COMMANDER HANDHELD
MASTER NETWORK CENTRIC TRANSFORMATION

- Multi-band V/UHF
- Accelerating collaborative combat
- Coalition and national missions
- Multi-service, open interfaces
- ESSOR, PR4G interoperable

SYNAPS-H
Lightweight V/UHF SDR
RADIOTRANSFER PRODUCTS AND SOLUTIONS

SYNAPS-H Lightweight V/UHF SDR

SYNAPS-H is a V/UHF handheld terminal of the SYNAPS Networking SDR Family designed for network centric transformation, enhanced situation awareness and collaborative combat.

**Main Features**

**General Characteristics**
- ESSOR SCA architecture – SCA 2.2.2 compliant, SCA 4.1 ready
- Frequency range: VHF 30-312 MHz
- RF output power: 5 W
- Channelization: 8.33 kHz, 12.5 kHz, 25 kHz, 50 kHz, 75 kHz, 250 kHz, 500 kHz, 1.25 MHz (others on demand)
- Built-in GNSS receiver
- Embedded agile co-site filters
- NATO Restricted product variant
- Embedded programmable crypto module for national algorithms

**SYNAPS WAVE (Waveform Library)**
- Advanced national networking waveforms
  - ESSOR HDR – UHF Wideband
  - GeoMux (incl. High Data Rate – up to 160 kbps) – VHF
  - MANEUVER GEO – VHF
  - MANEUVER COMMAND/COMBAT – UHF
  - AIRPOWER-I (Ground-to-Air) (future) – UHF

**PR4G, F@stnet and NextW@ve native interoperability**
- International Coalition and NATO waveforms
  - Tactical VHF and UHF, Stanag 4204 and 4205
  - ESSOR HDR – UHF Wideband
  - EPM HQI/II (future), SATURN (future)
  - NATO NBWF (future), COALWNW (future)
- SDR Lab for waveform development and prototyping

**Interfaces**
- **Voice**: standard analog and digital (VoIP)
- **Data**: USB Host device and ethernet/IP
- **Control**: Dual PTT, Keypad, screen, SNMP v3 – Web server
- **GPS**: embedded + external MIL GPS connection
- **2nd channel mission module for ISR, soldier**

**Physical and Environmental**
- **Weight**: 1.2 kg with battery
- **Volume**: 0.8 litre with battery
- **Environmental, Std and EMC**: MIL-Std-810G, MIL-Std-461F

**Ancillaries**
- **Headset**: standard or lightweight
- **Antennas**: short/long
- **Windows/Android remote control
- **Battery chargers**
- **Vehicular docking** (mechanical, charger)

SYNAPS-H backside mission module capability opens the door to an additional band/channel for dedicated purposes (ISR, soldier...).

**ENHANCED SITUATION AWARENESS – HIGH DATA RATE**

Thanks to GeoMux HD (VHF) and ESSOR (UHF) High Data Rate MANET waveforms, SYNAPS-H provides the users on the field with simultaneous, independent and secure services such as combat voice, video, IP data, messaging, chat, SMS, geographical BFT (Blue Force Tracking) and alerts. Each of these MANET waveforms allows automatic split/merge and late entry to match with operational battlefield requirements. Unique GeoMux transverse BFT capability shared over different VHF nets avoids friendly fires between adjacent units.

**MANEUVER WAVEFORMS FOR COLLABORATIVE COMBAT**

With MANEUVER GEO (VHF) and COMMAND/COMBAT (UHF) waveforms, SYNAPS-H provides simultaneous hierarchical and time-wise/low latency geographical user services, the latter for collaborative combat. SYNAPS-H ensures simultaneous end-to-end services including multiple combat voice channels, messaging with reliable forwarding, Communities of Interest (CoI) as well as IP broadband data, video, chat, SMS, BFT and alerts, hierarchically and geographically. Thanks to SYNAPS MANEUVER waveforms shared over the SYNAPS Family and SYNAPS-V 2-channel radio, SYNAPS-H users can access to all other SYNAPS users in a secure way, without deciphering, whatever they are in MANEUVER VHF or UHF waveforms. SYNAPS-H thus displays extended operational range and battlefield transverse and geographical connectivity. MANEUVER waveforms include automatic insertion of combat and helicopter fire support units with join/leave, split/merge and late entry features. Task force reorganization (unit reinforcement, attachment/detachment) is now possible without radio re-programming.

**INTEROPERABILITY**

SYNAPS-H is multi-mission ready for both in national operations or international coalition. SYNAPS-H can operate a comprehensive set of interoperability waveforms for Legacy, Coalition and NATO radios, including PR4G and GeoMux waveforms for smooth migration path as well as ESSOR High Data Rate waveform and NATO narrow band waveform for Coalition. With GeoMux, AIRPOWER and HaveQuick waveforms, SYNAPS-H natively supports national and coalition Ground-Air coordination with helicopters for fire support as well as DaCAS.

**EASY TO INTEGRATE, SETUP AND OPERATE**

SYNAPS-H can be easily integrated with combat mission systems thanks to IP open interface and a suite of advanced radio services. A vehicular docking provides mechanical support and battery charger function. A SYNAPS-T equipment can be added to set up a 50 W vehicular station.

SYNAPS EASY mission preparation graphical tool allows simple and automated network planning based on order of battle and information exchange requirements.

**SYNAPS-H**

**Lightweight V/UHF SDR**

SYNAPS-H provides High Data Rate secured against jamming, with frequency hopping both in VHF and UHF. SYNAPS-H ensures to commanders mounted/dismounted continuity and extended range thanks to intra waveform relaying capability with vehicular station.

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