

Outdoor-to-Indoor Propagation Analysis

## Features

### Point Studies

The point study mode displays the ray trajectories to a particular point in the propagation environment. This allows you to view the effect on the ray amplitude and phase for each wall reflection and corner diffraction.

### RMS Delay Spread

You can calculate time dispersion/multipath studies (RMS delay spread studies), angle of arrival, and angle of departure.

### Multi-Story Studies

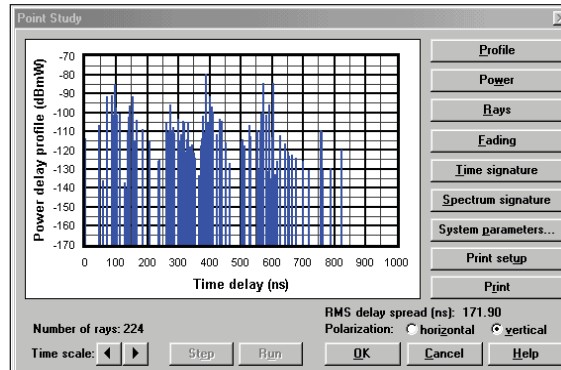
Calculate attenuation between multiple floors/ceilings.

### Spectrum Signature Displays

Spectrum signature displays use the FFT of the time signature to display frequency-selective fading channel characteristics. Pseudo-animation mode shows the dynamic nature of the frequency-selective spectrum response.

### Time Signature Displays

Time signature displays are available to show the waveform of the received data pulse as a function of time. Pulse shape distortions and echoes due to multipath are easily visible. Pseudo-animation mode shows the dynamic nature of pulse distortions.



## Studies

### Accurate Propagation Models

This module offers the most accurate propagation predictions available using several selectable models, including:

- 2D and 3D ray-tracing models for outdoor microcell and indoor wireless LAN/PBX/cell-extender studies
- EDX® Simplified Indoor Model (ESIM™) for rapid, site-specific indoor signal strength calculations. Takes into account:
  - Line-of-sight rays
  - Wall transmission
  - Corner diffraction
  - Attenuation due to partial Fresnel zone obstruction
  - COST-231 Walfisch-Ikegami propagation model for simplified outdoor microcell studies.

### Study Environment

Propagation models explicitly account for the location of structures within the study environment and their electrical properties (conductivity, permittivity, and transmission loss).

## System Parameters

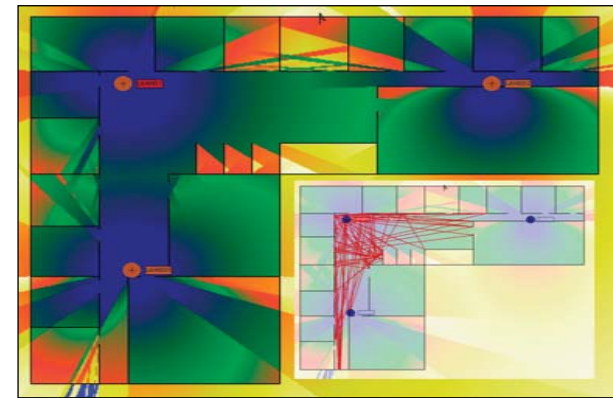
Considerations are made for:

- Free-space propagation
- Specular reflection
- Diffraction
- Diffuse wall scattering
- Wall transmission

Additionally, the digital system parameters control pulse shape and data rates. Parameters include modulation type, data rate, and roll-off factor.

## Technologies

The Microcell / Indoor module can be used to enhance and/or increase the accuracy of studies supported by the EDX family of products. These types of studies include radio systems such as Wi-Fi and those used in campus networks and urban areas.



Area-Wide & Ray-Tracing Studies



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