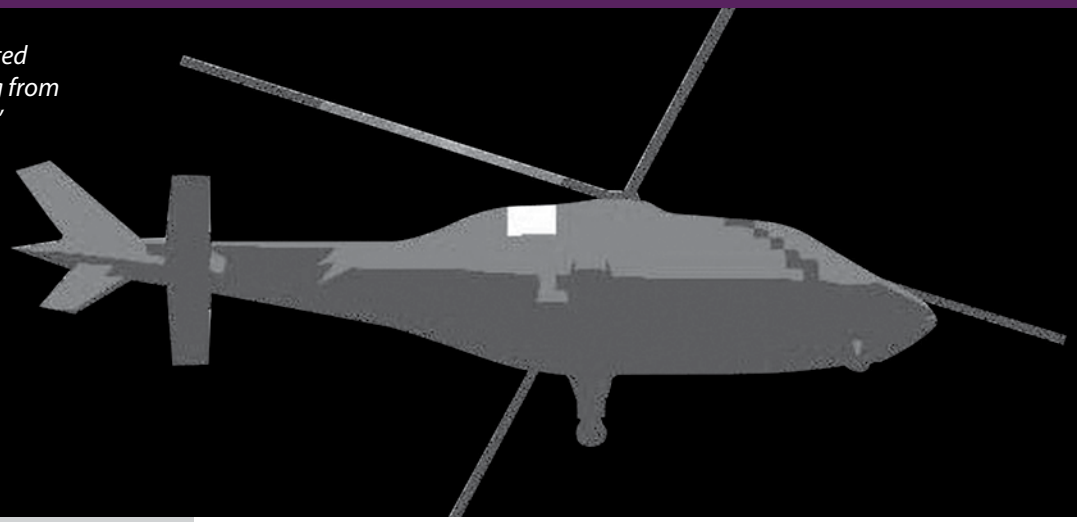
RadThermIR® 10.0
Thermal/IR Analysis Software

"RadThermIR has consistently predicted accurate radiance for targets ranging from desert plateaus to the north Atlantic."
–Senior Research Engineer



Principal Features

Complete Thermal Analysis
Multi-bounce Radiation
Solid Conduction (steady state)
Planar Conduction
Convection
1D Advection
Natural Environments
Import CFD Results

Infrared Analysis
Sky and Terrain Reflection
BRDF Rendering
Spectral Paint Surfaces
Faceted Backgrounds

Multi-band Prediction
Apparent Temperature
Radiosity

Accurate Backgrounds
Terrain, Foliage, Multiple Surface Types
First Principles, Curve-driven Background

Benefits
Faster Product Development
Model Building and Solutions
Easily Interfaced to Sensor Models
Automated Imported Thermal Links

Advanced IR Analysis

RadThermIR is an advanced thermal and infrared program from ThermoAnalytics. RadThermIR will let the infrared analyst or specialist perform complete thermal modeling and infrared analysis within an integrated, easy-to-use interface.

Benchmark Speed & Accuracy

RadThermIR's highly-optimized algorithms handle even the most complex IR questions. Written entirely in C++, RadThermIR maintains speed and cross-platform compatibility across Windows, Linux, HP, SGI, and Sun computers. A state-of-the-art voxel-based ray tracer is used to compute view factors, solar projected (apparent) areas, radiosity, and apparent temperature. This ray tracer provides the fastest thermal and infrared solver on the market.

Realistic Natural Environment

Natural environments are supported through weather data files and solar loading based on global position. RadThermIR can also use atmospheric data from MODTRAN. Multi-bounce solar radiation is automatically calculated including greenhouse effects from solar radiation transmitted through glass. Faceted terrains provide full background interactions, including reflections and shadowing.

ThermoAnalytics®

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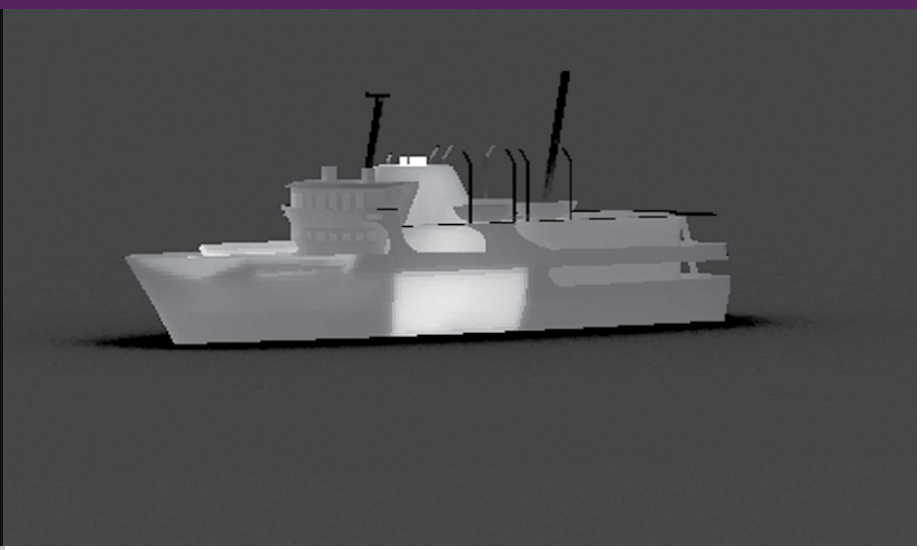


Version 10.0 Features

Complex Multi-layer Parts
Multi-layer ballistic glass
Planar mesh objects with up to 20 layers
Solid, air, or vacuum layers

Advanced Rendering Module
Optional; licensed separately
BRDF per pixel rendering
Sub-pixel oversampling
Camouflage textured paints

1D Co-Simulation
AMESim 1D coupled with RadTherm 3D
Cooling system, HVAC, ECM

Human Comfort Effectiveness
Supports integration of biothermally accurate human models; licensed separately
Output includes thermal comfort index
Berkeley comfort model

Aircraft
Altitude-specific weather
MODTRAN path attenuation
Custom atmospheric profiles
Sky radiation models

Boundary Condition Mapping
Thermographic boundary conditions
Automatic text file BC mapping to elements

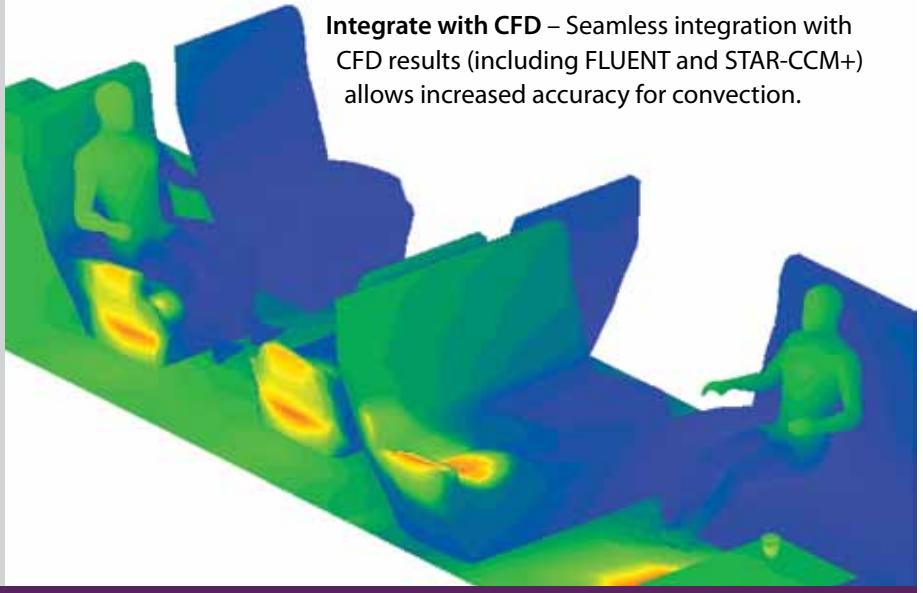
Total Thermal Solutions

Data – The Infrared Signature post-processor displays physical temperatures, in-band radiances, and apparent temperatures for every element or facet. Running the BRDF solver allows the user to predict target and background specular radiance images into a pixelized format.

Improve Your Design – Import your surface geometry and change designs with ease. Manipulate the geometry within RadThermIR to improve heat management and understand IR behavior relative to a time-varying environment or operating conditions.

Utilize Faceted First Principle Backgrounds – To predict accurate target/background contrast levels, RadThermIR fully supports faceted backgrounds. Create or import a faceted terrain. Apply one or multiple background types to your geometry. Calculate accurate temperature solutions—including full target-background interactions.

Integrate with CFD – Seamless integration with CFD results (including FLUENT and STAR-CCM+) allows increased accuracy for convection.



ThermoAnalytics
23440 Airpark Boulevard PO Box 66 Calumet, MI, 49913 USA
www.ThermoAnalytics.com info@thermoanalytics.com
P: 906.482.9560
F: 906.482.9755
USA: 800.214.3766