

EW Scenario Simulator (EWSS)

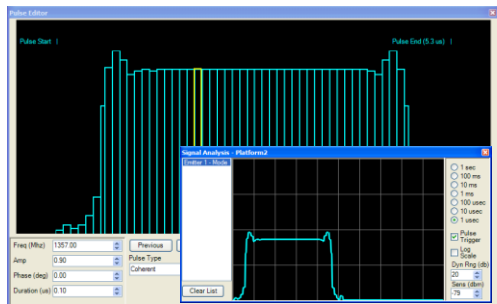
Description

Designed for PC and laptop use, EWA GSI's EWSS performs simulation, modeling and editing of modern electronic warfare scenarios. This system calculates in real time, electromagnetic wave emission and propagation, platform motion, antenna beam shape, and radar scan patterns.

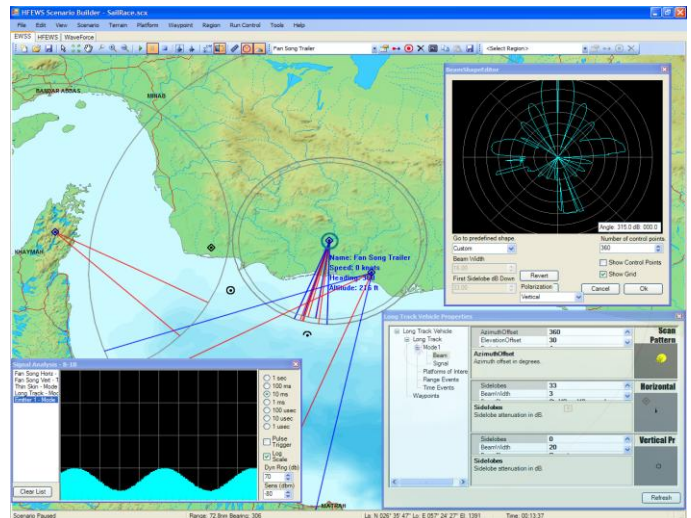
A Complete EW Environment

The EWSS calculates one and two way electromagnetic links facilitating training, mission rehearsal, and multi-player interaction in the following EW areas:

- ESM
- Radar
- Communications
- Jamming
- Infrared
- Integrated Systems



Pulse Editor & Generated Pulse



EWSS with Beam Editor, Emitter Editor & Generated Signal

A Versatile Simulator

The EWSS is being used in the following capacities:

- **Stand alone** – EA-6B mission rehearsal
- **Add on** – EW environment for the 2F178 flight simulator
- **Classroom** – Instructor monitored CSO (Combat Systems Officer) training
- **Virtual Exercises** – Multi-player force on force research
- **RF Stimulator** – Environment for HFEWS RF generator



Various clients using signals generated by EWSS

EWSS Technical Details

Below are some technical details of EWA GSI's EW Scenario Simulator. For more information on how EWSS can be used and/or configured for your needs, please see the POC information at the bottom of this page.

Electromagnetic Propagation Model:

- Free space and near earth loss
- Atmospheric attenuation
- Weather attenuation (user definable regions)
- Polarization
- Doppler effect
- Terrain & elevation data
- 4/3 earth & line of sight
- Diffraction & Fresnel effects
- Reflections from platforms
- Radar return terrain shadowing
- Radar return grazing angle

Platform Simulation:

- Six degree of freedom platform motion
- Five motion model types (e.g. fixed wing, etc)
- Multiple accelerations and rates
- Waypoints and tracks
- Average RCS (Radar Cross Section)

Emitter Simulation:

- User defined or imported pulse sequences
- Pulse and MOP defined in frequency, amplitude, phase, and duration
- Fixed, circular, sector, spiral, conical, helical, raster, lobe switching/electronic scans
- Basic and user defined beam shapes

Connectivity:

- Peer to peer system with automatic peer locating
- HLA plug-in available
- FalconView & PFPS plug-in available

Systems Modeled Using EWSS Environment:

- Airborne ESM receiver / analysis systems
- Cell phone communications
- Radio controlled devices
- Radars (airborne and surface) with terrain
- AAM, ARM, and SAM SARH & IR missiles
- Chaff and flares
- Force on force incursion vs. IADS

Performance Tests:

- 100.2 Million PPS from 170 emitters
- 1000 active emitters on 100 platforms within receiving range of selected receiver
- 2700 active emitters on 2700 platforms worldwide
- Testing conducted on a 3.4 GHz, 2 GB, PC with Windows XP
- Signals were received on a simulated receiver with eight tuners spanning 0.1 to 40 GHz with no reflecting platforms (i.e. one way links only)

Operating Systems:

- Windows XP
- Windows Vista
- Windows 7

