



SWAVE MB1 MANPACK SECURE WIDEBAND TWO-CHANNEL RADIO



The SWave Manpack Bi-Channel (MB1) is a two-channel Type 1 radio for dismounted use. Compliant with the Software Communications Architecture (SCA) and with ESSOR standards, it supports wideband IP voice and data, secure CNR voice, video services for present and future tactical needs in national, NATO/coalition environments.

The unit is suitable for operational use by soldier and commander in either Squad/Platoon or Section level scenarios. It offers two simultaneous RF channels, each one in the 30MHz to 512MHz frequency band and a maximum output power up to 20W, even at the tactical edge of the battlefield network.

Design of MB1 Radio performance offers a successful compromise between computing resources, scalability and affordable unit costs. Hosting a wide variety of SCA narrowband and wideband waveforms, MB1 is, as such, encased in a competitive, state-of-market form factor.

KEY BENEFITS

- Two channels for simultaneous wideband LOS/BLOS data/IP and CNR voice/video communications
- Dismounted Use in Operation in Battlefield, soldier/leader/commander
- Ruggedized, lightweight chassis, ergonomic
- National, NATO and (future) coalitions use
- 30MHz to 512MHz at 20W in each channel, simultaneous
- Embedded Security capabilities with customizable COMSEC and EPM/ECCM support
- Support of modern networking WFs (SelfNET® NBAW, SelfNET® WB SBW, WB Essor HDR) Mobile Ad-hoc Network (MANET) waveforms
- Support of EPM/ECCM Waveforms (SelfNET® Easy II, Stanag HQ I/II, Sincgars)
- Seamless interoperability with legacy analog radios
- Packed Wearable and Vehicle Mounting Flexibility with dedicated shock absorber mounting base (VB1 Radio)

SWAVE MB1

The SWave MB1 radio can cope with advanced state-of-the-art waveforms such as the SelfNET® family, composed of EPM/ECCM EASY II, Soldier Broadband Waveform (SBW), NarrowBand Adaptive Waveform (NBAW) and the emerging NATO Narrow-band and ESSOR HDR Waveform.

The STANAG Waveform set, as V/UHF VuLOS, Sincgars, STANAG 4246 (HQI/II), and TACSAT DAMA, integrate the supported WF portfolio in favour of an improved experience of the interoperability with the fielded legacy radios.

Compliant with the US JTNC (former JTRS) Software Communications Architecture (SCA) and the extensions of EU ESSOR Architecture, MB1 can support both legacy and new waveforms, thus offering interoperability with fielded radios and new C4ISR systems.

The embedded NETSEC module supports COMSEC and TRANSEC mode used in legacy radios; legacy encryption modes supported are: KY-57/VINSON, ANDVT/KYV-5, KG-84C and keyfill modes of DS-101 and DS-102. Embedded AES256 encryption is also supported with relative keys management facilities.

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 MB1 can be operated from the front mounted controls, or remotely via the keypad/display Remote Control Kit. K/D RCK is suitable for being worn or installed into vehicles.

SWave MB1 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 a Services Planning System to design and configure SDR radio networks, Tactical Network Monitoring and Element Manager Systems to manage each radio network and its performance. MB1 supports remote management via SNMP interface. Key Management Systems and SDR Filler integrate the management toolset.

A wide choice of antennas (whips, both VHF,UHF or TACSAT) suitable for different type of communications are available as well as ancillaries, including headset, a headset with dual PTT and dual channels audio mix/nomix controller.

MB1 is delivered in a basic soldier configuration in addition to the Dismounted Accessories Set and Vehicle Ancillaries Units & Accessories.

MB1 BASIC CONFIGURATION

- Data terminal/smartphone
- Configuration and control tool
- Swave MB1 Radio
- Swave MB1 User Manual.



DISMOUNTED ACCESSORIES

- Dual PTT CS Headset (HPI-2009/01)
- Dual PTT Handset (HPI-2011/01)
- Wireless PTT Device
- ITE HP Headset (731-2434/02)
- Light Patrol Standard Headset (H-300-4856-01)
- Data Cables Kit (RAN-7132/01)



- Battery Pack (RBG-0608/01)



- Keypad/Display RCK (RBG-0892/01)
- Soldier's BackPack (HPI-2010/01)
- AC Battery Charger (Depot Use)
- Antenna kit: TACSAT, VHF, UHF, Wideband V/UHF, GPS



VEHICLE CONFIGURATION

The MB1 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 Mounting Tray can hosts MB1 allowing the use of one or two power amplifiers (HPA MPA3550W-V) to increase transmitted power.

A common subset of dismounted accessories such as Keypad/Display RCK and audios ancillaries are still applicable.



The HPA MPA3560W-V is a three antenna ports 50W (80Wpep) RF power amplifier with built-in co-site filters in the 30-512MHz frequency range, supporting narrowband and wideband waveform, up to 5MHz bandwidth.

VEHICLE ACCESSORIES

- Avg 50 W HPA & Colocation Interference Mitigation Module in Long Haul Installation Mode (RAC-6957/01)
- Mounting Base with Shock Absorbers (RAC-69999/01)
- Keypad/Display RCK (custom vehicular kit)
- DC Vehicular speaker.

TECHNICAL SPECIFICATION

GENERAL

Channels	Two independent, half-duplex or simplex
Frequency range	30MHz to 512MHz V/UHF
Bandwidth	Narrowband: 3kHz to 100kHz SATCOM: 5kHz, 25kHz 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	
Situation awareness software support (C2-SA)	

PHYSICAL (PER CHANNEL)

Power output	Up to 20W (user selectable)
Power output in vehicle	50 Wavg with HPA Ancillary Unit
Harmonic suppression	≥50dBc
Noise figure	≤ 8dB (whole frequency range) ≤ 5dB (SATCOM frequency range)

SECURITY

Modes	Two independent channels Embedded COMSEC/TRANSEC capabilities
Encryption	Customisable COMSEC security
Cryptographic keys loading	By means of Keyfill device into a removable CIK
Over-The-Air-Rekeying/Deletion	Supported
Zeroization	Yes

INTERFACE (PER CHANNEL)

RF antenna port	N Connectors, 50 Ohm
Audio interfaces (front)	Analogue audio port with dual PTT
Audio aux (bottom)	Analogue audio port with dual PTT
Data/CTRL interfaces (bottom)	Data/CTRL ports serial (RS-232/RS-422), USB, Ethernet
Expansion port (side)	HPA/Ancillary CTRL port

INTERFACE (COMMON)

GPS antenna port	SMA connector, 50 Ohm
Fill port	
CIK port	

POWER SUPPLY

Battery type	Li-ion, rechargeable
Voltage	DC19V to DC34V according to MIL-STD-1275
Mean battery operation time	8hrs dependant on waveform 12hrs in ch.1 : Stanag 4204/05 (1:1:8) ch.2 : SBW Manet (1:3:6)

ENVIRONMENTAL

Shock and vibration according to MIL-STD-810F for tracked/wheeled vehicles	
Immersion	1m
EMI/RFI	MIL-STD-461E
Operating temperature	-40°C to +55°C

MECHANICAL

Size (W x D x H)	230mm x 80mm x 363mm (with battery)
Weight	≤ 5kg (without battery) ≤ 8kg (with battery)

INSTALLATION

Dismounted at soldier level	
Wheeled/tracked/combat support vehicles, tactical logistics platforms and ships	
In Deployable operation area	

DEPLOYABLE WAVEFORMS

NB	VuLOS V/UHF AM/FM (STANAG 4204/4205)
Datalink IP	MIL-STD-188-220C
EPM	SINCGARS HQ I/II (STANAG 4246) SelfNET® EASY II
TACSAT	DAMA (MIL-STD-181A, MIL-STD-182A, MIL-STD-183, MIL-STD-184)
WB MANET	SelfNET® Networking SBW (Soldier Broadband Waveform)
NB MANET	SelfNET® Narrow Band Adaptive WF (NB-AW)

