



International Civil Aviation Organization

ICAO

**Sixteenth Meeting of the ICAO Aeronautical Information Services – Aeronautical Information Management Implementation Task Force (AAITF/16)**

Video Teleconference, 07 – 11 June 2021

---

## **Agenda Item 5: Regional AIM Guidance and Planning**

### **ICAO DOC 8126 – AIS MANUAL**

(Presented by the Secretariat)

#### **SUMMARY**

This paper introduces the new ICAO Doc 8126 *Aeronautical Information Services Manual*.

## **1. INTRODUCTION**

1.1 The work on the updated version of ICAO Doc 8126 by the Aeronautical Information Management Working Group of the ICAO Information Management Panel (IMP AIM WG), has been completed, and the document is now available through the ICAO Secure Portal.

## **2. DISCUSSION**

2.1 AAITF participants may recall that the updated AIM Manual has been a work in progress for several years, and has been eagerly awaited by the APAC AIS/AIM community.

2.2 The AIM Manual Seventh Edition, 2021, is now available through the ICAO Secure Portal, subject to the following disclaimer:

#### Notice to Users

This document is an unedited advance version of an ICAO publication as approved, in principle, by the Secretary General, which is made available for convenience. The final edited version may still undergo alterations in the process of editing. Consequently, ICAO accepts no responsibility or liability of any kind should the final text of this publication be at variance with that appearing here.

2.3 The document is restructured into three current Parts:

Part I Regulatory Framework for Aeronautical Information Services

Part II Processing Aeronautical Data

Part III Aeronautical Information in a Standardized Presentation and Related Services

2.4 Part IV – Digital Aeronautical Information Products and Related Services - remains under development. The Foreword and full Table of Contents of the document is provided in **Attachment A**.

2.5 The meeting is invited to note that, with the availability of the updated AIM Manual, AAITF should initiate a review of the following APAC regional guidance material currently published on the Regional Office eDocuments web-page (<https://www.icao.int/APAC/Pages/eDocs.aspx>), with a view to alignment where relevant with the global guidance, and removal of redundant or duplicated information.

- *Guidance Manual for AIS in the Asia/Pacific Region;*
- *Asia/Pacific Plan for Collaborative AIM;* and
- *Guidance on the issuance of SNOWTAM.*

2.6 The review of the *Guidance on the issuance of SNOWTAM*, and the need to retain it, should also be considered in view of the revised Operational Procedures for Aeronautical Dynamic Data (OPADD), discussed separately in WP/12 and taking into account the information provided in IP/10 on the development of the ICAO *AIM Quality Manual* and *AIM Training Manual*.

2.7 APAC Administrations and International Organizations willing to participate in this review are invited to indicate their interest.

### **3. ACTION BY THE MEETING**

3.1 The meeting is invited to:

- a) note the information contained in this paper;
- b) indicate interest in participating in the review of the current regional guidance documents; and
- c) discuss any relevant matters as appropriate.

.....



| ICAO

# Doc 8126

## Aeronautical Information Services Manual

Seventh Edition, 2021

**Notice to Users**

*This document is an unedited version of an ICAO publication and has not yet been approved in final form. As its content may still be supplemented, removed, or otherwise modified during the editing process, ICAO shall not be responsible whatsoever for any costs or liabilities incurred as a result of its use..*

Approved by and published under the authority of the Secretary General

INTERNATIONAL CIVIL AVIATION ORGANIZATION



## FOREWORD

1. The continuous growth of aviation has increased the demands on airspace capacity and efficiency in the services provisions, therefore emphasizing the need for greater equity in airspace access, improved access to timely and meaningful information for decision support and more autonomy in decision making.
2. An important step toward this goal and toward an integrated, responsive global air traffic management (ATM) system, relies on the migration of paper-based, product-centred aeronautical information services (AIS) to data-centric and digital aeronautical information management (AIM). To facilitate this transition, Annex 15 — *Aeronautical Information Services* provisions were restructured and amended to clarify the scope, role, main functions, products and services of AIM and the associated update mechanisms.
3. The 16th edition of Annex 15 contains high-level requirements and performance specifications for States. These requirements are organized such that data collection is decoupled from the definition of aeronautical products and will facilitate the modernization of the ATM environment according to the principles of system-wide information management (SWIM).
4. The *Procedures for Air Navigation Services — Aeronautical Information Management* (PANS-AIM, Doc 10066) contains operating practices that are too detailed for inclusion in the standards and recommended practices (SARPs) of Annex 15. The PANS-AIM provides a means for increased harmonization within the aeronautical information domain and accommodates emerging technical requirements.
5. This manual has been revised to provide guidance for the successful implementation of AIM. It explains the provisions contained in Annex 15 and PANS-AIM, provides background information on certain specifications, helps illustrate their meaning and exemplifies means by which these specifications can be met.

### Structure of the manual

6. This manual is divided into four parts; the objective is to continue to provide guidance not only on legacy AIS processes, but also on new AIM practices, and to accommodate future developments within the context of SWIM. The target audience of this manual comprises AIS operational personnel, management bodies and regulatory authorities. The four parts are described below:
  - a) Part I — *Regulatory Framework for Aeronautical Information Services* explains AIS responsibilities and functions and provides guidance for the organizational development of AIS including the transition to AIM;
  - b) Part II — *Processing Aeronautical Data* provides guidance for processing aeronautical data and aeronautical information while considering the operational provisions for the management of aeronautical information in a data-centric environment;
  - c) Part III — *Aeronautical Information in a Standardized Presentation and Related Services* provides guidance for aeronautical information to be distributed in a standardized presentation; and
  - d) Part IV — *Digital Aeronautical Information Products and Related Services* provides guidance for the distribution of digital products and services (under development).

### Future developments

Comments on this manual are appreciated from all parties involved in the development and implementation of AIM processes and procedures, and should be addressed to:

The Secretary General  
International Civil Aviation Organization  
999 Robert Bourassa Boulevard  
Montréal, Quebec, H3C 5H7  
Canada  
[icaohq@icao.int](mailto:icaohq@icao.int)

# TABLE OF CONTENTS

	<i>Page</i>
Foreword.....	(i)
Glossary and definitions.....	(iv)
 <b>PART I - Regulatory Framework for Aeronautical Information Services</b>	
Chapter 1. Introduction.....	I-1-1
1.1 Purpose of Part I.....	I-1-1
1.2 Primary audience of Part I.....	I-1-1
1.3 ICAO framework.....	I-1-1
1.4 AIM concept.....	I-1-2
1.5 Transition from AIS to AIM.....	I-1-3
1.6 Data quality as a driver for change.....	I-1-3
1.7 Understanding terminology.....	I-1-4
Chapter 2. States responsibilities and functions.....	I-2-1
2.1 Introduction.....	I-2-1
2.2 CE-1: Primary Aviation Legislation.....	I-2-1
2.3 CE-2: Specific Operating regulations.....	I-2-2
2.3.1 General.....	I-2-2
2.3.2 Transposition of the relevant ICAO provisions.....	I-2-2
2.3.3 Requirements for formal arrangements between the AIS provider and aeronautical data originators.....	I-2-2
2.3.4 Requirements for aeronautical information services.....	I-2-3
2.3.5 Requirements for quality management system.....	I-2-3
2.3.6 Copyright requirements.....	I-2-4
2.3.7 Disclaimers requirements.....	I-2-4
2.4 CE-3: State system and functions.....	I-2-4
2.4.1 Establishing a State civil aviation system.....	I-2-4
2.5 CE-4: Qualified technical personnel.....	I-2-5
2.6 CE-5: Technical guidance, tools and provision of safety critical information.....	I-2-5
2.7 CE-6: Licensing, certification, authorization and approval obligations.....	I-2-5
2.7.1 General.....	I-2-5
2.7.2 Coordination between States.....	I-2-6
2.8 CE-7: Surveillance obligations.....	I-2-6
2.9 CE-8: Resolution of safety concerns.....	I-2-7
Chapter 3. AIS provider responsibilities and functions.....	I-3-1
3.1 Responsibilities and functions of AIS.....	I-3-1
3.1.1 AIS provider responsibilities.....	I-3-1
3.1.2 AIS provider core and non-core functions.....	I-3-2
3.2 Organization of AIS.....	I-3-2
3.2.1 Modes of operations.....	I-3-2
3.2.2 Organizational setup.....	I-3-3
3.2.3 Resources.....	I-3-5
3.2.4 QMS for AIS.....	I-3-6
3.2.5 AIS safety considerations.....	I-3-7
3.2.6 Establishing an AIS organization using a data-centric approach.....	I-3-8
3.3 Aeronautical information products and services.....	I-3-11
3.3.1 Introduction.....	I-3-11

3.3.2	Scope and type of information and associated aeronautical information products .....	I-3-11
3.3.3	Cost recovery.....	I-3-12
3.4	Personnel.....	I-3-13
3.4.1	Personnel requirements.....	I-3-13
3.4.2	Competencies.....	I-3-14
3.4.3	AIS competency framework.....	I-3-14
3.4.4	Application of the AIS competency framework .....	I-3-15
3.5	AIS key control elements .....	I-3-17
3.5.1	Aeronautical Information Regulation and Control (AIRAC).....	I-3-17
3.5.2	The need for control .....	I-3-17
3.5.3	Regulated system.....	I-3-18
3.5.4	Coordination .....	I-3-19
3.5.5	Significance .....	I-3-19
3.6	Planning automation in an AIS organization .....	I-3-20
3.6.1	Introduction.....	I-3-20
3.6.2	Workflow management.....	I-3-20
3.6.3	Software and tools to support AIS functions.....	I-3-21
Chapter 4.	Aeronautical data originators' responsibilities.....	I-4-1
4.1	Introduction .....	I-4-1
4.2	Scope .....	I-4-1
4.3	Data quality requirements .....	I-4-1
4.4	Formal arrangements .....	I-4-1
4.5	Recommended steps for data originators to comply with data quality requirements .....	I-4-2
Chapter 5.	Aeronautical information management.....	I-5-1
5.1	Introduction .....	I-5-1
5.2	Parties involved in AIM implementation .....	I-5-1
5.3	AIM for State regulatory organizations.....	I-5-1
5.4	AIM for AIS organizations .....	I-5-2
5.4.1	Introduction .....	I-5-2
5.4.2	Key issues for AIS in an AIM environment.....	I-5-3
Appendix 1:	AIS competency framework .....	I-A1-1
Appendix 2:	Annex 15 compliance checklist .....	I-A2-1
Appendix 3:	PANS-AIM compliance checklist.....	I-A3-1

## **PART II - Processing Aeronautical Data**

Chapter 1.	Introduction.....	II-1-1
1.1	Purpose of Part II .....	II-1-1
1.2	Primary audience of Part II.....	II-1-1
1.3	Overview .....	II-1-1
Chapter 2.	Scope of aeronautical data and general requirements .....	II-2-1
2.1	The scope of aeronautical data.....	II-2-1
2.2	Data quality requirements .....	II-2-6
2.2.1	Accuracy .....	II-2-6
2.2.2	Resolution .....	II-2-7
2.2.3	Integrity .....	II-2-7
2.2.4	Traceability.....	II-2-7
2.2.5	Timeliness.....	II-2-8

(iv)

2.2.6	Completeness .....	II-2-8
2.2.7	Format .....	II-2-8
2.3	Metadata .....	II-2-9
2.3.1	General .....	II-2-9
2.3.2	Metadata collected for processes and exchange points .....	II-2-10
2.3.3	Metadata to be provided with each data set .....	II-2-10
2.4	Reference systems .....	II-2-12
2.4.1	Horizontal reference system .....	II-2-12
2.4.2	Vertical reference system .....	II-2-13
2.4.3	Temporal reference system .....	II-2-14
Chapter 3. Collection .....		II-3-1
3.1	Introduction .....	II-3-1
3.2	Use of the aeronautical data catalogue .....	II-3-1
3.3	Formal arrangements with data originators .....	II-3-3
3.3.1	General .....	II-3-3
3.3.2	Content of formal arrangements .....	II-3-4
3.4	Handling collected data and information .....	II-3-6
Chapter 4. Processing .....		II-4-1
4.1	Verification and validation .....	II-4-2
4.1.1	General .....	II-4-2
4.1.2	Verification .....	II-4-3
4.1.3	Validation .....	II-4-4
4.2	Integration .....	II-4-7
Chapter 5. Distribution .....		II-5-1
Chapter 6. Quality assurance and control .....		II-6-1
6.1	Introduction .....	II-6-1
6.2	Quality assurance .....	II-6-1
6.2.1	General aspects .....	II-6-1
6.2.2	Data error detection and reporting .....	II-6-2
6.3	Quality control .....	II-6-5
6.3.1	Overview .....	II-6-6
6.3.2	Quality checks to ensure compliance with product specifications .....	II-6-7
6.3.3	Consistency checks across the products .....	II-6-7
6.3.4	Control of nonconforming products .....	II-6-7
Chapter 7. Automation .....		II-7-1
7.1	Introduction .....	II-7-1
7.2	Automation benefits and basic principles .....	II-7-1
7.3	User's operational requirements .....	II-7-2
7.4	Different levels of automation .....	II-7-3
7.4.1	Overview .....	II-7-3
7.4.2	Level 0 — Manual .....	II-7-4
7.4.3	Level 1 — Data-centric .....	II-7-4
7.4.4	Level 2 — Automated workflow .....	II-7-5
7.4.5	Level 3 — Full AIM integration .....	II-7-6
7.5	Components of an automated AIM system .....	II-7-7
7.5.1	Data input .....	II-7-7
7.5.2	Core processing system .....	II-7-7
7.5.3	Data storage .....	II-7-7



7.5.4	Data product preparation .....	II-7-8
7.5.5	Service provision .....	II-7-9
7.6	Implementation planning for an automated AIM system .....	II-7-9
7.6.1	Understanding the improvements .....	II-7-9
7.6.2	System requirements .....	II-7-9
7.6.3	Transition to higher-levels of automation .....	II-7-10
APPENDIX: Data provision agreement .....		II-A-1

### **PART III - Aeronautical Information in a Standardized Presentation and Related Services**

Chapter 1.	Introduction.....	III-1-1
1.1	Purpose of Part III .....	III-1-1
1.2	Primary audience of Part III.....	III-1-1
1.3	Overview .....	III-1-1
1.4	Aeronautical Information Products .....	III-1-2
1.5	Aeronautical Information Services .....	III-1-3
Chapter 2.	Aeronautical Information Publication (AIP) .....	III-2-1
2.1	Introduction .....	III-2-1
2.2	Content and format .....	III-2-1
2.3	Specimen AIP and explanatory notes .....	III-2-2
2.4	Compiling and editing .....	III-2-2
2.5	Presentation of information .....	III-2-3
2.6	Publication of differences in the AIP .....	III-2-5
2.7	AIP amendments .....	III-2-8
2.8	AIP supplements.....	III-2-10
2.9	Electronic AIP .....	III-2-15
Chapter 3.	Aeronautical Information Updates .....	III-3-1
3.1	Permanent and temporary changes.....	III-3-1
3.2	Aeronautical Information Regulation and Control (AIRAC) .....	III-3-1
Chapter 4.	Aeronautical Information Circulars (AIC) .....	III-4-1
4.1	Contents.....	III-4-1
4.2	Checklist and annual review .....	III-4-1
4.3	Distribution .....	III-4-1
Chapter 5.	Provision of Aeronautical Information Products in Standardised Presentation .....	III-5-1
5.1	Maintenance of a distribution list.....	III-5-1
5.2	Distribution .....	III-5-1
5.3	Mailing.....	III-5-1
5.4	Sale of AIS documentation.....	III-5-2
Chapter 6.	NOTAM .....	III-6-1
6.1	Introduction .....	III-6-1
6.2	NOTAM format.....	III-6-1
6.3	Specification for NOTAM.....	III-6-2

(vi)

6.4 Cross-reference to AIP or AIP supplement .....	III-6-23
6.5 Naming of locations .....	III-6-23
6.6 Examples of NOTAM using the NOTAM format .....	III-6-23
6.7 Trigger NOTAM.....	III-6-28
6.8 Checklist of NOTAM .....	III-6-31
Chapter 7. SNOWTAM.....	III-7-1
7.1 Introduction .....	III-7-1
7.2 SNOWTAM Format.....	III-7-1
7.3 Specification for SNOWTAM.....	III-7-1
Chapter 8. ASHTAM .....	III-8-1
8.1 Introduction .....	III-8-1
8.2 ASHTAM Format.....	III-8-1
8.3 Specification for ASHTAM.....	III-8-1
Chapter 9. Instructions for the Distribution of NOTAM Messages .....	III-9-1
9.1 Distribution .....	III-9-1
9.2 Predetermined distribution system for NOTAM .....	III-9-3
Chapter 10. Pre-flight Information Services .....	III-10-1
10.1 Provision of pre-flight information service .....	III-10-1
10.2 Integrated pre-flight information service concept .....	III-10-3
10.3 Pre-flight Information Bulletins (PIB) .....	III-10-8
Chapter 11. Post-flight Information Services .....	III-11-1
11.1 Purpose of post-flight information .....	III-11-1
11.2 Collection of post-flight information .....	III-11-1
Appendix 1. EXPLANATORY NOTES ON THE SPECIMEN AIP .....	III-A1-1
Appendix 2. AERONAUTICAL INFORMATION PUBLICATION .....	III-A2-1
Appendix 3. USE OF AUTOMATION IN THE COMPILATION, PROCESSING AND DISTRIBUTION OF NOTAM .....	III-A3-1
Appendix 4. COMMON AIS QUERY PROCEDURES FOR SELF-BRIEFING BY END-USERS .....	III-A4-1
Appendix 5. COMMON QUERY MESSAGES FOR THE INTERROGATION OF OTHER AIS DATABASES .....	III-A5-1
Appendix 6. USE OF NOTAM CODE AND ABBREVIATIONS .....	III-A6-1
Appendix 7. NOTAM SELECTION CRITERIA .....	III-A7-1
Appendix 8. GUIDANCE ON THE USE OF THE AFS .....	III-A8-1
Appendix 9. EXAMPLE BRIEFING FORMS .....	III-A9-1
<b>PART IV - Digital Aeronautical Information Products and Related Services .....</b>	<b>IV-1-1</b>