

FPSAT

Flight Procedure Satellite Analysis Tool

» FPSAT is IDS AirNav's product to perform virtual flight inspections in order to check the flyability of RNAV procedures, the coverage and accuracy provided by the navigational aids infrastructure along the whole of a procedure's trajectory and to identify any electromagnetic interference that may affect navigational aid performance. Virtual flight inspections of RNAV procedures may also be used to verify and optimize:

- The obstacle environment in the vicinity of the procedure
- The ARINC 424 coding of the procedure by fixing the geometry of the waypoint/nominal track
- Weather (wind and temperature) conditions. These activities are required for the ground validation of RNAV flight procedures by ICAO Docs 8168, 8071 and 9906



FPSAT is a pre/post processor that enables procedure specialists to:

- Check how the Flight Management System (FMS) will fly the coded procedure by comparing the nominal trajectory and the simulated trajectory considering:
 - ARINC path and termination (and related attributes)
 - Type of aircraft as per BADA files
 - Kinematic constraints
 - Weather constraints
- Verify GNSS (global navigation satellite system) signal in space performance (GPS, SBAS, GBAS) along a trajectory
- Assess the signal continuity, coverage and couples availability of DME/DME navigation along a trajectory
- Review procedures to optimize navigation performance, cost and environmental impact

Main Features

- Automatically load complex SID, STAR and approach data into the procedure design graphic environment without any manual typing
- 3D visualization of aircraft trajectory (nominal and simulated) and RNP tunnel
- Out of the Window view with animation along a trajectory
- Detailed graphics of the horizontal/vertical/altitude/ speed/aircraft attitude
- Full reporting functions on the performed analysis

Integrity Monitoring

Type	Monitoring time	Max outage
RAIM FD	99.77% of POP timevalue	20m 0s
RAIM FDE	88.68% of POP timevalue	1h 10m 0s

Navigation Aids

FPSAT covers the need to verify the availability and usability of satellite and DME/DME along a flight path:

- For a specific aircraft category
- For different takeoff loads and weather conditions
- Considering the variability of the GPS constellation
- For different types of GPS augmentation
- Taking into account changes in the electromagnetic environment due to interaction with potential sources of interference

