IDS Air Nav
an enav group company

CONTACT
✉ sales@idsairnav.com
🌐 www.idsairnav.com
📞 Ph: +39 06 3321711

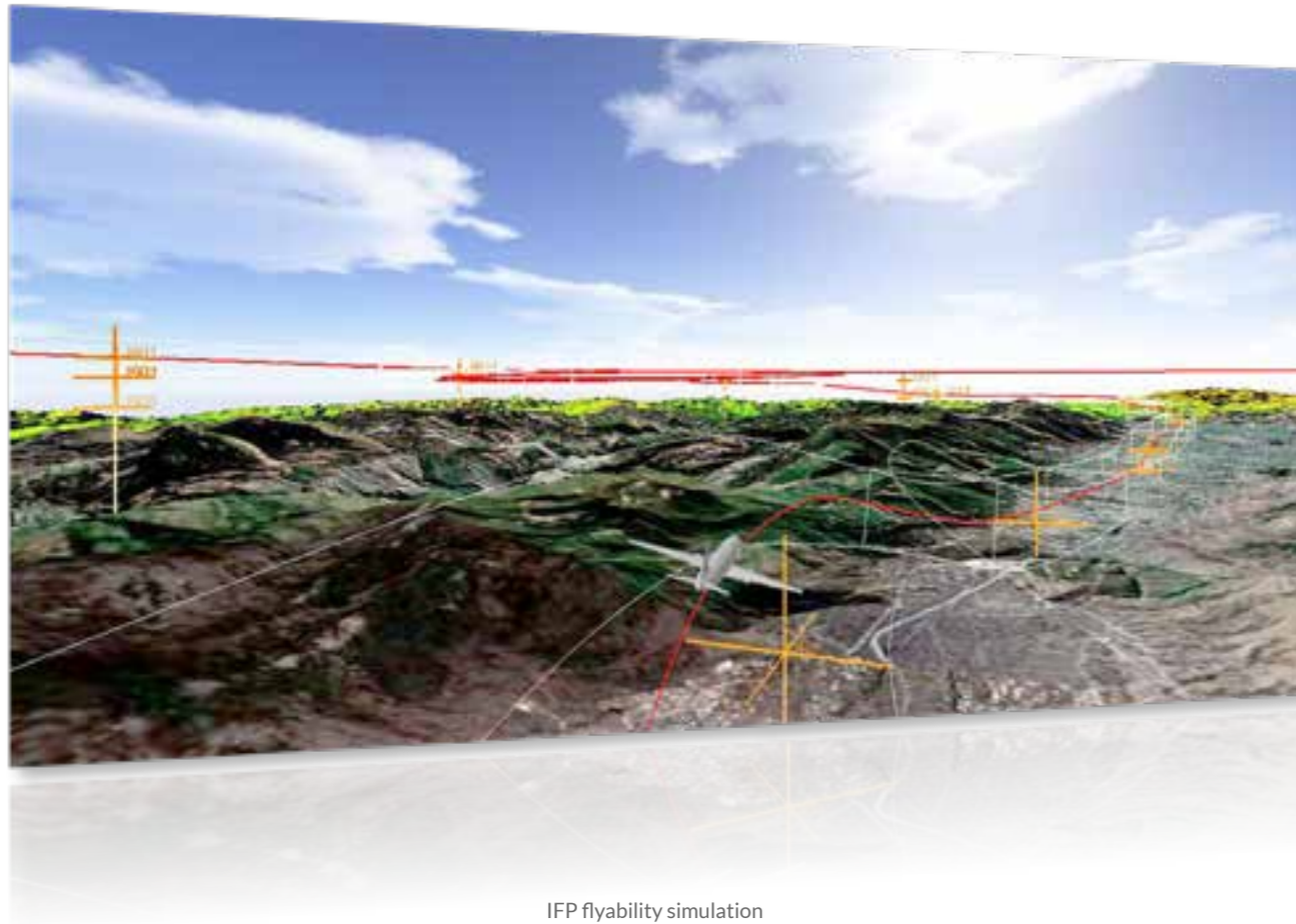**IDS Air Nav**
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Benefits

IDS Air Nav's simulators have been specifically designed for experimentation and validation rather than for training, and hence do not require certification. This allows them to be easily configured to model different aircraft and airports and to simulate various different types of scenarios.

IDS Air Nav's Ground Validation and Simulation solutions additionally provide the following benefits:

- Reduces the number of hours spent performing flight checks;
- Ensures flight procedures operate to their design accuracy;
- Verifies that navigation data is accurate and complete
- Assesses the flyability of a flight procedure;
- Ensures that aerodrome infrastructure is adequate for a flight procedure;
- Assesses airport layout, facilities and capacity;
- Assesses air side, land side and ground side aircraft operations;

- Analyzes the overall performance of an airport;
- Assesses the impact of unusual situations and emergencies on an airport's capacity;
- Checks how a flight management system (FMS) will fly a coded procedure;
- Verifies global navigation satellite system (GNSS) signal in space performance along a trajectory;
- Assesses the signal continuity, coverage and couples availability of DME/DME navigation along a trajectory;
- Visualizes Air Traffic Services (ATS) related geographic data, perform diagnostics and check the results for their functionality;
- Includes review procedures to optimize navigation performance, cost and environmental impact.

Ground Validation and Simulation

Advanced Customizable Airport and Flight Simulators

IFP flyability simulation

Ground Validation and Simulation

IDS Air Nav's Ground Validation and Simulation family of products provides Air Navigation Service Providers, Airlines, Aviation Agencies and Airport Operators with a sophisticated set of ground validation tools to support the performance and safety assessment of flight procedures, airport operations and the navaids infrastructure.

Ground validation and simulation is an important step in the ICAO process for the design of RNP APCH AR and RNAV flight procedures, for checking the physical flyability of procedures, to ensure that airports can handle different types of procedures and volumes of traffic safely and efficiently and to check the availability and performance of the required navaids (including satellite based) for a procedure.

Simulation is the key to the validation of new operational configurations and processes for Air Traffic Management defined in the SESAR and NextGen Programs. Key concepts, such as Collaborative Decision Making, i4D trajectories, Flexible Use of Airspace and Trajectory Based Operations, and ASAS are taken into account in the evolution of the IDS Air Nav simulators.

IDS Air Nav has implemented an enhanced level of realism in the cockpit simulator with the implementation of algorithms supporting new operational concepts, e.g.:

- i4D capability (required time of arrival and separation algorithms);
- ASAS (Airborne Separation Assistance System) capability.

The tower simulator can be integrated with multiple instances of the IDS Air Nav AACS cockpit simulator, acting as additional i4D and ASAS equipped traffic, adding realism to the flight simulations (for instance the cockpit simulators can be affected by wind shear and other high degree of realism effects, which are not normally implemented in simulated traffic for a tower/approach environment).

Including more realistic aircraft behavior in the traffic samples used for tower scenario, with exercises being a key element allowing the validation of improvements to new concepts, associated ground-to-ground and ground-to-air processes, controllers' workload, airport capacity and efficient traffic and airport operations management.

Integration with IDS Air Nav's FPDAM flight procedure design suite via ARINC 424 and with IDS Air Nav's EMACS electromagnetic design and simulation suite provides additional validation capability and allows the detailed representation of complex simulation scenarios.

Products

The Ground Validation and Simulation family includes the following products:

AACS

AACS (Advanced Aircraft Cockpit Simulator) is a cockpit simulator specifically designed for the validation of all area navigation (RNAV) procedures, for assessing the workload of a flight crew for a procedure in normal operation and in case of contingencies, and for research in the area of cockpit human-machine interfaces. The simulator's flexibility also allows it to be used for testing and experimenting with new operational concepts requiring advanced airborne capabilities, such as Performance Based Navigation (PBN), 4D Trajectories (4DTs) and ASAS maneuvers.

TBA3D

TBA3D (Test Bed for A-SMGCS 3D), is an airport control tower simulator which provides a test bed facility for the real time simulation and analysis of airport operations. It provides a platform to experiment with new airport layouts and operational procedures to ensure that they are both safe and efficient and to evaluate the effects of changes, emergencies and adverse conditions on airport capacity and operations.

It is specifically designed to ensure maximum flexibility for those users that require extensive simulation functionalities and provides an integrated and modular environment which is easily adaptable to any aeronautical environment in the world.

FPSAT

FPSAT (Flight Procedure Satellite Analysis Tool) is able to perform virtual flight validation in order to check the fly-ability of the RNAV designed procedures before a real flight inspection.

It combines the A/C performances with the weather (wind and temperature) condition and ARINC 424 coding and allows the simulation of a sequence of flights.

FPSAT is also able to check the navigation performance provided by the sensor and navigation aids infrastructure along a trajectory.

AACS Cockpit "Out the Window" view

TBA3D