

RDSI

Research and Development Solutions, Inc.
EW Pro Technical Specification

OVERVIEW

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System Characteristics

Feature	Description
Operating Systems Supported	Microsoft Windows 95/98/2000 Windows NT version 3.51 or later UNIX (Sun Solaris), Linux
HLA and DIS interface	High Level Architecture (HLA) implementation and Distributed Interactive Simulation (DIS) implementation. HLA designed according to Defense Modeling and Simulation Office (DMSO) specification.
Modular Architecture	Open architecture interface for integration of 3rd party receivers, analysis equipment or emulations.
Source Code Available	For easy extendibility and customization, full source code is available.
Audio Generation	For training environments where real video is not required, EW Pro can use your PC's sound card to generate signal audio for multiple emitters. Each signal is created and updated independently from all others. The sound card audio is generated on the fly and is not in any way canned or pre-recorded. The sound updates due to signal position changes or signal parameter changes are implemented seamlessly, with no interruption or transitions in the audio.
Audio/Video Generation	<i>Optional:</i> RDSI's M/Pulse hardware is a standard ISA bus PC card and is used to generate real video for analysis equipment. The M/Pulse card can generate over six million pulses per second. Utilizing the M/Pulse card, EW Pro can generate up to eight simultaneous emitters. Additional M/Pulse cards can be combined to generate additional independent signals. A VME bus version will be available shortly.

Scenario Characteristics

Feature	Description
Full Geographic World database for Terrain Occulting	Computes land mass effects on signals.
Scenario Area	Round Earth Model: -180 to 180 degrees Longitude -90 to 90 degrees Latitude Flat Earth Model: 5000 nm x 5000 nm
Equipment Emulations	AN/SLQ-32A, AN/ULQ-16, AN/WLR-8, digital oscilloscope
Viewable Grids	Toggle Lat/Lon Grid and Distance Grid
Zoom factors	1x, 2x, 4x, 10x, 20x, 40x, 100x, 200x, 400x, 1000x, 2000x (1 inch is approx 1/10 nm on screen)
Scenario Time	24 hour scenario capabilities
Unlimited number of Platforms and Emitters	Create any number of platforms and emitters.
EW Pro Libraries	Custom platform and emitter configurations can be saved in libraries so they're ready for use in other scenarios.
Multiple Gaming Windows	Open multiple windows on the scenario gaming area. Each window can be independently zoomed and scrolled to focus on different locations within the gaming area.
Report Generation	Reports include a chronological listing of emitter activity, Ownship position in respect to emitter activity, mode changes, platform and emitter data, and detection summary reports.

Platform Characteristics

Feature	Description
Course Plotting	Point and click in the Gaming Area to create a course.
Maneuvers	EW Pro makes it easy to define complicated maneuvers for your scenario's platforms. With EW Pro's maneuver editing tools, you can easily plot courses, calculate rendezvous between platforms, and define repetitive maneuvers such as racetracks and figure-8s.
Platform Motion	6 degrees of freedom (X, Y, Z, Yaw, Pitch and Roll)
Platform Motion Update	50x per simulation second
Unlimited number of Platforms	Create any number of platforms in a scenario.

Emitter Characteristics

Key Emitter Features

Feature	Description
Smart Emitters	Control emitters based on range from a selected platform (such as an Ownplatform). When an emitter is within a user specified range, the emitter automatically switches to a specified mode, i.e Tracking, Search, Fire.
Emitters can have multiple modes	Create multiple modes such as Tracking, Search, Fire for an individual emitter.
Modes can have multiple beams	Create multiple beams with unique parameters for each beam.

Antenna Characteristics

Feature	Description
Horizontal and Vertical Beam Width	Specify the horizontal and vertical beam width.
Sidelobe Level	Define Sidelobe Level
Antenna Height	Define Antenna Height

Frequency Characteristics

Parameter	Characteristic
Frequency Range	0.05 to 50 GHz
Number of Frequency Steps	Steps 1 to 65535 (1 MHz steps)
Programmable Frequency Deviation	0 - 100%
Frequency Agility	0 – 100% of band
Frequency Agility Pattern	Sawtooth Stairstep Random FreeForm

PRF Type Characteristics

Parameter
Steady
Staggered
Pulse Group
CW
Pulsed CW
Pulsed Doppler

Pulse Characteristics

Parameter	Characteristic	Resolution
PRI Range	1.25 usec - 50 msec	$1 \times 10^{-3}/50$ nsec
Pulsewidth Range	50 nsec to 3 msec	$1 \times 10^{-3}/50$ nsec
Number of Pulse Intervals	1 to 65535 usec	32 Stagger levels
PRI Jitter (Pk-to-Pk/PRI)	Whole Range	
Pulse Freq Modulation Rate	1 - 400 Hz	
PFM Programmable Deviation	100% of PRI Range	
PGM Pulses per Group	1 to 65535 usec	32 Stagger Levels
PGM Frame Rate	50 to 500 Frames/sec	

Scan Offset Characteristics

Parameter	Characteristic
Azimuth	-360 to +360 degrees
Elevation	-180 to +180 degrees

Scan Types

Base Scan Type	Secondary Motion	Scan Type Name
Steady	None	Steady
Circular	None	Circular
	Conical	Palmer Circular
	Bidirectional Nodding	Circular Raster

Base Scan Type	Secondary Motion	Scan Type Name
	Unidirectional Nodding	Circular Raster
Bidirectional Sector	None	Bidirectional
	Conical	Palmer Bidirectional
	Bidirectional Nodding	Bidirectional Sector with Bidirectional Nodding
	Unidirectional Nodding	Bidirectional Sector with Unidirectional Nodding
Unidirectional Sector	None	Unidirectional
	Conical	Palmer Unidirectional
	Bidirectional Nodding	Unidirectional Sector with Bidirectional Nodding
	Unidirectional Nodding	Unidirectional Sector with Unidirectional Nodding
Conical	None	Conical
Lobe Switching	None	Lobe Switching
Bidirectional Spiral	Conical	Palmer Spiral
Unidirectional Spiral	Conical	Palmer Spiral
Bidirectional Raster	None	Bidirectional Raster
	Conical	Palmer Raster
Unidirectional Raster	None	Unidirectional Raster
	Conical	Palmer Raster
Bidirectional Helical	Conical	Palmer Helical
Unidirectional Helical	Conical	Palmer Helical
Agile Beam	None	Agile Beam, Phased Array, or Electronic Scanning