

WIRELESS TECHNOLOGIES							
Wi-Fi (802.11 a/b/g/n/ac)	✓					✓	✓
4G: LTE / LTE-A / LTE-LAA / CBRS / WIMAX (802.16) / WiBro	✓					✓	
3G: HSPA / HSPA+ / WCDMA / 1xEV-DO / TD-SCDMA	✓					✓	
2G: GSM / CDMA / EDGE / GPRS / iDEN / TDMA / & more	✓					✓	
Public Safety Broadband 4.9 GHz (802.11y)	✓						✓
Public Safety P25	✓					✓	
DVB-H / MediaFLO / RFID / ZigBee (802.15.4) / WMTS / LoRa / UWB / GPS	✓					✓	
SYSTEM DESIGN							
Design Plan for indoor RF system design	✓					✓	✓
Centralized database with over 29,000 components from over 300 vendors	✓					✓	✓
Support base stations, off-air repeaters and small cells	✓					✓	
MIMO 2X2, 3X3, 4X4	✓					✓	✓
Coaxial, radiating and CAT5 cable signal distribution	✓					✓	✓
Multi-strand fiber-optic cables and components support for fiber modeling	✓					✓	✓
Support Wi-Fi access points including multi-radio APs (high density)	✓					✓	✓
Antenna contours	✓						✓
Smart antenna contours considering building architecture and antenna pattern		✓					✓
Network validation and error checking	✓					✓	✓
AUTOMATION							
Automatic design plan organizer	✓						✓
Automatic access point placement			✓				✓
Automatic channel assignment			✓				✓
Power sharing automation for neutral host system designs	✓						
Cable route and automatic cable alignment	✓						✓
Automatic cable and splitter selection for passive DAS	✓						
Optimal antenna placement			✓				
Reset part ID	✓						✓
CALCULATIONS							
Automatic cable length measurements	✓					✓	✓
RF Downlink link budget calculations	✓					✓	✓
RF Uplink link budget calculations	✓						
Fiber link budget	✓						✓
Passive Intermodulation (PIM) calculations and analysis based on component PIM ratings			✓				
BUILDING MODELING							
Create multiple buildings	✓						✓
Multi-layered floor plans with layout plans, walls, system equipment, cables, and more	✓					✓	✓
Import floor plans from .dwg, .dxf, .jpeg, .bmp, .tiff, .gif or .pdf files	✓					✓	✓
Draw walls and surfaces	✓					✓	✓
Draw inclined surfaces	✓						✓
Assign material from material database		✓				✓	✓
Import walls from raster CAD files, PDF or images		✓				✓	✓
3D Viewer to display buildings and floors	✓					✓	✓
Zone layer per wireless service	✓						✓
Export building to Google Earth and building in Google Earth or Bing	✓						✓
PROPAGATION							
Body Loss Modeling		✓					✓
LTE Handoff Matrix		✓					
Simultaneous multi-band / technology propagation 3D prediction analysis		✓				✓	✓
Variable Path Loss Exponent propagation model using environment density zones		✓				✓	✓
COST 231 Multi Wall model (Direct Ray) propagation model		✓				✓	✓
Fast Ray Tracing propagation model		✓					✓
Probe to display multi-system prediction results		✓				✓	✓
Compliance results based on user defined criteria		✓				✓	✓
Customizable output map legends		✓				✓	✓
Prediction model and material calibration from survey data		✓		✓			✓
Import outdoor propagation maps from leading outdoor planning tools		✓					
Consider outdoor signal for interference and propagation maps			✓				
2D and 3D antenna pattern support		✓				✓	✓
OUTPUT MAPS							
Signal strength, Best Server		✓				✓	
HSPA RSCP, LTE RSRP		✓				✓	
Field strength, Handoff, Service Count maps, Nature of the path		✓					
Wi-Fi Best AP, Best Channel, Overlap zone, AP Count		✓					✓
SNIR, Maximum Achievable Data Rate, Dominance over Macro Maps			✓				
CDMA and WCDMA Active ser			✓				
LTE RSRQ, LTE Nth Best Server, Overlapping Zones maps, LTE-A Max Achievable Data Rate			✓				
Wi-Fi CCI, SNR			✓				✓
Uplink Mobile Power			✓				
Indoor propagation map interpolated from:			✓				
Outdoor planning tools			✓				
Walk tests or empirical measurements			✓	✓			
Estimated surrounding signal strength			✓				
Redundant DAS failure point propagation simulations		✓				✓	
Hetnet Capacity Analysis with hotspot zones			✓				✓
Average Downlink Data Rate			✓				✓
Optimal Antenna Placement map			✓				
DATA COLLECTION							
Manually create trace routes and enter survey data on floor plans				✓			✓
Import trace routes and survey measurements from 3rd party collection tools				✓			✓
Export floor plans and transmitter information to 3rd party collection tools using the IBWC file format				✓			✓
Wi-Fi active and passive survey				✓			✓
PROJECT DOCUMENTATION							
Drawing tools for lines, shapes, text and images	✓					✓	✓
Create picture plans and photo mock-ups	✓						✓
Create annotations (text, voice, picture, video)	✓					✓	✓
Create project revisions	✓					✓	✓
Project file password protection	✓					✓	✓
Export project to .dxf format	✓					✓	✓
REPORTING							
Annotations, Output maps, RF Survey reports	✓					✓	✓
Equipment list report	✓					✓	✓
Cost details report	✓						✓
Link budget report and Horizontal link budget reports	✓					✓	
Antennas report	✓						✓
Access Points and Small Cells report	✓						✓
Cable routing and Cross-reference reports	✓						✓
Electromagnetic field (EMF) report	✓						✓
Prediction vs. Measured data report		✓		✓			✓
Compliance report		✓					✓
Include PIM results in the Compliance Report			✓			✓	
Export reports in various format (.rpt, .pdf, .xls, .doc, .rtf, .xml)	✓					✓	✓
Export project and floor plan in TAB file format	✓			✓			
COMPONENT DATABASE							
Database editor to add, edit or delete components	✓					✓	✓
Share component database between multiple users	✓					✓	✓
Customized pricing and part numbers	✓					✓	✓
Sub-component support	✓					✓	✓
List of approved parts per customer	✓					✓	✓
List of equivalent parts	✓					✓	✓
Extensive library of materials (60+) including electrical and mechanical properties		✓				✓	✓
TOOLS							
Frequency calculator	✓					✓	✓
Power converter	✓						✓
Intermodulation calculator	✓						✓
Wi-Fi Net scan	✓						✓