EW Laboratory based on GRS/Rx + GRS/Tx + TSS + RTS + WDNS

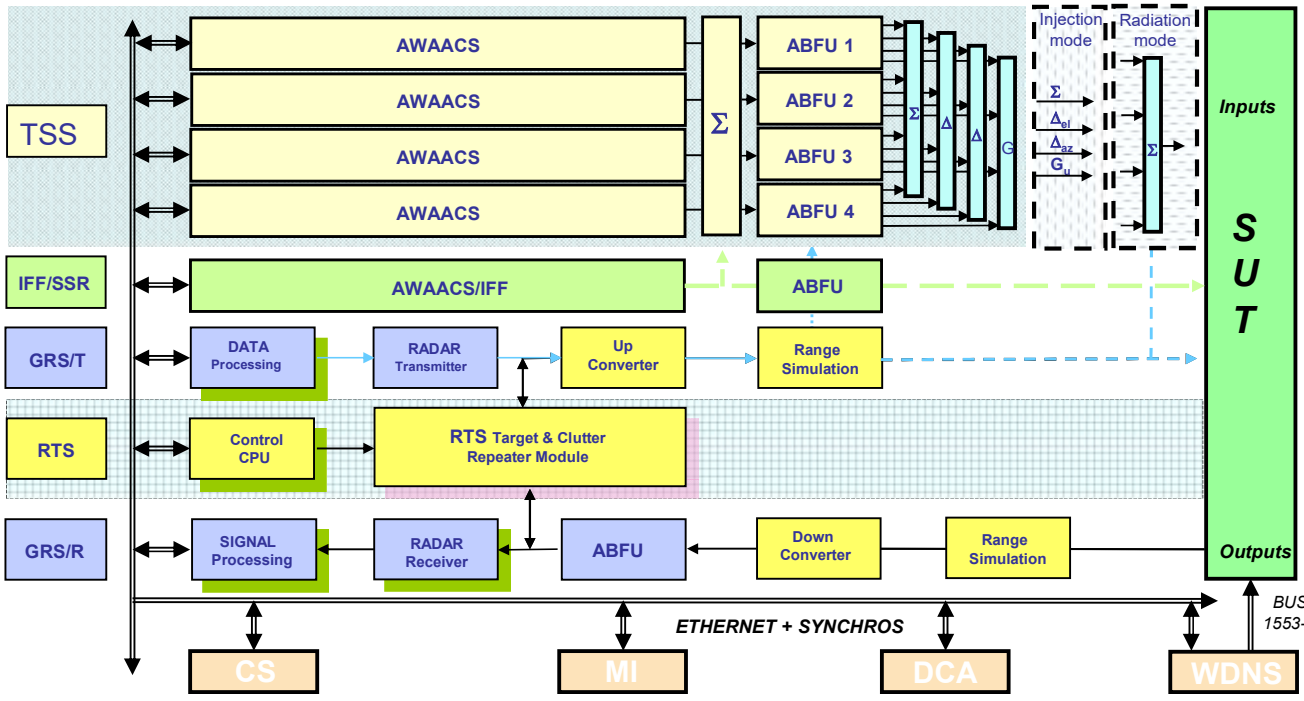
Description

The GRS is an EW laboratory suite in a modular approach to simulate dense and complex electromagnetic environment.

GRS is a compact and flexible combination of:

1. Radar Transmitter (GRS/T)
2. Radar Receiver (GRS/R)
3. Radar Target Simulator (RTS): GRS & RTS work together as a closed loop simulator for jammer's tests
4. Threat Signal Simulator (TSS): TSS acts as an opened loop simulator for receiver's tests
5. Weapon Delivery & Navigation Simulator (WDNS): can be used for navigation data coherency between simulator & SUT in a 3D dynamic scenario and for data collection & analysis
6. Data Collection and Analysis (DCA)
7. Computer System (CS)
8. Measurement Instrumentation (MI).

The major applications are for scientific research, signal library development, performance evaluation of both radar and EW systems, but also for training purpose.



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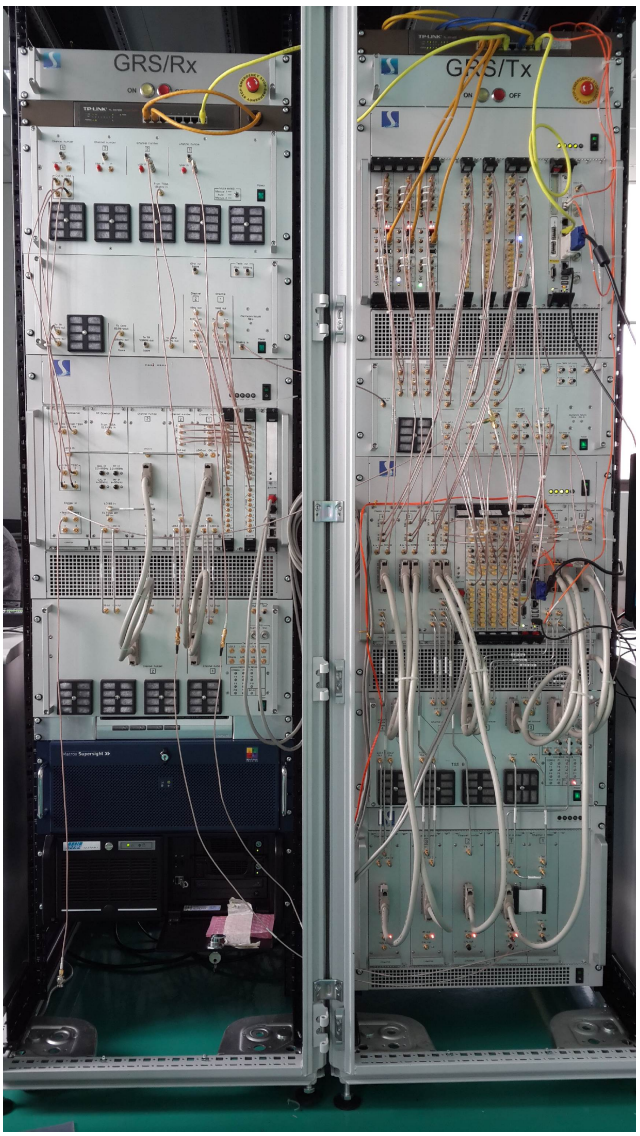
Main functions

- Generation of dense and complex electromagnetic dynamic environment in RF
- Capability of changing parameters and operation modes according different scenarios for ESM/RWR/ELINT tests
- Providing real time simulation as close as possible to the real electromagnetic environment
- Constituting a closed-loop of Radar-Jammer-Radar to test the effectiveness of the ECM under test
- Conducting statistics and analysis towards the results of repeated tests to get the quantitative analysis and evaluation



Applications

- Radar Target Simulator
- Threat Signal Simulator
- Radar illuminator
- EPN / ECM / ECM Training
- ECM Simulators
- Radar System Test & Evaluation
- Radar System Calibration
- ELINT Analysis / Playback

High-fidelity Scene Modelling

SYNOPSIS GRS can be combined with SE-Workbench-RF, an electromagnetic simulation package edited by OKTAL-SE based on ray tracing and asymptotic methods, developed jointly by OKTAL-SE and ONERA, dedicated to the simulation of raw data of large-scale environments including complex targets for several kinds of radar.

This high-fidelity solution takes advantage of the recent improvements in the field of 3D graphics (GP GPU) to compute the RF fields in a complex 3D synthetic environment.

The powerful and innovative engine of SE-RAY-EM combines the shooting and bouncing forward ray technique (SBR) with the RF asymptotic approach (Geometrical Optics, Physical Optics, Equivalent Current Method) to compute complete electromagnetic response of a scene with mobile entities, including propagation, scattering, reflection and edge diffraction.

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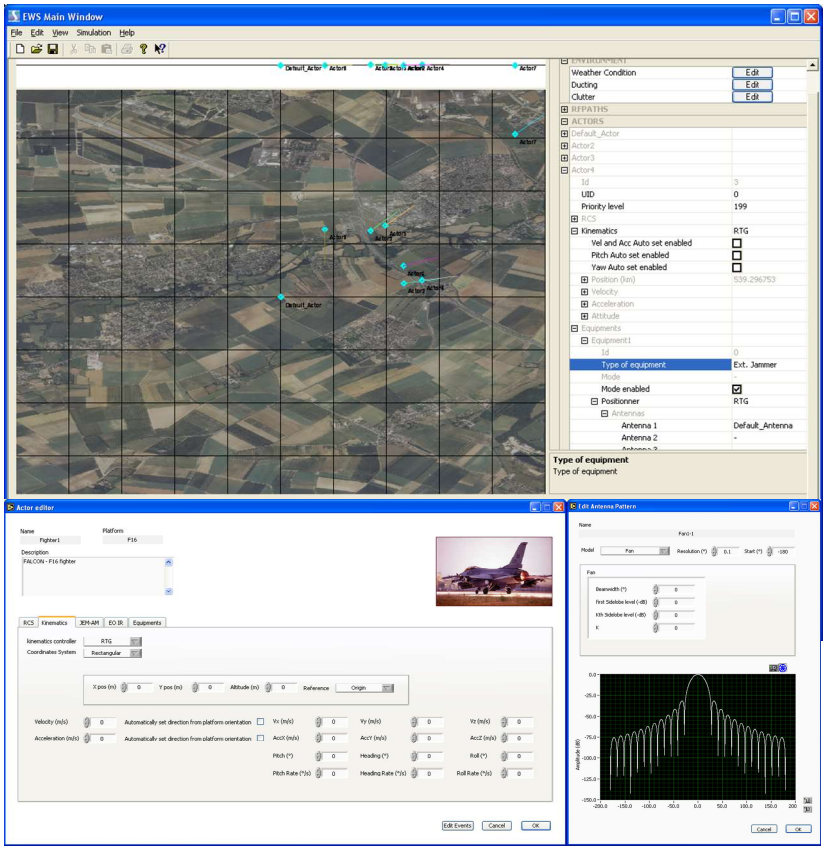
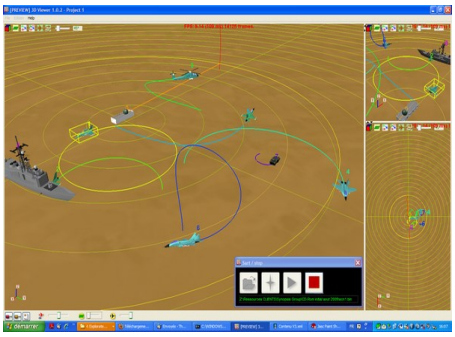
EWS: ADVANCED SCENARIO EDITION SOFTWARE

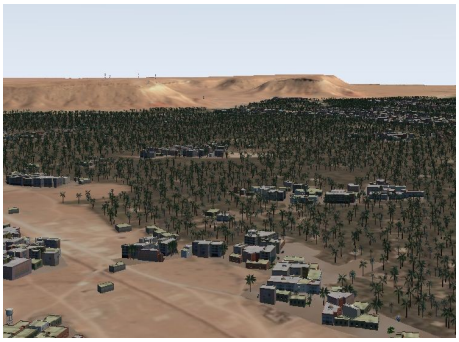
The EWS software, controls in real time and synchronously the TSS simulator and performs the following major tasks:

- Scenario preview (scenario creation without hardware)
- Scenario creation
- Scenario execution in real time
- Backup with time stamping (records external inputs together with real-time parameters)
- Ethernet backup
- Off-line backup interrogation
- Calibration
- BIT

The scenario can be previsualized/played in 2D, in a symbolic war or on a map background, or in 3D as illustrated below.







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