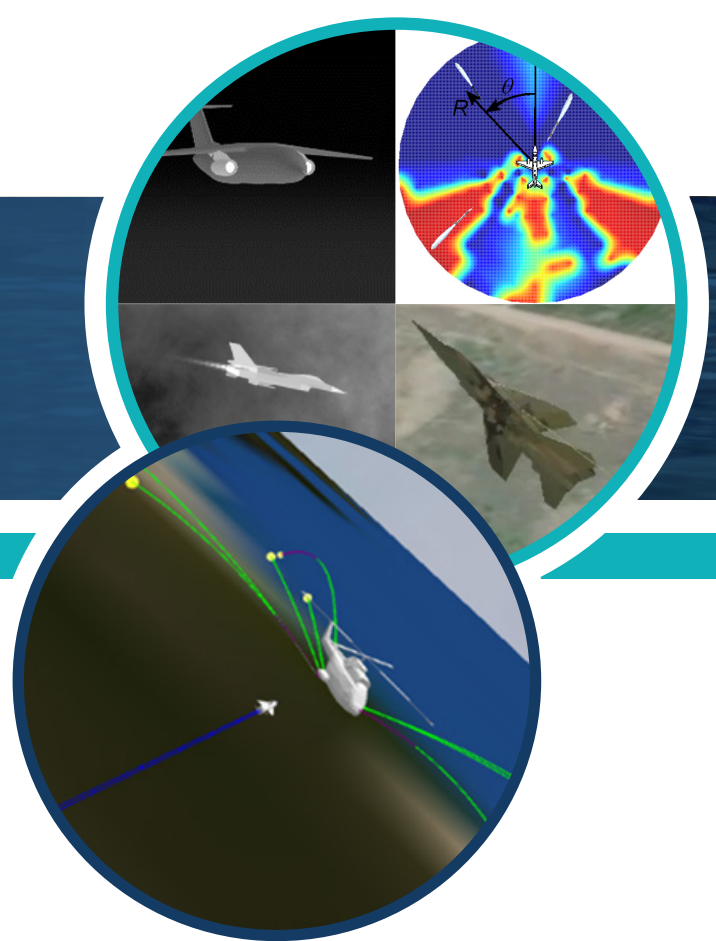


OPTRONIC SYSTEM SIMULATOR

Modelling and Simulation engine
From the Visible to the Infrared Spectrum

The development of sophisticated electro-optical equipment requires a simulation engine that provides accurate models of the physics that govern the real-world. Electro-optical systems span a wide variety of applications such as infrared missile seekers, thermal imagers and infrared countermeasure systems. All these require radiometrically calibrated infrared imaging scene simulators to support the evaluation and optimisation of system performance. The systems must be evaluated under diverse environmental conditions and in varying scenarios to adequately capture system performance. The Optronic System Simulator (OSSIM) is an engineering development tool that was created to meet this need.

OSSIM provides the support infrastructure that enables engineers to focus on their optronics systems, rather than the physics and the radiometry of optical systems. It is used to study the interactions of static, moving and flying objects, using optical/infrared sensors, in a complex world scene, rendering images in the 0.4 – 14 μm spectral range. The simulation creates a virtual three-dimensional (3-D) world containing all the elements of a real-world scenario, comprising any number of interacting objects, against various background scenarios and realistic modelling of atmospheric conditions.



OSSIM is used in the following applications:

- Aircraft and missile signature studies;
- Aircraft – Missile engagement analysis;
- Countermeasure studies (i.e. flares, Directional Infrared Counter Measures);
- Aircraft vulnerability studies;
- Pre-flight test preparation;
- Post-flight analysis;
- Atmospheric effects on imaging systems;
- Image generation and machine learning applications;
- Sensor development applications;
- Specialised filter studies;
- Fire detection applications;
- Satellite image generation;
- Target contrast testing;
- One-on-one and many-on-many object engagements; and
- Electronic Warfare system training

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