MILKAR-4A2
HIGH FREQUENCY (HF) JAMMING SYSTEM

EFFECTIVE ELECTRONIC ATTACK (EA) IN HF FREQUENCY BAND
ELECTRONIC SUPPORT TO IMPROVE JAMMING PERFORMANCE
EFFECTIVE JAMMING AGAINST GROUND WAVE, SKY WAVE AND NVIS IN HF COMMUNICATION BAND
MISSION PLANNING SOFTWARE TO SUPPORT SYSTEM EFFECTIVENESS
HIGH MOBILITY IN TACTICAL FIELD
MILKAR-4A2
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MILKAR-4A2 HF Jamming System has been developed for electronic attack operations against HF frequency band communication systems located on different platforms in the field. The system’s aim is to harm or completely block target HF communications and/or cause incorrect data transmission ensuring advantage for friendly troops in tactical field.

The system has a power amplifier subsystem which provides high power RF output over a wide frequency coverage. Moreover, it uses its own exciter infrastructure with very high exciter tuning/sweep speed and a wide band receiver unit with wide instantaneous bandwidth. Owing to these technologies, the system gains reactive jamming capability. Thus, it can apply effective jamming against the target frequency hopping signals in the field.

The system can apply effective jamming against the targets communicating through ground wave, sky wave and NVIS in HF communication band. For these abilities, the system includes ground wave and sky wave/NVIS jamming antennas. Due to tactical requirements of ground wave antenna, there is a special mechanism on the system for quick set up and tear down capability. With this capability, the system gained fast position change ability in tactical field.

The system has a basic Electronic Support (ES) capability to support electronic attack operations and uses receivers with high sensitivity for detecting and analyzing very weak signals. Moreover, the system has a mission planning tool which helps the operator to plan the operation effectively. By using this tool, the RF propagation analysis can be performed on a real terrain.

Dual power generator, air conditioners and ground wave antenna together with the system shelter are ergonomically integrated on a high-mobile shelterized 10-tone vehicle platform. Since all the system equipments has been carried on single vehicle, the system has high mobility on rough tactical area. Moreover, the system could function independently of the platform. According to the customer’s needs, the system could be deployed on different platforms.

Main Features
- HF frequency band coverage
- Analog/Digital jamming signals
- Different types/modes of electronic attack
- Wide barrage jamming bandwidth (Adjustable)
- Effective against FHSS and instant signals
- Effective against DSSS signals
- Complete HF band coverage with a single diamond ground wave antenna efficiently via a fast-switching antenna impedance tuning unit
- SSB signal generation for deception purposes
- Effective against the IP based radios and the radios with Automatic Link Establishment
- Effective against tactical data links
- Audio/IF(IQ) recording capability
- Blocked frequencies/frequency bands to protect allied frequencies/frequency bands
- Communication over Software-based Digital Radio Infrastructure
- Suitable for Remote Control Infrastructure
- Coordinated operation with command control center
- Capability of establishing IP-based encrypted communication link with the command control center
- Advanced BIT (Built-in-Test) capability
- Single operator usage
- Quick set up & tear down capability

Software
- User friendly Graphical User Interface (GUI)
- Efficient Mission Planning Tool
  - Ability to analyze the RF propagation on a real terrain
  - Ability to calculate the jamming effectiveness to find the optimum jammer location and jammer power.
- Offline Signal Analysis Tool
- Target and Jamming Techniques Libraries

Critical Technologies
- Reactive jamming capability against frequency hopping signals
- High power and efficient amplifiers
- Narrowband/wideband receiver capabilities
- High exciter tuning speed (<100 ns)
- Ground wave jamming antenna with automatically set up & teared down capability

Technical Specifications
- Frequency Range : HF frequency band
- Output RF Power : Customer specific solutions could be offered.
- Jamming Types : Continuous, Look-through, Signal-initiated
- Jamming Modes : Spot, Sequential, Multiple, Barrage, Reactive
- Jamming Source : Tone, multi-tone, triangle, ramp, noise, audio record
- Deception Cap. : Analog deception sources, Digital deception sources
- Demodulation Cap. : FM, AM, LSB, USB, CW, QPSK, DQPSK, BPSK, DBPSK
- Recording Modes : Audio and IF(IQ) record modes
- Power : Operation with dual, 220/380 ±10% VAC, 50±3 Hz, 3 phase generator
  - Operation with 220/380 ±10% VAC, 50±3 Hz, 3 phase AC mains
- Operating : -30°/-50°C, 0°/+50°C Temperature Range
- Storage : -40°/+60°C Temperature Range
- Humidity : 90% (non-condensing)