

Subject: Inadequate Protection of SBAS-Based Instrument Approach Procedures

Ref. Publications:

ICAO Doc 8168, Aircraft Operations, Volume II, Construction of Visual and Instrument Flight Procedures.

ICAO Electronic Bulletin (EB) 2026/13, Revision 1, Reassessment of Existing Approach Procedures Based on Satellite-Based Augmentation Systems (SBAS).

Applicability:

- National Competent Authorities (NCAs) responsible for certification and oversight of Flight Procedure Design (FPD) providers;
- NCAs responsible for certification and oversight of Air Traffic Services (ATS) providers who contract the services of FPD providers;
- NCAs responsible for the certification and oversight of aircraft operators.

Definitions:

APV: Approach with Vertical Guidance

ILS: Instrument Landing System

LNAV/VNAV: Lateral Navigation / Vertical Navigation

LPV: Localiser Performance with Vertical Guidance

OAS: Obstacle Assessment Surface

OCA/H: Obstacle Clearance Altitude/Height

PBN: Performance Based Navigation

RNAV: Area Navigation

RNP: Required Navigation Performance

SBAS: Satellite-Based Augmentation System

TF: Track-to-Fix (ARINC 424 Path Terminator)

Description:

EASA has been informed by the International Civil Aviation Organisation (ICAO)¹ that the flight procedure design criteria for the design of instrument approach procedures based on SBAS APV-I

¹ ICAO Electronic Bulletin (EB) 2026/13, Revision 1, Reassessment of Existing Approach Procedures Based on Satellite-Based Augmentation Systems (SBAS)

and Precision Approach Category I criteria established in ICAO Doc 8168, Volume II, make use of assumptions on the performance of airborne navigation systems that are not always valid. In particular, ICAO Doc 8168, Aircraft Operations, Volume II, specifies that in the straight part of the final missed approach, the protection area semi-width is equal to 1.76 km (0.95 NM) (for helicopters 1.48 km (0.8 NM)). This was based on the assumption that the aircraft is operating to RNP 0.3 in this phase of the missed approach. However, according to applicable Minimum Operation Performance Standards (MOPS) for avionics, e.g. RTCA DO-229(), RNP 0.3 is required only in the specific case when the missed approach is aligned within 3 degrees of the final approach course and coded as a TF leg in the Navigation Database. This logic is not necessarily followed by other types of coding or when management of the transition between final and missed approach is regulated by different MOPS and the applicable RNP value is RNP 1. As a result, certain published LPV procedures may include approach minima that do not provide the intended level of obstacle clearance protection for all aircraft eligible to fly the procedure.

Further analysis in all relevant ICAO and industry standardization expert groups is ongoing. This may lead to further updates to the guidance in this SIB, as well as other actions to potentially update and/or align the various applicable standards and procedures. The criteria in PANS-OPS (ICAO Doc 8168), Volume II are also being re-evaluated by ICAO.

At this time, the safety concern described in this SIB does not, in itself, warrant the issuance of a Safety Directive as a general measure under Commission Regulation (EU) [965/2012](#), Annex II, ARO.GEN.135, or under Commission Implementing Regulation (EU) [2017/373](#), Annex II, ATM/ANS.AR.A.025.

However, this assessment does not preclude any NCA from issuing a regulatory measure, including a Safety Directive, where that NCA determines that such action is appropriate within the scope of its responsibilities.

Recommendation(s):

1. To determine the extent of the safety concern, NCAs responsible for certification and oversight of FPD providers and/or ATS providers who contract the services of FPD providers, should ensure that the level of risk posed by this issue is assessed, considering ICAO EB 2026/13, Revision 1, and mitigation measures resulting from this assessment are implemented. Alternatively, when such an assessment is not performed, mitigation measures to ensure the safety of air operations for all affected approach procedures should be implemented.

The mitigation measures could include, as appropriate:

- a) for a procedure with at least LPV and LNAV/VNAV minima lines, raise LPV OCA/H to LNAV/VNAV OCA/H;
- b) for a procedure with LPV and LNAV minima lines, raise LPV OCA/H to LNAV OCA/H;
- c) for a procedure with LPV minima only, temporarily restrict the operational use of the RNP APCH procedure;
- d) when LPV OCA/H is lower than ILS OCA/H, raise LPV OCA/H to ILS OCA/H in those situations when the RWY is provided with an ILS CAT I approach with the same OAS parameters and identical PBN (RNP 1 or RNAV 1) missed approach procedure.

This is information only. Recommendations are not mandatory.



No mitigation measure may be necessary if any of the following conditions apply:

- a) the RWY is provided with an ILS CAT I approach with an identical missed approach trajectory, and LPV OCA/H is equal or higher than ILS OCA/H; or
- b) procedures are fully based on RNP 0.3 requirements, e.g. RNP 0.3 (CAT H); or
- c) procedures are restricted to aircraft compliant with Radio Technical Commission for Aeronautics (RTCA) DO-229() requirements for Class Gamma receivers, provided additionally, that the first leg of the missed approach is aligned within 3° of the final approach course and coded as a TF leg in the navigation database.

2. Where the NCA has not determined specific design criteria addressing the identified safety concern, the NCA should ensure that, in the design of new SBAS-based procedures or in the periodic review of existing procedures:
 - a) SBAS APV I procedures are evaluated by FPD providers against both SBAS APV I and Baro-VNAV criteria and the highest of the OCA/H values are published;
 - b) SBAS CAT I procedures are designed by FPD providers using ILS CAT I design criteria with the same OAS parameters and PBN-based (RNP 1 or RNAV 1) missed approach procedure.
3. NCAs responsible for the certification and oversight of aircraft operators should ensure that aircraft operators, when operating outside the European Union, establish aerodrome operating minima, and revise their company-specific instrument flight procedures in accordance with ICAO EB 2026/13, Revision 1, Section 6.

In addition, NCAs are invited to inform EASA, within 70 calendar days after the issue date of this SIB, about the results of the risk assessment performed and any mitigation measures undertaken under this SIB. This can be accomplished by reporting to ADs@easa.europa.eu.

Contact(s):

For further information contact the EASA Safety Information Section, Certification Directorate.

E-mail: ADs@easa.europa.eu.

