Wireless InSite®

Wireless InSite is site-specific radio propagation software for the analysis and design of wireless systems for communication, networking, sensors and numerous other applications. It provides efficient and accurate predictions of propagation and channel characteristics in complex urban, indoor, rural and mixed path environments, and includes high-fidelity and real time options.
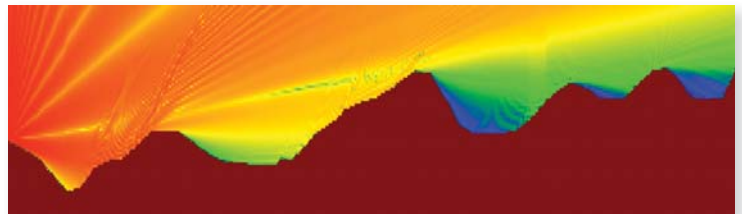
Wireless InSite provides RF engineers with the tools to design wireless links, optimize antenna coverage, and assess key channel and signal characteristics. Applications range from military defense to commercial communications.
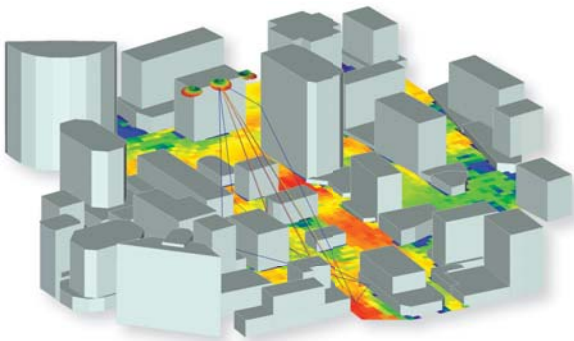

Wireless InSite has the ability to model propagation loss throughout a city. 3D visualization can display received power or field levels, imported antenna patterns, and the dominant paths between a transmitter and receiver pair.

*Modeling of the propagation loss over an irregular terrain using Moving Window Finite Difference Time Domain.*

Complex multipath in a dense urban environment for an antenna near street level.
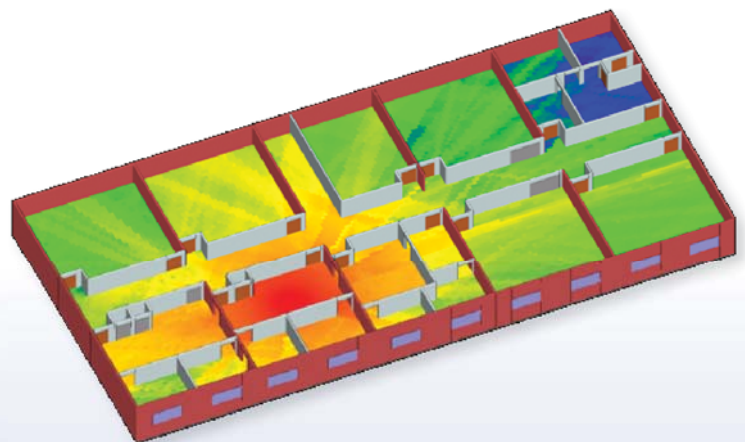
Model interior floor plans within Wireless InSite. This is an example of a typical office building with a WiFi transmitter in one room, showing the received power throughout the building.

Visit **www.remcom.com/wireless-insite** for a detailed feature list, system requirements and licensing information.

REMCOM®
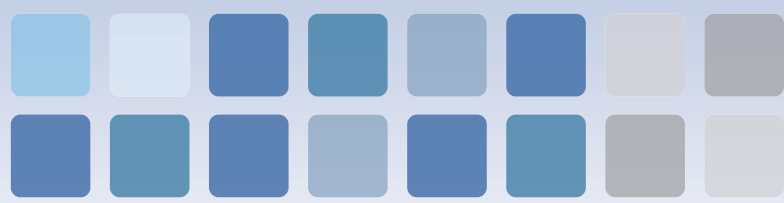
wireless insite

Multiple Versions for Various Needs

Wireless InSite Standard

Suite of high-fidelity propagation models based on ray-tracing, finite difference time domain, and empirical techniques. Site-specific models can provide detailed predictions including E and H fields, received power, and propagation loss and gain. Signal and channel characteristic outputs include delay spread, direction of arrival and departure, and mean time of arrival. Options include detailed urban (indoor and outdoor) and longer-range propagation over rough terrain.

Wireless InSite Real Time

Suite of propagation models intended to balance fidelity and speed, providing site-specific urban propagation models, but with rapid calculation capability. Models provide estimates at a tiny fraction of the run time, calculating point-to-point links in less than a millisecond.

Wireless InSite Professional

Bundles the full suite of models from Wireless InSite Standard and Real Time versions.

Wireless InSite APIs

Remcom offers APIs to our Full 3D Ray Tracing model in the Standard version and to our full Real Time Suite. Users can develop their own custom applications and call Remcom's powerful propagation models through a plug-in DLL. Flexible licensing terms can be provided for partners interested in reselling products that use Wireless InSite plug-in models (contact Remcom for more information).

	Wireless InSite Capability	Standard Version	Real Time Version	Professional Version
GUI only	X3D Ray Model	•		•
	Urban Canyon Ray Model (2D)	•		•
	Vertical Plane Ray Model (2D)	•		•
	Moving Window FDTD	•		•
	Urban Canyon FDTD	•		•
GUI and API	Full 3D Propagation Model	•		•
	Hata	•	•	•
	COST Hata	•	•	•
	Free Space	•	•	•
	Vertical Plane Urban Propagation		•	•
	Triple Path Geodesic		•	•
	Walfisch-Ikegami		•	•
	OPAR		•	•

Full product purchases come with the Graphical User Interface (GUI) and access to a subset of models through the API. API-only licenses are also available.

New in Wireless InSite: Expanded Terrain Import

The latest version of Wireless InSite offers integration with the Geospatial Data Abstraction Library (GDAL), improving import processing and significantly expanding supported file formats:

- Digital Terrain Elevation Model (DTED)

- Digital Elevation Model (DEM)

- Japanese DEM files

- Spatial Data Transfer Standard (SDTS) DEM files

- ASCII Grid in UTM coordinates

- TIFF/BigTiff/GeoTiff

- In addition to the GDAL formats verified and supported by Remcom's development team, users have access to over 100 additional GDAL file formats as well.

### Plus these speed and usability improvements:

- Faster importing of large terrains

- Improved rendering of high resolution terrains

- New terrain facetization more accurately models local curvature of terrain

- Improved handling of invalid data in terrain files

- Support for UTM-based shapefiles

- Support for geo-referenced shapefiles
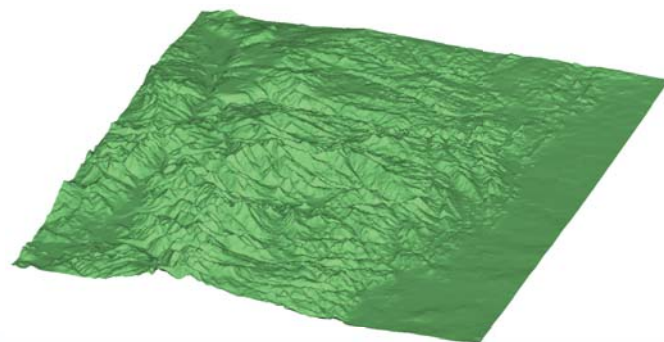
Terrain near Golden, CO. The terrain covers approximately 84 by 110 km and imports in under 2 minutes. Improvements to rendering allow for faster zooming, panning and rotation of large terrains in the user interface's project view.
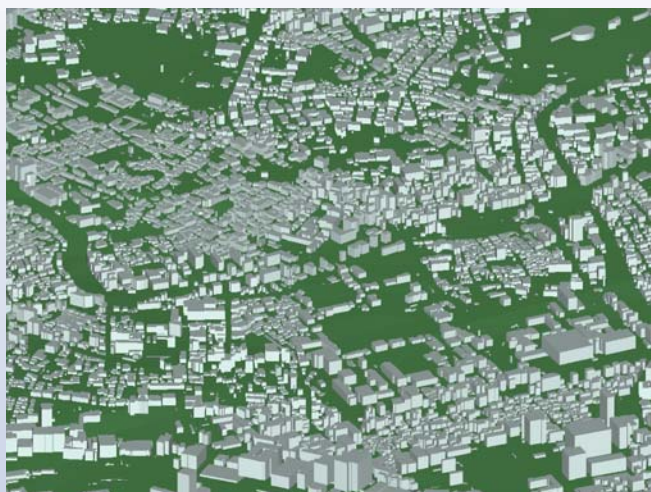

Geo-referenced shapefiles import to the correct global position.
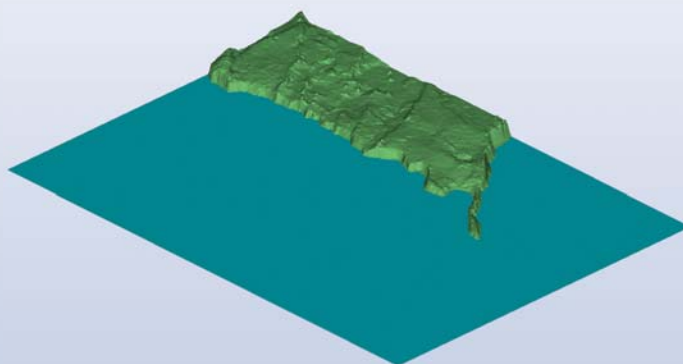
Terrain imported from a Japanese DEM file. Invalid data points can be replaced with sea level height values.

Wireless InSite Key Features and Outputs

- Propagation from 100 MHz to 100 GHz

- Library of common antenna patterns

- Library of common building and terrain materials

- Import XFdtd® far zone patterns

- Import terrain data from DTED, DEM, Japanese DEM, SDTS DEM, ASCII Grid, TIFF/BigTIFF/ GeoTIFF

- Import city data from DXF and shapefiles

- Several models support foliage effects

- Overlay output on maps and aerial photos

- Communication channel analysis tool and throughput toolbox for LTE and WiMAX

- Multi-processor, multi-threading and GPU acceleration

- Received power and path loss

- Support for receiver grids, routes or points

- Propagation path displays

- Electric field magnitude and phase

- Power delay profile

- Complex impulse response

- Delay spread

- Time and Direction-of-arrival

- Electric field vs. time and frequency

- Carrier/interferer ratio

- Strongest base to mobile

- Animated movies of fields vs. time

- Animated movies of ray paths vs. time
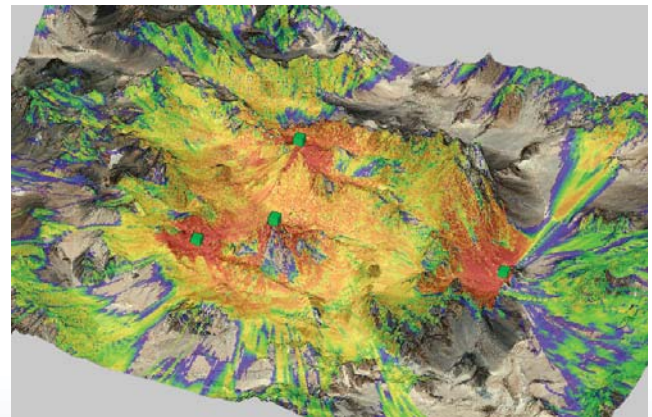
Coverage in rugged mountainous region over 12,000km² area using Vertical Plane ray model.

(Terrain image provided by Harris Global15m.)

Wireless Propagation application examples available on Remcom's website at:
www.remcom.com/wireless-propagation

Modeling Indoor Propagation | Path Gain and Loss Comparisons | Radio Propagation Using Urban Canyon

Propagation Predictions Over Irregular Terrain | Communication Analysis in a Culvert | Modeling Uncertainty Using Monte Carlo

MPE Analysis in an Urban Environment | Overcoming Unknown Layout Limitations in Outdoor-to-Indoor Propagation | And more …