सत्यमेव जयते

नागर विमानन मंत्रालय, भारत सरकार

MINISTRY OF CIVIL AVIATION, GOVERNMENT OF INDIA

भारतीय विमानपत्तन प्राधिकरण

AIRPORTS AUTHORITY OF INDIA

ICAO APAC SBAS-GBAS IMPLEMENTATION WORKSHOP FOR AIRSPACE USERS

"Enhancing airport accessibility and safety on final approach with SBAS and GBAS"

14th to 16th October 2025

Bengaluru, India

GBAS – SBAS

Equipage and Operational Approval for Airspace users

Tim Murphy

Senior Technical Fellow
Boeing

Manu Bhasin

Sr. Operational Regulatory Affairs
Boeing

Agenda

GBAS & SBAS

Aircraft equipage

Regulatory process

ICAO 5 Phase

GBAS

User Approval

SBAS

User Approval

GBAS & SBAS

Aircraft equipage

- GLS improves safety and cost-efficiency while delivering positive environmental benefits

- Boeing supports GBAS CAT III (GAST D) system design approval and certification efforts

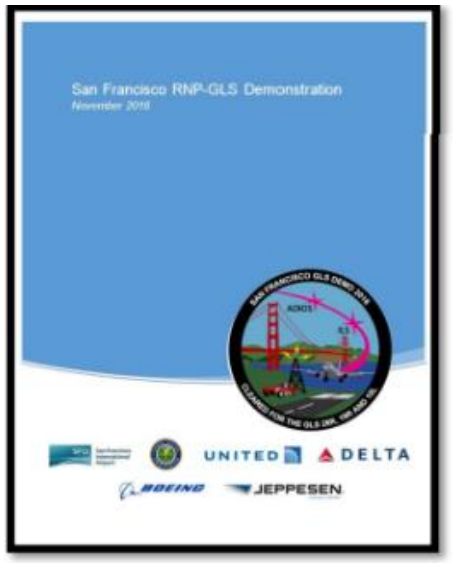
- GLS demonstrations drive growth in airport deployment and fleet

Boeing GLS Program

ICAO

Boeing's Capabilities to Support GBAS Efforts

- Operational and Environmental Analysis (Emissions and Noise)
- Airspace Coordination
- Test and Final Procedure Designs
- Cab Simulations (Boeing Aircraft and/or Airlines)
- Portable GBAS and Fight Check
- Flight Demonstration Planning and Execution
- Report and Assessments of Benefits




KSFO RNP-GLS Demonstration Report

AVIATIONWEEK

Boeing, Delta, United, FAA Join Forces For GLS Demo At SFO

Tests of satellite-based landing system approaches could pave way for West Coast GLS adoption

Guy Norris | Aviation Week & Space Technology Sep 8, 2016

Experimental Satellite-based Precision Approach Tests At SFO

To the untrained eye, the departure of a pair of Delta Air Lines and United Airlines Boeing 737-900ERs at San Francisco International Airport (SFO) was a typical sight on a normal Saturday evening in late August. Closer inspection, however, would reveal something very different. The two aircraft stayed together in the pattern for almost 3 hr., conducting unusual, closely linked curved and straight-in approaches—in some cases never before seen at the

ICAO

Boeing's Commitment to GBAS/GLS and SBAS/LPV Innovation

- The 777-9 will be the first aircraft to certify GLS CAT III Autoland
- Boeing aims to upgrade GLS from CAT I to CAT II for the 737 MAX by 2026
- Boeing aims to implement LPV for the 777X at entry-in-service and for the 737 MAX by 2Q27

92% of new Boeing deliveries come with GLS activated

Boeing Airplanes GLS & LPV Availability

Airplane Model	GBAS GLS GAST C	GBAS GLS GAST D	SBAS LPV
737MAX	Available Option (92% uptake)*	Future Study	ECD 2Q27
737NG	Available Option	Future Study	Current Study
777	Not Planned	Not Planned	Not Planned
777-9/8F	Standard	Available Option (94% uptake)*	Available Option (25% uptake)*
747-8	Standard	Not Planned	Not Planned
757/767	Not Planned	Not Planned	Not Planned
787	Standard	Current Study	Current Study
Total Produced* *(May 2024)*	**6100+**	**0**	**0**

Summary

777-9 GLS CAT III and LPV options available

Starting in 2026, GLS enabled as the selected option for all new 737 deliveries

Over 6,100 Boeing Airplanes with GLS

Working on GLS CAT II and LPV for 737 MAX

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02

Regulatory process

ICAO 5 Phase

Image credit – Vecteezy

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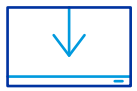
Generic Requirements

ICAO Doc 9997 , Chapter 4 , Para 4.9

Aircraft Qualification

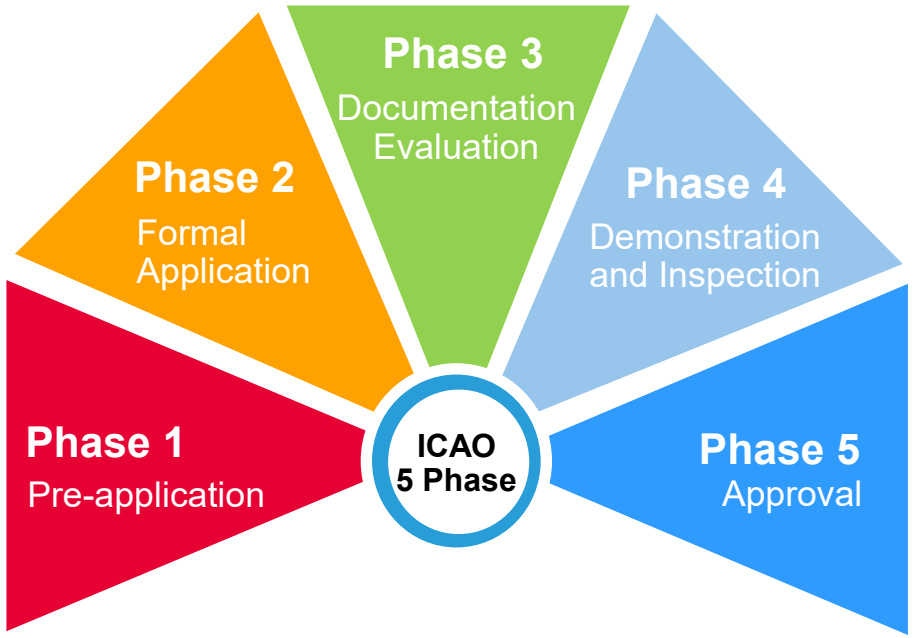
Standard Operating Procedures

Training

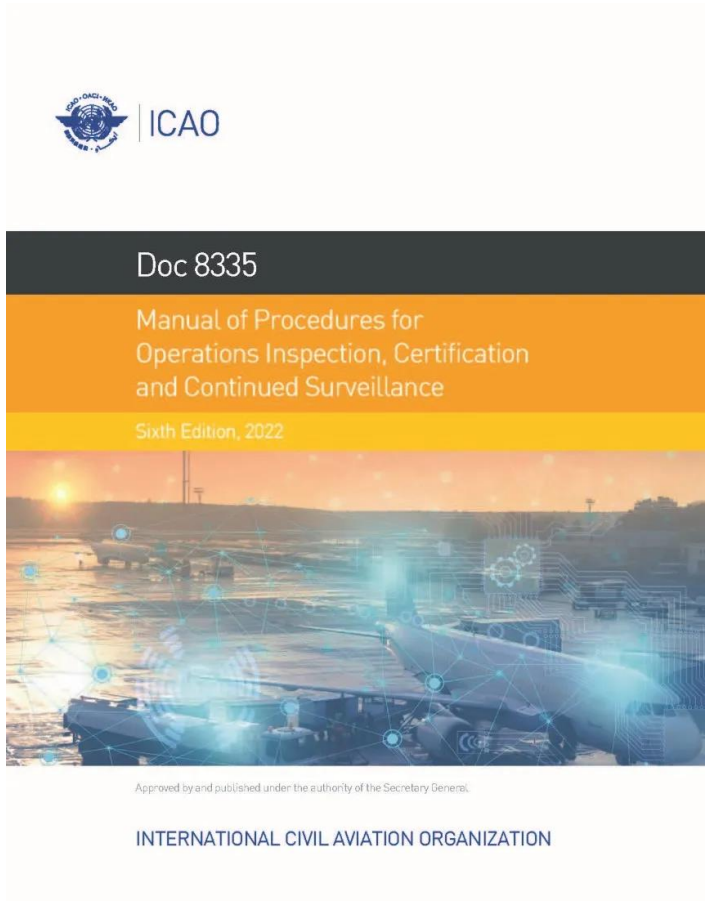


Navigation Data

ICAO 5 Phase Approval Process



ICAO 5-Phase Approval Process
ICAO Doc 8335



ICAO 5 Phase Approval Process

Phase 1
Pre-application

- Submit to the CAA a request for a Pre–application meeting with basic details of the intended application
- CAA invites applicant to pre-application meeting

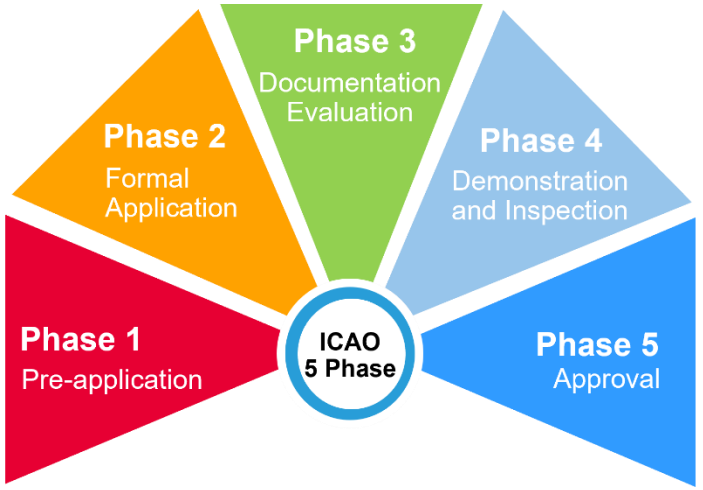
During the pre-application meeting CAA briefs applicant on:

- Contents of formal application;
- Method used by CAA to review and evaluate the application;
- Limitations (if any) applicable to the approval; and
- The conditions under which the approval could be cancelled

Phase 2
Formal Application

- Applicant submits the formal application together with all relevant documentation (application package).
- CAA appoints a Project Manager (CPM)

ICAO Doc 9997 Chapter 4
Navigation Specification Job Aids



Continued Surveillance

Phase 3
Documentation Evaluation

CAA analyses contents of application pack to determine compliance with relevant regulations.

As a result of the analysis and evaluation, the CAA may accept or reject the formal application together with the documentation.

Meanwhile, applicant can provide training for its relevant personnel in preparation for Phase 4

Phase 4
Demonstration and Inspection

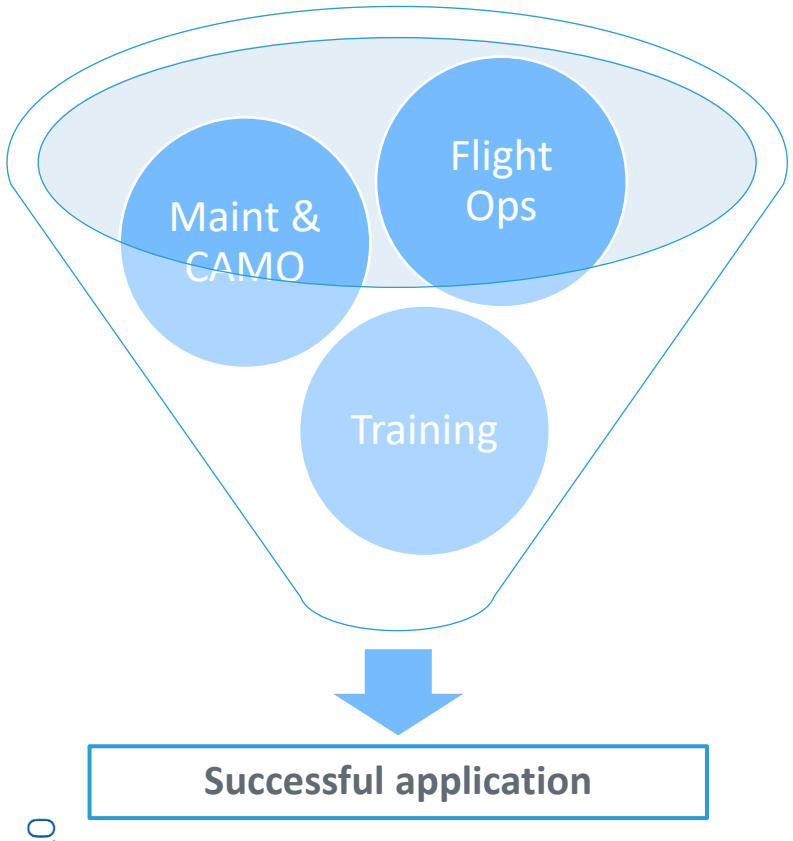
Applicant will:

- demonstrate its ability to conduct operations using the Special Approval.

Phase 5
Approval

CAA issues the Specific Approval, after applicant has met operational and airworthiness requirements

Project Management



- An application for regulatory approval requires inputs and actions from multiple departments within the airline.
- The application process should be thoroughly planned, executed and monitored.
- Adequate budget (e.g. time, manpower, resources and finance) must be available and allocated to ensure success of the application.
- The application process and its progress should be monitored at the highest level within the airline to enable appropriate intervention if required to keep the process on-track in terms of time, manpower, resources and budget.
- Both the CAA and applicant should each nominate a 'Certification Project Manager' (CPM) within their organization with sufficient authority and experience to manage the approval/application process.

The Certification Project Manager is responsible for:

- Defining project tasks and associated timelines
- Allocation of tasks
- Ensuring availability of adequate budget (time, manpower, resources and finance)
- Maintaining momentum of project
- Progress reports to DG/ Accountable Executive and stakeholders

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Operator's Tasks and Allocation of Resources (Operator - example)

Tasks	Responsible	Resources
Project Management	CPM	
Design, write and implement flight deck procedures and policies (incl. checklists and MEL)	Director Flight Operations / Chief Pilot	
Conduct proving and evaluation flights	Director Flight Operations / Chief Pilot	• Line operations
Design, write and implement flight deck training programs	Director Crew Training	• Classrooms / CBT • Simulators
Design, write and implement maintenance procedures and policies	Director maintenance	
Design, write and implement airworthiness procedures and policies	Director CAMO	
Design, write and implement maintenance training programs	Director maintenance	• Classrooms / CBT
Design, write and implement navigation data validation program	Director Flight Operations / Dispatch	
Design, write and implement dispatch training programs	Director Flight Operations / Dispatch	

03

User Approval

GBAS

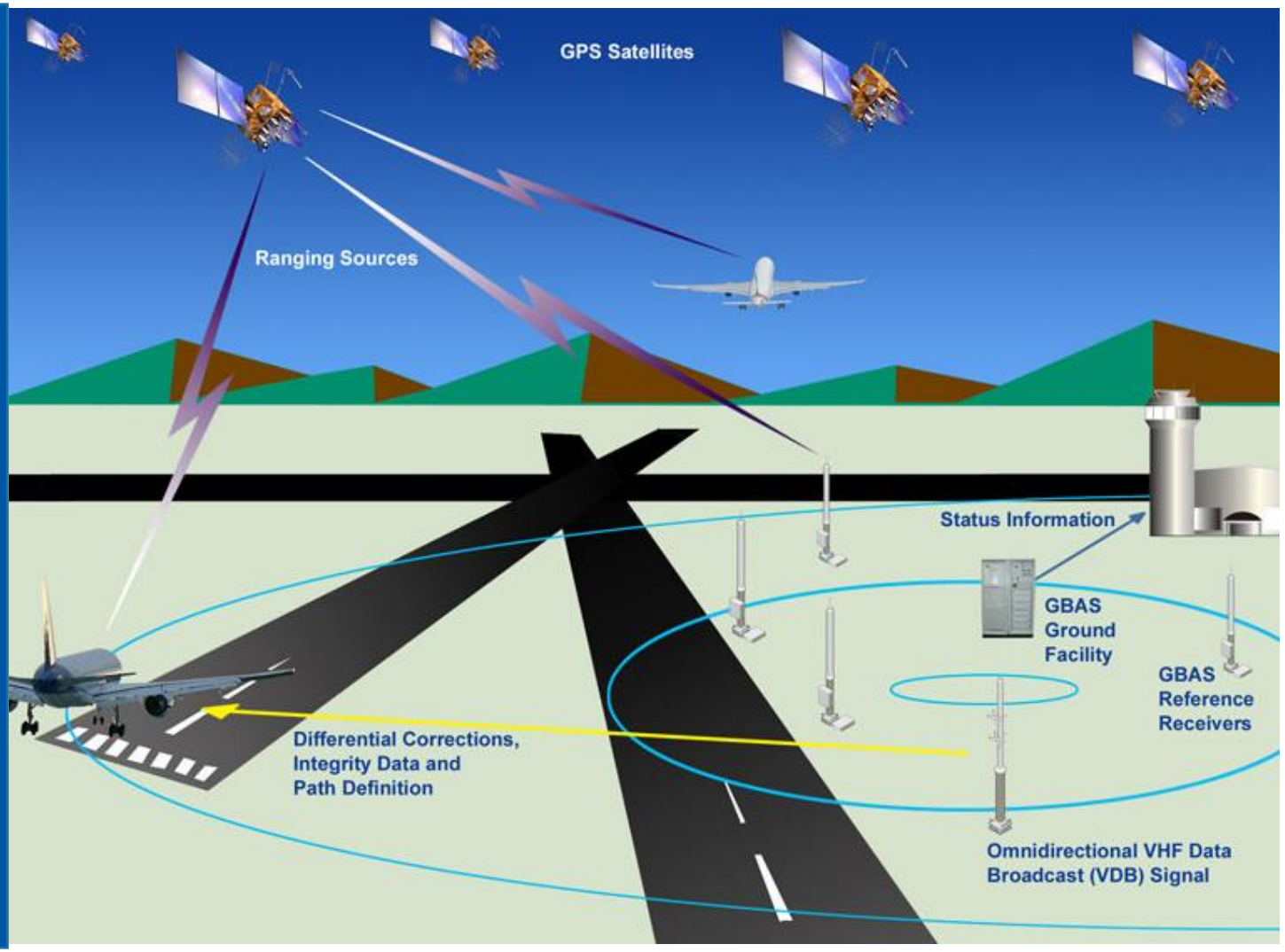
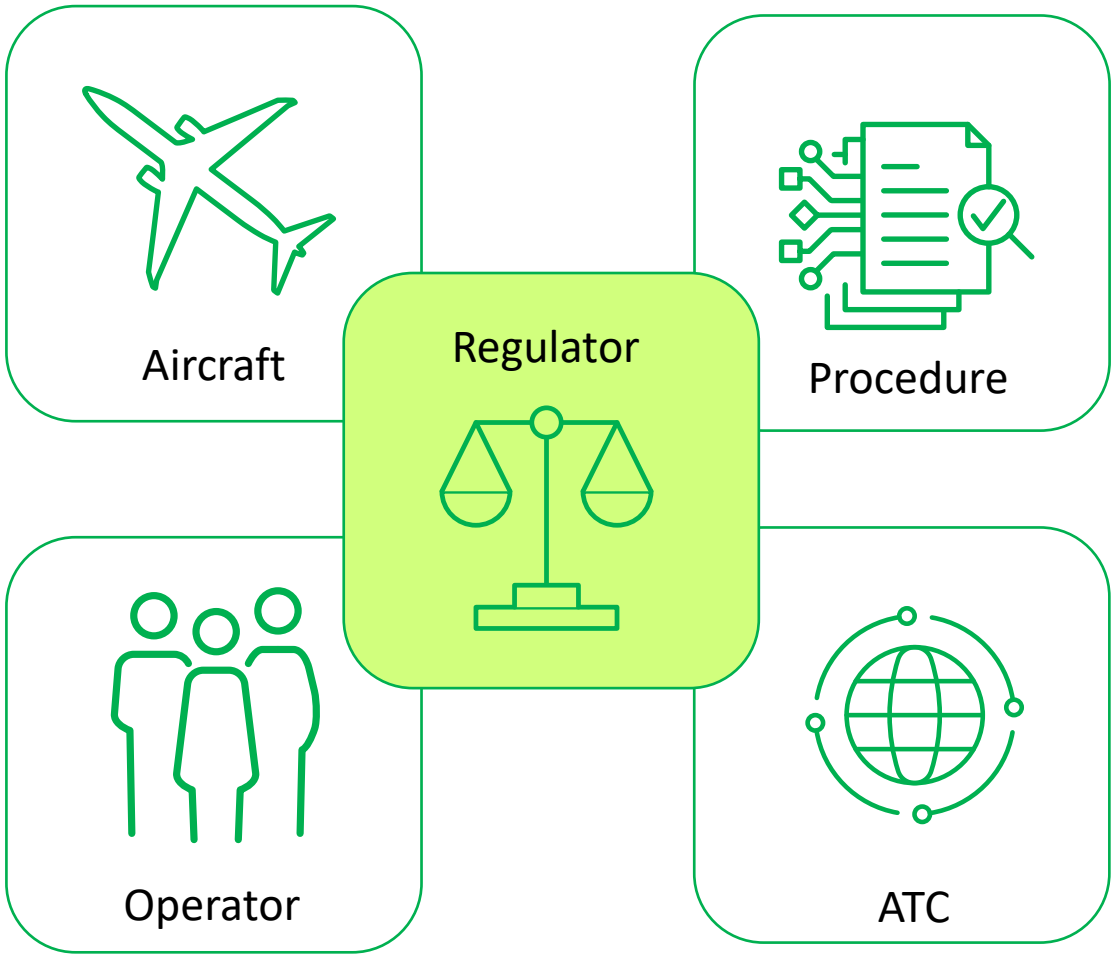


Image credit – FAA

Required Elements



Several elements must be in place to before an operator can conduct a GLS procedure

- Aircraft must be capable and approved for GLS operations
- GLS procedure must exist for the chosen Airport/runway
- ATC trained, qualified
- Operator's personnel must be trained, qualified and approved to conduct GLS operations
- Regulator trained, regulations in place to approve operator
- The operator must seek approval from the State of Operator to conduct GLS operations

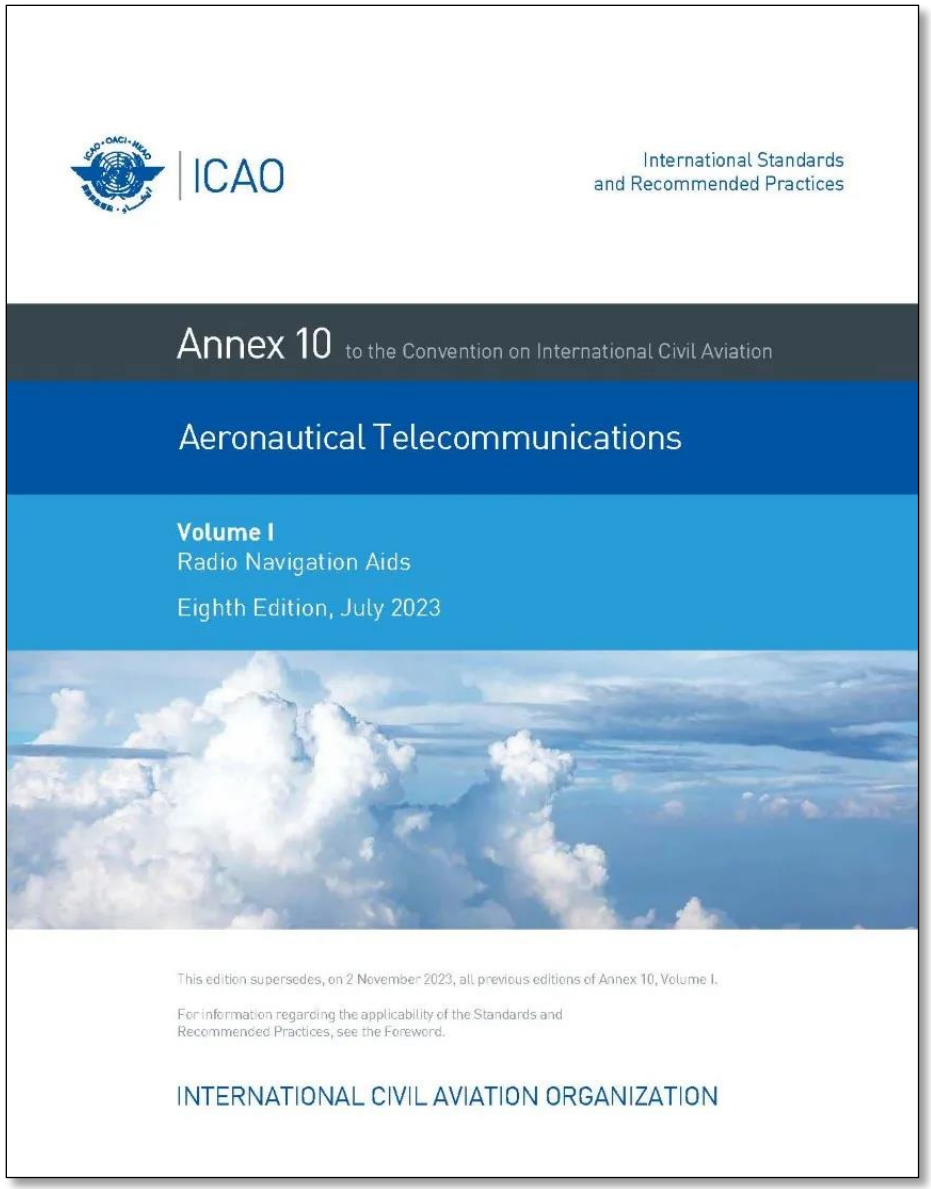
GBAS Standards and Regulations

The goal of GBAS implementation is to provide an alternative to the Instrument Landing System (ILS) supporting the full range of approach and landing operations.

GBAS systems must meet the performance requirements defined by the ICAO Annex 10, **Section 3.2.1.2.2.4 — Ground-Based Augmentation System (GBAS) Landing System (GLS)**: which specify standards for accuracy, integrity, and other safety-related aspects of for GAST-D which is the communication protocol for the GBAS.

GAST-C and GAST-D are standards for Ground-Based Augmentation Systems (GBAS) (also known as Local-Area Augmentation Systems)

- GAST-C supports precision approaches to Category I (CAT-I) minimums,
- GAST-D supports advanced Category III (CAT-III) minimums



GBAS Standards and Regulations

Aircraft Qualification

FAA AC 20-138D

U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Airworthiness Approval of Positioning and Navigation Systems

Date: 4/7/16
Initiated by: AIR-130

AC No: 20-138D
Change: 2

Operational Approval requirements

FAA AC 120-118

U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Criteria for Approval/Authorization of All Weather Operations (AWO) for Takeoff, Landing, and Rollout

Date: 7/2/18
Initiated by: AFS-400

AC No: 120-118
Change:

This advisory circular (AC) provides an acceptable means, but not the only means, for obtaining and maintaining authorization of operations in Category (CAT) I, CAT II, and CAT III landing weather minima and instrument flight rules (IFR) lower-than-standard takeoff minima. This AC does not change, add, or delete regulatory requirements or authorize deviations from regulatory requirements. This AC addresses the operational authorizations formerly published in AC 120-28, Criteria for Approval of Category III Weather Minima for Takeoff, Landing, and Rollout, and AC 120-29, Criteria for Approval of Category I and Category II Weather Minima for Approach, and any subsequent developments.

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04

SBAS

User Approval

SBAS around the World

SBAS was born for aviation and began with the implementation of the Wide Area Augmentation System (WAAS) in the United States (US). Today, SBAS is available in many parts of the world and current SBAS service coverage is provided by a collection of interoperable systems. Worldwide SBAS coverage is continuing to grow.

Wide Area Augmentation System (WAAS)
- Commissioned in July 2003 (http://gps.faa.gov)
- Serves North America, with benefits that extend into Central and South America and over the Atlantic and Pacific oceans
- Developing a Dual-frequency service - 2027

European Geostationary Navigation Overlay Service (EGNOS)
- Commissioned for aviation use in March 2011 (https://egnos-user-support.essp-sas.eu/)
- Serves Europe and surrounding countries with specific agreements with the European Union.
- It's use in other domains such as surveying, agriculture or maritime is increasing
- Developing a Dual-frequency, multiple constellation service - 2028

Michibiki Satellite Based Augmentation System (MSAS)
- Commissioned in 2007
- Serves Japan and surrounding area
- Provides LNAV service, establishing LPV

GPS Aided Geostationary Earth Orbit (GEO) Augmented Navigation (GAGAN)
- Commissioned in December 2013 (http://gagan.aai.aero/gagan/)
- Serves India and the surrounding area

System of Differential Correction and Monitoring (SDCM)
- Currently under development
- Augmentation of GPS and GLONASS
- Will serve Russia and the surrounding area

Korean Augmentation Satellite System (KASS)
- Commissioned in 2024
- Will serve South Korea

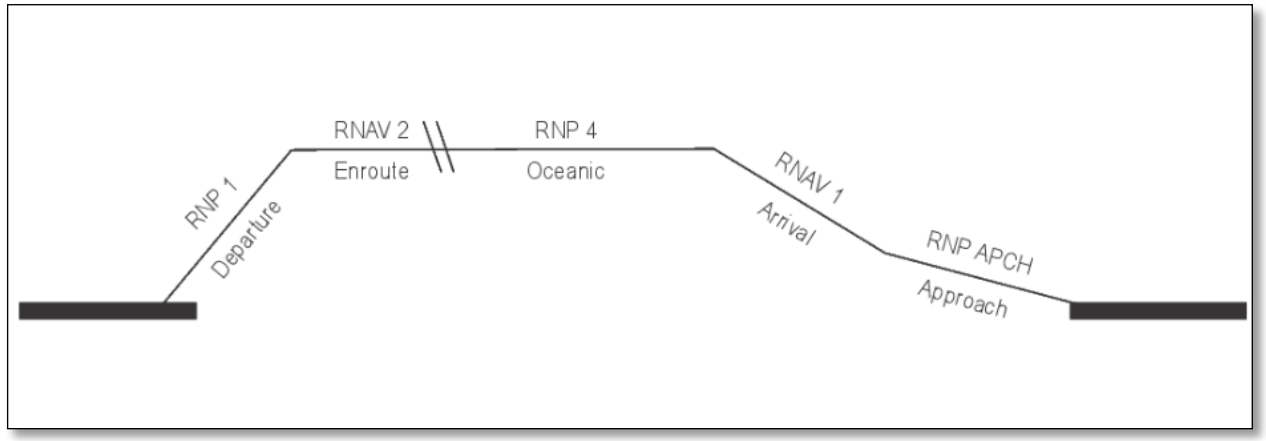
BeiDou Satellite Based Augmentation System (BDSBAS)
- In test undergoing certification
- Will serve China and the surrounding area

Augmented Navigation for Africa (ANGA)
- Demonstration service started in 2020
- Expected L1 services in 2025

Southern Positioning Augmentation Network (SouthPAN)
- Early services in 2022
- Aviation services in 2028
- Will serve Australia and New Zealand (https://www.ga.gov.au.sciencetopics/positioning-australia/about-the-program/southpan)

Image credit – FAA

Navigation Specification

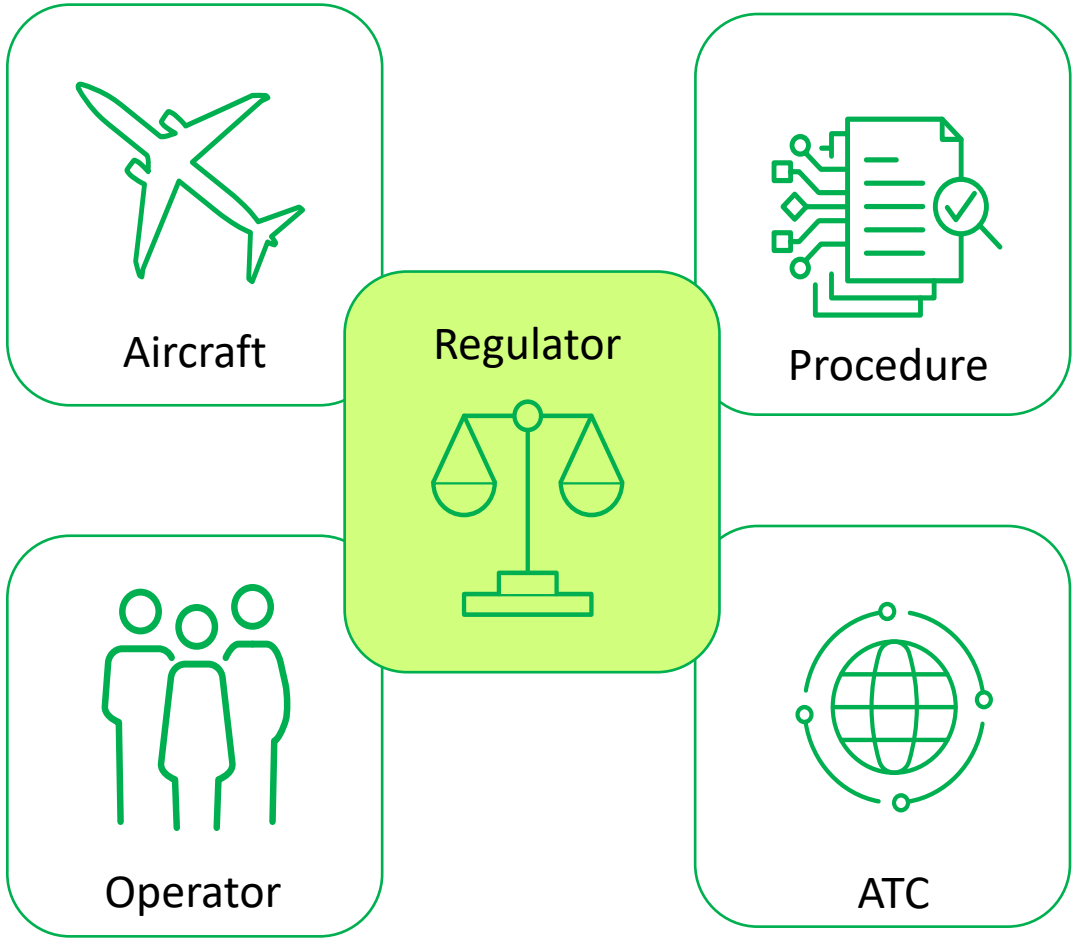


RNP APCH OPERATIONS DOWN TO LP AND LPV MINIMA

ICAO Doc 9613 , Chapter 5 , Section B

Oceanic/Remote	En route	Terminal	Approach
		RNP AR DP	RNP AR APCH
Advanced RNP	Advanced RNP	Advanced RNP	Advanced RNP
RNP 2	RNP 2	RNP 1	RNP APCH (Parts A and B)
RNP 4	RNAV 1 and RNAV 2	RNAV 1 and RNAV 2	
RNAV 10 (designated RNP 10)	RNAV 5		

Required Elements



Several elements must be in place to before an operator can conduct a RNP APCH (LPV) procedure

- Aircraft must be capable and approved for RNP APCH (LPV) operations
- RNP APCH (LPV) procedure must exist for the chosen Airport/runway published in AIP
- ATC trained, qualified
- Operator's personnel must be trained, qualified and approved to conduct RNP APCH (LPV) operations
- Regulator trained, regulations in place to approve operator
- The operator must seek approval from the State of Operator to conduct RNP APCH (LPV) operations

Certification Requirements

ICAO Doc 9613 , Part C, Chapter 5 , Section B

- Aircraft Qualification
- Operating Procedures
- Training
- Navigation Data
- Oversight of Operators

Aircraft Qualification

ICAO Doc 9613 , Part C, Chapter 5 , Section B

The aircraft eligibility must be determined through demonstration of compliance against the relevant SBAS receiver airworthiness criteria and the requirements of Section B, 5.3.3.

OEM or the holder of installation approval for the aircraft, such as the STC holder, will demonstrate compliance to their regulatory authority and the approval can be documented in manufacturer documentation (such as service letters).

Aircraft flight manual (AFM) entries are not required provided the State accepts alternate manufacturer documentation.

Scope of Performance-Based Navigation

The guidance to fly the instrument landing system (ILS)/microwave landing system (MLS)/ground-based augmentation system (GBAS) landing system (GLS) procedure is not provided by the RNP system, consequently,

ILS/MLS/GLS precision approach and landing operations are not included in ICAO PBN manual.

Operating procedures

Pre-flight

- Crew (both) trained on RNP APCH (LPV)
- Aircraft capable – no MEL items
- SBAS NOTAMs
- Valid Navigation database
- No Prohibition by company on use of Approach
- Suitable Alternate selection considering failure
- Flight plan – item 18

Pre-approach checks

- Aircraft capable – no relevant failures / MEL items
- Airspeed limitations
- Wind limitations
- FMC waypoint check against chart
- Selection of correct minima
- Non-standard climb gradients during MAP
- GNSS updating incl. check for GNSS RFI
- No changes allowed to FMC waypoints between FAF and MAP (addition of speed constraints is permitted)
- PF/PM procedures

Procedure - execution

- PF/PM procedures
- Display of Terrain on ND
- Approach mode indicates LP or LPV (or an equivalent annunciation) 2 NM before the FAP.
- Use of autopilot
- Deselection of Radio Navaid updating
- Monitoring vertical and lateral deviation
- Actions for equipment failure during procedure
- Visual reference required at DH

Manuals / Documents

- Operations Manual – revise to include RNP APCH(LPV):
  - MEL
  - OM-A / Basic Operations Manual
  - Dispatch procedures
  - FCOM / Standard Operating Procedures
  - Checklists
- Dispatch Manual

Pilot Training (Initial, recurrent, upgrade and transition)

- The operator is responsible for training its pilots for the specific RNP APCH (LPV) operations conducted.
- The pilot training programme should be structured to provide sufficient theoretical and practical training, using a simulator, training device, or line training in an aircraft, on the use of the aircraft's approach system to ensure that pilots are not just task oriented.
- Flight training must be representative of the type of RNP APCH (LPV) procedures the operator will conduct. Operators that use Advanced Qualification Programs (AQP) may conduct evaluations in Line-Oriented Flight Training (LOFT) scenarios, Selected Event Training (SET) scenarios, or a combination of both. The operator may conduct required flight training in flight simulation training devices (FSTD) and other enhanced training devices as long as these training mediums accurately replicate the operator's equipment and RNP APCH(LPV) approach operations.
- The FSTD must be approved for RNP APCH(LPV) training by the regulator issuing the approval.

Training Topics (flight crew* and dispatchers)

*Initial, recurrent, upgrade and transition

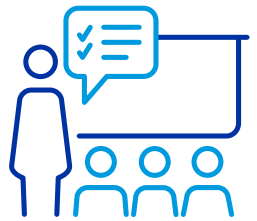
➢ RNP APCH (LPV) specific **flight crew training**:

✓ RNP APCH concept containing LP or LPV minima
- theory of approach operations
- approach charting
- use of the approach system including
- selection of the LP or LPV minima on an RNP APCH procedure
- instrument landing system (ILS) look alike principle
- use of lateral navigation mode(s) and associated lateral control techniques
- use of VNAV mode(s) and associated vertical control techniques
- R/T phraseology for LP or LPV approach operations
- the implication for LP or LPV approach operations of systems malfunctions that are not related to the approach system (such as hydraulic failure)

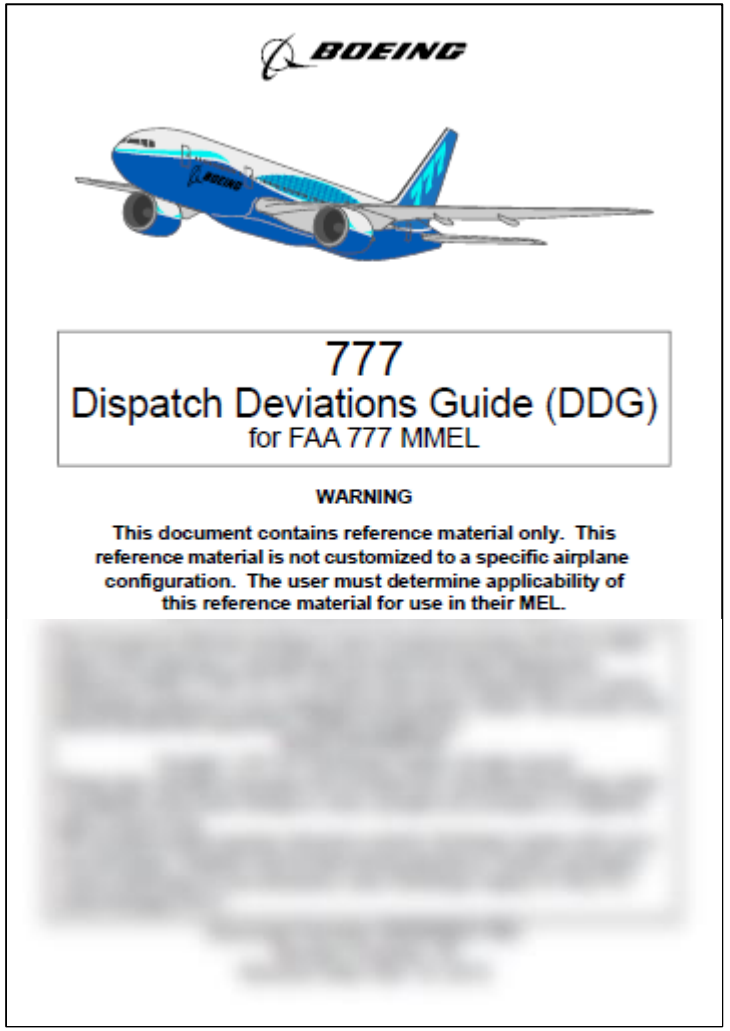
✓ RNP APCH operation for procedures containing solely an LP or an LPV minima
- definition of LP or LPV approach operations during RNAV(GNSS) procedures;
- regulatory requirements for LP or LPV approach operations;
- required navigation equipment for LP or LPV approach operations:
- procedure characteristics:
- retrieving an RNP APCH procedure from the database (such as using its name or the SBAS channel number);
- change arrival airport and alternate airport;
- flying the procedure:
- ATC procedures;
- abnormal procedures; and
- contingency procedures.

➢ RNP APCH (LPV) -specific **dispatcher training**:
- regulatory requirements
- authorizations granted
- SBAS availability and NOTAMs

➢ **Training manuals** revised to include:
- Ground training syllabus
- Simulator training syllabus to include:
  - Program requirement for # of RNP APCH(LPV) approaches
  - Type of approaches taught
  - PF/PM duties
  - Actions on failures
- pilot evaluation methodology for academic and practical knowledge, incl. threshold pass/failure



Maintenance Training



BOEING

777
Dispatch Deviations Guide (DDG)
for FAA 777 MMEL

WARNING

This document contains reference material only. This reference material is not customized to a specific airplane configuration. The user must determine applicability of this reference material for use in their MEL.

Example

11. Maintenance Procedures

11.1 Purpose

This section provides or refers to the applicable maintenance procedures necessary to support RNP AR operations. As a Part 91 operator and airplane manufacturer (rather than a Part 121 airline operator), Boeing does not have a maintenance program for production airplanes. Boeing airplanes are built to FAA-approved production processes by Operations and Inspection Records and Installation Plans. Boeing airplanes are modified for flight test and restored by Flight Change paperwork. Boeing production airplanes are reworked according to approved Material Review Board (MRB) processes, including the removal and replacement of any systems or components that result in "flight squawks" in flight test. Applicable aspects of these procedures and practices are summarized in the sections below and differ from those employed by Part 121 operators.

11.2 Equipment Maintenance Program

Normal Boeing maintenance procedures are sufficient for all RNP AR–related operations. There are no new RNP AR–related maintenance procedures required for Boeing airplanes.

11.3 Initial and Recurrent Maintenance Training

No unique training is required.

11.4 Return to Service Procedure

Not applicable.

11.5 Periodic Equipment Evaluation

Prior to departure the pilot will determine the status of all required equipment using standard Boeing preflight procedures.

11.6 Reliability Reporting and Quality Control

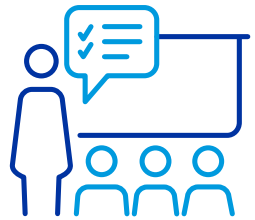
Standard Boeing procedures will apply.

11.7 Record Keeping

The standard Boeing maintenance log and records will be used.

As part of the Application Pack, the operator should include details on what RNP APCH(LPV) training is required for maintenance personnel*.

*where no training is required, proof of this should be provided



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Navigation Database Management

- The operator should not use a navigation database for these approach operations unless the navigation database supplier holds a Type 2 LOA or equivalent.
- The navigation database should be obtained from a supplier that complies with RTCA DO 200()/EUROCAE document ED 76(), Standards for Processing Aeronautical Data.
- An LOA issued by the appropriate regulatory authority demonstrates compliance with this requirement (such as FAA LOA issued in accordance with FAA AC 20-153() or EASA certification of data services provider in accordance with Regulation (EU) 2017/373 (Part DAT)).
- The operator should continue to monitor both the process and the products in accordance with the quality system required by the applicable operational regulations.
- The operator should implement procedures that ensure timely distribution and insertion of current and unaltered electronic navigation data to all aircraft that require it.

An operator may choose to have a Navigation Database (NDB) Management process that includes procedures for maintaining RNP APCH(LPV) procedures within the database.

Administration - the operator must:

- identify in writing the individual responsible for managing the overall NDB process.
- establish, in writing, the processes and procedures for accepting, verifying and loading navigation data into aircraft
  - **not** delegate the management responsibility to a third party

Database management – the operator must:

- compare the RNP APCH(LPV) procedure in the NDB against the source material
- For a new procedure, or after an IAP is amended, conduct a validation exercise before flying that procedure

Oversight of operators

A regulatory authority may consider navigation error reports in determining remedial action.

- Repeated navigation error occurrences attributed to a specific piece of navigation equipment may result in cancellation of the authorization for use of that equipment.
- Information that indicates the potential for repeated errors may require modification of an operator's training programme.
- Information that attributes multiple errors to a particular pilot may necessitate remedial training or licence review.

FAA Regulations

Aircraft Qualification

FAA AC 20-138D

U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Airworthiness Approval of Positioning and Navigation Systems

Date: 4/7/16
Initiated by: AIR-130

AC No: 20-138D
Change: 2

Operational Approval requirements

FAA AC 90-107

U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Guidance for Localizer Performance with Vertical Guidance and Localizer Performance without Vertical Guidance Approach Operations in the U.S. National Airspace System

Date: 2/11/11
Initiated by: AFS-400

AC No: 90-107
Change:

This advisory circular (AC) provides guidance for operators to conduct Title 14 of the Code of Federal Regulations (14 CFR) part 97 instrument flight rules (IFR) Area Navigation (RNAV) Global Positioning System (GPS) instrument approach procedures (IAP) with localizer performance with vertical guidance (LPV) and localizer performance without vertical guidance (LP) lines of minima using the wide area augmentation system (WAAS). This AC applies to all operators conducting RNAV (GPS) approach procedures to LPV or LP lines of minima using WAAS navigation avionics under 14 CFR parts 91, 91 subpart K (part 91K), 121, 125, 129, 133, 135 and 137 within the U.S. National Airspace System (NAS). This AC provides operational approval information for operators flying parts 91K, 121, 125, 133, 135 and 137. For additional airworthiness guidance, refer to AC 20-138, Airworthiness Approval of Positioning and Navigation Systems.

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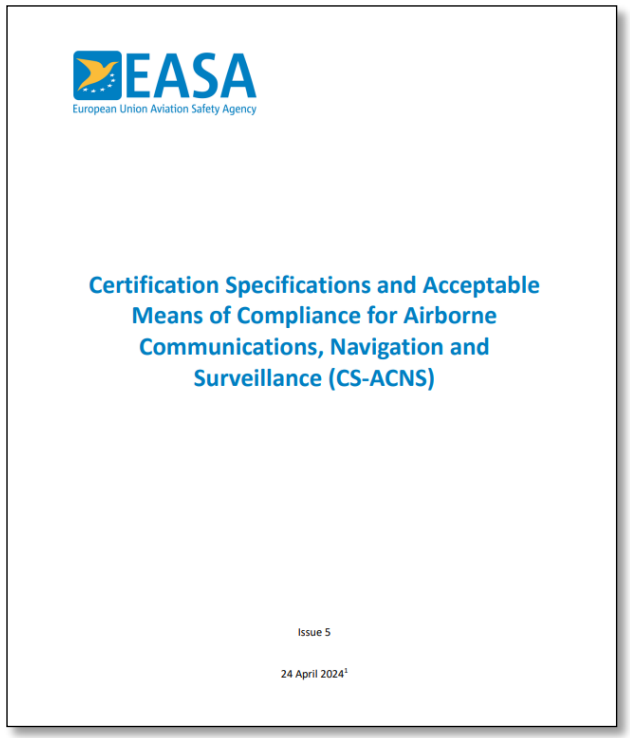
EASA Regulations

Aircraft Qualification

CS ACNS.C.PBN - Sub Part C



EASA
European Union Aviation Safety Agency

Certification Specifications and Acceptable Means of Compliance for Airborne Communications, Navigation and Surveillance (CS-ACNS)

Issue 5

24 April 2024[1]

Operational Approval requirements

CAT.OP.MPA.126 Performance Based Navigation

CAT.OP.MPA.126 Performance-based navigation

Regulation (EU) 2016/1199

The operator shall ensure that, when performance-based navigation (PBN) is required for the route or procedure to be flown:

(a) the relevant PBN navigation specification is stated in the AFM or other document that has been approved by the certifying authority as part of an airworthiness assessment or is based on such approval; and

(b) the aircraft is operated in conformance with the relevant navigation specification and limitations in the AFM or other document referred above.

AMC1 CAT.OP.MPA.126 Performance-based navigation

ED Decision 2016/015/R

PBN OPERATIONS

For operations where a navigation specification for performance-based navigation (PBN) has been prescribed and no specific approval is required in accordance with SPA.PBN.100, the operator should:

(a) establish operating procedures specifying:

(1) normal, abnormal and contingency procedures;

(2) electronic navigation database management; and

(3) relevant entries in the minimum equipment list (MEL);

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Additional CAA Regulations

S.No.	Country/Regulator	Reference
1	Australia	AC 91-05 Performance Based Navigation PBN
2	Canada	AC 700-023 Required Navigation Performance Approach RNP APCH
3	India	Operations Circular 03 of 2016 Rev 01 Aircraft and Operators' Approval for RNP- APCH operations down to LNAV, LNAV/VNAV and LPV minima using GNSS augmented by SBAS
4	New Zealand	AC 91-21 () Operational Approvals – Performance Based Navigation
5	Singapore	AC 98-2-6(Rev 0) Operational approval for required navigation performance Approach (RNP APCH)

Anticipated Workflow Timeline*

** Final Certification deliverable and the approval timeline is managed by operator*

1 Pre-Application

Detail:
Discussion with CAA
Tasks:
Contact CAA and arrange meeting
Timeline:
Meeting complete
- C-6*

2 Formal Application

Detail:
- Prepare documents
- Submit application

Tasks:
- Amend / create RNP APCH (LPV) documents
- Create application pack
- Develop Training (crew, dispatch)

Timeline:
Prepare documents
- C-9 to C-6*

Submit application
- C-6*

3 Document Evaluation

Detail:
CAA's evaluation of application
Tasks:
- Answer questions from CAA to clarify
- Amend documents if required

Timeline:
C-6 to c-3*

4 Demonstration and Inspection

Detail:
- Perform training
- Validation flight(s)

Tasks:
- Commence training (crew, dispatchers, maintenance)
- Publish RNP APCH documents
- Conduct proving flights

Timeline:
First crews trained
- C-3 to C-2*

Validation flights
- C-1*

5 Certification

Detail:
RNP APCH (LPV) LOA
Tasks:
- Continue training
- Recurrent training

Timeline:
Approval granted
- Certification date (C)*

Questions & Answers

We can be reached at

Aircraft Equipage

Tim Murphy
Senior Technical Fellow
tim.murphy@boeing.com

Operational Approvals for users

Flight Operations Regulatory Affairs Team

Chief Pilot Regulatory Affairs	Capt. Ray Roberts	raymond.r.roberts@boeing.com
China	Capt. Honghai Yang	honghai.yang2@boeing.com
India Sub-Continent	Manu Bhasin	manu.bhasin@boeing.com
South-East Asia	Rifky Yoantino	rifkywildan.yoantino@boeing.com
ME, Turkey, Africa	Capt Richard Sharrocks	richard.sharrocks@boeing.com
Group email	GEandTFORA@exchange.boeing.com	

Thank You!

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