

# Chronos

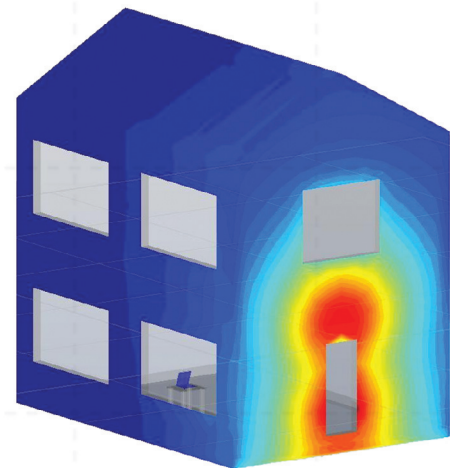
## FINITE DIFFERENCE TIME DOMAIN ANALYSIS SOFTWARE

Modeling and simulation of many RF applications and antennas present a challenge in terms of speed, required memory, and accuracy. **INTEGRATED** Engineering Software introduces **CHRONOS**, **INTEGRATED**'s new time domain solver for modeling and simulating 3D RF and microwave applications. The move from frequency domain techniques into time-domain can result in huge time savings.

By adding CHRONOS to its product line, **INTEGRATED** will provide designers with the most powerful innovative techniques including: Finite Difference Time Domain (FDTD), Method of Moments (MoM), and the Finite Element Method (FEM).

Design engineers depend on CHRONOS for the design and analysis of high frequency components including:

- Planar microwave and antenna structures
- Wire antennas
- UWB antennas
- Microwave circuits, waveguides and coaxial structures
- Near field and far field applications



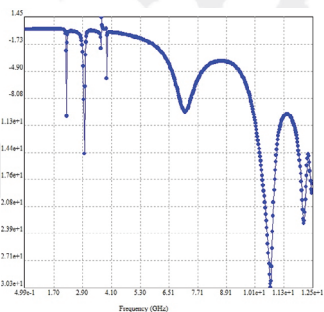
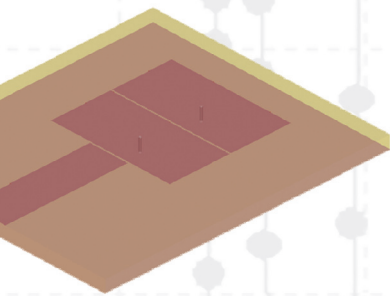
Visualization of the field distribution on a house.

For many systems, it is important for multiple solvers to be combined. **INTEGRATED** develops comprehensive solutions for scientists modeling prototypes that require multiphysics analysis. **INTEGRATED** now proudly offers a complete suite of electromagnetic tools, ranging from low frequency to light waves, from static to complete transient solutions. **INTEGRATED**'s software programs can be seamlessly coupled to thermal analysis for an even-more thorough development.

### We want to hear from you

**CHRONOS** has been recently launched and we want to develop the program in the direction our customers need.

Please let us know if there is any particular feature you'd like to see in our software. We look forward to receiving your feedback.



Metamaterial antenna and its  $S_{11}$  (dB)



## (CHRONOS)\* AT A GLANCE

- **3D time domain solver** for a diverse range of applications
- **Smart mesh generator code**
- Solution for **finite and infinite structures**
- **Analysis of structures** bounded by BEC or PMC
- Result in **time domain** as well as **frequency domain**
- Industry standard **CAD import/export utilities**
- **Easy to use**
- Excellent graphic presentation
- Comprehensive **technical support services** from the best in the industry

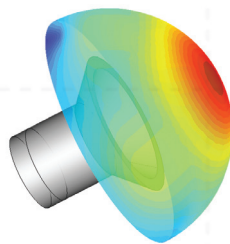
**CHRONOS** provides fast, accurate results, exact modeling of boundaries and easy analysis of open region problems. **CHRONOS** delivers a powerful, easy-to-use design and analysis tool right to your desktop.

### CREATE YOUR MODEL

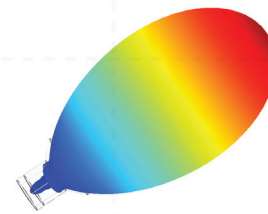


Conical horn; assign sources and boundaries

### GET THE RESULTS



Near zone electric field on a hemispherical surface



Far zone 3D pattern of electric field

## CHRONOS' advanced technical features

- Smart, transparent mesh generator to improve the accuracy of the solution.
- The mesh is generated by placing a finer grid in the areas which have fine features and then increasing and decreasing the cell sizes gradually between the different regions – while maintaining the accuracy
- Solution for broadband or ultra-wide-band problems from a single execution of the problem using a short pulse
- Special treatments to provide highly accurate field calculations
- Solution for finite and infinite structures
- Different types of boundary and absorbing boundary conditions
- Transient signals used with E-field source, voltage and current sources, and lumped sources
- A wide range of E, H field, voltage, and current outputs
- Input impedance, admittance, scattering parameters and Smith charts of s-parameter
- Calculation of gain, directivity and radiation pattern of antennas
- High quality graphics and text utility for preparation of reports and presentations
- Option of custom software modification – for customers with particular needs



## INTEGRATED ENGINEERING SOFTWARE

Call **1.204.632.5636**

E-mail [info@integratedsoft.com](mailto:info@integratedsoft.com)  
or visit [www.integratedsoft.com](http://www.integratedsoft.com)

220-1821 Wellington Avenue  
Winnipeg, Manitoba R3H 0G4  
Canada

## Try our software for 30 days!

**DISCOVER HOW EASY CHRONOS IS TO LEARN AND USE.** All full version software is available for a free 30-day evaluation. Verify and compare the results. Call for a CHRONOS evaluation and start improving productivity today.

A **live demo**, over the Internet, is also available.