

Remotely Controlled, Networked, Intelligent Electronic Attack

Reactive Electronic Attack Portable Radio (REAPR™) is an innovative, open-architecture Electronic Support / Electronic Attack (ES/EA) system that capable of identifying and targeting/disrupting (jamming) single channel adversary RF signals/transmissions in the 70 MHz – 6 GHz frequency range with minimum disruption to Blue Force or commercial communications systems.

Key Features

- ◆ Intelligent, reactive Electronic Attack jamming system capable of delivering precise, coordinated, networked attacks via various platforms.
- ◆ Utilizes LOOK-THRU narrowband precision that delivers maximum power and effective modulation(s) on mission target without impacting non-targeted signals.
- ◆ Signals and Frequencies of Interest can be preloaded or updated on the fly during mission enabling the RTO or EWO to focus on tasks at hand.
- ◆ Open architecture supports standard I/Q and VITA-49 spectrum data interfaces to ingest and replay spectrum from multiple tools and waveform generators.
- ◆ Modulation waveforms can be preloaded from established libraries or built “on the fly”
- ◆ Modular design baseline adaptable to various ground, fixed, vehicular or airborne configurations

REAPR Overview

Reactive Electronic Attack Portable Radio (REAPR) is a small SWaP, efficient and effective multi-mode Electronic Warfare (EW), Electronic Support (ES) and Electronic Attack (EA) system that operates in real time to identify and disrupt signals of interest with an extremely precise, narrowband beam that does not disrupt Blue Force or commercial communications networks.

REAPR supports frequencies between 70 MHz to 6 GHz and can disrupt multiple signals including single channel RF radio networks, WI-FI, cellular communications, military and commercial mobile and tactical single-channel radios, SATCOM U/D, GPS signals, radar, and a wide-variety of voice, data, and targeting systems.

REAPR offers an extensible platform designed to defeat current waveforms with open interfaces and modular components so additional techniques can quickly be incorporated as new threats emerge.

An intuitive HQApp enables end users to operate the REAPR system either locally or remotely, selecting signals or frequencies of interest to target, as well as operational modes, frequency ranges, and other mission-specific data. REAPR nodes can operate in networked or stand-alone mode. The HQApp can change mission parameters on-the-fly for networked REAPR nodes.

During the mission, REAPR scans at a rate of 1million scans per second and, upon detecting a SOI, immediately transmits a disrupting effect. REAPR continues to scan and halts the transmission as soon as the target SOI is no longer detected. The combination of an extremely narrow signal that is only transmitted for milliseconds significantly reduces the power and RF footprint making the REAPR extremely difficult for adversaries to detect.

REAPR brings unprecedented EA function to the warfighter.

Intelligent, Automatic and Reactive EA

REAPR employs an intelligent, automatically reactive EA mode which looks for specific signals of interest (SOIs) based on external signal parameters. Once an SOI is identified, REAPR autonomously emits a matching user-defined waveform for targeted attack without disrupting non-SOIs. REAPR continues to scan for the SOI and, once it is not detected, REAPR halts the jamming signal. In this manner, REAPR is extremely power-efficient and leaves a small RF footprint that is difficult for the enemy to locate.

REAPR is also capable of recording spectrum for post-mission analysis so that users can find, characterize, identify, and save new SOIs. REAPR is delivered with multiple Government Purpose Rights signal analysis tools.

REAPR's software is EWSA-ready and EWPMT-ready for networked remote C2 and integrated EW planning and offers an open interface to **support standards such as MFEW** enabling it to cost effectively integrate into other systems and minimize warfighter training cost.

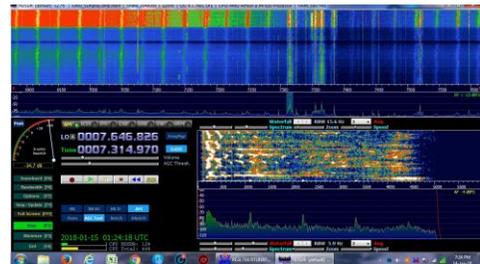
Familiar User Interfaces: REAPR supports RaptorX, a standard mapping and C2 interface for military operators and, thus, requires little-to-no training for the numerous RaptorX users across the DOD.

Kerberos is in the process of adding Direction Finding (DF) to the next version of REAPR.

REAPR Modularity & Open Architecture

REAPR's modular architecture delivers a flexible platform that can be configured for multiple platforms with mission-specific parameters. REAPR will support land-based, man-pack, vehicle-mounted and airborne platforms.

Flexible Operation Can Adapt to Mission Requirements: The REAPR "base model" can be adapted with various frequencies, RF amplifiers and antennas that support the user's desired platform and mission parameters. REAPR can perform its EA/ES operations as a Stand-alone or Networked platform (or a combination of such) to coordinate electronic attacks (aka SWARM).



Sample REAPR waterfall chart

The REAPR frequency range is SDR dependent. The current REAPR "base model" will support 70 MHz to 6 GHz. The REAPR framework can cover multiple frequency bands simultaneously. REAPR's EA capabilities are currently implemented on a multi-channel transceiver.

REAPR offers an open architecture framework that is compatible with 3rd party waveform generation tools. This enables end users to rapidly develop effective techniques for new waveforms immediately and on the fly, rather than relying on a contractor support contract to develop new waveforms, which could take months to years. REAPR offers standard VITA-49 and I/Q spectrum data interfaces to ingest and replay spectrum from a number of tools and waveform generators.

In a Networked configuration, the REAPR forms a Point-to-Multi-Point (P2MP) operation, enabling a C2 function to remotely control the REAPRS, updating them on-the-fly, sharing information, adjusting "fire" accordingly and coordinating attacks (SWARM).

In a Stand-alone configuration, each REAPR conducts its individual solo operation utilizing its pre-loaded configuration. The REAPR can be updated while in route, but, in stand-alone mode, it is not sharing its findings or tasks with any other REAPR. It is truly a Point-to-MultiPoint (P2MP) operation.

About Kerberos International

Kerberos International, Inc. is an 8(a) certified, Woman Owned Small Business (WOSB) founded in 2006 and specializes in delivering small SWaP-C, innovative RF communications solutions to the US military.

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REAPR Base Model Technical Specifications¹

| RF TRANCEIVER OPERATING CHARACTERISTICS | |
|--|--|
| TX Frequencies ² | 70 MHz ~ 6.0 GHz |
| RX Frequencies ² | 70 MHz ~ 6.0 GHz |
| Antennas | Various Multiband Antennas |
| Modulation Scheme | Various Commercial and DOD Wave Forms |
| Power Output | Variable Onboard 8-100W / External 100+~ |
| VSWR | 2:5:1 Typical |
| Control Mode | Remote / Networked / Standalone |
| Encryption | WEP, WPA, WEP+WPA-2 (PSK)WPA Enterprise (RADIUS) |
| POWER REQUIREMENTS | |
| AC Power Max | 120/240 VAC 50/60 Hz |
| DC Power Max | 8-32 VDC |
| MECHANICAL SPECIFICATIONS | |
| Dimensions | 3.8 H x 5.5 W x 10.25 D |
| Weight | 15.5 lbs with embedded amplifier |
| ENVIRONMENTAL SPECIFICATIONS | |
| Temperature | -58° F to +160° F (-50° C to +71° C) |
| Humidity | 5% to 95% non-condensing |
| Altitude | 5,000 m |
| ANTICIPATED CERTIFICATIONS AND RATINGS | |
| FCC, IP 67 Compliant Housing | |
| Shock and Vibration MIL-STD-810 | |
| Immersion MIL-STD-810 to 1 Meter | |
| Sand/Dust/Salt Fog/Rain/Humidity MIL-STD-810 | |
| EMI/RFI MIL-STD-461 | |

Note1: Specifications subject to change