

		<b>D</b> <b>iBwave Design</b> ENTERPRISE	Propagation module ENTERPRISE	Optimization module ENTERPRISE	Collection module ENTERPRISE	<b>D</b> <b>iBwave Design</b> LITE	Propagation module LITE	<b>3D</b> <b>iBwave 3D Modeler</b>
<b>DAS DESIGN</b>	Trunking diagram for indoor RF system design (Design plan)	✓				✓		
	Automatic design plan placement	✓						
	Multiple systems, technologies and bands combined in the same project	✓				✓		
	Support base station, radio transceiver and off-air repeater	✓				✓		
	Coaxial, radiating and CAT5 cable signal distribution	✓				✓		
	Multi-strand fiber-optic cables and components support for fiber modeling	✓						
	Connector validation	✓						
	Centralized database with over 17,000 components from over 260 vendors	✓				✓		
	Display antenna contours and calculations	✓						
	Downlink RF calculations	✓				✓		
	Uplink RF calculations	✓						
	Automatic cable and splitter selection for optimal system balancing	✓						
	Network validation and error checking	✓				✓		
	Optimal Antenna Placement				✓			
Power sharing interface for neutral host designs	✓							
PIM calculations				✓				
<b>BUILDING MODELING</b>	Multi-layered floor plans with layout plans, walls, DAS equipment, cables, and more	✓				✓		✓
	Create, modify and delete building entities and Layout plans	✓				✓		✓
	Create multiple buildings	✓						✓
	Import floor plans from .dwg, .dxf, .jpeg, .bmp, .tiff, .gif or .pdf	✓				✓		✓
	Draw walls and horizontal surfaces (Generic material only)	✓				✓		✓
	Draw inclined surfaces	✓						✓
	Design plan organizer	✓						
	Zone layer per wireless service	✓				✓		
	Display buildings and floor plans in 3D (3D Viewer)	✓				✓		✓
	Export buildings to Google Earth	✓						✓
	Draw walls, surfaces and assign material from built-in material database		✓				✓	✓
	<b>WIRELESS TECHNOLOGIES</b>	4G: LTE / WiMAX (802.16) / WiBro	✓				✓	
3G: HSPA / HSPA+ / WCDMA / 1xEV-DO / TD-SCDMA		✓				✓		
2G: GSM / CDMA / EDGE / GPRS / iDEN / TDMA / & more		✓				✓		
WiFi (802.11 a/b/g/n/ac)		✓				✓		
DVB-H / MediaFLO		✓				✓		
RFID / ZigBee (802.15.4) / WMTS		✓				✓		
<b>FREQUENCY BANDS</b>	VHF / UHF	✓				✓		
	TETRA / 450 MHz / Paging	✓				✓		
	Public Safety 700 / SMR800-900	✓				✓		
	GSM900 / DCS1800 / UMTS2100	✓				✓		
	Cellular850 / PCS1900 / AWS2100	✓				✓		
	WiFi 2400-5800	✓				✓		
	WiMAX 2300-3400-5800	✓				✓		
	DVB-H 470-1670	✓				✓		
	<b>PROPAGATION</b>	Propagation prediction analysis		✓				✓
COST 231 and Variable Path Loss Exponent (VPLE) propagation model			✓				✓	
Fast Ray Tracing propagation model			✓					
Draw inclined surfaces and assign material from built-in material database			✓					
Import walls from raster images or AutoCAD files			✓				✓	
Multi-technology compliance analysis (%)			✓				✓	
Multi-story 3D prediction maps			✓					
Import outdoor propagation maps from leading outdoor planning tools			✓					
Consider outdoor signal for interference and propagation maps				✓				
Signal, Best Server, Wi-Fi Best Server AP and Channel			✓				✓	
Field strength, Soft Handover, Service Count maps			✓					
CDMA and WCDMA RSCP MAP, LTE RSRP MAP			✓				✓	
SNIR, Maximum Achievable Data Rate, Dominance over Macro Maps				✓				
CDMA and WCDMA Active set map				✓				
LTE RSRQ and Overlapping Zones maps				✓				
Uplink Mobile Transmit Power maps				✓				
Input outdoor signal map from walk test or empirical measurements				✓				
Calibrate propagation models			✓		✓			
Redundant DAS failure point propagation simulations		✓				✓		
LTE-Advanced, Maximum Achievable Data Rate			✓					
<b>DATA COLLECTION</b>	Manually create trace routes and enter survey data on floor plans				✓			
	Import trace routes and survey measurements from 3rd party collections tools				✓			
	Export design in IBWC format				✓			
	Display routes on floor plans with legends				✓			
<b>PROJECT DOCUMENTATION</b>	Print project documentation	✓				✓		✓
	Create project revisions	✓				✓		✓
	Attach annotations (text, voice, picture, video)	✓				✓		✓
	Create picture plans	✓				✓		✓
	Export project to .dxf format	✓				✓		✓
	Advanced text edition	✓				✓		✓
<b>REPORTS</b>	Export reports in various format (.rpt, .pdf, .xls, .doc, .rtf, .xml)	✓				✓		
	Annotations, Output Maps, RF survey	✓				✓		✓
	Link budget	✓				✓		
	Horizontal link budget	✓				✓		
	Equipment list	✓				✓		
	Cost report	✓						
	Antenna EIRP report	✓						
	Electromagnetic field (EMF)	✓						
	Cable routing, location and cross-reference	✓						
	Prediction vs. measured data report (requires Propagation & Collection Modules)		✓		✓			
	Compliance		✓				✓	
PIM Compliance			✓					
<b>CAPACITY ANALYSIS</b>	Capacity simulation			✓				
	Capacity report			✓				
<b>iBwave PORTFOLIO</b>	Load / save project to iBwave Unity	✓				✓		✓
	Import / export project to iBwave Mobile (using iBwave Unity)	✓				✓		✓