INTEGRATED ENGINEERING SOFTWARE

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SINGULA

3D High-Frequency Electromagnetic Analysis Software

SINGULA is created with the same leading edge technology as Integrated Engineering Software's world renowned low frequency electromagnetic design tools. It is the optimal choice for applications requiring high frequency electromagnetic analysis. Our proprietary Boundary Element Method (BEM) solver technology provides the most accurate numerical field solutions for problems that require precise modeling of boundaries. In addition, BEM/Method of Moments (MoM) technology or the Finite Element Method (FEM) solver that are available in the same software package are able to solve electrically large high frequency electromagnetic problems where conventional programs break down.

Engineers and scientists depend on **SINGULA** for the design and analysis of high frequency components including:

- wire antennas (monopole, dipole, yagi, helix, spiral)
- surface antennas (planar strip, spiral and reflector)
- dielectric antennas (resonant and standing wave) on infinite/finite ground planes
- various current sources, wire/ surface antennas in presence of dielectric/conducting bodies
- electromagnetic scattering from dielectric/ conducting bodies, open surfaces and conducting wires
- EMC/EMI interactions
- electromagnetic effects on human bodies

Choose your design environment

SINGULA maximizes productivity by allowing the simulation of virtual prototypes on the computer. **SINGULA** significantly reduces design and prototype costs and provides engineers far greater insight into design optimization and verification.

WE GO BEYOND TRADITIONAL MULTIPHYSICS:

- Search-based high frequency 3D Electromagnetic design software NEW
- Metaheuristic approach for optimizing simulation based electromagnetic designs. NEW
- Precise calculation of electrical parameters using our proprietary **Boundary Element Method (BEM) solvers**.
- **Finite Element Method (FEM) in addition to BEM.** This hybrid approach uses the strength of each method while designing an electromagnetic system.
- Built-in API, Parametric and/or Scripting capabilities

The **INTEGRATED API** enables the direct control of program functions by utility scripts or macros created in tools such as EXCEL or Visual Studio. Scripting can control the entire process of model creation and testing.

- Electrostatic/Quasistatic/ Transient 3D field solvers for a diverse range of applications.
- Direct import of models from CAD partners including: Autodesk, PTC, Solid Edge and SolidWorks.

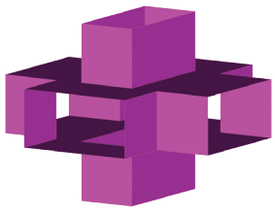
MORE BENEFITS:

- Easy-to-use and intuitive interface.
- High resolution 3D graphic representations that can show enhanced tracing of points on model.
- Automatic meshing and removal of intersecting geometries.
- World class support team ready to unlock your ideas.

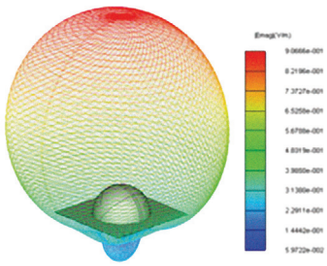
Hybrid Simulation Tools for Electromagnetic Design Analysis

SOFTWARE THAT LIVES UP TO THE POWER OF YOUR IDEAS

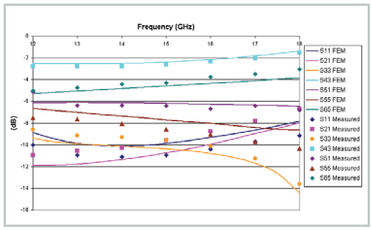
MATLAB Enabled
MathWorks Partner



6-port waveguide junction



3D directive gain pattern of hemispherical dielectric resonator antenna



S-parameters of a 6-port waveguide junction as a function of frequency

PUT OUR SOFTWARE TO THE TEST

Send us your model, whatever the level of complexity. **We will show you how to get results from your exact design** – no packaged demos.

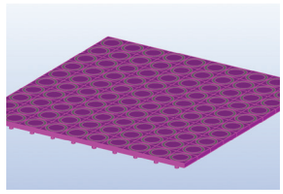
Contact us for a free 30 day evaluation and start improving productivity today. A live demo is also available.

As easy as one, two, three

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

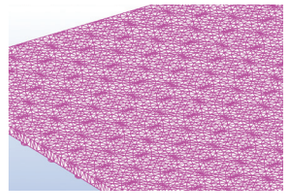
Simulation of Antenna:

STEP 1



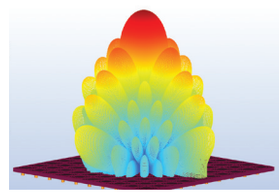
Circular patches array antenna

STEP 2



Triangular surface mesh

STEP 3



Radiation pattern

SINGULA comes complete and ready to use. Purchase of additional modules or options is not needed.; **SINGULA** is a fully functional CAE tool. A partial list of standard features includes:

- Intuitive and structured tool-bar interface which maximizes productivity for experts and beginners
- Fast Fourier Technique (FFT) to solve electrically large models
- Highly accurate field calaculations based on the Method of Moments (MOM) or Finite Element Method (FEM)
- High quality graphics and text utility for preparation of reports and presentations
- Data exportable in formatted files for integration with spreadsheets and other software packages
- Batch processing that allows unattended solution of multiple models
- Powerful parametric feature that allows definition of variable parameters to be stepped through for the analysis of multiple "what-if" scenarios, facilitating design optimization
- Incident plane wave, line/surface current & voltage can be the excitation source
- Permeability, permitivity and conductivity data stored in convenient and rapidly accessible tables
- A wide range of H, B, E, D field and current density component calculations
- Scalar and vector field parameters can be displayed in various forms including contour or arrow plots, color bands, surface representations, polar, rectangular plots and 3D patterns
- Volume and surface current density distributions
- Near and far field results
- Calculation of Radar cross section, gain, directivity, axial ratio, impedance, admittance and scattering parameters.
- A variety of display forms like rectangular plots of current, fields and input impedance; polar plots of power gain; contours of currents and fields; 3D surface plots of radiation patterns; Smith chart of s-parameters
- Calculation of input power, dielectric and conductivity, dielectric and conductivity power loss, radiation power and radiation efficiency
- Industry standard CAD import/ export utilities offering time saving convenience for model design and creation

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