Procedure Manual for Acceptance and/or Approval of Instrument Flight Procedure Design Documents

Civil Aviation Authority of Nepal
First Edition – February, 2021

Record of amendments and corrigenda

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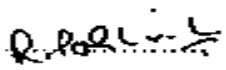
FOREWORD

This Procedure Manual for Acceptance and /or Approval of Instrument Flight Procedure Design Documents, First Edition, February 2021 has been issued by the Director General, Civil Aviation Authority of Nepal, using his authority vested in him pursuant to Rule 82 of Civil Aviation Regulation, 2058 BS (2002 AD). The procedures in this manual are mainly based on Doc 8168-PANS OPS, Vol. II, Doc 10068 Manual on the Development of a Regulatory Framework for Instrument Flight Procedure Design Service and Doc 9906- Quality Assurance Manual for Flight Procedure Design, Vol. 1, 2, 5 and other applicable Civil Aviation documents.

This Manual contains the guidelines for the PANS OPS inspectors for the acceptance and/or approval of Instrument Flight Procedure Design (IFPD) documents and brings uniformity in the procedure for acceptance and/or approval of such documents submitted by Instrument Flight Procedure Design Service Provider (IFPDSP). It also brings awareness among the IFPDSPs about the regulatory provisions before submitting the design documents for regulatory approval and/or acceptance.

This is a controlled document and is subject to periodic review. Air navigation Services Safety Standards Department will maintain this document as complete, accurate and updated as possible. Comments and recommendations for revision/amendment action to this publication should be forwarded to the Director of ANS Safety Standards Department.



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Introduction

Airspace Planning Division under ATM Department, CAAN plays the role of Instrument Flight Procedure Design Service Provider (IFPDSP) for the design of Instrument Flight Procedures (IFPs) including the ATS routes within Kathmandu FIR. Other IFPDSP if authorized by CAAN may also design IFPs within Kathmandu FIR. ANS Safety Standards Department (ANSSSD) is a regulatory body within CAAN, responsible for the approval and/or acceptance of instrument flight procedure design documents developed by such service providers.

This procedure has been developed to set out the clear-cut guidelines for the PANS OPS inspectors under ANSSSD for the acceptance and/or approval of the instrument flight procedure (including ATS route) design documents developed by Instrument Flight Procedure Design Service Provider (IFPDSP).

This procedure aims at bringing uniformity in the procedure for the acceptance and/or approval of the IFPDs. It also provides IFPDSPs with the knowledge about detailed regulatory requirements necessary to be fulfilled before submission of the IFPD documents for regulatory acceptance and/or approval.

Procedure for Approval and/or Acceptance

Steps to be followed by PANS OPS inspectors for the approval of IFPD documents.

1. Qualification of IFP Designer and ground validation personnel

Qualifications of IFP Designers along with the ground validation personnel are the prerequisites for the design and validation of flight procedures. So, IFPDSP must submit the certificate and document that justify the qualification of the IFP designer and ground validation personnel. For this, PANS OPS inspector shall check the evidences for the following:

a. Basic training qualification.
b. OJT completion.
c. Other qualifications as required by MOS IFPD.

2. IFP design process components

PANS OPS inspector during the time of approval the IFP design documents shall ensure that the all essential components of IFP design process are followed by the IFPDSP. So, to verify this, PANS OPS inspector shall check whether the IFPDSP have followed the following steps as part of quality assurance process:

a. Collection, validation and approval of Data

As the quality of IFP mainly depends on the data used for design of such IFP, PANS OPS inspector must confirm whether the surveyed data based on which the IFP is designed has been approved by the appropriate authority or not. For this, inspector shall check the evidences of the following:

Data survey agency's qualification for survey of aerodrome and obstacle data.
Data approving authority's acceptance/approval.

b. Conceptual design and stakeholder's consultation

Conceptual design of the IFP demand is basic document that confines design activities within a desirable limit, which also helps in having fruitful consultation and interaction with the stakeholders to attain the constructive feedback. So, to ascertain whether the stakeholders are consulted about the conceptual design, PANS OPS inspector shall check the agreements reached with stakeholder. For this, the inspector shall check the evidences of the following:

Minutes of stakeholder's meeting with agreements/understandings, and/or
Stakeholder's written feedback

c. Application of design criteria and draft design

Design criteria used in the IFP design are the essential factors that need to be minutely verified to ensure that regulatory requirements are complied with. So, PANS OPS inspector shall check if applied criteria meet the CAAN and/or ICAO requirements.

Check randomly the criteria used in the design of:

a. En-route,
b. MSA,
c. STAR,
d. Holding,
e. Initial Approach, Intermediate Approach, Final Approach, Missed Approach and
f. SID.

Check randomly the calculations for:

a. Turn Protection
b. Area-width/Semi-area width
c. PDG
d. MOCA/OCA
e. VSS
f. MSD
g. TRD/TID, etc.

d. Safety activities

As per Requirement 2.29 of CAR-11, any new flight procedures or significant safety-related change in the existing flight procedures shall only be effected after a safety risk assessment has demonstrated that an acceptable level of safety will be met.

In order to ensure IFPDSP has complied this requirement, PANS OPS inspector shall check the evidences of the conduct of safety risk assessment activities before the implementation of new flight procedures or significantly modified flight procedures.

A safety risk assessment of an IFP is considered completed when the IFPD is in compliance with the CAAN IFP regulatory framework. However, a safety risk assessment must be conducted when there is a deviation from such regulatory framework.

e. Ground validation

Ground validation is a mandatory step of IFP design process. It is a review of the entire IFP package by an independent person(s) trained in IFP design which is intended to capture flaws in the design criteria and design documentation, and evaluate IFPs on the ground, to the extent possible, those elements that will be evaluated in a flight validation.

So, to ensure the ground validation activities are properly conducted, PANS OPS inspector shall check the following:

evidence of ground validation as part of design document
ground validation personnel is not the part of IFP design team f.

Flight validation

Except when the flight procedures and obstacles used in the IFPs can be verified by ground validation, a flight validation of IFPs shall be carried out as part of the initial approval and shall also be included as part of the periodic quality assurance activities.

If the flight validation activity has been conducted during the design process, PANS OPS inspector shall check the evidence of the conduct of flight validation such as:

Approved flight validation report.

Check if the alternate means are applied in lieu of flight validations such as conduct of demonstration flight, use of flight training device, etc.

Fly-ability check report by online operators

Flight training device report, etc.

g. Stakeholder consultation and endorsement

All stakeholders should be consulted to get their opinion on the proposed procedure. This will help in understanding the fulfilment of the initially agreed requirements between the stakeholders and help in getting stakeholder endorsement about the procedure.

So, PANS OPS inspector shall check whether the stakeholders are consulted about the final design product and stakeholder endorsement is taken.

Meeting minutes, and/or

Stakeholder's written feedback

3. Acceptance and/or approval of the design document

Once the submitted IFP design document is:

a. Satisfactory to the PANS OPS inspector, s/he shall endorse his/her acceptance to the design document and forward for necessary approval.

b. Not satisfactory to the PANS OPS inspector, s/he shall return back the design document with necessary feedback for further refinement and resubmission of the document for necessary acceptance and/or approval.

Note: To bring uniformity in the acceptance and/or approval process and to ease the acceptance or approval task, a checklist has prescribed as mentioned in Appendix A to this procedure.

Appendix A

Checklist for acceptance and/or approval of IFP Design Documents

Name of Design Office/Agency:

Name of IFP Designer:

Name of Ground Validation Personnel:

1. Designed procedures (check as applicable):
   En-route ☐
   STARs ☐
   SIDs ☐
   APCHs ☐
   Comments:

2. Does the IFP designer meets the qualification requirement mentioned in this procedure and MOS IFPD?
   Yes ☐
   No ☐
   Comments:

3. Does the data survey agency submitted the qualification document for the survey of aerodrome and obstacle data?
   Yes ☐
   No ☐
   Comments:

4. Has the data been accepted or approved by the relevant authority?
   Yes ☐
   No ☐
   Comments:

5. Are the stakeholders consulted about the conceptual design of IFPs?
   Yes ☐
   No ☐
   Comments:

   If yes, has the IFPDSP retained the minutes of stakeholder's meeting or stakeholder's written feedback?
   Yes ☐
   No ☐
   Comments:

6. Does the IFPDSP meets the applicable design criteria?
   a. En-route
      Yes ☐
      No ☐
      Comments:

   b. MSA
      Yes ☐
      No ☐
      Comments:

   c. STAR
      Yes ☐
      No ☐
      Comments:

   d. Holding Yes
      ☐ No
      ☐
      Comments:

e. Initial Approach
   Yes ☐
   No ☐
   Comments:

f. Intermediate Approach
   Yes ☐
   No ☐
   Comments:

g. Final Approach
   Yes ☐
   No ☐
   Comments:

h. Missed Approach
   Yes ☐
   No ☐
   Comments:

i. SID
   Yes ☐
   No ☐
   Comments:

7. Has the IFPDSP conducted safety risk assessment activities prior to implementing the new or significantly modified flight procedures?
   Yes ☐
   No ☐
   Comments:

   If no, is there proper justification for not conducting SRA activities?
   Yes ☐
   No ☐
   Comments:

8. Has the IFPDSP conducted the ground validation of newly designed or significantly modified flight procedures?
   Yes ☐
   No ☐
   Comments:

9. If yes in 9 above, has the IFPDSP submitted ground validation report as part of or separate design document?
   Yes ☐
   No ☐
   Comments:

10. Is the ground validation personnel independent of IFP design activities?
    Yes ☐
    No ☐
    Comments:

11. Has the IFPDSP conducted a flight validation of newly designed or significantly modified flight procedures?
    Yes ☐
    No ☐
    Comments:

    If yes, has the IFPDSP submitted flight validation report?
    Yes ☐
    No ☐
    Comments:

12. Has the IFPDSP applied alternative means in lieu of flight validation?
    Yes ☐
    No ☐
    Comments:

If yes, what alternative means has been applied?
Conduct of Demo flight ☐
Use of flight training device ☐
Others ☐
Comments:

13. If no in 11 above, is there proper justification for not conducting flight validation activities?
Yes ☐
No ☐
Comments:

14. Is there stakeholder consultation and endorsement of IFP design that was initially conceptualized?
Yes ☐
No ☐
Comments:

If yes, has the IFPDSP retained the minutes of stakeholder's meeting or stakeholder's written feedback as an endorsement from stakeholder's side?
Yes ☐
No ☐
Comments:

15. Overall comment.

16. Name and signature of PANS OPS inspector
a. Name:

b. Signature

17. Date: