



HTZ Communications supports every stage of the radio network lifecycle

- A full geographic high resolution datasets to model networks and interference within the airport environment
- Dedicated aeronautical propagation models
- Frequency planning and interference analysis
- Automated network planning coverage analysis
- Identifying shadowing/black spots and automatic site search for coverage optimisation
- Traffic analysis and network capacity management
- Automated site planning, optimisation and frequency planning
- Surveillance functions including multi-lateration (TDOA)
- Ability to model ATC radars (VOR, ILS, MLAT, RADAR)
- Functions to model wind turbine interference or 5G towers on aeronautical radars
- ICAO building restriction compliance, limiting how buildings encroach on airspace to determine maximum building heights and exclusion zones around the airports
- Point to point / Point to Multipoint link analysis (DL and UL)
- Coordination for FM/VHF/UHF and other wireless technologies.



ATDI has been supporting civil aviation authorities, air traffic controllers, national regulators and airport authorities manage their wireless connectivity for over three decades.

With growing pressure on wireless technologies, ATDI delivers reliable, cost-effective software solutions and services, enabling organisations to handle their radio spectrum efficiently.

Leading air traffic controllers around the globe turn to ATDI to ensure the safe operation and management of en-route services. With an increased likelihood of interference from windfarms and 5G network rollouts, many airports, air navigation providers and civil aviation authorities turn to us for help.



HTZ Communications

advanced radio network
planning, modelling &
coexistence analysis
for protecting
radio spectrum along with
communications, navigation
and surveillance (CNS)
infrastructure

**NETWORK PLANNING & OPTIMISATION OF
RADIO TECHNOLOGIES
FROM A FEW KHZ TO 1 THZ
GROUND TO GROUND/GROUND TO AIR,
RADIO NAVIGATION (GP, MARKERS,
LOC, MLAT, DME, TACAN, NDB, GBAS
RX, MLS AZ, ETC.)
SURVEILLANCE SYSTEMS &
DRONES/COUNTER-DRONES**



Compatibility between broadcast & ILS

Using HTZ, ATDI completes compatibility analyses between broadcast systems in Band II and instrument landing systems. Meeting ICAO compliance standards, HTZ manages coexistence criteria between systems, ensuring interference doesn't impact critical comms infrastructure.

Flight Tracking

ATDI implemented a flight tracking feature for HTZ. Used to analyse the impact of altitude, roll, pitch and the heading of aircraft, it calculates the effect on the DL/UL (thresholds) connections and identifies interference between A2G stations and the aircraft.

Maximum building heights & exclusion zones

HTZ automatically computes the maximum building heights and exclusion zones on each point of the map for seen and not seen points to protect airport comms. This checks the max clearance and recalculates a new dataset based on the ASCII-GRID format. Essential when modelling the impact of new buildings on Radars & other airport comms equipment.

COMMUNICATION

Modelling the impact of the new building on VHF coverage airside

Using a 5m digital terrain model with building and clutter data, ATDI simulated the impact of a new building on the airfield. The new building footprint was overlaid on the map, and the Deygout 94 propagation model was applied. Simulations were calculated at 1m for ground use and 3m for aircraft receiver heights. The outputs included coverage plots for receive and transmit sites with a field strength below ICAO recommendations.

NAVIGATION

MW link versus Flight altitude analysis

Understanding the potential cross-overs between MW path profiles and flight paths reduces the likelihood of lost connections. Using HTZ, users can identify the potential impact of flight paths on MW links in and around an airport. This featured was added at the request of the French Civilian Aviation Authority. They needed to assess the viability of predefined microwave links and the potential intersections between the Fresnel zone for each beam and the flight paths.

SURVEILLANCE

Coverage analysis of counter-drones & jamming efficiency

With drone use on the rise, illegal UAVs can disrupt the airspace for civil and military airports and other secure areas. Using the counter-drone efficiency analysis in HTZ, airport operators can assess network coverages at different height elevations of these UAVs. These calculations highlight areas with poor signal coverage resulting from topography and building heights. Once network not spots are identified, authorities can pinpoint where in the network unauthorised UAV can't be blocked or jammed. Once the coverage analysis is complete, authorities can optimise their jammers or counter drones to ensure they provide the level of protection required