for long-range communications allowing reduction of radios held within a battle group, potentially saving weight and volumetric space inside vehicles, command-post and surface vessels.

**Vehicular Accessories**
- Vehicular Cradle - Mounting Base with Shock Absorber
- Avg 50 W HPA and Colocation Interference Mitigation Module in Long Haul Installation Mode

- Standard Rechargeable Battery (HPI-1311/01)
- High Capacity Li-ion Rechargeable Battery (HPI-2001/01)
- Tactical bag (HPI-2006/01)
## TECHNICAL SPECIFICATION

### GENERAL
- **Channels**: One, half-duplex
- **Frequency range**: 30MHz to 512MHz V/UHF
- **Bandwidth**: Narrowband in range 3kHz to 100kHz
  - Wideband up to 1.25MHz
- **SDR core software**: JTNC SCA 2.2.2
  - ESSOR architecture compliant
- **Simultaneous voice and data support**
- **Dual net PTT support**
- **Situational Awareness Software Support (C2-SA)**

### TRANSMITTER
- **Power output**: 5W (50W in vehicles)

### SECURITY
- **Modes**: Embedded COMSEC (Up to NATO/National Restricted) and TRANSEC capabilities
- **Encryption**: Embedded AES 256 Crypto Engine
  - Support for Custom Crypto Algorithms
- **Cryptographic keys loading**: Secure Key Fill/Store Device
  - Anti-Tampering/OTAR support

### INTERFACE
- **RF antenna port**: TNC Connector, 50 Ohm
- **GPS/WiFi antenna port**: SMA Connector, 50 Ohm
- **Audio interfaces**: Analogue audio port with dual PTT
- **Data/CTRL interfaces**: Serial (RS-232/RS-422), USB, Ethernet
- **Data/CTRL interfaces (wireless)**: 2.4 GHz IEEE 802.11b/g/n
  - Bluetooth 2.1+EDR

### POWER SUPPLY
- **Battery type**: Standard/High Capacity Li-ion, rechargeable
- **Battery operating time**: >8hrs typical (wf dependent)
- **High-capacity battery operating time**: >16hrs typical (wf dependent)

### ENVIRONMENTAL
- **Shock and vibration**: MIL-STD-810F
- **Immersion**: 1m
- **EMI/RFI**: MIL-STD-461E
- **Operating temperature**: -50°C to +55°C

### MECHANICAL
- **Size (H x W x D)**: 155mm x 68mm x 42mm (without antenna)
- **Weight**: ≤ 630g (with standard battery)

### INSTALLATION
- **Demounted soldier**
- **Wheeled/tracked/tombat support vehicles**
- **Command Post**
- **Tactical logistics platforms and ships**

### WAVEFORMS
- **NB**: VuLOS V/U AM/FM (STANAG 4204/4205)
- **Datalink IP**: MIL-STD-188-220C
- **EPM/ECCM**: SelfNET® EASY II
- **WB MANET**: SelfNET® Networking SBW
  - (Soldier Broadband Waveform)
- **NB MANET**: SelfNET® Narrow Band Adaptive WF (NB-AW)