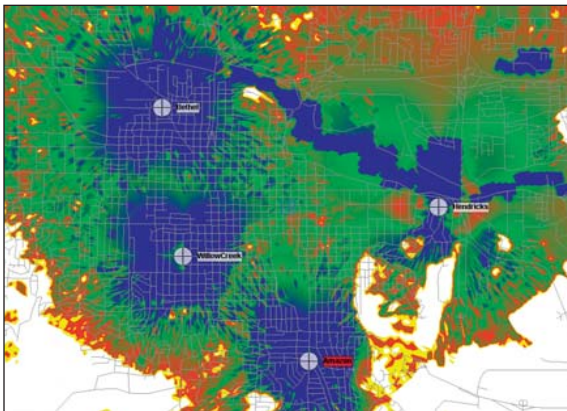


EDX® SignalPro® is the principal building block of EDX's comprehensive line of wireless network engineering tools. It offers all of the study types you need to design a basic wireless network, including area studies, link/point-to-point studies and route studies. EDX SignalPro also incorporates the finest telecom-specific mapping features, meticulous equipment data storage capabilities and convenient utility functions.

Basic EDX SignalPro can be extended to become a fully featured and comprehensive network design tool by attaching the EDX network design and indoor modules, specialized query toolkits and data management products. This building block approach gives you the ability to create the right tool for your specific needs – putting the Power of Smart Planning to work for you.



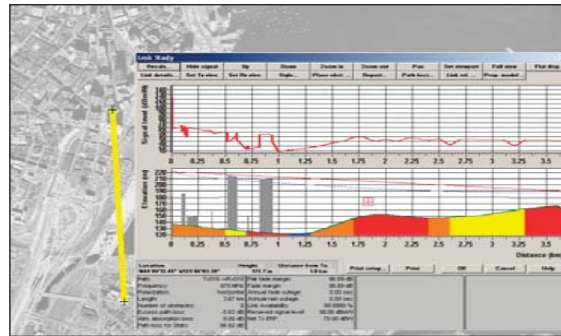
Area Study calculated with physical/deterministic propagation model

## Studies

### Propagation Models

EDX SignalPro is a rigorous wireless network engineering tool. At the core of the tool, you'll find a comprehensive set of RF propagation prediction models, appropriate for systems from 30 MHz to 60 GHz. EDX SignalPro lets you select from an extensive set of over 20 published propagation models, customize the coefficients of selected empirical models, or create your own proprietary propagation models with an external dynamic link library. All models have adjustable environmental and reliability parameters. Further, you can select a unique model for every base station sector in your study, or use a single model for the entire study. Additional model options are available in EDX's Add-On Modules and via connectivity to integrated tools such as Siradel's VolcanoLAB.

For refined accuracy, the physical/deterministic models can consider the attenuation and height values of underlying clutter databases at the receive location or at each study point.



Point-to-Point Link Study showing buildings and clutter types

### Area/Coverage Studies

A comprehensive selection of over 18 area study types:

- Shadowing/Line of Sight
- Path Loss
- Field Strength
- Received Power
- Downlink Signal Levels
- Uplink Signal Levels
- TIA TSB-88 Reliability
- C/(I+N) & Aggregate C/(I+N)
- Group-To-Group Interference
- Bit Error Rate
- Percent Service Availability
- Number of Available Servers
- Simulcast Delay Spread
- Height Required For LoS

Additional studies are found in the Network Design Module.

### Unmatched Area Study Capabilities

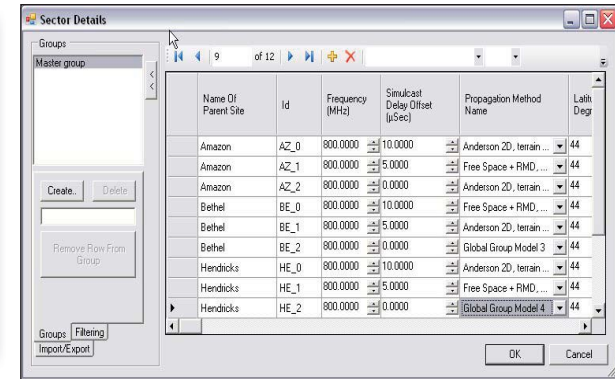
For any EDX project, you can set up as many area studies as you like - each based on unique parameters and considering the same or different transmitter Groups. With the click of one button, EDX SignalPro will simultaneously calculate all studies. Easy mapping controls then allow you to view one at a time, layered together with transparencies, or tiled/cascaded on your monitor. For Boolean "and/or" comparisons of two existing studies, "Hybrid" studies assist you in customizing area studies for your unique needs.

### Full Point-to-Point Path Analysis

Calculate a full microwave path analysis including path profile, rain/fade outages, percent availability, dispersive fade margin, antenna diversity reception, and cross-link interference. All links are bi-directional, and provide plots to show sensitivity for variation in the k-factor. You can edit your link on the path profile display -- add trees, buildings, or terrain modifications, and an interactive view displays real time link analysis as antenna heights are changed.

### Route Studies

Use a route study to calculate and store detailed propagation properties along a 2D or 3D route, providing map view and text report information unique to each point of the study, including Most Likely Server, Received Signal Strength, etc. Routes contain a series of specific points that can be easily created with the included EDX drawing tools.



An intuitive interface for managing, grouping and importing/exporting site/sector radio parameters

## Features

### Intuitive Project Management

The Project Wizard helps you to rapidly set up a project from a selection of system-specific templates. EDX SignalPro will instantly display a map view with relevant GIS data for your chosen area, which can be selected by simply entering a city name.

A project management tree lets you see all the components of your project at a glance. Click on any component of the tree to expand and edit details.

### Convenient Equipment Controls

Intuitive toolbar buttons and menus make it easy to add and manage your network equipment. Templates can be set up for convenience and the EDX Vendor Partner's equipment specifications can be accessed by brand name from the available equipment library.

Equipment can be quickly accessed for editing and project grouping with convenient right-click commands or menus. Groups are easy to create manually, by rectangle selection, or with convenient selection filters that include "and/or" searches. Global edits can be made to entire groups or sub-groups for quick changes, or equipment details can be quickly imported/exported to Excel and external databases.

EDX SignalPro gives you the most detailed equipment definition parameters available. Antenna patterns for isotropic, directional and leaky coax are supported with co-polarized and cross-polarized directional transmit and receive antenna considerations. For more accurate interference analysis, you can also describe the Power Spectral Density and receive filters for your equipment. Parameters are flexible enough to accommodate any technology for fixed, nomadic and mobile networks.

## Open Software Architecture

Component Object Model (COM) and XML interfaces provide easy ways to import, export, and share transmitter, link, and CPE details with other applications. This also provides for external control of the tool beyond the included GUI, customizing EDX SignalPro for your specific needs.

For collaborative engineering design teams, EDX SignalPro includes advanced import/export capabilities for sharing repository data over a network, including connectivity to databases such as Oracle<sup>®</sup>.

## Link “Rubber Band” to Server

Link server lines show dynamic “rubber band” connections to 1st, 2nd, & 3rd most likely servers as you move the mouse in area studies.

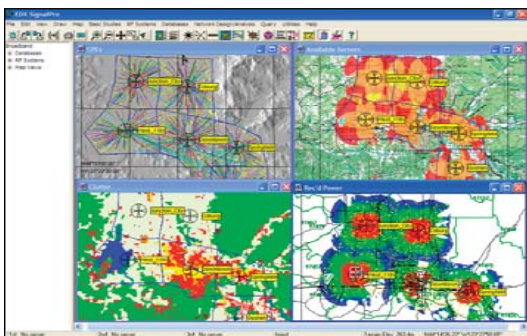
## Comparisons of Measured and Predicted Signal Levels

Drive test data can be imported, displayed, and used to tune sector-specific models. You can also get the most value from your database investments with EDX SignalPro by using measurement data to adjust the attenuation values of your underlying clutter databases for location-specific accuracy. Adjustments can be sector-specific.

## Database Support

Open, flexible format compatibility makes it easy to use data from many sources, thereby giving you maximum control of your database investment - including quality and cost.

## Mapping



EDX SignalPro multiple map views of area-wide, point-to-multipoint studies and project directory tree

## Multiple Map Display

Multiple map views conveniently show your project studies and GIS map data simultaneously. Views can also be saved as common image files such as KML, KMZ, JPG, BMP, GIF, TIF and others.

## Customizable Status Bar

A customizable status bar allows you to control the dynamic information you want to view. It can include study results, terrain elevation, building height, and clutter category.

## Map Display

Display the equipment on your map view with options such as cell range, directional antenna beam width and traffic loading. Include a constant floating image on your map view, such as your company logo. Easy undo & redo functions allow you to view previous map views. Windows<sup>®</sup> standard navigation commands give you intuitive control for panning, zooming and accessing right-click commands/menus.

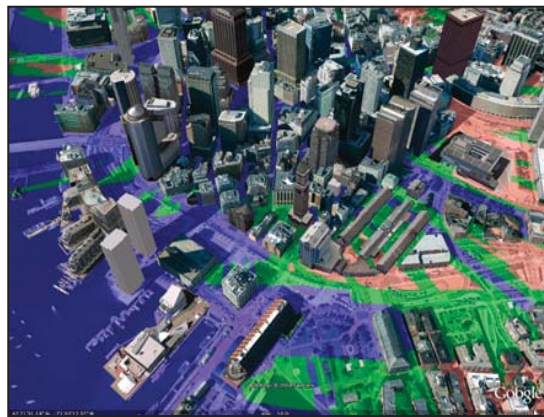
## Utilities

### Efficient Calculations

EDX tools support multithreading for multiprocessor PCs when using the physical/deterministic propagation models. Multiprocessor gains are also utilized for creating area study grids. Further, you can easily recalculate and redisplay all project studies with a single mouse click. This feature is ideal for assessing the total impact of a changed system parameter on all aspects of the system analysis.

### Easy to Integrate with Other Mapping Tools

If you use Google<sup>™</sup> Earth, MapInfo<sup>®</sup> or Arc View<sup>®</sup>, EDX SignalPro can automatically generate study results in a compatible format, such as KML, KMZ, MIG, MID/MIF or SHP/DBF. Map views can also be exported as Geo-coded TAB/TIF files. Further, EDX SignalPro imports MIF/MID and ArcView<sup>®</sup> DBF/ SHP files as map layers. Key attributes of the included equipment are accessible within Google Earth, giving the ability to drill down to details for more powerful data sharing.



Received Power Study displayed in 3D in Google Earth

## Clutter Use for Fast 3D Modeling

EDX SignalPro provides an innovative way to effectively model a 3D environment. A Clutter Carving<sup>™</sup> technique is used to provide a realistic description of the street canyon propagation environment in which the network operates. The technique provides network designers with the ability to build a reasonable location-specific model of the environment without purchasing building/structure databases. Just a few simple steps:

- Add relevant height values of terrain, based on underlying clutter categories
- Overlay the resulting 3D clutter model with GIS data, such as streets/major roads/highways/interstates
- Assign the width of the “carve”, specific to each GIS category. The GIS data “carves” into the 3D model, back to the terrain height accordingly.

## Query Capabilities

Extensive abilities to query your project include query libraries accessible by other applications as well as the ability to right-click on any point to view multiple layers of propagation analysis and GIS information. You can also select entire areas for query analysis.

## Utility Functions

Utility functions are easily accessible for coordinate conversion, distance and bearing calculations, ERP calculations, intermodulation calculations and creating and plotting antenna patterns.

## Modules

### Make EDX SignalPro Even More Powerful

Add on to EDX SignalPro with specialized modules and toolkits that add even more powerful functionality for design and optimization of your wireless network including:

- **Network Design Module** – ideal for complex integrated networks
- **SignalMX<sup>®</sup> Module** - ideal for mesh networks
- **Microcell/Indoor Module** – a unique tool for indoor & outdoor – includes ray-tracing
- **SignalProof<sup>™</sup>** – a web enabled toolkit to automate subscriber pre-qualification
- **Building Editor** – making it easy to manage building databases



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