

SEM-V

Multifunctional radio system of the SDR generation

- US JTRS SCA compatibility
- User loadable waveforms
- Multiband capacity: 1.5...600 MHz
- Multichannel capacity:
Parallel operation for up to 3 independent channels
- Optional encryption with reconfigurable encryption module
- Radio node, IPv4 and IPv6 switching, routing functionality
- IP based speech and data services
- Scalable channel widths ranging from 25 kHz up to 5 MHz @ VHF/UHF
3 kHz @ HF
- Modular concept consisting of a base unit with up to 3 multiband channels

SEM-V serves as a highly mobile radio node in communication systems of the German armed forces. It is used as an integrated system in various mobile application platforms on land, water and in the air. The system is also available as a portable version. Typical applications include the setup of Ad-Hoc networks for (mixed) action forces, as well as backbone networks with high data rates. SEM-V is a THALES product, which is expandable within the framework of a German System House SDR.

SEM-V is the solution for action forces which need to combine the capacity of mobile radio systems and highly mobile applications in communication system of the German armed forces and NATO. This makes it one of the best systems in military mobile technology available today.

SDR... Software Defined Radio

JTRS... Joint Tactical Radio System



SEM-V

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Technical specifications

Construction

Modular design consisting of

- Base unit with red system components (security module, user interfaces, signal processing)
- Up to 3 independently configurable transceivers
- Separate power amplifier

Interfaces

- Standard ethernet interfaces for
 - Users
 - Intercom and expansions
 - Operation, management
- USB
- Integrated GPS
- CAN (VETRONICS)
- Standard interface for voice and data

Transfer method

- HF/VHF/UHF standardized fixed channel method
- HF House, MAHRS, HRS
- SEM 90/93 waveforms
- Standard V/UHF - EPM - waveforms, e.g. SATURN, will be integrated as soon as available according to JTRS
- Soldier radio waveform (IdZ)
- Prepared for broadband waveforms for
 - Higher stepped modulation
 - Direct sequence spread spectrum
 - FFH
 - Orthogonal frequency division multiplexing (OFDM)
 - Time division duplex (TDD, TDMA)

Data rates

- up to 16 / 64 kbit/s over narrow band channels
- from 0.2 up to >1 Mbit/s over broadband channels

Software architecture

- JTRS SCA/CF
- Applications loadable and configurable by user
- User agent for management and operation support

Operation

- externally over PC based user terminal
- remote radio control, optional

Communications security

- Link encryption through use of multichannel reconfigurable encryption module
- Loading of red and black keys
- Standard interface DS-101
- Connection to data transfer device (DTD)

Unit security

- Lock function through crypto ignition key (CIK)
- Authorization by password
- Manipulation protection
- Integrity check on software load

Output power (external amplifier)

- HF: up to 400 W
- V/UHF: typically 50 W

Environmental conditions

- MIL-STD 810 F

Electromagnetic compatibility

- EMC ~ VG 95373
- NEMP ~ VG 95901
- TEMPEST ~ AMSG 784

Mechanical dimensions of base unit

- Dimensions H x W x D approx. 300 x 310 x 320 mm
- Weight (without power amp.) approx. 28 kg



SCA/CF... Software Communications Architecture/Core Framework
 FFH... Fast Frequency Hopping

