The Urban Propagation Extension for STK Communications provides very fast, site-specific, path loss predictions for communication links in urban environments.

The extension offers an unmatched combination of fidelity and speed, as compared to empirical and full-physics based alternatives, across a broader range of frequencies and link geometries. These attributes make it ideal for defense and intelligence applications involving trade studies, time-based scenarios and coverage analysis.

Higher fidelity results

The Urban Propagation Extension uses site-specific building geometry for correspondingly higher fidelity results than empirical models (e.g., Hata, COST-Hata) that ignore local obstructions. Building geometry is supplied via shapefiles—a popular vector data format supported by almost all geospatial software products and urban data suppliers.

Triple-path geodesic model

Employing the well-established Uniform Theory of Diffraction, a triple-path geodesic model computes three dominant paths from the transmitter to the receiver. Received powers are summed to estimate total signal strength at the receiver.
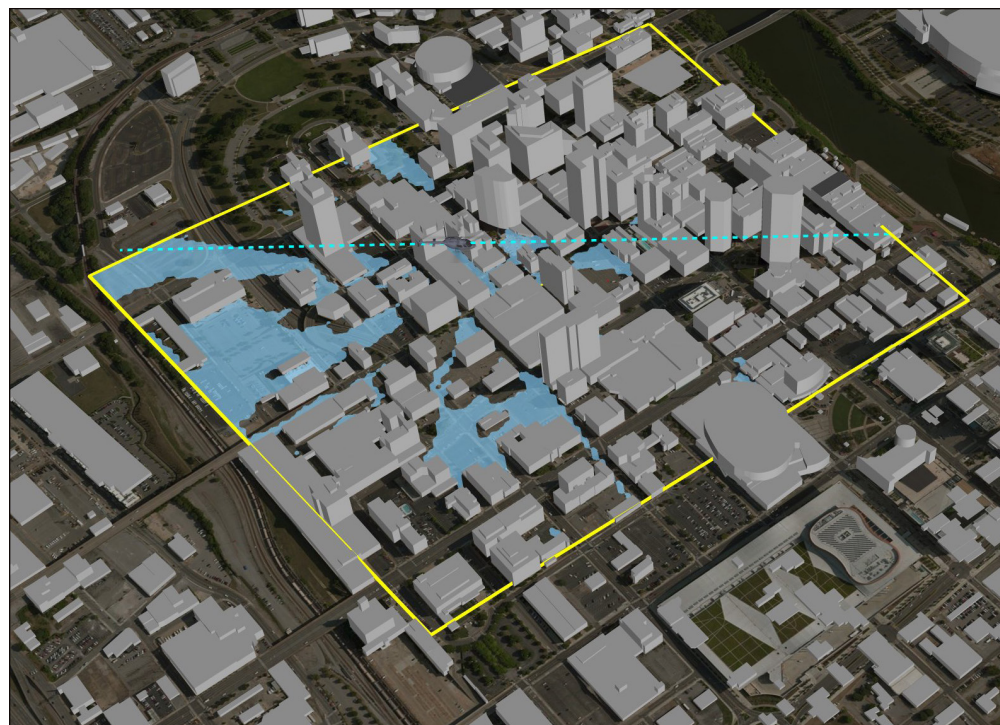
Very fast computation time

Using Remcom's rapid ray tracing techniques and efficient diffraction methods, aggregate computation times can be over two orders of magnitude faster than full-physics models employing Finite Difference Time Domain (FDTD) methods. This makes the Urban Propagation Extension a perfect fit for trade studies, time-based scenarios and large area coverage analysis.

Better fit for defense and intelligence

Most empirical models were developed for cellular telephone applications and impose limitations on antenna heights, ranges and frequencies that are too restrictive for defense and intelligence problems. The Urban Propagation Extension has no limitations on antenna heights, supports ranges up to 10 km and is valid at 100 MHz and higher frequencies.

Comparable fidelity to full-physics models

Results compare very favorably with the much longer running full-physics models. Comparative data is available.

Powered by Real-Time propagation algorithms

The Urban Propagation Extension is powered by Remcom's Wireless InSite® Real-Time propagation algorithms. Remcom, an AGI business partner, has been a pioneer in the field of electromagnetic simulation since 1994 serving multiple Department of Defense and commercial customers.