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# RSS8000

## RADAR THREAT SIMULATORS



## Features

- Comprehensive capabilities for EW receiver testing, avionics integration, operational support and ELINT training
- Complex emitters and scenarios
- 100 MHZ to 40 GHZ coverage
- Amplitude, phase, DTOA DF
- Windows™ GUI Software
- Upgradeable modular design

## Overview

The RSS8000 Radar Threat Simulator offers the latest integrated technologies for generating complex and accurate radar signals. Available in a wide variety of modular constructions ranging from small portable units to large multisource, multichannel DF systems, the RSS8000 can be configured for EW receiver testing, avionics integration, operational support and ELINT training.

The RSS8000 provides both dynamic platform scenarios and static emitter scripts to suit all levels of emitter generation.

Sophisticated receiver antenna modelling is also supported for direct coupling into DF receivers. The RSS8000 is ideally suited for EW system test and evaluation applications and for ELINT operator training. The systems are in wide spread use by receiver designers, EW systems integrators, EW operational support (EWOS) groups and government agencies.

The RSS8000 provides an ideal tool for multi-SUT environments with dynamic partitioning of RF Sources

and SUTs. This allows a multi-channel simulator to operate either as a single system with all the SUTs sharing a common scenario or as a group of independent parallel simulators for testing SUTs individually. Partitioning of unused elements is available without interruption to on-going scenarios, allowing for maximum utilisation of the equipment.

Such multi-user operation is also supported by the use of server based data storage, with secure permission based access to common and user specific data.
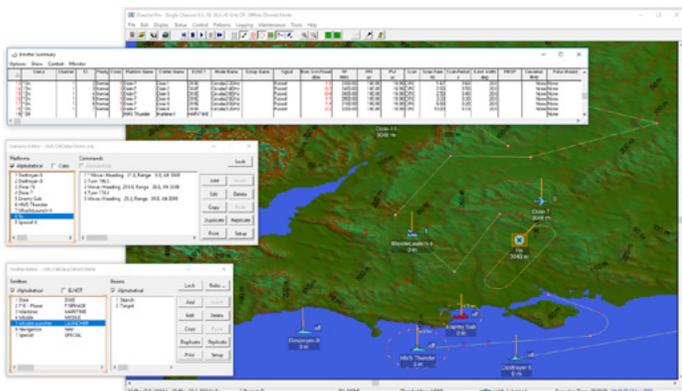
# Technical Specification

## System

- PC simulation controller
- Microsoft Windows™ application
- 1000 Mb/s Ethernet control link
- Embedded PowerPC and VxWorks™ OS
- All platforms have 6 degrees of freedom
- Real-time simulation engine
- Dynamic update of emitter parameters
- Comprehensive emitter definitions
- DirectorPro™ dynamic scenario builder
- Tactical (EOB/scenario) mode, Direct mode (manual emitter assignment, Event mode (scripted emitter assignment).
- Microsoft Excel™-based pattern data entry
- XML database import/export

## RF Source/DF Ports

- Complete 100 MHz to 40 GHz coverage
- Frequency resolution 250 KHz or better
- Multiple RF source configurations
- >90 dB dynamic range
- <-90 dBm/MHz noise
- <-60 dBc spurious level
- <-60 dBc harmonic level
- Fast-tuning internal synthesizer
- External synthesizer / AWG integration
- Modular banded operation
- AOA (amplitude), phase or DTOA DF options
- Independent patterns in every port

## Digital Pulse Generator

- All emitters support complex modulation
- Modular DPG card architecture
- Real-time geometry and path loss calculations
- Scan amplitude
- Unrestricted agility on each emitter
- 10 ns step AMOP, PMOP, FMOP
- Simultaneous FMOP, PMOP or AMOP
- Scan-to-pulse train synchronization

## Emitters

- Pulse density up to 0.9MPPS per source
- 1.1 μs to 1.3secs PRI range
- 10 ns PRI reolution
- 20 ns to 160 ms PW range, plus CW
- 10 ns PW resolution
- Modulations: Stable, Groups, Stagger, Doublet, Agile, Triplet, Jitter, Burst, Sinusoidal, Drift, Triangular, Switcher, Sawtooth, Dwell, Exponential, Cycler, Periodic, Wobble, Discrete, Sync, User defined
- 8k staggered and hopper tables with 512 pattern definitions per emitter and 64k pulse repeats
- Jitter: uniform or Gaussian, up to 99%
- Up to 8 synchronised beams per emitter
- Co-pulse (controlled overlap of RF pulses)
- Scan patterns: Stable, Spiral, Lock-on, Nodding, Circular, TWS, Helical, Lobing, Conical, Electronic, Sinusoidal, Multibeam, Triangular, User defined, Unidirectional sector, Bidirectional sector, Unidirectional raster, Bidirectional raster
- 0.005 to 500 Hz
- 100 μs to 1 s electronic beam dwell period
- Antenna beam patterns: SinX/X, Cosine taper, CosX, FAn, Cos2X, Pencil, Cosec2X, Isotropic, Cosine array, User defined
- 0.5° to 40° antenna beam width
- 0.1° beam width resolution
- Antenna coverage:
  - Az ±180°, EL ±90°
  - 64 dB DF antenna pattern modulation range

## Platforms

- Curved-Earth modelling (WGS-84)
- All capable of X, Y, Z roll and pitch motion
- Movement over 2000 nm (X, Y) to 100,000 ft (Z)
- Placement to 1m (X, Y, and Z)
- Speed to 2000 kts
- Straight or curved motion maneuvers
- Turn rate to 180° per second
- Flight path definition via waypoints or external input
- Absolute or relative movement
- Independent or convoyed platforms
- Targeted (follow me) motion
- Remote control platforms

## Additional Specifications

- Log of lost pulses due to collision
- Scenario event file logging
- >24 hr game time
- Pulse timing sync output
- Automatic BIT fault isolation to LRU
- Unattended RF calibration
- "Health monitoring" BIST
- Terrain masking-DTED mapping
- Multiple SUT support
- Remote control facilities
- PDW emulation, collection and analysis
- LAN/MIL-STD-1553/ARINC interfacing
- IRIG-B/NTP time source and synchronization
- Rapid EWOS mission data testing via integrated DART automation

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