Defence Communications Systems

SWAVE VM3 RADIO
SECURE WIDEBAND VEHICULAR SYSTEM

The SWave VM3 is the vehicular adaptation of the singlechannel Hand Held software defined radio that provides wide and narrowband secure voice/data services for present and future tactical needs. Based on the Software Communications Architecture (SCA), the SWave VM3 can support both legacy and new waveforms, thus providing interoperability with fielded radios and C4I systems.

This small, lightweight vehicular assembly hosts an SWave HH radio that can be easily and quickly removed to provide personal communications capabilities for dismounted soldiers.

It provides electrical and mechanical characteristics complaint with MIL-STD-1275 and MIL-STD-810F. The SWave VM3 can be operated either remotely, via SNMP interface, or locally, via its HMI, with backlit graphic display and keyboard.

It provides all the features of the SWave HH radio, including 30-512MHz frequency range, 5W peak RF output power and support of proprietary narrowband FFH WF SelfNET® EASY II and broadband MANET WF SelfNET® SBW.

Voice, data and control traffic can be remoted. Ethernet, USB and serial cable interfaces are available. The SWave VM3 also provides battery charging capability for the hosted SWave HH. The embedded commercial-grade GPS receiver can be also interfaced to active/passive external antennas.

The vehicle mounting base can be optionally equipped with a co-siting filter module to ease integration in multiple-radio, electromagnetically crowded systems. An external 50W RFPA is also available for vehicle installations. Due to its small, lightweight form-factor, the SWave VM3 is suitable even for small vehicles and any other installation with tight space constraints.

SWAVE VM3

The SWave VM3 is supplied with manuals and headset. A wide set of ancillaries options is available, including shock mounting base, vehicle remote terminals, a choice of antennas suitable for different mission needs (VHF, UHF, wideband) and a dualchannel headset.

SELFNET SBW

The SelfNET® Soldier Broadband Waveform is a multi hop Mobile Ad-hoc NETwork UHF (225-512MHz) waveform, designed for squad/platoon operational needs. The SelfNET® SBW can automatically establish a network of up to 50 nodes with a depth of up to 5 hops. Network topology is automatically built and dynamically adapted for mobile operation.

Voice and data services, including broadband traffic such as video streaming, can be provided simultaneously, with voice prioritization and configurable QoS policies for data. Groups are supported, so that a node can be part of two closed Voice Groups (Dual Net feature) and Data Groups (V-LAN) at the same time. Commander Priority and Emergency Call features are provided.

SWAVE EASY II

The SWave Enhanced Anti-jamming System II WF is a narrowband, fast frequency-hopping waveform with voice and data communications capabilities. The SelfNET® EASY II can operate in both VHF (30-88MHz) and UHF (225-512MHz). TRANSEC synchronization can be achieved with or without GPS support. Digital voice (CVSD or MELP) or data at up to 16kbps can be provided over a 25kHz channel bandwidth. IP data communication is also supported.

TECHNICAL SPECIFICATION

GENERAL	
Channels	1, half-duplex
Frequency range	30-512MHz
Channel bandwidth	NB: 25kHz
	WB: 1.25MHz (up to 5MHz)
Channel spacing	NB: 25kHz
	WB: 2 MHz
Audio interfaces	1 analog audio channel with dual
	PTT
Data interfaces	Serial (RS-232), USB, Ethernet
Control interfaces	HW: Ethernet
	CANBUS + discrete wires for external ancillaries
	SW: SNMP
SW environment	SCA 2.2.2 compliant
	IPv4
	Bridging and routing capabilities
	Text messaging
	SA (Situational Awareness) support
GPS receiver	Embedded (commercial)
	Interface for external GPS receiver

SECURITY	
Modes	COMSEC + TRANSEC
Encryption	AES 256 (Type3)
Key fill	Yes

POWER	
Power input	MIL-STD-1275-compliant
Power consumption	55W max

PHYSICAL AND ENVIRONMENTAL	
Size	262 x 120 x 190mm (HxDxW)
Weight	≤ 4.5kg without CIM module
	≤ 5.0kg with CIM module
Temperature range	-30 °C to +55°C (operational)
Shock and vibration	IAW SICCONA requirements
Immersion	1m/30 min IAW MIL-STD-810F
EMI/EMC	IAW MIL-STD-461E

TRANSMITTER	
Power output	5W (max peak), adjustable (Full, ½, ¼, 100mW)
	2.5W (rms typ) w/ SBW
	50W (max peak) w/ external PA, adjustable (Full, ½, ¼)
Harmonics suppression	Better than - 50dBc

RECEIVER	
Noise figure	≤ 8dB (without CIM module)
	≤ 10dB (with CIM module)
IF rejection	Better than - 58dBc
Sensitivity	≤ -115dBm (NB FM @ 10 dB SINAD, w/o CIM module)

WAVEFORM SUPPORT	
NB	V/UHF AM/FM (STANAG 4204/4205)
WB	SelfNET® SBW (Soldier Broadband Waveform)
	UHF MANET broadband WF with native IP support
EPM	EASY II (proprietary)
	EPM VHF/UHF narrowband WF (optionally with IP support via MIL-STD-188-220C)

ANCILLARIES
Headset
Handset
Operating manual, Reference Guide
CIM module
Shock mounting base
50W vehicular RFPA

LEONARDO
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