OVERSEAS TERRITORIES AVIATION REQUIREMENTS (OTARs)

Part 176

Instrument Flight Procedure Approval

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Revisions

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Issue 1	Published for information.	April 2005
Issue 2	Released for gazetting with minor amendment to introductory text.	July 2005
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Issue 5	Conditional permission of single pilot flight validation. Removal of references to specific articles of the AN(OT)O in preparation for its restructuring.	May 2012

Contents

Subpart A – General

176.1 Purpose

(a) The Requirements of this Part cover two approvals:

(1) the approval of an organisation (termed the 'Design Organisation' in this Part) for the design of Instrument Flight Procedures (IFP); and

(2) the approval of IFPs for publication.

(b) These Requirements are not in themselves Law. Failure to comply may not constitute an offence. However, the Requirements repeat or reproduce many of the provisions of the Air Navigation (Overseas Territories) Order ("the Order"). Therefore, failure to comply with these Requirements may:

(1) constitute a breach of the Order; and

(2) result in proceedings for breaches of the Order; or

(3) result in the refusal of an application for renewal of a certificate or licence; or

(4) result in action to suspend or revoke a certificate or licence.

(c) The Order specifies these obligations in rather general terms; therefore, there is a provision in the Order which requires the Governor to publish Requirements to augment, amplify and detail more precisely the manner in which these obligations shall be met. These Requirements are the means by which the applicant will be able to satisfy the Governor as to their fulfilment of their legal obligations in respect of the design and operation of IFPs.

(d) The applicant/s may use another party for meeting the Requirements of this Part. In such cases it becomes a legal obligation upon the applicant to satisfy himself as to compliance with the Requirements of this Part, subject to acceptance by the Governor as a part of the approval (see note)[1]. As part of this process, third parties used to meet the Requirements of this Part are subject to audit and acceptance by the Governor.

(e) The issue of a Design Organisation approval indicates only that the organisation is considered competent to design an IFP in accordance with the approval conditions identified by the Governor.

(f) The issue of an IFP approval indicates only that an IFP is considered satisfactory in accordance with the approval conditions identified by the Governor.

[1] An applicant for IFP design approval shall comply with the Requirements of this Part. This applicant is responsible for ensuring and demonstrating compliance to the Governor of any third parties with the Requirements of this Part. Similarly, in seeking approval for the publication of an instrument flight procedure, an applicant is responsible for demonstrating to the Governor compliance of any third parties with the Requirements of this Part.

(h) The issue of approvals does not relieve any applicant or the pilot-in-command, from the responsibility for compliance with the Order and any other legislation in force.

(i) Other OTAR Parts may impinge upon activities conducted under this Part. In particular, Part 1 contains definitions which apply, unless otherwise stated, to all Parts. A full list of OTAR Parts, a description of the legislative structure and the place of OTARs and Overseas Territory Aviation Circulars (OTACs) within it can be viewed on the ASSI website www.airsafety.aero. OTACs relevant to this Part can be viewed at www.airsafety.aero/legislation_and_otar_s/otac_s/aerodromes/.

(j) References to the Governor in this OTAR Part mean the regulator designated by the Governor of the Territory to exercise his functions under the Order.

176.3 Use of English

All documentation, written communications and data (electronic or otherwise) for submission to the Governor in support of an application for approval shall be provided in English.

176.5 Laws, requirements and procedures

Each holder of an approval under this Part shall take reasonable care to ensure that all persons employed, engaged, or contracted by the holder to perform procedure design, validation, publication or maintenance activities, as may be applicable under their approval, are familiar with the appropriate sections of legislation, the Overseas Territories Aviation Requirements, any applicable conditions on the approval and the procedures specified in the approval holder's safety assurance documentation/exposition.

176.7 Application for approval

(a) An applicant for the grant of an approval shall apply to the Governor in the manner required supplying:

(1) the applicant's name and address; and

(2) payment of any applicable fees as required.

(b) The applicant shall also provide to the Governor in the manner required either:

(1) an organisational exposition as specified in paragraph 176.23; or

(2) an IFP design report as specified in paragraph 176.41.

176.9 Issue of approval

(a) A Design Organisation approval will be granted when the applicant's exposition, required by paragraph 176.23, provides sufficient evidence to satisfy the Governor that:

(1) the applicant has an appropriate and adequate management structure with detailed accountabilities and competencies for the safe design of IFPs as required by paragraph 176.27; and

(2) the applicant has appropriate and adequate quality management systems in operation to preserve the integrity of designed IFPs as required by paragraph 176.29; and

(3) the applicant has appropriate and adequate safety management systems in place as required by paragraph 176.31; and

(4) the applicant's use of any third parties is sufficiently controlled according to the quality and safety management systems as specified above in accordance with the requirements of paragraph 176.37; and

(5) the granting of the approval is not contrary to the interests of aviation safety.

(b) An applicant shall be granted an approval of an IFP if the Governor is satisfied that:

(1) the IFP has been designed by a Design Organisation holding a current approval under Subpart B; and

(2) the applicant sufficiently demonstrates in the IFP design report that:

(i) the IFP has been designed according to the requirements of paragraph 176.45; and
(ii) the IFP has been flight checked according to the requirements of paragraph 176.49; and
(iii) the IFP charts and description have been disseminated in accordance with paragraph 176.55.

176.11 Privileges of approval

(a) A Design Organisation approval shall specify those Overseas Territories in which IFP design services may be provided subject to the provisions of this Part.

(b) Approval of the IFP design report authorises the publication of the IFP subject to the conditions for such use.

(c) An approval shall include such conditions as the Governor may consider appropriate.

176.13 Procedure compliance

Each person performing duties in relation to the design and use of an IFP shall conform with the requirements of this Part and any conditions of approval.

176.15 Power to inspect

Each holder of an approval under this Part shall ensure that any person authorised by the Governor shall have access to any documentation relating to the design, validation, publication or maintenance activities for IFPs as appropriate to the approval. The holder of an approval shall be responsible for ensuring that, if requested to do so by an authorised person, documentation is produced within a reasonable period of time.

176.17 Definitions

The definitions used throughout this Part are in accordance with OTAR Part 1.

176.19 Applicability

The specifications identified in OTAR Part 176 shall not apply to military aerodromes but shall apply to all other aerodromes, including water aerodromes.

Subpart B – Instrument Flight Procedure (IFP) Design Organisation Approval

176.21 Design Organisation approval

(a) An approved Design Organisation shall comply with the requirements of this Subpart at all times.

(b) An approved Design Organisation shall ensure the compliance of any third parties used whilst satisfying the requirements of this Subpart.

176.23 Application exposition

The applicant shall provide the Governor with an exposition containing:

(a) A policy statement signed by the person identified at paragraph 176.27(a)(1) attesting that:

(1) the exposition demonstrates compliance with this Part; and

(2) the organisation will comply with this Part at all times; and

(b) the titles and names of the senior person or persons required under paragraphs 176.27(a)(1) and 176.27(a)(2) and 176.27(a)(3) and 176.27(a)(4) ; and

(c) the duties and responsibilities of the senior person or persons in paragraphs 176.27(a)(1) and 176.27(a)(2) and 176.27(a)(3) and 176.27(a)(4), including matters for which they have responsibility to deal directly with the Governor on behalf of the organisation; and

(d) an organisational chart showing lines of responsibility between the persons specified in paragraph 176.27(a); and

(e) details of the organisation's staffing structure including job descriptions and safety responsibilities; and

(f) policy, procedures, evidence or references supporting the following requirements:

(1) paragraph 176.27 regarding the integrity of the organisation; and

(2) paragraph 176.29 regarding the implementation of quality management systems; and

(3) paragraph 176.31 regarding the implementation of safety management systems; and

(4) paragraph 176.33 regarding the implementation of in house training mechanisms to maintain quality; and

(5) paragraph 176.37 regarding the subcontracting of third parties if applicable.

(g) a description of the entire operation; and

(h) evidence of the practical application of theoretical knowledge of ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) including samples of recent IFP design.

176.25 Duration of approval

(a) Design Organisation approval shall be valid for a maximum period of 5 years, unless it is previously suspended or revoked, and will be subject to such conditions as the Governor sees fit.

(b) The holder of any approval that is suspended or revoked shall immediately surrender the approval certificate to the Governor or designated authority.

176.27 Organisation requirements

(a) The applicant shall nominate:

(1) a senior person identified as the Accountable Manager who has the authority within the applicant's organisation to ensure:

(i) the organisation can be adequately funded and resourced; and
(ii) that safety is given the highest priority when assessing the commercial, operational, environmental or social pressures; and
(iii) compliance is achieved and maintained with the requirements of this Part; and
(iv) an IFP designer or other post is appointed with sufficient authority to be clearly accountable for the contents of any published IFP chart.

(2) a senior person or persons responsible for ensuring the compliance of the applicant's organisation with the quality management requirements of this Subpart; and

(3) a senior person or persons responsible for ensuring the compliance of the applicant's organisation with the safety management requirements of this Subpart; and

(4) a senior person or persons responsible for ensuring the compliance of the applicant's organisation with the training requirements of this Part.

176.29 Quality management system

(a) The applicant shall establish a documented quality management system compliant with ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design) Volume 1 (Flight Procedure Design Quality Assurance System). The quality management system shall specify quality assurance processes to:

(1) identify applicable requirements, regulations and standards and demonstrate compliance with them; and

(2) ensure technical manuals, checklists and other documentation are appropriately maintained and incorporate the latest amendments; and

(3) ensure that training programmes as specified in paragraph 176.33 maintain staff proficiency and competency.

(b) The documented quality management system specified in 176.29(a) shall include:

(1) identification of data transfer methods used for each IFP design in respect of manual or electronic means; and

(2) steps taken to preserve the accuracy, resolution and integrity of data elements whenever data is transferred; and

(3) the extent to which software tools are used in the handling and manipulation of data elements; and

(4) procedures for the validation and maintenance of software tools in accordance with the requirements of paragraph 176.35; and

(5) procedures for the engagement and management of third parties to meet the requirements of this Subpart whilst complying with the requirements of paragraph 176.37.

176.31 Safety management system

(a) The applicant shall establish a documented safety management system appropriate to the size and complexity of the operation, for the proactive management of safety, that:

(1) integrates the management of operations and technical systems with financial and human resource management and that reflects quality assurance principles; and

(2) includes policy and objectives for continuous improvement to the organisation’s overall safety performance; and

(3) defines clear lines of safety accountability throughout the operator's organisation, including direct accountability for safety on the part of senior management.

(b) The documented safety management system specified in 176.31(a) shall include:

(1) processes to identify actual and potential safety hazards and assess the associated risks; and

(2) processes to develop and implement remedial action necessary to maintain agreed safety performance; and

(3) provision for continuous monitoring and regular assessment of the appropriateness and effectiveness of the safety performance; and

(4) recurring processes for continuous improvement of the performance of the safety management system.

176.33 Staff training

(a) The applicant shall ensure that IFP designers maintain competence through formal training courses and on the job training.

(b) On the job training shall be compliant with the guidance and formats contained within ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design) Volume 2 (Flight Procedure Designer Training).

(c) The applicant shall ensure that all IFP designers have successfully completed formal PAN-OPS training prior to commencing any IFP design related activity.

(d) Specialist courses related to PBN operations as defined by ICAO Doc 9613 (Performance Based Navigation (PBN) Manual) shall be completed prior to commencing the design of any RNAV or RNP instrument flight procedure, if such training is not already part of the formal PANS-OPS course.

(e) The applicant shall ensure that written records and procedures are established to:

(1) assess the competence of the authorised procedure designers; and

(2) maintain the competence of the authorised procedure designers; and

(3) establish a means to provide their procedure designers with signed written evidence of the scope of their authorisation; and

(4) establish the job descriptions containing safety responsibilities.

176.35 IFP design tools verification/validation

(a) All software that is used in the calculation of waypoints, coordinates and obstacle surfaces as part of an IFP shall be validated prior to use. According to the extent of the concerned procedure design tool's functions the following steps required for validation shall be included within the applicant's QMS:

(1) the test procedures required to validate and check correct calculations from the software; and

(2) the maintenance procedures for patching and updating the software.

(b) The software tool shall not be considered validated following the application of a patch or software update until revalidated as stated above.

(c) Test and validation procedures for software tools shall comply with ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design) Volume 3 (Flight Procedure Design Software Validation) or equivalent.

176.37 Use of third parties

(a) Where third parties are used the applicant shall:

(1) identify the third party; and

(2) detail those requirements that will be satisfied by the third party; and

(3) remain responsible for ensuring third party compliance with the requirements of this Part; and

(4) notify the Governor of any change to the third party.

Subpart C – Instrument Flight Procedure (IFP) Approval

176.39 Instrument flight procedure approval

(a) An applicant approved to publish an IFP shall comply with the requirements of this Subpart at all times.

(b) An applicant shall ensure the compliance of any third parties used whilst satisfying the requirements of this Subpart.

(c) On approval of the IFP design report:

(1) the IFP shall be published in the AIP in accordance with paragraph 176.55 and any conditions that the Governor may prescribe; and

(2) the applicant shall assume continuous ownership and responsibility for the IFP, including data management according to paragraph 176.47; and

(3) the applicant shall be responsible for safeguarding the procedure and the assessment of new obstacles that require a revalidation of the IFP according to paragraph 176.43(b)(4).

176.41 Approval submission

(a) An IFP design report shall be provided to the Governor containing the evidence that the IFP has been constructed, designed, and will be maintained, in accordance with the requirements of this Subpart.

(b) The IFP design report shall contain the following documentary evidence:

(1) Details of the design criteria used in the construction of the IFP, including:

(i) a statement of the procedure's compliance with respect to the requirements of paragraph 176.45; and
(ii) a comprehensive design rationale in text format; and
(iii) references to those parts of Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2 where a deviation from the standard criteria or policy has been employed.

(2) A description of the procedure, including:

(i) signatures of the procedure designer and nominated checker as designated respectively; and
(ii) waypoint names, type and coordinates; and
(iii) obstacles assessed in the construction of the procedure including height and position coordinates; and
(iv) description of the source of obstacle, terrain and aerodrome data used as applicable in the design of the IFP, as complying with the requirements of paragraph 176.47; and

(v) a diagram detailing the obstacle surfaces used in plan and profile to aid safeguarding assessment as described in paragraph 176.55(b)(2); and
(vi) a procedure chart compliant with the requirements of paragraph 176.55(b)(1); and
(vii) a textual narrative that describes in an unambiguous manner the flight procedure.

(3) A description of the flight test procedure, including:

(i) evidence of aircraft used as required by paragraph 176.51; and
(ii) flight crew and certification approvals as required by paragraph 176.53; and
(iii) the flight test report in accordance with the requirements of paragraph 176.49(g).

176.43 IFP design safety requirements

(a) The applicant shall ensure that the IFP design construction is:

(1) compliant with paragraph 176.45; and,

(2) completed by a Design Organisation approved in accordance with the requirements of Subpart B; and

(3) undertaken with sufficient documented coordination between ATC, the aerodrome certificate holder, Air Traffic Engineering and the Design Organisation where applicable. This shall include:

(i) a review of the obstacles applicable to the procedure with the aerodrome certificate holder prior to any design work; and
(ii) development of the flight check plan, as described in paragraph 176.49, taking into account the requirement for operational ground navigation aids as necessary; and
(iii) validation of both the operational and certification status of all applicable navigation aids.

(b) The applicant shall establish formal records and procedures to ensure that:

(1) there are sufficient cross checks to detect erroneous calculations; and

(2) required separations in the proximity of adjacent air traffic routings are maintained; and

(3) potential navigation database limitations are addressed before the procedure is coded and approved; and

(4) the Governor is informed and a reassessment of the IFP minimum altitudes undertaken when:

(i) there is a potential obstacle infringement of the IFP protected surfaces; or

(ii) there is a potential breach of aerodrome protected surfaces stipulated through aerodrome safeguarding.

(5) a NOTAM to suspend the IFP is promulgated when a potential infringement or breach as specified by 176.43(b)(4) is confirmed.

176.45 IFP design procedures

(a) All IFPs shall be designed adhering to the methodology and design criteria specified in ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2 ensuring in particular that required obstacle clearances are achieved.

(b) When the IFP being developed is an RNAV based procedure, then the additional requirements from ICAO Doc 9613 (Performance Based Navigation (PBN) Manual) Volumes 1 and 2 shall also apply.

(c) As applicable, the provisions from ICAO Doc 9906 (The Quality Assurance Manual for Flight Procedure Design) in the construction of flight procedures shall apply.

176.47 Provenance of IFP source data

(a) Source data used in the development of IFP procedures shall include, as applicable, all aerodrome, navigation aid, obstacle and terrain data as specified in ICAO Annexes 14 (Aerodromes) and 15 (Aeronautical Information Services).

(b) All data used as the basis for IFP design shall be traceable to source and shall have as a minimum the following metadata available:

(1) the name of the source or entity originating the data; and

(2) the function performed by the source or entity; and

(3) the date at which the function was performed.

(c) The requirements for survey frequency are as follows:

(1) A geodetic connection survey sufficient to meet the requirements of ICAO Annex 14 (Aerodromes) and Annex 15 (Aeronautical Information Services) shall be undertaken for all aerodromes with instrument procedures:

(i) at the time of the initial aerodrome survey; and
(ii) when a more accurate reference frame for WGS-84 becomes available.

(2) A full survey sufficient to meet the requirements of ICAO Annex 14 (Aerodromes) and Annex 15 (Aeronautical Information Services) shall be undertaken for all aerodromes:

(i) at the time of the initial aerodrome survey; and

(ii) if a check survey is not carried out annually; and
(iii) if any doubt exists as to the validity of the previous survey.

(3) A check survey shall be undertaken for all aerodromes on an annual basis following the initial survey to identify any changes, including significant tree growth or reduction, since the previous survey. Any change shall be surveyed to meet the requirements of ICAO Annex 14 (Aerodromes) and Annex 15 (Aeronautical Information Services).

(d) All source data shall only be considered valid for use when the data is traceable according to the requirements of 176.47(b) and the period of last survey complies with the requirements of 176.47(c).

(e) All source data shall be in WGS-84 format as specified in ICAO Doc 9674 (World Geodetic System – 1984 (WGS-84) Manual) and compliant with the requirements of ICAO Doc 9613 (Performance Based Navigation (PBN) Manual) Volume 1 Attachment 2. If source data is unavailable in WGS-84 format, then it shall be converted to WGS-84 prior to use. The source data and converted data shall be made available as required in paragraph 176.41(b)(2).

(f) Source data shall be provided by the relevant aerodrome certificate holder. Where valid source data according to paragraph 176.47(d) is unavailable, the applicant shall conduct a survey to provide baseline data for the purposes of IFP design to meet these requirements.

(g) Where a third party is contracted for the purpose of the survey, the applicant shall ensure that the data is consistent with the requirements of ICAO Annex 14 (Aerodromes) Volume 1 Appendix 5 and Volume 2 Appendix 1, ICAO Annex 11 (Air Traffic Services) Appendix 5 and ICAO Annex 15 (Aeronautical Information Services) Appendix 7, and is accepted by the aerodrome certificate holder.

176.49 IFP Flight check requirements

(a) All IFPs shall be subject to flight check unless specifically permitted otherwise by the Governor.

(b) All IFPs shall be subject to flight check utilising aircraft and aircrew compliant with the requirements of paragraph 176.51 and paragraph 176.53.

(c) The flight check shall be in accordance with ICAO Doc 9613 (Performance Based Navigation (PBN) Manual) Volume 1, Part B Chapter 1 and Doc 8071 (Manual on Testing of Radio Navigation Aids) Volume 2 (Testing of Satellite-based Radio Navigation Systems) Chapter 5 noting that the purpose of the flight check shall be:

(1) to validate the obstacles as shown on the chart and used as the basis for computing minimum altitude; and

(2) to ensure, in particular, the flyability of the procedure in maintaining safe operations for each category of aircraft; and

(3) to review the IFP for complexity of workload, correctness of information and ease of interpretation.

(d) The applicant shall prepare a flight check plan prior to the flight check to accompany the flight check report detailing how the flight check will:

(1) provide assurance that adequate obstacle clearance has been provided; and

(2) verify that the navigation data to be published, as well as that used in the design of the procedure, are correct; and

(3) verify that all required infrastructure, such as runway markings, lighting and communications and navigation sources are in place and operative; and

(4) conduct an assessment of flyability to determine that the procedure can be safely flown; and

(5) evaluate the charting, required infrastructure, visibility and other operational factors.

(e) The flight check plan shall comply with the guidance and recommendations given in ICAO Doc 8071 (Manual on Testing of Radio Navigation Aids) and ICAO Doc 9906 (The Quality Assurance Manual for Flight Procedure Design).

(f) The applicant shall ensure that the flight check report is issued as soon as possible following the flight check.

(g) The flight check report shall be completed according to the templates shown in Appendix A to this Part or as stipulated in ICAO Doc 9906 (Quality Assurance Manual for Flight Procedure Design).

176.51 Aircraft requirements

(a) The aircraft used to conduct a flight check in accordance with paragraph 176.49 shall meet the following minimum requirements:

(1) the aircraft shall be multi-engined and capable of safe flight within the intended operational envelope with a single engine operative; and

(2) the aircraft shall be fully instrument equipped according to requirements for night and instrument flight rules; and

(3) the aircraft shall be capable of being flown at speeds equivalent to categories of aircraft for which the IFP was designed.

(b) As applicable, the aircraft used shall comply with the requirements of ICAO Doc 8071 (Manual on Testing of Radio Navigation Aids) Volume 1 (Testing of Ground Based Navigation Aids) Attachment 1 to Chapter 1.

(c) Evidence of the aircraft's applicable certifications shall be presented to the Governor.

176.53 Aircrew requirements

(a) Flight validation aircrew:

(1) shall have received suitable training in accordance with ICAO Doc 9906 and relevant to the IFP for which the check is being completed; and

(2) shall be familiar with the test and inspection particular to the type of IFP being checked as detailed within ICAO Doc 8071 (Manual on Testing of Radio Navigation Aids); and

(3) shall be sufficiently trained to be able to recognise anomalous output from aircraft instruments that would require more detailed inspection with a more fully equipped aircraft and crew; and

(4) may be single pilot only when it can be demonstrated to the Governor that flight can be conducted safely and that flight workload is acceptable; and

(5) shall include, where appropriate for the flight check, engineers or technicians able to demonstrate sound knowledge and experience in flight testing and inspection procedures and requirements.

176.55 IFP dissemination

(a) The applicant shall be responsible for dissemination of the IFP and associated documentation to the designated Aeronautical Information Service (AIS) for publication following approval of the procedure by the Governor.

(b) The applicant shall ensure that:

(1) the design and format of the IFP charts are in a standardised format in accordance with the requirements of ICAO Annex 4 (Charts), ICAO Doc 8697 (Aeronautical Chart Manual) and ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2; and

(2) the aerodrome certificate holder is provided with charts detailing the obstacle surfaces used in plan and profile to aid safeguarding assessment; and

(3) where the IFP is an RNAV procedure, it is described in a clear and unambiguous fashion as detailed in ICAO Doc 8168 (Procedures for Air Navigation Services – Aircraft Operations) Volume 2 and ICAO Annex 15 (Aeronautical Information Services); and

(4) where the IFP is an RNAV procedure, prior to publication, it is validated to ensure that the dataset is complete, coherent and correct; and

(5) the Design Organisation specified by 176.43(a)(2) performs a final check of the published data in the AIP/chart amendment when issued to ensure that no errors have been introduced during the data transfer process.

APPENDIX A

176.A.1 Flight check forms

The following checklist and report templates shall be completed during the flight validation as required by paragraph 176.49(g) as applicable. If certain items are not applicable to the intended IFP these shall be identified by strikethrough or the term “n/a”.

176.A.3 Pre-flight validation

PRE-FLIGHT VALIDATION CHECKLIST FIXED WING				
REPORT HEADER				
Date:	Validation Type (New/amended procedure):			
Organisation:				
Procedure Title:				
Location:				
Airport:	Runway:			
Evaluator Name/ Phone:				
PBN Navigation Specification:				
PRE-FLIGHT VALIDATION				
			PASS	**FAIL**
IFP package forms, charts, and maps				
Data verification (aerodrome/heliport, aeronautical, obstacle, ARINC coding)				
Review obstacle data and application				
Graphical depiction (Chart) correctness and complexity				
Intended use and special requirements				
Overall design is practical, complete, clear and safe				
Consider impact on the procedure of waivers to standard design criteria				
Segment lengths and descent gradients allow for deceleration/ configuration				
Comparison of FMS navigation database with the IFP design, coding, and relevant charting information				
Charting of notification of cold/warm temperature limits (when applicable)				
ESV Requirements for Ground NAVAID Support				
Remarks:				
PROCEDURE	**PASS**		**FAIL**	
EVALUATOR SIGNATURE: Date:				

176.A.5 Simulator validation checklist - fixed wing

SIMULATOR EVALUATION				
REPORT HEADER				
Date:	Validation Type (New/amended procedure):			
Organisation:				
Procedure Title:				
Location:				
Airport:	Runway:			
Evaluator Name/ Phone:				
PBN Navigation Specification:				
			PASS	**FAIL**
Comparison of FMS navigation database and source documents, including proper ARINC 424 Coding				
Document simulator aircraft information including FMS software				
Assessed faster and/or slower than charted				
Assessed at allowed temperature limits				
Assessed with adverse wind components				
Flight track matches procedure design				
Flyability				
Human Factors assessment				
ADDITIONAL REQUIREMENTS FOR SIMULATOR ACTIVITIES				
			DONE	
Document the following information as satisfactory or not for each procedure segment as appropriate: Heading/Track, Distance, GPWS Alerts, Flight Path Angle (for Final Segment only); and note the wind component and temperature conditions				
Note the maximum bank angle achieved during any RF segments				
Record simulation data (if applicable)				
Remarks:				
PROCEDURE	**PASS**		**FAIL**	
EVALUATOR SIGNATURE: Date				

176.A.7 Flight validation checklist - fixed wing

FLIGHT VALIDATION CHECKLIST - FIXED WING		
REPORT HEADER		
Date:	Validation Type (New/amended procedure):	
Organisation:		
Procedure Title:		
Location:		
Airport:	Runway:	
Evaluator Name/ Phone:		
PBN Navigation Specification:		
PLANNING		
	PASS	**FAIL**
Check all necessary items from IFP package are available, to include: graphic, text, maps, submission form		
Check that the necessary flight validation forms are available		
Any flight inspection (ground NAVAID) requirements identified		
Appropriate aircraft and avionics for IFP being evaluated		
Does the procedure require use of autopilot or flight director		
PREFLIGHT		
	PASS	**FAIL**
Review pre-flight validation assessment		
Review simulator evaluation assessment (if applicable)		
Obstacle assessment planning: areas of concern; ability to identify and fly lateral limits of obstacle assessment area (if required)		
Verify source of IFP data for aircraft FMS (electronic or manual creation)		
Evaluate navigation system status at time of flight (NOTAM, RAIM, outages)		
Weather requirements		
Night evaluation requirement (if applicable)		
Required Navigation (NAVAID) support (if applicable)		
Combination of multiple IFP evaluations		
Estimated flight time		
Coordination (as required) with: ATS, Designer, Airport Authority		
Necessary equipment and media for electronic record of validation flight		
GENERAL		
	PASS	**FAIL**
IFP graphic (Chart) is complete and correct		
Check for interference: document all details related to detected RFI		
Satisfactory radio communication (as a minimum, air traffic communication at the IAF minimum altitude and at the missed approach altitude and holding fix)		
Required RADAR coverage is satisfactory		
Verify proper runway markings, lighting and VGSI		
Altimeter source(s)		
OBSTACLE ASSESSMENT		
	PASS	**FAIL**
Verified controlling obstacle in each segment (including circling and missed approach); if any obstacles are missing or any new obstacles are observed, record the lat/long		
Where necessary, flown at lateral limits of the obstacle assessment area; most appropriate for procedures designed in challenging terrain, or when there are questionable obstacles.		

Extra consideration should be given to non-surveyed areas		
For approach procedures with circling minima, verify controlling obstacle for each circling category		
FLYABILITY		
	PASS	**FAIL**
Comparison of FMS navigation database and source documents, including proper ARINC 424 Coding		
Human Factors and general workload satisfactory		
Note any loss of RAIM		
Note any loss of required RNP navigation performance		
Missed approach procedure		
Descent/ Climb gradients		
Use of autopilot satisfactory		
Segment length, turns and bank angles, speed restrictions and deceleration allowance		
GPWS		
INSTRUMENT APPROACH PROCEDURE		
	PASS	**FAIL**
Segment lengths, headings/ tracks, and waypoint locations match procedure design		
Final segment vertical glide path angle (if applicable)		
Threshold Crossing Height (LTP or FTP), if applicable		
Course Alignment		
Along Track Alignment		
FAS Datablock		
Remarks:		

PROCEDURE	**PASS**		**FAIL**	

EVALUATOR SIGNATURE:

Date

176.A.9 Post-flight validation checklist - fixed wing

FLIGHT VALIDATION CHECKLIST - FIXED WING				
REPORT HEADER				
Date:	Validation Type (New/amended procedure):			
Organisation:				
Procedure Title:				
Location:				
Airport:	Runway:			
Evaluator Name/ Phone:				
PBN Navigation Specification:				
POST FLIGHT				
			PASS	**FAIL**
Evaluate collected data				
Submit flight validation report with recorded electronic flight data for archive				
Request NOTAM action (if appropriate)				
Sign and submit the instrument flight procedure submission documentation				
Remarks:				
PROCEDURE	**PASS**		**FAIL**	
EVALUATOR SIGNATURE: Date				