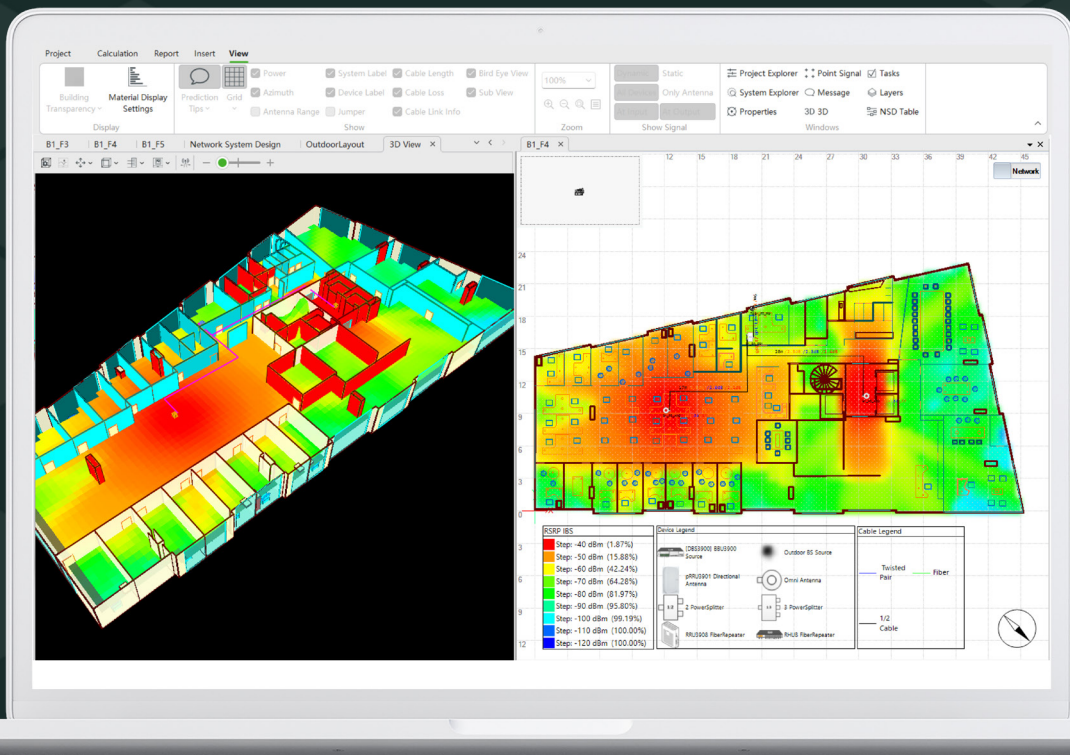


Ranplan In-Building Lite

An intuitive tool for planning and optimizing small to medium-sized indoor wireless networks



What is Ranplan In-Building Lite?

Ranplan In-Building Lite is a versatile tool designed for the rapid and cost-effective creation of in-building networks for small to medium-sized enterprise projects.

Ranplan's advanced 3D propagation engine, Intelligent Topology Optimization and prediction tools significantly speeds up the design process, even for complex environments requiring ubiquitous coverage.

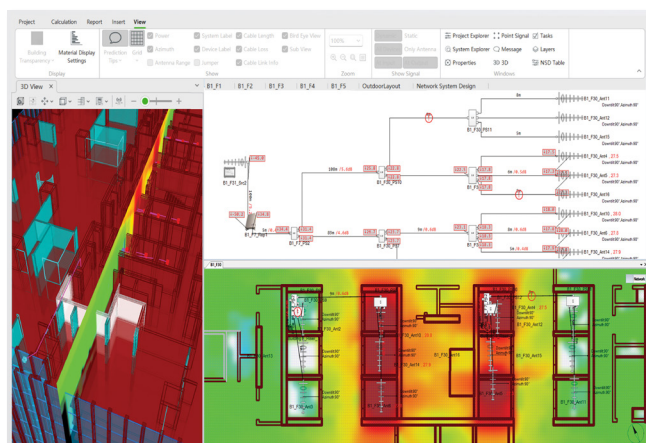
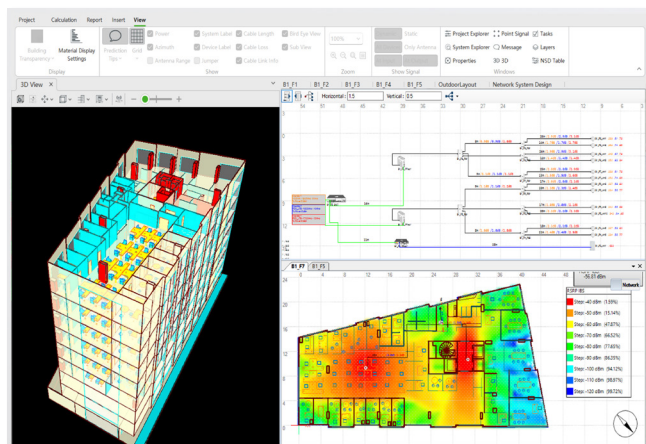
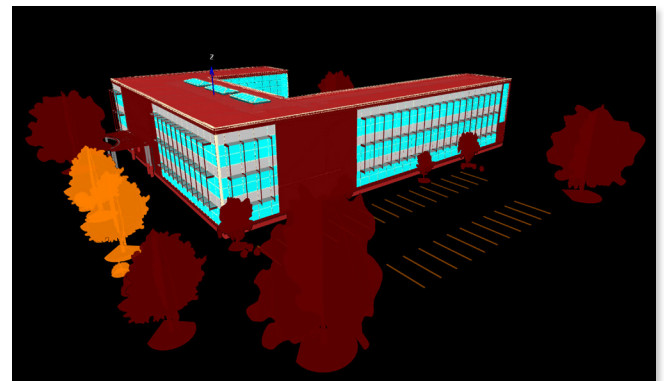
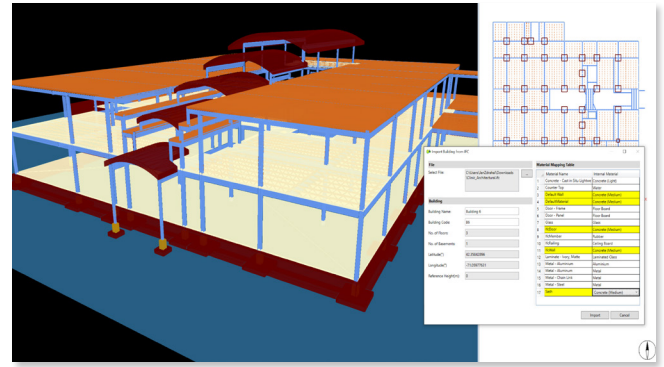
Key Benefits

- Comprehensive 3D building modelling
- Supports indoor wireless solutions such as passive DAS, small cells, and Wi-Fi.
- Multi-technology support such as 5G NR, 4G (LTE), 3G, IoT, Wi-Fi 802.11x, and Public Safety.
- Accurate in-building wireless network coverage predictions.
- Ideal planning tool for Public Safety systems.

Automate 3D Building Modelling

Streamline the design process for indoor networks with Ranplan's automation tools, significantly reducing both time and cost.

- **Import BIM Files:** Seamlessly import 3D building models from any BIM (Building Information Modelling) software.
- **Import LiDAR Scans:** Model 3D buildings and structures by importing IFC files from the Metaroom® App.
- **Smart CAD Extract:** Automatically convert 2D/3D CAD files into rendered 3D building models.
- **Manual 3D Modelling:** Create comprehensive 3D models (stadiums, tunnels, stairwells, campuses) using intuitive tools.
- **Import 3D Mesh Files:** Accurately model structures such as curved rooftops, tunnels, and pillars by importing 3D mesh files.
- **Intelligent Floor Plan Recognition (IFR):** Convert background images into 3D vector building models.
- **Attribute Exact Building Information:** Precisely attribute building materials of walls, doors, windows, and interior objects to characterize their frequency properties.



System Planning and Evaluation

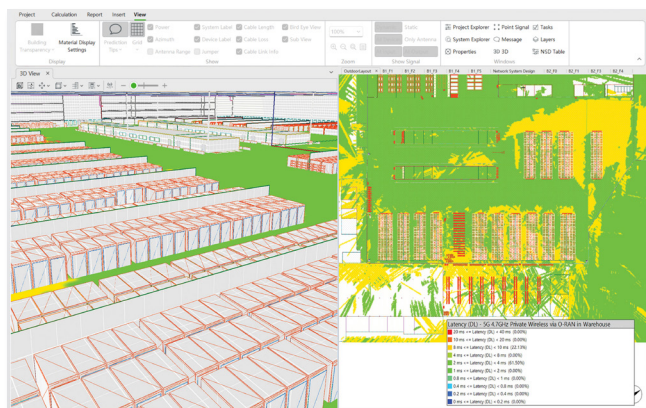
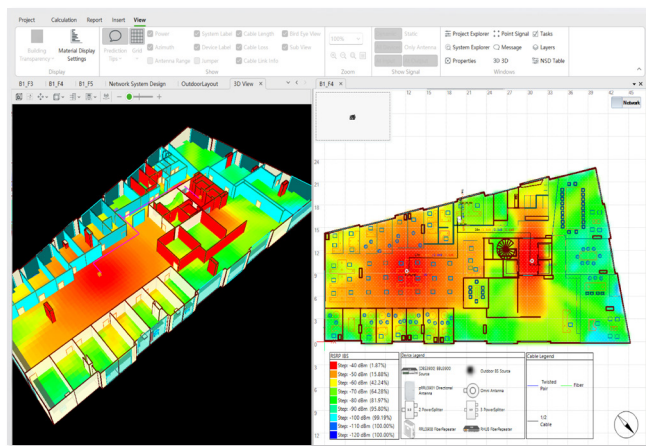
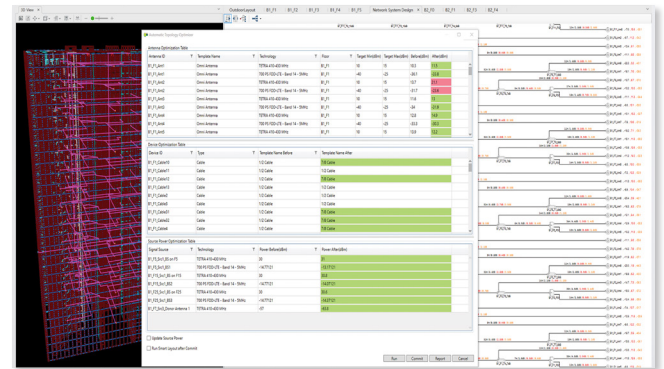
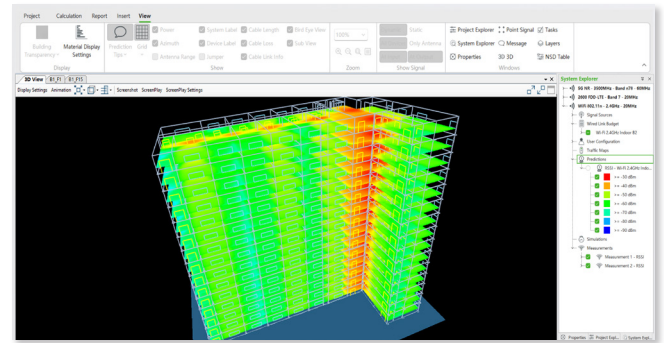
Precisely plan wireless networks that deliver reliable signal coverage, capacity and low latency.

- **Multi-System Planning:** In-building network systems, including Passive DAS, small cells, DU/RU and WLAN.
- **Multi-Technology Support:** 5G NR, 4G, 3G, 2G, TETRA, PMR, DMR, P25, IoT, Wi-Fi (including Wi-Fi 7).
- **MIMO Modelling:** Evaluate the uplink and downlink of 2x2, 4x4, 8x8 antennas.
- **Massive MIMO and Beamforming Modelling:** Configure advanced antenna arrays in 2D and 3D.
- **Cable Planning:** Coaxial, radiating and jumper cables.
- **Evaluate Network Performance:** Compare technologies, configurations and combinations of vendor devices before purchasing or deploying.
- **ROI Measurement:** Use results to measure Return On Investment (ROI) and decide which solution delivers a cost-effective network that meets coverage, capacity, and other KPI performance requirements.

Indoor Network Optimization with Intelligent Topology

Intelligent algorithms recommend and automatically apply design changes, enhancing network performance before procuring or deploying equipment.

- Intelligent Topology Optimization (ITO)/Automatic Topology Optimizer (ATO):** Automatically optimize cable routes and component placement for the best network topology of Passive DAS, Small Cells, non-fibre based Public Safety systems.
- Efficient Layout:** Optimize both cable routes and component placement for an ideal network configuration.
- Time Savings:** Significantly reduce planning time with automatic cable length measurements.
- Floor Duplication:** Easily duplicate system designs between floors of the same building.



3D Network Predictions

The Lite version of the 3D ray-tracing, ray-launching propagation engine, Ranplan Maxwell generates realistic indoor network coverage, capacity, latency and reliability simulations to predict and validate the quality of service.

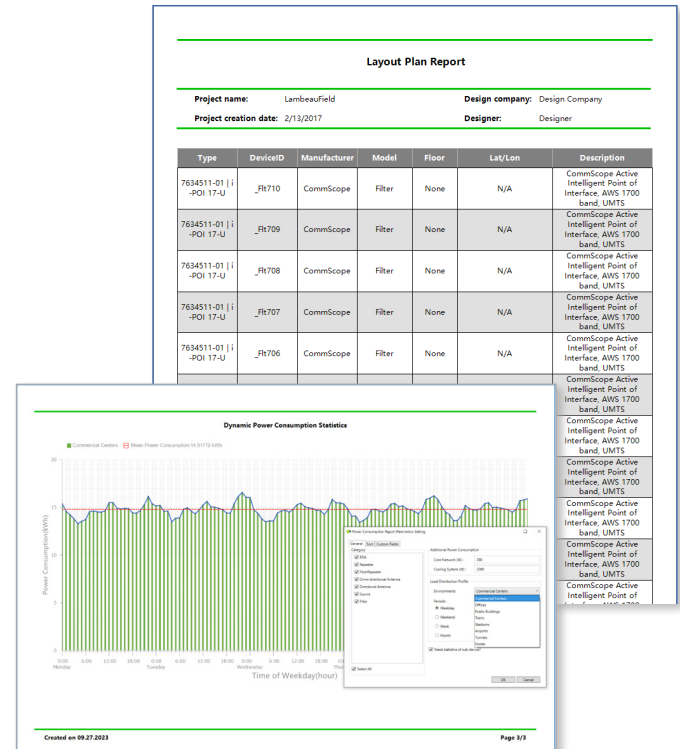
- 3D Coverage Prediction:** Advanced calculation accuracy to represent indoor and cross floor signal propagation.
- 3D Capacity Prediction:** Analyze network capacity based on traffic patterns to predict real-world performance.
- Body Loss Zones:** Incorporate the impact of human bodies by defining specific zones within venues, enhancing prediction accuracy.
- Advanced Antenna Support:** Includes beam selection and beamforming interference calculations for 2D/3D Massive MIMO antennas.
- Field Measurement Calibration:** Ensures simulations align with real-world network measurements.
- Energy Consumption Simulations:** Conducts detailed simulations with various distribution profiles to assess and optimize energy efficiency.



Customizable and Powerful Reporting

Monitor and track project progress using the customizable and automatically populated reports, ensuring designs are delivered on time, within budget and meet all KPIs.

- Quick Access to Project Information:** Easily present information to customers and deployment teams.
- One-Click Reporting:** Available in multiple languages.
- Reporting Templates:** Includes Equipment, Cable Routing, Layout Plan, Antenna EIRP, Floor Equipment Statistics, Power Consumption, and Budget Reporting.
- Real-Time Project Costs Reporting:** Project Budget Report, Antenna Link Budget Report, and more.
- Project Compliance Reports:** EMF Compliance Report.
- High Resolution PDF Printing:** Network System Design and Floor Layout Design, among others.



Technical Specifications

Hardware requirements

- Processor:** 2.0 GHz multi-core
- Operating System:** Windows 10 (64bit)
- Memory:** 8GB
- Hard Disk Space:** 50G
- Display:** 1024 x 768

Recommended hardware requirements

- Processor:** Core i7 (minimum 4 core), 2.6 GHz
- Operating System:** Windows 10 (64bit)
- Memory:** 8GB (medium projects), 16GB (complex)
- Hard Disk Space:** 300GB SSD
- Display:** 1920 x 1080
- GPU:** RTX graphic cards 3070 or above are recommended, (for AMD CPU we recommend GPU with 4GB+ RAM).

Wireless Technologies Supported

- 5G NR** Sub-6GHz and mmWave
- 4G systems** (3GPP Release 17) LTE/LTE-A
- 3G systems** HSPA/HSPA+/WCDMA/1xEV-DO/TD-SCDMA
- 2G systems** GSM/CDMA/EDGE/GPRS/TDMA
- Public safety systems** P25/PMR/DMR/LMR/TED/TETRA
- IoT systems** LoRa/eMTC/NB-IoT/SIGFOX
- Wi-Fi** (IEEE 802.11b/n/g/j/ac/ad/ax/be)

About Ranplan Wireless

Ranplan Wireless pioneer software solutions for the design, optimization and simulation of in-building and urban outdoor wireless networks. Our open platform, intelligent automation and 3D ray-tracing simulations streamline the network planning process, expertly

identifying potential issues and optimizing network performance for reliable connectivity. This results in an unparalleled quality of service, ensuring seamless and efficient wireless communication for end-users and business operations.