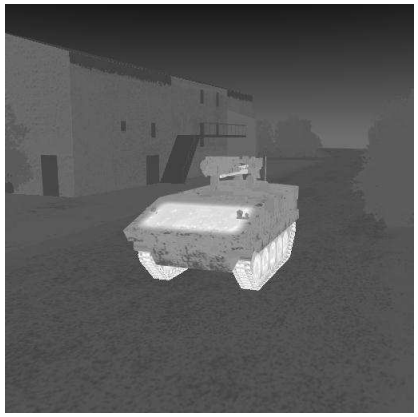
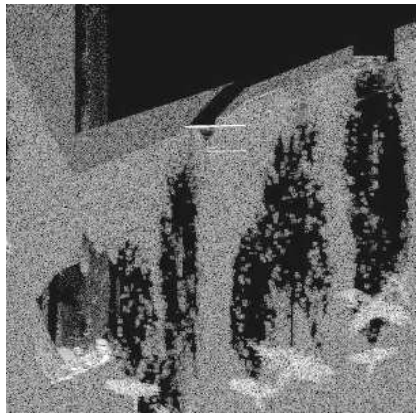
OKTAL Synthetic Environment

SE-Workbench-EO, -RF & -GNSS editions catalogue

2011



SE-Workbench: Introduction

MULTI-SENSOR SIMULATION

The SE-Workbench is an efficient and professional workshop for synthetic environment data modeling and exploitation in a study or training simulation. The SE-Workbench provides all the simulation services of the perception of electro-optic sensors (EO stands for visible, infrared and intensification of light) and radio-frequency sensors (RF stands for radar and antennas) immersed in a complex synthetic environment. Beside the packaged EDITIONS, the SE-Workbench solution is made of individual software, enabling a modular approach for customer integration.

COHERENT SOFTWARE OFFER

The software catalogue of the SE-Workbench solution, both for EO and RF is presented in 4 different EDITIONS. The editions are packages of software dedicated to different levels of operational needs. The editions are described as follow:

- STANDARD EDITION: first approach to EO or RF simulation with basic functions answering to real operational needs of simulation.
- ADVANCED EDITION: a complete setup for EO or RF advanced simulation for integration in a customer environment.

All the elements of the STANDARD edition are included in the ADVANCED edition. All editions of the SE-Workbench-EO and SE-Workbench-RF are delivered with a relevant amount of training organized in Toulouse at OKTAL-SE headquarter or in customer premises. This eases the way to get in touch with the software and make the most of it.
In addition, separate training or assistance sessions can be quoted separately.

SOFTWARE CATALOGUE

The OKTAL-SE software catalogue presents the 2 levels of editions for SE-Workbench-EO and -RF and the software involved in the given package. For each edition, the software package is presented. It may include the following elements:

- Commercial On the Shelf software (COTS) products (marked with their icon, for example: ).
- Software modules, samples of 3D terrain or 3D objects, sample libraries (marked *in italic*).
- Documentation and related material (in the Documentation section).

The detailed flyer of each COTS product can be found on the OKTAL-SE web-site (www.oktal-se.fr) section “Software”.

SE-Workbench-EO: Electro-Optic software package description

STANDARD EDITION

The perfect solution to start with infrared simulation! The STANDARD EDITION of the SE-Workbench-EO solution takes benefit of the advanced technology of the OKTAL-SE software and is simple and efficient to use. Infrared images can be generated using ray-tracing methods (non real time advanced rendering) or graphic board technology (real time fast rendering). Import capabilities are provided in order to use existing 3D terrain databases or 3D objects (geometry & texture). The user is able to assign physical materials to geometries via textures from a provided library of physical data. The user can select various atmospheric conditions from a provided set of pre computed atmospheric files and can assign thermal conditions from a provided set of thermal pre computed files. In addition, one specific set of atmospheric conditions and associated thermal files can be requested as function of the user location.

In order to provide an efficient use, the STANDARD EDITION includes many samples, a set of standard physical materials and the User Manuals of the software are delivered.

The STANDARD EDITION solution is delivered for (Windows™) operating system in its English version. A USB dongle controls the license.

The STANDARD EDITION of the SE-Workbench-EO solution can be covered by a default Maintenance contract.

SE-Workbench-EO
STANDARD EDITION

Synthetic environment modeling:	
Import capability:	SE-FFT
	SE-CLASSIFICATION
3D terrain:	*one sample of rural terrain*
3D objects:	*samples of 3D objects*
Physical data:	*library of EO Physical Materials*
Atmospheric modeling:	*samples of atmospheric files*
Thermal state modeling:	*samples of thermal files*
Integration and signal rendering:	
Scenario edition:	SE-SCENARIO
Fast time rendering:	SE-FAST-IR
Advanced rendering:	SE-RAY-IR
Signal visualization:	SE-SIGNAL-VIEWER
Documentation:	
Software:	User Manuals

SE-Workbench-EO: Electro-Optic software package description

ADVANCED EDITION

The ADVANCED EDITION of the SE-Workbench-EO solution enables experimented users to work with the advanced technology of the OKTAL-SE software. Infrared images, including generic sensor effects, can be generated using ray-tracing methods (non real time advanced rendering) or graphic board technology (real time fast rendering). Import capabilities are provided in order to use existing 3D terrain databases or 3D objects (geometry & texture). The user is able to assign physical materials to geometries via textures from a provided library of physical data. Advanced tools are provided to work on 3D objects and enhance the set of physical material. Different atmospheric conditions can be computed. The thermal state of existing 3D environments can be predicted. The Application Programming Interface (API), based on a static scenario definition, enables to connect the image rendering process (both for “advanced” and “fast”) to a customer application.

The documentation package delivered with the ADVANCED EDITION includes the User Manuals, the internal Format description, the Developer Manual as well as Physical Models documentation and Tutorials.

The ADVANCED EDITION solution is delivered for (Windows™) operating system in its English version. A USB dongle controls the license.

The ADVANCED EDITION of the SE-Workbench-EO solution can be covered by a regular Maintenance contract with a potential GOLD option of Maintenance.

SE-Workbench-EO
ADVANCED EDITION

Synthetic environment modeling:

Import capability:	SE-FFT
	SE-CLASSIFICATION
	SE-PHYSICAL-MODELER
3D terrains:	*samples: urban, rural and desert*
3D objects:	*samples of 3D objects*
Atmospheric modeling:	SE-ATMOSPHERE
Thermal state modeling:	SE-THERMAL

Integration and signal rendering:

Scenario edition:	SE-SCENARIO
Fast time rendering:	SE-FAST-IR
Advanced rendering:	SE-RAY-IR
Additional library:	SE-IR-SENSOR
Signal visualization:	SE-SIGNAL-VIEWER
Software integration:	SE-TOOLKIT
Signal manipulation:	SE-TK-FORM-SPS

Documentation:

Software:	User Manuals
	Format description
	Integration developer manual
Physical Models:	Physical Models documentation
	Validation Dossier documentation
Tutorials:	SE-TOOLKIT tutorial
	SE-IR-SENSOR tutorial
	SE-TK-FORM-SPS tutorial

SE-Workbench-RF: Radio-Frequency software package description

STANDARD EDITION

The perfect solution to start with electromagnetic target analysis! The STANDARD EDITION of the SE-Workbench-RF solution takes benefit of the advanced technology of the OKTAL-SE software and is simple and efficient to use. High frequency Radar Cross Section (RCS) can be computed using ray-tracing technology implementing asymptotic methods. Import capabilities are provided in order for the user to work on existing 3D objects. A plug-in to 3DSmax™ is delivered. Finally, a SE-Workbench-RF database interface for geometry and physical data (RF Physical Material library) is delivered.

In order to enable an efficient use, the STANDARD EDITION includes 3D object samples, a set of Physical Materials, the User Manual documentation and a basic description of the implemented Physical Models.

The STANDARD EDITION solution is delivered for (Windows™) operating system in its English version. A USB dongle controls the license.

The STANDARD EDITION of the SE-Workbench-RF solution can be covered by a regular Maintenance contract.

SE-Workbench-RF
STANDARD EDITION

Synthetic environment modeling:

Import capability:	SE-FFT
3D objects:	*samples of 3D objects*
Physical data:	*library of RF Physical Materials*

Integration and signal rendering:

RCS computation:	SE-RAY-RCS
Target analysis:	SE-RAY-NBSAR
Signal visualization:	SE-SIGNAL-VIEWER

Documentation:

Software:	User Manuals
Physical Models:	Basic Physical concepts

SE-Workbench-RF: Radio-Frequency software package description

ADVANCED EDITION

The ADVANCED EDITION of the SE-Workbench-RF solution enables the experimented users to work with the advanced technology of the OKTAL-SE software. Radar signal, RCS computation, narrow beam approximation SAR images and RF field propagation can be computed using ray-tracing technology implementing asymptotic methods. Import capabilities are provided in order to use existing 3D terrain databases and 3D objects. Advanced functions are provided to work on 3D objects and enhance the database of physical material. Import capabilities are provided in order for the user to work on existing 3D objects. A plug-in to 3DSMax™ modeling tool is delivered. The application programming interface enables to integrate the computation process in a customer application.

The ADVANCED EDITION includes 3D objects samples, a set of Physical Materials, the User Manuals, the Format documentation and a full description of the implemented Physical Models.

The ADVANCED EDITION solution is delivered for (Windows™) operating system in its English version. A USB dongle controls the license.

The ADVANCED EDITION of the SE-Workbench-RF solution can be covered by a regular Maintenance contract with a potential GOLD option of Maintenance.

SE-Workbench-RF
ADVANCED EDITION

Synthetic environment modeling:

Import capability:	SE-FFT
	SE-CLASSIFICATION
	SE-PHYSICAL-MODELER
3D terrains:	*samples: urban and rural*
3D objects:	*samples of 3D objects*

Integration and signal rendering:

Scenario edition:	SE-SCENARIO
Advanced RF computation:	SE-RAY-EM
RCS computation:	SE-RAY-RCS
Target analysis:	SE-RAY-NBSAR
Signal visualization:	SE-SIGNAL-VIEWER
Software integration:	SE-TOOLKIT
Signal manipulation:	SE-TK-FORM-SPS

Documentation:

Software:	User Manuals
	Format description
	Integration developer manual
Physical Models:	Physical Models documentation
	Validation Dossier documentation
Tutorials:	SE-TOOLKIT tutorial
	SE-TK-FORM-SPS tutorial

SE-Workbench-GNSS: Description of the Global Navigation Satellite System (e.g. GPS) coverage assessment software package

STANDARD EDITION

The perfect solution to start with GNSS simulation! The standard edition provides the necessary output to simulate and assess the reception of signal emitted by radio navigation systems in a given environment (cities, indoor etc…). Our objective: to offer our customers a powerful tools suite to predict and to understand the local availability, performance and reliability of a given radio navigation system.
The SE-NAV suite embeds a powerful GPU-oriented ray tracing engine in order to compute in record time shadowing effects due to buildings surrounding the receiver as well as multipaths (reflections, diffractions and transmissions) generated by the near environment.
Thanks to the standard edition, users may import 3D virtual scene (a Google Sketchup converter is provided), to build/import a GNSS system (satellites constellations and/or terrestrial beacons), and carry out simulations along a given trajectory or within a given zone (coverage simulation). This edition provides output such as emitters' visibilities, DOPs, 3D masks, multipaths geometry and delay.

The STANDARD EDITION includes 3D scenes samples, the User Manual documentation and a basic description of the implemented Physical Models.

The STANDARD EDITION solution is delivered for (Windows™) operating system in its English version. A USB dongle controls the license.

The STANDARD EDITION of the SE-Workbench-GNSS solution can be covered by a regular Maintenance contract.

SE-WORKBENCH-GNSS
Standard Edition

1. Synthetic environment modeling
   - **Plug-in SketchUp™**
   - **One simple sample of urban terrain**
   - **Samples of 3D SketchUp™ objects**
2. Integration and signal rendering
   - **SE-NAV™ Standard Version**
3. Documentation
   - **User Manual**
   - **Format description**
   - **Methodological guide**

SE-Workbench-GNSS: Description of the Global Navigation Satellite System (e.g. GPS) coverage assessment software package

ADVANCED EDITION

The advanced edition is dedicated to experimented users who need both geometrical and electromagnetical criteria to assess the reception of GNSS signal. Obviously, the edition includes standard edition's features. In addition, it provides link and errors budgets in order to compute the received power (signal-to-noise ratio, composite power etc...) and localization errors due to the interaction of the signal with the environment (atmosphere, multipath fading effects and delays...).

Thanks to the Advanced edition, users may build/import 3D virtual scene (a 3D modeler, SE-AGETIM-LIGHT, is provided), to build/import a GNSS system (satellites constellations and/or terrestrial beacons), and carry out simulations to get a completed evaluation of the reception of the signal.

The ADVANCED EDITION includes 3D urban scenes samples, a set of Physical Materials, the User Manuals, the Format documentation and a full description of the implemented Physical Models.

The ADVANCED EDITION solution is delivered for (Windows™) operating system in its English version. A USB dongle controls the license.

The ADVANCED EDITION of the SE-Workbench-GNSS solution can be covered by a regular Maintenance contract with a potential GOLD option of Maintenance.

SE-WORKBENCH-GNSS

Advanced Edition

1. Synthetic environment modeling
   - **SE-FFT™ (import conversion)**
   - **SE-AGETIM Light™**
   - **Plug-in SketchUp™**
   - **One complex sample of urban terrain (including EM definition)**
   - **Samples of 3D SketchUp™ objects**
2. Integration and signal rendering
   - **SE-NAV™ Advanced Version**
3. Documentation
   - **Physical Model documentation**
   - **Validation dossier**
   - **User Manual**
   - **Format description**
   - **Methodological guide**

SE-Workbench: Related services

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www.oktal-se.com

LICENSE TYPE AND DEPLOYMENT

The software licenses and development libraries are delivered for one development computer: one seat, locked with a USB dongle. Additional seats can be acquired for additional development computer or different operating systems.

EDITIONS UPGRADE

Existing configurations can be upgraded from STANDARD to ADVANCED, based on the editions price difference. In addition, SE-Workbench individual software may also be acquired.

MAINTENANCE & SUPPORT

One year of full Warranty and Support is included in each software edition. After the first year, the following services are available as function of the Edition:

- Regular Maintenance can be extended for 20% of the software price / year.
- For ADVANCED edition, a **GOLD Option** of Maintenance can be acquired for additional 10% of the price / year.

GOLD OPTION PRIVILEGES

- On site assistance by two OKTAL-SE experts 1 time per year during 4 consecutive days (travel an living expenses included),
- On demand delivery of temporary licenses of the software for reasonable duration (60 days max).

For a Maintenance contract extension, a preferred rate is applied for multi-years contracts (more or equal to 3 years in one single contract with annual payments).

Specific conditions apply for software updates outside of Warranty or Maintenance contracts:

- UPDATE of software outside of Warranty or Maintenance contract: 40% of software price.
- UPGRADE of software after Maintenance interruption: 15% of software price / year of interruption.

OPERATING SYSTEMS

Delivered on (Windows™) operating system English version only: SE-AGETIM and its related modules, SE-CLASSIFICATION, SE-PHYSICAL-MODELER and SE-FFT

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