ELECTRONIC WARFARE TRAINING SYSTEM

An intensive classroom training environment that utilizes a unique software system to provide education and training on the radio frequency (RF) spectrum and electronic warfare (EW) via a realistic representation of today's RF threats and through a wide variety of instructor generated scenarios.

Leonardo DRS' EW Trainer System is a cost effective, laboratory-based platform that facilitates the training of military, Signals Intelligence (SIGINT) personnel in Communications Intelligence (COMINT) related disciplines. DRS also offers an optional Electronic Intelligence (ELINT) simulation as an add-on training feature.

The EW Trainer is typically deployed with two instructor positions: one position for scenario generation, and the other for scenario execution. It also includes up to 20 student workstations running applications on Windows®XP Professional. Instructor and student positions are each equipped with a dedicated general purpose 1.5 MHz to 3 GHz receiver and a companion data demodulator for the reception and processing of live off-the-air or laboratory generated voice and data training signals through the use of DRS' proprietary COMINT simulation program.

Given the breadth and sophistication of the training materials, the EW Trainer System is delivered with a comprehensive onsite "Train the Trainer" program presented by DRS personnel.

LEONARDO DRS

ELECTRONIC WARFARE TRAINING SYSTEM

HIGHLIGHTS

- **Instructor-Led Classroom:** An EW training solution that provides the warfighter the capability to effectively train new EW teams and provide refresher training for the EW command.
- **Realistic Depiction of Today's RF Threats:** Improves operator and analysist efficiency and the ability to react real time to threats and attacks on the battlefield.
- **Student-Instructor Interaction:** Provides personal classroom environment leading to improved student proficiency and retention of material.
- **Upgradeable to Integrate Tactical System Hardware:** Hands-on training with tactical equipment provides a more realistic training experience.
- **Self-Paced Instruction:** Allows warfighter to train the entire staff based on the proficiency and education-level of troops.
- **Wide Range of Training Module Selection:** From RF basics to the intricacies of direction finding, electronic attack, electronic protection, and mission planning of a state-of-the-art EW system.

STUDENT WORKSTATIONS

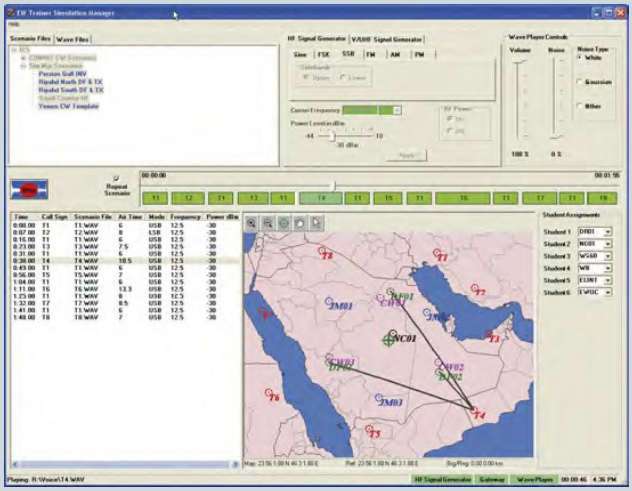
Student workstations present trainees with graphical user interfaces that replicate real-life collection operator and narrowband high frequency (HF) DF application software.

Upon execution of an instructor-generated scenario, students are able to perform signal collection and DF tasks. Collection tasks include frequency and channel scanning, setting up receivers, and manual search for signals-of-interest (SOIs) against training signals. These SOIs are produced by HF and very/ultra high frequency (V/UHF) signal generators with modulation derived from a library of voice and data signal recordings. Utilizing the collection workstation application, students can enter transcribed text, record and archive demodulated audio, and store completed intercepts as database records for subsequent analysis and review. DF tasks run against virtual emitters geographically located as part of the instructor-generated scenario. Upon completion of assigned tasks, students are evaluated through a series of tests that trainees complete electronically. Completed tests are graded automatically with resultant scores added to the student's record maintained in the system database.

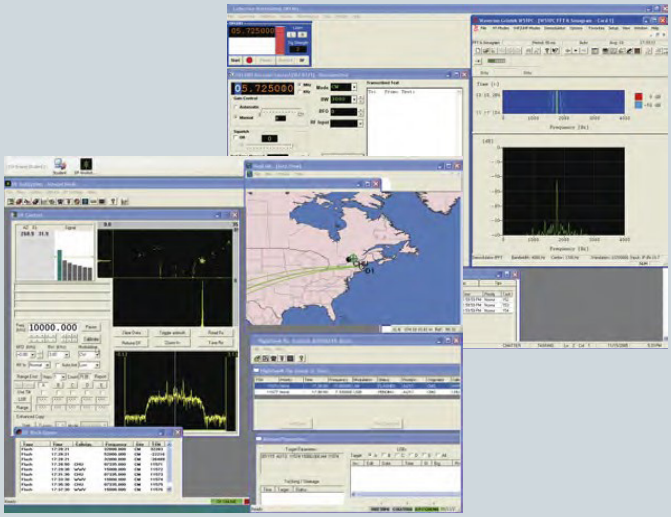
In addition to instructor and student positions, several workstations are provided and dedicated to training specialized tasks associated with advanced EW courses.

INSTRUCTOR WORKSTATIONS

Instructor workstations provide a host of tools that enable the creation of realistic scenarios through the geographic placement of friendly and hostile emitters, as well as direction finding (DF) and other electronic surveillance and electronic attack assets. During the course of an exercise, the instructor is able to monitor any or all student workstations and provide necessary help to individual students. Lecture presentations, system demonstrations and testing can be conducted from the instructor workstations.



Instructor workstation. The instructor's workstation consists of a Simulation Manager that allows the instructor to setup scenarios and monitor in real time the students' training.



Student workstation. The training system can accommodate up to 20 students each working to complete the instructor scenarios.

A COMPREHENSIVE CURRICULUM

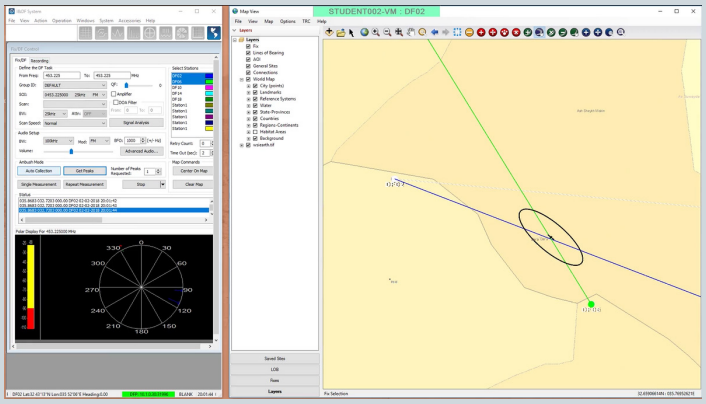
MISSION PLANNING POSITION

The mission planning position provides a deployment planning tool typically utilized at an Electronic Warfare Operations Center (EWOC). This graphic intensive tool enables students to plan the deployment of intercept receivers, including intercept coverage assessment and gap identification. Thus, maximizing the efficiency of deployed sensors or minimization of assets assigned to a given objective, planning communications between intercept units. The EW aspects of communications planning can also be included by analyzing intercept vulnerability, identifying the possible effects of enemy jamming and developing plans to overcome these factors.

The tool provides capabilities needed to plan DF deployments with best site searching, DF baseline coverage assessment, and communications planning between assets. Planning offensive communications jamming missions is also provided including asset optimization, communications planning, and assessments of jamming effects on one's own communications system.

V/UHF WIDEBAND DIRECTION FINDING POSITION

The V/UHF wideband DF position accepts pulse descriptive words generated through instructor scenarios to simulate a number of virtual emitters and networks employing push-to-talk and/or frequency hopping transmissions with hop rates up to 500 hops per second within the frequency range of 20 to 3,000 MHz. The V/UHF wideband application simulates a true wideband DF system that features a wideband search capability along with the ability to perform simultaneous wideband DF measurements. The application emulates a system utilizing fast-scanning receivers with an instantaneous IF bandwidth of 12.8 MHz wide to scan all or part of the 20 to 3,000 MHz band. A variety of user screens are presented to the trainee to convey the concept of frequency versus line-of-bearing for fixed frequency signals as well as hopper signals and the geolocation of those signals.



Intercept and Direction Finding. Two students are working together with narrowband signals to perform a fixed DF calculation.

ELINT TRAINER (OPTIONAL)

The ELINT trainer integrates powerful scenario and emitter creation tools with emulations of receivers, pulse analyzers, antenna systems, DF displays, and entire EW consoles spanning the frequency range of 0.5 to 18 GHz. The trainer consists of an instructor scenario generator and a student emulation of ELINT hardware suite.

The ELINT student position simulates the EW environment and the behavior of a fully interactive radar warning receiver, electromagnetic support measures, and ELINT hardware elements. The student receives an SOI table and an array of five simulated displays.

With the multi-trace display, the student can see all active signals presented by the simulator. They can then select a single SOI and begin analysis. A realistic audio component is present when the selection is made. With the pulse analyzer, a student is able to confirm parametric data. The pan display enables viewing of the signal shape and side lobes. The oscilloscope enables the student to view amplitude versus time in AM and FM modes as well as raw signal analysis. The DF display can present relative or true north bearings to the target signal. Thus, the student can work with a highly accurate simulation of an ELINT signal environment and progress from a static training situation to a dynamic 3D scenario that operates in real-time. This 3D scenario can be planned with a variety of land, sea and air target emitters that behave consistently with their respective platforms.

The ELINT scenario generator enables an instructor to create complex scenarios of multiple platforms, including friendly, hostile and/or unknown aircraft, ships, and land-based vehicles or weapons systems that move in real-time anywhere in the world.

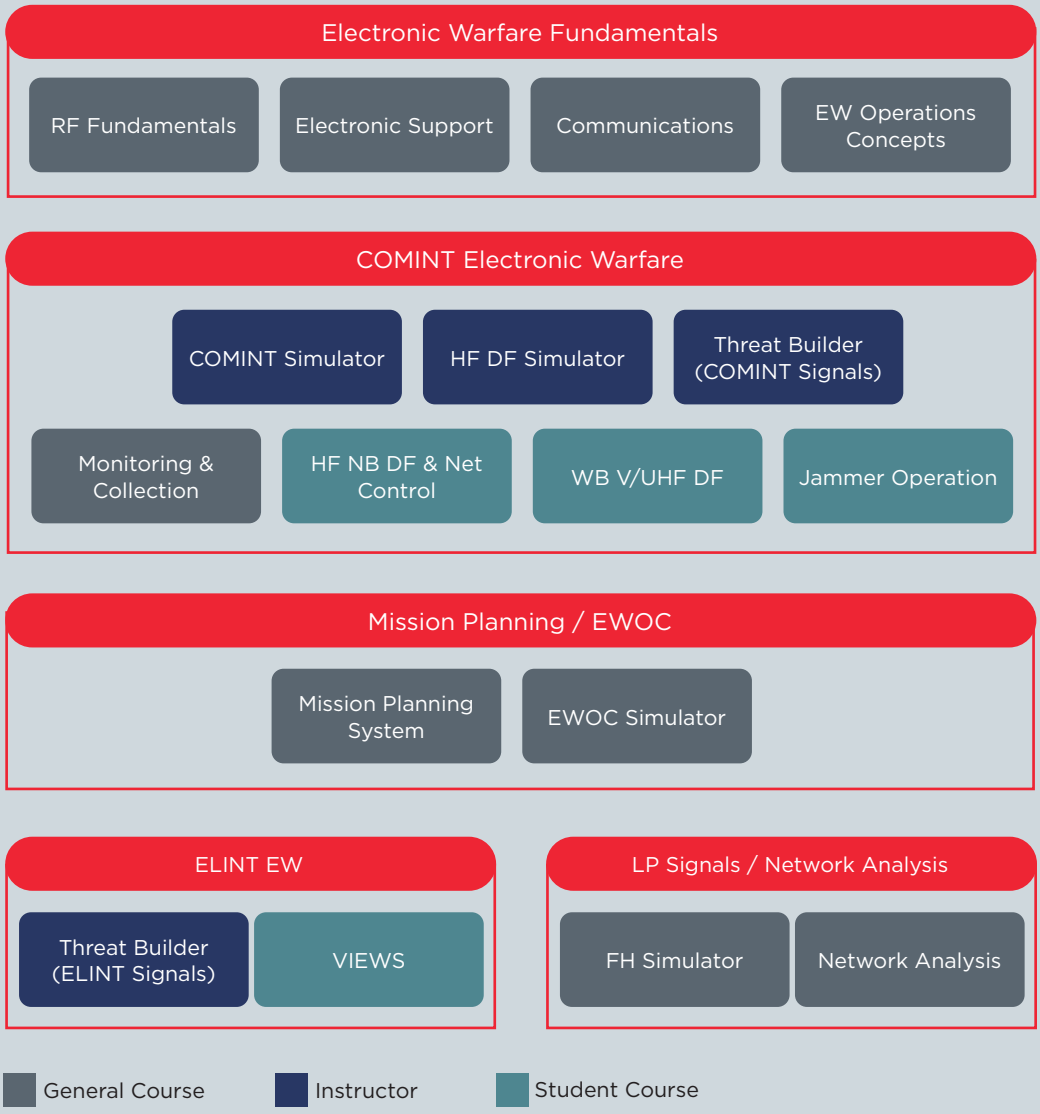
Signal Intercept and Analysis Training. Students have the ability to monitor signals and then pause, rewind, replay, and record signals. Students can also shift the recording in real time while still recording the data.

TRAINING COURSES

Training courses and associated training materials are embedded within the EW Trainer database. Complete course materials in the form of reference textbooks, course outlines, lecture slides, hands-on exercises plus computer-based testing and scoring enable trainees to rapidly progress from RF fundamentals through advanced signal collection, processing and DF techniques. Courses are segmented into a logical progression of technical content wherein individual specializations may be trained from fundamentals through advance courses.

Unlike other programs that offer a partial solution to the needs of the SIGINT customer, DRS provides a comprehensive package that addresses the two-fold challenge of integrating COMINT and ELINT training.

This training system is derived from a unique blend of engineering design expertise and proven operational experience, yielding the highest return on investment. Our commitment is to the operational success of our customer.



- Full Training Process
- Training Needs Analysis & Development
- Monitoring, Testing, Graduation & Accreditation
- Complete Spectrum of Training
- Train the Trainer
- Foundation Training
- Operator & Maintainer Training
- Operational Training
- Multiple Languages Available
- Flexible Delivery
- Online Training
- Classroom Training
- Simulator Training
- Field Training
- Training Facilities
- Training School/Classrooms
- Training Simulators
- Training Assets
- Training Ranges

Airborne & Intelligence Systems

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