

Electromagnetic Design and Management

» EMACS Electromagnetic Airport Control and Survey

The professional solution for inspecting, simulating and modeling the electromagnetic features of communication, navigation and surveillance equipment

EMACS, ElectroMagnetic Control Airport and Survey, uses advanced simulation techniques to assess the performance of Communication, Navigation and Surveillance (CNS) systems and is natively integrated and interoperable with navigation and AIS/AIM Suite. It helps to improve the effectiveness of CNS department dealing with siting of new or existing navaids equipment both terrestrial and satellite thus improving safety and optimizing flight inspections operations. Moreover, it allows to reduce the costs regarding:

- Decisions about new constructions (windmills included) around an airport/equipment (through E.M. validation of the present environment).
- Equipment safeguarding (with reference to the ground measurements).
- Flight Inspection optimization and planning.

The system is compliant with ICAO annex 10, doc 8071 and EUR doc 015 guidelines and provide a full set of simulation outputs compliant with them.

The modeling functionality (including terrain models, obstacles, interfering systems, ground and airborne navaid equipment characteristics etc.) allows the user to model the propagation of real phenomena taking place within a complex electromagnetic airport scenario where artificial or natural obstructions can interfere with navaid signals. It can be used to investigate the performance of a full set of navigation systems including: VOR, DME, ILS, ATC Radar and GBAS systems (monitoring the GNSS signal, including Galileo).



Electromagnetic Design and Management

EMACS is a modular system with each module devoted to a specific type of computational analysis (e.g. Basic Coverage, EMI risk analysis, wind farm analysis, multilateration) or to a specific kind of equipment (e.g. ILS, DME, VOR, ATC).

Modules available for EMACS are:

- ILS - Instrument Landing System precision analysis
- ILS - CSA for the evaluation of LOC and GP Critical and Sensitive Areas
- VOR - VHF Omnidirectional Range precision analysis (Bearing Error)
- VORSTAT - VOR Statistics for Wind Farm Dynamic simulations against VOR
- DME - Distance Measuring Equipment precision analysis
- Ground-Air communications - VHF link analysis
- Radar - Radar performance evaluation (PSR and SSR)
- Wind Farm - Wind Farm impact assessment on SSR
- ASUV - RNAV / GNSS performance evaluation (DME/GNSS) and GBAS systems siting
- EMI - Electromagnetic Interference evaluation around CNS equipment
- MLAT - Airport Multilateration systems performance analysis
- WAM - Wide Area Multilateration systems performance analysis and simulation

