

Epsilon™

Multipath Channel Modelling

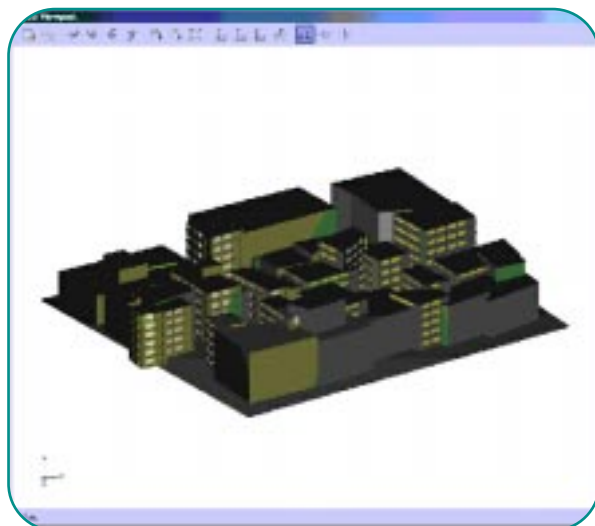
Roke Manor Research has a wealth of expertise in electromagnetic modelling, encompassing radar, satellite navigation and radio communication systems. Epsilon™ is one of the products that encapsulates this experience. Originally developed to assess radar signatures and stealth performance, the same technology is now being used to assess and build channel models for multi-path and RF propagation analysis.

Techniques applied

The fully deterministic model uses prediction techniques adapted from radar electromagnetic modelling. The theory of Physical Optics based approach uses the Stratton-Chu surface integration which calculates the correct near-field bistatic diffraction pattern from all visible surfaces. A diffuse ray tracing is then used to characterise the multiple scattering components of the result. Transmitter and receiver paths can be fully scripted and subsequent Doppler analysis performed.



Deterministic urban canyon model generation based on aerial or satellite imagery



The urban canyon ready for analysis

Environment Generation

An integrated urban modelling tool enables deterministic models of urban environments to be created semi-automatically from satellite or aerial photographs.

Applications include:

- Satellite navigation urban canyon channel modelling.
- Mobile phone base station deployment planning.
- Microwave link propagation analysis.
- Microwave link site surveys.

Other available options include:

Air Traffic Management module

- SSR transponder garble analysis.
- Airport local navigation system simulation (e.g. ILS)
- ILS error signal analysis.
- ILS guided flight path analysis.

Radar Cross Section analysis module

- Radar cross section prediction
- High resolution radar imaging.
- Physical Theory of diffraction modelling.
- Stealth assessment capability.

Support

The software license includes 12 months of support and full printed documentation set. On site installation is offered as an option.

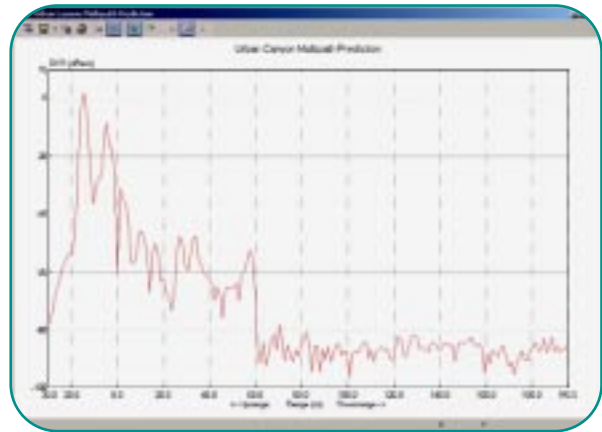
Training

Training is offered as an option either at the customer's site or at Roke Manor Research.

System requirements

The EpsilonTM channel modelling tool is a Windows based application and is supported on Windows NT4 and Windows 2000.

The prediction engine is a parallel application that can be installed on a PC network, to make best use of the available processing power (including dual processor machines).



Multipath analysis results

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