

## DATA SHEET

|                                     |                                                                                                                                                                                                                                                                                      |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| URL                                 | <a href="https://www.gmv.com/en/products/aeronautics/magicifp">https://www.gmv.com/en/products/aeronautics/magicifp</a>                                                                                                                                                              |
| Supported PBN procedures            | <ul style="list-style-type: none"><li>• RNP approaches down to LNAV minima</li><li>• RNP approaches down to LNAV/VNAV minima</li><li>• RNP approaches down to LP minima</li><li>• RNP approaches down to LPV minima</li><li>• RNAV (GNSS) SIDs</li><li>• RNAV (GNSS) STARs</li></ul> |
| Services                            | <ul style="list-style-type: none"><li>• Ground validation: procedure design and coding</li><li>• Ground validation: Flyability</li><li>• Flight validation: GNSS performance</li></ul>                                                                                               |
| ICAO standards baseline             | <ul style="list-style-type: none"><li>• ICAO Annex 10</li><li>• ICAO Doc 9613</li><li>• ICAO Doc 8168</li><li>• ICAO Doc 9905</li></ul>                                                                                                                                              |
| Input data<br>For ground validation | <ul style="list-style-type: none"><li>• IFP data defined in MagicIFP</li><li>• Wind profile (optional)</li></ul>                                                                                                                                                                     |
| Input data<br>For flight validation | <ul style="list-style-type: none"><li>• RINEX v3.01 GPS L1/L2 raw data</li><li>• EMS v2 SBAS messages (optional)</li><li>• Barometric altitude data (optional)</li></ul>                                                                                                             |

## CHECK ALSO

Product info website at:

<https://www.gmv.com/en/products/aeronautics/magicifp>

## CONTACT

[magicifp@gmv.com](mailto:magicifp@gmv.com)

# MagicIFP

A product by:



Product info at:

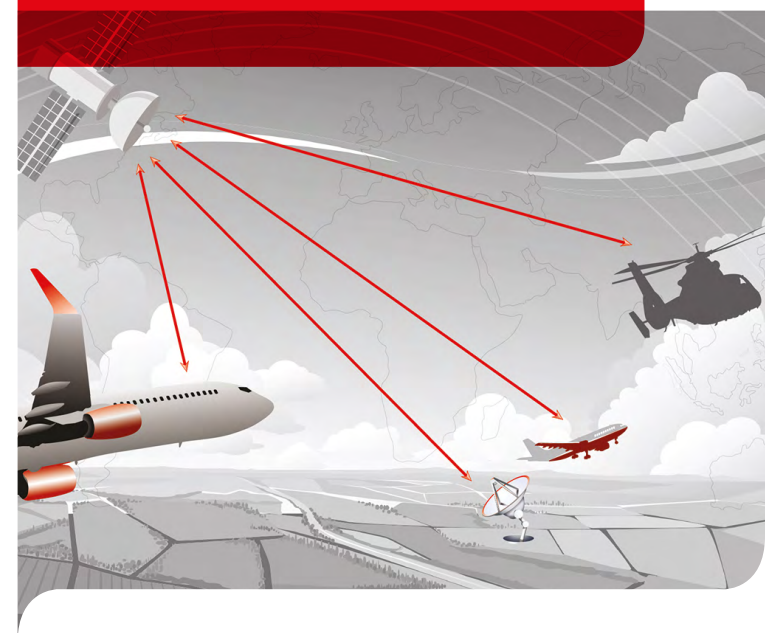
<https://www.gmv.com/en/products/aeronautics/magicifp>  
[magicifp@gmv.com](mailto:magicifp@gmv.com)



GMV-BR-B63921

# MagicIFP

**Web-based PBN  
procedures validation**  
Comply with ICAO standards



WHAT IS MagicIFP?

MagicIFP is a web application service that allows users to carry out the required ground and flight validation activities for their PBN procedures and assess their compliance with applicable ICAO requirements and recommendations.

MagicIFP main goals are to:

- Perform the ground validation of PBN approaches, checking their data consistency, compliance with PANS-OPS design criteria and ARINC 424 coding rules, and flyability under the flight and meteorological conditions expected at the aerodrome.
- Support the flight validation of PBN procedures by processing GNSS data recorded during flight trials, computing the achieved performance, and checking compliance with the applicable requirements.

This helps users verify their procedure design independently and identify potential flyability issues before costly validation flights.

MagicIFP can also help users reuse GNSS data already collected, for example when assessing different navigation services or approach minima.

SUPPORTED PBN PROCEDURES

MagicIFP currently supports the validation of:

- RNP approaches down to LNAV minima.
- RNP approaches down to LNAV/VNAV minima.
- RNP approaches down to LP minima.
- RNP approaches down to LPV minima.
- RNAV (GNSS) SIDs.
- RNAV (GNSS) STARs.

KEY ADVANTAGES

The key advantages of MagicIFP are:

- It is a web application available over the internet. No software installation, setup, or maintenance is required from users.
- It is designed as a continuously monitored service with technical support.
- It provides remote storage for user input data and generated reports.
- Users can download individual IFP data and export or import their user data.
- Users can upload and download reusable validation scenarios.
- It is available through flexible pricing models: an annual subscription based on expected use or a pay-per-use option.

SERVICE DESCRIPTION

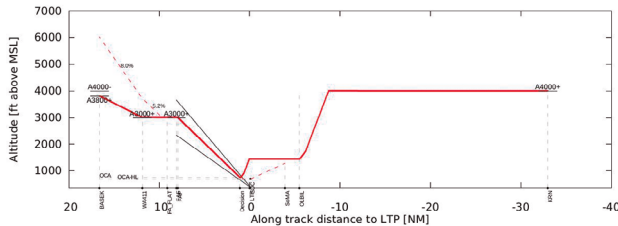
MagicIFP is a web application service that allows users to assess whether applicable ICAO requirements and recommendations are followed for their PBN procedures.

- The user defines the Instrument Flight Procedure (IFP) through the application interface.
- The aircraft desired path is calculated using the ARINC 424 path terminators included in the IFP design, the applicable ICAO PANS-OPS design rules, and RTCA requirements applicable to GPS and SBAS avionics.

Table 3-2: List of criteria and checks based on ARINC 424 coding rules.

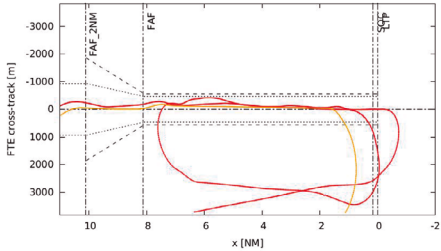
| Criteria / Checks                                                                                                                                      | Result | Severity |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|
| [AR010] Path terminator defined for the initial leg of any initial approach segment is an IF.<br>Ref.: [PANSOPS] Table III-2-5-App-1                   |        |          |
| • Path terminator at BASEK is IF                                                                                                                       | Pass   |          |
| [AR020] Path terminator defined for any leg, other than the first one, of any initial approach segment is a TF or a RF.<br>Ref.: [PANSOPS] III-2-5.2.1 |        |          |
| • Path terminator at WA411 (from BASEK) is TF                                                                                                          | Pass   |          |
| [AR030] Path terminator defined for any leg of the intermediate approach segment is a TF or a RF<br>Ref.: [PANSOPS] III-2-5.2.1                        |        |          |
| Continued on next page                                                                                                                                 |        |          |

- Ground-validation and flight-validation reports describing the applicable checks are generated automatically.
- Ground-validation and flight-validation KML files are also generated automatically, allowing users to analyse other relevant issues, such as terrain and airspace.



- For ground validation, users define flyability scenarios in terms of aircraft model and FMS capabilities, initial aircraft conditions, temperature and wind.
- For flight validation, users upload the RINEX and optional barometric-altitude data recorded during a flight trial. SBAS messages may also be uploaded or retrieved from an operational SBAS source.

- The aircraft trajectory is determined automatically from the supplied flight data and analysed against the defined procedure.



MAIN FEATURES

MagicIFP main features are:



- Definition of the IFP to be assessed through the user interface.
- Ground validation of PBN procedures, generating a report with a detailed description of the applicable data, design, coding, and validation checks.
- Calculation of the aircraft desired path based on the IFP design and applicable validation criteria.
- Ground-validation and flight-validation reports generated automatically.
- Ground-validation and flight-validation KML files generated automatically.
- Ground-validation flyability analysis, including descent and climb gradients, altitude and speed constraints, RNP and FSD limits, and user-defined aircraft and environmental scenarios.
- Flight-validation analysis of GNSS performance, including path repeatability, flight technical error, navigation-system performance, and flight statistics.
- Download and upload of user data, IFP data, validation scenarios, and validation reports.