VSim for Electromagnetics

VSimEM

*Increase productivity. Reduce design time.*

Fast, Powerful FDTD for Electromagnetics to solve electromagnetics with complex shapes and multiple media.

Improve design accuracy.

TECH-X

> "At Los Alamos we have several modeling needs for projects I've been working on, ranging from calculating far-field antenna patterns to the gain of dielectric traveling-wave tubes. These are complex problems and we were unable to set up accurate models of our problems with the previous numerical tools we were using. After seeing results from Tech-X's VSim at conferences and talking to several colleagues who were using it for scientific modeling (including highly respected colleagues who work at Tech-X), we decided to try it. We were up and running within a few days and now have been using VSim for most of the past year. We have been very impressed with its broad capabilities and ability to model our specific problems. We are also pleased with its intuitive feel and ease of use. It is a great code and we anticipate using it for all our future needs."
>
> —Bruce Carlsten, Senior R&D Engineer, Los Alamos National Laboratory
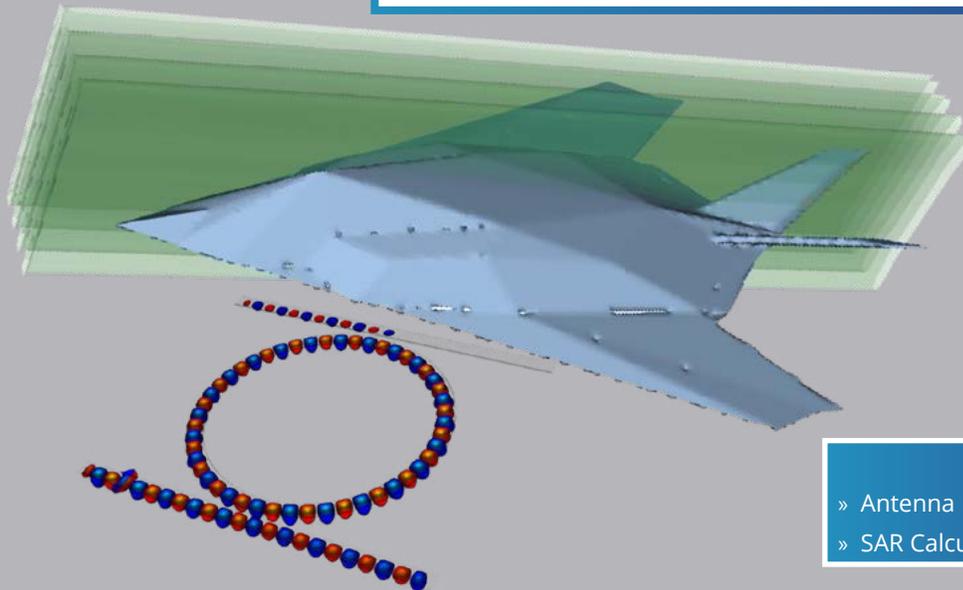

Applications	
» Antenna Design	» RF Devices
» SAR Calculations	» Photonic Devices

VSim for Electromagnetics (VSimEM) is a flexible, multiplatform, high-performance, parallel software tool for computationally intensive electromagnetic and electrostatics. VSimEM supports complex dielectric and metallic shapes with accurate simulation of curved geometries and boundaries. Shapes can be easily imported from CAD files or constructed in the user-friendly front end, VSimComposer. The advanced graphics capability displays detailed field data. VSimEM contains accurate tools catering to antenna and photonic device design.

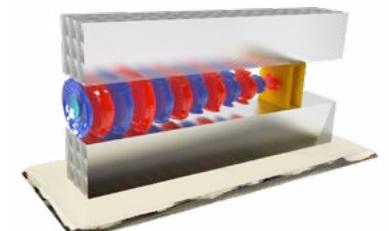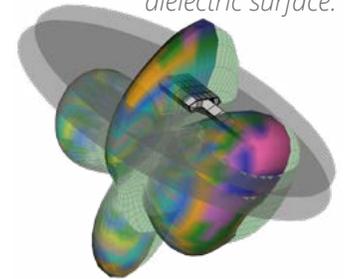VSimEM models EM propagation and dispersion and can compute radar cross sections and specific absorption rates (SAR). Switch easily between 2 dimensions for initial guiding simulations and 3 dimensions for accurate results. Important behaviors like near and far-field radiation patterns for antennas as well as Q and S-parameters for photonic devices can be easily obtained.

No matter your electromagnetic or electrostatic modeling requirements, VSim for Electromagnetics is the economical simulation tool with an easy learning curve that will decrease your time from design to device manufacture. VSimEM easily installs and runs on Windows, Mac OS X, and Linux platforms.
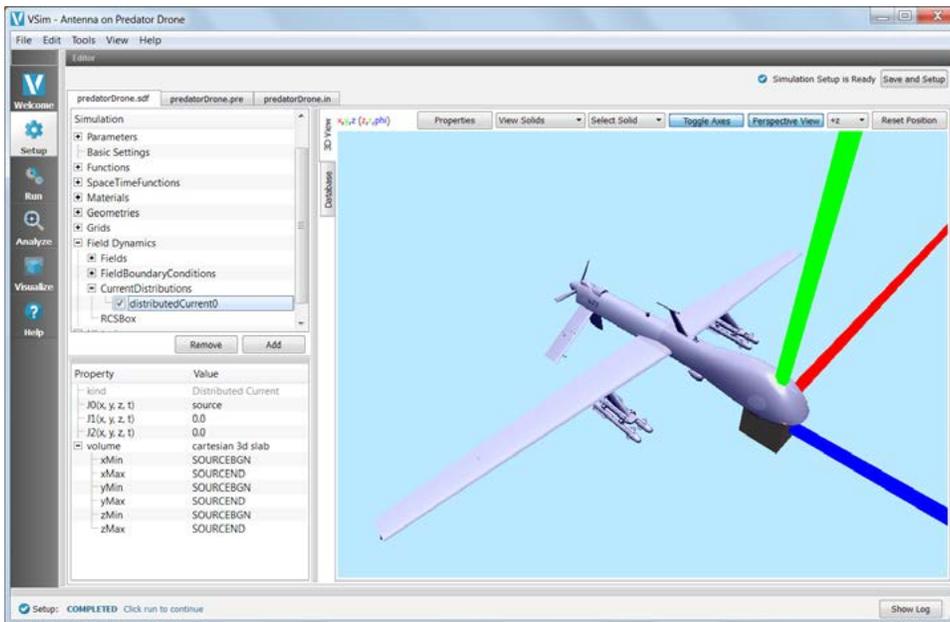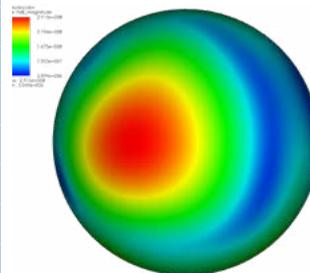
Specific Absorption Rate (SAR) of a human head.

Far fields of a patch antenna on a dielectric surface.

VSimEM Features
» Embedded boundaries for accurate metallic walls
» Second-order dispersive dielectrics
» Absorbing boundary conditions
» Port boundaries: ingoing and outgoing
» S-parameter calculations
» Anisotropic dielectrics
» Specific absorption rate (SAR) calc
» Full field/scattered field
» Far field calculations
» Mode calculations using frequency extraction

Far field of half-wave dipole antenna computed using Kirchhoff Box.

Metal-Insulator-Metal waveguide, with Drude-model metal and a Lorentz dielectric inclusion.

About Tech-X
Tech-X Corporation is committed to technical excellence and innovation. Our scientists and software engineers work together to deliver quantifiable results. We combine academic research with a commercial software company sensibility to deliver high quality, cutting-edge software that takes advantage of the latest hardware and software advances.

Consulting Services
Tech-X offers consulting and training services for all of its simulation software. In addition to the support that comes with every purchase of a VSim product, we have our experts ready to help you use VSim to its full extent possible to solve your most challenging problems.

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ABOUT TECH-X

TECH-X is committed to technical excellence and innovation. We combine academic research with a commercial software company sensibility to deliver high quality, cutting-edge software that takes advantage of the latest hardware.

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