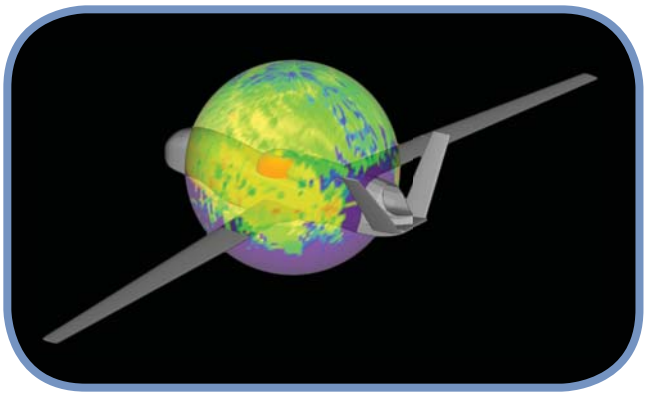
XGtd®: High Frequency EM Simulation Software

XGtd is a general-purpose ray-based electromagnetic analysis tool for assessing the effects of a vehicle or vessel on antenna radiation, predicting coupling between antennas, and predicting radar cross section (RCS). It is ideally suited for applications with higher frequencies or very large platforms where the requirements of a full physics method may exceed available computational resources.

Antenna Radiation From Platform-Mounted Antennas

Calculate far zone antenna radiation patterns that incorporate the effects of multipath and shadowing with the platform itself. Determine the combined effect of multiple platform-mounted radiators.

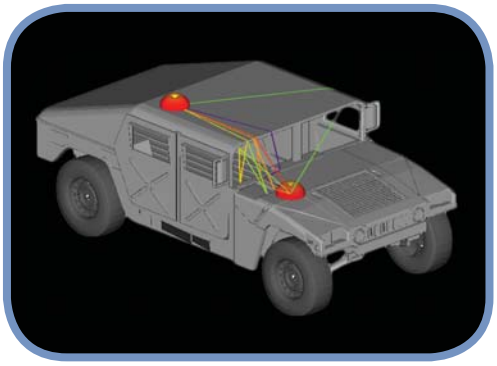


Radar Cross Section (RCS)

XGtd's PO-MEC model calculates monostatic and bistatic RCS with greater accuracy than traditional PO methods. Results include both co-polarized and cross-polarized returns, as well as ray path visualization.

Co-Site Analysis

Calculate paths and coupling between transmitters and receivers to support EMI/EMC assessment.



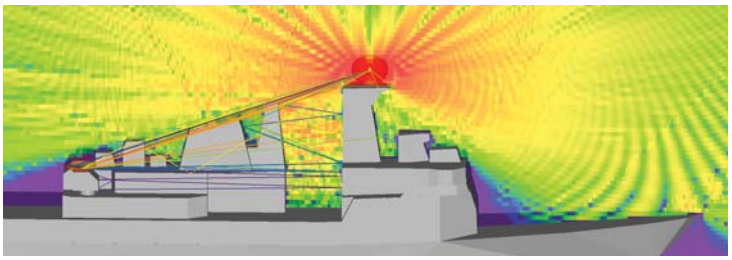
XGTD

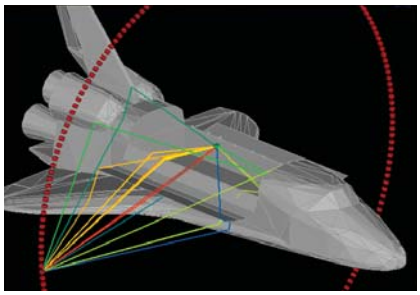
REMCOM®

XGtd Key Features

Large Platform Simulations

XGtd's methods are less impacted by the platform's electrical size than full wave techniques, supporting larger structures and higher frequencies.



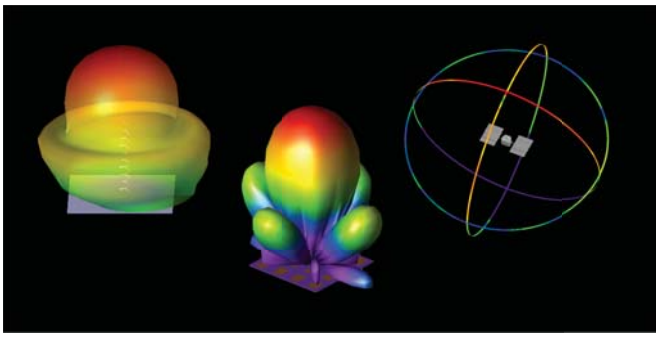


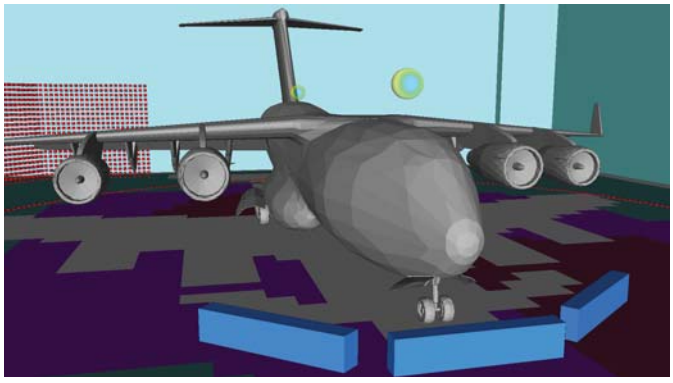
Ray Path Visualization

Display ray paths for far zone antenna gain, RCS calculations, or antenna coupling. Rays are colored according to strength, allowing users to identify scattering features.

XFdtd Compatibility for Higher Fidelity Antenna Patterns

Calculate antenna radiation patterns for complex antenna designs using Remcom's full wave solver, XFdtd. Import into XGtd to determine effects of placement on electrically-large platforms.



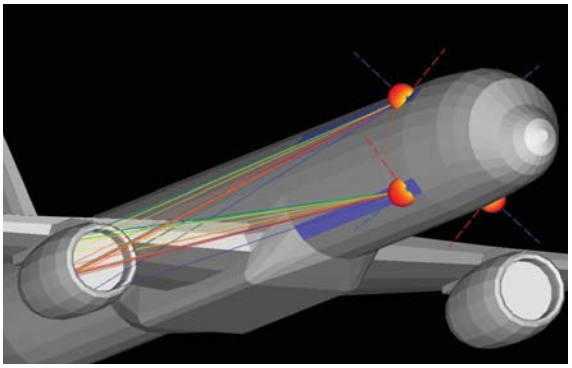


Anechoic Chamber Simulation

The Anechoic Chamber Editor makes set-up of chamber scenarios straightforward. Includes specialized materials for chamber environments.

New Features

Enhanced Co-Site Analysis Support



Transceivers for managing co-located antennas:

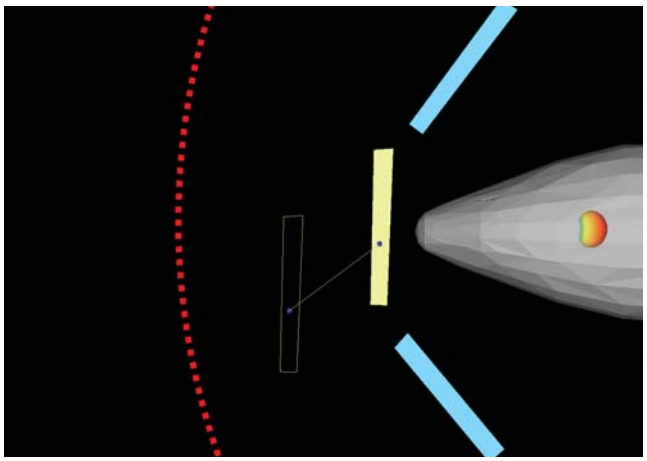
- Common transmitter and receiver locations
- Independent antenna patterns and rotations
- Transmitters and receivers viewable in single GUI tab

S-parameter output simplifies analysis of antenna coupling and can be displayed in project view and plots.

Touchstone file export provides simulated S-parameter results in an industry standard format.

64-Bit GUI and Usability Enhancements

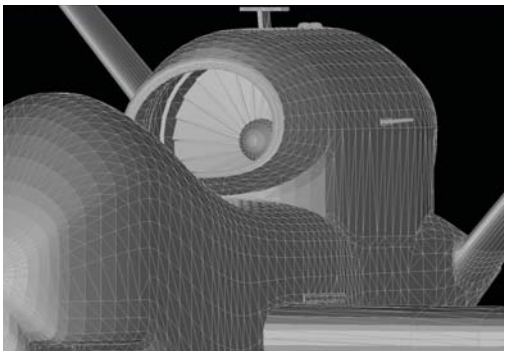
- Improved handling of large physical models that require more memory to process, render and manipulate
- Mouse-driven positioning of scene elements
- Plane wave phase reference point provides fine-tuned control of phase information



KMZ and Collada Support

Import and create KMZ (.kmz) and COLLADA (.dae) geometry files:

- Very fast import of complex objects
- International standard formats supported by many 3D digital content creation tools
- Objects saved in .kmz formats can be displayed in 3D GIS tools

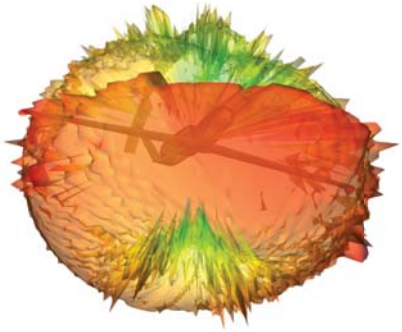


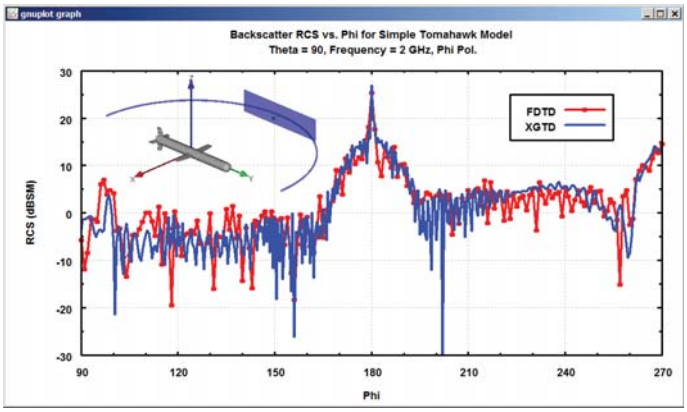
XGtd: Far Zone Radiation, RCS, and EMI/EMC for Electrically-Large Platforms

XGtd's capabilities extend well beyond standard ray tracing codes, incorporating techniques including Geometric Optics (GO), the Uniform Theory of Diffraction (UTD), Physical Optics (PO), and the Method of Equivalent Currents (MEC). XGtd provides high-fidelity outputs tailored to its intended applications.

Applications include:

- Far Zone antenna radiation for platform-mounted antennas
- Monostatic and bistatic Radar Cross Section (RCS)
- Antenna coupling and S-parameters
- Anechoic chamber simulation



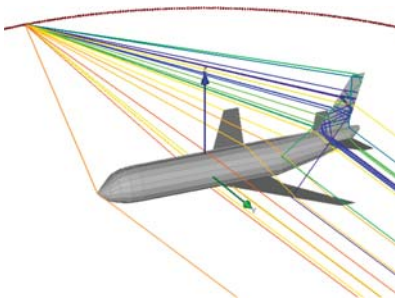


Outputs include:

- Polarization-dependent complex EM field quantities
- Received power, path loss, S-parameters
- Ray path visualization, time of arrival, angles of arrival and departure
- Doppler for moving points

Computational methods include:

- Ray tracing methods: Shooting and bouncing ray and image theory
- E-field evaluations using UTD, GO, PO, and MEC
- High-fidelity field predictions in shadow zones including creeping wave effects
- Multipath calculations including reflections, transmissions, wedge diffractions, surface diffractions, and creeping waves



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