

## DIRECTORATE OF CIVIL AVIATION AUTHORITY

Reference No: DGCAR/1/103/ 14

DATE: 06 August 2019

Pursuant to ICAO Critical Element (5) “Technical Guidance, Tools and Provision of Safety Critical Information”, the Directorate of Civil Aviation Regulation (DGCAR), hereby issue the **Guidance Material on Airspace Change Proposal Process Manual** on 05/ 08 / 2019, as Guidance Document to the Industry.

  
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Acting Director General of Civil Aviation Regulation





**Public Authority for Civil Aviation**

## **Guidance Material on Airspace Change Proposal Process**

Manual Number: 1.3.18  
Issue Date: 30<sup>th</sup> Aug 2019  
Revision: 01

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## Table of Contents

Glossary of Terms.....	7
1. GENERAL.....	9
1.1. Introduction .....	9
1.2. Need for Airspace Change Proposal Process .....	9
1.3. Purpose .....	9
1.4. References .....	9
1.5. Scope.....	10
1.6. Status .....	10
1.7. principles.....	10
1.8. Roles and Responsibilities.....	11
2. Airspace Change Process .....	12
2.1. Overview of the Airspace Change Process.....	12
2.2. Airspace Change Process .....	12
2.3. Phase 1: Exploratory meeting .....	13
2.4. Phase 2: Proposal Development .....	13
2.5. Phase 3: Stakeholder Consultation .....	13
2.6. Phase 4: Airspace Design and validation phase .....	14
2.7. Phase 5: Submission of proposal .....	15
2.8. Phase 6: Evaluation of submission and regulatory decision .....	15
2.9. Selecting an AIRAC effective date .....	16

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List of Effective Pages

Page No.	Rev No.	Date of Issue
1	01	30/07/19
2	01	30/07/19
3	01	30/07/19
4	01	30/07/19
5	01	30/07/19
6	01	30/07/19
7	01	30/07/19
8	01	30/07/19
9	01	30/07/19
10	01	30/07/19
11	01	30/07/19
12	01	30/07/19
13	01	30/07/19
14	01	30/07/19
15	01	30/07/19
16	01	30/07/19
17	01	30/07/19
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		

Page No.	Rev No.	Date of Issue
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73		
74		
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79		
80		
81		
82		
83		
84		
85		
86		
87		
88		
89		
90		
91		
92		
93		
94		

Page No.	Rev No.	Date of Issue
95		
97		
97		
98		
99		
100		
101		
102		
103		
104		
105		
106		
107		
108		
109		
110		
111		
112		
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114		
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124		
125		
126		
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139		
140		
141		

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## Glossary of Terms

The following terms or acronyms may be used in any manual or document published by PACA. Reproduction in part or whole is allowed without prior approval. The Document Control Office reserves the rights to include such a listing in any PACA manual or document prior to publishing.

ACC	Area Control Center
ACP	Airspace Change Proposal
AIM	Aeronautical Information Management
AIMD	Aeronautical Information Management Department
AIP	Aeronautical Information Publication
AIRAC	Aeronautical information regulation and control
AIRINC 424	Aeronautical Radio, Incorporated 424
ANSP	Air Navigation Service Provider
ANS	Air navigation service
ATC	Air Traffic Control
ATM	Air Traffic Management
ATS	Air Traffic Service
ATZ	Aerodrome Traffic Zone
CAR	Civil Aviation Regulation
CTA	Control Area
CTR	Control Zone
CEO	Chief Executive Officer
CNS	Communications, Navigation and Surveillance
DGCAR	Directorate General for Civil Aviation Regulation
FIR	Flight information region
GM	Guidance material
ICAO	International Civil Aviation Organisation
IPDSP	Instrument Procedure Design Service Provider
MoD	Ministry of Defense
PACA	Public Authority for Civil Aviation
PANS-OPS	Procedures for Air Navigation Services – Aircraft Operations
RAFO	Royal Air Force of Oman
SARPs	Standards and Recommended Practices (ICAO)
SMS	Safety management system(s)
SRM	Safety risk management
SUA	Special Use Airspace
VFR	Visual Flight Rules
VRP	Visual Reference Point



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## 1. GENERAL

### 1.1. Introduction

- (1) The DGCAR is the competent authority with regards to Airspace Change in the Sultanate of Oman. CAR-173, Subpart E — Instrument Flight Procedure Design Process defines the process that needs to be followed when designing Instrument Approach Procedures, airspace or routes.
- (2) This material has been prepared to provide step-by-step guidance in developing an Airspace Change Proposal (ACP). Each ACP is unique and may have significance for interested parties locally who use or adjoin the airspace in respect of which a change is proposed. In exercising its air navigation functions, DGCAR must give priority to maintaining a high standard of safety in the provision of air traffic services.

### 1.2. Need for Airspace Change Proposal Process

- (1) In order to ensure that airspace is utilised in a safe and efficient manner and that a co-ordination process is properly set-up, there is a need to establish formerly airspace Change Proposal arrangement.
- (2) Such airspace Change Proposal arrangement should clearly establish policies for the effective allocation and use of airspace and its supporting infrastructure and should define the process and responsibilities to ensure that proposed changes to airspace are initiated, considered, refined, approved and finally implemented in a safe and effective manner.
- (3) To that end, an outline of such airspace change process is provided in this manual.

### 1.3. Purpose

- (1) For the purpose of this manual, the sponsor is defined as “Aerodrome license holder or an ANSP, who proposes a new design or changes to the airspace structure.”
- (2) The purpose of this manual is to:
  - (a) provide guidance and descriptions to the sponsors wishing to submit a proposal to change either airspace structure or related operational procedures.
  - (b) provide detailed guidance of the process by which changes to the Oman airspace are implemented.
  - (c) describe the recommended process for submitting an airspace change proposal rather than setting out the technical design criteria, and although it draws from several reference documents (refer to section 1.4 below), it is essential that Sponsors refer to these source documents and do not rely on this manual as their sole source of information, direction and guidance.
  - (d) provide a framework for the phases and activities ordinarily involved, from the conception of the need for an airspace change through to regulatory decision and, finally, if appropriate, implementation.

### 1.4. References

- CAR172 – Air Traffic Services;
- CAR173 – Instrument Flight Procedure Design Requirements;
- CAR175 – Aeronautical Information Service;
- ICAO Doc 9992 - Manual on the use of Performance Based Navigation (PBN) in airspace design;

- ICAO Doc 4444 - Procedures for Air Navigation Services — Air Traffic Management (PANS-ATM);
- ICAO Doc 8168 - Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS);
- ICAO Doc 9426 - Air Traffic Services Planning Manual;
- ICAO Doc 9613 - Performance-based Navigation (PBN) Manual;
- ICAO Doc 9931 - Continuous Descent Operations (CDO) Manual; and
- ICAO Doc 9993 - Continuous Climb Operations (CCO) Manual.

## 1.5. Scope

- (1) Airspace changes considered in this guidance material may be sought in connection with the following:
  - (a) Proposed new ATS routes or amendments to existing ATS routes;
  - (b) Change in provision of ATS within a given volume of airspace;
  - (c) Changes to Area Control Centre (ACC) arrangements resulting in modifications to the existing published ATS route structure;
  - (d) Changes to ACC sector boundaries;
  - (e) Delegation of ATS to an adjacent State;
  - (f) Change in airspace classification for a given volume of airspace;
  - (g) Establishment or amendment of the published limits of Aerodrome Traffic Zone (ATZ); Control zone (CTR); Control Area (CTA);
  - (h) Establishment or amendment of the published VFR routes or Visual Reference Points (VRPs);
  - (i) Establishment or amendment of the published limits of or significant changes in the operational use of the Special Use Airspace (SUA), whether temporary or permanent and whether for civil or military purposes.
- (2) Proposed new ATS routes or amendments to existing ATS routes shall be submitted according to the present manual, supported by an evaluation from an IPDSP.
- (3) Urgent airspace change requests are not subject to the provisions of the of the present manual. Urgent airspace change requests are requests for temporary Special Use Airspace (SUA) in response to emergency events which pose a risk to aviation or public safety, security or the environment or in response to an event that triggers any contingency mode of operation (ex: Establishment of Contingency ATS routes). These are considered urgent requests and the DGCAR will action these requests with the highest priority and will process these requests in a timely manner.

## 1.6. Status

In addition to Publication approval in accordance with this manual, sponsors will need to obtain an Operational approval and technical approval, if applicable.

## 1.7. principles

- (1) ACP follows a number of principles including, but not limited to:
- (2) Safety: - The safety of air navigation is the most important consideration;
- (3) Environment: - In as far as practicable, the environment is protected from the effects associated with the operation and use of aircraft;
- (4) Efficient use of airspace: Airspace management must be conducted to provide the most efficient use of airspace consistent with the safe operation of aircraft.

## 1.8. Roles and Responsibilities

The key participants involved in any airspace change will have the following roles and responsibilities:

- (1) The DGCAR:
  - (a) Owns, and is fully responsible for the Airspace Change Process;
  - (b) Provides guidance to a Change Sponsor on the application of the Process and fulfilling the operational, environmental and consultation requirements, but not to assist a Change Sponsor in developing the airspace designs of a Formal Proposal;
  - (c) Assesses a Change Sponsor's Formal Proposal against the regulatory requirements;
  - (d) Approves/Rejects the Change Sponsor's Formal Proposal;
  - (e) Makes transparent and accountable decision making;
  - (f) Fulfills statutory requirements with respect to airspace; and
  - (g) Provides final sign-off either approving or rejecting the proposal.
- (2) The Change Sponsor's:
  - (a) Owns the Airspace Change Proposal to modify airspace arrangements and is responsible for developing its change proposal, whilst ensuring that it satisfies and/or enhances safety, improves capacity and mitigates, as far as practicable, any environmental impacts;
  - (b) Accountable for identifying relevant stakeholders and conducting an effective consultation exercise;
  - (c) Obtains approval of the proposed Airspace change according to the provisions of the present manual,
  - (d) Designs and carries out consultation on the operational and environmental impacts of the proposed airspace change;
  - (e) In light of the responses to the consultation exercise, a Change Sponsor is accountable for the decisions to modify or not modify its proposed airspace design.
  - (f) Determines the preferred effective date for the change, to allow the appropriate time line for the regulatory review to be determined.
  - (g) Arranges for an exploratory meeting with the DGCAR to determine the impact the proposed change will have on current airspace and usage,
  - (h) Makes any changes to the proposal required by the DGCAR, and
  - (i) Provides additional information/ resources (meetings) as requested by the DGCAR.
- (3) Stakeholders/Consultees:
  - (a) Contributes to the consultation process by providing relevant opinions/ considerations on the effects of an airspace change proposal as it affects their particular group to the Change Sponsor in a timely manner;
  - (b) Informs a Change Sponsor of other stakeholders that have not been engaged during a consultation exercise; and
  - (c) Shares information and research undertaken that is relevant to the Airspace Change Proposal.

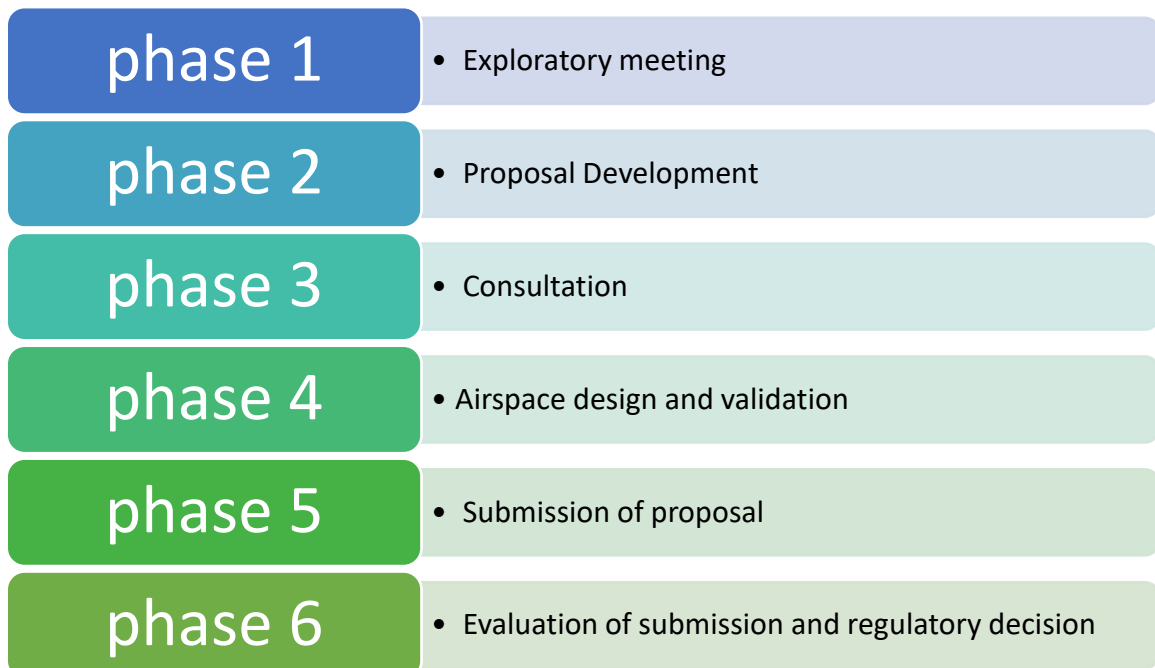
## 2. Airspace Change Process

### 2.1. Overview of the Airspace Change Process

- (1) Airspace Change Proposals will be handled according to the standard published Process as set out in this document.
- (2) A timescale for completion of the full Process cannot be pre-determined. However, DGCAR has set a timeframe for the Regulatory Decision phase of twenty-one (21) days. The amount of resource that a Change Sponsor would need to devote to proposal development, consultation, adaptation and documentation could be considerable and would invariably affect the length of the Process, as would the complexity and sensitivity of a proposal. For example, the nature of the consultation might require that an iterative process of ‘consult-refine-consult’ is necessary and this would need to be considered when looking ahead to implementation timescales.
- (3) It is likely that Change Sponsors will receive opposition to their Airspace Change Proposals from one or more stakeholder groups. Objections may come at any time during the Process (up to Regulatory Decision) from airspace users. In some cases, it may be possible, or in other cases necessary, to modify airspace change proposals to accommodate such opposition. Change Sponsors may at least need to reconsider planned change implementation dates in such circumstances. They may even have to withdraw the Airspace Change Proposal.
- (4) A Change Sponsor must consider the RAFO as another airspace stakeholder and thus consult the MoD with regard to any proposed changes.

### 2.2. Airspace Change Process

- (1) The development and implementation of an Airspace Change Process can be broken down into six main phases as follows:



### 2.3. Phase 1: Exploratory meeting

- (1) On identifying a need for changing the airspace arrangements, the Change Sponsor shall arrange a meeting with DGCAR as a fundamental first step in the Airspace Change Process. As all airspace changes are unique in their own right, the exploratory meeting is the occasion when Change Sponsors can discuss with the Regulator their intentions, any issues/concerns that are currently being experienced and how/why they believe that changing the airspace arrangements will address these difficulties. In a similar way, it provides an opportunity for the Regulator to provide appropriate and tailored advice and guidance on the specific requirements. This meeting is important to discuss the high-level implications of a proposed airspace change. It also provides a Change Sponsor with an appropriate foundation to start developing the Airspace Change Proposal whilst ensuring that the proposed modifications to the airspace will satisfy individual needs and be proportionate with regard to others affected.
- (2) Change Sponsors should not develop a draft proposal at this phase but come prepared to discuss the requisites of their Airspace Change Proposal. The outline intentions must include:
  - (a) Background and Justification for the proposed change;
  - (b) An initial assessment of the impact of the proposed change on all airspace users;
  - (c) An initial assessment of the Stakeholders/Consultees and an outline Consultation Plan;
  - (d) An initial assessment of the impact of the proposed change on the airspace arrangements in adjoining States (where appropriate).
- (3) During the discussions, DGCAR staff will listen to the Change Sponsor's line of reasoning and will provide the appropriate advice and guidance as to the best way forward. As part of the meeting, DGCAR inspectors will give a detailed verbal brief on:
  - (a) The Process itself;
  - (b) The Consultation Requirements (Stakeholders identified); and
  - (c) The structure of the formal Airspace Change Proposal submission (documentation required) as well as the assessment criteria that will be used to assess the airspace and infrastructure requirements during the Evaluation of submission and regulatory decision phase.
- (4) Following the briefing, Change Sponsors must confirm their intention to proceed or not with the development of an ACP.

### 2.4. Phase 2: Proposal Development

- (1) Having identified a need for change and having attended the Exploratory meeting, the Change Sponsor begins to develop a conceptual design that would satisfy their needs.
- (2) Development of design options should also proceed under the headings detailed in paragraph 2.7.(3), and which form the basic structure on which to build a formal proposal.
- (3) It is vital that the Change Sponsor identifies any critical interdependencies with neighbouring ANSPs (operational/technical/ training) and puts in place plans to resolve any issues that arise.

### 2.5. Phase 3: Stakeholder Consultation

- (1) Once there is sufficient clarity in the airspace design options or the conceptual design of routes exists, the Change Sponsor is required to consult with relevant stakeholders commensurate with the change proposed and provide evidence of the consultation. Consultation is conducted to identify:

- (a) the impact on other airspace users impacted by the ACP, including aircraft operators, Aerodrome operators and Sport aviation organisations or their representative organisations who are likely to utilise the airspace;
  - (b) the impact of the activity on the safe, orderly and expeditious flow of air traffic provided by the ANSP.
- (2) The DGCAR defines stakeholders as representative groups who are, or might be, affected either positively or negatively by any action taken by the Change Sponsor.
- (3) Such consultations can either take place bilaterally between the team and different users, but it is often more beneficial to organise an event (workshop) where several users are present and the airspace design or route design is discussed with them.
- (4) Every stakeholder needs to be included and to be on-board in order to ensure buy-in and the success of the implementation.
- (5) The Change Sponsor may seek to modify the Proposals in the light of the stakeholder's feedback.
- (6) It is likely that Change Sponsors will receive opposition to their Airspace Change Proposals from one or more stakeholder groups. Objections may come at any time during the Process from airspace users, adjacent ANSPs or MoD (RAFO). In some cases, it may be possible, or in other cases necessary, to modify airspace change proposals to accommodate such opposition.
- (7) It is not envisaged, nor expected, that consultation becomes a never-ending process of consult-modify-consult. At the point at which the Change Sponsor considers that issues raised have been accommodated, to the extent possible, then the Proposal should be submitted to DGCAR who will be the arbiter of whether the Change Sponsor has acted 'reasonably' in meeting the needs of stakeholders.

## 2.6. Phase 4: Airspace Design and validation phase

- (1) Once the airspace design options or the conceptual design of ATS routes exists have been agreed, the airspace design commences.
- (2) The design of airspace structures and instrument flight procedures that falls subject to the airspace change process must conform to various national and international standards and recommended practices.
- (3) During this phase, the Change Sponsor shall ensure:
  - (a) Application of PANS-OPS criteria;
  - (b) Development of draft AIP charts and draft AIP text;
  - (c) Provision draft AIRINC 424 coding, where applicable.
- (4) The Change Sponsor shall develop the safety assessment for airspace change proposal.

*Note: Any airspace, flight procedure or route design must be carried out with reference to CAR-173 – the sponsor shall adhere to this requirement and consult the DGCAR for obtaining the list of organisations certified accordingly; however, if the sponsor elects to contract an organisation not in this list – the contracted IFPD organisation must apply for a IFPD Certificate as per CAR-173.*

- (5) Upon completion of the design, the airspace change proposal will have become a comprehensive body of work that needs to be validated and checked. Validation takes place in various phases:
  - (a) the airspace concept is usually validated during the design process and again when the airspace design is complete;
  - (b) the new routes are validated once the design process is complete.

*Note: Refer to ICAO DOC-9992 Manual on the use of Performance Based Navigation (PBN) in airspace design, for further guidance on the validation activity.*

- (6) The number and extent of validation methods used and their duration is directly linked to the complexity of the airspace change proposal and the complexity of the traffic sample. The greater the number of changes and the greater their safety and operational impact, the greater the requirement for accurate and detailed investigation to prove the operational benefits and the fulfilment of safety criteria.
- (7) If issues are identified during the validation which requires a return to the design phase of the airspace change proposal, this should not be resisted. For many reasons, not the least cost, it is better to return to the drawing board sooner rather than later.

## **2.7. Phase 5: Submission of proposal**

- (1) Having completed the design and validation of the Airspace Change Proposal, the Change Sponsor should formally submit one hard copy and one electronic copy of the Airspace Change to DGCAR for Regulatory Decision.
- (2) A Change Sponsor must submit the documentation as set out below in order to address the various areas for assessment by DGCAR. These structured reports will enable DGCAR to perform an accurate analysis to achieve a well-informed and thorough regulatory decision:
  - (a) Justification for the Change and Analysis of Change Options;
  - (b) Airspace design report;
  - (c) Supporting Infrastructure/Resources;
  - (d) Safety Management;
  - (e) Airspace and Infrastructure Requirements;
  - (f) Supporting Maps, Charts and Diagrams;
  - (g) Consultation Report (this could take the form of Executive Summary supported by signed minutes of a meeting and list of attendees).
- (3) A minimum of twenty-one (21) days is required for the assessment of a submission. Additional time will be required for more complex proposals and the time requirement would be discussed and agreed between DGCAR and the sponsor during Phase 1 (see paragraph 2.2.(1)).
- (4) The change sponsor is responsible for determining an appropriate submission date to the DGCAR after considering the selection of an appropriate AIRAC date criteria as per section xxx below, where applicable. The DGCAR is aware there may be unforeseen circumstances when a routine airspace or air route change will be required within a shorter time frame than the deadlines laid down in paragraph 2.1.(2). In these circumstances, the DGCAR will consider a late ACP, provided the sponsor submits suitable justification as to why the ACP was not submitted in line with the temporal guidance above.

## **2.8. Phase 6: Evaluation of submission and regulatory decision**

- (1) When an ACP is received, it will initially be assessed for completeness and how most effectively the ACP will be processed. Information provided by the Change sponsor is evaluated to establish if it is complete. Change sponsor will be advised if an ACP is incomplete and further assessment of the ACP will not be conducted until the required information is provided.
- (2) Once the actions of initial receipt have been performed, the ACP will undergo an assessment. The ACP will be reviewed and assessed consistent with the process used for evaluating and assessing ACPs.
- (3) The process used for evaluating and assessing ACPs will vary slightly depending upon what type of change has been proposed. The process for Temporary and Permanent change described and depicted below are similar. The process for assessing an urgent



ACP has a compressed timeline as detailed in paragraph 1.5.(3). The assessment and evaluation of ACP are completed using the following criteria:

- (a) Safety;
  - (b) Protection of the environment;
  - (c) Capacity and Flight Efficiency;
  - (d) Equitable access ;
  - (e) National security ;
  - (f) ICAO Standards and Recommended Practices.
- (4) Following the final assessment, the change sponsor will be advised if approval has been granted. If approved, a formal notification is prepared for signature by the Director General for Civil Aviation Regulation and action taken to promulgate the change through the Aeronautical Information Service process.
  - (5) The change does not become effective until publication in the integrated AIP and/or as a NOTAM. Prior to entry in operations of the new airspace change, the change sponsor shall ensure that the relevant Operational and, where applicable, Technical approval are obtained in accordance with the applicable procedures.

## 2.9. Selecting an AIRAC effective date

- (1) Following regulatory approval of an Airspace Change Proposal, DGCAR will, in conjunction with the Change Sponsor, carry out the necessary actions to promulgate the change in the Oman AIP. The effective date of an airspace change will, of course, have been previously agreed between DGCAR and the Change Sponsor, the proposed implementation date and a reserve date having been stated in the Formal Proposal.
- (2) The exact timescale for the promulgation of a particular change will be dependent upon the nature and scale of the change proposal and the AIP publication cycle. In the case of most airspace changes, promulgation will be not less than one AIRAC cycle (28 days' notice after the publication of the relevant documentation) prior to effective date of a change. Although, whenever major changes, as described in ICAO Annex 15, are planned and where additional notice is desirable and practicable, a publication date of at least 56 days (two AIRAC cycles) in advance of the effective date shall be used.
- (3) The AIRAC effective date is based on the ICAO Annex 15 AIRAC cycle of every 28 days. This Annex defines that in all instances, information provided via AIRAC notification shall be published in paper copy and shall be distributed by Oman Aeronautical Information Management (AIM) at least 42 days in advance of the effective date with the objective of reaching recipients at least 28 days in advance of the effective date.

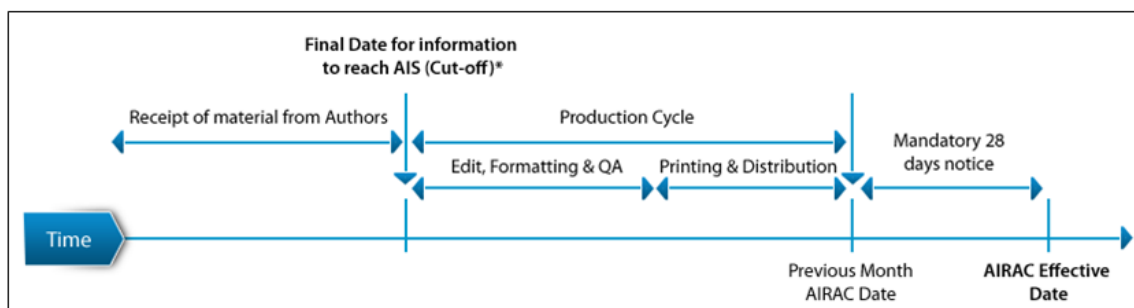


Figure 2.9.1: AIRAC

- (4) CAR-175 requires that aeronautical data and information is to be notified by AIRAC as set out in ICAO Annex 15. The AIMD publishes the AIP amendment in accordance with the international schedule of AIRAC effective dates.

- (5) Adherence to the AIRAC ensures that the coordinated publication of safety-critical information in the AIP is assured using a common set of internationally agreed dates. In order to accomplish this, data must be submitted well in advance of the target AIRAC date to permit enough time for processing and distribution, thereby affording reasonable notice to end users.