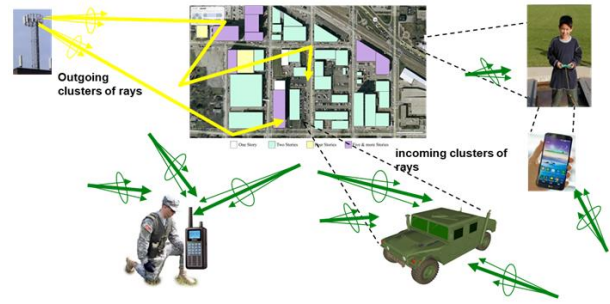
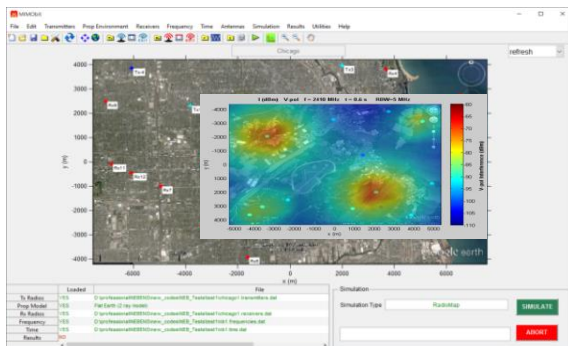


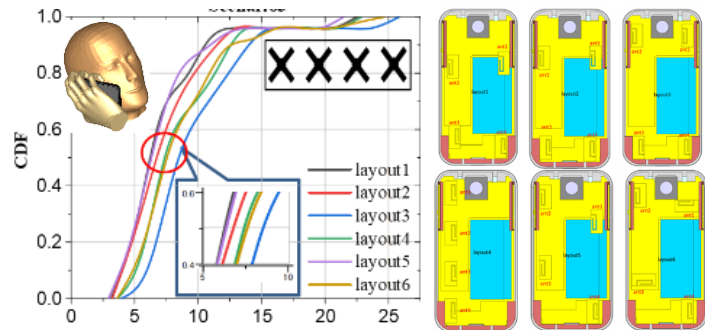
Multi Element Antenna (MEA) systems for Multiple Input Multiple Output (MIMO) capable products are employed in WiFi to increase robustness and throughput and are key to the deployment of Cognitive Radio, 4G and 5G wireless systems. But, unlike past practices, MIMO antenna systems cannot be adequately described with traditional attributes of gain and radiation efficiency alone. Furthermore, the same techniques that optimize MIMO systems have the greatest potential in optimizing Spectrum Utilization and Dynamic Spectrum Access (DSA) approaches. Thus, integrated approaches, where antenna design decisions are made at the Capacity/Throughput level, while DSA decisions are made at the Spectrum Utilization Efficiency (SUE) level are required for optimal cost-performance product and network solutions.



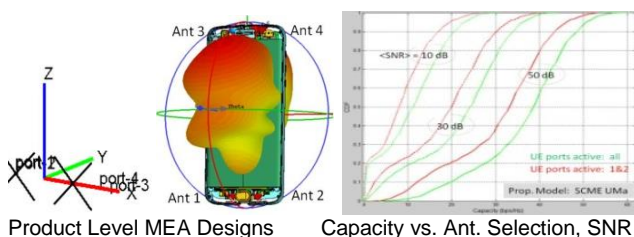
MIMObit provides just that! For the antenna designer, MIMObit provides performance evaluation of MEA systems in terms of Throughput and Capacity (Open Loop, Beamforming, Waterfilling). In fact, MIMObit 3.0 can model the “CTIA Test Plan for 2x2 DL MIMO and Tx Diversity OTA Performance”. Based on an EM exact formulation, MIMObit treats antenna systems very accurately, including antenna terminations, element coupling, matching circuits, full active E-field gains and various standards based as well as Ray Traced custom RF propagation models. For the DSA designer and spectrum manager, MIMObit provides user-defined power masks and temporal behaviors of Signal and Interference Tx radios and evaluates RF Radio Maps, Harmful Interference, Spectrograms and Spectrum Utilization.



MIMObit's main GUI and RF Coverage (RadMap)

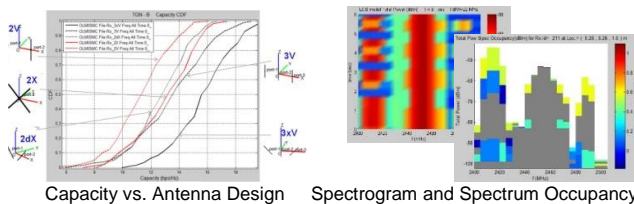


Open Loop Capacity CDF (bps/Hz) vs. Antenna System Layout



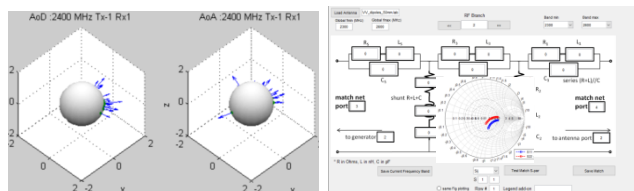
Product Level MEA Designs

Capacity vs. Ant. Selection, SNR



Capacity vs. Antenna Design

Spectrogram and Spectrum Occupancy



Prop model visualization

Multi-branch/band ant matching

## FEATURES AT A GLANCE

- Electromagnetics exact formulation of MEAs
- CTIA 2x2 DL MIMO & Tx Diversity OTA Test Plan modeling
- 5G 3GPP NR, SCME, Winner, IEEE TGn, etc. prop. models
- Ray Tracing support and custom user-defined prop models
- RFpower/SINR/Capacity/Throughput maps & statistics
- Throughput statistics (LTE, WiFi, Link sims)
- Spectrograms, Spectrum Utilization, RF RadMaps
- Versatile Dipole Array Antenna MoM Analysis tool
- ECC, MEG, multi-stage/branch/band antenna matching
- Propagation env., device orientation & other statistics
- Import antenna sims from HFSS, CST-MWS, XFDTD®, FEKO
- MIMO Antenna systems and Power Mask Libraries
- RF Map visualization in Google Earth
- Scriptable for integration/optimization with user codes

## APPLICATIONS

- MIMO Antenna Design (Capacity and Throughput Performance Evaluation for LTE, WiFi, ...).
- Coverage, Cognitive Radio, Coexistence, Spectrum sharing/management, Dynamic Spectrum Access (DSA).