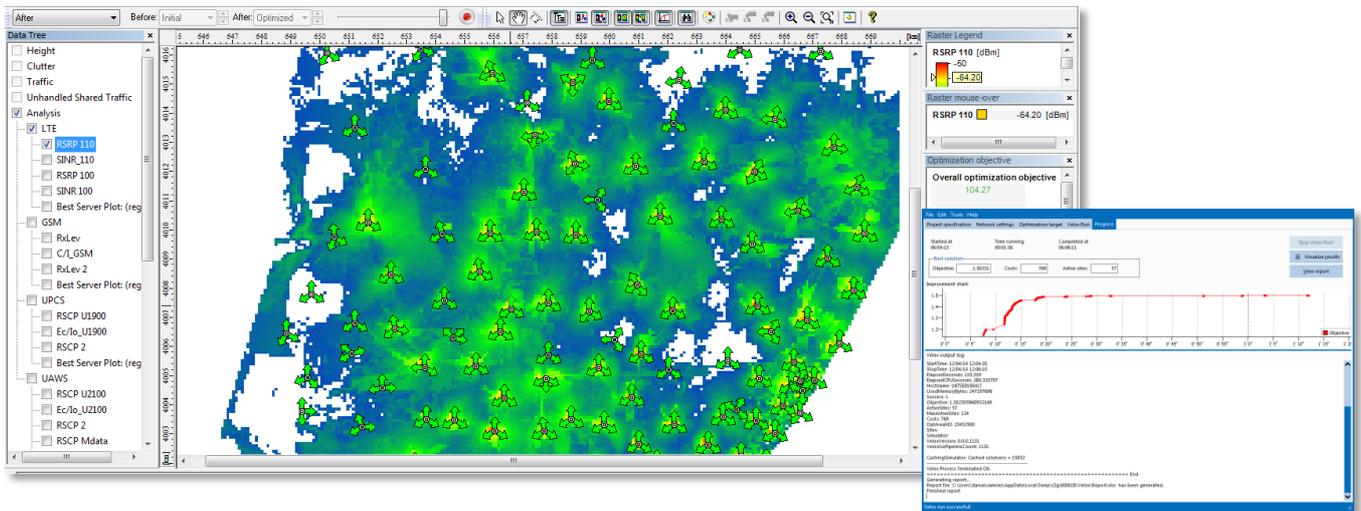


ASSET Design – Automated Network Design



ASSET Design is an automated design tool delivering the optimization of macro cell network designs and the addition of new small cell sites within a single module.

ASSET Design has two modes. In Design Optimization mode it can determine the best network design by analyzing and optimizing radio network data to meet planning objectives such as coverage, capacity and quality of service for today's multi-technology networks.

In Small Cells Design mode, ASSET Design can evaluate thousands of small cell candidates concurrently. It uses geo-located traffic maps to determine an optimized radio design as well as the backhaul requirements for small cell candidate locations.

By integrating these two modules, ASSET Design can optimize a radio network that is already in place, add new small or macro cell sites and then integrate these into a single network that meets the specified performance requirements. ASSET Design is unique in its ability to seamlessly move from optimization mode to site creation mode, bringing together the existing macro cell network with new small cells.

ASSET Design is part of the ASSET Network Planning Suite, a set of tightly integrated modules which make wireless network planning as seamless as possible. Other products in the suite include ASSET (radio planning), CONNECT (backhaul planning), DIMENSION (capacity planning) and ASSET Geo (geo-located traffic map creation).

Delivers simultaneous design optimization across multiple network technologies

Leverage accurate picture of traffic location and density for improved site optimization

Define coverage, capacity and cost objectives to be optimized

Accurately model the coverage of a large number of cells concurrently

FULLY INTEGRATED WITH ASSET

The automated network design and small cell planning capabilities of ASSET Design have been architected to complement the radio planning capabilities of ASSET. A snapshot of the network is taken from ASSET. Design targets and constraints are configured within ASSET Design and the algorithms are run. Once an engineer is happy with the optimization that has taken place, the changes can be applied back into the ASSET database to become part of the new network baseline.

HETEROGENEOUS NETWORK (HETNET) SUPPORT

Modern networks deliver service across multiple technologies, frequency bands and cell architectures, including GSM, UMTS and LTE. ASSET Design's multi-system functionality delivers simultaneous design optimization across heterogeneous network components. Shared components, such as multi-band antennas, can be optimized to meet shared performance objectives. ASSET Design can balance objectives between network technologies to deliver the best overall HetNet performance.

CANDIDATE LOCATIONS

ASSET Design can use pre-determined candidate locations or a greenfield approach when placing small cells. In a greenfield scenario, ASSET Design can place candidate locations along roads, at evenly spaced grid intervals and uniquely, around buildings. Users can define criteria for candidate locations to meet before they are considered including minimum traffic levels or coverage thresholds. This ensures candidate locations are not considered if there is no need for them, saving precious computation time.

If a list of candidate site locations is available this can be imported into ASSET Design via a csv file. These locations will then be used when evaluating new site locations. Importantly, this file can contain also cost information relating to site acquisition, rental, build, backhaul and power connectivity that can be used to add a cost element to the optimization algorithms.

SETTING DESIGN TARGETS

ASSET Design's primary aim is to determine the best possible network configuration to meet your business and network performance needs. Because every network is different and every operator has different business objectives, ASSET Design has an extensive list of objectives, constraints and parameters which can be configured, including optimization targets for objectives, such as coverage, interference and capacity. It is also possible to weigh combinations of objectives and target levels, and to set inter-system objectives. An engineer can therefore guide ASSET Design to optimize a design according to their most important criteria.

SETTING CONSTRAINTS AND DEFINING COSTS

Constraints can also be used to guide ASSET Design's optimization. Time and cost budgets can be placed on various types of changes and an overall budget can be assigned per project. ASSET Design will then work to achieve the optimization targets within the set constraints. Constraints can also be placed on parameter changes. These can be high-level constraints, such as only allowing electrical tilt changes, or detailed constraints, such as not allowing a certain azimuth range on a specific cell.

IMPLEMENTATION PLANNING

The implementation planning in ASSET Design takes a theoretical plan and makes it practical. ASSET Design ranks each proposed change according to the performance improvement it will have on the network. This ordered list allows the most valuable changes to be done first, providing the most network improvement at the earliest possible stage.

