

STATE OF LIBYA
MINISTRY OF TRANSPORT
CIVIL AVIATION AUTHORITY



دولة ليبيا
وزارة المواصلات
مصلحة الطيران المدني

LYCAR Part-IFP

Libyan Civil Aviation Regulation

Part - IFP: Instrument Flight Procedures

Second issue, February 2023

Approved by and published under the authority of the President of LYCAA.

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FOREWORD

1. The regulation contained herein is adopted under the provision of Article N5 of Libyan Civil Aviation Law N6 of 2005, issued and signed up by the President of Libyan Civil Aviation by virtue of powers vested from the Minister of Transport under the resolution N154 issued on 13.05.2015.
2. This Libyan Civil Aviation Regulation Part-IFP (Instrument Flight Procedures) prescribes the requirements for the rules governing the certification and operation of organizations that provide services for the design and maintenance of instrument flight procedures and the technical standards for the design of instrument flight procedures.
3. This LYCAR- Part IFP has been modelled upon similar regulations implemented by other member states and includes the subject matter endorsed within ICAO Annex 11 (Air Traffic Services) to the Chicago Convention and ICAO DOC 8168, (PANS-OPS) Procedures for Air Navigation Services – Aircraft Operations – Volume I Flight Procedures, and Volume II, Construction of Visual and Instrument Flight Procedures. This LYCAR does not apply to the design of aircraft performance operating limitations or flight paths for critical engine inoperative emergency procedures.
4. The information contained herein is subject to constant review in the light of changing regulations and requirements. No subscriber or other reader shall act on the basis of any such information without taking appropriate professional advice when/as indicated/required. Although, every effort has been made to ensure accuracy, the Libyan Civil Aviation Authority (LYCAA) shall not be held responsible for loss or damage caused by errors, omissions, misprints or misinterpretation of the content hereof.
5. The use of the male gender implies the female gender and vice versa.
6. Copies of this regulation can be obtained from the ANS Inspectorate Office of the LYCAA or can be downloaded on the official website: www.caa.gov.ly
7. Transition Period: The Libyan Air Navigation Service Providers are required to comply with the requirements of this regulation within three months after its official publication.

Dr. Mohamed Shlibek
President of LYCAA
14th of February 2023

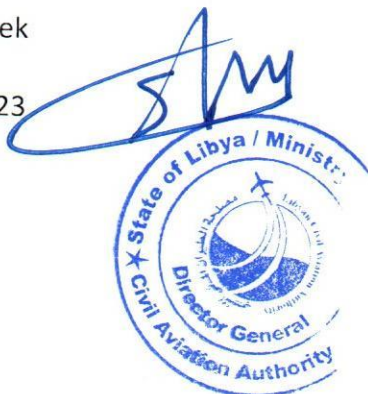


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Abbreviations

AC	Advisory Circular
ACAS	Airborne collision avoidance system
ADS-B	Automatic dependent surveillance — broadcast
AGL	Above ground level
AHRS	Attitude and heading reference system
AIRAC	Aeronautical information regulation and control
APV	Approach procedure with vertical guidance
ATC	Air traffic control
ATIS	Automatic terminal information service
ATM	Air traffic management
ATS	Air traffic services
CAT	Category
CBT	Computer-based training
CCO	Continuous climb operation
CDFA	Continuous descent final approach
CDO	Continuous descent operation
CPA	Closest point of approach
CRC	Cyclic redundancy check
CRM	Collision risk model
CRM	Crew resource management
DME	Distance measuring equipment
ESDU	Engineering Sciences Data Unit
EUROCAE	European Organization for Civil Aviation Equipment
FAA	Federal Aviation Administration
FAF	Final approach fix
FHP	Fictitious helipoint
FL	Flight level
FMS	Flight management system
ft	Foot (feet)
FTP	Fictitious threshold point
GPIP	Glide path intercept point
GPWS	Ground proximity warning system
HP	Helipoint
hPa	Hectopascal(s)
HPL	Horizontal protection level
HVR	High vertical rate
IFR	Instrument flight rules
ILS	Instrument landing system
IMC	Instrument meteorological conditions
INS	Inertial navigation system

IR	ISA International standard atmosphere
JAA	Joint Aviation Authorities
kt	Knot(s)
km	Kilometre(s)
LORAN	Long range air navigation system
LTP	Landing threshold point
m	Metre(s)
MEL	Minimum equipment list
MLS	Microwave landing system
MOC	Minimum obstacle clearance
MOPS	Minimum operational performance standards
NADP	Noise abatement departure procedure
NATHLA	North Atlantic high level airspace
NM	Nautical mile(s)
NOZ	Normal operating zone
NTZ	No transgression zone
OAS	Obstacle assessment surface
OCA/H	Obstacle clearance altitude/height
OEI	One-engine-inoperative
OIS	Obstacle identification surface
OLS	Obstacle limitation surface
PA	Precision approach
PAOAS	Parallel approach obstacle assessment surface
PF	Pilot flying
PM	Pilot monitoring
QFE	Atmospheric pressure at aerodrome elevation (or at runway threshold)
QNH	Altimeter sub-scale setting to obtain elevation when on the ground
RA	Resolution advisory
RSR	En-route surveillance radar
RSS	Root sum square
SI	International system of units
SOPs	Standard operating procedures
SPI	Special position indicator
SSR	Secondary surveillance radar
SST	Supersonic transport
TA	Traffic advisory
TSO	Technical Standard Order
VAL	Vertical alarm limit
VPL	Vertical protection level
VTF	Vector to final S Inertial reference system

Definitions

When the following terms are used in this document, they have the following meanings:

Aerodrome elevation. The elevation of the highest point of the landing area.

Airborne collision avoidance system (ACAS). An aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

Alternate aerodrome. An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use. Alternate aerodromes include the following:

Take-off alternate. An alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

En-route alternate. An alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while en route.

Destination alternate. An alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note: The aerodrome from which a flight departs may also be an en-route or a destination alternate aerodrome for that flight.

Altitude. The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

Continuous climb operation (CCO). An operation, enabled by airspace design, procedure design and ATC, in which a departing aircraft climbs continuously, to the greatest possible extent, by employing optimum climb engine thrust and climb speeds until reaching the cruise flight level.

Continuous descent final approach (CDFA). A technique, consistent with stabilized approach procedures, for flying the final approach segment of a non-precision instrument approach procedure as a continuous descent, without level-off, from an altitude/height at or above the final approach fix altitude/height to a point approximately 15 m (50 ft) above the landing runway threshold or the point where the flare maneuver should begin for the type of aircraft flown.

Continuous descent operation (CDO). An operation, enabled by airspace design, procedure design and ATC, in which an arriving aircraft descends continuously, to the greatest possible extent, by employing minimum engine thrust, ideally in a low drag configuration, prior to the final approach fix/final approach point.

Controlled airspace. An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

Note: Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E as described in Annex 11, 2.6.

Dependent parallel approaches. Simultaneous approaches to parallel or near-parallel instrument runways where ATS surveillance system separation minima between aircraft on adjacent extended runway center lines are prescribed.

Elevation. The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.

Flight level (FL). A surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

Note 1: A pressure type altimeter calibrated in accordance with the Standard Atmosphere:

- a) when set to a QNH altimeter setting, will indicate altitude;*
- b) when set to a QFE altimeter setting, will indicate height above the QFE reference datum; and*
- c) when set to a pressure of 1 013.2 hPa, may be used to indicate flight levels.*

Note 2: The terms “height” and “altitude”, used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.

Heading. The direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).

Height. The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

Hot spot. A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

Independent parallel approaches. Simultaneous approaches to parallel or near-parallel instrument runways where ATS surveillance system separation minima between aircraft on adjacent extended runway center lines are not prescribed.

Independent parallel departures. Simultaneous departures from parallel or near-parallel instrument runways.

Instrument approach operations. An approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

- a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and
- b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

Note: Lateral and vertical navigation guidance refers to the guidance provided either by:

- a) a ground-based radio navigation aid; or
- b) computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of these.

Instrument approach procedure (IAP). A series of predetermined maneuvers by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:

Non-precision approach (NPA) procedure. An instrument approach procedure designed for 2D instrument approach operations Type A.

Note: Non-precision approach procedures may be flown using a continuous descent final approach (CDFA) technique. CDFAs with advisory VNAV guidance calculated by on-board equipment are considered 3D instrument approach operations. CDFAs with manual calculation of the required rate of descent are considered 2D instrument approach operations. For more information on CDFAs, refer to PANS-OPS, (Doc 8168) Volume I, Part II, Section 5.

Approach procedure with vertical guidance (APV). A performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A.

Precision approach (PA) procedure. An instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS CAT I) designed for 3D instrument approach operations Type A or B.

Note: Refer to Annex 6 for instrument approach operation types.

Level. A generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level.

Missed approach procedure. The procedure to be followed if the approach cannot be continued.

Near-parallel runways. Non-intersecting runways whose extended center lines have an angle of convergence/divergence of 15 degrees or less.

Normal operating zone (NOZ). Airspace of defined dimensions extending to either side of a published instrument approach procedure final approach course or track. Only that half of the normal operating zone adjacent to a no transgression zone (NTZ) is taken into account in independent parallel approaches.

NOTAM. A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

No transgression zone (NTZ). In the context of independent parallel approaches, a corridor of airspace of defined dimensions located centrally between the two extended runway center lines, where a penetration by an aircraft requires a controller intervention to maneuver any threatened aircraft on the adjacent approach.

Procedure turn. A maneuver in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Note 1: Procedure turns are designated “left” or “right” according to the direction of the initial turn.

Note 2: Procedure turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

Segregated parallel operations. Simultaneous operations on parallel or near-parallel instrument runways in which one runway is used exclusively for approaches and the other runway is used exclusively for departures.

Threshold (THR). The beginning of that portion of the runway usable for landing.

Track. The projection on the earth’s surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid).

Transition altitude. The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.

Transition layer. The airspace between the transition altitude and the transition level.

Transition level. The lowest flight level available for use above the transition altitude.

Subpart A – General

IFP.005 Scope

- (a) This Part of Regulation contains the rules governing:
- (1) The certification of an organization who want to become an Instrument Flight Procedure Design Service Provider (IFPDSP);
 - (2) Instrument Flight Procedure (IFP) submission and approval;
 - (3) Validation of IFP;
 - (4) Maintenance of IFP, and
 - (5) Training Requirements for instrument flight procedures design staff.
- (b) The aim of this Part-IFP is:
- (1) to ensure that Instrument Flight Procedures (IFPs):
 - i. Are designed in accordance with the required standard as stipulated in Subpart D and applicable parts of this Regulation;
 - ii. Are safe and flyable;
 - iii. Meet Air Traffic Management requirements; and
 - iv. Are environmentally acceptable.
 - (2) to describe how the responsibilities and accountabilities may be borne throughout the design process between the Instrument Flight Procedure Design Service Provider (IFPDSP), the sponsor and the Authority.

IFP.010 Definitions

Definitions existing in ICAO Documents shall form part of this regulation, supplemented by the definitions contained in this Part-IFP. Where there are differences between the definitions in the two sources, Part-IFP has precedence.

IFP.015 IFP roles and responsibilities

- (a) Provided that the requirements laid down in this Regulation are met, the sponsor shall:
- (1) provide an instrument flight procedure design service; and/or
 - (2) agree with one or more other Member State(s) to provide a joint service; and/or
 - (3) delegate the provision of the service or a part of service to an Instrument Flight Procedure Design Service Provider (IFPDSP).

- (b) In all cases, the sponsor remains responsible for all instrument flight procedures for aerodromes, heliports and airspace under its responsibility.
- (c) The authority is responsible for overall regulatory oversight of IFPs including approval of all instrument flight procedures for aerodromes, heliports and airspace within Tripoli FIR.

IFP.020 Requirement for certificate

- (a) For the purpose of this Part-IFP, an Instrument Flight Procedure Design Service Provider (IFPDSP) is an organization employing one or more suitably qualified individuals for the provision of an instrument flight procedure design service (IFPDS).
- (b) For the purpose of this Part-IFP, a Proponent is defined as an aerodrome certificate holder, or a representative there-of or an ANSP, who proposes a new IFP or a change to or withdrawal of an IFP.
- (c) An Instrument Flight Procedure Design Service Provider (IPDSP) must not provide an instrument flight procedure design service for aerodromes, heliports and airspace within the Tripoli FIR except under the authority of an instrument flight procedure service certificate issued in accordance with this Regulation.
- (d) For the purpose of this Part-IFP, an Instrument Flight Procedure (IFP) is:
 - (1) A Standard Instrument Arrival (STAR), or
 - (2) A Standard Instrument Departure (SID), or
 - (3) An Instrument Approach Procedure (IAP), or
 - (4) An MSA or TAA, or
 - (5) Holding procedure, or
 - (6) A visual flight procedure, or
 - (7) An ATS route.

IFP.025 Application for certificate

An applicant for the grant of an instrument flight procedure service certificate must submit to the Authority an application form with:

- (1) The applicant's exposition required by [IFP.135](#); and
- (2) A payment of the appropriate fee prescribed by regulations made under the Civil Aviation Law.

IFP.030 Issue of certificate

An applicant is entitled to a certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace if:

- (a) the Authority is satisfied that the applicant meets the requirements of [Subpart B](#) and applicable subparts of this Part-IFP;
- (b) The applicant and persons listed in [IFP.070](#) paragraphs (a) (2) to (5) are acceptable to the Authority;
- (c) The organizations exposition as required by [IFP.135](#) is acceptable to the Authority; and
- (d) The Authority is satisfied that the granting of the certificate is not contrary to the interests of aviation safety.

IFP.035 Privileges of certificate

The certificate for the design of instrument flight procedures (IFP) for aerodromes, heliports and airspace shall specify the Instrument Procedure Design services that the certificate holder is authorized to provide.

IFP.040 Duration of certificate

- (a) An instrument flight procedure design services certificate is granted or renewed for a maximum period of 3 years.
- (b) An instrument flight procedure service certificate remains in force until it expires, or is suspended or revoked.
- (c) Upon revocation, suspension or surrender, the service certificate shall be returned to the Authority without delay.
- (d) The holder of a certificate for the design of instrument flight procedures (IFP) that expires or is revoked shall surrender the certificate to the Authority.
- (e) The holder of a certificate for the design of instrument flight procedures (IFP) that is suspended shall immediately return the certificate to the Authority for appropriate endorsement.
- (f) The validity of the certificate is based upon the continued operation in accordance with Libyan Civil Aviation Regulations.
- (g) The Certificate shall remain valid subject to periodic surveillance audits conducted at the discretion of the Authority confirming ongoing compliance with the Libyan Civil Aviation Regulations.

IFP.045 Renewal of certificate

- (a) An application for the renewal of a certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace shall be made to the LYCAA.
- (b) The application shall be submitted to the Authority before the application renewal date specified on the certificate or, if no such date is specified, not less than thirty (30) days before the certificate expires.

IFP.050 Safety inspections and audits

- (a) The Authority shall conduct an initial certification audit and thereafter audits at intervals not exceeding 2 years (24 months) at the certificate holder's office/facility.
- (b) The Authority may require the certificate holder to provide such information as the Authority considers relevant to the inspection or audit.
- (c) The Authority shall be granted unrestricted access to the certificate holder's facilities and shall be permitted to carry its own equipment (e.g., computers, cameras and recording devices) under all conditions while carrying out its oversight functions.

IFP.055 Resolution of safety issues

- (a) When objective evidence is found showing non-compliance of the holder of a certificate with the requirements, the finding shall be set out as follows:
 - (1) A level one finding is any non-compliance with these regulations, which could lead to uncontrolled non-compliances with applicable requirements and could affect the safety of aircraft.
 - (2) A level two finding is any non-compliance, with this regulation, which is not classified as level one.
 - (3) A level three finding is any opportunity of improvement.
- (b) After a receipt of notification of findings:
 - (1) A level one finding must be rectified immediately or within the short timescale specified;
 - (2) In case of level two findings, the corrective action period granted by the authority shall be appropriate to the nature of the finding but in any case, shall not be more than 90 days. In certain circumstances the Authority may extend the 90 days period subject to a satisfactory corrective action plan.
 - (3) the certificate holders shall:
 - i. Identify the root cause of the non-compliance;
 - ii. Define a corrective action plan; and

- iii. Demonstrate corrective action implementation to the satisfaction of the Authority within a period agreed with the Authority.
- (c) In the case of level one or level two findings, the certificate may be subject to a partial or full suspension or revocation. The holder of the certificate shall provide confirmation of receipt of the notice of suspension or revocation of the certificate in a timely manner.

IFP.060 Transferability

A certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace granted in accordance with the requirements of this Part-IFP is not transferable.

IFP.065 Non-compliance

Non-compliance with this regulation may require the Authority to restrict, suspend or revoke the IFPD certificate.

Subpart B - Certification requirements

IFP.070 Personnel requirements

- (a) An applicant for the grant of certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace must employ, contract or otherwise engage:
- (1) A senior person identified as the Chief Executive who:
 - i. has the authority within the organization to ensure that every activity undertaken by the organization under the authority of the certificate can be financed and carried out in accordance with this Part-IFP; and
 - ii. is responsible for ensuring that the organization complies with this Regulation;
 - (2) A “Chief Designer” who is responsible for ensuring that the organization complies with the design criteria requirements of this Part and for the certification of every instrument flight procedure provided by the applicant’s organization and made available for publication and operational use;
 - (3) A safety Manager post holder responsible for the provision of a safety management system according to the requirements of [IFP.120](#);
 - (4) A quality management post holder responsible for the provision of a quality management system according to the requirements of [IFP.115](#); and
 - (5) Suitably qualified flight procedure designers to plan, design, validate and maintain the instrument flight procedures provided by the applicant’s organization.
- (b) The Chief Designer responsible for the certification of instrument flight procedures must be authorized in accordance with [IFP.100](#) to certify the IFPs.
- (c) Qualifications and experience details for the persons nominated by the applicant for the positions listed in (a) (1), (2) and (5) above shall be forwarded to the Authority for acceptance. The authority retains the right to reject any person appointed and who has been found unsuitable.
- (d) The minimum qualifications and experience requirements for the Chief Designer and the Qualified Flight procedure Designers are specified in [Appendix A](#).

IFP.075 Training

The applicant for the grant of certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace shall:

- (a) develop an overall training policy and training program for its staff. The training policy and program shall lay down the training necessary for staff to perform their duties;
- (b) establish procedures acceptable to the Authority and follow the approved training programs for PANS-OPS personnel as follows, as appropriate:
 - (1) initial training;
 - (2) advanced training;
 - (3) on-job-training;
 - (4) recurrent training; and
 - (5) refresher training.
- (c) ensure that the training programs is appropriately implemented in accordance with periodic training plans detailing and prioritizing the type of training needed over a specified time frame;
- (d) establish a procedure for initially assessing and for maintaining the competence of:
 - (1) those personnel involved in the planning, design, verification and maintenance of instrument flight procedures; and
 - (2) those senior persons who are authorized to certify instrument flight procedures.
- (e) provide those authorized personnel with written evidence of the scope of their authorization;
- (f) develop job descriptions for its IFPD personnel, containing safety responsibilities; and
- (g) establish procedures acceptable to the Authority for keeping training record for all technical staff and to be maintained up to date.

IFP.080 Facility requirements

Each applicant for the grant of a certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace shall establish offices and facilities that are appropriate for the Instrument Flight Procedure Design service/s listed in their exposition.

IFP.085 Documentation

- (a) Each applicant for the grant of a certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace shall:
- (1) Document the format and standards for the IFP designed under the authority of their certificate; and
 - (2) Hold copies of relevant reference materials, standards, practices and procedures and any other documentation that is necessary for the IFP service listed in their exposition.
- (b) These documents shall include, but not be limited to:
- (1) Annex 2,
 - (2) Annex 4,
 - (3) Annex 5,
 - (4) Annex 6,
 - (5) Annex 10,
 - (6) Annex 14,
 - (7) Annex 15,
 - (8) ICAO DOC 4444,
 - (9) ICAO DOC 7030,
 - (10) ICAO Doc 8071,
 - (11) ICAO Doc 8126,
 - (12) ICAO Doc 8168 VOL I, ICAO Doc 8168 VOL II,
 - (13) ICAO Doc 8697,
 - (14) ICAO Doc 9274,
 - (15) ICAO Doc 9365
 - (16) ICAO Doc 9368,
 - (17) ICAO Doc 9371,
 - (18) ICAO DOC9501,
 - (19) ICAO DOC 9613,

- (20) ICAO DOC 9643,
 - (21) ICAO DOC 9674,
 - (22) ICAO DOC 9708
 - (23) ICAO DOC 9849,
 - (24) ICAO DOC 9905,
 - (25) ICAO DOC 9906 volumes I, II, III, IV, V and VI,
 - (26) ICAO DOC 9931, and
 - (27) LYCAR Parts.
- (c) An applicant for the grant of an instrument flight procedure service certificate must establish a procedure for controlling all documentation required by paragraph (a) to ensure that:
- (1) the documentation is reviewed and authorized by an appropriate person before issue and use;
 - (2) current issues of relevant documentation are available to personnel at every location if they need access to the documentation;
 - (3) every obsolete document is promptly removed from every point of issue and use;
 - (4) a change to documentation is reviewed and authorized by an appropriate person before issue and use; and
 - (5) the current version of every item of documentation can be identified to prevent the use of superseded material.

IFP.090 Criteria for the approval of IFP designers

- (a) Each applicant for the grant of a Certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace shall provide evidence of the following:
- (1) Specialist procedure design training in accordance with a competency-based approach. (One such an approach is described in ICAO Document 9906, Volume II, Flight Procedure designer Training);
 - (2) Proof of successful completion of a PANS-OPS training course based on ICAO PANS OPS Document 8168, given by an organization acceptable to the authority;

- (3) Evidence of recent (within last 12 months) IFP design work which should include evidence of specific designs which have been approved for use; and
 - (4) Aviation experience, including a working knowledge of ATM, ATC, ATFM and ASM.
- (b) Each application for the grant of a certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace shall include a copy of:
- (1) An acceptable Operations Manual in accordance with [IFP.125](#);
 - (2) An acceptable Quality management system (QMS) in accordance with and in compliance with ICAO PANS-OPS DOC 8168 Volume II, Chapter 4, Quality Assurance; and ICAO Document 9906, Volume 1, Quality Assurance Manual for Flight Procedure Design;
 - (3) An acceptable Safety Management System (SMS) in accordance with [IFP.120](#); and
 - (4) The applicant's exposition in accordance with [IFP.135](#).

IFP.095 Authorization of persons to certify instrument flight procedures

- (a) Subject to paragraphs (b), (c) and (d), an applicant for the grant of an instrument flight procedure service certificate must establish a procedure for authorizing a Chief designer (s) to certify that an instrument flight procedure has been designed in accordance with and meets the applicable standard and requirement prescribed by [Subpart D](#).
- (b) An authorization must not be issued to a person unless the person meets the applicable training and experience requirements specified in [Appendix A.1](#).
- (c) Every authorization that is issued to a person must be in writing and must specify the types of instrument flight procedure that the person is authorized to certify.
- (d) An instrument flight procedure type that is specified on an authorization must not be inconsistent with the types of instrument flight procedures specified on the instrument flight procedure service certificate.

IFP.100 Certification of Instrument Flight Procedures

- (a) Subject to paragraphs (b) and (c) an applicant for the grant of an instrument flight procedure service certificate must establish a procedure for the certification of every instrument flight procedure that the applicant's organization proposes to design, make available for operational use and publish in the Libyan AIP.
- (b) The procedure required by paragraph (a) must include details of the checks to be carried out by a Chief designer, who is authorized to certify the particular type of instrument flight procedure, to ensure that the instrument flight procedure meets the applicable requirements and standards prescribed by this Regulation; and

- (c) A person who is authorized in accordance with [IFP.095](#) to certify an instrument flight procedure must not certify an instrument flight procedure that the person has designed.

IFP.105 Errors in published instrument flight procedures

- (a) The holder of an instrument flight procedure service certificate must establish a procedure for recording, investigating, correcting and reporting any identified error and any identified non-conformance with the standards and requirements of this CAR, in an instrument flight procedure that is certified or maintained under the authority of the certificate.
- (b) The procedure required by paragraph (a) must require that:
- (1) an instrument flight procedure is immediately withdrawn from operational use if the error or non-conformance affects or may affect, the safety of an aircraft operation;
 - (2) the error or non-conformance is corrected and certified by a Chief designer who is appropriately authorized in accordance with [IFP.095](#);
 - (3) the correction required by paragraph (2) is clearly identified and promulgated by the most appropriate means relative to the operational significance of the error or non-conformance;
 - (4) the source of the error or non-conformance is identified:
 - i. if possible, eliminated to prevent a recurrence; and
 - ii. preventive action is taken to ensure that the source of the error or non-conformance has not affected the integrity of any other instrument flight procedure.
 - (5) the Authority is notified of a promulgated information incident relating to an error or non-conformance referred to in paragraph (a).

IFP.110 Management of records

- (a) An applicant for the grant of an instrument flight procedure service certificate must establish a procedure for the management of records that are required for the applicant organization's functions relating to the design, certification and maintenance of instrument flight procedures.
- (b) The management of records includes the identification, collection, indexing, storage, safekeeping, accessibility, maintenance and disposal of records.
- (c) The procedure required by paragraph (a) must provide for the following to be recorded for every instrument flight procedure (IFP Package):
- (1) A statement of compliance with PANS-OPS from a Chief designer;

- (2) A complete record of the design process including copies of all source data (Aerodrome survey report, Electronic Terrain, airport infrastructure information, ...etc.), information, calculations and drawings used in the project;
 - (3) An IFP summary;
 - (4) Proposed IFP chart/depiction of sufficient detail to safely navigate and identify significant terrain, obstacles and obstructions;
 - (5) proposed ARINC 424 path terminators (for PBN procedures only);
 - (6) list of relevant obstacles, identification and description of controlling obstacles and obstacles otherwise influencing the design of the procedure, waypoint fix latitude/longitude, procedural tracks/course, distances and altitudes;
 - (7) any special local operational procedure (e.g., noise abatement, non-standard traffic patterns, lighting activation);
 - (8) detailed listing of deviations from design criteria and proposed mitigation;
 - (9) Relevant signed Validation reports, including stakeholder endorsement;
 - (10) Instrument flight procedure data sets, as AIXM5.1, containing the digital representation of instrument flight procedures; and
 - (11) Draft AIP submission.
- (d) The documentation in (c) above becomes the property and hence the responsibility of the Sponsor once the IFPDSP has officially signed over the IFP Package to the sponsor. Thereafter the IPDSP is responsible to only store a record of the official handover form signed by both parties.
- (e) The IFP Package shall be retained for a period of one year beyond the date at which the IFP is replaced or withdrawn from use.

IFP.115 Quality Management System requirements

An applicant for the grant of an instrument flight procedure service certificate shall establish and implement an acceptable Quality management system (QMS) in accordance with ICAO PANS-OPS DOC 8168 Volume II, Chapter 4, Quality Assurance; and ICAO Document 9906, Volume 1, Quality Assurance Manual for Flight Procedure Design.

IFP.120 Safety Management System requirements

An applicant must establish, implement and maintain a system for safety.

IFP.125 Operations Manual

- (a) An applicant for the grant of a certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace shall provide and keep up to date its operations manual or system of manuals relating to the provision of the services listed in its exposition for the use and guidance of operations personnel.
- (b) It shall ensure:
 - (1) operations manual contains the instructions and information required by the operations personnel to perform their duties;
 - (2) relevant parts of the operations manuals are accessible to the personnel concerned; and
 - (3) the operations personnel are informed of amendments to the operations manual applying to their duties in a manner that enables their application as of their entry into force.

IFP.130 Flight procedure design software validation

Each applicant for the grant of a certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace shall:

- (a) Validate design software in compliance with ICAO DOC 9906 Volume III;
- (b) Document non-compliances and differences identified;
- (c) Include in the operations manual what risks they have identified in these non-compliances/differences and how they will mitigate them; and
- (d) As part of the training in [IFP.075](#) show a process whereby users of the software are trained on these non-compliances/differences and mitigation techniques.

IFP.135 Flight procedure service organization exposition

- (a) Each applicant for the grant of a certificate for the design of instrument flight procedures (IFPs) for aerodromes, heliports and airspace shall provide an exposition containing:
 - (1) A statement signed by the by the chief executive on behalf of the applicant's organization confirming that:
 - i. the exposition and any included manuals define the organization and demonstrate its means and methods for ensuring ongoing compliance with this Regulation; and
 - ii. the organization has sufficient financial strength to provide the services contained within the organization's exposition.
 - (2) the titles and names of the person or persons required by [IFP.070 \(a\)](#);

- (3) The duties and responsibilities of the person or persons specified in the above [IFP.070 \(a\)](#), including matters for which they have responsibility to deal directly with the Authority on behalf of the organization;
 - (4) An organization chart showing lines of responsibility of the persons specified in [IFP.070 \(a\)](#);
 - (5) Details of the applicant's staffing structure;
 - (6) A document matrix detailing where the requirements of applicable part of this Regulation, are contained within the organization's operational manuals;
 - (7) list of the types of instrument flight procedure to be designed and certified by the applicant's organization; and
 - (8) Procedures to control amend and distribute the exposition.
- (b) The applicant's exposition must be acceptable to the Authority.

Subpart C — Operating requirements

IFP.140 Continued compliance

The holder of an instrument flight procedure service certificate must:

- (a) hold at least one complete and current copy of the certificate holder's exposition required by [IFP.135](#) at the certificate holder's principal location;
- (b) comply with every procedure and standard detailed in the exposition;
- (c) make each applicable part of the exposition available to personnel who require the applicable part to carry out their duties;
- (d) continue to meet the standards and comply with the requirements of Subpart B prescribed for certification under this Regulation; and
- (e) notify the Authority of any change of the certificate holder's postal address, address for service, telephone number, or facsimile number within 28 days of the change.

IFP.145 Changes to certificate holder organization

- (a) A holder of an instrument flight procedure service certificate must:
 - (1) subject to paragraph (b), ensure that the holder's organization exposition is amended so that it remains a current description of the holder's organization;
 - (2) ensure that any amendment made to its exposition meets the applicable requirements of this Regulation;
 - (3) comply with the amendment procedures contained in its exposition;
 - (4) forward to the Authority for retention a copy of each amendment that the certificate holder makes to its exposition as soon as practicable after the amendment is incorporated into its exposition; and
 - (5) amend its exposition as the Authority considers necessary in the interests of aviation safety.
- (b) Before a holder of an instrument flight procedure service certificate changes any of the following, prior acceptance by the Authority is required:
 - (1) the person identified as the chief executive;
 - (2) the title or name of any person specified in the exposition required by rule [IFP.120](#) (a)(2) to (5);
 - (3) the types of instrument flight procedure specified on the holder's certificate; and

- (4) the system for safety management, if the change is a material change.
- (c) The Authority may impose conditions under which the holder of the instrument flight procedure certificate must operate during or following any of the changes specified in paragraph (b).
- (d) The holder of an instrument flight procedure certificate must comply with any condition imposed by the Authority under paragraph (c).
- (e) If any of the changes under paragraph (b) requires an amendment to the instrument flight procedure certificate, the holder of the certificate must forward the certificate to the Authority for endorsement of the change as soon as practicable.

Subpart D - Design criteria of Instrument Flight Procedure

IFP.150 Design criteria

- (a) IFPs for aerodromes, heliports and airspace within Tripoli FIR shall be designed in accordance with the guidance contained within ICAO PANS-OPS DOC 8168 Volume II and or ICAO DOC 9905 as appropriate, 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.
- (d) The design of an instrument flight procedure must:
 - (1) be coordinated with all appropriate air traffic service providers; and
 - (2) be compatible with any air traffic service and associated procedure that is provided within the area or areas of airspace where the instrument flight procedure is intended to be established; and
 - (3) take into account:
 - i. any prescribed noise abatement procedure;
 - ii. any legislation restricting aircraft operations;
 - iii. the classification and any associated designation of the airspace in which the instrument flight procedure is to be established and any adjacent airspace that may be affected by the procedure; and
 - iv. the effect that the proposed instrument flight procedure may have on any other instrument flight procedure established in the airspace.
- (e) An instrument flight procedure must not be designed on or use a ground based aeronautical facility unless:
 - (1) the aeronautical facility is operated under the authority of an aeronautical telecommunication service certificate issued in accordance with Part-ATS; and
 - (2) the holder of the aeronautical telecommunication service certificate agrees in writing that the aeronautical facility can be used for the intended instrument flight procedure.
- (f) Consideration shall be given in the design of IFPs to the effect of the design on the environment and also to the Libyan environmental and regulations as well as international standards and best practices.

- (g) All terminal IFP shall be, to the extent possible, designed to consider continuous climb and descent operations.

IFP.155 Aerodrome operating minima to be published in instrument approach charts

The holder of an instrument flight procedure service certificate must establish Aerodrome Operating Minima to be published in the Libyan AIP for each instrument approach procedure and circling procedure designed and/or maintained under the authority of their certificate for aerodromes and heliports in accordance with the design criteria referred to in [IFP.150](#) and Operational Aerodrome Operating Minima.

Subpart E - Instrument Flight Procedure Process

IFP.160 IFPD initiation

- (a) The design process for a new or change to an existing IFP shall be initiated by the Sponsor.
- (b) The Sponsor shall notify the Authority of his intention to establish or amend an IFP.
- (c) The request shall be submitted to a formal review by the Authority.

IFP.165 Collection and validation of the data

- (a) The holder of a certificate for the design of instrument flight procedures (IFP) must collect the following data from recognized sources, validate for accuracy, resolution, integrity, reference geodetic datum and effective dates and incorporate them into the design documentation:
 - (1) airport, navigation aid, obstacle and terrain coordinate and elevation data, based on verified surveys and complying with ICAO Annex 11, 14 and 15 requirements;
 - (2) airspace requirements;
 - (3) user requirements: needs of Air Traffic Service provider and operators who will use this procedure;
 - (4) airport infrastructure such as runway classification, lighting, communications, runway markings and availability of local altimeter setting;
 - (5) environmental considerations; and
 - (6) any other potential issue associated with the procedure.
- (b) The acquisition of data for the FPD process must ensure that the acquired data's quality characteristics are known and adequate or that, in the case where the data's quality characteristics are unknown or inadequate (invalid), that appropriate data verification occurs prior to use.

IFP.170 Flight Procedure Design (FPD)

The holder of a certificate for the design of instrument flight procedures (IFP) must establish procedures for ensuring that every instrument flight procedure certified under its authority is:

- (a) designed or amended using methods ensuring that the procedure meets the applicable requirements and standards prescribed in [Subpart D](#);
- (b) independently verified, before certification, by a qualified procedure designer who is independent of the person directly responsible for the design to ensure compliance with applicable criteria; and
- (c) certified by Chief designer in accordance with [IFP.100](#).

IFP.175 FPD documentation

- (a) The flight procedure designer shall prepare an IFP validation package to enable an independent procedure designer to carry out a Ground validation of the IFP.
- (b) The package shall include:
 - (1) A plan view of the final approach obstacle evaluation;
 - (2) Complete documentation identifying obstacles, obstructions and terrain relevant to the IFP, including identifying the controlling obstacle/terrain;
 - (3) Narrative description of the IFP, segment by segment;
 - (4) Plan and profile views of the IFP;
 - (5) Data relating to each fix and/or holding pattern involved in the IFP;
 - (6) ARINC424 compliant coding for PBN trajectories;
 - (7) Confirmation that Navigation aid coverage, if applicable, is satisfactory; and
 - (8) Draft chart of the procedure suitable for use by the flight validation crew.
- (c) All documentation shall undergo a final verification for accuracy and completeness prior to validation and publication.

IFP.180 Validation of IFP

- (a) The IFP validation process must be carried out as part of the initial IFP design as well as for any amendment to an existing IFP. An overview of the necessary steps in the validation process can be found in [Appendix C](#).
- (b) The validation of conventional and PBN IFPs is required under:

- (1) ICAO PANS-OPS Document 8168, Volume II,
 - (2) ICAO Document 8071, Volumes I and II, and
 - (3) ICAO Document 9906, Volume I.
- (c) The IFP design process starts with the collection of relevant data, proceeds through the design phase then ground and/or flight validation prior to publication.
- (d) Therefore, validation shall occur at the collection of data phase, the ground and/or flight validation stage and, in the case of PBN IFP, the validation of the navigation database ARINC 424 coding instructions.

IFP.185 Ground validation

- (a) The holder of a certificate for the design of instrument flight procedures (IFP) must establish procedures to ensure that:
- (1) ground validation is undertaken of any new or amended IFP's. Ground validation consists of an independent IFP design review and preflight validation;
 - (2) ground validation is conducted by an independent procedure designer;
 - (3) any concerns or changes required by the independent procedure designer is communicated to the procedure designer who shall determine whether or not the IFP should be revised. Such concerns or changes shall be included in the IFP documentation;
 - (4) any issues identified in the ground validation are addressed prior to any flight validation; and
 - (5) Whether flight validation is needed for modifications and amendments to previously published procedures.
- (b) The holder of a certificate for the design of instrument flight procedures (IFP) must establish procedures for justifying the application of paragraph (a) (5) to an instrument flight procedure.

IFP.190 Flight validation

- (a) Flight validation is the responsibility of the Sponsor.
- (b) A flight validation shall be carried out for the initial certification of an IFP based on ground navigation aids and in other IFP's when the ground validation determines it is necessary or when determined necessary by the Authority.
- (c) The following IFPs do not require flight validation if it can be shown that current obstacle data meets the design requirements of the instrument flight procedure:
- (1) an en-route or an instrument arrival procedure unless:

- i. there is doubt about the coverage of the navigation system supporting the requirements of the procedure; or
 - ii. the procedure limits the flyability and performance characteristics of the class of aircraft the procedure is designed for.
 - (2) an instrument departure procedure unless the procedure limits the flyability and performance characteristics of the class of aircraft the procedure is designed for;
 - (3) an amendment of a previously flight validated instrument approach procedure if:
 - i. the design change can be verified during the design process; and
 - ii. a safety assessment of the proposed amendment has been completed and confirms that no additional risks to the safety of the procedure are introduced by the amendment.
- (d) The objective of a flight validation is to:
- (1) Verify the obstacle that is determined as the controlling obstacle for each segment and to check that no new obstacles have been erected since the IFP was created or that no obstacle details are grossly inaccurate to the extent that it may affect the IFP.
 - (2) Prove the flyability of an IFP whose ground validation caused some concern about track adherence or crew workload.
- (e) The Sponsor shall establish procedures to ensure that flight validation is carried out in compliance with ICAO DOC 9906 Volume V by an organization that can demonstrate compliance with ICAO DOC 9906 Volume VI.
- (f) The final approach segment shall be flown at an altitude 30 m (100 ft) below the proposed minimum descent altitude. Approaches with precision vertical guidance shall be evaluated according to the proposed decision or missed approach altitude.
- (g) All segments of an instrument approach procedure that is below the Minimum Sector Altitude (MSA) shall be flown.
- (h) The flight validation of an instrument flight procedure and verification of the obstacle data may be conducted during the associated navigation aid inspection if it is taken place in daylight and when visual meteorological conditions (VMC) prevail throughout each segment.

IFP.195 Flight inspection

- (a) Flight inspection is defined as the operation of a suitably equipped aircraft for the purpose of calibrating ground-based NAVAIDS or monitoring/evaluating the performance of the global navigation satellite system (GNSS).

- (b) Flight inspection is the responsibility of the Sponsor.
- (c) Flight inspection of instrument flight procedures is required to assure that the appropriate radio navigation aids adequately support the procedure, in accordance with the Standards in Annex 10 and the guidance in Doc 8071.
- (d) Personnel performing flight inspection duties shall be qualified in accordance with Doc 8071, Volume I.
- (e) Flight inspection of instrument flight procedures is required when introducing new ground-based navigation facilities to be incorporated in an IFP.
- (f) For GNSS-based RNAV procedures, a flight inspection aiming at verifying the absence of permanent interference shall be performed, systematically, before commissioning of the procedure:
 - (1) along the Intermediate Segment, Final Approach segment and the Missed Approach; and
 - (2) on SIDs, in an area of 10 NM around the DER.
- (g) In the case of RNAV procedures based on DME, if the DME infrastructure study using a simulation tool concluded to its necessity, a Flight Inspection along the flight path shall be performed prior to the commissioning of the procedure, to verify the appropriate reception of the DME beacons.

IFP.200 Submission of IFP designs for approval

- (a) Submission of IFP Designs for Approval is the responsibility of the Sponsor.
- (b) The Authority will only accept IFP designed by a certified IPDSP for the type of IFP shown in the scope section of their certificate.
- (c) IFP designs submitted for evaluation and approval by the Authority shall include:
 - (1) A complete record of the design process including copies of all source data, information, calculations and drawings used in the IFPD;
 - (2) A statement of compliance with PANS-OPS from a Chief designer;
 - (3) A report demonstrating how the original requirement has been satisfied;
 - (4) A narrative, which unambiguously describes the procedure in textual format and table showing all tracks in degrees True to 1/100th degree;
 - (5) A graphical representation which accurately reflects the content of the narrative provided;
 - (6) Relevant signed validation reports; and

- (7) A comprehensive design rationale in text format, including references to PANS-OPS Volume II.
- (d) Proposed new routes or amendments to existing routes shall be submitted according to Airspace Change Proposal process.

IFP.205 IFP dissemination

- (a) The Sponsor shall be responsible for dissemination of the IFP and associated documentation to the Aeronautical Information Service (AIS) for publication following approval of the IFP by the Authority.
- (b) The Sponsor shall ensure that:
- (1) the design and format of the IFP charts are in a standardized format in accordance with the requirements of Part-Charts;
 - (2) where the IFP is a PBN 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);
 - (3) where the IFP is a PBN procedure, prior to publication, it is validated to ensure that the dataset is complete, coherent and correct; and
 - (4) the IPDSP performs a final check of the draft AIP/chart amendment before publication to ensure that no errors have been introduced during the data transfer process.

IFP.210 Continuous maintenance and periodic review of IFP

- (a) Published IFP shall be subjected to a continuous maintenance and periodic review to ensure that they continue to comply with changing criteria and meet user requirements.
- (b) The Sponsor must establish a procedure to ensure that each instrument flight procedures for aerodromes, heliports and airspace under its responsibility is reviewed whenever:
- (1) There is a change to the obstacle environment which may affect the IFP;
 - (2) Procedures based on newly installed or relocated navigational aids (excluding visual aids), airport runway addition/change or Magnetic Variation;
 - (3) There is a change in airspace structure that may affect the IFP;
 - (4) There is a change to user requirements that may affect the IFP;
 - (5) There are changes in design criteria which have safety impact; and
 - (6) A period of 5 years has elapsed since the IFP was designed or last reviewed.

Appendix A - qualifications and experience of chief designer and qualified flight procedure designer

This appendix specifies the qualifications and experience for the persons referred to in [IFP.070](#) paragraphs (a) (2) and (5).

A1. Chief Designer:

(a) Training - have successfully completed an ICAO PANS-OPS training course or a training course accepted by the Authority. Where no formal training course has been completed, the Authority may accept evidence of a comprehensive “in-house” training and development program under the supervision of a procedure designer whose qualifications are accepted by the Authority.

(b) Experience in application of instrument flight procedures - have at least seven (07) years’ experience in the application of instrument flight procedures through experience gained in air traffic control, as a flight crew member on IFR operations, in operational control of IFR operations or other experience accepted by the Authority as equivalent.

(c) Experience in design of instrument flight procedures - at least five (05) years’ experience designing instrument flight procedures which must include:

(1) under supervision by a procedure designer whose qualifications are accepted by the Authority, the design of at least 3 instrument flight procedures of the type that the person is to be authorized to certify; or

(2) for a new instrument flight procedure type, experience accepted by the Authority in designing or certifying similar instrument flight procedure types.

A.2 Qualified Flight Procedure Designer

(a) Training - have successfully completed an ICAO PANS-OPS training course, or a training course accepted by the Authority. Where no formal training course has been completed, the Authority may accept evidence of a comprehensive “in-house” training and development program under the supervision of a procedure designer whose qualifications are accepted by the Authority.

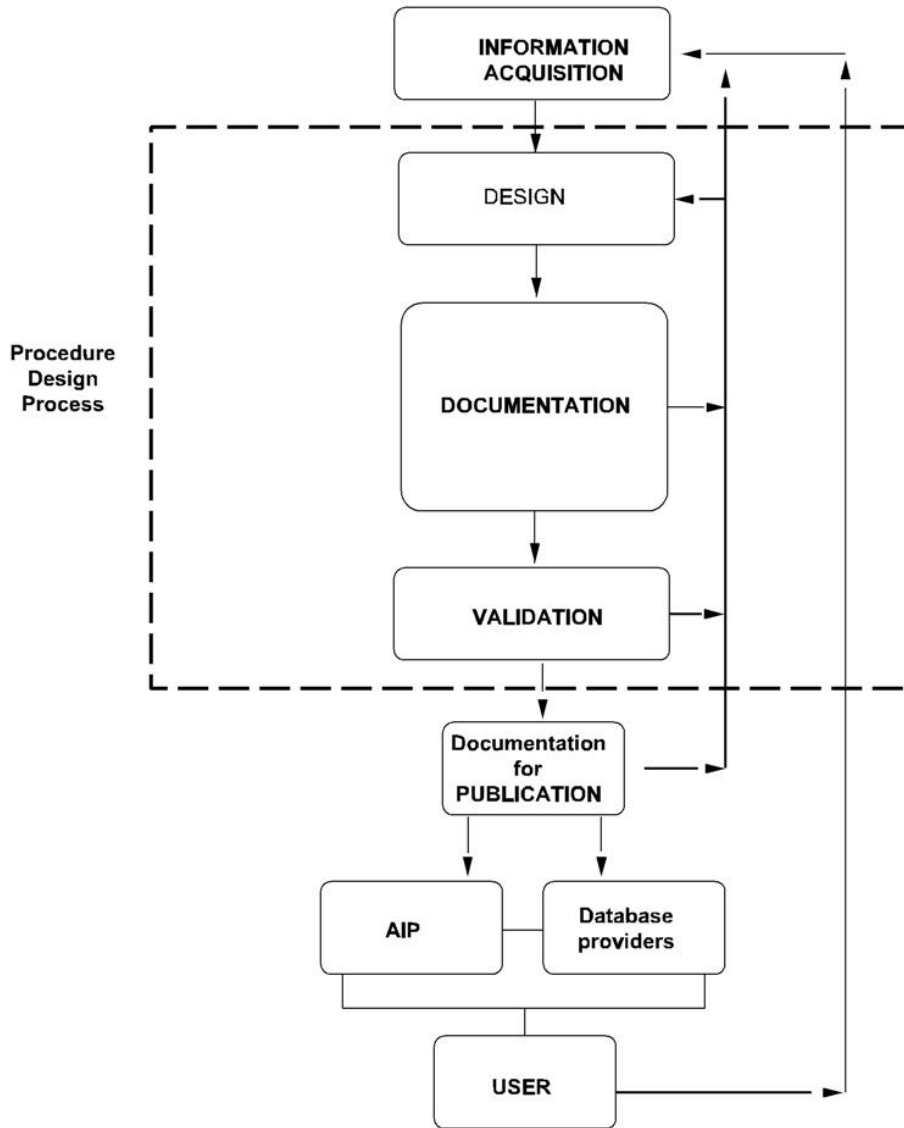
(b) Experience in application of instrument flight procedures - have at least 5 years’ experience in the application of instrument flight procedures through experience gained in air traffic control, as a flight crew member on IFR operations, in operational control of IFR operations, or other experience accepted by the Authority as equivalent.

(c) Experience in design of instrument flight procedures, at least 2-year experience designing instrument flight procedures which must include:

(1) under supervision by a procedure designer whose qualifications are accepted by the Authority, the design of at least 3 instrument flight procedures of the type that the person is to be authorized to design; or

(2) for a new instrument flight procedure type, experience accepted by the Authority in designing similar instrument flight procedure types.

Appendix B – Instrument Flight Procedure design process flowchart



Appendix C – Overview of the necessary steps in the validation process

