

## Perfecting Network Design with Ranplan Software Solutions

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Design, optimise and automate in-building and urban outdoor wireless networks, either in isolation or in coordination.



# Achieve cost-effective seamless connectivity with **Powerful HetNet Designs**



Achieve  
**30%**  
CAPEX / OPEX  
savings



Design  
productivity  
increases by  
**50%**





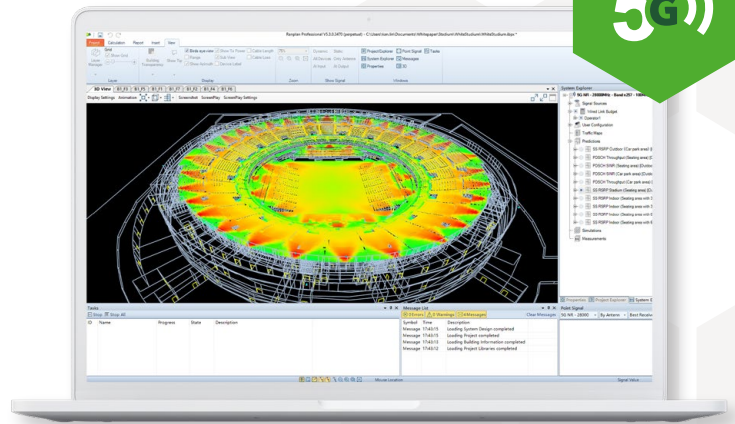
## Design your indoor and outdoor wireless networks in one platform

Ranplan Professional provides solutions to the challenges faced when combining increasingly complex technologies, some of which can interfere with each other, resulting in reduced network speed, coverage and capacity.

Efficiently and accurately modelling real-world (indoor/outdoor) scenarios to plan and evaluate network performance using different combinations of technologies and vendor devices prior to deployment.

Ranplan's true 3D ray-tracing propagation engine generates realistic indoor and/or outdoor network coverage simulations to predict and determine the end users' quality of experience in a real world environment.

The results can be used to measure the return on investment and decide which solution should be used to deliver a cost-effective network that meets coverage, capacity and other KPI performance requirements.



### Complete HetNet design

Fully model and plan your indoor and outdoor networks together.



### Rapid and cost-effective

Delivering up to 30% CAPEX / OPEX savings and increasing design productivity by 50%.



### Fast indoor 3D ray-tracing

Realistic 3D modelling capability and advanced propagation engine for design precision.

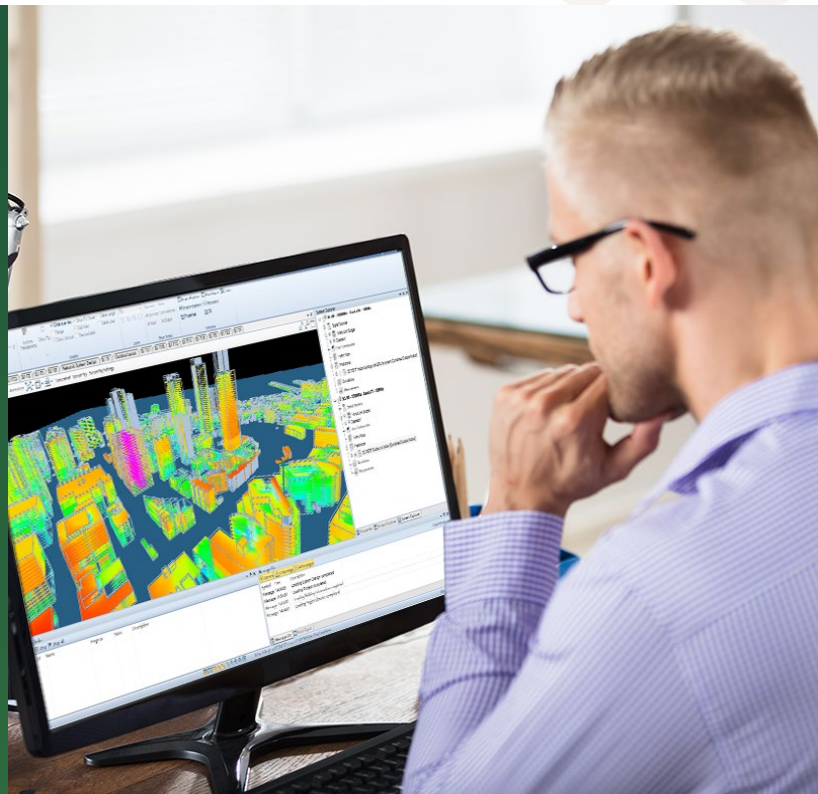
## Maximise network performance with Ranplan's optimisation modules

Efficiently create optimal network topology by optimising the route of cables and selection of components.

Optimise channel allocation and transmission power, reducing inter and intra network interference and signal leakage.

Automatically fine tune antenna location, number, transmission power and type.

Preset network system measurements such as signal strength, coverage, and leakage to analyse system performance and optimise the network design.



## Ranplan In-Building

### Predict and optimise indoor coverage and capacity

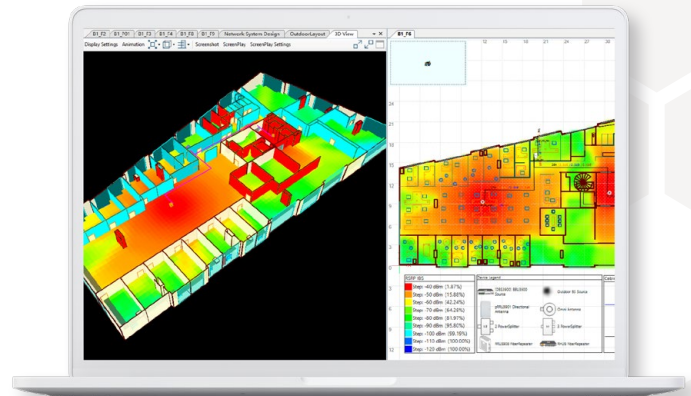
Ranplan In-Building is the most accurate and high-performance wireless network design tool for rapidly and cost-effectively planning indoor networks for a range of environments.

Accelerate design time by using Ranplan's Smart CAD extract tool to accurately import floor plans from 2D and faithfully produce 3D building models.

Predict and evaluate wireless coverage inside complex indoor environments using Ranplan's true 3D ray-tracing propagation engine.

Intelligent optimisation tools ensure planned networks work across multiple technologies to meet indoor coverage KPIs.

The automated reporting editor provides users with a convenient and fast way of producing a variety of reports at the simple click of a button.



#### Indoor design solutions

Perfect for large, complex in-building projects such as DAS, small cells and Wi-Fi networks.



#### Multi-technology support

Supports multiple technologies such as 3G, 4G (LTE), 5G NR, IoT, Public Safety and Wi-Fi.

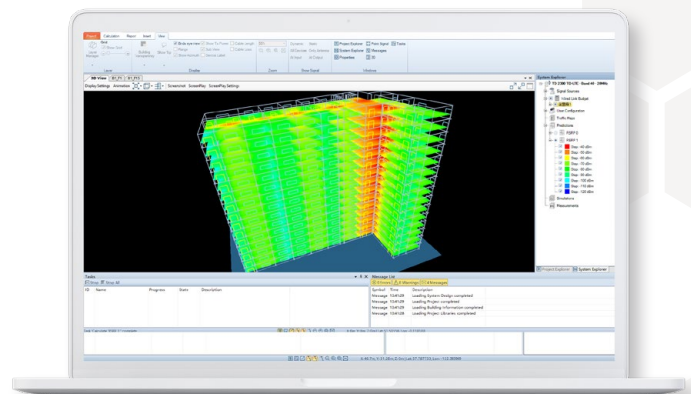
## Ranplan In-Building Lite

### Accelerate and validate in-building network delivery

Simplify and speed up the process of designing in-building public safety wireless networks with the Intelligent Topology Optimisation (ITO) module which automatically and efficiently optimises the physical topology of an in-building network.

The Lite version of Ranplan's 3D ray-tracing propagation engine validates indoor coverage designs prior to physical deployment, to ensure reliable signal strength will be delivered in an emergency. This will also save time and cost in having to implement any subsequent upgrades.

The powerful and automatic reporting feature in Ranplan In-Building Lite provides real-time project information and reports at the simple click of a button. This will help ensure projects remain on track and meet the customers' requirements.



#### Cost-effective designs

An agile tool for designing small to medium enterprise projects requiring ubiquitous coverage.



#### Public safety networks

Ideal for rapidly designing indoor public safety networks that meet wireless coverage and capacity KPIs.

## Ranplan Tablet

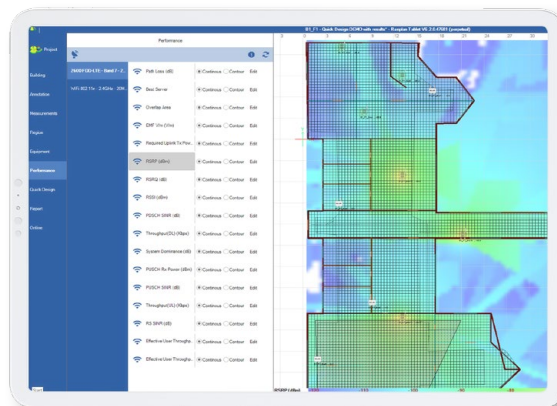
### Simplify and speed up onsite wireless network design

Ranplan Tablet is the ideal onsite survey tool for the easy and quick capturing of building information to begin planning a wireless network.

The enhanced and intuitive GUI and Intelligent Design Module helps users with limited RF planning or optimisation knowledge to rapidly plan preliminary indoor networks.

With capacity and coverage heatmaps users can visualise predicted network performance in 3D based on defined KPIs.

Reports can be generated to easily verify and validate a proposed system design and then integrated as part of the project bidding process to help produce immediate quotes and sales estimates.



### Automate onsite design

Quickly and easily capture site information to begin the in-building network design.



### Seamlessly interoperates

Ranplan Tablet interoperates with all Ranplan planning tools and Collaboration Hub.

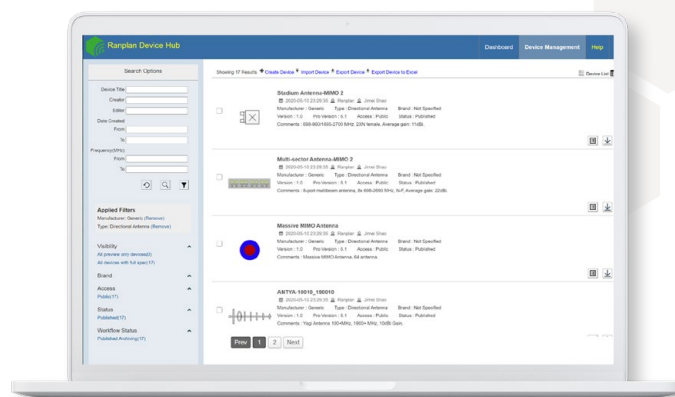
## Ranplan Device Hub

### Access to a database of vendor approved components

The Ranplan Device Hub contains over 14,000 devices from over 175 equipment vendors. As a neutral partner, Ranplan can provide the most up to date device information and modelling to incorporate in network designs.

The centralised database also offers a secure environment to facilitate collaborative device modelling and interactive 2D/3D device evaluation prior to being imported into any network design.

The use of vendor approved or independently approved devices directly in the network design increases the accuracy of the radio propagation predictions and simulations in the project, especially for Massive MIMO antennas, multi-beam antenna modelling, and multi-core fibre cables.



### Access the latest devices

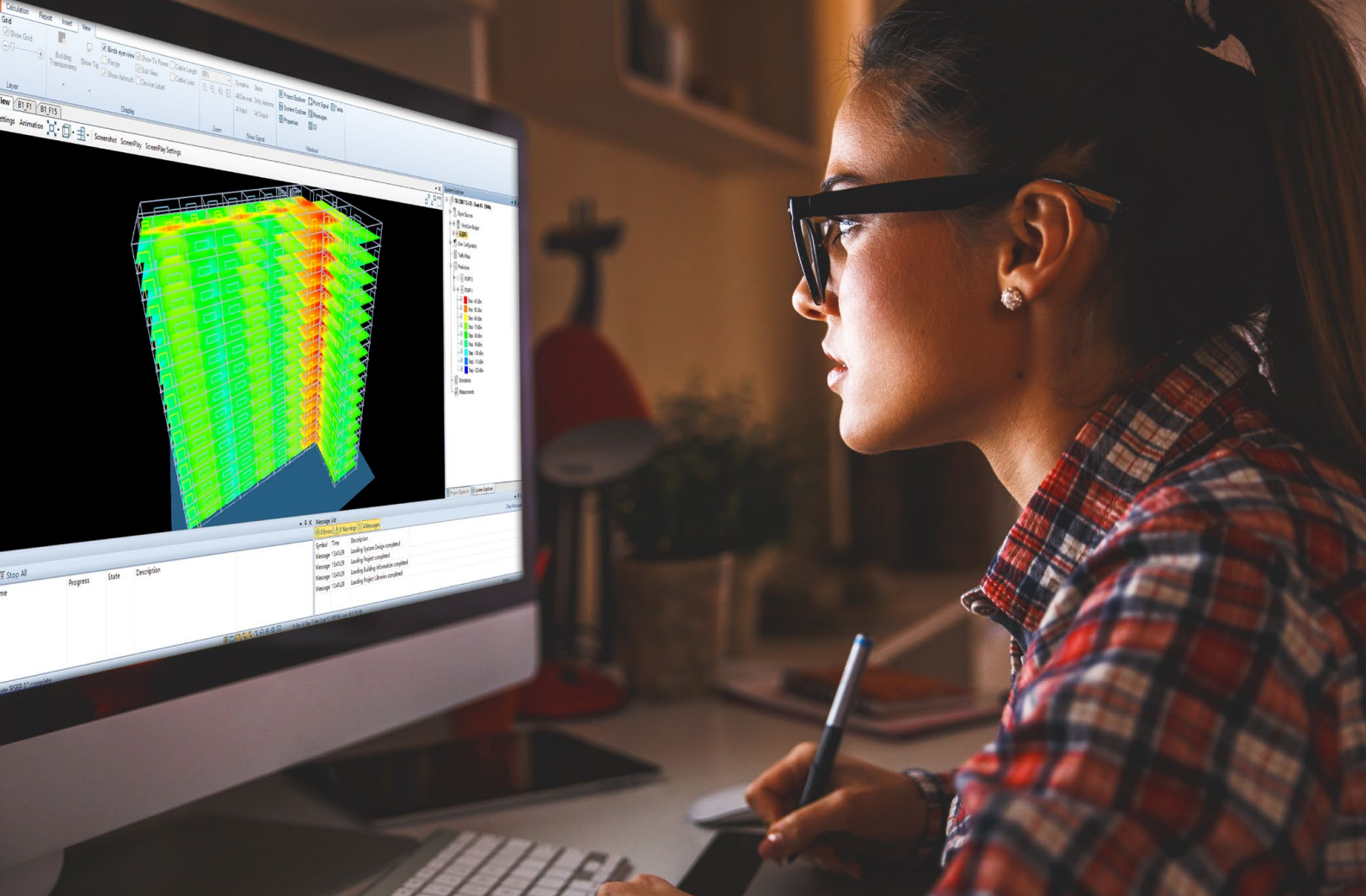
Incorporate the latest components from equipment vendors in your wireless network designs.



### Interfaces seamlessly

Instant access to the Device Hub from all Ranplan design software, including Tablet.





# Ranplan Certification Program

Advance your wireless network design skills



## Real World Examples

Directly apply the knowledge and experience you gain to a live working scenario.



## Certify your Skills

Accelerate your career with Ranplan credentials in complex HetNet design.



## Designed by Experts

Courses created by experts who have extensive experience designing wireless networks.




## Dedicated Support Team

Our teams are on hand if you have any require assistance during the course.

# Discover the right software for you

	Feature	Professional	In-Building	In-Building Lite	Tablet
Network System Design	Supporting 5G NR, 4G, 3G 2G, Public Safety, IoT, Wi-Fi	✖	✖	✖	✖
	Indoor Small Cell, Passive DAS and Wi-Fi network design	✖	✖	✖	✖
	Indoor active DAS network design	✖	✖		
	Outdoor network design including Macro, Micro, Small cells, VRAN & outdoor DAS	✖			
	Multiple sources modelling (base stations, CU, DU, small cells and Wi-Fi APs)	✖	✖	✖	✖
	Support uplink and downlink MIMO modelling with 2x2, 4x4 and 8x8	✖	✖	✖	✖
	Massive MIMO and beamforming modelling	✖	✖	✖	✖
	Broadcast and service beam for advanced antenna array in 2D and 3D	✖	✖	✖	✖
	Cable modelling with coaxial, radiating and jumper	✖	✖	✖	✖
	Multi-strand optical fibre and corresponding components modelling	✖	✖		
	Antenna output power and contour display	✖	✖	✖	✖
	Smart layout and device grouping	✖	✖	✖	✖
	Virtual DAS functionality	✖	✖	✖	
	Connection validation and assistant for fast connection	✖	✖	✖	
	Source planning	✖	✖		
Modelling and Optimisation	Multiple indoor building modelling with network devices	✖	✖	✖	✖
	Stair, tunnel and inclined plane modelling	✖	✖	✖	
	Outdoor and foliage modelling with terrain, clutter, tile map	✖			
	RF propagation modelling and calculations	3D calculations	3D calculations	2.5D calculations	2.5D calculations
	Outdoor signal propagation with / without foliage	✖			
	Support 2D and 3D antenna pattern	✖	✖	✖	✖
	Calibration of path loss exponent and materials based on measurement data	✖	✖	✖	
	Consider indoor to outdoor and outdoor to indoor scenario	✖			
Prediction Modules	Intelligent optimisation modules	✖	✖	Topology optimisation only	Quick design only
	5G NR KPI predictions (SS RSRP, PDSCH SINR, PDSCH throughput etc.)	✖	✖	✖	✖
	Carrier aggregation in 4G and 5G	✖	✖	✖	✖
	4G, 3G and other wireless network KPI predictions	✖	✖	✖	✖
	Wi-Fi KPI predictions	✖	✖	✖	✖
	Effective user throughput based on configurable traffic map	✖	✖	✖	✖
	System dominance prediction	✖	✖	✖	✖
	Nth Best Server, Overlapping areas and uplink predictions	✖	✖	✖	✖
	3D visualisation of building models, network system designs and signal heatmaps	✖	✖	✖	✖
	Point / trace / region calculation	✖	✖	✖	
	Prediction comparison	✖	✖	✖	
	Beamforming interference modelling	✖	✖	✖	✖
	Uplink transmission power for public safety	✖	✖	✖	✖
	5G NR SS-RS and CSI-RS power offset configuration	✖	✖	✖	✖
Simulations	Configurable traffic map size and traffic type	✖			
	Simulations based on configurable traffic map	✖			
	5G, 4G and other wireless technologies KPIs simulation	✖			
	Configurable snapshots and TTIs simulation	✖			
	DL and UL user status simulation	✖			
	HetNet capacity analysis with hotspot zones	✖			
	Wi-Fi and LTE aggregation	✖			
Data	Measurement data modules	✖	✖	✖	✖
	Comprehensive reporting	✖	✖	✖	✖
	Over 14,000 components from 175+ vendors in device database	✖	✖	✖	✖





Revolutionising the way  
wireless networks are planned  
in a smart connected world



## About Ranplan Wireless

Ranplan Wireless pioneers software solutions that help perfect the design, optimisation and automation of in-building and urban outdoor wireless networks, either in isolation or in coordination. Our solutions enable an ecosystem of companies to deploy next generation wireless networks for a range of applications, supporting multiple technologies such as 4G LTE, 5G, Wi-Fi, IoT, TETRA and P25, providing end users with an unmatched quality of experience.

Ranplan Wireless is a subsidiary of Ranplan Group AB (Nasdaq First North: RPLAN) whose head office is in Stockholm, Sweden. The group operates out of offices in the UK, USA and China.

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