



RSS8000/P

PORTABLE
RADAR THREAT
SIMULATORS



Features

- Comprehensive capabilities for EW receiver testing, avionics integration, operational support and ELINT training
- Portable lightweight unit
- 100 MHz to 40 GHz coverage
- Rugged construction
- Complex emitter generation
- Windows™ GUI software
- Laptop PC Control
- In-service, reliable and proven technologies
- Available in two mechanical formats RSS8000/P (portable) and RSS8000/CP (compact portable)

Overview

The RSS8000/P (portable) and CP (compact portable) Radar Threat Simulators are part of the modular RSS8000 product line and provide users with the ability to recreate fully featured radar threat signals at RF, from 0.1 to 40GHz.

The controlling DirectorPro application is the same as that used for the full scale RSS8000 systems; both the P and CP can generate the same complex emitters as the large systems, for receiver testing, automated mission data (EWOS) testing and training. Where needed, the output can also be connected to a DF (AOA) subsystem for

generating multi-port antenna inputs and to a navigation system, to fully support the direction finding capabilities of the system under test.

The application software provides three modes of operation; Direct mode, with efficient manual emitter assignment without platforms; Event mode, with time based emitter activity scripting; and Tactical mode, with full scenario (EOB) modelling, including dynamic 6 DOF platforms and time/event driven emitter activity. Each of these is available to best suit the application, from simple parameter testing through to full EW scenario modelling.

The software runs on a standard Windows laptop and controls

the hardware via an Ethernet LAN. The P and CP can both be integrated into larger RSS8000 systems and into our EW Range systems (Portable Range System (PRS) and Mobile EW Range Test System (MERTS)), to provide continuity of emitter characteristics from the lab to the field. This portability allows you to prove the signals and the SUT in the lab, with the platform and through the air using the same proven equipment at each stage. The P is able to provide dual channel operation within one box, with each channel capable of 40 concurrent multiplexed emitters. The CP is a single channel system, capable of 16 concurrent multiplexed emitters. Both systems can be stacked with others to increase the number of concurrent and overlapped signals.



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 μ s to 1.3secs PRI range
- 10 ns PRI resolution
- 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 μ s 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 \pm 180°, EL \pm 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

Ultra reserves the right to vary these specifications without notice.

© 2021 Ultra Electronics Ltd. All rights reserved.
1020.1-1&C-en-REV0321

ULTRA | Intelligence & Communications

 **ultra.group** | **sales@ultra-us-gbs.com**