International Civil Aviation Organization

MIDANPIRG STEERING GROUP

Sixth Meeting (MSG/6)
(Cairo, Egypt, 3 - 5 December 2018)

Agenda Item 5.3: Specific Air Navigation issues

AIM MATTERS

(Presented by the Secretariat)

SUMMARY

This paper presents an update on some important AIM Matters for consideration by the meeting.

Action by the meeting is at paragraph 3.

REFERENCES

- AIM SG/3 Report
- State Letter Ref.: AN 2/2.5-18/22 dated 3 April 2018
- State Letter Ref.: AN 2/33-18/85 dated 31 August 2018

1. INTRODUCTION

1.1 Adoption of Amendment 40 to Annex 15 and Approval of the First Edition of the PANS AIM (Doc 10066), were issued on 3 April 2018 and 31 August 2018, respectively, as at **Appendices A** and **B**.

2. DISCUSSION

16th Edition of Annex 15 and the new PANS AIM

2.1 The meeting may wish to recall that, taking into consideration the major changes introduced by the Amendment 16 to the Annex 15 and the new PANS AIM, an Interregional EUR/MID Workshop on PANS AIM was successfully conducted at the ICAO EUR/NAT Office in Paris, France, from 10 to 12 July 2018. The Workshop was attended by 101 Participants from 41 States and 9 International Organizations and Industry (5 States from MID: Egypt, Iran, Oman, Saudi Arabia and UAE)

2.2 The objectives of the Workshop were to introduce the new PANS-AIM (Doc 10066) and latest Amendments to Annex 15; and address associated challenges and share best practices for a timely implementation of the new provisions, including the implementation of digital datasets. The summary and recommendations of the Workshop is at **Appendix C**.

2.3 The meeting may wish to note that, in line with the Workshop Recommendations, the Secretariat has prepared analysis of changes (compliance checklist) of the 16th Edition of Annex 15, as at **Appendix D**. This spreadsheet is supposed to help States with transposition of requirements and identification of their differences with the Standards of Annex 15. A similar compliance checklist will be developed/distributed as soon as the final/official version of the PANS AIM is available.

2.4 Based on the above, the following Draft Conclusion is proposed:

DRAFT CONCLUSION 6/X: IMPLEMENTATION OF THE 16TH EDITION OF ANNEX 15 AND THE PANS AIM

That, States be urged to:

a) take necessary actions on the implementation of the 16th Edition of Annex 15 and the PANS AIM, including:
   - updating AIS/AIM National Regulations;
   - identification and notification of differences (EFOD and AIP GEN 1.7), if any;
   - coordination with their AISPs to develop necessary operational procedures/practices in order to implement the provisions of Annex 15 and the PANS AIM;

b) provide feedback to the ICAO MID Office on the implementation of the 16th Edition of Annex 15 and the PANS AIM (Implementation Plan, difficulties/challenges, need for assistance, etc).

2.5 It is to be highlighted that a Regional Workshop on the implementation of 16th Edition of Annex 15 and PANS AIM is scheduled to be held in Cairo, concurrently with the AIM SG/5 meeting, 22-24 January 2019.

MID Region AIM Implementation Roadmap

2.6 The meeting may wish to recall that the AIM SG/3 meeting updated the MID Region AIM Roadmap and agreed that some AIM Phase 3 steps should be included in the Roadmap. The meeting also updated timelines of the Roadmap, as at **Appendix E**.

2.7 The meeting may wish to note that, with the introduction of new provisions of Annex 15 and the PANS AIM, there would be a need to adjust the Roadmap with those provisions, in particular the digital datasets.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) endorse the proposed Draft Conclusion;

b) urge States to actively participate in the Workshop for implementation of Annex 15 (16th Edition) and PANS AIM (Cairo, Egypt, 22-24 January 2019); and

c) task the AIM SG to update the MID Region AIM Implementation Roadmap to include the provisions of the 16th edition of Annex 15 and the PANS AIM.

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Tel.: +1 514-954-8219 ext. 6048

Ref.: AN 2/2.5-18/22 3 April 2018

Subject: Adoption of Amendment 40 to Annex 15

Action required: a) Notify any disapproval before 16 July 2018; b) Notify any differences and compliance before 8 October 2018[1]; c) Consider the use of the Electronic Filing of Differences (EFOD) System for notification of differences and compliance

Sir/Madam,

1. I have the honour to inform you that Amendment 40 to the *International Standards and Recommended Practices, Aeronautical Information Services* (Annex 15 to the Convention on International Civil Aviation) was adopted by the Council at the sixth meeting of its 213th Session on 9 March 2018. Copies of the Amendment and the Resolution of Adoption are available as attachments to the electronic version of this State letter on the ICAO-NET (http://portal.icao.int) where you can access all other relevant documentation.

2. When adopting the amendment, the Council prescribed 16 July 2018 as the date on which it will become effective, except for any part concerning which a majority of Contracting States have registered their disapproval before that date. In addition, the Council resolved that Amendment 40, to the extent it becomes effective, will become applicable on 8 November 2018.

3. Amendment 40 arises from:

a) recommendations of the twelfth meeting of the Aeronautical Information Services (AIS)-Aeronautical Information Management (AIM) Study Group (AIS-AIMSG/12) regarding the restructure of Annex 15 to facilitate incorporation of AIM requirements and changes to the technical content of Annex 15 to facilitate the transition from AIS to AIM environments; and

b) recommendations of the second meeting of the Meteorology Panel (METP/2) regarding a consequential amendment in support of space weather information.

[1] 5 October 2020 for provisions indicating applicability as of 5 November 2020.

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4. The amendment presents a major restructuring of Annex 15 in order to facilitate the incorporation of new technical requirements and provisions. The changes are aimed at reorganizing the AIM documentation to ensure high-level requirements are embodied in Annex 15, technical specifications and operating procedures are incorporated into the new *Procedures for Air Navigation Services — Aeronautical Information Management* (PANS-AIM, Doc 10066) and guidance material is developed to support implementation.

5. The technical component of the amendment incorporates the AIM focus into Annex 15 which includes the scope, role and functions of AIM, the products and services within an AIM environment and the associated update mechanisms. The amendment generally encourages the transition from a product-centric AIS to the broader concept of a data-centric and service-oriented management of the aeronautical information. It also provides a revised terminology that better explains the aeronautical data chain and clearly identifies the main functions, the associated responsibilities, accountabilities and formal relations between different identities undertaking activities relating to the provision of aeronautical information in the context of the transition from AIS to AIM.

6. The consequential amendment has been introduced to support the initial implementation of the provision of space weather information in Annex 3— *Meteorological Service for International Air Navigation* to enhance the safety and efficiency of international air navigation consistent with the Global Air Navigation Plan.

7. The subjects are given in the amendment to the Foreword of Annex 15, a copy of which is in Attachment A.

8. In conformity with the Resolution of Adoption, may I request:

a) that before 16 July 2018 you inform me if there is any part of the adopted Standards and Recommended Practices (SARPs) amendments in Amendment 40 concerning which your Government wishes to register disapproval, using the form in Attachment B for this purpose. Please note that only statements of disapproval need be registered and if you do not reply it will be assumed that you do not disapprove of the amendment; and

b) that before 8 October 2018[2] you inform me of the following, using the Electronic Filing of Differences (EFOD) System or the form in Attachment C for this purpose:

1) any differences that will exist on 8 November 2018 between the national regulations or practices of your Government and the provisions of the whole of Annex 15, as amended by all amendments up to and including Amendment 40, and thereafter of any further differences that may arise; and

2) the date or dates by which your Government will have complied with the provisions of the whole of Annex 15 as amended by all amendments up to and including Amendment 40.

9. With reference to the request in paragraph 8 a) above, it should be noted that a registration of disapproval of Amendment 40 or any part of it in accordance with Article 90 of the Convention does not constitute a notification of differences under Article 38 of the Convention. To comply with the latter provision, a separate statement is necessary if any differences do exist, as requested in paragraph 8 b) 1). It is recalled in this respect that international Standards in Annexes have a conditional binding force, to the extent that the State or States concerned have not notified any difference thereto under Article 38 of the Convention.

[2] 5 October 2020 for provisions indicating applicability as of 5 November 2020.

10. With reference to the request in paragraph 8 b) above, it should be also noted that the ICAO Assembly, at its 38th Session (24 September to 4 October 2013), resolved that Member States should be encouraged to use the EFOD System when notifying differences (Resolution A38-11 refers). The EFOD System is currently available on the Universal Safety Oversight Audit Programme (USOAP) restricted website (http://www.icao.int/usoap) which is accessible by all Member States. You are invited to consider using this for notification of compliance and differences.

11. Guidance on the determination and reporting of differences is given in the Note on the Notification of Differences in Attachment D. Please note that a detailed repetition of previously notified differences, if they continue to apply, may be avoided by stating the current validity of such differences.

12. I would appreciate it if you would also send a copy of your notifications, referred to in paragraph 8 b) above, to the ICAO Regional Office accredited to your Government.

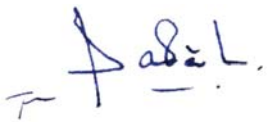
13. At the fifth meeting of its 204th Session, the Council requested that States, when being advised of the adoption of an Annex amendment, be provided with information on implementation and available guidance material, as well as an impact assessment. This is presented for your information in Attachments E and F, respectively.

Editorial adjustment and comprehensive new edition of Annex 15

14. In order to maintain a comprehensive edition of Annex 15, definitions related to provisions with delayed applicability dates are identified by a footnote indicating the date of applicability.

15. In addition, Amendment 39-B (adopted by the Council on 22 February 2016 and applicable 5 November 2020) will be consolidated with Amendment 40 in a new edition of the Annex and will feature the 2020 applicability date at the beginning of each affected provision. Further information relating to the new editorial adjustment is available at https://www.icao.int/2018-amendments. As soon as practicable after the amendment becomes effective, on 16 July 2018, a new edition of Annex 15 incorporating Amendment 40 as well as the adopted amendment mentioned above will be forwarded to you.

Accept, Sir/Madam, the assurances of my highest consideration.



Fang Liu
Secretary General

Enclosures:

A — Amendment to the Foreword of Annex 15
B — Form on notification of disapproval of all or part of Amendment 40 to Annex 15
C — Form on notification of compliance with or differences from Annex 15
D — Note on the Notification of Differences
E — Implementation task list and outline of guidance material in relation to Amendment 40 to Annex 15
F — Impact assessment in relation to Amendment 40 to Annex 15

ATTACHMENT A to State letter AN 2/2.5-18/22

AMENDMENT TO THE FOREWORD OF ANNEX 15

Add the following element at the end of Table A:

Amendment	***Source(s)***	***Subject***	***Adopted/Approved*** ***Effective*** ***Applicable***
40	Twelfth meeting of the AIS-AIM Study Group (AIS-AIMSG/12); and second meeting of the Meteorology Panel (METP/2)	Amendment concerning: a) restructure of Annex 15 to facilitate incorporation of aeronautical information management (AIM) requirements; b) changes to the technical content of Annex 15 to facilitate the transition from AIS to AIM; and c) a consequential amendment in support of space weather information.	9 March 2018 16 July 2018 8 November 2018

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ATTACHMENT B to State letter AN 2/2.5-18/22

NOTIFICATION OF DISAPPROVAL OF ALL OR PART OF AMENDMENT 40 TO ANNEX 15

To: The Secretary General
International Civil Aviation Organization
999 Robert-Bourassa Boulevard
Montréal, Quebec
Canada H3C 5H7

(State) _____ hereby wishes to disapprove the following parts of Amendment 40 to Annex 15:

Signature _____ Date _____

NOTES

1) If you wish to disapprove all or part of Amendment 40 to Annex 15, please dispatch this notification of disapproval to reach ICAO Headquarters by 16 July 2018. If it has not been received by that date it will be assumed that you do not disapprove of the amendment. **If you approve of all parts of Amendment 40, it is not necessary to return this notification of disapproval.**

2) This notification should not be considered a notification of compliance with or differences from Annex 15. Separate notifications on this are necessary. (See Attachment C.)

3) Please use extra sheets as required.

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ATTACHMENT C to State letter AN 2/2.5-18/22

NOTIFICATION OF COMPLIANCE WITH OR DIFFERENCES FROM ANNEX 15
(including all amendments up to and including Amendment 40)

To: The Secretary General
International Civil Aviation Organization
999 Robert-Bourassa Boulevard
Montréal, Quebec
Canada H3C 5H7

1. No differences will exist on _____ between the national regulations and/or practices of **(State)** _____ and the provisions of Annex 15, including all amendments up to and including Amendment 40.

2. The following differences will exist on _____ between the regulations and/or practices of **(State)** _____ and the provisions of Annex 15, including Amendment 40 (Please see Note 2) below.)

a) **Annex Provision** (Please give exact paragraph reference)	b) **Details of Difference** (Please describe the difference clearly and concisely)	c) **Remarks** (Please indicate reasons for the difference)

(Please use extra sheets as required)

3. By the dates indicated below, **(State)** _____ will have complied with the provisions of Annex 15, including all amendments up to and including Amendment 40 for which differences have been notified in 2 above.

a) **Annex Provision** (Please give exact paragraph reference)	b) **Date**	c) **Comments**

(Please use extra sheets as required)

Signature _____ Date _____

NOTES

1) If paragraph 1 above is applicable to your State, please complete paragraph 1 and return this form to ICAO Headquarters. If paragraph 2 is applicable to you, please complete paragraphs 2 and 3 and return the form to ICAO Headquarters.

2) A detailed repetition of previously notified differences, if they continue to apply, may be avoided by stating the current validity of such differences.

3) Guidance on the notification of differences is provided in the Note on the Notification of Differences and in the *Manual on Notification and Publication of Differences* (Doc 10055).

4) Please send a copy of this notification to the ICAO Regional Office accredited to your Government.

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ATTACHMENT D to State letter AN 2/2.5-18/22

NOTE ON THE NOTIFICATION OF DIFFERENCES

(*Prepared and issued in accordance with instructions of the Council)*

1. *Introduction*

1.1 Article 38 of the Convention on International Civil Aviation ("Convention") requires that a Contracting State notify ICAO any time it does not comply with a Standard in all respects, it does not bring its regulations or practices into full accord with any Standard, or it adopts regulations or practices differing in any particular respect from the Standard.

1.2 The Assembly and the Council, when reviewing the notification of differences by Contracting States in compliance with Article 38 of the Convention, have repeatedly noted that the timeliness and currency of such notifications is not entirely satisfactory. Therefore, this note is issued to reiterate the primary purpose of Article 38 of the Convention and to facilitate the determination and notification of differences.

1.3 The primary purpose of the notification of differences is to promote safety, regularity and efficiency in air navigation by ensuring that governmental and other agencies, including operators and service providers, concerned with international civil aviation are made aware of all national regulations and practices in so far as they differ from those prescribed in the Standards contained in Annexes to the Convention.

1.4 Contracting States are, therefore, requested to give particular attention to the notification of differences with respect to Standards in all Annexes, as described in paragraph 4 b) 1) of the Resolution of Adoption.

1.5 Although differences from Recommended Practices are not notifiable under Article 38 of the Convention, the Assembly has urged Contracting States to extend the above considerations to Recommended Practices contained in Annexes to the Convention, as well.

2. *Notification of differences from Standards and Recommended Practices (SARPs)*

2.1 Guidance to Contracting States in the notification of differences to Standards and Recommended Practices (SARPs) can only be given in very general terms. Contracting States are further reminded that compliance with SARPs generally extends beyond the issuance of national regulations and requires establishment of practical arrangements for implementation, such as the provision of facilities, personnel and equipment and effective enforcement mechanisms. Contracting States should take those elements into account when determining their compliance and differences. The following categories of differences are provided as a guide in determining whether a notifiable difference exists:

a) ***A Contracting State's requirement is more exacting or exceeds a SARP (Category A)***. This category applies when the national regulation and practices are more demanding than the corresponding SARP, or impose an obligation within the scope of the Annex which is not covered by the SARP. This is of particular importance where a Contracting State requires a higher standard which affects the operation of aircraft of other Contracting States in and above its territory;

b) ***A Contracting State's requirement is different in character or the Contracting State has established other means of compliance (Category B)***[*]. This category applies, in particular, when the national regulation and practices are different in character from the corresponding SARP, or when the national regulation and practices differ in principle, type or system from the corresponding SARP, without necessarily imposing an additional obligation; and

c) ***A Contracting State's requirement is less protective, partially implemented or not implemented (Category C)***. This category applies when the national regulation and practices are less protective than the corresponding SARP; when no national regulation has been promulgated to address the corresponding SARP, in whole or in part; or when the Contracting State has not brought its practices into full accord with the corresponding SARP.

These categories do not apply to Not Applicable SARP. Please see the paragraph below.

2.2 **Not Applicable SARP.** When a Contracting State deems a SARP concerning aircraft, operations, equipment, personnel, or air navigation facilities or services to be not applicable to the existing aviation activities of the State, notification of a difference is not required. For example, a Contracting State that is not a State of Design or Manufacture and that does not have any national regulations on the subject, would not be required to notify differences from Annex 8 provisions related to the design and construction of an aircraft.

2.3 **Differences from appendices, tables and figures.** The material comprising a SARP includes not only the SARP itself, but also the appendices, tables and figures associated with the SARP. Therefore, differences from appendices, tables and figures are notifiable under Article 38. In order to file a difference against an appendix, table or figure, States should file a difference against the SARP that makes reference to the appendix, table or figure.

2.4 **Differences from definitions.** Contracting States should notify differences from definitions. The definition of a term used in a SARP does not have independent status but is an essential part of each SARP in which the term is used. Therefore, a difference from the definition of the term may result in there being a difference from any SARP in which the term is used. To this end, Contracting States should take into consideration differences from definitions when determining compliance or differences to SARPs in which the terms are used.

2.5 The notification of differences should be not only to the latest amendment but to the whole Annex, including the amendment. In other words, Contracting States that have already notified differences are requested to provide regular updates of the differences previously notified until the difference no longer exists.

2.6 Further guidance on the identification and notification of differences, examples of well-defined differences and examples of model processes and procedures for management of the notification of differences can be found in the *Manual on Notification and Publication of Differences* (Doc 10055).

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[*] The expression "different in character or other means of compliance" in b) would be applied to a national regulation and practice which achieve, by other means, the same objective as that of the corresponding SARPs or for other substantive reasons so cannot be classified under a) or c).

3. *Form of notification of differences*

3.1 Differences can be notified:

a) by sending to ICAO Headquarters a form on notification of compliance or differences; or

b) through the Electronic Filing of Differences (EFOD) System at www.icao.int/usoap.

3.2 When notifying differences, the following information should be provided:

a) the number of the paragraph or subparagraph which contains the SARP to which the difference relates*;

b) the reasons why the State does not comply with the SARP, or considers it necessary to adopt different regulations or practices;

c) a clear and concise description of the difference; and

d) intentions for future compliance and any date by which your Government plans to confirm compliance with and remove its difference from the SARP for which the difference has been notified.

3.3 The differences notified will be made available to other Contracting States, normally in the terms used by the Contracting State when making the notification. In the interest of making the information as useful as possible, Contracting States are requested to ensure that:

a) statements be as clear and concise as possible and be confined to essential points;

b) the provision of extracts from national regulations not be considered as sufficient to satisfy the obligation to notify differences; and

c) general comments, unclear acronyms and references be avoided.

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* This applies only when the notification is made under 3.1 a).

ATTACHMENT E to State letter AN 2/2.5-18/22

IMPLEMENTATION TASK LIST AND OUTLINE OF GUIDANCE MATERIAL IN RELATION TO AMENDMENT 40 TO ANNEX 15

1. IMPLEMENTATION TASK LIST

1.1 Essential steps to be followed by a State to implement the amendment to Annex 15:

a) identification of the rule-making process necessary to transpose the new and modified ICAO provisions into national regulations taking into consideration the applicability date;

b) establishment of a national implementation plan that takes into account the new and modified ICAO provisions;

c) drafting of the modification(s) to the national regulations and means of compliance;

d) official adoption of the national regulations and means of compliance;

e) filing of State differences with ICAO, if necessary; and

f) training of operational staff in the use of new provisions.

2. STANDARDIZATION PROCESS

2.1 Effective date: 16 July 2018

2.2 Applicability date: 8 November 2018

2.3 Embedded applicability date: 5 November 2020 for those parts of the amendment concerning the SNOWTAM format.

3. SUPPORTING DOCUMENTATION

3.1 ICAO documentation

Title	Type (PANS/TI/Manual/Circ)	Planned publication date
Procedures for Air Navigation Services — Aeronautical Information Management (PANS-AIM, Doc 10066)	PANS (new)	2018
Aeronautical Information Services Manual (Doc 8126)	Manual (update)	2018

3.2 External documentation

Title	External Organization	Publication date
None		

4. IMPLEMENTATION ASSISTANCE TASKS

Type	Global	Regional
Workshop/Seminar		AIM regional conferences

5. UNIVERSAL SAFETY OVERSIGHT AUDIT PROGRAMME (USOAP)

5.1 The content of this amendment may require an amendment of the USOAP CMA protocol questions (PQs) due to the new technical requirements and change of references. This will be assessed during the next amendment cycle of the PQs.

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ATTACHMENT F to State letter AN 2/2.5-18/22

IMPACT ASSESSMENT IN RELATION TO AMENDMENT 40 TO ANNEX 15

1. INTRODUCTION

1.1 Amendment 40 to Annex 15 presents a major restructuring of the Annex in order to facilitate the incorporation of new technical requirements and provisions which include the definition of the scope of AIM, the role of AIM, the functions of AIM, the products and services within an AIM environment and the associated update mechanisms. The amendment also provides a revised terminology that better explains the aeronautical data chain and clearly identifies the main functions, the associated responsibilities, accountabilities and formal relations between different entities undertaking activities relating to the provision of aeronautical information in the context of the transition from AIS to AIM. Several other updates are provided to the technical requirements including NOTAM distribution improvements to make NOTAM more "fit for purpose", performance-based data error detection requirements, and data quality characteristics.

1.2 In the new structure of Annex 15, requirements are organized in a way that allows the data collection activity to be decoupled from the definition of the end-products. This approach has been taken to facilitate the transition to a full AIM environment under the all-embracing system-wide information management (SWIM) principles. Furthermore, material that is too prescriptive, detailed or procedural in nature has been relocated to the PANS-AIM or a guidance document.

2. IMPACT ASSESSMENT

2.1 Amendment concerning the restructure of Annex 15 to facilitate incorporation of AIM requirements

2.1.1 *Safety impact*: Positive safety impact with the implementation of this amendment. The provision of quality-assured, timely and reliable information is becoming crucial for the safety of operations and transitioning to a full AIM environment is an essential enabler to achieve this goal. The restructuring of the AIM provisions ensures that requirements are properly explained and promotes a better understanding of the AIM principles.

2.1.2 *Financial impact*: This amendment will result in minimal overall costs to States and industry. Several requirements currently contained in Annex 15 are moved to the proposed new PANS-AIM and this will imply the need to modify the State regulatory framework in order to properly account for the new references. Additionally the PANS do not carry the status of the Standards and therefore do not come with the obligation imposed by Article 38 of the Convention on International Civil Aviation concerning the notification to ICAO of differences in the event of non-implementation. However, in accordance with the provisions of Annex 15, States are expected to publish in their AIPs up-to-date lists of significant differences between their procedures and the related PANS. This implies the need to update processes to notify or stop notifying differences to ICAO and make sure that significant differences are published in the State AIP.

2.1.3 *Security impact*: No security impact is expected with this amendment.

2.1.4 *Environmental impact*: No environmental impact is expected with this amendment.

2.1.5 *Efficiency impact*: There will be a positive change as the restructuring of the AIM documentation will ensure that requirements are better organized and that provisions properly address the needs of different audiences (e.g. States, service delivery organizations, etc.). This will facilitate the process of retrieving specifications and result in a more efficient application of the requirements and have an indirect positive impact on efficiency in flight.

2.1.6 *Expected implementation time*: The expected implementation time depends on the need to modify the State regulatory framework properly to account for the new Annex 15 and PANS-AIM references and to update processes to notify or stop notifying differences to ICAO and make sure that significant differences are published in the State AIP. Overall, the expected implementation time will be less than one year from the applicability date of the amendment.

2.2 Amendment concerning changes to the technical content of Annex 15 to facilitate the transition from AIS to AIM

2.2.1 *Safety impact*: Aeronautical data and information are necessary to ensure the safety, regularity and efficiency of air navigation. The role and importance of complete, timely, and accurate aeronautical data and information has changed significantly with the implementation of area navigation (RNAV), required navigation performance (RNP), airborne computer-based navigation systems, and data link systems. Transitioning to a full AIM environment involves encompassing improved data quality by ensuring that information is provided by accountable and qualified sources. It implies a standard digital data exchange and processing of information and it allows for a timely and accurate distribution of information. Overall, this is reflected in an increased level of safety.

2.2.2 In addition, several operational conditions have been included in Annex 15 to identify when a NOTAM shall or shall not be generated. These inclusions and refinements will promote consistency and serve to refine NOTAM output, thereby increasing the overall level of safety.

2.2.3 *Financial impact*: Transitioning to a full AIM environment may require large investments in equipment and resources, depending on the State's and industry's status of implementation. However, this can be done through a phased approach that facilitates returns of investment, allows lessons learned in early phases to be incorporated in the processes in later phases, and ensures that a solid foundation is available prior to rolling-up more advanced techniques. Additionally, the transition will result in overall economic gains by improving aeronautical information management thorough a faster, quality-controlled and cost-effective exchange of aeronautical data.

2.2.4 *Security impact*: The existing prescriptive specifications have been amended to introduce more performance-based requirements to maintain data integrity along the data chain. The current stipulation of cyclic redundancy checks is too prescriptive and there have been numerous cases where this has proven to be difficult to demonstrate compliance. Performance-based requirements should facilitate implementation by allowing for use of more modern technology to detect errors in digital data introduced during transmission or storage.

2.2.5 *Environmental impact*: Transitioning from a paper-based to a digital environment will certainly bring environmental benefits.

2.2.6 *Efficiency impact*: Moving towards an AIM environment implies overall benefits in terms of efficiency. For instance, providing data in digital form and complying with digital data exchange requirements represents a paradigm shift in the way information is transmitted and handled along its life

cycle: management, processing, verification, usage, quality control and exchange of information is done in a structured, automatic manner thereby minimizing human intervention and reducing errors.

2.2.7 *Expected implementation time*: The expected implementation time varies depending on the States' current status of implementation. Some States have already implemented part of the requirements and taken actions accordingly. For States that have not implemented the requirements, the implementation time may take two to five years. Most of industry has already implemented many requirements to support the transition to AIM, therefore the expected implementation time would be up to one year depending on the status of implementation.

2.3 **Consequential amendment concerning space weather information**

2.3.1 *Safety impact*: The safety of aircraft operations is enhanced with access to improved information on space weather events.

2.3.2 *Financial impact*: Minimal as it will require minor costs to upgrade software in order to issue NOTAM for space weather events.

2.3.3 *Security impact*: None identified.

2.3.4 *Environmental impact*: None identified.

2.3.5 *Efficiency impact*: The efficiency of aircraft operations is enhanced with improved information about space weather events.

2.3.6 *Expected implementation time*: None. The revised SARP is believed to be consistent with existing State requirements.

— END —

AMENDMENT No. 40

TO THE

INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES

AERONAUTICAL INFORMATION SERVICES

ANNEX 15

TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION

The amendment to Annex 15, contained in this document was adopted by the Council of ICAO on **9 March 2018**. Such parts of this amendment as have not been disapproved by more than half of the total number of Contracting States on or before **16 July 2018** will become effective on that date and will become applicable on **8 November 2018** as specified in the Resolution of Adoption. (State letter AN 2/2.5-18/22 refers.)

MARCH 2018

INTERNATIONAL CIVIL AVIATION ORGANIZATION

AMENDMENT 40 TO THE INTERNATIONAL STANDARDS AND RECOMMENDED PRACTICES

ANNEX 15 — *AERONAUTICAL INFORMATION SERVICES*

RESOLUTION OF ADOPTION

The Council

Acting in accordance with the Convention on International Civil Aviation, and particularly with the provisions of Articles 37, 54 and 90 thereof,

1. *Hereby adopts* on 9 March 2018 Amendment 40 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Aeronautical Information Services* which for convenience is designated Annex 15 to the Convention;

2. *Prescribes* 16 July 2018 as the date upon which the said amendment shall become effective, except for any part thereof in respect of which a majority of the Contracting States have registered their disapproval with the Council before that date;

3. *Resolves* that the said amendment or such parts thereof as have become effective shall become applicable on 8 November 2018;

4. *Requests the Secretary General*:

a) to notify each Contracting State immediately of the above action and immediately after 16 July 2018 of those parts of the amendment which have become effective;

b) to request each Contracting State:

1) to notify the Organization (in accordance with the obligation imposed by Article 38 of the Convention) of the differences that will exist on 8 November 2018 between its national regulations or practices and the provisions of the Standards in the Annex as hereby amended, such notification to be made before 8 October 2018[1], and thereafter to notify the Organization of any further differences that arise;

2) to notify the Organization before 8 October 2018 of the date or dates by which it will have complied with the provisions of the Standards in the Annex as hereby amended;

c) to invite each Contracting State to notify additionally any differences between its own practices and those established by the Recommended Practices, when the notification of such differences is important for the safety of air navigation, following the procedure specified in subparagraph b) above with respect to differences from Standards.

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[1] 5 October 2020 for provisions indicating applicability as of 5 November 2020.

NOTES ON THE PRESENTATION OF THE AMENDMENT TO ANNEX 15

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

1.	~~Text to be deleted is shown with a line through it.~~	text to be deleted
2.	New text to be inserted is highlighted with grey shading.	new text to be inserted
3.	~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.	new text to replace existing text

TEXT OF AMENDMENT 40

TO THE

INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES

AERONAUTICAL INFORMATION SERVICES

ANNEX 15
TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION

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FOREWORD

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Historical background

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Applicability

The Standards and Recommended Practices in this document govern the application of the *Procedures for Air Navigation Services — Aeronautical Information Management* (PANS-AIM, Doc 10066) and the *Regional Supplementary Procedures* — Aeronautical Information Services, contained in Doc 7030, in which the latter document will be found subsidiary procedures of regional application.

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CHAPTER 1. GENERAL

Note 1.— The object of the aeronautical information service (AIS) is to ensure the flow of aeronautical data and aeronautical information necessary for global air traffic management (ATM) system safety, regularity, economy and efficiency in an environmentally sustainable manner. The role and importance of aeronautical data and aeronautical information changed significantly with the implementation of area navigation (RNAV), performance-based navigation (PBN), airborne computer-based navigation systems, performance-based communication (PBC), performance-based surveillance (PBS), data link systems and satellite voice communications (SATVOICE). Corrupt, erroneous, late, or missing aeronautical data and aeronautical information can potentially affect the safety of air navigation.

Note 2.— These Standards and Recommended Practices are to be used in conjunction with the Procedures for Air Navigation Services — ICAO Abbreviations and Codes *(PANS-ABC, Doc 8400).*

Note 3.— These Standards and Recommended Practices are to be used in conjunction with the Procedures for Air Navigation Services — Aeronautical Information Management *(PANS-AIM, Doc 10066).*

Note ~~3~~4.— Guidance material on the organization and operation of aeronautical information services is contained in the Aeronautical Information Services Manual *(Doc 8126).*

1.1 Definitions

When the following terms are used in the Standards and Recommended Practices for aeronautical information services, they have the following meanings:

~~***Accuracy.*** A degree of conformance between the estimated or measured value and the true value.~~

~~*Note.— For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.*~~

Aerodrome. A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

Aerodrome mapping data (AMD). Data collected for the purpose of compiling aerodrome mapping information.

Note.— Aerodrome mapping data are collected for purposes that include the improvement of the user's situational awareness, surface navigation operations, training, charting and planning.

Aerodrome mapping database (AMDB). A collection of aerodrome mapping data organized and arranged as a structured data set.

Aeronautical chart. A representation of a portion of the Earth, its culture and relief, specifically designated to meet the requirements of air navigation.

Aeronautical data. A representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing.

Aeronautical fixed service (AFS). A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

Aeronautical information. Information resulting from the assembly, analysis and formatting of aeronautical data.

Aeronautical Information Circular (AIC). A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.

Aeronautical information management (AIM). The dynamic, integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

Aeronautical information product. Aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media. Aeronautical information products include:

— Aeronautical Information Publication (AIP), including Amendments and Supplements;

— Aeronautical Information Circulars (AIC);

— Aeronautical charts;

— NOTAM; and

— Digital data sets.

Note.—Aeronautical information products are intended primarily to satisfy international requirements for the exchange of aeronautical information.

Aeronautical Information Publication (AIP). A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

Aeronautical information service (AIS). A service established within the defined area of coverage responsible for the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation.

AIP Amendment. Permanent changes to the information contained in the AIP.

AIP Supplement. Temporary changes to the information contained in the AIP which are ~~published~~ provided by means of special pages.

AIRAC. An acronym (aeronautical information regulation and control) signifying a system aimed at advance notification, based on common effective dates, of circumstances that necessitate significant changes in operating practices.

Air defence identification zone (ADIZ). Special designated airspace of defined dimensions within which aircraft are required to comply with special identification and/or reporting procedures additional to those related to the provision of air traffic services (ATS).

Air traffic management (ATM). The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.

~~***AIS product.*** Aeronautical data and aeronautical information provided in the form of the elements of the Integrated Aeronautical Information Package (except NOTAM and PIB), including aeronautical charts, or in the form of suitable electronic media~~.

Application. Manipulation and processing of data in support of user requirements (ISO 19104*).

Area navigation (RNAV). A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note.— Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.

ASHTAM. A special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations.

Assemble. A process of merging data from multiple sources into a database and establishing a baseline for subsequent processing.

Note.— The assemble phase includes checking the data and ensuring that detected errors and omissions are rectified.

ATS surveillance service. Term used to indicate a service provided directly by means of an ATS surveillance system.

ATS surveillance system. A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

Note.— A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.

Automatic dependent surveillance — broadcast (ADS-B). A means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

Automatic dependent surveillance — contract (ADS-C). A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link,

* All ISO Standards are listed at the end of this chapter.

specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

Note.— The abbreviated term "ADS contract" is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.

Automatic terminal information service (ATIS). The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:

Data link-automatic terminal information service (D-ATIS). The provision of ATIS via data link.

Voice-automatic terminal information service (Voice-ATIS). The provision of ATIS by means of continuous and repetitive voice broadcasts.

Bare Earth. Surface of the Earth including bodies of water and permanent ice and snow, and excluding vegetation and man-made objects.

Calendar. Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108*).

Canopy. Bare Earth supplemented by vegetation height.

Confidence level. The probability that the true value of a parameter is within a certain interval around the estimate of its value.

Note.— The interval is usually referred to as the accuracy of the estimate.

Controller-pilot data link communications (CPDLC). A means of communication between controller and pilot, using data link for ATC communications.

Culture. All man-made features constructed on the surface of the Earth, such as cities, railways and canals.

Cyclic redundancy check (CRC). A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

Danger area. An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

Data ~~A~~accuracy. A degree of conformance between the estimated or measured value and the true value.

~~*Note.— For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.*~~

Data completeness. The degree of confidence that all of the data needed to support the intended use is provided.

Data format. A structure of data elements, records and files arranged to meet standards, specifications or data quality requirements.

Data ~~I~~integrity (~~aeronautical data~~assurance level). A degree of assurance that an aeronautical data and its value has not been lost or altered since the ~~data~~ origination or authorized amendment.

Data product. Data set or data set series that conforms to a data product specification (ISO 19131*).

Data product specification. Detailed description of a data set or data set series together with additional information that will enable it to be created, supplied to and used by another party (ISO 19131*).

Note.— A data product specification provides a description of the universe of discourse and a specification for mapping the universe of discourse to a data set. It may be used for production, sales, end-use or other purpose.

Data quality. A degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution, integrity (or equivalent assurance level), traceability, timeliness, completeness and format.

Data resolution. A number of units or digits to which a measured or calculated value is expressed and used.

Data set. Identifiable collection of data (ISO 19101*).

Data set series. Collection of data sets sharing the same product specification (ISO 19115*).

Data timeliness. The degree of confidence that the data is applicable to the period of its intended use.

Data traceability. The degree that a system or a data product can provide a record of the changes made to that product and thereby enable an audit trail to be followed from the end-user to the originator.

Datum. Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104*).

Digital Elevation Model (DEM). The representation of terrain surface by continuous elevation values at all intersections of a defined grid, referenced to common datum.

Note.— Digital Terrain Model (DTM) is sometimes referred to as DEM.

Direct transit arrangements. Special arrangements approved by the public authorities concerned by which traffic which is pausing briefly in its passage through the Contracting State may remain under their direct control.

Ellipsoid height (Geodetic height). The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.

Feature. Abstraction of real world phenomena (ISO 19101*).

Feature attribute. Characteristic of a feature (ISO 19101*).

Note.— A feature attribute has a name, a data type and a value domain associated with it.

Feature operation. Operation that every instance of a feature type may perform (ISO 19110*).

Note.— An operation upon the feature type dam is to raise the dam. The result of this operation is to raise the level of water in the reservoir.

Feature relationship. Relationship that links instances of one feature type with instances of the same or a different feature type (ISO 19101*).

Feature type. Class of real world phenomena with common properties (ISO 19110*).

Note.— In a feature catalogue, the basic level of classification is the feature type.

Geodesic distance. The shortest distance between any two points on a mathematically defined ellipsoidal surface.

Geodetic datum. A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.

Geoid. The equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents.

Note.— The geoid is irregular in shape because of local gravitational disturbances (wind tides, salinity, current, etc.) and the direction of gravity is perpendicular to the geoid at every point.

Geoid undulation. The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid.

Note.— In respect to the World Geodetic System — 1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation.

Gregorian calendar. Calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108*).

Note.— In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.

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

Heliport. An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors principles. Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

~~***Integrated Aeronautical Information Package.*** A package in paper, or electronic media which consists of the following elements:~~

- ~~AIP, including amendment service;~~
- ~~Supplements to the AIP;~~
- ~~NOTAM and PIB;~~
- ~~AIC; and~~
- ~~checklists and lists of valid NOTAM.~~

Integrity classification (aeronautical data). Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data are classified as:

a) *routine data:* there is a very low probability when using corrupted routine data that the

continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

b) *essential data:* there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and

c) *critical data:* there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

International airport. Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

International NOTAM office (NOF). An office designated by a State for the exchange of NOTAM internationally.

Logon address. A specified code used for data link logon to an ATS unit.

Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Metadata. Data about data (ISO 19115*).

Note.— A structured description of the content, quality, condition or other characteristics of data.

Minimum en-route altitude (MEA). The altitude for an en-route segment that provides adequate reception of relevant navigation facilities and ATS communications, complies with the airspace structure and provides the required obstacle clearance.

Minimum obstacle clearance altitude (MOCA). The minimum altitude for a defined segment of flight that provides the required obstacle clearance.

Movement area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron.

Navigation specification. A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

Note 1.— The Performance-based Navigation (PBN) Manual *(Doc 9613), Volume II, contains detailed guidance on navigation specifications.*

Note 2.— The term RNP, previously defined as "a statement of the navigation performance necessary for operation within a defined airspace", has been removed from this Annex as the concept

of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.

Next intended user. The entity that receives the aeronautical data or information from the Aeronautical Information Service.

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.

Obstacle. All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

a) are located on an area intended for the surface movement of aircraft; or

b) extend above a defined surface intended to protect aircraft in flight; or

c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Obstacle/terrain data collection surface. A defined surface intended for the purpose of collecting obstacle/terrain data.

Origination (aeronautical data or aeronautical information). The creation of the value associated with new data or information or the modification of the value of an existing data or information.

Originator (aeronautical data or aeronautical information). An entity that is accountable for data or information origination and/or from which the AIS organization receives aeronautical data and information.

Orthometric height. Height of a point related to the geoid, generally presented as an MSL elevation.

Performance-based communication (PBC). Communication based on performance specifications applied to the provision of air traffic services.

Note.— An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note.— Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance-based surveillance (PBS). Surveillance based on performance specifications applied to the provision of air traffic services.

Note.— An RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data

delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Portrayal. Presentation of information to humans (ISO 19117*).

Position (geographical). Set of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of a point on the surface of the Earth.

Post spacing. Angular or linear distance between two adjacent elevation points.

Precision. The smallest difference that can be reliably distinguished by a measurement process.

Note.— In reference to geodetic surveys, precision is a degree of refinement in performance of an operation or a degree of perfection in the instruments and methods used when taking measurements.

Pre-flight information bulletin (PIB). A presentation of current NOTAM information of operational significance, prepared prior to flight.

Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

Quality. Degree to which a set of inherent characteristics fulfils requirements (ISO 9000*).

Note 1.— The term "quality" can be used with adjectives such as poor, good or excellent.

Note 2.— "Inherent", as opposed to "assigned", means existing in something, especially as a permanent characteristic.

Quality assurance. Part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 9000*).

Quality control. Part of quality management focused on fulfilling quality requirements (ISO 9000*).

Quality management. Coordinated activities to direct and control an organization with regard to quality (ISO 9000*).

Radio navigation service. A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

Required communication performance (RCP) specification. A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.

Required surveillance performance (RSP) specification. A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

Requirement. Need or expectation that is stated, generally implied or obligatory (ISO 9000*).

Note 1.— "Generally implied" means that it is custom or common practice for the organization, its customers and other interested parties, that the need or expectation under consideration is implied.

Note 2.— A qualifier can be used to denote a specific type of requirement, e.g. product requirement, quality management requirement, customer requirement.

Note 3.— A specified requirement is one which is stated, for example, in a document.

Note 4.— Requirements can be generated by different interested parties.

Restricted area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

Route stage. A route or portion of a route flown without an intermediate landing.

SNOWTAM.† A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

SNOWTAM.†† A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice, or frost on the movement area.

Station declination. An alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

Terrain. The surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles.

~~*Note.— In practical terms, depending on the method of data collection used, terrain represents the continuous surface that exists at the bare Earth, the top of the canopy or something in-between, also known as "first reflective surface".*~~

Traceability. Ability to trace the history, application or location of that which is under consideration (ISO 9000*).

Note.— When considering product, traceability can relate to:

— the origin of materials and parts;

— the processing history; and

— the distribution and location of the product after delivery.

Validation. Confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled (ISO 9000*).

Verification. Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (ISO 9000*).

Note ~~*1.*~~*— The term "verified" is used to designate the corresponding status.*

~~*Note 2.— Confirmation can comprise activities such as:*~~

~~*— performing alternative calculations;*~~

~~*— comparing a new design specification with a similar proven design specification;*~~

† Applicable until 4 November 2020.
†† Applicable as of 5 November 2020.

~~— undertaking tests and demonstrations; and~~

~~— reviewing documents prior to issue.~~

VOLMET. Meteorological information for aircraft in flight.

Data link-VOLMET (D-VOLMET). Provision of current aerodrome routine meteorological reports (METAR) and aerodrome special meteorological reports (SPECI), aerodrome forecasts (TAF), SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET via data link.

VOLMET broadcast. Provision, as appropriate, of current METAR, SPECI, TAF and SIGMET by means of continuous and repetitive voice broadcasts.

1.2 Common reference systems for air navigation

1.2.1 Horizontal reference system

1.2.1.1 World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.

Note 1.— Comprehensive guidance material concerning WGS-84 is contained in the World Geodetic System — 1984 (WGS-84) Manual *(Doc 9674).*

~~*Note 2.— Specifications governing the determination and reporting (accuracy of field work and data integrity) of WGS-84-related aeronautical coordinates for geographical positions established by air traffic services are given in Annex 11, Chapter 2, and Appendix 5, Table 1, and for aerodrome/heliport related positions, in Annex 14, Volumes I and II, Chapter 2, and Table A5-1 and Table 1 of Appendices 5 and 1, respectively.*~~

1.2.1.2 **Recommendation.**— *In precise geodetic applications and some air navigation applications, temporal changes in the tectonic plate motion and tidal effects on the Earth's crust should be modelled and estimated. To reflect the temporal effect, an epoch should be included with any set of absolute station coordinates.*

Note 1.— The epoch of the WGS-84 (G873) reference frame is 1997.0 while the epoch of the latest updated WGS-84 (G1150) reference frame, which includes a plate motion model, is 2001.0. (G indicates that the coordinates were obtained through Global Positioning System (GPS) techniques, and the number following G indicates the GPS week when these coordinates were implemented in the United States' National Geospatial-Intelligence Agency's precise ephemeris estimation process.)

Note 2.— The set of geodetic coordinates of globally distributed permanent GPS tracking stations for the most recent realization of the WGS-84 reference frame (WGS-84 (G1150)) is provided in Doc 9674. For each permanent GPS tracking station, the accuracy of an individually estimated position in WGS-84 (G1150) has been in the order of 1 cm (1σ).

Note 3.— Another precise worldwide terrestrial coordinate system is the International Earth Rotation Service (IERS) Terrestrial Reference System (ITRS), and the realization of ITRS is the IERS Terrestrial Reference Frame (ITRF). Guidance material regarding the ITRS is provided in Appendix C of Doc 9674. The most current realization of WGS-84 (G1150) is referenced to the ITRF 2000 epoch. WGS-84 (G1150) is consistent with ITRF 2000 and in practical realization the difference

between these two systems is in the one to two centimetre range worldwide, meaning WGS-84 (G1150) and ITRF 2000 are essentially identical.

~~1.2.1.3 Geographical coordinates that have been transformed into WGS-84 coordinates but whose accuracy of original field work does not meet the requirements in Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2, shall be identified by an asterisk.~~

~~1.2.1.4 The order of publication resolution of geographical coordinates shall be that specified in Table A7-1 of Appendix 7 while the order of chart resolution of geographical coordinates shall be that specified in Annex 4, Appendix 6, Table 1.~~

1.2.2 Vertical reference system

1.2.2.1 Mean sea level (MSL) datum~~, which gives the relationship of gravity related height (elevation) to a surface known as the geoid,~~ shall be used as the vertical reference system for international air navigation.

Note 1.— The geoid globally most closely approximates MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.

Note 2.— Gravity-related heights (elevations) are also referred to as orthometric heights while distances of points above the ellipsoid are referred to as ellipsoidal heights.

1.2.2.2 The Earth Gravitational Model — 1996 (EGM-96)~~, containing long wavelength gravity field data to degree and order 360,~~ shall be used by international air navigation as the global gravity model.

1.2.2.3 At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation ~~specified in Annex 14, Volumes I and II,~~ on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data shall be developed and used. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Aeronautical Information Publication (AIP).

Note.— Specifications governing determination and reporting (accuracy of field work and data integrity) of elevation and geoid undulation at specific positions at aerodromes/heliports are given in PANS-AIM (Doc 10066), Appendix 1 ~~Annex 14, Volumes I and II, Chapter 2, and Table A5-2 and Table 2 of Appendices 5 and 1, respectively~~.

~~1.2.2.4 In addition to elevation referenced to the MSL (geoid), for the specific surveyed ground positions, geoid undulation (referenced to the WGS-84 ellipsoid) for those positions specified in Appendix 1 shall also be published.~~

~~1.2.2.5 The order of publication resolution of elevation and geoid undulation shall be that specified in Table A7-2 of Appendix 7 while the order of chart resolution of elevation and geoid undulation shall be that specified in Annex 4, Appendix 6, Table 2.~~

1.2.3 Temporal reference system

1.2.3.1 The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system for international air navigation.

Note 1.— A value in the time domain is a temporal position measured relative to a temporal reference system.

Note 2.— UTC is a time scale maintained by the Bureau International de l'Heure and the IERS and forms the basis of a coordinated dissemination of standard frequencies and time signals.

Note 3.— See Attachment D of Annex 5 for guidance material relating to UTC.

Note 4.— ISO Standard 8601 specifies the use of the Gregorian calendar and 24-hour local or UTC for information interchange while ISO Standard 19108 prescribes the Gregorian calendar and UTC as the primary temporal reference system for use with geographic information.*

1.2.3.2 When a different temporal reference system is used for some applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system.

Note.— ISO Standard 19108, Annex D, describes some aspects of calendars that may have to be considered in such a description.*

1.3 Miscellaneous specifications

1.3.1 ~~Each element of the Integrated Aeronautical Information Package for~~ Aeronautical information products intended for international distribution shall include English text for those parts expressed in plain language.

1.3.2 Place names shall be spelt in conformity with local usage, transliterated, when necessary, into the ISO-Basic Latin alphabet.

1.3.3 **Recommendation.—** *Units of measurement used in the origination, processing and distribution of aeronautical data and aeronautical information should be consistent with the decision taken by the State in respect of the use of the tables contained in Annex 5.*

1.3.4 ICAO abbreviations shall be used in the ~~AIS~~ aeronautical information products whenever they are appropriate and their use will facilitate distribution of aeronautical data and aeronautical information.

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* ISO Standard
8601 — Data elements and interchange formats — Information interchange — Representation of dates and times
9000 — Quality Management Systems — Fundamentals and Vocabulary
19101 — Geographic information — Reference model
19104 — Geographic information — Terminology
19108 — Geographic information — Temporal schema
19109 — Geographic information — Rules for application schema
19110 — Geographic information — Feature cataloguing schema
19115 — Geographic information — Metadata
19117 — Geographic information — Portrayal
19131 — Geographic information — Data product specification

CHAPTER 2. RESPONSIBILITIES AND FUNCTIONS

2.1 State responsibilities

2.1.1 Each Contracting State shall:

a) provide an aeronautical information service (AIS); or

b) agree with one or more other Contracting State(s) for the provision of a joint service; or

c) delegate the authority for the provision of the service to a non-governmental agency, provided the Standards and Recommended Practices of this Annex are adequately met.

2.1.2 Each Contracting State shall ensure that the provision of aeronautical data and aeronautical information covers its own territory and those areas over the high seas for which it is responsible for the provision of air traffic services.

2.1.3 The State concerned shall remain responsible for the aeronautical data and aeronautical information provided in accordance with 2.1.2. Aeronautical data and aeronautical information provided for and on behalf of a State shall clearly indicate that they are provided under the authority of that State~~.~~, irrespective of the format in which they are provided.

2.1.4 Each Contracting State shall ensure that the aeronautical data and aeronautical information provided are ~~complete, timely and~~ of required quality in accordance with 3.3.

2.1.5 Each Contracting State shall ensure that formal arrangements are established between originators of aeronautical data and aeronautical information and the AIS in relation to the timely and complete provision of aeronautical data and aeronautical information.

Note.— The scope of aeronautical data and aeronautical information that would be the subject of formal arrangements is specified in Chapter 4.

2.2 AIS responsibilities and functions

2.2.1 An AIS shall ensure that aeronautical data and aeronautical information necessary for the safety, regularity ~~or~~ and efficiency of air navigation are made available in a form suitable for the operational requirements of the air traffic management (ATM) community, including:

a) those involved in flight operations, including flight crews, flight planning and flight simulators; and

b) the air traffic services unit responsible for flight information service and the services responsible for pre-flight information.

Note.— A description of the ATM community is contained in the Global Air Traffic Management Operational Concept *(Doc 9854).*

2.2.2 An AIS shall receive, collate or assemble, edit, format, publish/store and distribute aeronautical data and aeronautical information concerning the entire territory of the State as well as those areas over the high seas in which the State is responsible for the provision of air traffic services.

Aeronautical data and aeronautical information shall be provided as ~~an Integrated Aeronautical Information Package~~ aeronautical information products.

Note.— An AIS may include origination functions.

2.2.3 Where 24-hour service is not provided, service shall be available during the whole period an aircraft is in flight in the area of responsibility of AIS, plus a period of at least two hours before and after such a period. Service shall also be available at such other time as may be requested by an appropriate ground organization.

2.2.4 An AIS shall, in addition, obtain aeronautical data and aeronautical information to enable it to provide pre-flight information service and to meet the need for in-flight information:

a) from the AIS of other States;

b) from other sources that may be available.

Note.— One such source is the subject of a provision in ~~8.3~~ 5.6.

2.2.5 Aeronautical data and aeronautical information obtained under 2.2.4 a) shall, when distributed, be clearly identified as having the authority of the originating State.

2.2.6 Aeronautical data and aeronautical information obtained under 2.2.4 b) shall, if possible, be verified before distribution and if not verified shall, when distributed, be clearly identified as such.

2.2.7 An AIS shall promptly make available to the AIS of other States any aeronautical data and aeronautical information necessary for the safety, regularity or efficiency of air navigation required by them, to enable them to comply with 2.2.1.

2.3 Exchange of aeronautical data and aeronautical information

2.3.1 Each Contracting State shall designate the office to which all elements of the ~~Integrated Aeronautical Information Package originated~~ aeronautical information products provided by other States shall be addressed. Such an office shall be qualified to deal with requests for aeronautical data and aeronautical information ~~originated~~ provided by other States.

~~2.3.2 Where more than one international NOTAM office is designated within a State, the extent of responsibility and the territory covered by each office shall be defined.~~

Editorial Note.— 2.3.2 is relocated to the new edition of Annex 15, 2.3.3.

2.3.2 ~~Where more than one international NOTAM office is designated within a State, the extent of responsibility and the territory covered by each office shall be defined.~~ **Recommendation.**— *Formal arrangements should be established between those parties providing aeronautical data and aeronautical information on behalf of the States and their users in relation to the provision of the service.*

Note.— Guidance material on such formal arrangements is contained in Doc 8126.

~~2.3.3 An AIS shall arrange, as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.~~

Editorial Note.— 2.3.3 is relocated both to the new edition of Annex 15, 2.3.4, and the new PANS-AIM, 5.4.2.1.

~~2.3.2~~ 2.3.3 Where more than one international NOTAM office is designated within a State, the extent of responsibility and the territory covered by each office shall be defined.

Editorial Note.— New 2.3.3 is relocated text from 2.3.2.

~~2.3.4 Wherever practicable, direct contact between AIS shall be established in order to facilitate the international exchange of aeronautical data and aeronautical information.~~

Editorial Note.— 2.3.4 is relocated to the new edition of Annex 15, 2.3.5.

~~2.3.3~~ 2.3.4 An AIS shall arrange, as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.

Editorial Note.— New 2.3.4 is relocated text from 2.3.3.

~~2.3.5 One copy of each of the elements of the Integrated Aeronautical Information Package that have been requested by the AIS of a Contracting State shall be made available by the originating State in the mutually-agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency.~~

Editorial Note.— 2.3.5 is relocated to the new edition of Annex 15, 2.3.6.

~~2.3.4~~ 2.3.5 Wherever practicable, direct contact between AIS shall be established in order to facilitate the international exchange of aeronautical data and aeronautical information.

Editorial Note.— New 2.3.5 is relocated text from 2.3.4.

~~2.3.6 **Recommendation.** — *The exchange of more than one copy of the elements of the Integrated Aeronautical Information Package and other air navigation documents, including those containing air navigation legislation and regulations, should be subject to bilateral agreement between ICAO Contracting States.*~~

Editorial Note.— 2.3.6 is relocated to the new edition of Annex 15, 2.3.7.

~~2.3.5~~ 2.3.6 Except as provided in 2.3.8, ~~O~~one copy of each of the ~~elements of the Integrated Aeronautical Information Package~~ following aeronautical information products (where available) that have been requested by the AIS of a Contracting State shall be made available by the originating State and provided in the mutually-agreed form(s), without charge, even where authority for publication/storage and distribution has been delegated to a non-governmental agency~~.~~:

a) Aeronautical Information Publication (AIP), including Amendments and Supplements;

b) Aeronautical Information Circulars (AIC);

c) NOTAM; and

d) Aeronautical Charts.

Editorial Note.— New 2.3.6 is relocated text from 2.3.5.

~~2.3.7 **Recommendation.**— *The procurement of aeronautical data and aeronautical information, including the elements of the Integrated Aeronautical Information Package, and other air navigation documents, including those containing air navigation legislation and regulations, by States other than Contracting States and by other entities should be subject to separate agreement with the originating State.*~~

Editorial Note.— 2.3.7 is relocated to the new edition of Annex 15, 2.3.9.

~~2.3.6~~ 2.3.7 **Recommendation**.— *The exchange of more than one copy of the elements of ~~the Integrated Aeronautical Information Package~~ aeronautical information products and other air navigation documents, including those containing air navigation legislation and regulations, should be subject to bilateral agreement between the participating Contracting States and entities.*

Editorial Note.— New 2.3.7 is relocated text from 2.3.6.

2.3.8 Where aeronautical information and aeronautical data is provided in the form of digital data sets to be used by the AIS, it shall be provided on the basis of agreement between the Contracting States concerned.

Note.— The intention is that States are able to access foreign data for the purposes specified in 2.2.4.

~~2.3.7~~ 2.3.9 **Recommendation**.— *The procurement of aeronautical data and aeronautical information, including the elements of ~~the Integrated Aeronautical Information Package~~ aeronautical information products, and other air navigation documents, including those containing air navigation legislation and regulations, by States other than Contracting States and by other entities should be subject to separate agreement ~~with the originating State~~ between the participating States and entities.*

Editorial Note.— New 2.3.9 is relocated text from 2.3.7.

2.3.10 Globally interoperable aeronautical data and information exchange models shall be used for the provision of data sets.

Note 1.— Specifications concerning the globally interoperable aeronautical information and data exchange models are contained in the PANS-AIM (Doc 10066).

Note 2.— Guidance on the globally interoperable aeronautical information and data exchange models may be found in Doc 8126.

Editorial Note.— New Note 2 is relocated text from Note to 3.6.3.

2.4 Copyright

Note.— In order to protect the investment in the products of a State's AIS as well as to ensure better control of their use, States may wish to apply copyright to those products in accordance with their national laws.

2.4.1 Any aeronautical information product ~~of a State's AIS~~ which has been granted copyright protection by ~~that~~ the originating State and provided to another State in accordance with 2.3 shall only be made available to a third party on the condition that the third party is made aware that the product is copyright protected and provided that it is appropriately annotated that the product is subject to copyright by the originating State.

Editorial Note.— New 2.4.1 is relocated text from 2.4.

2.4.2 When aeronautical information and aeronautical data is provided to a State in accordance with 2.3.8, the receiving State shall not provide digital data sets of the providing State to any third party without the consent of the providing State.

2.5 Cost recovery

2.5.1 **Recommendation.**— *The overhead cost of collecting and compiling aeronautical data and aeronautical information should be included in the cost basis for airport and air navigation services charges, as appropriate, in accordance with the principles contained in ICAO's* Policies on Charges for Airports and Air Navigation Services *(Doc 9082).*

Note.— When costs of collection and compilation of aeronautical data and aeronautical information are recovered through airport and air navigation services charges, the charge to an individual customer for the supply of a particular ~~AIS~~ aeronautical information product may be based on the costs of printing paper copies, production of electronic media and distribution.

CHAPTER 3. AERONAUTICAL INFORMATION MANAGEMENT

3.1 Information management requirements

The information management resources and processes established by an aeronautical information service (AIS) shall be adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the air traffic management (ATM) system.

~~3.3~~ 3.2 Data quality specifications

~~3.2.1 Material to be issued as part of the Integrated Aeronautical Information Package shall be thoroughly checked before it is submitted to the AIS, in order to make certain that all necessary information has been included and that it is correct in detail prior to distribution.~~

Editorial Note.— 3.2.1 is relocated to the new edition of Annex 15, 3.3.1.

~~3.3.1~~ 3.2.1 Data Accuracy

The order of accuracy for aeronautical data shall be in accordance with its intended use ~~as specified in Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2. In that respect, three types of positional data shall be identified: surveyed points (runway thresholds, navigation aid positions, etc.), calculated points (mathematical calculations from the known surveyed points of points in space/fixes) and declared points (e.g. flight information region boundary points).~~

Note.— ~~The accuracy requirements for electronic terrain and obstacle data are specified in Appendix 8.~~ Specifications concerning the order of accuracy (including confidence level) for aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

Editorial Note.— New 3.2.1 is relocated text from 3.3.1.

~~3.2.2 An AIS shall establish verification and validation procedures which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements (accuracy, resolution, integrity and traceability) are met.~~

~~*Note 1. Guidance material on liaison with other related services is contained in the* Aeronautical Information Services Manual *(Doc 8126).*~~

Editorial Note.— 3.2.2 and Note 1 are relocated to the new edition of Annex 15, 3.3.2.

~~*Note 2. Guidance material on the aeronautical data quality requirements (accuracy, resolution, integrity, and traceability and protection requirements) may be found in the* World Geodetic System — 1984 (WGS-84) Manual *(Doc 9674). Supporting data quality material in respect of data accuracy, publication resolution, and integrity of aeronautical data, together with guidance material in respect to the rounding convention for aeronautical data, is contained in Radio Technical Commission for Aeronautics (RTCA) Document DO-201A and European Organization for Civil~~

~~*Aviation Equipment (EUROCAE) Document ED-77* — Standards for Aeronautical Information (or equivalent).~~

~~*Note 3.— Guidance material on the management of aeronautical data quality is included in the* Manual on the Quality Management System for Aeronautical Information Services *(Doc 9839)(to be developed).*~~

Editorial Note.— Notes 2 (initial part) and 3 are relocated to the new PANS-AIM, Notes 2 and 4 to 2.1.2.1.

~~3.3.2~~ 3.2.2 Data Resolution

~~3.3.2.1~~ The order of ~~publication~~ resolution of aeronautical data shall be ~~as specified in Appendix 7~~ commensurate with the actual data accuracy.

Editorial Note.— New 3.2.2 is relocated text from 3.3.2.1.

Note 1.— Specifications concerning the resolution of the aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

Note 2.— The resolution of the data ~~features~~ contained in the database may be the same or finer than the publication resolution.

Editorial Note.— Note 2 is relocated text from Note to 3.3.2.2.

~~3.3.3~~ 3.2.3 Data Integrity

~~3.3.3.1~~ 3.2.3.1 The integrity of ~~classification for~~ aeronautical data shall be maintained throughout the data process from origination to distribution to the next intended user.~~as specified in Tables A7-1 to A7-5 of Appendix 7.~~

Note .— Specifications concerning the integrity classification related to aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

Editorial Note.— New 3.2.3.1 and the Note is relocated text from 3.3.3.1 and 3.3.3.2.

~~3.3.3.2~~ 3.2.3.2 ~~The integrity of aeronautical data shall be maintained throughout the data process from survey/origin to distribution to the next intended user (the entity that receives the aeronautical information from the AIS provider).~~ Based on the applicable integrity classification, ~~the validation and verification procedures shall~~ procedures shall be put in place in order to:

a) for routine data: avoid corruption throughout the processing of the data;

b) for essential data: assure corruption does not occur at any stage of the entire process and include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and

c) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.

Editorial Note.— New 3.2.3.2 is relocated text from 3.3.3.2.

3.2.4 Data Traceability

3.2.4.1 Traceability of aeronautical data shall be ensured and retained as long as the data is in use.

3.2.5 Data Timeliness

3.2.5.1 Timeliness shall be ensured by including limits on the effective period of the data elements.

Note 1.— These limits may be associated with individual data elements or data sets.

Note 2.— If the effective period is defined for a data set, it will account for the effective dates of all of the individual data elements.

3.2.6 Data Completeness

3.2.6.1 Completeness of the aeronautical data shall be ensured in order to support the intended use.

3.2.7 Data Format

3.2.7.1 The format of delivered data shall be adequate to ensure that the data is interpreted in a manner that is consistent with its intended use.

~~3.2~~ 3.3 Aeronautical data and aeronautical information validation and verification

~~3.3.1 Accuracy~~

~~The order of accuracy for aeronautical data shall be as specified in Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2. In that respect, three types of positional data shall be identified: surveyed points (runway thresholds, navigation aid positions, etc.), calculated points (mathematical calculations from the known surveyed points of points in space/fixes) and declared points (e.g. flight information region boundary points).~~

~~*Note. — The accuracy requirements for electronic terrain and obstacle data are specified in Appendix 8.*~~

Editorial Note.— 3.3.1 and Note are relocated to the new edition of Annex 15, 3.2.1 and the new PANS-AIM, 4.1.2.

~~3.2.1~~ 3.3.1 Material to be issued as part of ~~the Integrated Aeronautical Information Package~~ an aeronautical information product shall be thoroughly checked before it is submitted to the AIS, in order to ~~make certain~~ ensure that all necessary information has been included and that it is correct in detail ~~prior to distribution~~.

Editorial Note.— New 3.3.1 is relocated text from 3.2.1.

~~3.3.2 Resolution~~

~~3.3.2.1 The order of publication resolution of aeronautical data shall be as specified in Appendix 7.~~

~~3.3.2.2 **Recommendation.** — *The resolution of the data features contained in the database should be commensurate with the data accuracy requirements.*~~

~~*Note. — The resolution of the data features contained in the database may be the same or finer than the publication resolution.*~~

Editorial Note.— 3.3.2.1, 3.3.2.2 and the Note are relocated to the new edition of Annex 15, 3.2.2, Notes 1 and 2.

~~3.2.2~~ 3.3.2 An AIS shall establish verification and validation procedures which ensure that upon receipt of aeronautical data and aeronautical information, quality requirements ~~(accuracy, resolution, integrity and traceability)~~ are met.

~~*Note 1. — Guidance material on liaison with other related services is contained in the* Aeronautical Information Services Manual *(Doc 8126).*~~

Editorial Note.— New 3.3.2 is relocated text from 3.2.2.

~~3.3.3 Integrity~~

~~3.3.3.1 The integrity classification for aeronautical data shall be as specified in Tables A7-1 to A7-5 of Appendix 7.~~

~~3.3.3.2 The integrity of aeronautical data shall be maintained throughout the data process from survey/origin to distribution to the next intended user (the entity that receives the aeronautical information from the AIS provider). Based on the applicable integrity classification, the validation and verification procedures shall:~~

~~a) for routine data: avoid corruption throughout the processing of the data;~~

~~b) for essential data: assure corruption does not occur at any stage of the entire process and include additional processes as needed to address potential risks in the overall system architecture to further assure data integrity at this level; and~~

~~c) for critical data: assure corruption does not occur at any stage of the entire process and include additional integrity assurance processes to fully mitigate the effects of faults identified by thorough analysis of the overall system architecture as potential data integrity risks.~~

Editorial Note.— 3.3.3.1 and 3.3.3.2 are relocated to the new edition of Annex 15, 3.2.3.1 and 3.2.3.2.

~~*Note 1.— Guidance material in respect to the processing of aeronautical data and aeronautical information is contained in RTCA Document DO-200A and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-76 — Standards for Processing Aeronautical Data.*~~

~~*Note 2.— Error-producing faults in the entire process may be mitigated by additional data quality assurance techniques as may be required. These could include application tests for critical data (for example, by flight check); the use of security, logic, semantic, comparison, and redundancy checks; digital error detection; and the qualification of human resources and process tools such as hardware and software.*~~

~~*Note 3.— Distribution to the next intended user will differ in the delivery method applied which may either be:*~~

~~*Physical distribution. The means by which aeronautical data and aeronautical information distribution is achieved through the delivery of a physical package, such as postal services; or*~~

~~*Direct electronic distribution. The means by which aeronautical data and aeronautical information distribution is achieved automatically through the use of a direct electronic connection between the AIS and the next intended user.*~~

~~*Note 4.— Different delivery methods and data media may require different procedures to ensure the required data quality.*~~

Editorial Note.— Notes 1 to 4 are relocated to the new PANS-AIM as follows: Note 1 to Note to 2.2.1; Note 2 to Note to 2.1.3; Note 3 to 5.4.1.1; and Note 4 to 5.4.1.2.

3.4 Data error detection

~~3.4.1 Metadata shall be collected for aeronautical data processes and exchange points. This metadata collection shall be applied throughout the aeronautical information data chain, from survey/origin to distribution to the next intended user.~~

Editorial Note.— 3.4.1 is relocated to the new edition of Annex 15, 4.2.1 and 4.2.2.

~~*Note.— ISO Standard 19115 specifies requirements for geographic information metadata.*~~

Editorial Note.— Note to 3.4.1 is relocated to the new PANS-AIM, Note to 4.2.1.

~~3.5.1~~ 3.4.1 ~~Aeronautical data and data sets shall be protected in accordance with data error detection, security, and authentication techniques.~~ Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets.

~~*Note.— Doc 8126 contains guidance material on data error detection, security and authentication techniques*~~

~~3.4.2 The metadata to be collected shall include, as a minimum:~~

~~a) the name of the organizations or entities performing any action of originating, transmitting or manipulating the data;~~

~~b) the action performed; and~~

~~c) the date and time the action was performed.~~

Editorial Note.— 3.4.2 is relocated to the new PANS-AIM, 4.2.1.

~~3.5.2~~ 3.4.2 ~~Electronic aeronautical data sets shall be protected by the inclusion in the data sets of a 32-bit cyclic redundancy check (CRC) implemented by the application dealing with the data sets. This shall apply to the protection of the integrity classification of data sets as specified in 3.3.3~~. Digital data error detection techniques shall be used in order to maintain the integrity levels as specified in 3.2.3.

Note.— Detailed specifications concerning digital data error detection techniques are contained in the PANS-AIM (Doc 10066).

~~*Note 1.— This requirement does not apply to the communications systems used for the transfer of data sets.*~~

~~*Note 2.— Guidance material on the use of a 32-bit CRC algorithm to implement a protection of electronic aeronautical data sets is contained in Doc 8126.*~~

~~3.6~~ 3.5 Use of automation

~~3.5.1 Aeronautical data and data sets shall be protected in accordance with data error detection, security, and authentication techniques.~~

~~*Note. — The* Aeronautical Information Services Manual *(Doc 8126) contains guidance material on data error detection, security and authentication techniques.*~~

Editorial Note.— 3.5.1 and Note are relocated to new edition of Annex 15, 3.4.1.

~~3.6.1~~ 3.5.1 Automation shall be ~~introduced~~ applied ~~with the objective of improving~~ in order to ensure the ~~timeliness,~~ quality, efficiency and cost-effectiveness of aeronautical information services.

Note.— Guidance material on the development of databases and the establishment of data exchange services is contained in the Aeronautical Information Services Manual *(Doc 8126).*

Editorial Note.— New 3.5.1 and Note are relocated text from 3.6.1 and Note.

~~3.5.2 Electronic aeronautical data sets shall be protected by the inclusion in the data sets of a 32-bit cyclic redundancy check (CRC) implemented by the application dealing with the data sets. This shall apply to the protection of the integrity classification of data sets as specified in 3.3.3.~~

~~*Note 1.— This requirement does not apply to the communications systems used for the transfer of data sets.*~~

~~*Note 2.— Guidance material on the use of a 32-bit CRC algorithm to implement a protection of electronic aeronautical data sets is contained in Doc 8126.*~~

Editorial Note.— 3.5.2 and Notes 1 and 2 are relocated to the new edition of Annex 15, 3.4.2.

3.5.2 Due consideration to the integrity of data and information shall be given when automated processes are implemented and mitigating steps taken where risks are identified.

Note.— Risks of altering the integrity of data and information may be introduced by automated processes in case of unexpected systems behaviours.

~~3.6.3~~ 3.5.3 In order to meet the data quality requirements, automation shall:

a) enable digital aeronautical data exchange between the parties involved in the data processing chain; and

b) use aeronautical information exchange models and data exchange models designed to be globally interoperable.

Editorial Note.— New 3.5.3 is relocated text from 3.6.3.

~~3.7~~ 3.6 Quality management system

~~3.6.1 Automation shall be introduced with the objective of improving the timeliness, quality, efficiency and cost-effectiveness of aeronautical information services.~~

~~*Note.— Guidance on the development of databases and the establishment of data exchange services may be found in the* Aeronautical Information Services Manual *(Doc 8126).*~~

Editorial Note.— 3.6.1 and Note are relocated to the new edition of Annex 15, 3.5.1.

~~3.7.1~~ 3.6.1 Quality management systems shall be implemented and maintained encompassing all functions of an AIS, as outlined in 2.2. The execution of such quality management systems shall be made demonstrable for each function stage.

Note.— Guidance material is contained in the Manual on the Quality Management System for Aeronautical Information Services *(Doc 9839)(~~to be developed~~ planned for development by November 2019).*

Editorial Note.— New 3.6.1 is relocated text from 3.7.1.

~~3.6.2 Where aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.~~

Editorial Note.— 3.6.2 is relocated to the new edition of Annex 15, 5.1.2.

~~3.7.2~~ 3.6.2 **Recommendation.**— *Quality management should be applicable to the whole aeronautical information data chain from data origination to distribution to the next intended user, taking into consideration the intended use of data.*

Editorial Note.— New 3.6.2 is relocated text from 3.7.2.

~~3.6.3 In order to meet the data quality requirements, automation shall:~~

~~a) enable digital aeronautical data exchange between the parties involved in the data processing chain; and~~

~~b) use aeronautical information exchange models and data exchange models designed to be globally interoperable.~~

Editorial Note.— 3.6.3 is relocated to the new edition of Annex 15, 3.5.2.

~~*Note.— Guidance on the aeronautical information and data exchange models may be found in (Doc 8126).*~~

Editorial Note.— Note to 3.6.3 is relocated to the new edition of Annex 15, Note to 2.3.10.

~~3.7.3~~ 3.6.3 **Recommendation.—** *The quality management system established in accordance with 3.~~7~~.6.1 should follow the ISO 9000 series of quality assurance standards, and be certified by an ~~approved organization~~ accredited certification body.*

Editorial Note.— New 3.6.3 is relocated text from 3.7.3.

~~3.6.4 **Recommendation.** — *The aeronautical information model used should encompass the aeronautical data and aeronautical information to be exchanged.*~~

Editorial Note.— 3.6.4 is relocated to the new PANS-AIM, 5.3.1.3.

~~3.7.4~~ 3.6.4 Within the context of the established quality management system, the competencies and the associated knowledge, skills and abilities required for each function shall be identified, and personnel assigned to perform those functions shall be appropriately trained. Processes shall be in place to ensure that personnel possess the competencies required to perform specific assigned functions. Appropriate records shall be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls in knowledge, skills and abilities.

Editorial Note.— New 3.6.4 is relocated text from 3.7.4.

~~3.6.5 **Recommendation.** — *The aeronautical information model used should:*~~

~~*a) use the Unified Modelling Language (UML) to describe the aeronautical information features and their properties, associations and data types;*~~

~~*b) include data value constraints and data verification rules;*~~

~~*c) include provisions for metadata as specified in 3.4.2; and*~~

~~*d) include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.*~~

Editorial Note.— 3.6.5 is relocated to the new PANS-AIM, 5.3.1.4.

~~3.7.5~~ 3.6.5 Each quality management system shall include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data ~~are~~ is traceable throughout the aeronautical information data chain so as to allow any data anomalies or errors detected in use to be identified by root cause, corrected and communicated to affected users.

Editorial Note.— New 3.6.5 is relocated text from 3.7.5.

~~3.6.6 **Recommendation.** — *The aeronautical data exchange model used should:*~~

~~*a) apply a commonly used data encoding format;*~~

~~*b) cover all the classes, attributes, data types and associations of the aeronautical information model detailed in 3.6.5; and*~~

~~*c) provide an extension mechanism by which groups of users can extend the properties of existing features and add new features which do not adversely affect global standardization.*~~

~~*Note 1. The intent of using a commonly used data encoding format is to ensure interoperability of aeronautical data exchange between agencies and organizations involved in the data processing chain.*~~

~~*Note 2. Examples of commonly used data encoding formats include Extensible Markup Language (XML), Geography Markup Language (GML), and JavaScript Object Notation (JSON).*~~

Editorial Note.— 3.6.6 is relocated to the new PANS-AIM, 5.3.1.5.

~~3.7.6~~ 3.6.6 The established quality management system shall provide users with the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements ~~for accuracy, resolution and integrity as specified in 3.2 and 3.3 and that the data traceability requirements are met through the provision of appropriate metadata as specified in 3.4. The system shall also provide assurance of the applicability period of intended use of aeronautical data and aeronautical information as well as that the agreed distribution dates will be met.~~

Editorial Note.— New 3.6.6 is relocated text from 3.7.6.

~~3.7.7~~ 3.6.7 All necessary measures shall be taken to monitor compliance with the quality management system in place.

Editorial Note.— New 3.6.7 is relocated text from 3.7.7.

~~3.7.8~~ 3.6.8 Demonstration of compliance of the quality management system applied shall be by audit. If nonconformity is identified, initiating action to correct its cause shall be determined and taken without undue delay. All audit observations and remedial actions shall be evidenced and properly documented.

Editorial Note.— New 3.6.8 is relocated text from 3.7.8.

~~3.8~~ 3.7 Human factors considerations

~~3.7.1 Quality management systems shall be implemented and maintained encompassing all functions of an AIS, as outlined in 2.2. The execution of such quality management systems shall be made demonstrable for each function stage.~~

~~*Note. — Guidance material is contained in the* Manual on the Quality Management System for Aeronautical Information Services *(Doc 9839)(to be developed).*~~

Editorial Note.— 3.7.1 is relocated to the new edition of Annex 15, 3.6.1.

~~3.8.1~~ 3.7.1 The organization of an AIS as well as the design, contents, processing and distribution of aeronautical data and aeronautical information shall take into consideration human factors principles which facilitate their optimum utilization.

Editorial Note.— New 3.7.1 is relocated text from 3.8.1.

~~3.7.2 **Recommendation.** *Quality management should be applicable to the whole aeronautical information data chain from data origination to distribution to the next intended user, taking into consideration the intended use of data.*~~

Editorial Note.— 3.7.2 is relocated to the new edition of Annex 15, 3.6.2.

~~*Note 1. — Quality management may be provided by a single quality management system or serial quality management systems.*~~

~~*Note 2. — Letters of agreement concerning data quality between originator and distributor and between distributor and next intended user may be used to manage the aeronautical information data chain.*~~

Editorial Note.— Notes 1 and 2 to 3.7.2 are relocated to the new PANS-AIM, Notes 1 and 3 to 3.1.3.

~~3.8.2~~ 3.7.2 Due consideration shall be given to the integrity of information where human interaction is required and mitigating steps taken where risks are identified.

Note.— This may be accomplished through the design of systems, operating procedures or improvements in the operating environment.

Editorial Note.— New 3.7.2 and Note are relocated text from 3.8.2

~~*3.7.3* **Recommendation.** — *The quality management system established in accordance with 3.7.1 should follow the ISO 9000 series of quality assurance standards, and be certified by an approved organization.*~~

Editorial Note.— 3.7.3 is relocated to the new edition of Annex 15, 3.6.3.

~~*Note 1. — An ISO 9000 certificate issued by an accredited certification body would be considered an acceptable means of compliance.*~~

~~*Note 2. — International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance programme and define the term "accredited certification body". The details of a successful programme are to be formulated by each State and in most cases are unique to the State organization.*~~

Editorial Note.— Notes 1 and 2 to 3.7.3 are relocated to the new PANS-AIM, Note 2 to 3.1.3.

~~*Note 3. — Supporting material in respect of the processing of aeronautical data is contained in RTCA Document DO-200A and EUROCAE Document ED-76* — Standards for Processing Aeronautical Data. *These standards support the development and application of aeronautical databases.*~~

Editorial Note.— Note 3 to 3.7.3 is deleted.

~~3.7.4 Within the context of the established quality management system, the competencies and the associated knowledge, skills and abilities required for each function shall be identified, and personnel assigned to perform those functions shall be appropriately trained. Processes shall be in place to ensure that personnel possess the competencies required to perform specific assigned functions. Appropriate records shall be maintained so that the qualifications of personnel can be confirmed. Initial and periodic assessments shall be established that require personnel to demonstrate the required competencies. Periodic assessments of personnel shall be used as a means to detect and correct shortfalls.~~

Editorial Note.— 3.7.4 is relocated to the new edition of Annex 15, 3.6.4.

~~*Note. — Guidance material concerning training methodology to ensure the competency of personnel is contained in the* Aeronautical Information Management Training Development Manual *(Doc 9991).*~~

Editorial Note.— Note to 3.7.4 is relocated to the new PANS-AIM, Note 4 to 3.1.3.

~~3.7.5 Each quality management system shall include the necessary policies, processes and procedures, including those for the use of metadata, to ensure and verify that aeronautical data are traceable throughout the aeronautical information data chain so as to allow any data anomalies or errors detected in use to be identified by root cause, corrected and communicated to affected users.~~

~~3.7.6 The established quality management system shall provide users with the necessary assurance and confidence that distributed aeronautical data and aeronautical information satisfy the aeronautical data quality requirements for accuracy, resolution and integrity as specified in 3.2 and 3.3~~

~~and that the data traceability requirements are met through the provision of appropriate metadata as specified in 3.4. The system shall also provide assurance of the applicability period of intended use of aeronautical data and aeronautical information as well as that the agreed distribution dates will be met.~~

~~3.7.7 All necessary measures shall be taken to monitor compliance with the quality management system in place.~~

~~3.7.8 Demonstration of compliance of the quality management system applied shall be by audit. If nonconformity is identified, initiating action to correct its cause shall be determined and taken without undue delay. All audit observations and remedial actions shall be evidenced and properly documented.~~

Editorial Note.— 3.7.5 to 3.7.8 are relocated to the new edition of Annex 15, 3.6.5 to 3.6.8.

CHAPTER 4. ~~AERONAUTICAL INFORMATION PUBLICATIONS (AIP)~~ SCOPE OF AERONAUTICAL DATA AND AERONAUTICAL INFORMATION

~~*Note 1.— AIP are intended primarily to satisfy international requirements for the exchange of aeronautical information of a lasting character essential to air navigation. When practicable, the form of presentation is designed to facilitate their use in flight.*~~

~~*Note 2.— AIP constitute the basic information source for permanent information and long duration temporary changes.*~~

Editorial Note.— Notes 1 and 2 are relocated to the new edition of Annex 15, 5.2.2.

Note.— The scope of aeronautical data and aeronautical information provides the minimum requirement to support aeronautical information products and services, aeronautical navigation data bases, air navigation applications and ATM systems.

4.1 ~~Contents~~ Scope of aeronautical data and aeronautical information

~~4.1.1 An AIP shall contain, in three parts, sections and subsections uniformly referenced to allow for standardized electronic data storage and retrieval, current information relating to, and arranged under, those subjects enumerated in Appendix 1 that appear in roman type, except that when the AIP, or volume of the AIP, is designed basically to facilitate operational use in flight, the precise format and arrangement may be left to the discretion of the State provided that an adequate table of contents is included.~~

Editorial Note.— 4.1.1 is relocated to the new PANS-AIM, 5.2.1.2.5.

4.1.1 The aeronautical data and aeronautical information to be received and managed by the AIS shall include at least the following sub-domains:

a) national regulations, rules and procedures;

b) aerodromes and heliports;

c) airspace;

d) ATS routes;

e) instrument flight procedures;

f) radio navigation aids/systems;

g) obstacles;

h) terrain; and

i) geographic information.

Note 1.— Detailed specifications concerning the content of each sub-domain are contained in the PANS-AIM (Doc 10066), Appendix 1.

Note 2.— Aeronautical data and aeronautical information in each sub-domain may be originated by more than one organization or authority.

~~4.1.1.1 **Recommendation.** — *AIP should, in addition, contain current information relating to those subjects enumerated in Appendix 1 that appear in italic type.*~~

Editorial Note.— 4.1.1.1 is deleted.

~~4.1.2 AIP shall include in Part 1 — General (GEN):~~

~~a) a statement of the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP;~~

~~b) the general conditions under which the services or facilities are available for international use;~~

~~c) a list of significant differences between the national regulations and practices of the State and the related ICAO Standards, Recommended Practices and Procedures, given in a form that would enable a user to differentiate readily between the requirements of the State and the related ICAO provisions;~~

~~d) the choice made by a State in each significant case where an alternative course of action is provided for in ICAO Standards, Recommended Practices and Procedures.~~

Editorial Note.— 4.1.2 is relocated to the new edition of Annex 15, 5.2.2.1.

4.1.2 Determination and reporting of aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

Note.— Specifications concerning the accuracy and integrity classification related to aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

~~4.1.3 The aeronautical charts listed alphabetically below shall, when available for designated international aerodromes/ heliports, form part of the AIP, or be distributed separately to recipients of the AIP:~~

~~a) Aerodrome/Heliport Chart ICAO;~~

~~b) Aerodrome Ground Movement Chart ICAO;~~

~~c) Aerodrome Obstacle Chart ICAO Type A;~~

~~d) Aerodrome Terrain and Obstacle Chart ICAO (Electronic);~~

~~e) Aircraft Parking/Docking Chart ICAO;~~

~~f) Area Chart ICAO;~~

~~g) ATC Surveillance Minimum Altitude Chart ICAO;~~

~~h) Instrument Approach Chart ICAO;~~

~~i) Precision Approach Terrain Chart ICAO;~~

~~j) Standard Arrival Chart Instrument (STAR) ICAO;~~

~~k) Standard Departure Chart Instrument (SID) ICAO;~~

~~l) Visual Approach Chart ICAO.~~

~~*Note.— A page pocket may be used in the AIP to include the Aerodrome Terrain and Obstacle Chart ICAO (Electronic) on appropriate electronic media.*~~

Editorial Note.— 4.1.3 and Note are relocated to the new edition of Annex 15, 5.2.5.1.

~~4.1.4 Charts, maps or diagrams shall be used, when appropriate, to complement or as a substitute for the tabulations or text of AIP.~~

~~*Note.— Where appropriate, charts produced in conformity with Annex 4, may be used to fulfil this requirement. Guidance material as to the specifications of index maps and diagrams included in AIP is contained in the* Aeronautical Information Services Manual *(Doc 8126).*~~

Editorial Note.— 4.1.4 is relocated to the new PANS-AIM, 5.2.1.2.7.

4.2 ~~General specifications~~ Metadata

~~4.2.1 Each AIP shall be self-contained and shall include a table of contents.~~

~~*Note.— If it is necessary by reason of bulk or for convenience, to publish an AIP in two or more parts or volumes, each of them will indicate that the remainder of the information is to be found in the other part(s) or volume(s).*~~

Editorial Note.— 4.2.1 and Note are relocated to the new PANS-AIM, 5.2.1.2.3.

~~3.4.1~~ 4.2.1 Metadata shall be collected for aeronautical data processes and exchange points.

Editorial Note.— New 4.2.1 is relocated text from 3.4.1 partially.

~~4.2.1.1 Each AIP shall not duplicate information within itself or from other sources.~~

~~4.2.1.2 When two or more States combine to issue a joint AIP, this shall be made clear both on the cover and in the table of contents.~~

~~4.2.2 **Recommendation.** — *AIP should be published in loose-leaf form unless the complete publication is reissued at frequent intervals.*~~

Editorial Note.— 4.2.1.1 to 4.2.2 are relocated to the new PANS-AIM, 5.2.1.2.4, 5.2.1.2.2 and 5.2.3.1.1.

~~3.4.1~~ 4.2.2 ~~This~~ M~~m~~etadata collection shall be applied throughout the aeronautical information data chain, from ~~survey/~~origination to distribution to the next intended user.

Note.— Detailed specifications concerning metadata are contained in the PANS-AIM (Doc 10066).

Editorial Note.— New 4.2.2 is relocated text from 3.4.1 partially.

~~4.2.3 Each AIP shall be dated. In the case of AIP issued in loose-leaf form, each page shall be dated. The date, consisting of the day, month (by name) and year, shall be the publication date or the effective date of the information.~~

~~4.2.4 A checklist giving the current date of each page in the AIP series shall be reissued frequently to assist the user in maintaining a current publication. The page number/chart title and date of the checklist shall appear on the checklist itself.~~

~~4.2.5 Each AIP issued as a bound volume and each page of an AIP issued in loose-leaf form shall be so annotated as to indicate clearly:~~

~~a) the identity of the AIP;~~

~~b) the territory covered and subdivisions when necessary;~~

~~c) the identification of the issuing State and producing organization (authority);~~

~~d) page numbers/chart titles;~~

~~e) the degree of reliability if the information is doubtful.~~

~~4.2.6 **Recommendation.** — *The sheet size should be no larger than 210 × 297 mm, except that larger sheets may be used provided they are folded to the same size.*~~

Editorial Note.— 4.2.3 to 4.2.6 are relocated to the new PANS-AIM, 5.2.1.2.6 and 5.2.1.2.6.1; 5.2.3.1.10; 5.2.3.1.2; 5.2.3.1.11.

~~4.2.7 All changes to the AIP, or new information on a republished page, shall be identified by a distinctive symbol or annotation.~~

Editorial Note.— 4.2.7 is deleted.

~~4.2.8 Operationally significant changes to the AIP shall be published in accordance with Aeronautical Information Regulation and Control (AIRAC) procedures and shall be clearly identified by the acronym AIRAC.~~

Editorial Note.— 4.2.8 is relocated to the new PANS-AIM, 5.2.1.3.2.

~~4.2.9 AIP shall be amended or reissued at such regular intervals as may be necessary to keep them up to date. Recourse to hand amendments or annotations shall be kept to the minimum. The normal method of amendment shall be by means of replacement sheets.~~

~~4.2.9.1 The regular interval referred to in 4.2.9 shall be specified in the AIP, Part 1 — General (GEN).~~

~~*Note.— Guidance material on the establishment of intervals between publication dates of AIP Amendments is contained in Doc 8126.*~~

Editorial Note.— 4.2.9 and 4.2.9.1 and Note are relocated to the new PANS-AIM, 5.2.1.3.1 and 6.1.2.1.

~~4.3 Specifications for AIP Amendments~~

~~4.3.1 Permanent changes to the AIP shall be published as AIP Amendments.~~

Editorial Note.— 4.3.1 is relocated to the new edition of Annex 15, 6.3.1.2.

~~4.3.2 Each AIP Amendment shall be allocated a serial number, which shall be consecutive.~~

~~4.3.3 Each AIP Amendment page, including the cover sheet, shall display a publication date.~~

~~4.3.4 Each AIRAC AIP Amendment page, including the cover sheet, shall display an effective date. When an effective time other than 0000 UTC is used, the effective time shall also be displayed on the cover sheet.~~

~~4.3.5 When an AIP Amendment is issued, it shall include references to the serial number of those elements, if any, of the Integrated Aeronautical Information Package which have been incorporated into the amendment.~~

~~4.3.6 A brief indication of the subjects affected by the amendment shall be given on the AIP Amendment cover sheet.~~

~~4.3.7 When an AIP Amendment will not be published at the established interval or publication date, a NIL notification shall be originated and distributed by the monthly plain-language list of valid NOTAM required by 5.2.13.3.~~

Editorial Note.— 4.3.2 to 4.37 are relocated to the new PANS-AIM, 5.2.1.3.5; 5.2.1.3.6; 5.2.1.3.7 and 5.2.1.3.7.1; 5.2.1.3.8; 5.2.1.3.9; 6.1.2.2.

~~4.4 Specifications for AIP Supplements~~

~~4.4.1 Temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics shall be published as AIP Supplements.~~

Editorial Note.— 4.4.1 is relocated to the new edition of Annex 15, 6.3.1.3.

~~*Note.— Guidance material on the use of AIP Supplements together with examples of such use is contained in Doc 8126.*~~

Editorial Note.— Note to 4.4.1 is relocated to the new PANS-AIM, Note to 5.2.1.4.1.

~~4.4.2 Each AIP Supplement shall be allocated a serial number which shall be consecutive and based on the calendar year.~~

Editorial Note.— 4.4.2 is relocated to the new PANS-AIM, 5.2.1.4.1.

~~4.4.3 AIP Supplement pages shall be kept in the AIP as long as all or some of their contents remain valid.~~

Editorial Note.— 4.4.3 is relocated to new PANS-AIM, 5.2.3.1.16.

~~4.4.4 When an error occurs in an AIP Supplement or when the period of validity of an AIP Supplement is changed, a new AIP Supplement shall be published as a replacement.~~

~~*Note.— The requirements for NOTAM apply when time constraints do not allow sufficient time for the distribution of an AIP Supplement.*~~

~~4.4.5 When an AIP Supplement is sent in replacement of a NOTAM, it shall include a reference to the serial number of the NOTAM.~~

Editorial Note.— 4.4.4 and Note and 4.4.5 are relocated to new PANS-AIM, 6.1.3.1 and 5.2.1.4.3.

~~4.4.6 A checklist of valid AIP Supplements shall be issued at intervals of not more than one month. This information shall be issued through the medium of the monthly plain-language list of valid NOTAM required by 5.2.13.3.~~

Editorial Note.— 4.4.6 is relocated to both the new edition of Annex 15, 5.2.3.2 and the new PANS-AIM, 5.2.1.4.4.

~~4.4.7 **Recommendation.** — *AIP Supplement pages should be coloured in order to be conspicuous, preferably in yellow.*~~

~~4.4.8 **Recommendation.** — *AIP Supplement pages should be kept as the first item in the AIP parts.*~~

Editorial Note.— 4.4.7 and 4.4.8 are relocated to the new PANS-AIM, 5.2.3.1.14 and 5.2.3.1.15.

~~4.5 Distribution~~

~~AIP, AIP Amendments and AIP Supplements shall be made available by the most expeditious means.~~

Editorial Note.— 4.5 is relocated to the new edition of Annex 15, 5.4.1.2.

~~4.6 Electronic AIP (eAIP)~~

~~4.6.1 **Recommendation**. — *The AIP, AIP Amendment, AIP Supplement and AIC should also be published in a format that allows for displaying on a computer screen and printing on paper.*~~

~~*Note 1.— This composite electronic document is named "Electronic AIP" (eAIP) and may be based on a format that allows for digital data exchange.*~~

~~*Note 2.— Guidance material for the production and provision of the eAIP is contained in Doc 8126.*~~

~~4.6.2 When provided, the information content of the eAIP and the structure of chapters, sections and sub-sections shall follow the content and structure of the paper AIP. The eAIP shall include files that allow for printing a paper AIP.~~

~~4.6.3 **Recommendation**.— *When provided, the eAIP should be available on a physical distribution medium (CD, DVD, etc.) and/or online on the Internet.*~~

~~*Note.— Guidance material on the use of the Internet is contained in* Guidelines on the Use of the Public Internet for Aeronautical Applications *(Doc 9855).*~~

Editorial Note.— 4.6.1 is relocated to Annex 15, 5.2.1.2; Notes to 4.6.1, paragraphs 4.6.2 and 4.6.3 are relocated to the new PANS-AIM, 5.2.4, 5.2.4.1 and 5.2.4.3, respectively.

CHAPTER 5. ~~NOTAM~~ AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

5.1 ~~Origination~~ General

~~5.1.1 A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration or when operationally significant permanent changes, or temporary changes of long duration are made at short notice, except for extensive text and/or graphics.~~

~~*Note 1.— Operationally significant changes concerning circumstances listed in Appendix 4, Part 1, are issued under the Aeronautical Information Regulation and Control (AIRAC) system specified in Chapter 6.*~~

~~*Note 2.— Information of short duration containing extensive text and/or graphics is published as an AIP Supplement (see Chapter 4, 4.4).*~~

Editorial Note.— 5.1.1, Notes 1 and 2 are relocated to the new edition of Annex 15, 6.3.2.2.

5.1.1 Aeronautical information shall be provided in the form of aeronautical information products and associated services.

Note.— Specifications concerning the order of resolution of aeronautical data provided for each aeronautical information product are contained in the PANS-AIM (Doc 10066), Appendix 1.

~~5.1.1.1 A NOTAM shall be originated and issued concerning the following information:~~

~~a) establishment, closure or significant changes in operation of aerodrome(s)/heliport(s) or runways;~~

~~b) establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, CNS, MET, SAR, etc.);~~

~~c) establishment, withdrawal and significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services;~~

~~d) establishment, withdrawal or significant changes made to visual aids;~~

~~e) interruption of or return to operation of major components of aerodrome lighting systems;~~

~~f) establishment, withdrawal or significant changes made to procedures for air navigation services;~~

~~g) occurrence or correction of major defects or impediments in the manoeuvring area;~~

~~h) changes to and limitations on availability of fuel, oil and oxygen;~~

~~i) major changes to search and rescue facilities and services available;~~

~~j) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;~~

~~k) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;~~

~~l) presence of hazards which affect air navigation (including obstacles, military exercises, displays, races and major parachuting events outside promulgated sites);~~

~~m) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;~~

~~n) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;~~

~~o) establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;~~

~~p) allocation, cancellation or change of location indicators;~~

~~q) significant changes in the level of protection normally available at an aerodrome/heliport for rescue and fire fighting purposes. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated (see Annex 14, Volume I, Chapter 9, and Attachment A, Section 18);~~

~~r) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, radioactive material, toxic chemicals, volcanic ash deposition or water on the movement area;~~

~~s) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;~~

~~t) forecasts of solar cosmic radiation, where provided;~~

~~u) an operationally significant change in volcanic activity, the location, date and time of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;~~

~~v) release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;~~

~~w) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation; and~~

~~x) implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.~~

~~*Note.— See Annex 11, 2.31 and Attachment C to that Annex.*~~

Editorial Note.— 5.1.1.1 and Note are relocated to the new edition of Annex 15, 6.3.2.3.

~~5.1.1.2 **Recommendation.** — *The need for origination of a NOTAM should be considered in any other circumstance which may affect the operation of aircraft.*~~

Editorial Note.— 5.1.1.2 is deleted.

~~5.1.1.3 The following information shall not be notified by NOTAM:~~

~~a) routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;~~

~~b) runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;~~

~~c) temporary obstructions in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;~~

~~d) partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;~~

~~e) partial temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;~~

~~f) the lack of apron marshalling services and road traffic control;~~

~~g) the unserviceability of location, destination or other instruction signs on the aerodrome movement area;~~

~~h) parachuting when in uncontrolled airspace under VFR (see 5.1.1.1 l)), when controlled, at promulgated sites or within danger or prohibited areas;~~

~~i) other information of a similar temporary nature.~~

Editorial Note.— 5.1.1.3 is relocated to the new edition of Annex 15, 6.3.2.4.

~~5.1.1.4 At least seven days' advance notice shall be given of the activation of established danger, restricted or prohibited areas and of activities requiring temporary airspace restrictions other than for emergency operations.~~

~~5.1.1.4.1 Recommendation. — *Notice of any subsequent cancellation of the activities or any reduction of the hours of activity or the dimensions of the airspace should be given as soon as possible.*~~

~~*Note. — Whenever possible, at least 24 hours' advance notice is desirable, to permit timely completion of the notification process and to facilitate airspace utilization planning.*~~

~~5.1.1.5 NOTAM notifying unserviceability of aids to air navigation, facilities or communication services shall give an estimate of the period of unserviceability or the time at which restoration of service is expected.~~

Editorial Note.— 5.1.1.4 to 5.1.1.5 are relocated to the new PANS-AIM, 6.1.4.3, 6.1.4.4 and 6.1.4.2.

~~5.1.1.6 When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a NOTAM shall be originated giving a brief description of the contents, the effective date and time, and the reference number of the amendment or supplement. This NOTAM shall come into force on the same effective date and time as the amendment or supplement and shall remain valid in the pre-flight information bulletin for a period of fourteen days.~~

~~*Note.— Guidance material for the origination of NOTAM announcing the existence of AIRAC AIP Amendments or AIP Supplements ("Trigger NOTAM") is contained in the* Aeronautical Information Services Manual *(Doc 8126).*~~

Editorial Note.— The first sentence of paragraph 5.1.1.6 is relocated to the new edition of Annex 15, 6.3.2.1; the first sentence is also relocated to the new PANS-AIM, 6.1.4.8 and the second sentence and Note are relocated to the new PANS-AIM, 6.1.4.9 and Note to 6.1.4.12.

~~3.6.2~~ 5.1.2 Where aeronautical data and aeronautical information are provided in multiple formats, processes shall be implemented to ensure data and information consistency between formats.

Editorial Note.— New 5.1.2 is relocated text from paragraph 3.6.2.

5.2 ~~General specifications~~ Aeronautical information in a standardized presentation

~~5.2.1 Except as otherwise provided in 5.2.3 and 5.2.4, each NOTAM shall contain the information in the order shown in the NOTAM Format in Appendix 6.~~

Editorial Note.— 5.2.1 is relocated to the new PANS-AIM, 5.2.5.1.1.

5.2.1 Aeronautical information provided in a standardized presentation shall include the AIP, AIP Amendments, AIP Supplements, AICs, NOTAMs and Aeronautical Charts.

Note 1.— Detailed specifications about AIP, AIP Amendments, AIP Supplements, AICs and NOTAMs are contained in the PANS-AIM (Doc 10066).

Note 2.— Cases where digital data sets may replace the corresponding elements of the standardized presentation are detailed in the PANS-AIM (Doc 10066).

5.2.1.1 The AIP, AIP Amendment, AIP Supplement and AIC shall be provided on paper and/or as an electronic document.

~~4.6.1~~ 5.2.1.2 **Recommendation**.— *The AIP, AIP Amendment, AIP Supplement and AIC ~~should also be published in a format that allows for~~ provided as an electronic document (eAIP) should allow for both displaying on ~~a computer screen~~ electronic devices and printing on paper.*

Editorial Note.— New 5.2.1.2 is relocated from 4.6.1

~~5.2.2 Text of NOTAM shall be composed of the significations/uniform abbreviated phraseology assigned to the ICAO NOTAM Code complemented by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain language.~~

~~*Note.— Detailed guidance material covering NOTAM, SNOWTAM, ASHTAM and pre-flight information bulletin (PIB) production is contained in Doc 8126.*~~

Editorial Note.— 5.2.2 and Note are relocated to the new PANS-AIM, 5.2.5.1.2 and Note to 5.2.5.1.1.

5.2.2 Aeronautical Information Publication (AIP)

Note 1.— AIP are intended primarily to satisfy international requirements for the exchange of aeronautical information of a lasting character essential to air navigation.

Note 2.— AIP constitute the basic information source for permanent information and long duration temporary changes.

Editorial Note.— Notes 1 and 2 are relocated text from Notes 1 and 2 to Chapter 4.

~~5.2.2.1 When NOTAM are selected for international distribution, English text shall be included for those parts expressed in plain language.~~

~~*Note. — The ICAO NOTAM Code together with significations/uniform abbreviated phraseology, and ICAO Abbreviations are those contained in the* Procedures for Air Navigation Services — ICAO Abbreviations and Codes *(PANS-ABC, Doc 8400).*~~

Editorial Note.— 5.2.2.1 and Note are relocated to the new PANS-AIM, 5.2.5.1.3 and Note to 5.2.5.1.2.

~~4.1.2~~ 5.2.2.1 AIP shall include ~~in Part 1 — General (GEN)~~:

a) a statement of the competent authority responsible for the air navigation facilities, services or procedures covered by the AIP;
b) the general conditions under which the services or facilities are available for international use;

c) a list of significant differences between the national regulations and practices of the State and the related ICAO Standards, Recommended Practices and Procedures, given in a form that would enable a user to differentiate readily between the requirements of the State and the related ICAO provisions;

d) the choice made by a State in each significant case where an alternative course of action is provided for in ICAO Standards, Recommended Practices and Procedures.

Editorial Note.— New 5.2.2.1 is relocated text from 4.1.2.

~~5.2.3 Information concerning snow, slush, ice and standing water on aerodrome/heliport pavements shall, when reported by means of a SNOWTAM, contain the information in the order shown in the SNOWTAM Format in Appendix 2.~~

Editorial Note.— 5.2.3 is relocated to the new PANS-AIM, 5.2.5.1.4.

5.2.3 AIP Supplement

~~4.4.6~~ 5.2.3.1 A checklist of valid AIP Supplements shall be regularly provided ~~issued at intervals of not more than one month. This information shall be issued through the medium of the monthly plain-language list of valid NOTAM required by 5.2.13.3~~.

Note.— Detailed specifications concerning the frequency for providing checklists of valid AIP Supplements are contained in the PANS-AIM (Doc 10066).

Editorial Note.— New 5.2.3.1 relocated text from 4.4.6.

~~5.2.4 Information concerning an operationally significant change in volcanic activity, a volcanic eruption and/or volcanic ash cloud shall, when reported by means of an ASHTAM, contain the information in the order shown in the ASHTAM Format in Appendix 3.~~

Editorial Note.— 5.2.4 is relocated to the new PANS-AIM, 5.2.5.1.6.

5.2.4 Aeronautical Information Circulars (AIC)

~~7.1.1.1~~ 5.2.4.1 An AIC shall be ~~originated whenever it is desirable to promulgate~~ used to provide:

a) a long-term forecast of any major change in legislation, regulations, procedures or facilities; or

b) information of a purely explanatory or advisory nature liable to affect flight safety; or

c) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.

Editorial Note.— New 5.2.4.1 relocated text from 7.1.1.1.

~~7.1.1~~ 5.2.4.2 An AIC shall ~~be originated whenever it is necessary to promulgate aeronautical information which does not qualify:~~ not be used for information that qualifies for inclusion in AIP or NOTAM.

~~a) under the specifications in 4.1 for inclusion in an AIP; or~~

~~b) under the specifications in 5.1 for the origination of a NOTAM.~~

Editorial Note.— New 5.2.4.2 is relocated text from 7.1.1.

5.2.4.3 The validity of AIC currently in force shall be reviewed at least once a year.

~~7.2.5~~ 5.2.4.4 A checklist of currently valid AIC ~~currently in force~~ shall be ~~issued at least once a year, with distribution as for the AIC~~ regularly provided.

Note.— Detailed specifications concerning the frequency for providing checklists of valid AIC are contained in the PANS-AIM (Doc 10066).

Editorial Note.— New 5.2.4.4 is relocated text from 7.2.5.

~~5.2.5 The NOTAM originator shall allocate to each NOTAM a series identified by a letter and a four-digit number followed by a stroke and a two-digit number for the year. The four-digit number shall be consecutive and based on the calendar year.~~

~~*Note.— Letters A to Z, with the exception of S and T, may be used to identify a NOTAM series.*~~

Editorial Note.— 5.2.5 and Note are relocated to the new PANS-AIM, 5.2.5.2.1 and 5.2.5.2.2.

5.2.5 Aeronautical Charts

Note.— Annex 4 provides Standards and Recommended Practices including provision requirements for each chart type.

~~4.1.3~~ 5.2.5.1 The aeronautical charts listed alphabetically below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be ~~distributed~~ provided separately to recipients of the AIP:

a) Aerodrome/Heliport Chart — ICAO;

b) Aerodrome Ground Movement Chart — ICAO;

c) Aerodrome Obstacle Chart — ICAO Type A;

d) Aerodrome Obstacle Chart — ICAO Type B (when available)

~~d~~e) Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);

~~e~~f) Aircraft Parking/Docking Chart — ICAO;

~~f~~g) Area Chart — ICAO;

~~g~~h) ATC Surveillance Minimum Altitude Chart — ICAO;

~~h~~i) Instrument Approach Chart — ICAO;

~~i~~j) Precision Approach Terrain Chart — ICAO;

~~j~~k) Standard Arrival Chart — Instrument (STAR) — ICAO;

~~k~~l) Standard Departure Chart — Instrument (SID) — ICAO;

~~l~~m) Visual Approach Chart — ICAO.

Note.— A page pocket may be used in the AIP to include the Aerodrome Terrain and Obstacle Chart — ICAO (Electronic) on appropriate electronic media.

Editorial Note.— New 5.2.5.1 is relocated text from 4.1.3.

5.2.5.2 The "Enroute Chart — ICAO" shall, when available, form part of the AIP, or be provided separately to recipients of the AIP.

5.2.5.3 The aeronautical charts listed alphabetically below shall, when available, be provided as aeronautical information products:

a) World Aeronautical Chart — ICAO 1:1 000 000;

b) Aeronautical Chart — ICAO 1:500 000;

c) Aeronautical Navigation Chart — ICAO Small Scale;

d) Plotting Chart — ICAO chart; and

e) ATC Surveillance Minimum Altitude Chart — ICAO.

5.2.5.4 **Recommendation.**— *Electronic aeronautical charts should be provided based on digital databases and the use of geographic information systems.*

~~1.2.1.4~~ 5.2.5.5 ~~The order of publication resolution of geographical coordinates shall be that specified in Table A7-1 of Appendix 7 while the order of chart resolution of geographical coordinates shall be that specified in Annex 4, Appendix 6, Table 1.~~ The chart resolution of aeronautical data shall be that as specified for a particular chart.

Note.— Specifications concerning the chart resolution for aeronautical data are contained in the PANS-AIM (Doc 10066), Appendix 1.

~~5.2.5.6 The order of publication resolution of elevation and geoid undulation shall be that specified in Table A7-2 of Appendix 7 while the order of chart resolution of elevation and geoid undulation shall be that specified in Annex 4, Appendix 6, Table 2.~~

Editorial Note.— New 5.2.5.5 is relocated text from 1.2.1.4. 5.2.5.6 is deleted.

~~5.2.6 When errors occur in a NOTAM, a NOTAM with a new number to replace the erroneous NOTAM shall be issued or the erroneous NOTAM shall be cancelled and a new NOTAM issued.~~

Editorial Note.— 5.2.6 is relocated to the new PANS-AIM, 5.2.5.1.6.

5.2.6 NOTAM

Note.— Detailed specifications for NOTAM, including formats for SNOWTAM and ASHTAM, are contained in the PANS-AIM (Doc 10066).

~~5.2.13~~ 5.2.6.1 A checklist of valid NOTAM shall be regularly provided ~~issued as a NOTAM over the aeronautical fixed service (AFS) at intervals of not more than one month using the NOTAM Format specified in Appendix 6. One NOTAM shall be issued for each series~~.

Note.— Detailed specifications concerning the frequency for providing checklists of valid NOTAM are contained in the PANS-AIM (Doc 10066).

Editorial Note. — New 5.2.6.1 is relocated text from 5.2.13.

~~5.2.7 When a NOTAM is issued which cancels or replaces a previous NOTAM, the series and number of the previous NOTAM shall be indicated. The series, location indicator and subject of both NOTAM shall be the same. Only one NOTAM shall be cancelled or replaced by a NOTAM.~~

~~5.2.8 Each NOTAM shall deal with only one subject and one condition of the subject.~~

~~*Note. — Guidance material concerning the combination of a subject and a condition of the subject in accordance with the NOTAM Selection Criteria is contained in Doc 8126.*~~

~~5.2.9 Each NOTAM shall be as brief as possible and so compiled that its meaning is clear without the need to refer to another document.~~

~~5.2.10 Each NOTAM shall be transmitted as a single telecommunication message.~~

~~5.2.11 A NOTAM containing permanent or temporary information of long duration shall carry appropriate AIP or AIP Supplement references.~~

~~5.2.12 Location indicators included in the text of a NOTAM shall be those contained in *Location Indicators* (Doc 7910).~~

~~5.2.12.1 In no case shall a curtailed form of such indicators be used.~~

~~5.2.12.2 Where no ICAO location indicator is assigned to the location, its place name spelt in accordance with 1.3.2 shall be entered in plain language.~~

~~5.2.13 A checklist of valid NOTAM shall be issued as a NOTAM over the aeronautical fixed service (AFS) at intervals of not more than one month using the NOTAM Format specified in Appendix 6. One NOTAM shall be issued for each series.~~

~~*Note. — Omitting a NOTAM from the checklist does not serve to cancel a NOTAM.*~~

~~5.2.13.1 A checklist of NOTAM shall refer to the latest AIP Amendments, AIP Supplements and at least the internationally distributed AIC.~~

~~5.2.13.2 A checklist of NOTAM shall have the same distribution as the actual message series to which they refer and shall be clearly identified as a checklist.~~

Editorial Note.— 5.2.7 to 5.2.13.2 are relocated to the new PANS-AIM, 5.2.5.1.7 to 5.2.5.1.14; and 5.2.5.3.1 to 5.2.5.3.4.

~~5.2.13.3 A monthly plain-language list of valid NOTAM, including indications of the latest AIP Amendments, AIC issued and a checklist of AIP Supplements, shall be prepared with a minimum of delay and forwarded by the most expeditious means to recipients of the Integrated Aeronautical Information Package.~~

Editorial Note.— 5.2.13.3 is deleted.

5.3 Digital data sets

~~5.3.1 NOTAM shall be distributed on the basis of a request.~~

Editorial Note.— 5.3.1 is relocated to the new edition of Annex 15, 5.4.1.1 and 5.4.2.1.

5.3.1 General

5.3.1.1 Digital data shall be in the form of the following data sets:

a) AIP data set;

b) terrain data sets;

c) obstacle data sets;

d) aerodrome mapping data sets; and

e) instrument flight procedure data sets.

Note.— Detailed specifications concerning the content of the digital data sets are contained in the PANS-AIM (Doc 10066).

5.3.1.2 Each data set shall be provided to the next intended user together with at least the minimum set of metadata that ensures traceability.

Note.— Detailed specifications concerning metadata are contained in the PANS-AIM (Doc 10066).

5.3.1.3 A checklist of valid data sets shall be regularly provided.

~~5.3.2 NOTAM shall be prepared in conformity with the relevant provisions of the ICAO communication procedures.~~

Editorial Note.— 5.3.2 is relocated to the new edition of Annex 15, 5.4.2.2.

5.3.2 AIP data set

~~5.3.2.1 The AFS shall, whenever practicable, be employed for NOTAM distribution.~~

Editorial Note.— 5.3.2.1 is relocated to the new edition of Annex 15, 5.4.2.3.

5.3.2.1 **Recommendation.**— *An AIP data set should be provided covering the extent of information as provided in the AIP.*

~~5.3.2.2 When a NOTAM exchanged as specified in 5.3.4 is sent by means other than the AFS, a six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text.~~

Editorial Note.— 5.3.2.2 is relocated to the new edition of Annex 15, 5.4.2.4.

5.3.2.2 **Recommendation.**— *When it is not possible to provide a complete AIP data set, the data subset(s) that are available should be provided.*

5.3.2.3 The AIP data set shall contain the digital representation of aeronautical information of lasting character (permanent information and long duration temporary changes) essential to air navigation.

~~5.3.3 The originating State shall select the NOTAM that are to be given international distribution.~~

Editorial Note.— 5.3.3 is relocated to both the new edition of Annex 15, 5.4.2.4 and the new PANS-AIM.

5.3.3 Terrain and obstacle data sets

Note 1.— Numerical requirements for terrain and obstacle data sets are contained in the PANS-AIM (Doc 10066), Appendices 1 and 8.

Note 2.—Requirements for terrain and obstacle data collection surfaces are contained in the PANS-AIM (Doc 10066), Appendix 8.

~~5.3.3.1 **Recommendation.** — *Selective distribution lists should be used when practicable.*~~

~~*Note. — These lists are intended to obviate superfluous distribution of information. Guidance material relating to this is contained in the* Aeronautical Information Services Manual *(Doc 8126).*~~

Editorial Note.— 5.3.3.1 and Note are relocated to the new edition of Annex 15, 5.4.2.7.

~~10.1.1~~ 5.3.3.1 The coverage areas for sets of ~~electronic~~ terrain and obstacle data shall be specified as:

— Area 1: the entire territory of a State;

— Area 2: within the vicinity of an aerodrome, subdivided as follows;

— Area 2a: a rectangular area around a runway that comprises the runway strip plus any clearway that exists.

Note.— See Annex 14, Volume I, Chapter 3, for dimensions for runway strip.

— Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a length of 10 km and a splay of 15 per cent to each side;

— Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a; and

— Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal control area (TMA) boundary, whichever is nearest;

— Area 3: the area bordering an aerodrome movement area that extends horizontally from the edge of a runway to 90 m from the runway centre line and 50 m from the edge of all other parts of the aerodrome movement area.

— Area 4: The area extending 900 m prior to the runway threshold and 60 m each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II or III.

~~*Note.— See Appendix 8 for descriptions and graphical illustrations of the coverage areas.*~~

Editorial Note.— 5.3.3 is relocated text from 10.1.1 and 10.1.2.

~~10.1.2~~ 5.3.3.2 **Recommendation.**— *Where the terrain at a distance greater than 900 m (3 000 ft) from the runway threshold is mountainous or otherwise significant, the length of Area 4 should be extended to a distance not exceeding 2 000 m (6 500 ft) from the runway threshold.*

5.3.3.3 Terrain data sets

~~10.2.1~~ 5.3.3.3.1 ~~A t~~Terrain data sets shall contain ~~digital sets of data representing~~ the digital representation of the terrain surface in the form of continuous elevation values at all intersections (points) of a defined grid, referenced to common datum. ~~A terrain grid shall be angular or linear and shall be of regular or irregular shape.~~

Editorial Note.— New 5.3.3.3.1 is relocated text from 10.2.1.

~~10.1.3~~ 5.3.3.3.2 ~~Electronic t~~Terrain data shall be provided for Area 1. ~~The obstacle data shall be provided for obstacles in Area 1 higher than 100 m above ground.~~

Editorial Note.— New 5.3.3.3.2 is relocated text from 10.1.3.

~~10.1.5~~ 5.3.3.3.3 ~~At~~ For aerodromes regularly used by international civil aviation, ~~electronic~~ terrain data shall be provided for:

a) Area 2a;

b) the take-off flight path area; and

c) an area bounded by the lateral extent of the aerodrome obstacle limitation surfaces.

Editorial Note.— New 5.3.3.3.3 is relocated text from 10.1.5.

~~10.1.7~~ 5.3.3.3.4 **Recommendation.**— ~~*At*~~ *For aerodromes regularly used by international civil aviation,* ~~*electronic*~~ *additional terrain* ~~*and obstacle*~~ *data should be provided within Area 2 as follows:* ~~*for Areas 2b, 2c and 2d for obstacles and terrain that penetrate the relevant terrain and obstacle data collection surface specified in Appendix 8, except that data need not be collected for obstacles less than a height of 3 m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.*~~

Editorial Note.— New 5.3.3.3.4 is relocated text from 10.1.7.

a) ~~Within~~ in the area ~~covered by a~~ extending to 10 km from the ARP~~, terrain data shall comply with the Area 2 numerical requirements.~~; and

b) ~~In~~ within the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller) ~~data on~~ where terrain ~~that~~ penetrates ~~the~~ a horizontal ~~plane~~ terrain data collection surface specified as 120 m above the lowest runway elevation ~~shall comply with the Area 2 numerical requirements~~.

Editorial Note.— Subparagraphs a) and b) are relocated text from Appendix 8, Figure A8-1.

~~10.1.11~~ 5.3.3.3.5 **Recommendation.**— *Arrangements should be made for the coordination of providing ~~Area 2 electronic~~ terrain ~~and obstacle~~ data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same ~~obstacle or~~ terrain are correct.*

Editorial Note.— New 5.3.3.3.5 is relocated text from 10.1.11.

~~10.1.12~~ 5.3.3.3.6 **Recommendation.**— *~~At~~ For those aerodromes located near territorial boundaries, arrangements should be made among States concerned to share ~~Area 2 electronic~~ terrain ~~and obstacle~~ data.*

Editorial Note.— New 5.3.3.3.6 is relocated text from 10.1.12.

~~10.1.8~~ 5.3.3.3.7 **Recommendation.**— *~~At~~ For aerodromes regularly used by international civil aviation, ~~electronic~~ terrain ~~and obstacle~~ data should be provided for Area 3 ~~for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8, Figure A8-3~~.*

Editorial Note.— New 5.3.3.3.7 is relocated text from 10.1.8.

~~10.1.9~~ 5.3.3.3.8 ~~At~~ For aerodromes regularly used by international civil aviation, ~~electronic~~ terrain ~~and obstacle~~ data shall be provided for Area 4 ~~for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8,~~ for all runways where precision approach Category II or III operations have been established and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by use of radio altimeters.

Editorial Note.— New 5.3.3.3.8 is relocated text from 10.1.9.

~~10.1.10~~ 5.3.3.3.9 **Recommendation.**— *Where additional ~~electronic obstacle or~~ terrain data ~~are~~ is collected to meet other aeronautical requirements, the ~~obstacle and~~ terrain data sets should be expanded to include ~~these~~ this additional data.*

Editorial Note.— New 5.3.3.3.9 is relocated text from 10.1.10.

5.3.3.4 Obstacle data sets

5.3.3.4.1 Obstacle data sets shall contain ~~comprise~~ the digital representation of the vertical and horizontal extent of ~~the~~ obstacles.

Editorial Note.— New 5.3.3.4.1 is relocated text from 10.3.1 partially.

5.3.3.4.2 Obstacle~~s~~ data shall not be included in terrain data sets. ~~Obstacle data elements are features that shall be represented in the data sets by points, lines or polygons.~~

Editorial Note.— New 5.3.3.4.2 is relocated text from 10.3.1 partially.

~~10.1.3~~ 5.3.3.4.3 ~~Electronic terrain data shall be provided for Area 1.~~The obstacle data shall be provided for obstacles in Area 1 ~~higher than~~ whose height is 100 m or higher above ground.

Editorial Note.— New 5.3.3.4.3 is relocated text from para 10.1.3.

~~10.1.4~~ 5.3.3.4.4 ~~At~~ For aerodromes regularly used by international civil aviation, ~~electronic~~ obstacle data shall be provided for all obstacles within Area 2 that are assessed as being a hazard to air navigation.

Editorial Note.— New 5.3.3.4.4 is relocated text from 10.1.4.

~~10.1.6~~ 5.3.3.4.5 ~~At~~ For aerodromes regularly used by international civil aviation, ~~electronic~~ obstacle data shall be provided for:

a) Area 2a for those obstacles that penetrate ~~the relevant~~ an obstacle data collection surface ~~specified in Appendix 8~~ outlined by a rectangular area around a runway that comprises the runway strip plus any clearway that exists. The Area 2a obstacle collection surface shall have height of 3 m above the nearest runway elevation measured along the runway centre line, and for those portions related to a clearway, if one exists, at the elevation of the nearest runway end;

b) objects in the take-off flight path area which project above a plane surface having a 1.2 per cent slope and having a common origin with the take-off flight path area; and

c) penetrations of the aerodrome obstacle limitation surfaces.

Note.— Take-off flight path areas are specified in Annex 4, 3.8.2. Aerodrome obstacle limitation surfaces are specified in Annex 14, Volume 1, Chapter 4.

Editorial Note.— New 5.3.3.4.5 is relocated text from 10.1.6. Specifically subparagraph a) is relocated text from Appendix 8.

~~10.1.7~~ 5.3.3.4.6 **Recommendation.**— *~~At~~For aerodromes regularly used by international civil aviation, ~~electronic terrain and~~ obstacle data should be provided for Areas 2b, 2c and 2d for obstacles ~~and terrain~~ that penetrate the relevant ~~terrain and~~ obstacle data collection surface specified as follows: ~~in Appendix 8,~~*

a) Area 2b: an area extending from the ends of Area 2a in the direction of departure, with a

length of 10 km and a splay of 15% to each side. The Area 2b obstacle collection surface has a 1.2% slope extending from the ends of Area 2a at the elevation of the runway end in the direction of departure, with a length of 10 km and a splay of 15% to each side;

b) Area 2c: an area extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The Area 2c obstacle collection surface has a 1.2% slope extending outside Area 2a and Area 2b at a distance of not more than 10 km from the boundary of Area 2a. The initial elevation of Area 2c shall be the elevation of the point of Area 2a at which it commences; and

c) Area 2d: an area outside the Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing TMA boundary, whichever is nearest. The Area 2d obstacle collection surface has a height of 100 m above ground;

except that data need not be collected for obstacles less than a height of 3 m above ground in Area 2b and less than a height of 15 m above ground in Area 2c.

Editorial Note.— New 5.3.3.4.6 is relocated text from 10.1.7. Specifically subparagraphs a), b) and c) are relocated text from Appendix 8.

~~10.1.11~~ 5.3.3.4.7 **Recommendation.**— *Arrangements should be made for the coordination of providing ~~Area 2 electronic terrain and~~ obstacle data for adjacent aerodromes where their respective coverage areas overlap to assure that the data for the same obstacle ~~or terrain~~ are correct.*

Editorial Note.— New 5.3.3.4.7 is relocated text from 10.1.11.

~~10.1.12~~ 5.3.3.4.8 **Recommendation.**— *~~At~~For those aerodromes located near territorial boundaries, arrangements should be made among States concerned to share ~~Area 2 electronic terrain and~~ obstacle data.*

Editorial Note.— New 5.3.3.4.8 is relocated text from 10.1.12.

~~10.1.8~~ 5.3.3.4.9 **Recommendation.**— *~~At~~ For aerodromes regularly used by international civil aviation, ~~electronic terrain and~~ obstacle data should be provided for Area 3 for ~~terrain and~~ obstacles that penetrate the relevant obstacle data collection surface ~~specified in Appendix 8, Figure A8-3. The data collection surface for terrain and obstacles extends~~ extending a half-metre (0.5 m) above the horizontal plane passing through the nearest point on the aerodrome movement area.*

Editorial Note.— New 5.3.3.4.9 is relocated text from 10.1.8 and Appendix 8.

~~10.1.9~~ 5.3.3.4.10 ~~At~~ For aerodromes regularly used by international civil aviation, ~~electronic terrain and~~ obstacle data shall be provided for Area 4 ~~for terrain and obstacles that penetrate the relevant obstacle data collection surface specified in Appendix 8,~~ for all runways where precision approach Category II or III operations have been established ~~and where detailed terrain information is required by operators to enable them to assess the effect of terrain on decision height determination by use of radio altimeters~~.

Editorial Note.— New 5.3.3.4.10 is relocated text from 10.1.9.

~~10.1.10~~ 5.3.3.4.11 **Recommendation.**— *Where additional ~~electronic~~ obstacle ~~or terrain~~ data are collected to meet other aeronautical requirements, the obstacle ~~and terrain~~ data sets should be expanded to include these additional data.*

Editorial Note.— New 5.3.3.4.11 is relocated text from 10.1.10.

~~5.3.4 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned. The international exchange of ASHTAM (see 5.2.4), and NOTAM where States continue to use NOTAM for distribution of information on volcanic activity, shall include volcanic ash advisory centres and the centres designated by regional air navigation agreement for the operation of AFS satellite distribution systems (satellite distribution system for information relating to air navigation (SADIS) and international satellite communications system (ISCS)), and shall take account of the requirements of long-range operations.~~

~~*Note. — Arrangements may be made for direct exchange of SNOWTAM (see Appendix 2) between aerodromes/heliports.*~~

Editorial Note.— The first sentence of 5.3.4 is relocated to Annex 15, 5.4.2.5. The rest of the paragraph is relocated to the new PANS-AIM, 5.4.2.2 and the Note to 5.4.2.1.

5.3.4 Aerodrome mapping data sets

~~5.3.4.1 These exchanges of NOTAM between international NOTAM offices shall, as far as practicable, be limited to the requirements of the receiving States concerned by means of separate series providing for at least international and domestic flights.~~

Editorial Note.— 5.3.4.1 is relocated to the new PANS-AIM, 5.4.2.3.

~~11.3.2~~ 5.3.4.1 Aerodrome mapping data sets shall contain the digital representation of aerodrome ~~mapping data consisting of aerodrome~~ features.

Note ~~1~~.— Aerodrome features consist of attributes and geometries, which are characterized as points, lines or polygons. Examples include runway thresholds, taxiway guidance lines and parking stand areas.

~~*Note 2. — Aerodrome mapping data feature definitions, constraints and rules applicable to aerodrome mapping data are contained in RTCA Document DO-272C and EUROCAE Document ED-99C* — User Requirements for Aerodrome Mapping Information. *These constraints ensure the connectivity between features on a spatial and functional level in accordance with the connections observed in the real world.*~~

~~*Note 3. — An application schema applicable to aerodrome mapping data feature definitions may be found in RTCA Document DO-291B and EUROCAE Document ED-119B* — Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data. *This application schema contains a feature catalogue which specifies the feature types and associated attribute*~~

Editorial Note.— New 5.3.4.1 and Notes 1, 2 and 3 are relocated text from 11.3.2 and Notes 1, 2 and 3.

~~5.3.4.2 A predetermined distribution system for NOTAM transmitted on the AFS in accordance with Appendix 5 shall be used whenever possible, subject to the requirements of 5.3.4.~~

Editorial Note.— 5.3.4.2 is relocated to the new PANS-AIM, 5.4.2.4.

5.3.4.2 **Recommendation.**— *Aerodrome mapping data sets should be made available for aerodromes regularly used by international civil aviation.*

5.3.5 Instrument flight procedure data sets

5.3.5.1 Instrument flight procedure data sets shall contain the digital representation of instrument flight procedures.

5.3.5.2 **Recommendation.**— *Instrument flight procedures data sets should be made available for aerodromes regularly used by international civil aviation.*

5.4 Distribution services

5.4.1 General

~~5.3.1~~ 5.4.1.1 ~~NOTAM~~ Aeronautical information products shall be distributed to authorized users ~~on the basis of a request~~ who request them.

Editorial Note.— New 5.4.1.1 is relocated text from 5.3.1.

~~4.5~~ 5.4.1.2 AIP, AIP Amendments, ~~and~~ AIP Supplements and AIC shall be made available by the most expeditious means.

Editorial Note.— New 5.4.1.2 is relocated text from 4.5.

5.4.1.3 **Recommendation.**— *Global communication networks such as the Internet should, whenever practicable, be employed for the provision of aeronautical information products.*

5.4.2 NOTAM distribution

~~5.3.1~~ 5.4.2.1 NOTAM shall be distributed on the basis of a request.

Editorial Note.— New 5.4.2.1 is relocated text from 5.3.1

~~5.3.2~~ 5.4.2.2 NOTAM shall be prepared in conformity with the relevant provisions of the ICAO communication procedures.

Editorial Note.— New 5.4.2.2 is relocated text from 5.3.2.

~~5.3.2.1~~ 5.4.2.3 The Aeronautical Fixed Service (AFS) shall, whenever practicable, be employed for NOTAM distribution.

Editorial Note.— 5.4.2.3 is relocated text from 5.3.2.1.

~~5.3.2.2~~ 5.4.2.4 When a NOTAM ~~exchanged as specified in 5.3.4~~ is sent by means other than the AFS, a six-digit date-time group indicating the date and time of NOTAM origination, and the identification of the originator shall be used, preceding the text. ~~5.3.3~~ The originating State shall select the NOTAM that are to be given international distribution.

Editorial Note.— New 5.4.2.4 is relocated text from 5.3.2.2 and 5.3.3.

~~5.3.4~~ 5.4.2.5 International exchange of NOTAM shall take place only as mutually agreed between the international NOTAM offices concerned and between the NOTAM offices and multinational NOTAM Processing Units.

Editorial Note.— New 5.4.2.5 is relocated text from 5.3.4.

5.4.2.6 The originating State shall upon request grant distribution of NOTAM series other than those distributed internationally.

~~5.3.3.1~~ 5.4.2.7 **Recommendation.**— *Selective distribution lists should be used when practicable.*

Note.— ~~These lists are intended to obviate superfluous distribution of information.~~ Guidance material relating to ~~this~~ selective distribution lists is contained in the Aeronautical Information Services Manual *(Doc 8126).*

Editorial Note.— New 5.4.2.7 is relocated text from 5.3.3.1.

5.5 Pre-Flight Information Service

~~8.1.1~~ 5.5.1 ~~At~~ For any aerodrome/heliport ~~normally~~ used for international air operations, aeronautical information ~~essential for the safety, regularity and efficiency of air navigation and~~ relative to the route stages originating at the aerodrome/heliport shall be made available to flight operations personnel, including flight crews and services responsible for pre-flight information.

Editorial Note.— New 5.5.1 is relocated text from 8.1.1.

~~8.1.2~~ 5.5.2 Aeronautical information provided for pre-flight planning purposes ~~at the aerodromes/heliports referred to in 8.1.1 shall include relevant:~~ shall include information of operational significance from the elements of the aeronautical information products.

~~a) elements of the Integrated Aeronautical Information Package;~~

~~b) maps and charts.~~

Note~~.~~ 1.— The ~~documentation listed in a) and b)~~ elements of the aeronautical information products may be limited to national publications and when practicable, those of immediately adjacent

States, provided a complete library of aeronautical information is available at a central location and means of direct communications are available with ~~between the aerodrome AIS unit and~~ that library.

Editorial Note.— New 5.5.2 is relocated text from 8.1.2.

~~8.1.3~~ *Note 2.— A recapitulation of valid NOTAM of operational significance and other information of urgent character ~~shall~~ may be made available to flight crews in the form of plain-language pre-flight information bulletins (PIB). ~~Note.—~~ Guidance material on the preparation of PIB is contained in the Aeronautical Information Services Manual (Doc 8126).*

Editorial Note.— New Note 2 to 5.5.2 is relocated text from 8.1.3.

5.6. Post-flight information Service

~~8.3.1~~ 5.6.1 For any aerodrome/heliport used for international air operations, ~~A~~arrangements shall be made to receive ~~at aerodromes/heliports~~ information concerning the state and operation of air navigation facilities or services noted by aircrews ~~and shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate~~.

Editorial Note.— New 5.6.1 is relocated text from 8.3.1.

~~8.3.1~~ 5.6.2 ~~Arrangements shall be made to receive at aerodromes/heliports information concerning the state and operation of air navigation facilities or services noted by aircrews and~~ The arrangements specified in 5.6.1 shall ensure that such information is made available to the aeronautical information service for ~~such~~ distribution as the circumstances necessitate.

Editorial Note.— New 5.6.2 is relocated text from 8.3.1.

~~8.3.2~~ 5.6.3 For any aerodrome/heliport used for international air operations, ~~A~~arrangements shall be made to receive ~~at aerodromes/heliports~~ information concerning the presence of ~~birds~~ wildlife hazard observed by aircrews ~~and shall ensure that such information is made available to the aeronautical information service for such distribution as the circumstances necessitate~~.

Editorial Note.— New 5.6.3 is relocated text from 8.3.2.

~~8.3.2~~ 5.6.4 ~~Arrangements shall be made to receive at aerodromes/heliports information concerning the presence of birds observed by aircrews and shall ensure that such information is~~ The information about presence of wildlife hazard shall be made available to the aeronautical information service for ~~such~~ distribution as the circumstances necessitate.

Note.— See Annex 14, Volume I, Chapter 9, Section 9.4.

Editorial Note.— New 5.6.4 is relocated text from 8.3.2.

CHAPTER 6. ~~AERONAUTICAL INFORMATION REGULATION AND CONTROL (AIRAC)~~ AERONAUTICAL INFORMATION UPDATES

6.1 General specifications

~~6.1.1 Information concerning the circumstances listed in Appendix 4, Part 1, shall be distributed under the regulated system (AIRAC), i.e. basing establishment, withdrawal or significant changes upon a series of common effective dates at intervals of 28 days, including 14 January 2010. The information notified therein shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.~~

Editorial Note.— 6.1.1 is relocated to the new edition of Annex 15, 6.2.1.

~~*Note.— Guidance material on the procedures applicable to the AIRAC system is contained in the* Aeronautical Information Services Manual *(Doc 8126).*~~

Editorial Note.— Note to 6.1.1 is relocated to the new edition of Annex 15, 6.2.1.

~~4.2.9~~ 6.1.1 ~~AIP~~ Aeronautical data and aeronautical information shall be ~~amended or reissued at such regular intervals as may be necessary to keep them~~ kept up to date.

Editorial Note.— New 6.1.1 is retained text from 4.2.9 partially.

~~6.1.2 **Recommendation.** — *The regulated system (AIRAC) should also be used for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the circumstances listed in Appendix 4, Part 2.*~~

Editorial Note.— 6.1.2 is relocated to the new edition of Annex 15, 6.2.6.

~~6.1.3 When information has not been submitted by the AIRAC date, a NIL notification shall be originated and distributed by NOTAM or other suitable means, not later than one cycle before the AIRAC effective date concerned.~~

Editorial Note.— 6.1.3 is relocated to the new edition of Annex 15, 6.2.4 and to the new PANS-AIM 6.1.2.2.

~~6.1.4 Implementation dates other than AIRAC effective dates shall not be used for pre-planned operationally significant changes requiring cartographic work and/or for updating of navigation databases.~~

Editorial Note.— 6.1.4 is relocated to the new edition of Annex 15, 6.2.5.

~~6.1.5 **Recommendation.** — *The use of the date in the AIRAC cycle which occurs between 21 December and 17 January inclusive should be avoided as an effective date for the introduction of significant changes under the AIRAC system.*~~

Editorial Note.— 6.1.5 is relocated to the new edition of Annex 15, 6.2.6.

6.2 ~~Provision of information in paper copy form~~ Aeronautical Information Regulation and Control (AIRAC)

~~6.2.1 Information provided under the AIRAC system in paper copy form shall be distributed by the AIS unit 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.~~

Editorial Note.— 6.2.1 is relocated to new edition of Annex 15, 6.2.3 and Note.

~~6.1.1~~ 6.2.1 Information concerning the following circumstances ~~listed in Appendix 4, Part 1,~~ shall be distributed under the regulated system (AIRAC), i.e. basing establishment, withdrawal or significant changes upon a series of common effective dates at intervals of 28 days, including ~~14~~ 8 ~~January~~ November 2010~~8~~: ~~.~~ ~~The information notified therein shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.~~

~~*Note.— Guidance material on the procedures applicable to the AIRAC system is contained in the* Aeronautical Information Services Manual *(Doc 8126).*~~

Editorial Note.— New 6.2.1 is relocated text from 6.1.1.

~~1. The establishment and withdrawal of, and premeditated significant changes (including operational trials) to:~~

~~1.1~~a) Limits (horizontal and vertical), regulations and procedures applicable to:

~~a)~~1) flight information regions;

~~b)~~2) ~~—~~control areas;

~~c)~~3) control zones;

~~d)~~4) advisory areas;

~~e)~~5) ATS routes;

~~f)~~6) permanent danger, prohibited and restricted areas (including type and periods of activity when known) and ADIZ;

~~g)~~7) permanent areas or routes or portions thereof where the possibility of interception exists.

~~1.2~~b) Positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities.

~~1.3~~c) Holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures.

~~1.4~~d) Transition levels, transition altitudes and minimum sector altitudes.

~~1.5~~e) Meteorological facilities (including broadcasts) and procedures.

~~1.6~~ f) Runways and stopways

~~1.7~~g) Taxiways and aprons.

~~1.8~~h) Aerodrome ground operating procedures (including low visibility procedures).

~~1.9~~i) Approach and runway lighting.

~~1.10~~j) Aerodrome operating minima if published by a State.

Editorial Note.— 6.2.1 subparagraphs are retained text from Appendix 4, Part 1.

~~6.2.2 **Recommendation.** — *Whenever major changes are planned and where advance notice is desirable and practicable, information provided in paper copy form should be distributed by the AIS unit at least 56 days in advance of the effective date. This should be applied to the establishment of, and premeditated major changes in, the circumstances listed in Appendix 4, Part 3, and other major changes if deemed necessary.*~~

~~*Note.— Guidance material on what constitutes a major change is included in Doc 8126.*~~

Editorial Note.— 6.2.2 and Note are relocated to the new edition of Annex 15, 6.2.7.

~~6.1.1~~ 6.2.2 The information notified ~~therein~~ under the AIRAC system shall not be changed further for at least another 28 days after the effective date, unless the circumstance notified is of a temporary nature and would not persist for the full period.

Editorial Note.— New 6.2.2 is relocated text from 6.1.1.

~~6.2.1~~ 6.2.3 Information provided under the AIRAC system ~~in paper copy form~~ shall be ~~distributed~~ made available by the AIS ~~unit at least 42 days in advance of the effective date with the objective of reaching~~ so as to reach recipients at least 28 days in advance of the effective date.

Note.— AIRAC ~~I~~information ~~provided under the AIRAC system in paper copy form shall be~~ is distributed by the AIS unit at least 42 days in advance of the AIRAC effective dates with the objective of reaching recipients at least 28 days in advance of the effective date.

Editorial Note.— New 6.2.3 and Note is relocated text from 6.2.1.

~~6.1.3~~ 6.2.4 When information has not been submitted by the AIRAC date, a NIL notification shall be ~~originated and~~ distributed ~~by NOTAM or other suitable means,~~ not later than one cycle before the AIRAC effective date concerned.

Editorial Note.— New 6.2.4 is relocated text from 6.1.3.

~~6.1.4~~ 6.2.5 Implementation dates other than AIRAC effective dates shall not be used for pre-planned operationally significant changes requiring cartographic work and/or for updating of navigation databases.

Editorial Note.— New 6.2.5 is relocated text from 6.1.4.

~~6.1.2~~ 6.2.6 **Recommendation.**— ~~*The use of the date in the AIRAC cycle which occurs between 21 December and 17 January inclusive should be avoided as an effective date for the introduction of significant changes under the AIRAC system.*~~ *The regulated system (AIRAC) should also be used for the provision of information relating to the establishment and withdrawal of, and premeditated significant changes in, the circumstances listed ~~in Appendix 4, Part 2.~~ below:*

~~The establishment and withdrawal of, and premeditated significant changes to:~~

a) Position, height and lighting of navigational obstacles.

b) Hours of service of aerodromes, facilities and services.

c) Customs, immigration and health services.

d) Temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft.

e) Temporary areas or routes or portions thereof where the possibility of interception exists.

Editorial Note.— New 6.2.6 is retained text from 6.1.2, 6.1.5 and Appendix 4, Part 2.

~~6.2.2~~ 6.2.7 **Recommendation.**— *Whenever major changes are planned and where advance notice is desirable and practicable, information ~~provided in paper copy form~~ should be ~~distributed~~ made available by the AIS so as to reach recipients ~~unit~~ at least 56 days in advance of the effective date. This should be applied to the establishment of, and premeditated major changes in, the circumstances listed ~~in Appendix 4, Part 3,~~ below, and other major changes if deemed necessary.*

Editorial Note.— New 6.2.7 is relocated text from 6.2.2.

~~3.The establishment of, and premeditated major changes to:~~

~~3.1~~ *a) New aerodromes for international IFR operations.*

~~3.2~~ *b) New runways for IFR operations at international aerodromes.*

~~3.3~~ *c) Design and structure of the air traffic services route network.*

~~3.4~~ *d) Design and structure of a set of terminal procedures (including change of procedure bearings due to magnetic variation change).*

~~3.5~~ *e) Circumstances listed in ~~Part 1~~ 6.2.1 if the entire State or any significant portion thereof is affected or if cross-border coordination is required.*

Editorial Note.— 6.2.7 subparagraphs are retained text from Appendix 4, Part 3.

Note.— Guidance on what constitutes a major change is included in Doc 8126.

Editorial Note.— Note to 6.2.7 is retained text from 6.2.2.

6.3 ~~Provision of information as electronic media~~ Aeronautical Information Product updates

~~6.3.1 States that have established an aeronautical database shall, when updating its contents concerning the circumstances listed in Appendix 4, Part 1, ensure that the effective dates of data coincide with the established AIRAC effective dates.~~

Editorial Note.— 6.3.1 is deleted.

6.3.1 AIP updates

~~4.2.9~~ 6.3.1.1 AIP shall be amended or reissued at such regular intervals as may be necessary to keep them up to date.

Editorial Note.— New 6.3.1.1 is relocated text from 4.2.9 partially.

~~4.3.1~~ 6.3.1.2 Permanent changes to the AIP shall be published as AIP Amendments.

Editorial Note.— New 6.3.1.2 is relocated text from 4.3.1.

~~4.4.1~~ 6.3.1.3 Temporary changes of long duration (three months or longer) and information of short duration which contains extensive text and/or graphics shall be published as AIP Supplements.

Editorial Note.— New 6.3.1.3 is relocated text from 4.4.1.

~~6.3.2 Information provided as electronic media, concerning the circumstances listed in Appendix 4, Part 1, shall be distributed/made available by the AIS unit so as to reach recipients at least 28 days in advance of the AIRAC effective date.~~

Editorial Note.— 6.3.2 is deleted.

6.3.2 NOTAM

~~5.1.1.6~~ 6.3.2.1 When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a "Trigger" NOTAM shall be originated ~~giving a brief description of the contents, the effective date and time, and the reference number of the amendment or supplement. This NOTAM shall come into force on the same effective date and time as the amendment or supplement and shall remain valid in the pre-flight information bulletin for a period of fourteen days~~.

Note.— ~~Guidance material for the origination of NOTAM announcing the existence of AIRAC AIP Amendments or AIP Supplements ("Trigger NOTAM") is contained in the~~ Aeronautical ~~Information Services~~ Manual ~~(Doc 8126).~~ Detailed specifications concerning the Trigger NOTAM are contained in the PANS-AIM (Doc 10066).

Editorial Note.— New 6.3.2.1 is relocated text from 5.1.1.6.

~~5.1.1~~ 6.3.2.2 A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration or when operationally significant permanent changes, or temporary changes of long duration are made at short notice, except for extensive text and/or graphics.

~~*Note 1.— Operationally significant changes concerning circumstances listed in Appendix 4, Part 1, are issued under the Aeronautical Information Regulation and Control (AIRAC) system specified in Chapter 6.*~~

~~*Note 2.— Information of short duration containing extensive text and/or graphics is published as an AIP Supplement (see Chapter 4, 4.4).*~~

Editorial Note.— New 6.3.2.2 is relocated text from 5.1.1.

~~5.1.1.1~~ 6.3.2.3 A NOTAM shall be originated and issued concerning the following information:

a) establishment, closure or significant changes in operation of aerodrome(s)~~/~~ or heliport(s) or runways;

b) establishment, withdrawal and significant changes in operation of aeronautical services (AGA, AIS, ATS, CNS, MET, SAR, etc.);

c) establishment, withdrawal and significant changes in operational capability of radio navigation and air-ground communication services. This includes: interruption or return to operation, change of frequencies, change in notified hours of service, change of identification, change of orientation (directional aids), change of location, power increase or decrease amounting to 50 per cent or more, change in broadcast schedules or contents, or irregularity or unreliability of operation of any radio navigation and air-ground communication services or limitations of relay stations including operational impact, affected service, frequency and area;

d) unavailability of back-up and secondary systems, having a direct operational impact;

~~d~~e) establishment, withdrawal or significant changes made to visual aids;

~~e~~f) interruption of or return to operation of major components of aerodrome lighting systems;

~~f~~g) establishment, withdrawal or significant changes made to procedures for air navigation services;

~~g~~h) occurrence or correction of major defects or impediments in the manoeuvring area;

~~h~~i) changes to and limitations on availability of fuel, oil and oxygen;

~~i~~j) major changes to search and rescue facilities and services available;

~~j~~k) establishment, withdrawal or return to operation of hazard beacons marking obstacles to air navigation;

~~k~~l) changes in regulations requiring immediate action, e.g. prohibited areas for SAR action;

~~l~~m) presence of hazards which affect air navigation (including obstacles, military exercises, displays, fireworks, sky lanterns, rocket debris, races and major parachuting events outside promulgated sites);

n) planned laser emissions, laser displays and search lights if pilots' night vision is likely to be impaired;

~~m~~o) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas and runway strip;

~~n~~p) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas;

~~o~~q) establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;

~~p~~r) allocation, cancellation or change of location indicators;

~~q~~s) ~~significant~~ changes in aerodrome/heliport rescue and fire fighting category provided ~~changes in the level of protection normally available at an aerodrome/heliport for rescue and fire fighting purposes. NOTAM shall be originated only when a change of category is involved and such change of category shall be clearly stated~~ (see Annex 14, Volume I, Chapter 9, and Attachment A, Section 1~~8~~7);

~~r~~t) presence or removal of, or significant changes in, hazardous conditions due to snow, slush, ice, radioactive material, toxic chemicals, volcanic ash deposition or water on the movement area;

~~s~~u) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;

~~t~~v) observations or forecasts of ~~solar cosmic radiation, where provided~~ space weather phenomena, the date and time of their occurrence, the flight levels where provided, and portions of the airspace which may be affected by the phenomena;

~~u~~w) an operationally significant change in volcanic activity, the location, date and time of volcanic eruptions and/or horizontal and vertical extent of volcanic ash cloud, including direction of movement, flight levels and routes or portions of routes which could be affected;

~~v~~x) release into the atmosphere of radioactive materials or toxic chemicals following a nuclear or chemical incident, the location, date and time of the incident, the flight levels and routes or portions thereof which could be affected and the direction of movement;

~~w~~y) establishment of operations of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with procedures and/or limitations which affect air navigation;-and

~~x~~z) implementation of short-term contingency measures in cases of disruption, or partial disruption, of air traffic services and related supporting services.

Note.— See Annex 11, 2.31 and Attachment C to that Annex.

Editorial Note.— New 6.3.2.3 is relocated text from 5.1.1.1.

~~5.1.1.3~~ 6.3.2.4 The following information shall not be notified by NOTAM:

a) routine maintenance work on aprons and taxiways which does not affect the safe movement of aircraft;

b) runway marking work, when aircraft operations can safely be conducted on other available runways, or the equipment used can be removed when necessary;

c) temporary obstructions in the vicinity of aerodromes/heliports that do not affect the safe operation of aircraft;

d) partial failure of aerodrome/heliport lighting facilities where such failure does not directly affect aircraft operations;

e) partial temporary failure of air-ground communications when suitable alternative frequencies are known to be available and are operative;

f) the lack of apron marshalling services and road traffic control;

g) the unserviceability of location, destination or other instruction signs on the aerodrome movement area;

h) parachuting when in uncontrolled airspace under VFR (see ~~5.1.1.1 l)~~ 6.3.2.3 m)), when controlled, at promulgated sites or within danger or prohibited areas;

i) training activities by ground units;

j) unavailability of back-up and secondary systems if these do not have an operational impact;

k) limitations to airport facilities or general services with no operational impact;

l) national regulations not affecting general aviation;

m) announcement or warnings about possible/potential limitations, without any operational impact;

n) general reminders on already published information;

o) availability of equipment for ground units without containing information on the operational impact for airspace and facility users;

p) information about laser emissions without any operational impact and fireworks below minimum flying heights;

q) closure of movement area parts in connection with planned work locally coordinated of duration of less than one hour;

r) closure, changes, unavailability in operation of aerodrome(s)/heliport(s) outside the aerodrome(s)/heliport(s) operational hours;

~~is~~) other non-operational information of a similar temporary nature.

Note.— Information which relates to an aerodrome and its vicinity and does not affect its operational status may be distributed locally during pre-flight or in-flight briefing or other local contact with flight crew members.

Editorial Note.— New 6.3.2.4 is relocated text from 5.1.1.3.

~~*6.3.3* **Recommendation.**— *Whenever major changes are planned and where advance notice is desirable and practicable, information provided as electronic media should be distributed/made available at least 56 days in advance of the effective date. This should be applied to the establishment of, and premeditated major changes in, the circumstances listed in Appendix 4, Part 3, and other major changes if deemed necessary.*~~

~~*Note.— Guidance material on what constitutes a major change is included in Doc 8126.*~~

Editorial Note.— 6.3.3 and the Note are relocated to the new edition of Annex 15, 6.2.7

6.3.3 Data set updates

6.3.3.1 Data sets shall be amended or reissued at such regular intervals as may be necessary to keep them up to date.

6.3.3.2 Permanent changes and temporary changes of long duration (three months or longer) made available as digital data shall be issued in the form of a complete data set or a sub-set that includes only the differences from the previously issued complete data set.

6.3.3.3 **Recommendation.**— *When made available as a completely re-issued data set, the differences from the previously issued complete data set should be indicated.*

6.3.3.4 **Recommendation.**— *When temporary changes of short duration are made available as digital data (Digital NOTAM), they should use the same aeronautical information model as the complete data set.*

6.3.3.5 Updates to AIP and the digital data sets shall be synchronized.

. . .

Editorial Note.— Those parts of Chapter 7 which have not been relocated in Annex 15 or new PANS-AIM are deleted.

. . .

Editorial Note.— The following text shown in its original location in Annex 15 is deleted.

~~8.1 Pre-flight information~~

. . .

~~8.1.2.1 Additional current information relating to the aerodrome of departure shall be provided concerning the following:~~

~~a) construction or maintenance work on or immediately adjacent to the manoeuvring area;~~

~~b) rough portions of any part of the manoeuvring area, whether marked or not, e.g. broken parts of the surface of runways and taxiways;~~

~~c) presence and depth of snow, ice or water on runways and taxiways, including their effect on surface friction;~~

~~d) snow drifted or piled on or adjacent to runways or taxiways;~~

~~e) parked aircraft or other objects on or immediately adjacent to taxiways;~~

~~f) presence of other temporary hazards;~~

~~g) presence of birds constituting a potential hazard to aircraft operations;~~

~~h) failure or irregular operation of part or all of the aerodrome lighting system including approach, threshold, runway, taxiway, obstruction and manoeuvring area unserviceability lights and aerodrome power supply;~~

~~i) failure, irregular operation and changes in the operational status of SSR, ADS-B, ADS-C, CPDLC, D-ATIS, D-VOLMET, radio navigation services, VHF aeromobile channels, RVR observing system, and secondary power supply; and~~

~~j) presence and operation of humanitarian relief missions, such as those undertaken under the auspices of the United Nations, together with any associated procedures and/or limitations applied thereof.~~

. . .

Editorial Note.— Those parts of Chapter 8 which do not appear here are relocated to the new edition of Annex 15 or to the new PANS-AIM.

. . .

Editorial Note.— The following text shown in its original location in Annex 15 is deleted.

~~CHAPTER 9. TELECOMMUNICATION REQUIREMENTS~~

~~9.1 International NOTAM offices shall be connected to the aeronautical fixed service (AFS).~~

~~9.1.1 The connections shall provide for printed communications.~~

~~9.2 Each international NOTAM office shall be connected, through the aeronautical fixed service (AFS), to the following points within the territory for which it provides service:~~

~~a) area control centres and flight information centres;~~

~~b) aerodromes/heliports at which an information service is established in accordance with Chapter 8.~~

~~9.3 **Recommendation.** — *Subject to availability, satisfactory operation and bilateral/multilateral and/or regional air navigation agreements, the use of the public Internet should be permitted for exchange of non-time critical types of aeronautical information.*~~

~~*Note.— Guidance material on non-time critical types of aeronautical information and relevant aspects of the public Internet is provided in the* Guidelines on the Use of the Public Internet for Aeronautical Applications *(Doc 9855).*~~

. . .

Editorial Note.— Those parts of Chapter 9 which do not appear here have been relocated to the new edition of Annex 15 or to the new PANS-AIM .

. . .

Editorial Note.— The following text shown in its initial location in Annex 15 is deleted.

~~10.4 Terrain and obstacle data product specifications~~

~~10.4.1 To allow and support the interchange and use of sets of electronic terrain and obstacle data among different data providers and data users, the ISO 19100 series of standards for geographic information shall be used as a general data modelling framework.~~

~~10.4.2 A comprehensive statement of available electronic terrain and obstacle data sets shall be provided in the form of terrain data product specifications as well as obstacle data product specifications on which basis air navigation users will be able to evaluate the products and determine whether they fulfil the requirements for their intended use (application).~~

~~*Note. — ISO Standard 19131 specifies the requirements and outline of data product specifications for geographic information.*~~

~~10.4.3 Each terrain data product specification shall include an overview, a specification scope, data product identification, data content and structure, reference system, data quality, data capture, data maintenance, data portrayal, data product delivery, additional information, and metadata.~~

~~10.4.4 The overview of terrain data product specifications or obstacle data product specifications shall provide an informal description of the product and shall contain general information about the data product. Specification of terrain data may not be homogenous across the whole data product but may vary for different parts of the data sets. For each such subset of data, a specification scope shall be identified. Identification information concerning both terrain and obstacle data products shall include the title of the product; a brief narrative summary of the content, purpose, and spatial resolution if appropriate (a general statement about the density of spatial data); the geographic area covered by the data product; and supplemental information.~~

~~10.4.5 Content information of feature based terrain data sets or of feature based obstacle data sets shall each be described in terms of an application schema and a feature catalogue. Application schema shall provide a formal description of the data structure and content of data sets while the feature catalogue shall provide the semantics of all feature types together with their attributes and attribute value domains, association types between feature types and feature operations, inheritance relations and constraints. Coverage is considered a subtype of a feature and can be derived from a collection of features that have common attributes. Both terrain and obstacle data product specifications shall identify clearly the coverage and/or imagery they include and shall provide a narrative description of each of them.~~

~~*Note 1.— ISO Standard 19109 contains rules for application schema while ISO Standard 19110 describes feature cataloguing methodology for geographic information.*~~

~~*Note 2.— ISO Standard 19123 contains schema for coverage geometry and functions.*~~

~~10.4.6 Both terrain data product specifications and obstacle data product specifications shall include information that identifies the reference system used in the data product. This shall include the spatial reference system and temporal reference system. Additionally, both data product specifications shall identify the data quality requirements for each data product. This shall include a statement on acceptable conformance quality levels and corresponding data quality measures. This statement shall cover all the data quality elements and data quality sub-elements, even if only to state that a specific data quality element or sub-element is not applicable.~~

~~*Note.— ISO Standard 19113 contains quality principles for geographic information while ISO Standard 19114 covers quality evaluation procedures.*~~

~~10.4.7 Terrain data product specifications shall include a data capture statement which shall be a general description of the sources and of processes applied for the capture of terrain data. The principles and criteria applied in the maintenance of terrain data sets and obstacle data sets shall also be provided with the data specifications, including the frequency with which data products are updated. Of particular importance shall be the maintenance information of obstacle data sets and an indication of the principles, methods and criteria applied for obstacle data maintenance.~~

~~10.4.8 Terrain data product specifications shall contain information on how data held with data sets are presented, i.e. as a graphic output, as a plot or as an image. The product specifications for both terrain and obstacles shall also contain data product delivery information which shall include delivery formats and delivery medium information.~~

~~*Note.— ISO Standard 19117 contains a definition of the schema describing the portrayal of geographic information including the methodology for describing symbols and mapping of the schema to an application schema.*~~

~~10.4.9 The core terrain and obstacle metadata elements shall be included in the data product specifications. Any additional metadata items required to be supplied shall be stated in each product specification together with the format and encoding of the metadata.~~

~~*Note.— ISO Standard 19115 specifies requirements for geographic information metadata.*~~

. . .

Editorial Note.— Those parts of Chapter 10 which do not appear here have been relocated to the new edition of Annex 15 or to the new PANS-AIM .

. . .

Editorial Note.— The following text shown in its original location in Annex 15 is deleted.

~~11.3 Aerodrome mapping database — data set content and structure~~

. . .

~~*Note 2.— Aerodrome mapping data feature definitions, constraints and rules applicable to aerodrome mapping data are contained in RTCA Document DO-272C/European Organization for Civil Aviation Equipment (EUROCAE) Document ED-99C* — User Requirements for Aerodrome~~

~~Mapping Information. *These constraints ensure the connectivity between features on a spatial and functional level in accordance with the connections observed in the real world.*~~

~~*Note 3.— An application schema applicable to aerodrome mapping data feature definitions may be found in RTCA Document DO-291B and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-119B — Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data. This application schema contains a feature catalogue which specifies the feature types and associated attributes.*~~

. . .

Editorial Note.— Those parts of Chapter 11 which do not appear here have been relocated to the new edition of Annex 15 or to the new PANS-AIM.

. . .

Editorial Note.— Those parts of Appendices 1 to 8 which have not been relocated in Annex 15 or new PANS-AIM have been deleted.

— END —

International Civil Aviation Organization | Organisation de l'aviation civile internationale | Organización de Aviación Civil Internacional | Международная организация гражданской авиации | منظمة الطيران المدني الدولي | 国际民用航空组织

Tel.: +1 514-954-8219 ext. 6048

Ref.: AN 2/33-18/85

31 August 2018

Subject: Approval of the first edition of the Procedures for Air Navigation Services (PANS) – Aeronautical Information Management (PANS-AIM, Doc 10066)

Action Required: a) Implementation of the first edition of the PANS-AIM on 8 November 2018[1] and on 5 November 2020[2]; b) Publication of any differences as of 8 November 2018 and as of 5 November 2020

Sir/Madam,

1. I have the honour to inform you that the Air Navigation Commission, acting under delegated authority, on 15 June 2018, approved the first edition of the *Procedures for Air Navigation Services (PANS) — Aeronautical Information Management* (PANS-AIM, Doc 10066) for applicability on 8 November 2018 for the harmonization of AIS/AIM procedures and for applicability on 5 November 2020 for the element concerning SNOWTAM formats. The amendment was approved on 28 August 2018 by the President of the Council on behalf of the Council in accordance with established procedure. A copy of the amendment is available as attachments to the electronic version of this State letter on the ICAO-NET (http://portal.icao.int) where you can access all other relevant documentation.

2. The first edition of the PANS-AIM stems from proposals arising from the twelfth meeting of the Aeronautical Information Service (AIS) Aeronautical Information Management (AIM) Study Group (AIS-AIMSG/12).

3. An implementation task list, including an outline of guidance material, and an impact assessment for first edition of the PANS-AIM are presented in Attachments B and C, respectively.

4. Your Government is invited by the Council to implement the provisions of the PANS-AIM. In this connection, I draw your attention to the decision taken by the Council, on 1 October 1973, to discontinue the publication of differences in Supplements to PANS documents and, instead, to request States to publish up-to-date lists of significant differences from PANS documents in their Aeronautical Information Publications (AIPs).

[1] 8 November 2018 for the harmonization of AIS/AIM procedures.
[2] 5 November 2020 for the element concerning the SNOWTAM format.

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5. May I, therefore, invite your Government to publish in your AIP a list of any significant differences which will exist on 8 November 2018 for the harmonization of AIS/AIM procedures and on 5 November 2020 for the element concerning SNOWTAM format between the provisions of the PANS-AIM and your national regulations and practices.

Accept, Sir/Madam, the assurances of my highest consideration.

Fang Liu
Secretary General

Enclosures:

A — the Foreword of the PANS-AIM
B — Implementation task list and outline of guidance material in relation to the first edition of the PANS-AIM
C — Impact assessment in relation to the first edition of the PANS-AIM

ATTACHMENT A to State letter AN 2/33-18/85

FOREWORD OF THE FIRST EDITION OF THE PANS-AIM (DOC 10066)

Insert the following in Table A:

Amendment	***Source(s)***	***Subject***	***Approved Applicable***
First edition	Twelfth meeting of the AIS-AIM Study Group (AIS-AIMSG/12)	Amendment concerning: a) harmonization of AIS/AIM procedures; and b) SNOWTAM format.	28 August 2018 8 November 2018 5 November 2020

— — — — — — — —

ATTACHMENT B to State letter AN 2/33-18/85

IMPLEMENTATION TASK LIST AND OUTLINE OF GUIDANCE MATERIAL IN RELATION TO THE FIRST EDITION OF THE PANS-AIM (DOC 10066)

1. IMPLEMENTATION TASK LIST

1.1 Essential steps to be followed by a State in order to implement the proposed first edition of the PANS-AIM:

a) identification of the rule-making process necessary to transpose the modified ICAO provisions into the national regulations;

b) conduct a gap analysis between the new ICAO provisions and national regulatory framework;

c) drafting of the necessary modifications to the national regulations;

d) official adoption of the national regulations and/or means of compliance;

e) establishment of a national implementation plan that takes into account the new ICAO provisions;

f) training of operational staff in the use of new provisions;

g) oversight by the State of the implementation of the regulations; and

h) publication of significant differences, if any, in the State's AIP.

2. STANDARDIZATION PROCESS

2.1 Approval date: 28 August 2018.

2.2 Applicability date: 8 November 2018.

2.3 Embedded applicability date: 5 November 2020 for the element concerning the SNOWTAM format.

3. SUPPORTING DOCUMENTATION

3.1 ICAO documentation

Title	Type (PANS/TI/Manual/Circ)	Planned publication date
Aeronautical Information Services Manual (Doc 8126)	Manual (update)	2018
Manual of the QMS for Aeronautical Information Management (Doc 9839)	Manual (update)	2019
AIM Training Development Manual (Doc 9991)	Manual (update)	2019

3.2 External documentation

Title	External Organization	Publication date
None		

4. IMPLEMENTATION ASSISTANCE TASKS

Type	Global	Regional
Seminars and workshops		AIM regional conferences

5. UNIVERSAL SAFETY OVERSIGHT AUDIT PROGRAMME (USOAP)

The existing protocol questions (PQs) may need to be amended or new PQs may be required due to new technical requirements and change of references. This will be assessed during the next amendment cycle of the PQs.

— — — — — — — — —

ATTACHMENT C to State letter AN 2/33-18/85

IMPACT ASSESSMENT IN RELATION TO THE FIRST EDITION OF THE PANS-AIM (DOC 10066)

1. INTRODUCTION

1.1 The first edition of the PANS-AIM incorporates the existing specifications in Annex 15 which are too detailed and more appropriate for a PANS document as well as material from the *Aeronautical Information Services Manual* (Doc 8126) to allow for a higher level of harmonization. The specifications published in the PANS-AIM provide a means for increased harmonization within the AIM domain as well as a vehicle for the emerging technical requirements of AIM.

2. IMPACT ASSESSMENT

2.1 *Safety impact*: Positive. The restructuring of the AIM provisions and the consequent introduction of the PANS-AIM ensure that requirements are properly explained and promote a better understanding of the AIM principles. Aeronautical data and information are necessary to ensure the safety, regularity and efficiency of air navigation. The role and importance of complete, timely, and accurate aeronautical data and information has changed significantly with the implementation of area navigation (RNAV), required navigation performance (RNP), airborne computer-based navigation systems, and data link systems. Transitioning to a full AIM environment involves encompassing improved data quality by ensuring that information is provided by accountable and qualified sources. It implies a standard digital data exchange and processing of information and it allows for a timely and accurate distribution of information. Overall, this is reflected in an increased level of safety.

2.2 *Financial impact*: Minimal impact for States and industry. Transitioning to a full AIM environment may require large investments in equipment and resources, depending on States' and industry's status of implementation. However, this can be done through a phased approach and an evolutionary process. Additionally the transition will result in overall economic gains by improving aeronautical information management thorough a faster, quality-controlled and cost-effective exchange of aeronautical data.

2.3 *Security impact*: Positive. The existing prescriptive specifications have been amended to introduce more performance-based requirements to maintain data integrity along the data chain. The current stipulation of cyclic redundancy checks is too prescriptive and there have been numerous cases where this has proven to be difficult to demonstrate compliance. Performance-based requirements should facilitate implementation by allowing for use of more modern technology to detect errors in digital data introduced during transmission or storage.

2.4 *Environmental impact*: Positive. Transitioning from a paper-based to a digital environment will certainly bring environmental benefits.

2.5 *Efficiency impact*: Positive. Moving towards an AIM environment implies overall benefits in terms of efficiency. For instance, providing data in digital form and complying with digital data exchange requirements represents a paradigm shift in the way information is transmitted and handled along its life cycle: management, processing, verification, usage, quality control and exchange of information is done in a structured, automatic manner thereby minimizing human intervention and reducing errors.

2.6 *Expected implementation time*: With respect to the restructuring of the AIM provisions and the move of various requirements from Annex 15 to the new PANS-AIM, the expected implementation time will depend on the need to modify the State regulatory framework in order to properly account for the new references, to update processes to notify or stop notifying differences to ICAO and make sure that significant differences are published in the State AIP. In regard to the updated technical requirements, implementation may take two to five years for those States that have not already transitioned to Aeronautical Information Management (AIM).

— END —

PROCEDURES
FOR
AIR NAVIGATION SERVICES

AERONAUTICAL INFORMATION MANAGEMENT

(Doc 10066)

INTERIM EDITION

The first edition of the PANS-AIM (Doc 10066) was approved by the President of the Council on behalf of the Council on **28 August 2018** for applicability on **8 November 2018 for the harmonization of AIS/AIM procedures** and for applicability on **5 November 2020 for the element concerning the SNOWTAM format.** This interim edition is distributed to facilitate its implementation by States. The first edition is expected to be distributed in October 2018 and 2020, respectively. (State letter AN 2/33-18/85 refers.)

AUGUST 2018

INTERNATIONAL CIVIL AVIATION ORGANIZATION

NOTES ON THE PRESENTATION OF THE AMENDMENT

1. The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

~~Text to be deleted is shown with a line through it.~~	text to be deleted
New text to be inserted is highlighted with grey shading.	new text to be inserted
~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.	new text to replace existing text

TEXT OF THE FIRST EDITION OF THE

***PROCEDURES FOR AIR NAVIGATION SERVICES — AERONAUTICAL INFORMATION MANAGEMENT* (DOC 10066)**

TABLE OF CONTENTS

———————

Editorial Note.— Insert new text as follows:

FOREWORD

1. HISTORICAL BACKGROUND

1.1 The Air Navigation Commission, at the eleventh meeting of its 177th Session on 20 March 2008, agreed to the establishment of an Aeronautical Information Services to Aeronautical Information Management (AIS - AIM) study group in order to assist the Secretariat with the development of:

a) a global strategy/roadmap for the transition from Aeronautical Information Services (AIS) to Aeronautical Information Management (AIM);

b) Standards and Recommended Practices (SARPs) and guidance material related to the provision of a standard aeronautical information conceptual model and standard aeronautical information exchange model to enable the global exchange of data in digital format; and

c) other SARPs, guidance material and training material necessary to support AIM implementation.

1.2 Following an assessment of Annex 15 — *Aeronautical Information Services* and the *Aeronautical Information Services Manual* (Doc 8126), it was proposed by the study group and accepted by the Air Navigation Commission that specifications published as Procedures for Air Navigation Services (PANS) would provide a more appropriate means for increased standardization and harmonization within the domain of AIS/AIM as well as provide a vehicle for the emerging technical requirements of AIM. Consequently, the study group proceeded with development of the PANS-AIM using material currently contained in Annex 15 and Doc 8126.

1.3 The *Procedures for Air Navigation Services — Aeronautical Information Management* (PANS-AIM) contains several provisions in support to the transition from the product-based Aeronautical Information Services (AIS) to the data centric Aeronautical Information Management (AIM). This edition includes detailed requirements for the collection, management and provision of aeronautical data and aeronautical information as well as aeronautical information products and services specifications.

2. SCOPE AND PURPOSE

2.1 The *Procedures for Air Navigation Services — Aeronautical Information Management* (PANS-AIM) are complementary to the Standards and Recommended Practices contained in Annex 15 — *Aeronautical Information Services* and in Annex 4 — *Aeronautical Charts*. They are supplemented when necessary by regional procedures contained in the *Regional Supplementary Procedures* (Doc 7030).

Note 1.— Although the provisions and procedures are mainly directed to States (including AIS), data originators, commercial data houses of aeronautical data and aeronautical information and users should be familiar with the procedures contained in this document.

Note 2.— One of the objectives of AIM is to ensure integrity of aeronautical data is maintained through the data process from survey/origination to distribution to the next intended user. The provisions and procedures in this document do not relieve the end users of aeronautical data and aeronautical information of their responsibility to ensure accuracy and integrity of aeronautical data and information received.

2.2 The PANS-AIM specify, in greater detail than the Standards and Recommended Practices, the actual procedures to be applied by aeronautical information management units in providing the various

aeronautical information services to other States and aviation stakeholders.

2.3 The PANS-AIM include topics that are relevant to the provision of harmonized procedures in the AIS/AIM domain, provide a framework for the delivery of uniform aeronautical information services in future AIM environments as well as represent a vehicle for emerging technical requirements.

3. STATUS

3.1 The Procedures for Air Navigation Services (PANS) do not have the same status as the Standards and Recommended Practices. While the latter are adopted by Council in pursuance of Article 37 of the Convention on International Civil Aviation, subject to the full procedure of Article 90, the PANS are approved by the Council and recommended to Contracting States for worldwide application.

3.2 While the PANS may contain material which may eventually become Standards or Recommended Practices (SARPs) when it has reached the maturity and stability necessary for adoption as such, they may also comprise material prepared as an amplification of the basic principles in the corresponding SARPs, and designed particularly to assist the user in the application of those SARPs.

4. IMPLEMENTATION

4.1 The implementation of procedures is the responsibility of Contracting States; they are applied in actual operations only after, and in so far as, States have enforced them. However, with a view to facilitating their processing towards implementation by States, they have been prepared in language which will permit direct use by the air navigation community.

5. PUBLICATION OF DIFFERENCES

5.1 The PANS do not carry the status afforded to Standards adopted by the Council as Annexes to the Convention and, therefore, do not come within the obligation imposed by Article 38 of the Convention to notify differences in the event of non-implementation.

5.2 However, attention of States is drawn to the provision of Annex 15 related to the publication in their Aeronautical Information Publication of lists of significant differences between their procedures and the related ICAO procedures.

6. PROMULGATION OF INFORMATION

Information relating to the establishment and withdrawal of and changes to facilities, services and procedures affecting aircraft operations provided according to the Procedures specified in this document should be notified and take effect in accordance with Annex 15.

7. CONTENTS OF THE DOCUMENT

7.1 Chapter 1 – Definitions

Chapter 1 contains a list of terms and their technical meanings as used in this document.

7.2 Chapter 2 – Aeronautical Information Management

7.2.1 Chapter 2 describes the main aeronautical information management functions that include the collection, processing, quality control and distribution of data and information, as well as data integrity monitoring and assurance.

7.2.2 Appendix 1 (Aeronautical Data Catalogue) presents the scope of data and information that can be collected and maintained by an AIS organization. The Aeronautical Data Catalogue symbolizes the shift from product-centric to data centric environments, is considered the point of reference for all provisions related to aeronautical data origination and publication and represents the common language for data originators and AIS organizations.

7.3 Chapter 3 – Quality Management

Chapter 3 focuses on the quality management aspect of AIM. It explains the general requirements of the quality management system related to AIM processes.

7.4 Chapter 4 – Aeronautical Data Requirements

7.4.1 Chapter 4 outlines the data origination requirements and how data shall be collected and transmitted to the AIS in accordance with accuracy requirements and integrity classification as specified in Appendix 1.

7.4.2 The chapter also deals with the minimum metadata requirements.

7.5 Chapter 5 – Aeronautical Information Products and Services

7.5.1 Chapter 5 outlines the specifications regarding the provision of aeronautical information products (in printed or electronic form) and services. This includes the Aeronautical Information Publication (AIP), AIP amendments and supplements and Aeronautical Information Circulars (AIC).

7.5.2 The chapter also provides general specifications on NOTAM, number and series allocation, NOTAM checklist and distribution. The chapter includes also specifications on pre-flight information services.

7.5.3 General provisions for digital data are also explained as well as specific details on the various data sets – AIP data sets, terrain and obstacle data sets, aerodrome mapping data sets and instrument flight procedure data sets.

7.5.4 Data element properties, sub-properties and descriptions and quality requirements (accuracy, resolution, integrity) are contained in Appendix 1.

7.5.5 Contents of the Aeronautical Information Publication are contained in Appendix 2.

7.5.6 Format and instructions for completion of NOTAM, SNOWTAM and ASHTAM are found in Appendices 3, 4 and 5, respectively.

7.5.7 Terrain and obstacle attributes provision requirements are detailed in Appendix 6.

7.5.8 Predetermined distribution of NOTAM is detailed in Appendix 7.

7.6 Chapter 6 – Aeronautical Information Updates

Chapter 6 details how to update aeronautical information products and services.

Table A. Amendments to PANS-AIM

Amendment	*Source(s)*	*Subject*	*Adopted/Approved* *Effective* *Applicable*

CHAPTER 1. DEFINITIONS

Editorial Note.— Relocated from Annex 15, 1.1

When the following terms are used in the ~~Standards and Recommended Practices for aeronautical information services~~ present document, they have the following meanings:

~~***Accuracy.*** A degree of conformance between the estimated or measured value and the true value.~~

~~*Note.— For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.*~~

Aerodrome. A defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft.

Aerodrome mapping data (AMD). Data collected for the purpose of compiling aerodrome mapping information.

Note.— Aerodrome mapping data are collected for purposes that include the improvement of the user's situational awareness, surface navigation operations, training, charting and planning.

Aerodrome mapping database (AMDB). A collection of aerodrome mapping data organized and arranged as a structured data set.

Aeronautical chart. A representation of a portion of the Earth, its culture and relief, specifically designated to meet the requirements of air navigation.

Aeronautical data. A representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing.

Aeronautical information. Information resulting from the assembly, analysis and formatting of aeronautical data.

Aeronautical Information Circular (AIC). A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.

Aeronautical information management (AIM). The dynamic, integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties.

Aeronautical information product. Aeronautical data and aeronautical information provided either as digital data sets or as a standardized presentation in paper or electronic media. Aeronautical information products include:

— Aeronautical Information Publication (AIP), including Amendments and Supplements;

— Aeronautical Information Circulars (AIC);

— Aeronautical charts;

— NOTAM; and
— Digital data sets.

Note.— Aeronautical information products are intended primarily to satisfy international requirements for the exchange of aeronautical information.

Aeronautical Information Publication (AIP). A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

Aeronautical information service (AIS). A service established within the defined area of coverage responsible for the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation.

AIP Amendment. Permanent changes to the information contained in the AIP.

AIP Supplement. Temporary changes to the information contained in the AIP which are ~~published~~ provided by means of special pages.

AIRAC. An acronym (aeronautical information regulation and control) signifying a system aimed at advance notification, based on common effective dates, of circumstances that necessitate significant changes in operating practices.

Air defence identification zone (ADIZ). Special designated airspace of defined dimensions within which aircraft are required to comply with special identification and/or reporting procedures additional to those related to the provision of air traffic services (ATS).

Air traffic management (ATM). The dynamic, integrated management of air traffic and airspace (including air traffic services, airspace management and air traffic flow management) — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.

~~***AIS product.*** Aeronautical data and aeronautical information provided in the form of the elements of the Integrated Aeronautical Information Package (except NOTAM and PIB), including aeronautical charts, or in the form of suitable electronic media.~~

Application. Manipulation and processing of data in support of user requirements (ISO 19104*).

Area navigation (RNAV). A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Note.— Area navigation includes performance-based navigation as well as other operations that do not meet the definition of performance-based navigation.

ASHTAM. A special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations.

Assemble. A process of merging data from multiple sources into a database and establishing a baseline for subsequent processing.

Note.— The assemble phase includes checking the data and ensuring that detected errors and omissions are rectified.

ATS surveillance service. Term used to indicate a service provided directly by means of an ATS surveillance system.

ATS surveillance system. A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

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* All ISO Standards are listed at the end of this chapter.

Note.— A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.

Automatic dependent surveillance — broadcast (ADS-B). A means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

Automatic dependent surveillance — contract (ADS-C). A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

Note.— The abbreviated term "ADS contract" is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.

Automatic terminal information service (ATIS). The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:

Data link-automatic terminal information service (D-ATIS). The provision of ATIS via data link.

Voice-automatic terminal information service (Voice-ATIS). The provision of ATIS by means of continuous and repetitive voice broadcasts.

Bare Earth. Surface of the Earth including bodies of water and permanent ice and snow, and excluding vegetation and man-made objects.

Calendar. Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108*).

Canopy. Bare Earth supplemented by vegetation height.

Confidence level. The probability that the true value of a parameter is within a certain interval around the estimate of its value.

Note.— The interval is usually referred to as the accuracy of the estimate.

Controller-pilot data link communications (CPDLC). A means of communication between controller and pilot, using data link for ATC communications.

Culture. All man-made features constructed on the surface of the Earth, such as cities, railways and canals.

Cyclic redundancy check (CRC). A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.

Danger area. An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

Data ~~A~~accuracy. A degree of conformance between the estimated or measured value and the true value.

~~*Note. — For measured positional data the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence of the true position falling.*~~

Data completeness. The degree of confidence that all of the data needed to support the intended use is provided.

Data format. A structure of data elements, records and files arranged to meet standards, specifications or data quality requirements.

Data product. Data set or data set series that conforms to a data product specification (ISO 19131*).

Data product specification. Detailed description of a data set or data set series together with additional information that will enable it to be created, supplied to and used by another party (ISO 19131*).

Note.— A data product specification provides a description of the universe of discourse and a specification for mapping the universe of discourse to a data set. It may be used for production, sales, end-use or other purpose.

***Data quality*.** A degree or level of confidence that the data provided meet the requirements of the data user in terms of accuracy, resolution, integrity (or equivalent assurance level), traceability, timeliness, completeness and format.

Data set. Identifiable collection of data (ISO 19101*).

Data set series. Collection of data sets sharing the same product specification (ISO 19115*).

***Data timeliness*.** The degree of confidence that the data is applicable to the period of its intended use.

Data traceability. The degree that a system or a data product can provide a record of the changes made to that product and thereby enable an audit trail to be followed from the end-user to the originator.

Datum. Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104*).

Digital Elevation Model (DEM). The representation of terrain surface by continuous elevation values at all intersections of a defined grid, referenced to common datum.

Note.— Digital Terrain Model (DTM) is sometimes referred to as DEM.

Direct transit arrangements. Special arrangements approved by the public authorities concerned by which traffic which is pausing briefly in its passage through the Contracting State may remain under their direct control.

Ellipsoid height (Geodetic height). The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.

Feature. Abstraction of real world phenomena (ISO 19101*).

Feature attribute. Characteristic of a feature (ISO 19101*).

Note.— A feature attribute has a name, a data type and a value domain associated with it.

Feature operation. Operation that every instance of a feature type may perform (ISO 19110*).

Note.— An operation upon the feature type dam is to raise the dam. The result of this operation is to raise the level of water in the reservoir.

Feature relationship. Relationship that links instances of one feature type with instances of the same or a different feature type (ISO 19101*).

Feature type. Class of real world phenomena with common properties (ISO 19110*).

Note.— In a feature catalogue, the basic level of classification is the feature type.

Geodesic distance. The shortest distance between any two points on a mathematically defined ellipsoidal surface.

Geodetic datum. A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.

Geoid. The equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents.

Note.— The geoid is irregular in shape because of local gravitational disturbances (wind tides, salinity, current, etc.) and the direction of gravity is perpendicular to the geoid at every point.

Geoid undulation. The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid.

Note.— In respect to the World Geodetic System — 1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation.

Gregorian calendar. Calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108*).

Note.— In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.

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

Heliport. An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Human Factors principles. Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

~~***Integrated Aeronautical Information Package.*** A package in paper, or electronic media which consists of the following elements:~~

- ~~AIP, including amendment service;~~
- ~~Supplements to the AIP;~~
- ~~NOTAM and PIB;~~
- ~~AIC; and~~
- ~~checklists and lists of valid NOTAM.~~

Data ~~I~~integrity (~~aeronautical data~~ assurance level). A degree of assurance that an aeronautical data and its value has not been lost or altered since the~~ data~~ origination or authorized amendment.

Integrity classification (aeronautical data). Classification based upon the potential risk resulting from the use of corrupted data. Aeronautical data are classified as:

a) *routine data:* there is a very low probability when using corrupted routine data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe;

b) *essential data:* there is a low probability when using corrupted essential data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe; and

c) *critical data:* there is a high probability when using corrupted critical data that the continued safe flight and landing of an aircraft would be severely at risk with the potential for catastrophe.

International airport. Any airport designated by the Contracting State in whose territory it is situated as an airport of entry and departure for international air traffic, where the formalities incident to customs, immigration, public health, animal and plant quarantine and similar procedures are carried out.

International NOTAM office (NOF). An office designated by a State for the exchange of NOTAM internationally.

Logon address. A specified code used for data link logon to an ATS unit.

Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Metadata. Data about data (ISO 19115*).

Note.— A structured description of the content, quality, condition or other characteristics of data.

Minimum en-route altitude (MEA). The altitude for an en-route segment that provides adequate reception of relevant navigation facilities and ATS communications, complies with the airspace structure and provides the required obstacle clearance.

Minimum obstacle clearance altitude (MOCA). The minimum altitude for a defined segment of flight that provides the required obstacle clearance.

Movement area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and the apron

Navigation specification. A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

Note 1.— The Performance-based Navigation (PBN) Manual *(Doc 9613), Volume II, contains detailed guidance on navigation specifications.*

Note 2.— The term RNP, previously defined as "a statement of the navigation performance necessary for operation within a defined airspace", has been removed from this Annex as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers

to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.

Next intended user. The entity that receives the aeronautical data or information from the Aeronautical Information Service.

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.

Obstacle. All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

a) are located on an area intended for the surface movement of aircraft; or

b) extend above a defined surface intended to protect aircraft in flight; or

c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Obstacle/terrain data collection surface. A defined surface intended for the purpose of collecting obstacle/terrain data.

Origination (aeronautical data or aeronautical information). The creation of the value associated with new data or information or the modification of the value of an existing data or information.

Originator (aeronautical data or aeronautical information). An entity that is accountable for data or information origination and/or from which the AIS organization receives aeronautical data and information.

Orthometric height. Height of a point related to the geoid, generally presented as an MSL elevation.

Performance-based communication (PBC). Communication based on performance specifications applied to the provision of air traffic services.

Note.— An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note.— Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance-based surveillance (PBS). Surveillance based on performance specifications applied to the provision of air traffic services.

Note.— An RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Portrayal. Presentation of information to humans (ISO 19117*).

Position (geographical). Set of coordinates (latitude and longitude) referenced to the mathematical reference ellipsoid which define the position of a point on the surface of the Earth.

Post spacing. Angular or linear distance between two adjacent elevation points.

Precision. The smallest difference that can be reliably distinguished by a measurement process.

Note.— In reference to geodetic surveys, precision is a degree of refinement in performance of an operation or a degree of perfection in the instruments and methods used when taking measurements.

Pre-flight information bulletin (PIB). A presentation of current NOTAM information of operational significance, prepared prior to flight.

Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

Quality. Degree to which a set of inherent characteristics fulfils requirements (ISO 9000*).

Note 1.— The term "quality" can be used with adjectives such as poor, good or excellent.

Note 2.— "Inherent", as opposed to "assigned", means existing in something, especially as a permanent characteristic.

Quality assurance. Part of quality management focused on providing confidence that quality requirements will be fulfilled (ISO 9000*).

Quality control. Part of quality management focused on fulfilling quality requirements (ISO 9000*).

Quality management. Coordinated activities to direct and control an organization with regard to quality (ISO 9000*).

Radio navigation service. A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

Required communication performance (RCP) specification. A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.

Required surveillance performance (RSP) specification. A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

Requirement. Need or expectation that is stated, generally implied or obligatory (ISO 9000*).

Note 1.— "Generally implied" means that it is custom or common practice for the organization, its customers and other interested parties, that the need or expectation under consideration is implied.

Note 2.— A qualifier can be used to denote a specific type of requirement, e.g. product requirement, quality management requirement, customer requirement.

Note 3.— A specified requirement is one which is stated, for example, in a document.

Note 4.— Requirements can be generated by different interested parties.

Data ~~R~~resolution. A number of units or digits to which a measured or calculated value is expressed and used.

Restricted area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

Route stage. A route or portion of a route flown without an intermediate landing.

SNOWTAM.† A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

SNOWTAM.†† A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice, or frost on the movement area.

Station declination. An alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

Terrain. The surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles.

~~*Note.— In practical terms, depending on the method of data collection used, terrain represents the continuous surface that exists at the bare Earth, the top of the canopy or something in between, also known as "first reflective surface".*~~

Traceability. Ability to trace the history, application or location of that which is under consideration (ISO 9000*).

Note.— When considering product, traceability can relate to:

— the origin of materials and parts;

— the processing history; and

— the distribution and location of the product after delivery.

Validation. Confirmation, through the provision of objective evidence, that the requirements for a specific intended use or application have been fulfilled (ISO 9000*).

Verification. Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled (ISO 9000*).

Note 1.— The term "verified" is used to designate the corresponding status.

~~*Note 2.— Confirmation can comprise activities such as:*~~

~~*performing alternative calculations;*~~

~~*comparing a new design specification with a similar proven design specification;*~~

~~*undertaking tests and demonstrations; and*~~

~~*reviewing documents prior to issue.*~~

VOLMET. Meteorological information for aircraft in flight.

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† Applicable until 4 November 2020.
†† Applicable as of 5 November 2020.

Data link-VOLMET (D-VOLMET). Provision of current aerodrome routine meteorological reports (METAR) and aerodrome special meteorological reports (SPECI), aerodrome forecasts (TAF), SIGMET, special air-reports not covered by a SIGMET and, where available, AIRMET via data link.

VOLMET broadcast. Provision, as appropriate, of current METAR, SPECI, TAF and SIGMET by means of continuous and repetitive voice broadcasts.

Editorial Note.— Insert new text as follows:

CHAPTER 2. AERONAUTICAL INFORMATION MANAGEMENT

2.1 Information management requirements

Management of aeronautical data and aeronautical information shall include the following processes:

– collection

– processing

– quality control

– distribution

2.1.1 Collection

2.1.1.1 The identification of data originators shall be documented based on the scope of aeronautical data and aeronautical information to be collected.

2.1.1.2 A record of data originators should be maintained.

Note. — Metadata requirements in Chapter 4 specify which information is to be recorded for each originator.

2.1.1.3 Each data element to be collected should be mapped to an identified data originator, in accordance with the formal arrangements established between data originators and the AIS.

2.1.1.4 The list of aeronautical information subjects and their properties, as contained in Appendix 1, should be used to establish formal arrangements between the originators and the AIS.

2.1.1.5 Valid codes for the code lists of the aeronautical data properties and sub-properties, as contained in Appendix 1, should be defined in the formal arrangements between the originators and the AIS.

2.1.1.6 Appendix 1 shall be considered as a reference for aeronautical data and aeronautical information origination and publication requirements.

Note 1.— Appendix 1 presents the scope of data and information that can be collected and maintained by the AIS.

Note 2.— Appendix 1 provides a common language that can be used by data originators and the AIS.

2.1.2 Processing

2.1.2.1 Collected data shall be verified and validated for compliance with data quality requirements.

Note 1.— Appendix 1 contains aeronautical data attributes and quality requirements (accuracy,

resolution, integrity).

Editorial Note.— Note 2 is relocated text from Annex 15, 3.2.2. – Note 2 (initial part).

Note 2.— Guidance material on the aeronautical data quality requirements (accuracy, resolution, integrity, and traceability and protection requirements) may be found in the World Geodetic System — 1984 (WGS-84) Manual *(Doc 9674).*

Editorial Note.— Note 3 is relocated text from Annex 15, 3.2.2. – Note 2 (last part).

Note 3.— Supporting data quality material in respect of data accuracy, publication resolution, and integrity of aeronautical data, together with guidance material in respect to the rounding convention for aeronautical data, is contained in Radio Technical Commission for Aeronautics (RTCA) Document DO-201A and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-77 — Standards for Aeronautical Information (or equivalent).

Editorial Note.— Note 4 is relocated text from Annex 15, Note 3 to 3.2.2.

Note ~~3~~4.— Guidance material on the management of aeronautical data quality is included in the Manual on the Quality Management System for Aeronautical Information Services *(Doc 9839) ~~(to be developed)~~.*

Note 5.— Verification activities may include:

a) comparison processes in which data and information are compared with an independent source;

b) feedback processes in which data and information are compared between their input and output state;

c) processing through multiple independent and different systems, comparing the output of each; this includes performing alternative calculations; and

d) processes in which data and information are compared to the originator's request.

Note 6.— Validation activities may include:

a) application processes in which data and information are tested;

b) processes in which data and information are compared between two different outputs; and

c) processes in which data and information are compared to an expected range, value or other business rules.

2.1.2.2 Automation systems implemented for processing aeronautical data and aeronautical information should ensure traceability of the performed actions.

2.1.3 Quality control

Editorial Note.— Note is relocated text from Annex 15, Note 2 to 3.3.3.2.

Note ~~2.~~ — Error-producing faults in the entire process may be mitigated by additional data quality assurance techniques as may be required. These could include application tests for critical data (for example, by flight check); the use of security, logic, semantic, comparison, and redundancy checks; digital error detection; and the qualification of human resources and process tools such as hardware and software.

2.1.3.1 Quality checks should be implemented to ensure compliance with product specifications contained in Chapter 5 of PANS-AIM.

2.1.3.2 When the same data is duplicated in different aeronautical information products, consistency checks should be undertaken.

2.1.4 Distribution

(To be developed.)

2.2 Data integrity monitoring and assurance

2.2.1 Data integrity should be assured by employing cryptographic technologies (e.g. hash functions, message authentication codes, asymmetric and symmetric encryption, and digital certificates).

Editorial Note.— Note is relocated text from Annex 15, Note 1 to 3.3.3.2.

Note ~~1.~~— Guidance material in respect to the processing of aeronautical data and aeronautical information is contained in RTCA Document DO-200AB and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-76A — Standards for Processing Aeronautical Data.

2.2.2 The technical means used for data error detection should be based on the use of systematic cycling codes.

Note.— The means to implement systematic cycling codes include the use of hash functions and cyclic redundancy check (CRC).

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Editorial Note.— Insert new text as follows:

CHAPTER 3. QUALITY MANAGEMENT

3.1 Quality management system

Note 1.— This chapter provides general requirements on the quality management system related to AIM processes.

Note 2.— Detailed guidance can be found in the Manual on the Quality Management System for Aeronautical Information Management *(Doc 9839).*

3.1.1 The general requirements for a QMS shall be to:

a) develop a quality manual that includes the scope of a quality management system as applied to AIM processes;

b) identify the processes needed for the QMS;
c) determine the sequence and interaction of these processes;
d) determine criteria and methods required to ensure the effective operation and control of these processes;
e) ensure the availability of information necessary to support the operation and monitoring of these processes;
f) measure, monitor and analyse these processes, and implement action necessary to achieve planned results and continual improvement; and
g) maintain appropriate records that are necessary to provide confidence of conformity of the processes and resulting product.

3.1.2 In the framework of the quality management system, a user feedback system shall be defined and implemented.

Editorial Note.— Notes 1 and 3 are relocated text from Annex 15, Notes to 3.7.2; Note 2 from Annex 15, Note 2 to 3.7.3; and Note 4 from Annex 15, Note to 3.7.4.

Note 1.— Quality management may be provided by a single quality management system or ~~serial~~ a series of quality management systems.

Note 2.— International Organization for Standardization (ISO) 9000 series of quality assurance standards provide a basic framework for the development of a quality assurance programme ~~and define the term "accredited certification body". The details of a successful programme are to be formulated by each State and in most cases are unique to the State organization. An ISO 9000 certificate issued by an accredited certification body would be considered an acceptable means of compliance.~~

Note ~~2~~3.— ~~Letters of agreement~~ Formal arrangements concerning data quality between originator and ~~distributor~~ the AIS and between ~~distributor~~ the AIS and the next intended user may be used to manage the aeronautical information data chain.

Note 4.— Guidance material concerning training methodology to ensure the competency of personnel is contained in the Aeronautical Information Management Training Development Manual *(Doc 9991)~~(to be developed)~~.*

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Editorial Note.— Insert new text as follows:

CHAPTER 4. AERONAUTICAL DATA REQUIREMENTS

4.1 Data Origination Requirements

4.1.1 Data shall be collected and transmitted to the AIS in accordance with the accuracy requirements and integrity classification specified in Appendix 1.

Editorial Note.— 4.1.2 is relocated text from Annex 15, 3.3.1.

~~3.3.1~~ 4.1.2 ~~The order of accuracy for aeronautical data shall be as specified in Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2. In that respect, three types of positional data shall be identified: surveyed points (runway thresholds, navigation aid positions, etc.), calculated points (mathematical calculations from the known surveyed points of points in space/fixes) and declared points (e.g. flight information region boundary points).~~ Positional data shall be classified as: surveyed points (e.g. navigation aid positions, runway threshold), calculated points (mathematical calculations from the known surveyed points of points in space, fixes) or declared points (e.g. flight information region boundary points).

Editorial Note.— 4.1.3 is relocated text from Annex 15, 1.2.1.1.

~~1.2.1.1~~ 4.1.3 ~~World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum~~. Geographical coordinates indicating latitude and longitude shall be determined and reported to the AIS in terms of the World Geodetic System – 1984 (WGS-84) geodetic reference datum.

Editorial Note.— 4.1.4 is relocated text from Annex 15, 1.2.1.3.

~~1.2.1.3~~ 4.1.4 ~~Geographical coordinates that have been transformed into WGS-84 coordinates but whose accuracy of original field work does not meet the requirements in Annex 11, Chapter 2, and Annex 14, Volumes I and II, Chapter 2, shall be identified by an asterisk.~~ Geographical coordinates that have been transformed into WGS-84 coordinates by mathematical means and whose accuracy of original field work does not meet the applicable requirements contained in Appendix 1 shall be identified.

Editorial Note.— 4.1.5 is relocated text from Annex 15, 1.2.2.3.

~~1.2.2.4~~ 4.1.5 In addition to elevation referenced to the MSL (geoid), for the specific surveyed ground positions, geoid undulation (referenced to the WGS-84 ellipsoid) for those positions specified in Appendix ~~1~~2 shall also be published.

4.2 Metadata Requirements

Editorial Note.— 4.2.1 is relocated text from Annex 15, 3.4.2.

~~3.4.2~~ 4.2.1 The metadata to be collected shall include, as a minimum:

a) the name of the organizations or entities performing any action of originating, transmitting or

manipulating the data;

b) the action performed; and

c) the date and time the action was performed.

Editorial Note.— Note is relocated text from the Note associated with Annex 15, 3.4.1.

Note.— ISO Standard 19115 specifies requirements for geographic information metadata.

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Editorial Note.— Insert new text as follows:

CHAPTER 5. AERONAUTICAL INFORMATION PRODUCTS AND SERVICES

5.1 General

5.1.1 Aeronautical data shall be provided in accordance with the resolution requirements contained in Appendix 1.

5.1.2 Geographical coordinates whose accuracy does not meet the requirements specified in Appendix 1 shall be identified.

5.1.3 The identification of geographical coordinates whose accuracy does not meet the requirements may be made either with an annotation or by explicitly providing the actual accuracy value.

5.1.3.1 In aeronautical information products that are distributed on paper, the identification should be done with an asterisk following the coordinate value concerned.

5.2 Aeronautical information in a standardized presentation

5.2.1 Aeronautical Information Publication (AIP)

5.2.1.1 Contents

Editorial Note.— 5.2.1.1.1 is relocated text from Doc 8126, 5.1.3 (initial part).

~~5.1.3~~ 5.2.1.1.1 The AIP ~~must~~ shall contain concise, current information relating to, and arranged under, the subject headings listed in ~~Annex 15,~~ Appendix ~~1~~2. This facilitates both the locating of information under a specific heading and the storage/retrieval of the information using automated processing.

Editorial Note.— 5.2.1.1.2 is relocated text from Doc 8126, 5.1.3 (last part).

5.2.1.1.2 If no facilities or services are provided or no information is available for publication in respect of one of the categories of information specified in ~~Annex 15,~~ Appendix ~~1~~2, an indication should be given as to which of these circumstances applies (e.g. “NIL” or “Not AVBL”).

5.2.1.1.3 When the AIP Data Set (as specified in 5.3.3.1) is provided, the following sections of the AIP may be left blank and reference to the data set availability shall be provided:

1. GEN 2.5 List of radio navigation aids

2. ENR 2.1 FIR, UIR, TMA

3. ENR 3.1 Lower ATS routes

4. ENR 3.2 Upper ATS routes

5. ENR 3.3 Area navigation (RNAV) routes

6. ENR 3.4 Helicopter routes

7. ENR 3.5 Other routes

8. ENR 3.6 En-route holding

9. ENR 4.1 Radio navigation aids – en-route

10. ENR 4.4 Name-code designators for significant points

11. ENR 4.5 Aeronautical ground lights – en-route

12. ENR 5.1 Prohibited, restricted and danger areas

13. ENR 5.2 Military exercise and training areas and air defence identification zone (ADIZ)

14. ENR 5.3.1 Other activities of a dangerous nature

15. ENR 5.5 Aerial sporting and recreational activities

16. **** AD 2.17 ATS airspace

17. **** AD 2.19 Radio navigation and landing aids

18. **** AD 3.16 ATS airspace

19. **** AD 3.18 Radio navigation and landing aids

5.2.1.1.4 When the Obstacle Data Set (as specified in 5.3.3.2.2) is provided, the following sections of the AIP may be left blank and a reference to the data set availability shall be provided:

1. ENR 5.4 Air Navigation obstacles

2. **** AD 2.10 Aerodrome obstacles

3. **** AD 3.10 Heliport obstacles

5.2.1.2 General Specification

Editorial Note.— 5.2.1.2.1 is relocated text from Doc 8126, 5.2.7 (initial part).

~~5.2.7~~ 5.2.1.2.1 The issuing State and publishing authority ~~must~~ shall be clearly indicated ~~on the cover~~.

Editorial Note.— 5.2.1.2.2 is relocated text from Annex 15, 4.2.1.2.

~~4.2.1.2~~ 5.2.1.2.2 When two or more States ~~combine to issue a joint~~ jointly provide an AIP, these States shall be ~~this shall be made clear both on the cover and in the table of contents~~ clearly indicated.

Editorial Note.— 5.2.1.2.3 and the Note is relocated text from Annex 15, 4.2.1 and Note.

~~4.2.1~~ 5.2.1.2.3 Each AIP shall be self-contained and shall include a table of contents.

Note.— If it is necessary by reason of bulk or for convenience, to publish an AIP in two or more parts or volumes, each of them will indicate that the remainder of the information is to be found in the other part(s) or volume(s).

Editorial Note.— 5.2.1.2.4 is relocated text from Annex 15, 4.2.1.1.

~~4.2.1.1~~ 5.2.1.2.4 Each AIP shall not duplicate information within itself or from other sources.

Editorial Note.— 5.2.1.2.5 is relocated text from Annex 15, 4.1.1.

~~4.1.1~~ 5.2.1.2.5 An AIP shall ~~contain,~~ be organized in three parts (GEN, ENR and AD), sections and subsections ~~uniformly referenced to allow for standardized electronic data storage and retrieval, current information relating to, and arranged under, those subjects enumerated in Appendix 1 that appear in roman type~~, except ~~that~~ when the AIP, or a volume of the AIP, is designed ~~basically~~ to facilitate operational use in flight, in which case the precise format and arrangement may be left to the discretion of the State provided that an adequate table of contents is included.

Editorial Note.— 5.2.1.2.6 is relocated text from Annex15, 4.2.3 (first part).

~~4.2.3~~ 5.2.1.2.6 Each AIP shall be dated.

Editorial Note.— 5.2.1.2.6.1 is relocated text from Annex15, 4.2.3 (last part).

5.2.1.2.6.1 The date, consisting of the day, month (by name) and year, shall be the publication date or the effective date (AIRAC) of the information.

Editorial Note.— 5.2.1.2.7 and Note is relocated text from Annex 15, 4.1.4.

~~4.1.4~~ 5.2.1.2.7 Charts, maps or diagrams ~~shall~~ should be used~~, when appropriate,~~ to complement or as a substitute for the tabulations or text of AIP.

Note.— Where appropriate, charts produced in conformity with Annex 4, may be used to fulfil this requirement. Guidance material as to the specifications of index maps and diagrams included in AIP is contained in the Aeronautical Information Services Manual *(Doc 8126).*

Editorial Note.— 5.2.1.2.8 is relocated text from Doc 8126, 5.5.2 b).

~~b)~~ 5.2.1.2.8 When listing locations, the city or town should be given in capital letters followed, where the facility is an aerodrome/heliport or is located at an aerodrome/heliport, by an oblique stroke and the name of the aerodrome/heliport in smaller capital letters or lower case type. Unless otherwise indicated, the list should be in alphabetical order.

Editorial Note.— 5.2.1.2.9 is relocated text from Annex 15, 1.3.2.

~~1.3.2~~ 5.2.1.2.9 ~~Place names shall be spelt in conformity with local usage, transliterated, when necessary, into the Latin alphabet~~. The spelling of place names shall conform with local usage, transliterated where necessary into the ISO basic Latin alphabet.

Editorial Note.— 5.2.1.2.10 is relocated text from Doc 8126, 5.5.2 d).

~~d)~~ 5.2.1.2.10 In the indication of the geographical coordinates of a location:

— the latitude should be given first;

— symbols for degrees, minutes or seconds should be omitted;

— two digits should always be used in expressing values of less than 10 degrees of latitude; ~~and~~

— three digits should always be used in expressing values of less than 100 degrees of longitude~~.~~ and

— the letters N, S, E, W to indicate the cardinal points of the compass to the latitude and longitude as appropriate.

Editorial Note.— 5.2.1.2.11 is relocated text from Doc 8126, 5.5.2 f).

~~f)~~ 5.2.1.2.11 When describing periods of activity, availability or operation, ~~use of the term "weekday" should be avoided and the day or days in question should be specified~~ the applicable days and times shall be specified.

5.2.1.2.12 The units of measurement selected for use in the AIP, e.g. dimensions on aerodromes, distances, elevations or altitudes, should be consistently followed and should adhere to Annex 5.

Editorial Note.— 5.2.1.2.13 is relocated text from Doc 8126, 5.6.

5.2.1.2.13 Index maps and diagrams included in the AIP should comply with the following specifications:

a) *Base map:* The base map should be an outline map of the area adapted from existing material with general details. Graticules, topography and other details should be as simple as possible ~~to permit rapid reproduction and amendment~~. Political subdivisions should be shown and identified. It should be produced in one colour.

b) *Sheet size and scale*: The overall dimensions should be 210 mm × 297 mm. If a larger map is required, it should be folded to conform to this size. A uniform scale should be used for all charts produced as a series and other charts where practicable.

c) *Title and marginal Notes:* The title should be shown on the top border and should be as short and simple as possible.

d) *Colours:* The number of colours used should be kept to a minimum. If more than one colour is used, the colours should offer adequate contrast.

e) *Symbols:* Symbols should conform, where practicable, to the ICAO Chart symbols shown in Annex 4, Appendix 2. The basic, general purpose symbols for AIP index maps are a ~~closed~~ filled circle ● and an ~~open~~ empty circle ◯. Except when the symbols used are self-explanatory, a legend should be provided. For details for which no ICAO symbol has been provided, any appropriate symbol may be chosen provided it does not conflict with an ICAO symbol.

5.2.1.3 Specifications for AIP Amendments

Editorial Note.— 5.2.1.3.1 is relocated text from Annex15, 4.2.8.

~~4.2.8~~ 5.2.1.3.1 Operationally significant changes to the AIP shall be published in accordance with Aeronautical Information Regulation and Control (AIRAC) procedures and shall be clearly identified by the acronym — AIRAC.

Editorial Note.— 5.2.1.3.2 is relocated text from Doc 8126, 5.9.7 (initial part).

~~5.9.7~~ 5.2.1.3.2 When a State has established the regular interval or publication dates for its AIP Amendments, these intervals or publication dates ~~must be published~~ shall be included in the AIP, Part 1 — General (GEN).

5.2.1.3.3 New or revised information contained in the AIP shall be identified.

Editorial Note.— 5.2.1.3.4 is relocated text from Annex15, 4.3.2.

~~4.3.2~~ 5.2.1.3.4 Each AIP Amendment shall be allocated a serial number, which shall be consecutive.

Editorial Note.— 5.2.1.3.5 is relocated text from Annex15, 4.3.3.

~~4.3.3~~ 5.2.1.3.5 Each AIP Amendment ~~page, including the cover sheet,~~ shall ~~display~~ contain a publication date.

Editorial Note.— 5.2.1.3.6 is relocated text from Annex15, first sentence of 4.3.4.

~~4.3.4~~ 5.2.1.3.6 Each AIRAC AIP Amendment ~~page, including the cover sheet,~~ shall ~~display~~ contain an effective date.

Editorial Note.— 5.2.1.3.6.1 is relocated text from Annex15, second sentence of 4.3.4.

5.2.1.3.6.1 When an effective time other than 0000 UTC is used, the effective time shall also be ~~displayed on the cover sheet~~ indicated.

Editorial Note.— 5.2.1.3.7 is relocated text from Annex15, 4.3.5.

~~4.3.5~~ 5.2.1.3.7 When an AIP Amendment is issued, it shall include references to the serial number of ~~those elements, if any, of the Integrated Aeronautical Information Package~~ the AIP Supplement or NOTAM which have been incorporated into the amendment.

Editorial Note.— 5.2.1.3.8 is relocated text from Annex15, 4.3.6.

~~4.3.6~~ 5.2.1.3.8 A brief indication of the subjects affected by the amendment shall be given on the AIP Amendment cover sheet.

Editorial Note.— 5.2.1.3.9 is relocated text from Doc 8126, 5.9.13.

~~5.9.13~~ 5.2.1.3.9 Each amendment ~~must~~ shall include a checklist giving the current date of each loose-leaf page in the AIP, ~~unless there are only two or three replacement sheets involved,~~ and ~~must~~ shall provide a recapitulation of any outstanding manuscript corrections. The checklist ~~must~~ shall carry both the page number and date.

5.2.1.4 Specifications for AIP Supplements

Editorial Note.—Note is relocated text from Doc 8126, 5.10.1.

~~5.10.1~~ *Note.— Since the AIP is ~~an operational document and therefore~~ subject to frequent change, provisions exist for its continual updating. In addition, changes of a temporary nature affecting the contents of an AIP are often required to cater for unexpected circumstances or, in some cases, planned modifications to a service/facility. ~~The purpose of an AIP Supplement is to bring to the attention of users both temporary changes of long duration (three months or longer) and information of short duration containing extensive text or graphics which affect one or more parts of the AIP.~~*

Editorial Note.— 5.2.1.4.1 is relocated text from Annex15, 4.4.2.

~~4.4.2~~ 5.2.1.4.1 Each AIP Supplement shall be allocated a serial number which shall be consecutive and based on the calendar year.

Editorial Note.— Note is relocated text from Annex15, Note to 4.4.1.

Note.— Guidance material on the use of AIP Supplements together with examples of such use is contained in Doc 8126.

5.2.1.4.2 Each AIP Supplement shall be provided on distinctive pages allowing for easy identification from the regular AIP content.

Editorial Note.— 5.2.1.4.3 is relocated text from Annex 15, 4.4.5.

~~4.4.5~~ 5.2.1.4.3 ~~When~~ Whenever an AIP Supplement is ~~sent~~ issued ~~in~~ as a replacement of a NOTAM, ~~it shall include~~ a reference to the ~~serial~~ series and number of the NOTAM shall be included.

Editorial Note.— 5.2.1.4.4 is relocated text from Annex 15, 4.4.6.

~~4.4.6~~ 5.2.1.4.4 A checklist of valid AIP Supplements shall be issued at intervals of not more than one month as part of the checklist of NOTAM required at 5.2.5.3 and with distribution as for the AIP Supplements. ~~This information shall be issued through the medium of the monthly plain-language list of valid NOTAM required by 5.2.13.3.~~

Editorial Note.—5.2.1.4.5 is relocated text from Doc 8126, penultimate sentence of 5.10.2.

5.2.1.4.5 Each AIP Supplement page ~~must~~ shall show a publication date.

Editorial Note.— 5.2.1.4.6 is relocated text from Doc 8126, last sentence of 5.10.2.

5.2.1.4.6 Each AIRAC AIP Supplement page ~~must~~ shall show a publication date and an effective date.

5.2.2 Aeronautical Information Circulars (AIC)

Editorial Note.— 5.2.2.1 is relocated text from Annex 15, 7.1.1.1

~~7.1.1.1~~ 5.2.2.1 An AIC shall be ~~originated~~ provided whenever it is desirable to promulgate:

~~a) a long-term forecast of any major change in legislation, regulations procedures, or facilities;~~

~~b) information of a purely explanatory or advisory nature liable to affect flight safety;~~

~~c) information or notification of an explanatory or advisory nature concerning technical, legislative or purely administrative matters.~~

~~This shall include:~~

~~1)~~a) forecasts of important changes in the air navigation procedures, services and facilities provided;

~~2)~~b) forecasts of implementation of new navigation systems;

~~3)~~c) significant information arising from aircraft accident/incident investigation which has a bearing on flight safety;

~~4)~~d) information on regulations relating to the safeguarding of international civil aviation against acts of unlawful interference;

~~5)~~e) advice on medical matters of special interest to pilots;

~~6)~~f) warnings to pilots concerning the avoidance of physical hazards;

~~7)~~g) effect of certain weather phenomena on aircraft operations;

~~8)~~h) information on new hazards affecting aircraft handling techniques;

~~9)~~i) regulations relating to the carriage of restricted articles by air;

~~10)~~j) reference to the requirements of, and publication of changes in, national legislation;

~~11)~~k) aircrew licensing arrangements;

~~12)~~l) training of aviation personnel;

~~13)~~m) application of, or exemption from, requirements in national legislation;

~~14)~~n) advice on the use and maintenance of specific types of equipment;

~~15)~~o) actual or planned availability of new or revised editions of aeronautical charts;

~~16)~~p) carriage of communication equipment;

~~17)~~q) explanatory information relating to noise abatement;

~~18)~~r) selected airworthiness directives;

~~19)~~s) changes in NOTAM series or distribution, new editions of AIP or major changes in their contents, coverage or format;

~~20)~~t) advance information on the snow plan (see 5.2.2.2 ~~7.1.1.2~~);

~~21)~~u) other information of a similar nature.

Editorial Note.— 5.2.2.2 is relocated text from Annex 15, 7.1.1.2.

~~7.1.1.2~~ 5.2.2.2 The snow plan ~~published~~ issued under AD 1.2.2 of the AIP ~~Appendix 1~~ shall be supplemented by seasonal information, to be issued well in advance of the beginning of each winter — not less than one month before the normal onset of winter conditions — and shall contain information such as that listed below:

a) until 4 November 2020 a list of aerodromes/heliports where snow clearance is expected to be performed during the coming winter:

a) as of 5 November 2020 a list of aerodromes/heliports where snow, slush, ice or frost clearance is expected to be performed during the coming winter:

*1) in accordance with the runway and taxiway systems; or

*2) planned snow clearing, deviating from the runway system (length, width and number of runways, affected taxiways and aprons or portions thereof);

*b) information concerning any centre designated to coordinate information on the current state of progress of clearance and on the current state of runways, taxiways and aprons;

c) a division of the aerodromes/heliports into SNOWTAM distribution lists in order to avoid excessive NOTAM distribution;

*d) an indication, as necessary, of minor changes to the standing snow plan;

*e) a descriptive list of clearance equipment;

*f) a listing of what will be considered as the minimum critical snow bank to be reported at each aerodrome/heliport at which reporting will commence.

Editorial Note.—5.2.2.3 is relocated text from Annex 15, 7.2.1.

~~7.2.1~~ 5.2.2.3 The originating ~~aeronautical information service~~ State shall select the AIC that are to be given international distribution.

Editorial Note.— 5.2.2.4 is relocated text from Annex 15, 7.3.

~~7.3~~ 5.2.2.4 States shall give AIC selected for international distribution the same distribution as for the AIP.

5.2.2.5 Distribution of AIC on a national basis is left to the discretion of the originating State concerned.

Editorial Note.—5.2.2.6 is relocated text from Annex 15, 7.2.2.

~~7.2.2~~ 5.2.2.6 Each AIC shall be allocated a serial number which shall be consecutive and based on the calendar year.

* This information, or any part of it, may be included in the AIP, if so desired.

Editorial Note.— Note. is relocated text from Doc 8126, second sentence of 7.2.

Note.— Since AIC information is often effective for long periods and requires little amendment, it will usually be found that AIC can, if necessary, remain outstanding for several years without inconvenience. A review and re-issue on a yearly basis is however advisable.

Editorial Note.— 5.2.2.7 is relocated text from Annex 15, 7.2.3.

~~7.2.3~~ 5.2.2.7 ~~When~~ In the event that AIC are ~~distributed~~ provided in more than one series, each series shall be separately identified by a letter (A 2/02, B 4/02, etc.).

Editorial Note.— 5.2.2.8 is relocated text from Annex 15, 7.2.5.

~~7.2.5~~ 5.2.2.8 A checklist of AIC currently in force shall be issued at least once a year, with distribution as for the AIC.

Editorial Note.— 5.2.2.9 is relocated text from Annex 15, 5.2.13.1.

~~5.2.13.1~~ 5.2.2.9 A checklist of ~~NOTAM shall refer to the latest AIP Amendments, AIP Supplements and at least the internationally distributed~~ AIC provided internationally shall be included in the NOTAM checklist.

5.2.3 Printed products

5.2.3.1 Printed AIP

Editorial Note.—5.2.3.1.1 is relocated text from Annex 15, 4.2.2.

~~4.2.2~~ 5.2.3.1.1 ~~AIP should be published in loose-leaf form unless the complete publication is reissued at frequent intervals.~~ When the AIP is issued as a printed volume, it should be published in loose-leaf form unless the complete publication is reissued at frequent intervals.

Editorial Note.— 5.2.3.1.2 is relocated text from Annex 15, 4.2.5.

~~4.2.5~~ 5.2.3.1.2 Each AIP issued as a ~~bound~~ printed volume and each page of an AIP issued in loose-leaf form shall be so annotated as to indicate clearly:

a) the identity of the AIP;

b) the territory covered and subdivisions when necessary;

c) the identification of the issuing State and producing organization (authority); and

d) page numbers/chart titles~~;~~.

~~e) the degree of reliability if the information is doubtful.~~

Editorial Note.—5.2.3.1.3 is relocated text from Doc 8126, 5.2.7.

~~5.2.7~~ 5.2.3.1.3 The issuing State ~~and the publishing authority~~ or the joint issuing States shall

~~must~~ be clearly indicated on the cover and in the table of contents. ~~When two or more States publish an AIP jointly, this must also be clearly indicated both on the cover and in the table of contents~~.

Editorial Note.—5.2.3.1.4 is relocated text from Annex 15, 4.2.9 (last part).

5.2.3.1.4 The normal method of amendment of the printed volume AIP shall be by means of replacement sheets.

Editorial Note.—5.2.3.1.5 is relocated text from Doc 8126, 5.9.10.

~~5.9.10~~ 5.2.3.1.5 New or revised information ~~contained in the AIP replacement pages~~ shall ~~must~~ be identified by an annotation against it in the margin. A thick black vertical line or, where the change incorporated covers one line only or a part of a line, a thick black horizontal arrow, is sufficient to identify the change.

Editorial Note.—5.2.3.1.6 is relocated text from Doc 8126, 5.9.11.

~~5.9.11~~ 5.2.3.1.6 Each AIP Amendment page, including the cover sheet, shall ~~must~~ contain ~~show~~ a publication date and, when applicable, an effective date. ~~Each AIRAC AIP Amendment page, including the cover sheet must show a publication date and an effective date.~~

Editorial Note.—5.2.3.1.7 is relocated text from Doc 8126, 5.2.3.

~~5.2.3~~ 5.2.3.1.7 ~~Many States will be able to produce the AIP in one volume. Where this is not practicable and the AIP is produced and made available in more than one volume, each volume must include a separate amendment and supplement service, and the following separate sections must be included in each volume.~~ When the AIP is provided in more than one volume, each volume shall include:

— Preface
— Record of AIP Amendments
— Record of AIP Supplements
— Checklist of AIP pages
— List of current hand amendments.

Editorial Note.—5.2.3.1.8 is relocated text from Doc 8126, 5.2.4.

~~5.2.4~~ 5.2.3.1.8 When the AIP is published as one volume, the above-mentioned subsections appear only in Part 1 — GEN and the annotation “not applicable” ~~must~~ shall be entered against each of these subsections in Parts 2 and 3.

Editorial Note.— 5.2.3.1.9 is relocated text from Doc 8126, 5.5.1.

~~5.5.1~~ 5.2.3.1.9 A system of page numbering adaptable to the addition or deletion of sheets should be adopted. The page number should include:

— an identification of the part of the AIP;
— the section; and
— subsection, as applicable;

thus creating a separate set of numbers for each subject (e.g. GEN 2.1-3, ENR 4.1-1 or AD 2.2-3).

Editorial Note.— 5.2.3.1.10 is relocated text from Annex 15, 4.2.4.

~~4.2.4~~ 5.2.3.1.10 A checklist giving the current date of each page in the AIP ~~series~~ shall be reissued frequently to assist the user in maintaining a current publication.

Editorial Note.— 5.2.3.1.11 is relocated text from Annex 15, 4.2.6.

~~4.2.6~~ 5.2.3.1.11 The sheet size should be no larger than 210 × 297 mm, except that larger sheets may be used provided they are folded to the same size.

Editorial Note.— 5.2.3.1.12 is relocated text from Doc 8126, 5.2.6.

~~5.2.6~~ 5.2.3.1.12 When a small number of charts are to be included and chart size is not larger than 210 mm × 297 mm or allows for folding to these dimensions, they should be contained in the AIP. If, on the other hand, there are many charts and they are frequently amended, it may be convenient to place them in a separate volume with a separate subscription service.

Editorial Note.— 5.2.3.1.13 is relocated text from Doc 8126, 5.5.1 (last part).

5.2.3.1.13 Maps and charts included in the AIP should be paginated in the same manner as other material.

Editorial Note.— 5.2.3.1.14 is relocated text from Annex 15, 4.4.7.

~~4.4.7~~ 5.2.3.1.14 AIP Supplement pages should be coloured in order to be conspicuous, preferably in yellow.

Editorial Note.—5.2.3.1.15 is relocated text from Annex 15, 4.4.8.

~~4.4.8~~ 5.2.3.1.15 AIP Supplement pages should be kept as the first item in the AIP parts.

Note.— As alternate to eliminate the need to continuously refer to the front of the AIP for the required information, the Supplements may be divided into specific parts (e.g GEN, ENR, AD) for insertion in each AIP part, as necessary.

Editorial Note.— 5.2.3.1.16 is relocated text from Annex 15, 4.4.3.

~~4.4.3~~ 5.2.3.1.16 AIP Supplement pages shall be kept in the AIP as long as all or some of their contents remain valid.

5.2.3.2 Printed AIC

Editorial Note.— 5.2.3.2.1 is relocated text from Annex 15, 7.2.4.

~~7.2.4~~ 5.2.3.2.1 ~~**Recommendation.**~~ —Differentiation and identification of AIC topics according to subjects using colour coding should be practised where the numbers of AIC in force are sufficient to make identification in this form necessary.

Editorial Note.— 5.2.3.2.2 is relocated text from Doc 8126, second sentence of 7.3.1.

5.2.3.2.2 ~~In addition~~, It is ~~highly~~ recommended that AIC be colour coded by subject where there are sufficient circulars in force to warrant such identification, e.g.:

a) white — administrative;
b) yellow — ATC;
c) pink — safety;
d) mauve — danger area map; and
e) green — maps/charts.

5.2.4 Electronic AIP (eAIP)

Editorial Note.— Note is relocated text from Annex 15, Notes to 4.6.1.

Note .— Guidance material for the production and provision of the eAIP is contained in Doc 8126.

Editorial Note.— 5.2.4.1 is relocated text from Annex 15, 4.6.2.

~~4.6.2~~ 5.2.4.1 When provided, the information content of the eAIP and the structure of chapters, sections and sub-sections shall follow the content and structure of the paper AIP. The eAIP shall include files that allow for printing a paper AIP.

5.2.4.2 New or revised information shall be identified either by an annotation against it in the margin or by a mechanism that allows comparing the new/revised information with the previous one.

Editorial Note.— 5.2.4.3 and Note are relocated text from Annex 15, 4.6.3.

~~4.6.3~~ 5.2.4.3 When provided, the eAIP should be available on a physical distribution medium (CD, DVD, etc.) and/or online on the Internet.

Note.— Guidance material on the use of the Internet is contained in Guidelines on the Use of the Public Internet for Aeronautical Applications *(Doc 9855).*

5.2.5 NOTAM

5.2.5.1 General specifications

Editorial Note.— 5.2.5.1.1 is relocated text from Annex 15, 5.2.1.

~~5.2.1~~ 5.2.5.1.1 Except as otherwise provided in ~~5.2.3~~ 5.2.5.1.4 and ~~5.2.4~~ 5.2.5.1.5, each NOTAM shall contain the information in the order shown in the NOTAM Format in Appendix 3 ~~6~~.

Editorial Note.— The Note is relocated text from Annex 15, Note to 5.2.2.

Note.— Detailed guidance material covering NOTAM, SNOWTAM, ASHTAM and pre-flight information bulletin (PIB) production is contained in Doc 8126.

Editorial Note.— 5.2.5.1.2 is relocated text from Annex 15, 5.2.2

~~5.2.2~~ 5.2.5.1.2 ~~Text of~~ NOTAM text shall be composed of the significations/uniform abbreviated phraseology assigned to the ICAO NOTAM Code complemented by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain language.

Editorial Note.— Note is relocated text from Annex 15, Note to 5.2.2.1.

Note3. — The ICAO NOTAM Code together with significations/uniform abbreviated phraseology, and ICAO Abbreviations are those contained in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes *(PANS-ABC, Doc 8400).*

Note 14. — The ICAO NOTAM Code together with significations/uniform abbreviated phraseology, and ICAO Abbreviations are those contained in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes *(PANS-ABC, Doc 8400).*

Note 2.— Additional procedures covering the reporting of runway surface conditions is contained in the Procedures for Air Navigation Services — Aerodromes *(PANS-Aerodromes, Doc 9981).*

Editorial Note.— 5.2.5.1.3 is relocated text from Annex 15, 5.2.2.1.

~~5.2.2.1~~ 5.2.5.1.3 ~~When NOTAM are selected for international distribution, English text shall be included for those parts expressed in plain language.~~ All NOTAM shall be issued in the English language.

Note.— If necessary for domestic users, NOTAM may additionally be issued in a national language.

Editorial Note.— 5.2.5.1.4 is relocated text from Annex 15, 5.2.3.

~~5.2.3~~ 5.2.5.1.4 Until 4 November 2020, ~~I~~information concerning snow, slush, ice and standing water on aerodrome/heliport pavements shall, when reported by means of a SNOWTAM, contain the information in the order shown in the SNOWTAM Format in Appendix ~~2~~4.

5.2.5.1.4 As of 5 November 2020, ~~I~~information concerning snow, slush, ice ~~and standing water on aerodrome/heliport pavements shall, when reported~~, frost, standing water, or water associated with snow, slush, ice or frost on the movement area shall be disseminated by means of a SNOWTAM, and shall contain the information in the order shown in the SNOWTAM Format in Appendix ~~2~~4.

Note.— The origin and order of the information is a result of assessment processes and procedures prescribed in the PANS-Aerodromes (Doc 9981).

Editorial Note.— 5.2.5.1.5 is relocated text from Annex 15, 5.2.4.

~~5.2.4~~ 5.2.5.1.5 Information concerning an operationally significant change in volcanic activity, a volcanic eruption and/or volcanic ash cloud shall, when reported by means of an ASHTAM, contain the information in the order shown in the ASHTAM Format in Appendix ~~3~~5.

Editorial Note.— 5.2.5.1.6 is relocated text from Annex 15, 5.2.6.

~~5.2.6~~ 5.2.5.1.6 When errors occur in a NOTAM, a NOTAM with a new number to replace the erroneous NOTAM shall be issued or the erroneous NOTAM shall be cancelled and a new NOTAM issued.

3 Applicable until 4 November 2020.
4 Applicable as of 5 November 2020.

Editorial Note.— 5.2.5.1.7; 5.2.5.1.7.1; 5.2.5.1.8 are relocated text from Annex 15, 5.2.7.

~~5.2.7~~ 5.2.5.1.7 When a NOTAM is issued which cancels or replaces a previous NOTAM, the series and number of the previous NOTAM shall be indicated.

5.2.5.1.7.1 The series, location indicator and subject of both NOTAM shall be the same.

5.2.5.1.8 Only one NOTAM shall be cancelled or replaced by a NOTAM.

Editorial Note.— 5.2.5.1.9 and Note are relocated text from Annex 15, 5.2.8.

~~5.2.8~~ 5.2.5.1.9 Each NOTAM shall deal with only one subject and one condition of the subject.

Note.— Guidance material concerning the combination of a subject and a condition of the subject in accordance with the NOTAM Selection Criteria is contained in Doc 8126.

Editorial Note.— 5.2.5.1.10 is relocated text from Annex 15, 5.2.9.

~~5.2.9~~ 5.2.5.1.10 Each NOTAM shall be as brief as possible and so compiled that its meaning is clear without the need to refer to another document.

Editorial Note.— 5.2.5.1.11 is relocated text from Annex 15, 5.2.10.

~~5.2.10~~ 5.2.5.1.11 Each NOTAM shall be transmitted as a single telecommunication message.

Editorial Note.— 5.2.5.1.12 is relocated text from Annex 15, 5.2.11.

~~5.2.11~~ 5.2.5.1.12 A NOTAM containing permanent or temporary information of long duration shall carry appropriate AIP or AIP Supplement references.

Editorial Note.— 5.2.5.1.13 is relocated text from Annex 15, 5.2.12.

~~5.2.12~~ 5.2.5.1.13 Location indicators included in the text of a NOTAM shall be those contained in *Location Indicators* (Doc 7910).

Editorial Note.— 5.2.5.1.13.1 is relocated text from Annex 15, 5.2.12.1.

~~5.2.12.1~~ 5.2.5.1.13.1 In no case shall a curtailed form of such indicators be used.

Editorial Note.— 5.2.5.1.14 is relocated text from Annex 15, 5.2.12.2.

~~5.2.12.2~~ 5.2.5.1.14 Where no ICAO location indicator is assigned to the location, its place name ~~spelt in accordance with 1.3.2~~ shall be entered in plain language, spelt in conformity with local usage, transliterated, when necessary, into the ISO Basic-Latin alphabet.

5.2.5.2 NOTAM number and series allocation

Editorial Note.— 5.2.5.2.1 is relocated text from Annex 15, 5.2.5.

~~5.2.5~~ 5.2.5.2.1 The International NOTAM ~~originator~~ Office shall allocate to each NOTAM a

series identified by a letter and a four-digit number followed by a stroke and a two-digit number for the year. The four-digit number shall be consecutive and based on the calendar year.

Editorial Note.— 5.2.5.2.2 is relocated text from Annex 15, Note to 5.2.5.

~~*Note.* —~~ 5.2.5.2.2 Letters ~~A to Z, with the exception of~~ S and T~~, may~~ shall not be used to identify a NOTAM series.

5.2.5.2.3 All NOTAM shall be divided in series based on subject, traffic or location or a combination thereof, depending on end-user needs. NOTAM for aerodromes allowing international air traffic shall be issued in international NOTAM series.

5.2.5.2.4 If NOTAM is issued in both English and a national language, the NOTAM series shall be organized so that the national language series are equivalent to the English language series in terms of content.

5.2.5.2.5 Whenever possible, the national language series should have the same numbering as the English language series to facilitate comparison.

5.2.5.2.6 The content and geographical coverage of each NOTAM series shall be stated in detail in the AIP, GEN 3.

5.2.5.2.7 Series allocation shall be monitored and, if required, appropriate measures shall be taken to assure that no series reach the maximum possible number of issued NOTAM before the end of the calendar year.

5.2.5.3 NOTAM checklist

Editorial Note.— 5.2.5.3.1 and Note are relocated text from Annex 15, 5.2.13.

~~5.2.13~~ 5.2.5.3.1 A checklist of valid NOTAM shall be issued as a NOTAM checklist ~~over the Aeronautical Fixed Service (AFS)~~ at intervals of not more than one month ~~using the NOTAM Format specified in Appendix 6~~.

Note.— Omitting a NOTAM from the checklist does not ~~serve to~~ cancel a NOTAM.

Editorial Note.— 5.2.5.3.2 is relocated text from Annex 15, second sentence of 5.2.13.

5.2.5.3.2 One NOTAM checklist shall be issued for each series.

Editorial Note.— 5.2.5.3.3 is relocated text from Annex 15, 5.2.13.1.

~~5.2.13.1~~ 5.2.5.3.3 A ~~checklist of~~ NOTAM checklist shall refer to the latest AIP Amendments, AIP Supplements, data sets and at least the internationally distributed AIC, and, when it is selected, include the checklist of AIP Supplements.

Editorial Note.— 5.2.5.3.4 is relocated text from Annex 15, 5.2.13.2.

~~5.2.13.2~~ 5.2.5.3.4 A ~~checklist of~~ NOTAM checklist shall have the same distribution as the actual message series to which they refer and shall be clearly identified as a checklist.

5.3 Digital Data

5.3.1 General provisions

Editorial Note.— 5.3.1.1 and Note is relocated text from Annex 15, 11.2.1

~~11.2.1~~ 5.3.1.1 To facilitate and support the use of exchange of digital data sets between data providers and data users, t~~T~~he ISO 19100 series of standards for geographic information ~~shall~~ should be used as a reference framework.

Note.— ~~This is intended to facilitate and support the use and exchange of aerodrome mapping data between data providers and data users~~ Guidance material concerning the use of ISO 19100 standards is contained in the AIS Manual.

Editorial Note.— 5.3.1.2 and Note 1 are relocated text from Annex 15, 10.4.2.

~~10.4.2~~ 5.3.1.2 A ~~comprehensive statement~~ description of available ~~electronic terrain and obstacle~~ digital data sets shall be provided in the form of ~~terrain~~ data product specifications ~~as well as obstacle data product specifications~~ on which basis air navigation users will be able to evaluate the products and determine whether they fulfil the requirements for their intended use (application).

Note 1.— ISO Standard 19131 ~~specifies the requirements and outline of data product specifications for geographic information~~ outlines the specifications of geographic data products.

Editorial Note.— Note 2 is relocated text from Annex 15, Note to 11.2.2.

Note 2.— This may include~~s~~ an overview, specification scope, data product identification, data content and structure, reference system, data quality, data capture, data maintenance, data portrayal, data product delivery, additional information, and metadata.

Editorial Note.— 5.3.1.3 and Note are relocated text from Annex 15, 11.3.1.

~~11.3.1~~ 5.3.1.3 The content and structure of ~~aerodrome mapping~~ digital data sets shall be defined in terms of an application schema and a feature catalogue.

Note.— ISO Standard 19109 contains rules for application schema while ISO Standard 19110 describes the feature cataloguing methodology for geographic information.

Editorial Note.— 5.3.1.4 is relocated text from Annex 15, 3.6.4.

~~3.6.4 Recommendation. —~~ 5.3.1.4 The aeronautical information model used should encompass the aeronautical data and aeronautical information to be exchanged.

Editorial Note.— 5.3.1.5 is relocated text from Annex 15, 3.6.5.

~~3.6.5 Recommendation. —~~ 5.3.1.5 The aeronautical information model used should:

a) use the Unified Modelling Language (UML) to describe the aeronautical information features and their properties, associations and data types;

b) include data value constraints and data verification rules;

c) include provisions for metadata as specified in ~~3.4.2~~ 4.2.1 and 5.3.2; and

d) include a temporality model to enable capturing the evolution of the properties of an aeronautical information feature during its life cycle.

Editorial Note.— 5.3.1.6, Notes 1 and 2 are relocated text from Annex 15, 3.6.6.

~~3.6.6 Recommendation.~~ 5.3.1.6 The aeronautical data exchange model used should:

a) apply a commonly used data encoding format;

b) cover all the classes, attributes, data types and associations of the aeronautical information model detailed in ~~3.6.5~~ 5.3.1.5; and

c) provide an extension mechanism by which groups of users can extend the properties of existing features and add new features which do not adversely affect global standardization.

Note 1.— The intent of using a commonly used data encoding format is to ensure interoperability of aeronautical data exchange between agencies and organizations involved in the data processing chain.

Note 2.— Examples of commonly used data encoding formats include Extensible Markup Language (XML), Geography Markup Language (GML), and JavaScript Object Notation (JSON).

5.3.1.7 Charts, maps or diagrams should be used to complement digital data sets.

5.3.2 Metadata

5.3.2.1 Each data set shall include the following minimum set of metadata:

a) the name of the organization or entities providing the data set;

b) the date and time when the data set was provided;

c) period of validity of the data set; and

d) any limitations with regard to the use of the data set.'

Note.— ISO Standard 19115 specifies requirements for geographic information metadata.

5.3.3 Data sets

Note.— A data subject may appear in multiple data sets.

5.3.3.1 AIP data set

Note.— The purpose of the AIP data set is to support the initial transition of the ATM domain towards the use of digital data sets instead of paper products. Therefore, its scope is defined considering the likelihood that the data contained in this set is actually being used in digital format by service providers, ATC and IFR/VFR airspace users.

5.3.3.1.1 The AIP data set shall include data about the following subjects, with the properties indicated in brackets being included as a minimum (if applicable):

a) ATS airspace (type, name, lateral limits, vertical limits, class of airspace);

b) Special activity airspace (type, name, lateral limits, vertical limits, restriction, activation);

c) ATS Route and Other Route (designator, flight rules);

d) Route segment (navigation specification, from point, to point, track, length, upper limit, lower limit, MEA, MOCA, direction of cruising level, required navigation performance);

e) Waypoint – en-route (identification, location, formation);

f) Aerodrome/Heliport (ICAO location indicator, name, designator IATA, served city, certified ICAO, certification date, certification expiration date, control type, field elevation, reference temperature, magnetic variation, reference point);

g) Runway (designator, nominal length, nominal width, surface type, strength);

h) Runway direction (designator, true bearing, threshold, TORA, TODA, ASDA, LDA);

i) FATO (designation, length, width, threshold point);

j) TLOF (designator, centre point, length, width, surface type);

k) Radio navigation aid (type, identification, name, aerodrome served, hours of operation, magnetic variation, frequency/channel, position, elevation, magnetic bearing, true bearing, zero bearing direction);

Note 1.— The description of the data subjects, their properties, data type and applicable data quality requirements is provided in Appendix 1.

Note 2.— The AIP data set includes relevant AIP Amendment and SUPPs information.

5.3.3.1.2 When a property is not defined for a particular occurrence of the subjects listed in 5.3.3.1.1, the AIP data sub-set shall include an explicit "not applicable" indication.

5.3.3.2 Terrain and obstacle data sets

Editorial Note.— Note to 5.3.3.2 is relocated text from Annex 15, Chapter 10

Note.— ~~Electronic~~ Tterrain and obstacle data are intended to be used in the following air navigation applications:

a) ground proximity warning system with forward looking terrain avoidance function and minimum safe altitude warning (MSAW) system;

b) determination of contingency procedures for use in the event of an emergency during a missed approach or take-off;

c) aircraft operating limitations analysis;

d) instrument procedure design (including circling procedure);

e) determination of en-route “drift-down” procedure and en-route emergency landing location;

f) advanced surface movement guidance and control system (A-SMGCS); and

g) aeronautical chart production and on-board databases.

The data may also be used in other applications such as flight simulator and synthetic vision systems, and may assist in determining the height restriction or removal of obstacles that pose a hazard to air navigation.

5.3.3.2.1 Terrain data set

Editorial Note.— 5.3.3.2.1.1 and Note are relocated text from Annex 15, last part of 10.2.1.

5.3.3.2.1.1 A terrain grid shall be angular or linear and shall be of regular or irregular shape.

Note.— In regions of higher latitudes, latitude grid spacing may be adjusted to maintain a constant linear density of measurement points.

Editorial Note.— 5.3.3.2.1.2 is relocated text from Annex 15, 10.2.2.

~~10.2.2~~ 5.3.3.2.1.2 Sets of ~~electronic~~ terrain data shall include spatial (position and elevation), thematic and temporal aspects for the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles. ~~In practical terms, d~~Depending on the acquisition method used, this shall represent the continuous surface that exists at the bare Earth, the top of the canopy or something in-between, also known as “first reflective surface”.

Editorial Note.— 5.3.3.2.1.3 is relocated text from Annex 15, 10.2.3.

~~10.2.3~~ 5.3.3.2.1.3 In terrain data sets, only one feature type, i.e. terrain, shall be provided. Feature attributes describing terrain shall be those listed in ~~Table A8-3~~ Appendix 6,Table A6-1. The terrain feature attributes listed in ~~Table A8-3~~ Appendix 6,Table A6-1 represent the minimum set of terrain attributes, and those annotated as mandatory shall be recorded in the terrain data set.

Editorial Note.— 5.3.3.2.1.4 is relocated text from Annex 15, 10.2.4.

~~10.2.4~~ 5.3.3.2.1.4 ~~Electronic~~ Terrain data for each area shall conform to the applicable numerical requirements in ~~Appendix 8, Table A8-1~~ Appendix 1.

5.3.3.2.2 Obstacle data set

Editorial Note.— 5.3.3.2.2.1 is relocated text from Annex 15, 10.3.1.

~~10.3.1~~ 5.3.3.2.2.1 Obstacle data elements are features that shall be represented in the data sets by points, lines or polygons.

Editorial Note.— 5.3.3.2.2.2 and Note are relocated text from Annex 15, 10.3.2.

~~10.3.2~~ 5.3.3.2.2.2 In an obstacle data set, all defined obstacle feature types shall be provided and

each of them shall be described according to the list of mandatory attributes provided in Appendix ~~8~~6, Table ~~A8-4~~ A6-2.

Note.— By definition, obstacles can be fixed (permanent or temporary) or mobile. Specific attributes associated with mobile (feature operations) and temporary types of obstacles are annotated in Appendix ~~8~~6, Table ~~A8-4~~ A6-2, as optional attributes. If these types of obstacles are to be provided in the data set, appropriate attributes describing such obstacles are also required.

Editorial Note.— 5.3.3.2.2.3 is relocated text from Annex 15, 10.3.3.

~~10.3.3~~ 5.3.3.2.2.3 ~~Electronic~~ Obstacle data for each area shall conform to the applicable numerical requirements contained in Appendix ~~8~~1~~, Table A8-2~~.

Editorial Note.— 5.3.3.2.2.4 is relocated text from Annex 15, 10.4.10.

~~10.4.10~~ 5.3.3.2.2.4 The obstacle data product specification, supported by geographical coordinates for each aerodrome included within the data set, shall describe the following areas:

— Areas 2a, 2b, 2c, 2d;

— the take-off flight path area; and

— the obstacle limitation surfaces.

Editorial Note.— Note to 5.3.3.2.2.4 is relocated text from Annex 15, Note to 10.1.9.

Note.— Area 4 terrain data and Area 2 obstacle data are normally sufficient to support the production of the Precision Approach Terrain Chart — ICAO. When more detailed obstacle data are required for Area 4, these may be provided in accordance with the Area 4 obstacle data requirements specified in Appendix ~~8~~6, Table ~~A8-2~~ A6-2. Guidance on appropriate obstacles for this chart is given in the Aeronautical Chart Manual *(Doc 8697).*

5.3.3.3 Aerodrome mapping data sets

Editorial Note.— Notes 1 and 2 to 5.3.3.3 are relocated text from Annex 15, Chapter 11.

Note 1.— Aerodrome mapping data include aerodrome geographic information that supports applications which improve the user's situational awareness or supplements surface navigation, thereby increasing safety margins and operational efficiency. Aerodrome mapping data sets with appropriate data element accuracy support requirements for collaborative decision making, common situational awareness, and aerodrome guidance applications are intended to be used, among others, in the following air navigation applications:

a) position and route awareness including moving maps with own ship position, surface guidance and navigation (such as A-SMGCS);

b) traffic awareness including surveillance and runway incursion detection and alerting;

c) facilitation of aerodrome-related aeronautical information, including NOTAM;

d) resource and aerodrome facility management; and

e) aeronautical chart production.

The data may also be used in other applications such as training/flight simulator and synthetic vision systems.

Note 2.— Aerodrome mapping data are organized and arranged in aerodrome mapping databases (AMDBs) for ease of electronic storage and usage by appropriate applications.

Note 3.— The content of the aerodrome mapping data sets is defined in EUROCAE ED99D / RTCA DO 272D

Editorial Note.— Note 4 to 5.3.3.3 is relocated text from Annex 15, Note to 11.3.3.

Note 4.— Metadata elements applicable to aerodrome mapping data are contained in RTCA Document DO-291B and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-119B — Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data.

5.3.3.3.1 Aerodrome mapping data — requirements for provision

Editorial Note.— 5.3.3.3.1.1 and Notes are relocated text from Annex 15,11.1.1

~~11.1.1 Recommendation. —~~ 5.3.3.3.1.1 Aerodrome mapping data should be supported by electronic terrain and obstacle data for Area 3 in order to ensure consistency and quality of all geographical data related to the aerodrome.

Note 1.— Accuracy and integrity requirements for aerodrome mapping data are contained in ~~Annex 14, Volume I,~~ Appendix ~~5~~1.

Note 2.— Electronic terrain and obstacle data pertaining to Area 3 and aerodrome mapping data may be originated using common acquisition techniques and managed within a single geographic information system (GIS).

Note 3.— ~~Supporting material with respect to the processing of electronic terrain and obstacle data and aerodrome mapping data is contained in RTCA Document DO-200A and European Organization for Civil Aviation Equipment (EUROCAE) Document ED-76 — Standards for Processing Aeronautical Data~~ The content of the aerodrome mapping data sets is defined in EUROCAE ED99D / RTCA DO 272D.

5.3.3.4 Instrument flight procedure data set

Note.— The purpose of the instrument flight procedure data set is to support the initial transition of the ATM domain towards the use of digital data sets instead of paper products. Therefore, its scope is defined considering the likelihood that the data contained in this set is actually being used in digital format by service providers, ATC and IFR/VFR airspace users.

5.3.3.4.1 The instrument flight procedure data set shall include data about the following data subjects, with the properties indicated in brackets being included as a minimum (if applicable):

a) Procedure (all properties);

b) Procedure segment (all properties);

c) Final approach segment (all properties);

d) Procedure fix (all properties);

e) Procedure holding (all properties);

f) Helicopter procedure (all properties).

Note 1.— The description of the data subjects, their properties, data type and applicable data quality requirements is provided in Appendix 1.

Note 2.— The Instrument Flight Procedure data set should also cover the data publication requirements contained in PANS-OPS, Doc 8168, Volume II.

5.4 Distribution Services

5.4.1 General

Editorial Note.— 5.4.1.1 is relocated text from Annex 15, Note 3 to 3.3.3.2.

~~*Note 3.—*~~ 5.4.1.1 Distribution to the next intended user will differ in the delivery method applied which may either be:

a) Physical distribution. The means by which aeronautical data and aeronautical information distribution is achieved through the delivery of a physical package, such as postal services; or

b) Direct electronic distribution. The means by which aeronautical data and aeronautical information distribution is achieved automatically through the use of a direct electronic connection between the AIS and the next intended user.

Editorial Note.—5.4.1.2 is relocated text from Annex 15, Note 4 to 3.3.3.2.

~~*Note 4.—*~~5.4.1.2 Different delivery methods and data media may require different procedures to ensure the required data quality.

Note.— Further guidance on digital data set distribution can be found in the Manual on System Wide Information Management (SWIM) Concept *(Doc 10039).*

5.4.1.3 A checklist of the available data sets, including their effective and publication dates, shall be made available to allow the users to ensure that current data is being used.

5.4.1.4 The checklist of the data sets shall be made available through the same distribution mechanism as used for the data sets.

5.4.2 NOTAM distribution

Editorial Note.— 5.4.2.1 is relocated text from Annex 15, 2.3.3 and the Note is relocated text from Annex 15, Note to 5.3.4.

~~2.3.3~~ 5.4.2.1 An ~~AIS~~ aeronautical information service shall arrange, as necessary, to satisfy operational requirements for the issuance and receipt of NOTAM distributed by telecommunication.

Note.— Arrangements may be made for direct exchange of SNOWTAM (see Appendix ~~2~~4) between aerodromes/heliports.

Editorial Note.— 5.4.2.2 is relocated text from Annex 15, 5.3.4.

~~5.3.4~~ 5.4.2.2 The international exchange of ASHTAM (see ~~5.2.4~~ 5.2.5.1.6), and NOTAM where States continue to use NOTAM for distribution of information on volcanic activity, shall include volcanic ash advisory centres and the centres designated by regional air navigation agreement for the operation of AFS ~~satellite distribution systems (satellite distribution system for information relating to air navigation~~ Secure Aviation Data Information Service (SADIS) and ~~international satellite communications system (ISCS))~~ the World Area Forecast System (WAFS) Internet file service (WIFS), and shall take account of the requirements of long-range operations.

Editorial Note.— 5.4.2.3 is relocated text from Annex 15, 5.3.4.1.

~~5.3.4.1~~ 5.4.2.3 ~~These~~ The exchange~~s~~ of NOTAM between international NOTAM offices and between the international NOTAM offices and multinational NOTAM Processing Units shall, as far as practicable, ~~be limited to the requirements of the receiving States concerned by means of separate series providing for at least international and domestic flights~~ cover the needs of operations personnel including flight crew members.

Editorial Note.— 5.4.2.4 is relocated text from Annex 15, 5.3.4.2.

~~5.3.4.2~~ 5.4.2.4 A predetermined distribution system for NOTAM transmitted on the AFS in accordance with ~~Appendix 5~~ Annex 15, 6.3.2.3 shall be used whenever possible, subject to the requirements of ~~5.3.4~~ 5.4.2.3.

Editorial Note.— 5.4.2.5 is relocated text from Annex 15, 5.3.3.

~~5.3.3~~ 5.4.2.5 The originating State shall upon request grant distribution ~~select the~~ of NOTAM series ~~that are to be given international distribution~~ other than those distributed internationally.

5.5 Pre-flight information services

5.5.1 Geographic coverage for pre-flight information services should be determined and periodically reviewed. In general, the coverage zone should be limited to the FIR within which the aerodrome/heliport is located, the FIR(s) adjacent thereto, and all air route or portion of route flown without an intermediate landing, originating at the aerodrome/heliport and extending beyond the FIR(s) mentioned.

5.5.2 Although NOTAM with purpose “M” is regarded not subject for a briefing but available on request, all NOTAM shall be provided for briefing by default and that content reduction should be at user`s discretion.

Editorial Note.— 5.5.3 is relocated text from Annex 15, 8.2.1.

~~8.2.1~~ 5.5.3 Automated pre-flight information systems shall be used to make aeronautical data and aeronautical information available to operations personnel including flight crew members for self-briefing, flight planning and flight information service purposes. The aeronautical data and aeronautical information made available shall comply with the provisions of ~~8.1.2 and 8.1.3~~ Annex 15.

Editorial Note.— 5.5.4 is relocated text from Annex 15, 8.2.2.

~~8.2.2~~ 5.5.4 Self-briefing facilities of an automated pre-flight information system shall provide access to operations personnel, including flight crew members and other aeronautical personnel concerned, for consultation as necessary with the aeronautical information service by telephone or other suitable telecommunications means. The human/machine interface of such facilities shall ensure easy access in a guided manner to all relevant information/data.

Editorial Note.— 5.5.5 is relocated text from Annex 15, 8.2.3 and Note to 8.2.3.

~~8.2.3~~ 5.5.5 Automated pre-flight information systems for the supply of aeronautical data and aeronautical information for self-briefing, flight planning and flight information service shall:

a) provide for continuous and timely updating of the system database and monitoring of the validity and quality of the aeronautical data stored;

b) permit access to the system by operations personnel including flight crew members, aeronautical personnel concerned and other aeronautical users through suitable telecommunications means;

c) ensure provision, in paper copy form, of the aeronautical data and aeronautical information accessed, as required;

d) use access and interrogation procedures based on abbreviated plain language and ICAO location indicators, as appropriate, or based on a menu-driven user interface or other appropriate mechanism as agreed between the civil aviation authority and operator concerned; and

e) provide for rapid response to a user request for information.

Note.— ICAO abbreviations and codes and location indicators are given respectively in the Procedures for Air Navigation Services — ICAO Abbreviations and Codes (*PANS-ABC, Doc 8400*) and Location Indicators (*Doc 7910*).

Editorial Note.— 5.5.6 is relocated text from Annex 15, 8.2.4.

~~8.2.4 Recommendation.~~ 5.5.6 Automated pre-flight information systems providing a harmonized, common point of access by operations personnel, including flight crew members and other aeronautical personnel concerned, to aeronautical information in accordance with 5.5.3 ~~8.2.1~~ and meteorological information in accordance with 9.4.1 of Annex 3 — *Meteorological Service for International Air Navigation*, should be established by an agreement between the civil aviation authority or the agency to which the authority to provide service has been delegated in accordance with 2.1.1 c) and the relevant meteorological authority.

Editorial Note.— 5.5.7 is relocated text from Annex 15, 8.2.5 and Note to 8.2.5.

8.2.5 5.5.7 Where automated pre-flight information systems are used to provide the harmonized, common point of access by operations personnel, including flight crew members and other aeronautical personnel concerned, to aeronautical data, aeronautical information and meteorological information, the civil aviation authority or the agency to which the authority to provide service has been delegated in accordance with 2.1.1 c) shall remain responsible for the quality and timeliness of the aeronautical data

and aeronautical information provided by means of such a system.

Note.— The meteorological authority concerned remains responsible for the quality of the meteorological information provided by means of such a system in accordance with 9.4.3 of Annex 3.

Editorial Note.— Insert new text as follows:

Chapter 6

AERONAUTICAL INFORMATION UPDATES

6.1 Aeronautical information product updates

The same update cycle shall be applied to the AIP and the digital data sets in order to ensure the consistency of the data items that appear in multiple aeronautical information products.

6.1.2 Specifications for AIP amendments

Editorial Note.— 6.1.2.1 is relocated text from Annex 15, 4.2.9.1 and Note to 4.2.9.1.

~~4.2.9.1~~ 6.1.2.1 The AIP amendment regular interval ~~referred to in 4.2.9~~ shall be specified in the AIP, Part 1 — General (GEN).

Note.— Guidance material on the establishment of intervals between publication dates of AIP Amendments is contained in Doc 8126.

Editorial Note.— 6.1.2.2 is relocated text from Annex 15, 4.3.7.

~~4.3.7~~ 6.1.2.2 When an AIP Amendment will not be published at the established interval or publication date, a NIL notification shall be originated and distributed by the ~~monthly plain-language list of valid~~ NOTAM checklist ~~required by 5.2.13.3~~.

6.1.2.3 Recourse to hand amendments or annotations shall be kept to a minimum.

6.1.2.4 When the AIP is provided in more than one volume, each volume should include separate amendment services.

6.1.3 Specifications for AIP Supplements

Editorial Note.— 6.1.3.1 is relocated text from Annex 15, 4.4.4 and Note to 4.4.4.

~~4.4.4~~ 6.1.3.1 When an error occurs in an AIP Supplement or when the period of validity of an AIP Supplement is changed, a new AIP Supplement shall be published as a replacement.

Note 1.— The requirements for NOTAM apply when time constraints do not allow sufficient time for the distribution of an AIP Supplement.

Editorial Note.— Note 2 is relocated text from Annex 15, Note to 4.4.1.

Note 2.— Guidance material on the use of AIP Supplements together with examples of such use is contained in Doc 8126.

6.1.4 Specifications for NOTAM

6.1.4.1 NOTAM should be published with sufficient lead time for the affected parties to take any required action, except in the case of unserviceability, volcanic activity, release of radioactive material, toxic chemicals and other events that cannot be foreseen.

Editorial Note.— 6.1.4.2 is relocated text from Annex 15, 5.1.1.5.

~~5.1.1.5~~ 6.1.4.2 NOTAM notifying unserviceability of aids to air navigation, facilities or communication services shall give an estimate of the period of unserviceability or the time at which restoration of service is expected.

Editorial Note.— 6.1.4.3 is relocated text from Annex 15, 5.1.1.4.

~~5.1.1.4~~ 6.1.4.3 At least seven days' advance notice shall be given of the activation of established danger, restricted or prohibited areas and of activities requiring temporary airspace restrictions other than for emergency operations.

Editorial Note.— 6.1.4.4 is relocated text from Annex 15, 5.1.1.4.1 and Note to 5.1.1.4.1.

~~5.1.1.4.1 Recommendation.~~ 6.1.4.4 Notice of any subsequent cancellation of the activities or any reduction of the hours of activity or the dimensions of the airspace should be given as soon as possible.

Note.— Whenever possible, at least 24 hours' advance notice is desirable, to permit timely completion of the notification process and to facilitate airspace utilization planning.

6.1.4.5 Within three months from the issuing of a permanent NOTAM, the information contained in the NOTAM shall be included in the aeronautical information products affected.

6.1.4.6 Within three months from the issuing of a temporary NOTAM of long duration, the information contained in the NOTAM shall be included in the AIP Supplement.

6.1.4.7 When a NOTAM with estimated end of validity unexpectedly exceeds the three-month period, a replacement NOTAM shall be issued, unless the condition is expected to last for a further period of more than three months; in this case, an AIP Supplement shall be issued.

Editorial Note.— 6.1.4.8 is relocated text from Annex 15, first part of 5.1.1.6.

~~5.1.1.6~~ 6.1.4.8 When an AIP Amendment or an AIP Supplement is published in accordance with AIRAC procedures, a so-called "Trigger" NOTAM shall be originated giving a brief description of the contents, the effective date and time, and the reference number of the amendment or supplement.

Editorial Note.— 6.1.4.9 is relocated text from Annex 15, last part of 5.1.1.6.

6.1.4.9 This NOTAM shall come into force on the same effective date and time as the amendment or supplement and shall remain valid in the pre-flight information bulletin for a period of fourteen days.

6.1.4.10 In the case of an AIP Supplement, a “Trigger ”NOTAM shall remain valid for a period of fourteen days.

6.1.4.11 In the case of an AIP Supplement that is valid for less than fourteen days, the “Trigger” NOTAM shall remain valid for the complete validity period of the AIP Supplement.

6.1.4.12 In the case of an AIP Supplement that is valid for fourteen days or more, the “Trigger” NOTAM shall remain valid for at least fourteen days.

Editorial Note.— Note to 6.1.4.12 is relocated text from Annex 15, Note to 5.1.1.6.

Note.— Guidance material for the origination of NOTAM announcing the existence of AIRAC AIP Amendments or AIP Supplements (“Trigger NOTAM”) is contained in the Aeronautical Information Services Manual *(Doc 8126).*

6.1.5 Specifications for digital data updates

6.1.5.1 The update interval for the digital data sets shall be specified in the data product specification.

6.1.5.2 Data sets that have been made available in advance (according to the AIRAC cycle) shall be updated with the non-AIRAC changes that occurred in between the publication and the effective date.

Editorial Note.— Insert new text as follows:

APPENDIX 1. AERONAUTICAL DATA CATALOGUE

Note 1.— The Aeronautical Data Catalogue is available electronically and will be provided as part of the PANS-AIM.

Note 2.— The Data Catalogue is a general description of the AIM data scope and consolidates all data that can be collected and maintained by the aeronautical information service. It provides a reference for aeronautical data origination and publication requirements.

Note 3.— The Data Catalogue provides a means for States to facilitate the identification of the organizations and authorities responsible for the origination of the aeronautical data and information. It is also providing a common list of terms and facilitating the formal arrangements between data originators and the aeronautical information service. It includes data quality requirements applicable from origination through to publication.

Note 4.— The Data Catalogue contains the aeronautical data subjects, properties and sub-properties organized in:

Table A1-1	*Aerodrome data;*
Table A1-2	*Airspace data;*
Table A1-3	*ATS and other routes data;*
Table A1-4	*Instrument flight procedure data;*
Table A1-5	*Radio navigation aids/systems data;*
Table A1-6	*Obstacle data;*
Table A1-7	*Geographic data;*
Table A1-8	*Terrain data;*
Table A1-9	*Data types; and*
Table A1-10	*Information about national and local regulation, services and procedures.*

Note 5.— The Data Catalogue provides detailed descriptions of all subjects, properties and sub-properties, the data quality requirements and the data types.

Note 6.— The data types describe the nature of the property and sub-property and specify the data elements to be collected.

Note 7.— The tables of the Data Catalogue are composed of the following columns:

(1) Subject for which data can be collected

(2)(3) Property is a an identifiable characteristic of a subject which can be further defined into sub-properties

The classification of a catalogue element as subject, property or sub-property does not impose a certain data model.

(4) The data is classified in different types. See Table A1-9 for more information on data types.
(5) A description of the data element

(6) Notes are additional information or conditions of the provision

(7) Accuracy requirements for aeronautical data are based upon a 95 per cent confidence level.

For those fixes and points that are serving a dual purpose, e.g. holding point and missed approach point, the higher accuracy applies.

Accuracy requirements for obstacle and terrain data are based upon a 90 per cent confidence level.

(8) Integrity classification

(9) Origination type: positional data is identified as surveyed, calculated or declared

(10) Publication resolution

The publication resolutions for geographical position data (latitude and longitude) are applicable to coordinates formatted in degrees, minutes, seconds. When a different format is used (such as degrees with decimals for digital data sets) or when the location is significantly further to the North/South, the publication resolution needs to be commensurate with the accuracy requirements.

(11) Chart resolution

Note 8.— The Data Catalogue contains quality requirements for aeronautical data as originally provided in Annex 4, Appendix 6, Annex 11, Appendix 5, Annex 14 Volume I, Appendix 4, Annex 14 Volume II, Appendix 1 and Annex 15 Appendices 7 and 8 and PANS-OPS Volume II. The framework of the Data Catalogue is designed to adapt to future quality requirements for the remaining aeronautical data properties and sub-properties.

Editorial Note.— Insert new text as follows:

APPENDIX 2. CONTENTS OF THE AERONAUTICAL INFORMATION PUBLICATION (AIP)

Note 1.— The information elements prefixed with "#AIP-DS#" may be left out when available through the AIP data set (as specified in Chapter 5, 5.2.1.1.3).

Note 2.— The information elements prefixed with "#OBS-DS#" may be left out when available through the Obstacle data set (as specified in Chapter 5, 5.3.3.2.2).

Editorial Note.— Appendix 2 text below is relocated text from Appendix 1 to Annex 15.

PART 1 — GENERAL (GEN)

When the AIP is produced as one volume, the preface, record of AIP Amendments, record of AIP Supplements, checklist of AIP pages and list of current hand amendments appear only in Part 1 — GEN, and the annotation "not applicable" ~~must~~ shall be entered against each of these subsections in Parts 2 and 3.

If an AIP is produced and made available in more than one volume with each having a separate amendment and supplement service, a separate preface, record of AIP Amendments, record of AIP Supplements, checklist of AIP pages and list of current hand amendments ~~must~~ shall be included in each volume.

GEN 0.1 Preface

Brief description of the Aeronautical Information Publication (AIP), including:

1) name of the publishing authority;

2) applicable ICAO documents;

3) publication media (i.e. printed, online or other electronic media);

4) the AIP structure and established regular amendment interval;

5) copyright policy, if applicable; and

6) service to contact in case of detected AIP errors or omissions.

GEN 0.2 Record of AIP Amendments

A record of AIP Amendments and AIRAC AIP Amendments (published in accordance with the AIRAC system) containing:

1) amendment number;

2) publication date;

3) date inserted (for the AIRAC AIP Amendments, effective date); and

4) initials of officer who inserted the amendment.

GEN 0.3 Record of AIP Supplements

A record of issued AIP Supplements containing:

1) Supplement number;

2) Supplement subject;

3) AIP section(s) affected;

4) period of validity; and

5) cancellation record.

GEN 0.4 Checklist of AIP pages

A checklist of AIP pages containing:

1) page number/chart title; and

2) publication or effective date (day, month by name and year) of the aeronautical information.

GEN 0.5 List of hand amendments to the AIP

A list of current hand amendments to the AIP containing:

1) AIP page(s) affected;

2) amendment text; and

3) AIP Amendment number by which a hand amendment was introduced.

GEN 0.6 Table of contents to Part 1

A list of sections and subsections contained in Part 1 — General (GEN).

Note.— Subsections may be listed alphabetically.

GEN 1. NATIONAL REGULATIONS AND REQUIREMENTS

GEN 1.1 Designated authorities

The addresses of designated authorities concerned with the facilitation of international air navigation (civil aviation, meteorology, customs, immigration, health, en-route and aerodrome/heliport charges, agricultural quarantine and aircraft accident investigation) containing, for each authority:

1) designated authority;

2) name of the authority;

3) postal address;

4) telephone number;

5) telefax number;

6) e-mail address;

7) aeronautical fixed service (AFS) address; and

8) website address, if available.

GEN 1.2 Entry, transit and departure of aircraft

Regulations and requirements for advance notification and applications for permission concerning entry, transit and departure of aircraft on international flights.

GEN 1.3 Entry, transit and departure of passengers and crew

Regulations (including customs, immigration and quarantine, and requirements for advance notification and applications for permission) concerning entry, transit and departure of non-immigrant passengers and crew.

GEN 1.4 Entry, transit and departure of cargo

Regulations (including customs, and requirements for advance notification and applications for permission) concerning entry, transit and departure of cargo.

Note.— Provisions for facilitating entry and departure for search, rescue, salvage, investigation, repair or salvage in connection with lost or damaged aircraft are detailed in section GEN 3.6, Search and rescue.

GEN 1.5 Aircraft instruments, equipment and flight documents

Brief description of aircraft instruments, equipment and flight documents, including:

1) instruments, equipment (including aircraft communication, navigation and surveillance equipment) and flight documents to be carried on aircraft, including any special requirement in addition to the provisions specified in Annex 6, Part I, Chapters 6 and 7; and

2) emergency locator transmitter (ELT), signalling devices and life-saving equipment as presented in Annex 6, Part I, 6.6 and Part II, 2.4.5, where so determined by regional air navigation meetings, for flights over designated land areas.

GEN 1.6 Summary of national regulations and international agreements/conventions

A list of titles and references and, where applicable, summaries of national regulations affecting air navigation, together with a list of international agreements/conventions ratified by State.

GEN 1.7 Differences from ICAO Standards, Recommended Practices and Procedures

A list of significant differences between national regulations and practices of the State and related ICAO provisions, including:

1) provision affected (Annex and edition number, paragraph); and

2) difference in full text.

All significant differences ~~must~~ shall be listed under this subsection. All Annexes ~~must~~ shall be listed in numerical order even if there is no difference to an Annex, in which case a NIL notification ~~must~~ shall be provided. National differences or the degree of non- application of the regional supplementary procedures (SUPPs) ~~must~~ shall be notified immediately following the Annex to which the supplementary procedure relates.

GEN 2. TABLES AND CODES

GEN 2.1 Measuring system, aircraft markings, holidays

GEN 2.1.1 Units of measurement

Description of units of measurement used including table of units of measurement.

GEN 2.1.2 Temporal reference system

Description of the temporal reference system (calendar and time system) employed, together with an indication of whether or not daylight saving hours are employed and how the temporal reference system is presented throughout the AIP.

GEN 2.1.3 Horizontal reference system

Brief description of the horizontal (geodetic) reference system used, including:

1) name/designation of the reference system;

2) identification and parameters of the projection;

3) identification of the ellipsoid used;

4) identification of the datum used;

5) area(s) of application; and

6) an explanation, if applicable, of the asterisk used to identify those coordinates that do not meet ~~Annex 11 and 14~~ the accuracy requirements.

GEN 2.1.4 Vertical reference system

Brief description of the vertical reference system used, including:

1) name/designation of the reference system;

2) description of the geoid model used including the parameters required for height transformation between the model used and EGM-96; and

3) an explanation, if applicable, of the asterisk used to identify those elevations/geoid undulations that do not meet ~~Annex 14~~ accuracy requirements.

GEN 2.1.5 Aircraft nationality and registration marks

Indication of aircraft nationality and registration marks adopted by the State.

GEN 2.1.6 Public holidays

A list of public holidays with indication of services being affected.

GEN 2.2 Abbreviations used in AIS publications

A list of alphabetically arranged abbreviations and their respective significations used by the State in its AIP and in the distribution of aeronautical data and aeronautical information with appropriate annotation for those national abbreviations that are different from those contained in the *Procedures for Air Navigation Services — ICAO Abbreviations and Codes* (PANS-ABC, Doc 8400).

Note.— A list of alphabetically arranged definitions/glossary of terms may also be added.

GEN 2.3 Chart symbols

A list of chart symbols arranged according to the chart series where symbols are applied.

GEN 2.4 Location indicators

A list of alphabetically arranged location indicators assigned to the locations of aeronautical fixed stations to be used for encoding and decoding purposes. An annotation to locations not connected to the aeronautical fixed service (AFS) ~~must~~ shall be provided.

#AIP-DS# GEN 2.5 List of radio navigation aids

A list of radio navigation aids arranged alphabetically, containing:

1) identifier;

2) name of the station;

3) type of facility/aid; and

4) indication whether aid serves en-route (E), aerodrome (A) or dual (AE) purposes.

GEN 2.6 Conversion of units of measurement

Tables for conversion or, alternatively, conversion formulae between:

1) nautical miles and kilometres and vice versa;

2) feet and metres and vice versa;

3) decimal minutes of arc and seconds of arc and vice versa; and

4) other conversions as appropriate.

GEN 2.7 Sunrise/sunset

Information on the time of sunrise and sunset including a brief description of criteria used for determination of the times given and either a simple formulae or table from which times may be calculated for any location within its territory/area of responsibility, or an alphabetical list of locations for which the times are given in a table with a reference to the related page in the table and the sunrise/sunset tables for the selected stations/locations, including:

1) station name;

2) ICAO location indicator;

3) geographical coordinates in degrees and minutes;

4) date(s) for which times are given;

5) time for the beginning of morning civil twilight;

6) time for sunrise;

7) time for sunset; and

8) time for the end of evening civil twilight.

GEN 3. SERVICES

GEN 3.1 Aeronautical information services

GEN 3.1.1 Responsible service

Description of the Aeronautical Information Service (AIS) provided and its major components, including:

1) service/unit name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available;

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and

9) an indication if service is not H24.

GEN 3.1.2 Area of responsibility

The area of responsibility for the aeronautical information service.

GEN 3.1.3 Aeronautical publications

Description of the elements of the ~~Integrated A~~aeronautical ~~I~~information ~~Package~~ products, including:

1) AIP and related amendment service;

2) AIP Supplements;

3) AIC;

4) NOTAM and pre-flight information bulletins (PIB);

5) checklists and lists of valid NOTAM; and

6) how they may be obtained.

When an AIC is used to promulgate publication prices, that ~~must~~ shall be indicated in this section of the AIP.

GEN 3.1.4 AIRAC system

Brief description of the AIRAC system provided including a table of present and near future AIRAC dates.

GEN 3.1.5 Pre-flight information service at aerodromes/heliports

A list of aerodromes/heliports at which pre-flight information is routinely available, including an indication of relevant:

1) elements of the ~~Integrated A~~aeronautical ~~I~~information ~~Package~~ products held;

2) maps and charts held; and

3) general area of coverage of such data.

GEN 3.1.6 ~~Electronic terrain and obstacle data~~ Digital data sets

~~Details of how electronic terrain and obstacle data may be obtained, containing:~~

1) ~~name of the individual, service or organization responsible;~~Description of the available data sets, including:

a) data set title;

b) short description;

c) data subjects included;

d) geographical scope; and

e) if applicable, limitations related to its usage.

2) ~~street address and e-mail address of the individual, service or organization responsible~~;Contact details of how data sets may be obtained, containing:

a) name of the individual, service or organization responsible;

b) street address and e-mail address of the individual, service or organization responsible;

c) telefax number of the individual, service or organization responsible;

d) contact telephone number of the individual, service or organization responsible;

e) hours of service (time period including time zone when contact can be made);

f) online information that can be used to contact the individual, service or organization; and

g) supplemental information, if necessary, on how and when to contact the individual, service or organization.

~~3) telefax number of the individual, service or organization responsible;~~

~~4) contact telephone number of the individual, service or organization responsible;~~

~~5) hours of service (time period including time zone when contact can be made);~~

~~6) online information that can be used to contact the individual, service or organization; and~~

~~7) supplemental information, if necessary, on how and when to contact the individual, service or organization.~~

GEN 3.2 Aeronautical charts

GEN 3.2.1 Responsible service(s)

Description of service(s) responsible for the production of aeronautical charts, including:

1) service name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available;

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and

9) an indication if service is not H24.

GEN 3.2.2 Maintenance of charts

Brief description of how aeronautical charts are revised and amended.

GEN 3.2.3 Purchase arrangements

Details of how charts may be obtained, containing:

1) service/sales agency(ies);

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address; and

7) website address, if available.

GEN 3.2.4 Aeronautical chart series available

A list of aeronautical chart series available followed by a general description of each series and an indication of the intended use.

GEN 3.2.5 List of aeronautical charts available

A list of aeronautical charts available, including:

1) title of series;

2) scale of series;

3) name and/or number of each chart or each sheet in a series;

4) price per sheet; and

5) date of latest revision.

GEN 3.2.6 Index to the World Aeronautical Chart (WAC) — ICAO 1:1 000 000

An index chart showing coverage and sheet layout for the WAC 1:1 000 000 produced by a State. If Aeronautical Chart — ICAO 1:500 000 is produced instead of WAC 1:1 000 000, index charts ~~must~~ shall be used to indicate coverage and sheet layout for the Aeronautical Chart — ICAO 1:500 000.

GEN 3.2.7 Topographical charts

Details of how topographical charts may be obtained, containing:

1) name of service/agency(ies);

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address; and

7) website address, if available.

GEN 3.2.8 Corrections to charts not contained in the AIP

A list of corrections to aeronautical charts not contained in the AIP, or an indication where such information can be obtained.

GEN 3.3 Air traffic services

GEN 3.3.1 Responsible service

Description of the air traffic service and its major components, including:

1) service name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available;

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and

9) an indication if service is not H24.

GEN 3.3.2 Area of responsibility

Brief description of area of responsibility for which air traffic services are provided.

GEN 3.3.3 Types of services

Brief description of main types of air traffic services provided.

GEN 3.3.4 Coordination between the operator and ATS

General conditions under which coordination between the operator and air traffic services is effected.

GEN 3.3.5 Minimum flight altitude

The criteria used to determine minimum flight altitudes.

GEN 3.3.6 ATS units address list

A list of ATS units and their addresses arranged alphabetically, containing:

1) unit name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address; and

7) website address, if available.

GEN 3.4 Communication and navigation services

GEN 3.4.1 Responsible service

Description of the service responsible for the provision of telecommunication and navigation facilities, including:

1) service name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available;

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and

9) an indication if service is not H24.

GEN 3.4.2 Area of responsibility

Brief description of area of responsibility for which telecommunication service is provided.

GEN 3.4.3 Types of service

Brief description of the main types of service and facilities provided, including:

1) radio navigation services;

2) voice and/or data link services;

3) broadcasting service;

4) language(s) used; and

5) an indication of where detailed information can be obtained.

GEN 3.4.4 Requirements and conditions

Brief description concerning the requirements and conditions under which the communication service is available.

GEN 3.4.5 Miscellaneous

Any additional information (e.g. selected radio broadcasting stations, telecommunications diagram).

GEN 3.5 Meteorological services

GEN 3.5.1 Responsible service

Brief description of the meteorological service responsible for the provision of meteorological information, including:

1) service name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available;

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed; and

9) an indication if service is not H24.

GEN 3.5.2 Area of responsibility

Brief description of area and/or air routes for which meteorological service is provided.

GEN 3.5.3 Meteorological observations and reports

Detailed description of the meteorological observations and reports provided for international air navigation, including:

1) name of the station and the ICAO location indicator;

2) type and frequency of observation including an indication of automatic observing equipment;

3) types of meteorological reports (e.g. METAR) and availability of a trend forecast;

4) specific type of observation system and number of observation sites used to observe and report surface wind, visibility, runway visual range, cloud base, temperature and, where applicable, wind shear (e.g. anemometer at intersection of runways, transmissometer next to touchdown zone, etc.);

5) hours of operation; and

6) indication of aeronautical climatological information available.

GEN 3.5.4 Types of services

Brief description of the main types of service provided, including details of briefing, consultation, display

of meteorological information, flight documentation available for operators and flight crew members, and of the methods and means used for supplying the meteorological information.

GEN 3.5.5 Notification required from operators

Minimum amount of advance notice required by the meteorological authority from operators in respect of briefing, consultation and flight documentation and other meteorological information they require or change.

GEN 3.5.6 Aircraft reports

As necessary, requirements of the meteorological authority for the making and transmission of aircraft reports.

GEN 3.5.7 VOLMET service

Description of VOLMET and/or D-VOLMET service, including:

1) name of transmitting station;

2) call sign or identification and abbreviation for the radio communication emission;

3) frequency or frequencies used for broadcast;

4) broadcasting period;

5) hours of service;

6) list of aerodromes/heliports for which reports and/or forecasts are included; and

7) reports, forecasts and SIGMET information included and remarks.

GEN 3.5.8 SIGMET and AIRMET service

Description of the meteorological watch provided within flight information regions or control areas for which air traffic services are provided, including a list of the meteorological watch offices with:

1) name of the meteorological watch office, ICAO location indicator;

2) hours of service;

3) flight information region(s) or control area(s) served;

4) SIGMET validity periods;

5) specific procedures applied to SIGMET information (e.g. for volcanic ash and tropical cyclones);

6) procedures applied to AIRMET information (in accordance with relevant regional air navigation agreements);

7) the air traffic services unit(s) provided with SIGMET and AIRMET information; and

8) additional information (e.g. concerning any limitation of service, etc.).

GEN 3.5.9 Other automated meteorological services

Description of available automated services for the provision of meteorological information (e.g. automated pre-flight information service accessible by telephone and/or computer modem) including:

1) service name;

2) information available;

3) areas, routes and aerodromes covered; and

4) telephone and telefax number(s), e-mail address, and, if available, website address.

GEN 3.6 Search and rescue

GEN 3.6.1 Responsible service(s)

Brief description of service(s) responsible for the provision of search and rescue (SAR), including:

1) service/unit name;

2) postal address;

3) telephone number;

4) telefax number;

5) e-mail address;

6) AFS address;

7) website address, if available; and

8) a statement concerning the ICAO documents on which the service is based and a reference to the AIP location where differences, if any, are listed.

GEN 3.6.2 Area of responsibility

Brief description of area of responsibility within which search and rescue services are provided.

Note.— A chart may be included to supplement the description of the area.

GEN 3.6.3 Types of service

Brief description and geographical portrayal, where appropriate, of the type of service and facilities provided including indications where SAR aerial coverage is dependent upon significant deployment of aircraft.

GEN 3.6.4 SAR agreements

Brief description of SAR agreements in force, including provisions for facilitating entry and departure of other States' aircraft for search, rescue, salvage, repair or salvage in connection with lost or damaged aircraft, either with airborne notification only or after flight plan notification.

GEN 3.6.5 Conditions of availability

Brief description of provisions for search and rescue, including the general conditions under which the service and facilities are available for international use, including an indication of whether a facility available for search and rescue is specialized in SAR techniques and functions, or is specially used for other purposes but adapted for SAR purposes by training and equipment, or is only occasionally available and has no particular training or preparation for SAR work.

GEN 3.6.6 Procedures and signals used

Brief description of the procedures and signals employed by rescue aircraft and a table showing the signals to be used by survivors.

GEN 4. CHARGES FOR AERODROMES/HELIPORTS AND AIR NAVIGATION SERVICES

Reference may be made to where details of actual charges may be found, if not itemized in this chapter.

GEN 4.1 Aerodrome/heliport charges

Brief description of type of charges which may be applicable at aerodromes/heliports available for international use, including:

1) landing of aircraft;

2) parking, hangarage and long-term storage of aircraft;

3) passenger service;

4) security;

5) noise-related items;

6) other (customs, health, immigration, etc.);

7) exemptions/reductions; and

8) methods of payment.

GEN 4.2 Air navigation services charges

Brief description of charges which may be applicable to air navigation services provided for international use, including:

1) approach control;

2) route air navigation services;

3) cost basis for air navigation services and exemptions/reductions; and

4) methods of payment.

PART 2 — EN-ROUTE (ENR)

If an AIP is produced and made available in more than one volume with each having a separate amendment and supplement service, a separate preface, record of AIP Amendments, record of AIP Supplements, checklist of AIP pages and list of current hand amendments ~~must~~ shall be included in each volume. In the case of an AIP being published as one volume, the annotation "not applicable" ~~must~~ shall be entered against each of the above subsections.

ENR 0.61 Table of contents to Part 2

A list of sections and subsections contained in Part 2 — En-route.

Note.— Subsections may be listed alphabetically.

ENR 1. GENERAL RULES AND PROCEDURES

ENR 1.1 General rules

The requirement is for publication of the general rules as applied within the State.

ENR 1.2 Visual flight rules

The requirement is for publication of the visual flight rules as applied within the State.

ENR 1.3 Instrument flight rules

The requirement is for publication of the instrument flight rules as applied within the State.

ENR 1.4 ATS airspace classification and description

ENR 1.4.1 ATS airspace classification

The description of ATS airspace classes in the form of the ATS airspace classification table in Annex 11, Appendix 4, appropriately annotated to indicate those airspace classes not used by the State.

ENR 1.4.2 ATS airspace description

Other ATS airspace descriptions as applicable, including general textual descriptions.

ENR 1.5 Holding, approach and departure procedures

ENR 1.5.1 General

The requirement is for a statement concerning the criteria on which holding, approach and departure procedures are established. If different from ICAO provisions, the requirement is for presentation of criteria used in a tabular form.

ENR 1.5.2 Arriving flights

The requirement is to present procedures (conventional or area navigation or both) for arriving flights which are common to flights into or within the same type of airspace. If different procedures apply within a terminal airspace, a note to this effect ~~must~~ shall be given together with a reference to where the specific procedures can be found.

ENR 1.5.3 Departing flights

The requirement is to present procedures (conventional or area navigation or both) for departing flights which are common to flights departing from any aerodrome/heliport.

ENR 1.5.4 Other relevant information and procedures

Brief description of additional information, e.g. entry procedures, final approach alignment, holding procedures and patterns.

ENR 1.6 ATS surveillance services and procedures

ENR 1.6.1 Primary radar

Description of primary radar services and procedures, including:

1) supplementary services;

2) the application of radar control service;

3) radar and air-ground communication failure procedures;

4) voice and CPDLC position reporting requirements; and

5) graphic portrayal of area of radar coverage.

ENR 1.6.2 Secondary surveillance radar (SSR)

Description of secondary surveillance radar (SSR) operating procedures, including:

1) emergency procedures;

2) air-ground communication failure and unlawful interference procedures;

3) the system of SSR code assignment;

4) voice and CPDLC position reporting requirements; and

5) graphic portrayal of area of SSR coverage.

Note.— The SSR description is of particular importance in areas or routes where the possibility of interception exists.

ENR 1.6.3 Automatic dependent surveillance — broadcast (ADS-B)

Description of automatic dependent surveillance — broadcast (ADS-B) operating procedures, including:

1) emergency procedures;

2) air-ground communication failure and unlawful interference procedures;

3) aircraft identification requirements;

4) voice and CPDLC position reporting requirements; and

5) graphic portrayal of area of ADS-B coverage.

Note.— The ADS-B description is of particular importance in areas or routes where the possibility of interception exists.

ENR 1.6.4 Other relevant information and procedures

Brief description of additional information and procedures, e.g. radar failure procedures and transponder failure procedures.

ENR 1.7 Altimeter setting procedures

The requirement is for a statement of altimeter setting procedures in use, containing:

1) brief introduction with a statement concerning the ICAO documents on which the procedures are based together with differences to ICAO provisions, if any;

2) basic altimeter setting procedures;

3) description of altimeter setting region(s);

4) procedures applicable to operators (including pilots); and

5) table of cruising levels.

ENR 1.8 Regional supplementary procedures

The requirement is for presentation of regional supplementary procedures (SUPPs) affecting the entire area of responsibility.

ENR 1.9 Air traffic flow management and airspace management

Brief description of air traffic flow management (ATFM) system and airspace management, including:

1) ATFM structure, service area, service provided, location of unit(s) and hours of operation;

2) types of flow messages and descriptions of the formats; and

3) procedures applicable for departing flights, containing:

   a) service responsible for provision of information on applied ATFM measures;

   b) flight plan requirements; and

   c) slot allocations.

4) *information on overall responsibility regarding airspace management within FIR(s), details of civil/military airspace allocation and management coordination, structure of manageable airspace (allocation and changes to allocation) and general operating procedures.*

ENR 1.10 Flight planning

The requirement is to indicate any restriction, limitation or advisory information related to the flight planning stage which may assist the user in the presentation of the intended flight operation, including:

1) procedures for the submission of a flight plan;

2) repetitive flight plan system; and

3) changes to the submitted flight plan.

ENR 1.11 Addressing of flight plan messages

The requirement is for an indication, in tabular form, of the addresses allocated to flight plans, showing:

1) category of flight (IFR, VFR or both);

2) route (into or via FIR and/or TMA); and

3) message address.

ENR 1.12 Interception of civil aircraft

The requirement is for a complete statement of interception procedures and visual signals to be used with a clear indication of whether ICAO provisions are applied and, if not, that differences exist.

Note.— A list of significant differences between national regulations and practices of the State and related ICAO provisions is found in Gen 1.7.

ENR 1.13 Unlawful interference

The requirement is for presentation of appropriate procedures to be applied in case of unlawful interference.

ENR 1.14 Air traffic incidents

Description of air traffic incidents reporting system, including:

1) definition of air traffic incidents;

2) use of the "Air Traffic Incident Reporting Form";

3) reporting procedures (including in-flight procedures); and

4) purpose of reporting and handling of the form.

Note.— A copy of the "Air Traffic Incident Report Form" (PANS ATM, Doc 4444, Appendix 4) may be included for reference.

ENR 2. AIR TRAFFIC SERVICES AIRSPACE

ENR 2.1 FIR, UIR, TMA AND CTA

#AIP-DS# Detailed description of flight information regions (FIR), upper flight information regions (UIR), and control areas (CTA) (including specific CTA such as TMA), including:

1) name, geographical coordinates in degrees and minutes of the FIR/UIR lateral limits and in degrees, minutes and seconds of the CTA lateral limits, vertical limits and class of airspace;

2) identification of unit providing the service;

3) call sign of aeronautical station serving the unit and language(s) used, specifying the area and conditions, when and where to be used, if applicable;

4) frequencies, and if applicable SATVOICE number, supplemented by indications for specific purposes; and

5) remarks.

#AIP-DS# Control zones around military air bases not otherwise described in the AIP ~~must~~ shall be included in this subsection. Where the requirements of Annex 2 concerning flight plans, two-way communications and position reporting apply to all flights in order to eliminate or reduce the need for interceptions and/or where the possibility of interception exists and the maintenance of guard on the VHF emergency channel 121.5 MHz is required, a statement to this effect ~~must~~ shall be included for the relevant area(s) or portion(s) thereof.

A description of designated areas over which the carriage of an emergency locator transmitter (ELT) is required and where aircraft shall continuously guard the VHF emergency frequency 121.5 MHz, except for those periods when aircraft are carrying out communications on other VHF channels or when airborne equipment limitations or cockpit duties do not permit simultaneous guarding of two channels.

Note.— Other types of airspace around civil aerodromes/heliports such as control zones and aerodrome traffic zones are described in the relevant aerodrome or heliport section.

ENR 2.2 Other regulated airspace

Where established, a detailed description of other types of regulated airspace and airspace classification.

ENR 3. ATS ROUTES

Note 1.— Bearings, tracks and radials are normally magnetic. In areas of high latitude, where it is determined by the appropriate authority that reference to Magnetic North is impractical, another suitable reference, i.e. True North or Grid North, may be used.

Note 2.— Changeover points established at the midpoint between two radio navigation aids, or at the intersection of the two radials in the case of a route which changes direction between the navigation aids, need not be shown for each route segment if a general statement regarding their existence is made.

Note 3.— Guidance material on the organization of ATS Route publication is contained in the Aeronautical Information Services Manual (Doc 8126).

ENR 3.1 Lower ATS routes

#AIP-DS# Detailed description of lower ATS routes, including:

1) route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including “compulsory” or “on-request” reporting points;

2) tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometre or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points;

3) upper and lower limits or minimum en-route altitudes, to the nearest higher 50 m or 100 ft, and airspace classification;

4) lateral limits and minimum obstacle clearance altitudes;

5) direction of cruising levels;

6) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and

7) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.— In relation to Annex 11, Appendix 1, and for flight planning purposes, the defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.2 Upper ATS routes

#AIP-DS# Detailed description of upper ATS routes, including:

1) route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including “compulsory” or “on-request” reporting points;

2) tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometre or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points;

3) upper and lower limits and airspace classification;

4) lateral limits;

5) direction of cruising levels;

6) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and

7) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.— In relation to Annex 11, Appendix 1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.3 Area navigation routes

#AIP-DS# Detailed description of PBN (RNAV and RNP) routes, including:

1) route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including “compulsory” or “on-request” reporting points;

2) in respect of waypoints defining an area navigation route, additionally as applicable:

   a) station identification of the reference VOR/DME;

   b) bearing to the nearest degree and the distance to the nearest tenth of a kilometre or tenth of a nautical mile from the reference VOR/DME, if the waypoint is not collocated with it; and

   c) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft);

3) magnetic bearing to the nearest degree, geodesic distance to the nearest tenth of a kilometre or tenth of a nautical mile between defined end-points and distance between each successive designated significant point;

4) upper and lower limits and airspace classification;

5) direction of cruising levels;

6) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and

7) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.— In relation to Annex 11, Appendix 1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.4 Helicopter routes

#AIP-DS# Detailed description of helicopter routes, including:

1) route designator, designation of the required communication performance (RCP) specification(s), navigation specification(s) and/or required surveillance performance (RSP) specification(s) applicable to a specified segment(s), names, coded designators or name-codes and the geographical coordinates in degrees, minutes and seconds of all significant points defining the route including “compulsory” or “on-request” reporting points;

2) tracks or VOR radials to the nearest degree, geodesic distance to the nearest tenth of a kilometre or tenth of a nautical mile between each successive designated significant point and, in the case of VOR radials, changeover points;

3) upper and lower limits and airspace classification;

4) minimum flight altitudes to the nearest higher 50 m or 100 ft;

5) the navigation accuracy requirement for each PBN (RNAV or RNP) route segment; and

6) remarks, including an indication of the controlling unit, its operating channel and, if applicable, its logon address, SATVOICE number, and any navigation, RCP and RSP specification(s) limitations.

Note.— In relation to Annex 11, Appendix 1, and for flight planning purposes, defined navigation specification is not considered to be an integral part of the route designator.

ENR 3.5 Other routes

#AIP-DS# The requirement is to describe other specifically designated routes which are compulsory within specified area(s).

Note.— Arrival, transit and departure routes which are specified in connection with procedures for traffic to and from aerodromes/heliports need not be described since they are described in the relevant section of Part 3 — Aerodromes.

ENR 3.6 En-route holding

#AIP-DS# The requirement is for a detailed description of en-route holding procedures, containing:

1) holding identification (if any) and holding fix (navigation aid) or waypoint with geographical coordinates in degrees, minutes and seconds;

2) inbound track;

3) direction of the procedure turn;

4) maximum indicated airspeed;

5) minimum and maximum holding level;

6) time/distance outbound; and

7) indication of the controlling unit and its operating frequency.

Note.— Obstacle clearance criteria related to holding procedures are contained in Procedures for Air Navigation Services — Aircraft Operations *(PANS-OPS, Doc 8168), Volumes I and II.*

ENR 4. RADIO NAVIGATION AIDS/SYSTEMS

ENR 4.1 Radio navigation aids — en-route

#AIP-DS# A list of stations providing radio navigation services established for en-route purposes and arranged alphabetically by name of the station, including:

1) name of the station and magnetic variation to the nearest degree and for VOR, station declination to the nearest degree used for technical line-up of the aid;

2) identification;

3) frequency/channel for each element;

4) hours of operation;

5) geographical coordinates in degrees, minutes and seconds of the position of the transmitting antenna;

6) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft); and

7) remarks.

If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority ~~must~~ shall be indicated in the remarks column. Facility coverage ~~must~~ shall be indicated in the remarks column.

ENR 4.2 Special navigation systems

#AIP-DS# Description of stations associated with special navigation systems (DECCA, LORAN, etc.), including:

1) name of station or chain;

2) type of service available (master signal, slave signal, colour);

3) frequency (channel number, basic pulse rate, recurrence rate, as applicable);

4) hours of operation;

5) geographical coordinates in degrees, minutes and seconds of the position of the transmitting station; and

6) remarks.

If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority ~~must~~ shall be indicated in the remarks column. Facility coverage ~~must~~ shall be indicated in the remarks column.

ENR 4.3 Global navigation satellite system (GNSS)

A list and description of elements of the global navigation satellite system (GNSS) providing the

navigation service established for en-route purposes and arranged alphabetically by name of the element, including:

1) the name of the GNSS element, e.g. ~~(~~GPS, GLONASS, EGNOS, MSAS, WAAS, etc.~~)~~;

2) frequency(ies), as appropriate;

3) geographical coordinates in degrees, minutes and seconds of the nominal service area and coverage area; and

4) remarks.

If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority ~~must~~ shall be indicated in the remarks column.

ENR 4.4 Name-code designators for significant points

#AIP-DS# An alphabetically arranged list of name-code designators (five-letter pronounceable "name-code") established for significant points at positions not marked by the site of radio navigation aids, including:

1) name-code designator;

2) geographical coordinates in degrees, minutes and seconds of the position;

3) reference to ATS or other routes where the point is located; and

4) remarks, including supplementary definition of positions where required.

ENR 4.5 Aeronautical ground lights — en-route

#AIP-DS# A list of aeronautical ground lights and other light beacons designating geographical positions which are selected by the State as being significant, including:

1) name of the city or town or other identification of the beacon;

2) type of beacon and intensity of the light in thousands of candelas;

3) characteristics of the signal;

4) operational hours; and

5) remarks.

ENR 5. NAVIGATION WARNINGS

ENR 5.1 Prohibited, restricted and danger areas

#AIP-DS# Description, supplemented by graphic portrayal where appropriate, of prohibited, restricted and

danger areas together with information regarding their establishment and activation, including:

1) identification, name and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;

2) upper and lower limits; and

3) remarks, including time of activity.

Type of restriction or nature of hazard and risk of interception in the event of penetration ~~must~~ shall be indicated in the remarks column.

ENR 5.2 Military exercise and training areas and air defence identification zone (ADIZ)

#AIP-DS# Description, supplemented by graphic portrayal where appropriate, of established military training areas and military exercises taking place at regular intervals, and established air defence identification zone (ADIZ), including:

1) geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;

2) upper and lower limits and system and means of activation announcements together with information pertinent to civil flights and applicable ADIZ procedures; and

3) remarks, including time of activity and risk of interception in the event of penetration of ADIZ.

ENR 5.3 Other activities of a dangerous nature and other potential hazards

ENR 5.3.1 Other activities of a dangerous nature

#AIP-DS# Description, supplemented by charts where appropriate, of activities that constitute a specific or obvious danger to aircraft operation and could affect flights including:

1) geographical coordinates in degrees and minutes of centre of area and range of influence;

2) vertical limits;

3) advisory measures;

4) authority responsible for the provision of information; and

5) remarks, including time of activity.

ENR 5.3.2 Other potential hazards

#AIP-DS# Description, supplemented by charts where appropriate, of other potential hazards that could affect flights (e.g. active volcanoes, nuclear power stations, etc.) including:

1) geographical coordinates in degrees and minutes of location of potential hazard;

2) vertical limits;

3) advisory measures;

4) authority responsible for the provision of information; and

5) remarks.

ENR 5.4 Air navigation obstacles

#OBS-DS# The list of obstacles affecting air navigation in Area 1 (the entire State territory), including:

1) obstacle identification or designation;

2) type of obstacle;

3) obstacle position, represented by geographical coordinates in degrees, minutes and seconds;

4) obstacle elevation and height to the nearest metre or foot;

5) type and colour of obstacle lighting (if any).~~; and~~

~~6) if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6.~~

Note 1.— An obstacle whose height above the ground is 100 m and higher is considered an obstacle for Area 1.

Note 2.— Specifications ~~governing~~ concerning the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations/heights for obstacles in Area 1 are given in ~~Annex 11, Appendix 5, Tables 1 and 2, respectively~~ Appendix 1.

ENR 5.5 Aerial sporting and recreational activities

#AIP-DS# Brief description, supplemented by graphic portrayal where appropriate, of intensive aerial sporting and recreational activities together with conditions under which they are carried out, including:

1) designation and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;

2) vertical limits;

3) operator/user telephone number; and

4) remarks, including time of activity.

Note.— This paragraph may be subdivided into different sections for each different category of activity, giving the indicated details in each case.

ENR 5.6 Bird migration and areas with sensitive fauna

Description, supplemented by charts where practicable, of movements of birds associated with migration, including migration routes and permanent resting areas and areas with sensitive fauna.

ENR 6. EN-ROUTE CHARTS

The requirement is for the En-route Chart — ICAO and index charts to be included in this section.

PART 3 — AERODROMES (AD)

If an AIP is produced and made available in more than one volume with each having a separate amendment and supplement service, a separate preface, record of AIP Amendments, record of AIP Supplements, checklist of AIP pages and list of current hand amendments ~~must~~ shall be included in each volume. In the case of an AIP being published as one volume, the annotation "not applicable" ~~must~~ shall be entered against each of the above subsections.

AD 0.~~6~~1 Table of contents to Part 3

A list of sections and subsections contained in Part 3 — Aerodromes (AD).

Note.— Subsections may be listed alphabetically.

AD 1. AERODROMES/HELIPORTS — INTRODUCTION

AD 1.1 Aerodrome/heliport availability and conditions of use

AD 1.1.1 General conditions

Brief description of the State's designated authority responsible for aerodromes and heliports, including:

1) the general conditions under which aerodromes/heliports and associated facilities are available for use; and
2) a statement concerning the ICAO documents on which the services are based and a reference to the AIP location where differences, if any, are listed.

AD 1.1.2 Use of military air bases

Regulations and procedures, if any, concerning civil use of military air bases.

AD 1.1.3 Low visibility procedures (LVP)

The general conditions under which the low visibility procedures applicable to Cat II/III operations at aerodromes, if any, are applied.

AD 1.1.4 Aerodrome operating minima

Details of aerodrome operating minima applied by the State.

AD 1.1.5 Other information

If applicable, other information of a similar nature.

AD 1.2 Rescue and firefighting services and snow plan

AD 1.2.1 Rescue and firefighting services

Brief description of rules governing the establishment of rescue and firefighting services at aerodromes and heliports available for public use together with an indication of rescue and firefighting categories established by a State.

AD 1.2.2 Snow plan

Brief description of general snow plan considerations for aerodromes/heliports available for public use at which snow conditions are normally liable to occur, including:

1) organization of the winter service;

2) surveillance of movement areas;

3) measuring methods and measurements taken;

4) actions taken to maintain the usability of movement areas;

5) system and means of reporting;

6) the cases of runway closure; and

7) distribution of information about snow conditions.

Note.— Where different snow plan considerations apply at aerodromes/heliports, this subparagraph may be subdivided accordingly.

AD 1.3 Index to aerodromes and heliports

A list, supplemented by graphic portrayal, of aerodromes and heliports within a State, including:

1) aerodrome/heliport name and ICAO location indicator;

2) type of traffic permitted to use the aerodrome/heliport (international/national, IFR/VFR, scheduled/non-scheduled, general aviation, military and other); and

3) reference to AIP, Part 3 subsection in which aerodrome/heliport details are presented.

AD 1.4 Grouping of aerodromes/heliports

Brief description of the criteria applied by the State in grouping aerodromes/heliports for production/distribution/provision of information purposes (e.g. international/national; primary/secondary;

major/other; civil/military; etc.).

AD 1.5 Status of certification of aerodromes

A list of aerodromes in the State, indicating the status of certification, including:

1) aerodrome name and ICAO location indicator;

2) date and, if applicable, validity of certification; and

3) remarks, if any.

AD 2. AERODROMES

Note.*— * is to be replaced by the relevant ICAO location indicator.**

**** AD 2.1 Aerodrome location indicator and name

The requirement is for the ICAO location indicator allocated to the aerodrome and the name of aerodrome. An ICAO location indicator ~~must~~ shall be an integral part of the referencing system applicable to all subsections in section AD 2.

**** AD 2.2 Aerodrome geographical and administrative data

The requirement is for aerodrome geographical and administrative data including:

1) aerodrome reference point (geographical coordinates in degrees, minutes and seconds) and its site;

2) direction and distance of aerodrome reference point from centre of the city or town which the aerodrome serves;

3) aerodrome elevation to the nearest metre or foot, ~~and~~ reference temperature and mean low temperature;

4) where appropriate, geoid undulation at the aerodrome elevation position to the nearest metre or foot;

5) magnetic variation to the nearest degree, date of information and annual change;

6) name of aerodrome operator, address, telephone and telefax numbers, e-mail address, AFS address and, if available, website address;

7) types of traffic permitted to use the aerodrome (IFR/VFR); and

8) remarks.

**** AD 2.3 Operational hours

Detailed description of the hours of operation of services at the aerodrome, including:

1) aerodrome operator;

2) customs and immigration;

3) health and sanitation;

4) AIS briefing office;

5) ATS reporting office (ARO);

6) MET briefing office;

7) air traffic service;

8) fuelling;

9) handling;

10) security;

11) de-icing; and

12) remarks.

**** AD 2.4 Handling services and facilities

Detailed description of the handling services and facilities available at the aerodrome, including:

1) cargo-handling facilities;

2) fuel and oil types;

3) fuelling facilities and capacity;
4) de-icing facilities;

5) hangar space for visiting aircraft;

6) repair facilities for visiting aircraft; and

7) remarks.

**** AD 2.5 Passenger facilities

Passenger facilities available at the aerodrome, provided as a brief description or a reference to other information sources such as a website including:

1) *hotel(s) at or in the vicinity of aerodrome;*

2) *restaurant(s) at or in the vicinity of aerodrome;*

3) *transportation possibilities;*

4) medical facilities;

5) *bank and post office at or in the vicinity of aerodrome;*

6) *tourist office;* and

7) remarks.

****** AD 2.6 Rescue and firefighting services**

Detailed description of the rescue and firefighting services and equipment available at the aerodrome, including:

1) aerodrome category for firefighting;

2) rescue equipment;

3) *capability for removal of disabled aircraft;* and

4) remarks.

****** AD 2.7 Seasonal availability — clearing**

Detailed description of the equipment and operational priorities established for the clearance of aerodrome movement areas, including:

1) type(s) of clearing equipment;

2) clearance priorities; and

3) remarks.

****** AD 2.8 Aprons, taxiways and check locations/positions data**

Details related to the physical characteristics of aprons, taxiways and locations/positions of designated checkpoints, including:

1) designation, surface and strength of aprons;

2) designation, width, surface and strength of taxiways;

3) location and elevation to the nearest metre or foot of altimeter checkpoints;

4) location of VOR checkpoints;

5) position of INS checkpoints in degrees, minutes, seconds and hundredths of seconds; and

6) remarks.

If check locations/positions are presented on an aerodrome chart, a note to that effect ~~must~~ shall be provided under this subsection.

****** AD 2.9 Surface movement guidance and control system and markings**

Brief description of the surface movement guidance and control system and runway and taxiway markings, including:

1) use of aircraft stand identification signs, taxiway guide lines and visual docking/parking guidance system at aircraft stands;

2) runway and taxiway markings and lights;

3) stop bars and runway guard lights (if any); ~~and~~

4) other runway protection measures; and

~~4~~5) remarks.

****** AD 2.10 Aerodrome obstacles**

Detailed description of obstacles, including:

1) obstacles in Area 2:

a) obstacle identification or designation;

b) type of obstacle;

c) obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;

d) obstacle elevation and height to the nearest metre or foot;

e) obstacle marking, and type and colour of obstacle lighting (if any); and

~~f) if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6; and~~

~~g~~f)NIL indication, if appropriate.

Note 1.— ~~Chapter 10, 10.1.1~~ Annex 15, Appendix 1, provides a description of Area 2 while Annex 15, Appendix ~~8 1~~, Figure A~~8~~1-2, contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 2.

Note 2.— Specifications ~~governing~~ concerning the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 2 are given in ~~Annex 11, Appendix 5, Tables 1 and 2, and in Annex 14, Volume I, Appendix 5, Tables A5-1 and A5-2, respectively~~ Appendix 1.

2) the absence of an Area 2 data set for the aerodrome is to be clearly stated and obstacle data are to be provided for:

a) obstacles that penetrate the obstacle limitation surfaces;

b) obstacles that penetrate the take-off flight path area obstacle identification surface; and

c) other obstacles assessed as being hazardous to air navigation.

3) indication that information on obstacles in Area 3 is not provided, or if provided:

a) obstacle identification or designation;

b) type of obstacle;

c) obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;

d) obstacle elevation and height to the nearest tenth of a metre or tenth of a foot;

e) obstacle marking, and type and colour of obstacle lighting (if any);

f) if appropriate, an indication that the list of obstacles is available ~~in electronic form~~as digital data set, and a reference to GEN 3.1.6; and

g) NIL indication, if appropriate.

Note 1.— ~~Chapter 10, 10.1.1~~ Annex 15, Appendix 1, provides a description of Area 3 while ~~Appendix 8, Figure A8-3~~ Annex 15, Appendix ~~8-~~1, Figure A~~8~~1-3, contains graphical illustrations of obstacle data collection surfaces and criteria used to identify obstacles in Area 3.

Note 2.— Specifications ~~governing~~ concerning the determination and reporting (accuracy of field work and data integrity) of positions (latitude and longitude) and elevations for obstacles in Area 3 are given in ~~Annex 14, Volume I, Appendix 5, Tables A5-1 and A5-2, respectively~~ Appendix 1.

**** AD 2.11 Meteorological information provided

Detailed description of meteorological information provided at the aerodrome and an indication of which meteorological office is responsible for the service enumerated, including:

1) name of the associated meteorological office;

2) hours of service and, where applicable, the designation of the responsible meteorological office outside these hours;

3) office responsible for preparation of TAFs and periods of validity and interval of issuance of the forecasts;

4) availability of the trend forecasts for the aerodrome, and interval of issuance;

5) information on how briefing and/or consultation is provided;

6) types of flight documentation supplied and language(s) used in flight documentation;

7) charts and other information displayed or available for briefing or consultation;

8) supplementary equipment available for providing information on meteorological conditions, e.g. weather radar and receiver for satellite images;

9) the air traffic services unit(s) provided with meteorological information; and

10) additional information (e.g. concerning any limitation of service, etc.).

**** AD 2.12 Runway physical characteristics

Detailed description of runway physical characteristics, for each runway, including:

1) designations;

2) true bearings to one-hundredth of a degree;

3) dimensions of runways to the nearest metre or foot;

4) strength of pavement (PCN and associated data) and surface of each runway and associated stopways;

5) geographical coordinates in degrees, minutes, seconds and hundredths of seconds for each threshold and runway end and, where appropriate, geoid undulation of:

   — thresholds of a non-precision approach runway to the nearest metre or foot; and

   — thresholds of a precision approach runway to the nearest tenth of a metre or tenth of a foot;

6) elevations of:

   — thresholds of a non-precision approach runway to the nearest metre or foot; and

   — thresholds and the highest elevation of the touchdown zone of a precision approach runway to the nearest tenth of a metre or tenth of a foot;

7) slope of each runway and associated stopways;

8) dimensions of stopway (if any) to the nearest metre or foot;

9) dimensions of clearway (if any) to the nearest metre or foot;

10) dimensions of strips;

11) dimensions of runway end safety areas;

12) location (which runway end) and description of arresting system (if any);

13) the existence of an obstacle-free zone; and

14) remarks.

**** AD 2.13 Declared distances

Detailed description of declared distances to the nearest metre or foot for each direction of each runway, including:

1) runway designator;

2) take-off run available;

3) take-off distance available, and if applicable, alternative reduced declared distances;

4) accelerate-stop distance available;

5) landing distance available; and

6) remarks, including runway entry or start point where alternative reduced declared distances have been declared.

If a runway direction cannot be used for take-off or landing, or both, because it is operationally forbidden, then this ~~must~~ shall be declared and the words “not usable” or the abbreviation “NU” entered (Annex 14, Volume I, Attachment A, Section 3).

**** AD 2.14 Approach and runway lighting

Detailed description of approach and runway lighting, including:

1) runway designator;

2) type, length and intensity of approach lighting system;

3) runway threshold lights, colour and wing bars;

4) type of visual approach slope indicator system;

5) length of runway touchdown zone lights;

6) length, spacing, colour and intensity of runway centre line lights;

7) length, spacing, colour and intensity of runway edge lights;

8) colour of runway end lights and wing bars;

9) length and colour of stopway lights; and

10) remarks.

**** AD 2.15 Other lighting, secondary power supply

Description of other lighting and secondary power supply, including:

1) location, characteristics and hours of operation of aerodrome beacon/identification beacon (if any);

2) location and lighting (if any) of anemometer/landing direction indicator;

3) taxiway edge and taxiway centre line lights;

4) secondary power supply including switch-over time; and

5) remarks.

**** AD 2.16 Helicopter landing area

Detailed description of helicopter landing area provided at the aerodrome, including:

1) geographical coordinates in degrees, minutes, seconds and hundredths of seconds and, where appropriate, geoid undulation of the geometric centre of touchdown and lift-off (TLOF) or of each threshold of final approach and take-off (FATO) area:

   — for non-precision approaches, to the nearest metre or foot; and

   — for precision approaches, to the nearest tenth of a metre or tenth of a foot;

2) TLOF and/or FATO area elevation:

   — for non-precision approaches, to the nearest metre or foot; and

   — for precision approaches, to the nearest tenth of a metre or tenth of a foot;

3) TLOF and FATO area dimensions to the nearest metre or foot, surface type, bearing strength and marking;

4) true bearings to one-hundredth of a degree of FATO;

5) declared distances available, to the nearest metre or foot;

6) approach and FATO lighting; and

7) remarks.

**** AD 2.17 Air traffic services airspace

Detailed description of air traffic services (ATS) airspace organized at the aerodrome, including:

1) airspace designation and geographical coordinates in degrees, minutes and seconds of the lateral limits;

2) vertical limits;

3) airspace classification;

4) call sign and language(s) of the ATS unit providing service;

5) transition altitude;

6) hours of applicability; and

7) remarks.

**** AD 2.18 Air traffic services communication facilities

Detailed description of air traffic services communication facilities established at the aerodrome, including:

1) service designation;

2) call sign;

3) channel(s);

4) SATVOICE number(s), if available;

5) logon address, as appropriate;

6) hours of operation; and

7) remarks.

**** AD 2.19 Radio navigation and landing aids

#AIP-DS# Detailed description of radio navigation and landing aids associated with the instrument approach and the terminal area procedures at the aerodrome, including:

1) type of aids, magnetic variation to the nearest degree, as appropriate, and type of supported operation for ILS/MLS, basic GNSS, SBAS, and GBAS and for VOR/ILS/MLS also station declination to the nearest degree used for technical line-up of the aid;

2) identification, if required;

3) frequency(ies), channel number(s), service provider, and reference path identifier(s) (RPI), as appropriate;

4) hours of operation, as appropriate;

5) geographical coordinates in degrees, minutes, seconds and tenths of seconds of the position of the transmitting antenna, as appropriate;

6) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft) and of DME/P to the nearest 3 m (10 ft); elevation of GBAS reference point to the nearest metre or foot, and the ellipsoid height of the point to the nearest metre or foot. For SBAS, the ellipsoid height of the landing threshold point (LTP) or the fictitious threshold point (FTP) to the nearest metre or foot;

7) service volume radius from the GBAS reference point to the nearest kilometre or nautical mile; and

8) remarks.

When the same aid is used for both en-route and aerodrome purposes, a description ~~must~~ shall also be given in section ENR 4. If the ground-based augmentation system (GBAS) serves more than one aerodrome, description of the aid ~~must~~ shall be provided under each aerodrome. If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority ~~must~~ shall be indicated in the remarks column. Facility coverage ~~must~~ shall be indicated in the remarks column.

**** AD 2.20 Local aerodrome regulations

Detailed description of regulations applicable to the use of the aerodrome including the acceptability of training flights, non-radio and microlight aircraft and similar, and to ground manoeuvring and parking but excluding flight procedures.

**** AD 2.21 Noise abatement procedures

Detailed description of noise abatement procedures established at the aerodrome.

**** AD 2.22 Flight procedures

Detailed description of the conditions and flight procedures, including radar and/or ADS-B procedures, established on the basis of airspace organization at the aerodrome. When established, detailed description of the low visibility procedures at the aerodrome, including:

1) runway(s) and associated equipment authorized for use under low visibility procedures;

2) defined meteorological conditions under which initiation, use and termination of low visibility procedures would be made;
3) description of ground marking/lighting for use under low visibility procedures; and

4) remarks.

****** AD 2.23 Additional information**

Additional information at the aerodrome, such as an indication of bird concentrations at the aerodrome, together with an indication of significant daily movement between resting and feeding areas, to the extent practicable.

****** AD 2.24 Charts related to an aerodrome**

The requirement is for charts related to an aerodrome to be included in the following order:

1) Aerodrome/Heliport Chart — ICAO;

2) Aircraft Parking/Docking Chart — ICAO;

3) Aerodrome Ground Movement Chart — ICAO;

4) Aerodrome Obstacle Chart — ICAO Type A (for each runway);

5) Aerodrome Obstacle Chart — ICAO Type B (when available);

~~5~~6) Aerodrome Terrain and Obstacle Chart — ICAO (Electronic);

~~6~~7) Precision Approach Terrain Chart — ICAO (precision approach Cat II and III runways);

~~7~~8) Area Chart — ICAO (departure and transit routes);

~~8~~9) Standard Departure Chart — Instrument — ICAO;

~~9~~10)Area Chart — ICAO (arrival and transit routes);

~~10~~11) Standard Arrival Chart — Instrument — ICAO;

~~11~~12) ATC Surveillance Minimum Altitude Chart — ICAO;

~~12~~13) Instrument Approach Chart — ICAO (for each runway and procedure type);

~~13~~14) Visual Approach Chart — ICAO; and

~~14~~15) bird concentrations in the vicinity of the aerodrome.

If some of the charts are not produced, a statement to this effect ~~must~~ shall be given in section GEN 3.2, Aeronautical charts.

Note.— A page pocket may be used in the AIP to include the Aerodrome Terrain and Obstacle Chart — ICAO (Electronic) on appropriate electronic media.

AD 3. HELIPORTS

When a helicopter landing area is provided at the aerodrome, associated data ~~must~~ shall be listed only under **** AD 2.16.

Note.— ** is to be replaced by the relevant ICAO location indicator.**

**** AD 3.1 Heliport location indicator and name

The requirement is for the ICAO location indicator assigned to the heliport and the name of heliport. An ICAO location indicator ~~must~~ shall be an integral part of the referencing system applicable to all subsections in section AD 3.

**** AD 3.2 Heliport geographical and administrative data

The requirement is for heliport geographical and administrative data, including:

1) heliport reference point (geographical coordinates in degrees, minutes and seconds) and its site;

2) direction and distance of heliport reference point from centre of the city or town which the heliport serves;

3) heliport elevation to the nearest metre or foot, ~~and~~ reference temperature and mean low temperature;

4) where appropriate, geoid undulation at the heliport elevation position to the nearest metre or foot;

5) magnetic variation to the nearest degree, date of information and annual change;

6) name of heliport operator, address, telephone and telefax numbers, e-mail address, AFS address and, if available, website address;

7) types of traffic permitted to use the heliport (IFR/VFR); and

8) remarks.

**** AD 3.3 Operational hours

Detailed description of the hours of operation of services at the heliport, including:

1) heliport operator;

2) customs and immigration;

3) health and sanitation;

4) AIS briefing office;

5) ATS reporting office (ARO);

6) MET briefing office;

7) air traffic service;

8) fuelling;

9) handling;

10) security;

11) de-icing; and

12) remarks.

**** AD 3.4 Handling services and facilities

Detailed description of the handling services and facilities available at the heliport, including:

1) cargo-handling facilities;

2) fuel and oil types;

3) fuelling facilities and capacity;

4) de-icing facilities;

5) hangar space for visiting helicopter;

6) repair facilities for visiting helicopter; and

7) remarks.

**** AD 3.5 Passenger facilities

Passenger facilities available at the heliport, provided as a brief description or as a reference to other information sources such as a website, including:

1) *hotel(s) at or in the vicinity of the heliport;*

2) *restaurant(s) at or in the vicinity of the heliport;*

3) *transportation possibilities;*

4) medical facilities;

5) *bank and post office at or in the vicinity of the heliport;*

6) *tourist office;* and

7) remarks.

**** AD 3.6 Rescue and firefighting services

Detailed description of the rescue and firefighting services and equipment available at the heliport, including:

1) heliport category for firefighting;

2) rescue equipment;

3) *capability for removal of disabled helicopter; and*

4) remarks.

**** AD 3.7 Seasonal availability — clearing

Detailed description of the equipment and operational priorities established for the clearance of heliport movement areas, including:

1) type(s) of clearing equipment;

2) clearance priorities; and

3) remarks.

**** AD 3.8 Aprons, taxiways and check locations/positions data

Details related to the physical characteristics of aprons, taxiways and locations/positions of designated checkpoints, including:

1) designation, surface and strength of aprons, helicopter stands;

2) designation, width, and surface type of helicopter ground taxiways;

3) width and designation of helicopter air taxiway and air transit route;

4) location and elevation to the nearest metre or foot of altimeter checkpoints;

5) location of VOR checkpoints;

6) position of INS checkpoints in degrees, minutes, seconds and hundredths of seconds; and

7) remarks.

If check locations/positions are presented on a heliport chart, a note to that effect ~~must~~ shall be provided under this subsection.

**** AD 3.9 Markings and markers

Brief description of final approach and take-off area and taxiway markings and markers, including:

1) final approach and take-off markings;

2) taxiway markings, air taxiway markers and air transit route markers; and

3) remarks.

**** AD 3.10 Heliport obstacles

#OBS-DS# Detailed description of obstacles, including:

1) obstacle identification or designation;

2) type of obstacle;

3) obstacle position, represented by geographical coordinates in degrees, minutes, seconds and tenths of seconds;

4) obstacle elevation and height to the nearest metre or foot;

5) obstacle marking, and type and colour of obstacle lighting (if any); and

~~6) if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to GEN 3.1.6; and~~

~~7~~6) NIL indication, if appropriate.

**** AD 3.11 Meteorological information provided

Detailed description of meteorological information provided at the heliport and an indication of which meteorological office is responsible for the service enumerated, including:

1) name of the associated meteorological office;

2) hours of service and, where applicable, the designation of the responsible meteorological office outside these hours;

3) office responsible for preparation of TAFs, and periods of validity of the forecasts;

4) availability of the trend forecasts for the heliport, and interval of issuance;

5) information on how briefing and/or consultation is provided;

6) type of flight documentation supplied and language(s) used in flight documentation;

7) charts and other information displayed or available for briefing or consultation;

8) supplementary equipment available for providing information on meteorological conditions, e.g. weather radar and receiver for satellite images;

9) the air traffic services unit(s) provided with meteorological information; and

10) additional information (e.g. concerning any limitation of service, etc.).

**** AD 3.12 Heliport data

Detailed description of heliport dimensions and related information, including:

1) heliport type — surface-level, elevated or helideck;

2) touchdown and lift-off (TLOF) area dimensions to the nearest metre or foot;

3) true bearings to one-hundredth of a degree of final approach and take-off (FATO) area;

4) dimensions to the nearest metre or foot of FATO, and surface type;

5) surface and bearing strength in tonnes (1 000 kg) of TLOF;

6) geographical coordinates in degrees, minutes, seconds and hundredths of seconds and, where appropriate, geoid undulation of the geometric centre of TLOF or of each threshold of FATO:

   — for non-precision approaches, to the nearest metre or foot; and

   — for precision approaches, to the nearest tenth of a metre or tenth of a foot;

7) TLOF and/or FATO slope and elevation:

   — for non-precision approaches, to the nearest metre or foot; and

   — for precision approaches, to the nearest tenth of a metre or tenth of a foot;

8) dimensions of safety area;

9) dimensions, to the nearest metre or foot, of helicopter clearway;

10) the existence of an obstacle-free sector; and

11) remarks.

**** AD 3.13 Declared distances

Detailed description of declared distances to the nearest metre or foot, where relevant for a heliport, including:

1) take-off distance available, and if applicable, alternative reduced declared distances;

2) rejected take-off distance available;

3) landing distance available; and

4) remarks, including entry or start point where alternative reduced declared distances have been declared.

**** AD 3.14 Approach and FATO lighting

Detailed description of approach and FATO lighting, including:

1) type, length and intensity of approach lighting system;

2) type of visual approach slope indicator system;

3) characteristics and location of FATO area lights;

4) characteristics and location of aiming point lights;

5) characteristics and location of TLOF lighting system; and

6) remarks.

**** AD 3.15 Other lighting, secondary power supply

Description of other lighting and secondary power supply, including:

1) location, characteristics and hours of operation of heliport beacon;

2) location and lighting of wind direction indicator (WDI);

3) taxiway edge and taxiway centre line lights;

4) secondary power supply including switch-over time; and

5) remarks.

**** AD 3.16 Air traffic services airspace

Detailed description of air traffic services (ATS) airspace organized at the heliport, including:

1) airspace designation and geographical coordinates in degrees, minutes and seconds of the lateral limits;

2) vertical limits;

3) airspace classification;

4) call sign and language(s) of ATS unit providing service;

5) transition altitude;

6) hours of applicability; and

7) remarks.

**** AD 3.17 Air traffic services communication facilities

Detailed description of air traffic services communication facilities established at the heliport, including:

1) service designation;

2) call sign;

3) ~~frequency(ies)~~ channels;

4) SATVOICE number(s), if available;

5) logon address, as appropriate;

~~4~~6) hours of operation; and

~~5~~7) remarks.

**** AD 3.18 Radio navigation and landing aids

Detailed description of radio navigation and landing aids associated with the instrument approach and the terminal area procedures at the heliport, including:

1) type of aids, magnetic variation to the nearest degree, as appropriate, and type of supported operation for ILS/MLS, basic GNSS, SBAS and GBAS, and for VOR/ILS/MLS also station declination to the nearest degree used for technical line-up of the aid;

2) identification, if required;

3) frequency(ies), channel number(s), service provider, and reference path identifier(s) (RPI), as appropriate;

4) hours of operation, as appropriate;

5) geographical coordinates in degrees, minutes, seconds and tenths of seconds of the position of the transmitting antenna, as appropriate;

6) elevation of the transmitting antenna of DME to the nearest 30 m (100 ft) and of DME/P to the nearest 3 m (10 ft), elevation of GBAS reference point to the nearest metre or foot, and the ellipsoid height of the point to the nearest metre or foot. For SBAS, the ellipsoid height of the landing threshold point (LTP) or the fictitious threshold point (FTP) to the nearest metre or foot; ~~and~~

7) service volume radius from the GBAS reference point to the nearest kilometre or nautical mile; and

~~7~~8) remarks.

When the same aid is used for both en-route and heliport purposes, a description ~~must~~ shall also be given in section ENR 4. If the ground-based augmentation system (GBAS) serves more than one heliport, description of the aid ~~must~~ shall be provided under each heliport. If the operating authority of the facility is other than the designated governmental agency, the name of the operating authority ~~must~~ shall be indicated in the remarks column. Facility coverage ~~must~~ shall be indicated in the remarks column.

**** AD 3.19 Local heliport regulations

Detailed description of regulations applicable to the use of the heliport, including the acceptability of training flights, non-radio and microlight aircraft and similar, and to ground manoeuvring and parking but excluding flight procedures.

**** AD 3.20 Noise abatement procedures

Detailed description of noise abatement procedures established at the heliport.

**** AD 3.21 Flight procedures

Detailed description of the conditions and flight procedures, including radar and/or ADS-B procedures, established on the basis of airspace organization established at the heliport. When established, detailed description of the low visibility procedures at the heliport, including:

1) touchdown and lift-off (TLOF) area(s) and associated equipment authorized for use under low visibility procedures;

2) defined meteorological conditions under which initiation, use and termination of low visibility procedures would be made;

3) description of ground marking/lighting for use under low visibility procedures; and

4) remarks.

**** AD 3.22 Additional information

Additional information about the heliport, such as an indication of bird concentrations at the heliport together with an indication of significant daily movement between resting and feeding areas, to the extent practicable.

**** AD 3.23 Charts related to a heliport

The requirement is for charts related to a heliport to be included in the following order:

1) Aerodrome/Heliport Chart — ICAO;

2) Area Chart — ICAO (departure and transit routes);

3) Standard Departure Chart — Instrument — ICAO;

4) Area Chart — ICAO (arrival and transit routes);

5) Standard Arrival Chart — Instrument — ICAO;

6) ATC Surveillance Minimum Altitude Chart — ICAO;

7) Instrument Approach Chart — ICAO (for each procedure type);

8) Visual Approach Chart — ICAO; and

9) bird concentrations in the vicinity of heliport.

If some of the charts are not produced, a statement to this effect ~~must~~ shall be given in section GEN 3.2, Aeronautical charts.

Editorial Note.— Appendix 3 is relocated text from Appendix 6 to Annex 15.

APPENDIX ~~6~~ 3. NOTAM FORMAT

(see Chapter 5, 5.2.1)

Priority Indicator	→
Address	
	≪≡
Date and time of filing	→
Originator's Indicator	≪≡(

Message Series, Number and Identifier

NOTAM containing new information	..... (series and number/year)	NOTAMN
NOTAM replacing a previous NOTAM	..... (series and number/year)	NOTAMR ..... (series and number/year of NOTAM to be replaced)
NOTAM cancelling a previous NOTAM	..... (series and number/year)	NOTAMC ..... (series and number/year of NOTAM to be cancelled) ≪≡

Qualifiers

	FIR	NOTAM Code	Traffic	Purpose	Scope	Lower Limit	Upper Limit	Coordinates, Radius	
Q)		Q							≪≡

Identification of ICAO location indicator in which the facility, airspace or condition reported on is located	A) →

Period of Validity

From *(date-time group)*	B)		→
To *(PERM or date-time group)*	C)	**EST*** **PERM***	≪≡
Time Schedule *(if applicable)*	D)		→
			≪≡

Text of NOTAM; Plain-language Entry (using ICAO Abbreviations)

E)	≪≡
Lower Limit	F) →
Upper Limit	G)) ≪≡
Signature	

***Delete as appropriate**

INSTRUCTIONS FOR THE COMPLETION OF THE NOTAM FORMAT

1. General

The qualifier line (Item Q) and all identifiers (Items A) to G) inclusive) each followed by a closing parenthesis, as shown in the format, shall be transmitted unless there is no entry to be made against a particular identifier.

2. NOTAM numbering

Each NOTAM shall be allocated a series identified by a letter and a four-digit number followed by a stroke and a two-digit number for the year (e.g. A0023/03). Each series shall start on 1 January with number 0001.

3. Qualifiers (Item Q)

Item Q) is divided into eight fields, each separated by a stroke. An entry shall be made in each field. Examples of how fields are to be filled are shown in the *Aeronautical Information Services Manual* (Doc 8126). The definition of the field is as follows:

1) FIR

a) If the subject of the information is located geographically within one FIR, the ICAO location indicator shall be that of the FIR concerned. When an aerodrome is situated within the overlying FIR of another State, the first field of Item Q) shall contain the code for that overlying FIR (e.g. Q) LFRR/…A) EGJJ);

or,

if the subject of the information is located geographically within more than one FIR, the FIR field shall be composed of the ICAO nationality letters of the State originating the NOTAM followed by "XX". (The location indicator of the overlying UIR shall not be used). The ICAO location indicators of the FIRs concerned shall then be listed in Item A) or indicator of State or non-governmental agency which is responsible for provision of a navigation service in more than one State.

b) If one State issues a NOTAM affecting FIRs in a group of States, the first two letters of the ICAO location indicator of the issuing State plus "XX" shall be included. The location indicators of the FIRs concerned shall then be listed in Item A) or indicator of State or non-governmental agency which is responsible for provision of a navigation service in more than one State.

2) NOTAM CODE

All NOTAM Code groups contain a total of five letters and the first letter is always the letter Q. The second and third letters identify the subject, and the fourth and fifth letters denote the status or condition of the subject reported upon. The two-letter codes for subjects and conditions are those contained in the PANS-ABC (Doc 8400). For combinations of second and third, and fourth and fifth letters, refer to the NOTAM Selection Criteria contained in Doc 8126 or insert one of the following combinations, as appropriate:

a) If the subject is not listed in the NOTAM Code (Doc 8400) or in the NOTAM Selection Criteria (Doc 8126), insert "XX" as the second and third letters ~~(e.g. QXXAK)~~; If subject is "XX", use "XX" also for condition (e.g. QXXXX).

b) If the condition of the subject is not listed in the NOTAM Code (Doc 8400) or in the NOTAM

Selection Criteria (Doc 8126), insert "XX" as the fourth and fifth letters (e.g. QFAXX);

c) When a NOTAM containing operationally significant information is issued in accordance with Appendix 4 and Chapter 6 and when it is used to announce the existence of AIRAC AIP Amendments or Supplements, insert "TT" as the fourth and fifth letters of the NOTAM Code;

d) When a NOTAM is issued containing a checklist of valid NOTAM, insert "KKKK" as the second, third, fourth and fifth letters; and

e) The following fourth and fifth letters of the NOTAM Code shall be used in NOTAM cancellations:

AK	=	RESUMED NORMAL OPERATION
AL	=	OPERATIVE (OR RE-OPERATIVE) SUBJECT TO PREVIOUSLY PUBLISHED LIMITATIONS/CONDITIONS
AO	=	OPERATIONAL
CC	=	COMPLETED
CN	=	CANCELLED
HV	=	WORK COMPLETED
XX	=	PLAIN LANGUAGE

Note 1.— As Q - - AO = Operational is used for NOTAM cancellation, NOTAM promulgating new equipment or services use the following fourth and fifth letters Q - - CS = Installed.

Note 2.— Q - - CN = CANCELLED shall be used to cancel planned activities, e.g. navigation warnings; Q - - HV = WORK COMPLETED is used to cancel work in progress.

3) TRAFFIC

I	=	IFR
V	=	VFR
K	=	NOTAM is a checklist

Note.— Depending on the NOTAM subject and content, the qualifier field TRAFFIC may contain combined qualifiers. Guidance concerning the combination of TRAFFIC qualifiers with subject and conditions in accordance with the NOTAM Selection Criteria is contained in Doc 8126.

4) PURPOSE

N	=	NOTAM selected for the immediate attention of flight crew members
B	=	NOTAM of operational significance selected for PIB entry
O	=	NOTAM concerning flight operations
M	=	Miscellaneous NOTAM; not subject for a briefing, but it is available on request
K	=	NOTAM is a checklist

Note.— Depending on the NOTAM subject and content, the qualifier field PURPOSE may contain the combined qualifiers BO or NBO. Guidance concerning the combination of PURPOSE qualifiers with subject and conditions in accordance with the NOTAM Selection Criteria is contained in Doc 8126.

5) SCOPE

A	=	Aerodrome
E	=	En-route

W = Nav Warning
K = NOTAM is a checklist

Note.— Depending on the NOTAM subject and content, the qualifier field SCOPE may contain combined qualifiers. Guidance concerning the combination of SCOPE qualifiers with subject and conditions in accordance with the NOTAM Selection Criteria is contained in Doc 8126. ~~*If the subject is qualified AE, the aerodrome location indicator must be reported in Item A).*~~

If the subject is qualified AE, the aerodrome location indicator shall be reported in Item A).

6) and 7) LOWER/UPPER

LOWER and UPPER limits shall only be expressed in flight levels (FL) and shall express the actual vertical limits of the area of influence without the addition of buffers. In the case of navigation warnings and airspace restrictions, values entered shall be consistent with those provided under Items F) and G).

If the subject does not contain specific height information, insert “000” for LOWER and “999” for UPPER as default values.

8) COORDINATES, RADIUS

The latitude and longitude accurate to one minute, as well as a three-digit distance figure giving the radius of influence in NM (e.g. 4700N01140E043). Coordinates present approximate centre of circle whose radius encompasses the whole area of influence, and if the NOTAM affects the entire FIR/UIR or more than one FIR/UIR, enter the default value “999” for radius.

4. Item A)

Insert the location indicator as contained in ICAO Doc 7910 of the aerodrome or FIR in which the facility, airspace, or condition being reported on is located. More than one FIR/UIR may be indicated when appropriate. If there is no available ICAO location indicator, use the ICAO nationality letter as given in ICAO Doc 7910, Part 2, plus “XX” and followed up in Item E) by the name, in plain language.

If information concerns GNSS, insert the appropriate ICAO location indicator allocated for a GNSS element or the common location indicator allocated for all elements of GNSS (except GBAS).

Note.— In the case of GNSS, the location indicator may be used when identifying a GNSS element outage (e.g. KNMH for a GPS satellite outage).

5. Item B)

For date-time group use a ten-figure group, giving year, month, day, hours and minutes in UTC. This entry is the date-time at which the NOTAMN comes into force. In the cases of NOTAMR and NOTAMC, the date-time group is the actual date and time of the NOTAM origination. The start of a day shall be indicated by "0000".

6. Item C)

With the exception of NOTAMC, a date-time group (a ten-figure group giving year, month, day, hours and minutes in UTC) indicating duration of information shall be used unless the information is of a permanent nature in which case the abbreviation "PERM" is inserted instead. The end of a day shall be indicated by "2359" (i.e. do not use "2400"). If the information on timing is uncertain, the approximate duration shall be indicated using a date-time group followed by the abbreviation "EST". Any NOTAM which includes an "EST" shall be cancelled or replaced before the date-time specified in Item C).

7. Item D)

If the hazard, status of operation or condition of facilities being reported on will be active in accordance with a specific time and date schedule between the dates-times indicated in Items B) and C), insert such information under Item D). If Item D) exceeds 200 characters, consideration shall be given to providing such information in a separate, consecutive NOTAM.

Note.— Guidance concerning a harmonized definition of Item D) content is provided in Doc 8126.

8. Item E)

Use decoded NOTAM Code, complemented where necessary by ICAO abbreviations, indicators, identifiers, designators, call signs, frequencies, figures and plain language. When NOTAM is selected for international distribution, English text shall be included for those parts expressed in plain language. This entry shall be clear and concise in order to provide a suitable PIB entry. In the case of NOTAMC, a subject reference and status message shall be included to enable accurate plausibility checks.

9. Items F) and G)

These items are normally applicable to navigation warnings or airspace restrictions and are usually part of the PIB entry. Insert both lower and upper height limits of activities or restrictions, clearly indicating only one reference datum and unit of measurement. The abbreviations GND or SFC shall be used in Item F) to designate ground and surface respectively. The abbreviation UNL shall be used in Item G) to designate unlimited.

Note.— For NOTAM examples see Doc 8126 and the PANS-ABC (Doc 8400).

Editorial Note.— Appendix 4 is relocated text from Appendix 2 to Annex 15

APPENDIX ~~2~~ 4. SNOWTAM FORMAT

(see Chapter 5, 5.2.~~35~~)

(applicable until 4 November 2020)

(COM heading)	(PRIORITY INDICATOR)	(ADDRESSES)	<≡
	(DATE AND TIME OF FILING)	(ORIGINATOR'S INDICATOR)	<≡
(Abbreviated heading)	(SWAA* SERIAL NUMBER) S W * *	(LOCATION INDICATOR)	DATE-TIME OF OBSERVATION / (OPTIONAL GROUP) ≪≡(

SNOWTAM	(Serial number) <≡

(AERODROME LOCATION INDICATOR)	A) <≡
(DATE-TIME OF OBSERVATION *(Time of completion of measurement in UTC)*)	B) →
(RUNWAY DESIGNATOR)	C) →
(CLEARED RUNWAY LENGTH, IF LESS THAN PUBLISHED LENGTH *(m)*)	D) →
(CLEARED RUNWAY WIDTH, IF LESS THAN PUBLISHED WIDTH *(m; if offset left or right of centre line add "L" or "R")*)	E) →
(DEPOSITS OVER TOTAL RUNWAY LENGTH *(Observed on each third of the runway, starting from threshold having the lower runway designation number)* NIL — CLEAR AND DRY 1 — DAMP 2 — WET 3 — RIME OR FROST COVERED *(depth normally less than 1 mm)* 4 — DRY SNOW 5 — WET SNOW 6 — SLUSH 7 — ICE 8 — COMPACTED OR ROLLED SNOW 9 — FROZEN RUTS OR RIDGES)	F) …./…./…. →
(MEAN DEPTH *(mm)* FOR EACH THIRD OF TOTAL RUNWAY LENGTH)	G) …./…./…. →
(ESTIMATED SURFACE FRICTION ON EACH THIRD OF RUNWAY) ESTIMATED SURFACE FRICTION GOOD — 5 MEDIUM/GOOD — 4 MEDIUM — 3 MEDIUM/POOR — 2 POOR — 1 *(The intermediate values of "MEDIUM/GOOD" and "MEDIUM/POOR" provide for more precise information in the estimate when conditions are found to be between medium and either good or poor.)*	H) …./…./…. →
(CRITICAL SNOWBANKS *(If present, insert height (cm)/distance from the edge of runway (m) followed by "L", "R" or "LR" if applicable)*)	J) →
(RUNWAY LIGHTS *(If obscured, insert "YES" followed by "L", "R" or both "LR" if applicable)*)	K) →
(FURTHER CLEARANCE *(If planned, insert length (m)/width (m) to be cleared or if to full dimensions, insert "TOTAL")*)	L) →
(FURTHER CLEARANCE EXPECTED TO BE COMPLETED BY . . . *(UTC)*)	M) →
(TAXIWAY *(If no appropriate taxiway is available, insert "NO")*)	N) →
(TAXIWAY SNOWBANKS *(If higher than 60 cm, insert "YES" followed by the lateral distance apart, m)*)	P) <≡
(APRON *(If unusable insert "NO")*)	R) →
(NEXT PLANNED OBSERVATION/MEASUREMENT IS FOR) *(month/day/hour in UTC)*	S) →
(PLAIN-LANGUAGE REMARKS *(Including contaminant coverage and other operationally significant information, e.g. sanding, de-icing, chemicals)*)	T)) <≡
NOTES: 1. *Enter ICAO nationality letters as given in ICAO Doc 7910, Part 2. 2. Information on other runways, repeat from B to P. 3. Words in brackets ( ) not to be transmitted.	

SIGNATURE OF ORIGINATOR *(not for transmission)*

INSTRUCTIONS FOR THE COMPLETION OF THE SNOWTAM FORMAT

1. *General*

a) When reporting on more than one runway, repeat Items B to P inclusive.

b) Items together with their indicator ~~must~~ shall be dropped completely, where no information is to be included.

c) Metric units ~~must~~ shall be used and the unit of measurement not reported.

d) The maximum validity of SNOWTAM is 8 hours. New SNOWTAM ~~must~~ shall be issued whenever a new runway condition report is received. The following changes relating to runway conditions are considered as significant:

1) a change in the coefficient of friction of about 0.05;

2) changes in depth of deposit greater than the following: 20 mm for dry snow, 10 mm for wet snow, 3 mm for slush;

3) a change in the available length or width of a runway of 10 per cent or more;

4) any change in the type of deposit or extent of coverage which requires reclassification in Items F or T of the SNOWTAM;

5) when critical snow banks exist on one or both sides of the runway, any change in the height or distance from centre line;

6) any change in the conspicuity of runway lighting caused by obscuring of the lights;

7) any other conditions known to be significant according to experience or local circumstances.

e) The abbreviated heading "TTAAiiii CCCC MMYYGGgg (BBB)" is included to facilitate the automatic processing of SNOWTAM messages in computer data banks. The explanation of these symbols is:

TT = data designator for SNOWTAM = SW;
AA = geographical designator for States, e.g. LF = FRANCE, EG = United Kingdom (see *Location Indicators* (Doc 7910), Part 2, Index to Nationality Letters for Location Indicators);
iiii = SNOWTAM serial number in a four-digit group;
CCCC = four-letter location indicator of the aerodrome to which the SNOWTAM refers (see *Location Indicators* (Doc 7910));
MMYYGGgg = date/time of observation/measurement, whereby:
MM = month, e.g. January = 01, December = 12
YY = day of the month
GGgg = time in hours (GG) and minutes (gg) UTC;
(BBB) = optional group for:
Correction to SNOWTAM message previously disseminated with the same serial number = COR.

Note 1.— Brackets in (BBB) are used to indicate that this group is optional.

Note 2.— When reporting on more than one runway and individual dates/times of observation/measurement are indicated by repeated Item B, the latest date/time of observation/measuring is inserted in the abbreviated heading (MMYYGGgg).

Example: Abbreviated heading of SNOWTAM No. 149 from Zurich, measurement/observation of 7 November at 0620 UTC:

SWLS0149 LSZH 11070620

Note.— The information groups are separated by a space, as illustrated above.

f) The text "SNOWTAM" in the SNOWTAM Format and the SNOWTAM serial number in a four-digit group shall be separated by a space, for example: SNOWTAM 0124.

g) For readability purposes for the SNOWTAM message, include a line feed after the SNOWTAM serial number, after Item A, after the last item referring to the runway (e.g. Item P) and after Item S.

2. *Item A* — Aerodrome location indicator (four-letter location indicator).

3. *Item B* — Eight-figure date/time group — giving time of observation as month, day, hour and minute in UTC; this item ~~must~~ shall always be completed.

4. *Item C* — Lower runway designator number.

5. *Item D* — Cleared runway length in metres, if less than published length (see Item T on reporting on part of runway not cleared).

6. *Item E* — Cleared runway width in metres, if less than published width; if offset left or right of centre line, add (without space) "L" or "R", as viewed from the threshold having the lower runway designation number.

7. *Item F* — Deposit over total runway length as explained in SNOWTAM Format. Suitable combinations of these numbers may be used to indicate varying conditions over runway segments. If more than one deposit is present on the same portion of the runway, they should be reported in sequence from the top (closest to the sky) to the bottom (closest to the runway). Drifts, depths of deposit appreciably greater than the average values or other significant characteristics of the deposits may be reported under Item T in plain language. The values for each third of the runway shall be separated by an oblique stroke (/), without space between the deposit values and the oblique stroke, for example: 47/47/47.

Note.— Definitions for the various types of snow are given at the end of this Appendix.

8. *Item G* — Mean depth in millimetres deposit for each third of total runway length, or "XX" if not measurable or operationally not significant; the assessment to be made to an accuracy of 20 mm for dry snow, 10 mm for wet snow and 3 mm for slush. The values for each third of the runway shall be separated by an oblique stroke (/), without space between the values and the oblique stroke, for example: 20/20/20.

9. *Item H* — Estimated surface friction on each third of the runway (single digit) in the order from the threshold having the lower runway designation number.

   Friction measurement devices can be used as part of the overall runway surface assessment. Some States may have developed procedures for runway surface assessment which may include the use of information obtained from friction measuring devices and the reporting of quantitative values. In such cases, these procedures should be published in the AIP and the reporting made in Item (T) of the SNOWTAM format.

   The values for each third of the runway are separated by an oblique stroke (/), without space between the values and the oblique stroke-, for example: 5/5/5.

10. *Item J* — Critical snow banks. If present insert height in centimetres and distance from edge of runway in metres, followed (without space) by left (“L”) or right (“R”) side or both sides (“LR”), as viewed from the threshold having the lower runway designation number.

11. *Item K* — If runway lights are obscured, insert “YES” followed (without space) by “L”, “R” or both “LR”, as viewed from the threshold having the lower runway designation number.

12. *Item L* — When further clearance will be undertaken, enter length and width of runway or “TOTAL” if runway will be cleared to full dimensions.

13. *Item M* — Enter the anticipated time of completion in UTC.

14. *Item N* — The code (and combination of codes) for Item F may be used to describe taxiway conditions; enter “NO” if no taxiways serving the associated runway are available.

15. *Item P* — If snow banks are higher than 60 cm, enter “YES” followed by the lateral distance parting the snow banks (the distance between) in metres.

16. *Item R* — The code (and combination of codes) for Item F may be used to describe apron conditions; enter “NO” if the apron is unusable.

17. *Item S* — Enter the anticipated time of next observation/measurement in UTC.

18. *Item T* — Describe in plain language any operationally significant information but always report on length of uncleared runway (Item D) and extent of runway contamination (Item F) for each third of the runway (if appropriate) in accordance with the following scale:

    RWY CONTAMINATION 10 PER CENT — if 10% or less of runway contaminated
    RWY CONTAMINATION 25 PER CENT — if 11–25% of runway contaminated
    RWY CONTAMINATION 50 PER CENT — if 26–50% of runway contaminated
    RWY CONTAMINATION 100 PER CENT — if 51–100% of runway contaminated.

EXAMPLE OF COMPLETED SNOWTAM FORMAT

GG EHAMZQZX EDDFZQZX EKCHZQZX
070645 LSZHYNYX
SWLS0149 LSZH 11070700
(SNOWTAM 0149
A) LSZH
B) 11070620 C) 02 D)…P)
B) 11070600 C) 09 D)…P)
B) 11070700 C) 12 D)…P)
R) NO S) 11070920
T) DEICING

Note.— See the Aeronautical Information Services Manual *(Doc 8126) for additional SNOWTAM examples incorporating different runway conditions.*

Definitions of the various types of snow

Slush. Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8.

Note.— Combinations of ice, snow and/or standing water may, especially when rain, rain and snow, or snow is falling, produce substances with specific gravities in excess of 0.8. These substances, due to their high water/ice content, will have a transparent rather than a cloudy appearance and, at the higher specific gravities, will be readily distinguishable from slush.

Snow (on the ground).

a) *Dry snow.* Snow which can be blown if loose or, if compacted by hand, will fall apart again upon release; specific gravity: up to but not including 0.35.

b) *Wet snow.* Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5.

c) *Compacted snow.* Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over.

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APPENDIX 4. SNOWTAM FORMAT

(See Chapter 5, 5.2.5.1.5)

(applicable 5 November 2020)

(COM heading)	(PRIORITY INDICATOR)	(ADDRESSES)	≪<≡
	(DATE AND TIME OF FILING)	(ORIGINATOR'S INDICATOR)	≪<≡
(Abbreviated heading)	(SWAA* SERIAL NUMBER) S W * *	(LOCATION INDICATOR)	DATE/TIME OF ASSESMENT (OPTIONAL GROUP) ≪<≡(
SNOWTAM →	(Serial number)	≪<≡	

Aeroplane performance calculation section			
(AERODROME LOCATION INDICATOR)	M	A)	≪<≡
(DATE/TIME OF ASSESSMENT *(Time of completion of assessment in UTC)*)	M	B)	→
(LOWER RUNWAY ~~DESIGNATORS~~ DESIGNATION NUMBER)	M	C)	→
(RUNWAY CONDITION CODE (RWYCC) ON EACH ~~THIRD OF~~ RUNWAY THIRD) *(From Runway Condition Assessment Matrix (RCAM) 0, 1, 2, 3, 4, 5 or 6)*	M	D)	/ / →
(PER CENT COVERAGE CONTAMINANT FOR EACH ~~THIRD OF~~ RUNWAY THIRD)	C	E)	/ / →
(DEPTH *(mm)* OF LOOSE CONTAMINANT FOR EACH ~~THIRD OF~~ RUNWAY THIRD)	C	F)	/ / →
(CONDITION DESCRIPTION OVER TOTAL RUNWAY LENGTH *(Observed on each ~~third of~~ runway third, starting from threshold having the lower runway designation number)* COMPACTED SNOW DRY DRY SNOW DRY SNOW ON TOP OF COMPACTED SNOW DRY SNOW ON TOP OF ICE FROST ICE SLUSH STANDING WATER WATER ON TOP OF COMPACTED SNOW WET WET ICE WET SNOW WET SNOW ON TOP OF COMPACTED SNOW WET SNOW ON TOP OF ICE	M	G)	/ / →
(WIDTH OF RUNWAY TO WHICH THE ~~RWYCCs~~ RUNWAY CONDITION CODES APPLY, IF LESS THAN PUBLISHED WIDTH)	O	H)	≪<≡≡
Situational awareness section			
(REDUCED RUNWAY LENGTH, IF LESS THAN PUBLISHED LENGTH *(m)*)	O	I)	→
(DRIFTING SNOW ON THE RUNWAY)	O	J)	→
(LOOSE SAND ON THE RUNWAY)	O	K)	→
(CHEMICAL TREATMENT ON THE RUNWAY)	O	L)	→
(SNOWBANKS ON THE RUNWAY *(If present, distance from runway centreline (m) followed by "L", "R" or "LR" as applicable)*)	O	M)	→
~~SNOWBANKS ADJACENT TO THE RUNWAY~~ (SNOWBANKS ON A TAXIWAY	O	N)	→
~~(SNOWBANKS ON THE TAXIWAY *(If present, distance from the edge of runway (m) followed by "L", "R" or "LR" as applicable))~~ (SNOWBANKS ADJACENT TO THE RUNWAY)	O	O)	→
(TAXIWAY CONDITIONS)	O	P)	→
(APRON CONDITIONS)	O	R)	→
(MEASURED FRICTION COEFFICIENT)	O	S)	→
(PLAIN-LANGUAGE REMARKS)	O	T)	) ≪≡

NOTES:
1. *Enter ICAO nationality letters as given in ICAO Doc 7910, Part 2 or otherwise applicable aerodrome identifier.

2. Information on other runways, repeat from B to H. 3. Information in the situational awareness section repeated for each runway, taxiway and apron. Repeat as applicable when reported. 4. Words in brackets ( ) not to be transmitted. 5. For letters A) to T) refer to the *Instructions for the completion of the SNOWTAM format, paragraph 1, item b).*	

SIGNATURE OF ORIGINATOR *(not for transmission)*

INSTRUCTIONS FOR THE COMPLETION OF THE SNOWTAM FORMAT

Note.— Origin of data, assessment process and the procedures linked to the surface conditions reporting system are prescribed in the Procedures for Air Navigation Services — Aerodromes *(PANS-Aerodromes, Doc 9981).*

1. *General*

a) When reporting on more than one runway, repeat Items B to H (aeroplane performance calculation section).

b) The letters used to indicate items are only used for reference purpose and should not be included in the messages. The letters, M (mandatory), C (conditional) and O (optional) mark the usage and information and shall be included as explained below.

c) Metric units shall be used and the unit of measurement not reported.

d) The maximum validity of SNOWTAM is 8 hours. New SNOWTAM shall be issued whenever a new runway condition report is received.

e) A SNOWTAM cancels the previous SNOWTAM.

f) The abbreviated heading "TTAAiiii CCCC MMYYGGgg (BBB)" is included to facilitate the automatic processing of SNOWTAM messages in computer data banks. The explanation of these symbols is:

TT = data designator for SNOWTAM = SW;
AA = geographical designator for States, e.g. LF = FRANCE, EG = United Kingdom (see *Location Indicators* (Doc 7910), Part 2, Index to Nationality Letters for Location Indicators);
iiii = SNOWTAM serial number in a four-digit group;
CCCC = four-letter location indicator of the aerodrome to which the SNOWTAM refers (see *Location Indicators* (Doc 7910));
MMYYGGgg = date/time of observation/measurement, whereby:
MM = month, e.g. January = 01, December = 12
YY = day of the month
GGgg = time in hours (GG) and minutes (gg) UTC;
(BBB) = optional group for:
Correction, in the case of an error, to a SNOWTAM message previously disseminated with the same serial number = COR.

Note 1.— Brackets in (BBB) are used to indicate that this group is optional.

Note 2.— When reporting on more than one runway and individual dates/times of observation/~~measurement~~ assessment are indicated by repeated Item B, the latest date/time of observation/~~measuring~~ assessment is inserted in the abbreviated heading (MMYYGGgg).

Example: Abbreviated heading of SNOWTAM No. 149 from Zurich, measurement/observation of 7 November at 0620 UTC:

SWLS0149 LSZH 11070620

Note.— The information groups are separated by a space, as illustrated above.

g) The text “SNOWTAM” in the SNOWTAM Format and the SNOWTAM serial number in a four-digit group shall be separated by a space, for example: SNOWTAM 0124.

~~g)~~ h) For readability purposes for the SNOWTAM message, include a line feed after the SNOWTAM serial number, after Item A, and after the aeroplane performance calculation section.

~~h)~~ i) When reporting on more than one runway, repeat the information in the aeroplane performance calculation section from the date and time of assessment for each runway before the information in the situational awareness section.

~~i)~~ j) Mandatory information is:

1) AERODROME LOCATION INDICATOR;

2) DATE AND TIME OF ASSESSMENT;

3) LOWER RUNWAY DESIGNATOR NUMBER;

4) RUNWAY CONDITION CODE FOR EACH ~~THIRD OF~~ RUNWAY THIRD; and

5) CONDITION DESCRIPTION FOR EACH ~~THIRD OF~~ RUNWAY THIRD (when runway condition code (RWYCC) is reported 1- 5)

2. *Aeroplane performance calculation section*

Item A — Aerodrome location indicator (four-letter location indicator).

Item B — Date and time of assessment (eight-figure date/time group giving time of observation as month, day, hour and minute in UTC).

Item C — Lower runway designator number (nn[L] or nn[C] or nn[R]).

Note.— Only one runway designator is inserted for each runway and always the ~~lowest~~ lower number.

Item D — Runway condition code for each ~~third of~~ runway third. Only one digit (0, 1, 2, 3, 4, 5 or 6) is inserted for each ~~third of~~ runway third, separated by an oblique stroke (n/n/n).

Item E — Per cent coverage for each ~~third of~~ runway third. When provided, insert 25, 50, 75 or 100 for each ~~third of~~ runway third, separated by an oblique stroke ([n]nn/[n]nn/[n]nn).

Note 1.— This information is provided only when the runway condition for each ~~third of~~ runway third (Item D) has been reported as other than 6 and there is a condition description for each ~~third of~~ runway third (Item G) that has been reported other than DRY.

Note 2.— When the conditions are not reported, this will be signified by the insertion of "NR" for the appropriate ~~third of~~ runway third(s).

Item F — Depth of loose contaminant for each ~~third of~~ runway third. When provided, insert in millimetres for each ~~third of~~ runway third, separated by an oblique stroke (nn/nn/nn or nnn/nnn/nnn).

Note 1.— This information is only provided for the following contamination types:

— *standing water, values to be reported 04, then assessed value. Significant changes 3 mm up to and including 15 mm;*

— *slush, values to be reported 03, then assessed value. Significant changes 3 mm up to and including 15 mm;*

— *wet snow, values to be reported 03, then assessed value. Significant changes 5 mm; and*

— *dry snow, values to be reported 03, then assessed value. Significant changes 20 mm.*

Note 2.— When the conditions are not reported, this will be signified by the insertion of "NR" for the appropriate ~~third of~~ runway third(s).

Item G — Condition description for each ~~third of~~ runway third. Insert any of the following condition descriptions for each ~~third of~~ runway third, separated by an oblique stroke.

COMPACTED SNOW
DRY SNOW
DRY SNOW ON TOP OF COMPACTED SNOW
DRY SNOW ON TOP OF ICE
FROST
ICE
SLUSH
STANDING WATER
WATER ON TOP OF COMPACTED SNOW
WET
WET ICE
WET SNOW
WET SNOW ON TOP OF COMPACTED SNOW
WET SNOW ON TOP OF ICE

DRY (only reported when there is no contaminant)

Note.— When the conditions are not reported, this will be signified by the insertion of "NR" for the appropriate ~~third of~~ runway third(s).

Item H — Width of runway to which the runway condition codes apply. Insert the width in metres if less than the published runway width.

3. *Situational awareness section*

Note 1.— Elements in the situational awareness section end with a full stop.

Note 2.— Elements in the situational awareness section for which no information exists, or where the conditional circumstances for publication are not fulfilled, are left out completely.

Item I — Reduced runway length. Insert the applicable runway designator and available length in meters (example: RWY nn [L] *or* nn [C] *or* nn [R] REDUCED TO [n]nnn).

Note.— This information is conditional when a NOTAM has been published with a new set of declared distances.

Item J — Drifting snow on the runway. When reported, insert "DRIFTING SNOW".

Item K — Loose sand on the runway. When loose sand is reported on the runway, insert the ~~lowest~~ lower runway designator and with a space "LOOSE SAND" (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] LOOSE SAND).

Item L — Chemical treatment on the runway. When chemical treatment has been reported applied, insert the ~~lowest~~ lower runway designator and with a space "CHEMICALLY TREATED" (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] CHEMICALLY TREATED).

Item M — Snow banks on the runway. When ~~critical~~ snow banks are reported present on the runway, insert the lower runway designator and with a space "SNOWBANK" and with a space left "L" or right "R" or both sides "LR", followed by the distance in metres from centreline separated by a space FM CL (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] SNOWBANK Lnn *or* Rnn *or* LRnn FM CL).

Item ~~O~~N — Snow banks on ~~the~~ a taxiway. When ~~critical~~ snow banks are present on a taxiway, insert the taxiway designator and with a space "SNOWBANK" ~~and with a space left "L" or right "R" or both sides "LR", followed by the distance in metres from centreline separated by a space FM CL~~ (TWY [nn]n SNOWBANK ~~Lnn *or* Rnn *or* LRnn FM CL~~).

Item ~~N~~O — Snow banks adjacent to the runway. When snow banks are reported present penetrating the height profile in the aerodrome snow plan, insert the ~~lowest~~ lower runway designator and "ADJ SNOWBANKS" (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] ADJ SNOWBANKS).

Item P — Taxiway conditions. When taxiway conditions are reported ~~slippery or~~ as poor, insert the taxiway designator followed by a space "POOR" (TWY [n *or* nn] POOR *or* ALL TWYS POOR).

Item R — Apron conditions. When apron conditions are reported ~~slippery or~~ as poor, insert the apron designator followed by a space "POOR" (APRON [nnnn] POOR *or* ALL APRONS POOR).

Item S — Measured friction coefficient. Where reported, insert the measured friction coefficient and friction measuring device.

Note.— This will only be reported for States that have an established programme of runway friction measurement using State-approved friction measuring ~~equipment~~ device.

Item T — Plain language remarks.

EXAMPLE OF COMPLETED SNOWTAM FORMAT

Example SNOWTAM 1

GG EADBZQZX EADNZQZX EADSZQZX
~~070645~~ 170100 EADDYNYX
SWEA0149 EADD 02170055
(SNOWTAM 0149
EADD
02170055 09L 5/5/5 100/100/100 NR/NR/~~NR~~03 WET/WET/WET SNOW
)

Example SNOWTAM 2

GG EADBZQZX EADNZQZX EADSZQZX
~~070645~~ 170140 EADDYNYX
~~SWEA0149~~ SWEA0150 EADD ~~02170055~~ 02170135
(SNOWTAM 0150
EADD
02170055 09L 5/5/5 100/100/100 NR/NR/~~NR~~03 WET/WET/WET SNOW
~~EADD~~ 02170135 09R 5/~~4/3~~2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH
)

Example SNOWTAM 3

GG EADBZQZX EADNZQZX EADSZQZX
~~070645~~ 170229 EADDYNYX
~~SWEA0149~~ SWEA0151 EADD ~~02170055~~02170225
(SNOWTAM 0151
EADD
02170055 09L 5/5/5 100/100/100 NR/NR/~~NR~~03 WET/WET/WET SNOW
~~EADD~~ 02170135 09R 5/~~4/3~~2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH
~~EADD~~ 02170225 09C ~~3/2/1~~2/3/3 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW

RWY 09L SNOWBANK R20 FM CL. RWY 09R ADJ SNOWBANKS. TWY B POOR. APRON NORTH POOR)

Example SNOWTAM 4

GG EADBZQZX EADNZQZX EADSZQZX
~~070645~~ 170350 EADDYNYX
~~SWEA0149~~ SWEA0152 EADD ~~02170055~~ 02170345
(SNOWTAM 0152
EADD
02170345 09L 5/5/5 100/100/100 NR/NR/~~NR~~03 WET/WET/~~WET~~SLUSH
~~EADD~~ 02170134 09R 5/~~4/3~~2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH
~~EADD~~ 02170225 09C ~~3/2/1~~2/3/3 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW 35

DRIFTING SNOW. RWY 09L LOOSE SAND. RWY 09R CHEMICALLY TREATED. RWY 09C CHEMICALLY TREATED.)

Editorial Note.— Appendix 5 is relocated text from Appendix 3 to Annex 15.

APPENDIX ~~3~~ 5. ASHTAM FORMAT

(See Chapter 5, 5.2.~~4~~5)

(COM heading)	(PRIORITY INDICATOR)	(ADDRESSEE INDICATOR(S))[1]				
	(DATE AND TIME OF FILING)	(ORIGINATOR'S INDICATOR)				
(Abbreviated heading)	(VA*[2] SERIAL NUMBER) V A *2 *2		(LOCATION INDICATOR)	DATE/TIME OF ISSUANCE		(OPTIONAL GROUP)

ASHTAM	(SERIAL NUMBER)	
(FLIGHT INFORMATION REGION AFFECTED)		A)
(DATE/TIME (UTC) OF ERUPTION)		B)
(VOLCANO NAME AND NUMBER)		C)
(VOLCANO LATITUDE/LONGITUDE OR VOLCANO RADIAL AND DISTANCE FROM NAVAID)		D)
(VOLCANO LEVEL OF ALERT COLOUR CODE, INCLUDING ANY PRIOR LEVEL OF ALERT COLOUR CODE)[3]		E)
(EXISTENCE AND HORIZONTAL/VERTICAL EXTENT OF VOLCANIC ASH CLOUD)[4]		F)
(DIRECTION OF MOVEMENT OF ASH CLOUD)[4]		G)
(AIR ROUTES OR PORTIONS OF AIR ROUTES AND FLIGHT LEVELS AFFECTED)		H)
(CLOSURE OF AIRSPACE AND/OR AIR ROUTES OR PORTIONS OF AIR ROUTES, AND ALTERNATIVE AIR ROUTES AVAILABLE)		I)
(SOURCE OF INFORMATION)		J)
(PLAIN-LANGUAGE REMARKS)		K)

NOTES:

1. See also Appendix 5 regarding addressee indicators used in predetermined distribution systems.
2. *Enter ICAO nationality letter as given in ICAO Doc 7910, Part 2.
3. See paragraph 3.5 below.
4. Advice on the existence, extent and movement of volcanic ash cloud G) and H) may be obtained from the Volcanic Ash Advisory Centre(s) responsible for the FIR concerned.
5. Item titles in brackets ( ) not to be transmitted.

SIGNATURE OF ORIGINATOR *(not for transmission)*

INSTRUCTIONS FOR THE COMPLETION OF THE ASHTAM FORMAT

1. *General*

1.1 The ASHTAM provides information on the status of activity of a volcano when a change in its activity is, or is expected to be of operational significance. This information is provided using the volcano level of alert colour code given in 3.5 below.

1.2 In the event of a volcanic eruption producing ash cloud of operational significance, the ASHTAM also provides information on the location, extent and movement of the ash cloud and the air routes and flight levels affected.

1.3 Issuance of an ASHTAM giving information on a volcanic eruption, in accordance with section 3 below, should **not** be delayed until complete information A) to K) is available but should be issued immediately following receipt of notification that an eruption has occurred or is expected to occur, or a change in the status of activity of a volcano of operational significance has occurred or is expected to occur, or an ash cloud is reported. In the case of an expected eruption, and hence no ash cloud evident at that time, items A) to E) should be completed and items F) to I) indicated as "not applicable". Similarly, if a volcanic ash cloud is reported, e.g. by special air-report, but the source volcano is not known at that time, the ASHTAM should be issued initially with items A) to E) indicated as "unknown", and items F) to K) completed, as necessary, based on the special air-report, pending receipt of further information. In other circumstances, if information for a specific field A) to K) is not available indicate "NIL".

1.4 The maximum period of validity of ASHTAM is 24 hours. New ASHTAM ~~must~~ shall be issued whenever there is a change in the level of alert.

2. *Abbreviated heading*

2.1 Following the usual AFTN communications header, the abbreviated heading "TT AAiiii CCCC MMYYGGgg (BBB)" is included to facilitate the automatic processing of ASHTAM messages in computer data banks. The explanation of these symbols is:

TT = data designator for ASHTAM = VA;
AA = geographical designator for States, e.g. NZ = New Zealand (see *Location Indicators* (Doc 7910), Part 2, Index to Nationality Letters for Location Indicators);
iiii = ASHTAM serial number in a four-figure group;
CCCC = four-letter location indicator of the flight information region concerned (see *Location Indicators* (Doc 7910), Part 5, addresses of centres in charge of FIR/UIR);
MMYYGGgg = date/time of report, whereby:
MM = month, e.g. January = 01, December = 12
YY = day of the month
GGgg = time in hours (GG) and minutes (gg) UTC;
(BBB) = Optional group for correction to an ASHTAM message previously disseminated with the same serial number = COR.

Note.— Brackets in (BBB) are used to indicate that this group is optional.

Example: Abbreviated heading of ASHTAM for Auckland Oceanic FIR, report on 7 November at 0620 UTC:

VANZ0001 NZZO 11070620

3. *Content of ASHTAM*

3.1 *Item A* — Flight information region affected, plain-language equivalent of the location indicator

given in the abbreviated heading, in this example “Auckland Oceanic FIR”.

3.2 *Item B* — Date and time (UTC) of first eruption.

3.3 *Item C* — Name of volcano, and number of volcano as listed in the ICAO *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691), Appendix H, and on the World Map of Volcanoes and Principal Aeronautical Features.

3.4 *Item D* — Latitude/Longitude of the volcano in whole degrees or radial and distance of volcano from NAVAID (as listed in the ICAO *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds* (Doc 9691), Appendix H, and on the World Map of Volcanoes and Principal Aeronautical Features).

3.5 *Item E* — Colour code for level of alert indicating volcanic activity, including any previous level of alert colour code as follows:

Level of alert colour code	Status of activity of volcano
GREEN ALERT	Volcano is in normal, non-eruptive state. *or, after a change from a higher alert level:* Volcanic activity considered to have ceased, and volcano reverted to its normal, non-eruptive state.
YELLOW ALERT	Volcano is experiencing signs of elevated unrest above known background levels. *or, after a change from higher alert level:* Volcanic activity has decreased significantly but continues to be closely monitored for possible renewed increase.
ORANGE ALERT	Volcano is exhibiting heightened unrest with increased likelihood of eruption. *or,* Volcanic eruption is underway with no or minor ash emission *[specify ash-plume height if possible]*.
RED ALERT	Eruption is forecasted to be imminent with significant emission of ash into the atmosphere likely. *or,* Eruption is underway with significant emission of ash into the atmosphere *[specify ash-plume height if possible]*.

Note.— The colour code for the level of alert indicating the status of activity of the volcano and any change from a previous status of activity should be provided to the area control centre by the responsible vulcanological agency in the State concerned, e.g. “RED ALERT FOLLOWING YELLOW” OR “GREEN ALERT FOLLOWING ORANGE”.

3.6 *Item F* — If volcanic ash cloud of operational significance is reported, indicate the horizontal extent and base/top of the ash cloud using latitude/longitude (in whole degrees) and altitudes in thousands of metres (feet) and/or radial and distance from source volcano. Information initially may be based only on special air-report, but subsequent information may be more detailed based on advice from the responsible meteorological watch office and/or volcanic ash advisory centre.

3.7 *Item G* — Indicate forecast direction of movement of the ash cloud at selected levels based on

advice from the responsible meteorological watch office and/or volcanic ash advisory centre.

3.8 *Item H* — Indicate air routes and portions of air routes and flight levels affected, or expected to become affected.

3.9 *Item I* — Indicate closure of airspace, air routes or portions of air routes, and availability of alternative routes.

3.10 *Item J* — Source of the information, e.g. “special air-report” or “vulcanological agency”, etc. The source of information should always be indicated, whether an eruption has actually occurred or ash cloud reported, or not.

3.11 *Item K* — Include in plain language any operationally significant information additional to the foregoing.

_____

Editorial Note.— Appendix 6 is relocated Table A8-3 and Table A8-4 from Appendix 8 to Annex 15.

APPENDIX 6. TERRAIN AND OBSTACLE ATTRIBUTES PROVISION REQUIREMENTS

Table ~~A8-3~~ A6-1. Terrain attributes

Terrain attribute	Mandatory/Optional
Area of coverage	Mandatory
Data originator identifier	Mandatory
Data source identifier	Mandatory
Acquisition method	Mandatory
Post spacing	Mandatory
Horizontal reference system	Mandatory
Horizontal resolution	Mandatory
Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Elevation	Mandatory
Elevation reference	Mandatory
Vertical reference system	Mandatory
Vertical resolution	Mandatory
Vertical accuracy	Mandatory
Vertical confidence level	Mandatory
Surface type	Optional
Recorded surface	Mandatory
Penetration level	Optional
Known variations	Optional
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory

Table ~~A8-4~~ A6-2. Obstacle attributes

Obstacle attribute	Mandatory/Optional

Area of coverage	Mandatory
Data originator identifier	Mandatory
Data source identifier	Mandatory
Obstacle identifier	Mandatory
Horizontal accuracy	Mandatory
Horizontal confidence level	Mandatory
Horizontal position	Mandatory
Horizontal resolution	Mandatory
Horizontal extent	Mandatory
Horizontal reference system	Mandatory
Elevation	Mandatory
Height	Optional
Vertical accuracy	Mandatory
Vertical confidence level	Mandatory
Vertical resolution	Mandatory
Vertical reference system	Mandatory
Obstacle type	Mandatory
Geometry type	Mandatory
Integrity	Mandatory
Date and time stamp	Mandatory
Unit of measurement used	Mandatory
Operations	Optional
Effectivity	Optional
Lighting	Mandatory

Editorial Note.— Appendix 7 is relocated from Appendix 5 to Annex 15

APPENDIX ~~5~~ 7. PREDETERMINED DISTRIBUTION SYSTEM FOR NOTAM

(See Chapter 5, 5.3.4.2, and Annex 10, Volume II, Chapter 4, 4.4.14)

1. The predetermined distribution system provides for incoming NOTAM (including SNOWTAM and ASHTAM) to be channelled through the AFS direct to designated addressees predetermined by the receiving country concerned while concurrently being routed to the international NOTAM office for checking and control purposes.

2. The addressee indicators for those designated addressees are constituted as follows:

1) *First and second letters:*

The first two letters of the location indicator for the AFS communication centre associated with the relevant international NOTAM office of the receiving country.

2) *Third and fourth letters:*

The letters "ZZ" indicating a requirement for special distribution.

3) *Fifth letter:*

The fifth letter differentiating between NOTAM (letter "N"), SNOWTAM (letter "S"), and ASHTAM (letter "V").

4) *Sixth and seventh letters:*

The sixth and seventh letters, each taken from the series A to Z and denoting the national and/or international distribution list(s) to be used by the receiving AFS centre.

Note.— The fifth, sixth and seventh letters replace the three-letter designator YNY which, in the normal distribution system, denotes an international NOTAM office.

5) *Eighth letter:*

The eighth position letter shall be the filler letter "X" to complete the eight-letter addressee indicator.

3. States are to inform the States from which they receive NOTAM of the sixth and seventh letters to be used under different circumstances to ensure proper routing.

———————

Editorial Note.— Appendix 8 is relocated from Appendix 8 to Annex 15

APPENDIX 8. TERRAIN AND OBSTACLE DATA REQUIREMENTS

(See Annex 15, Chapter 5)

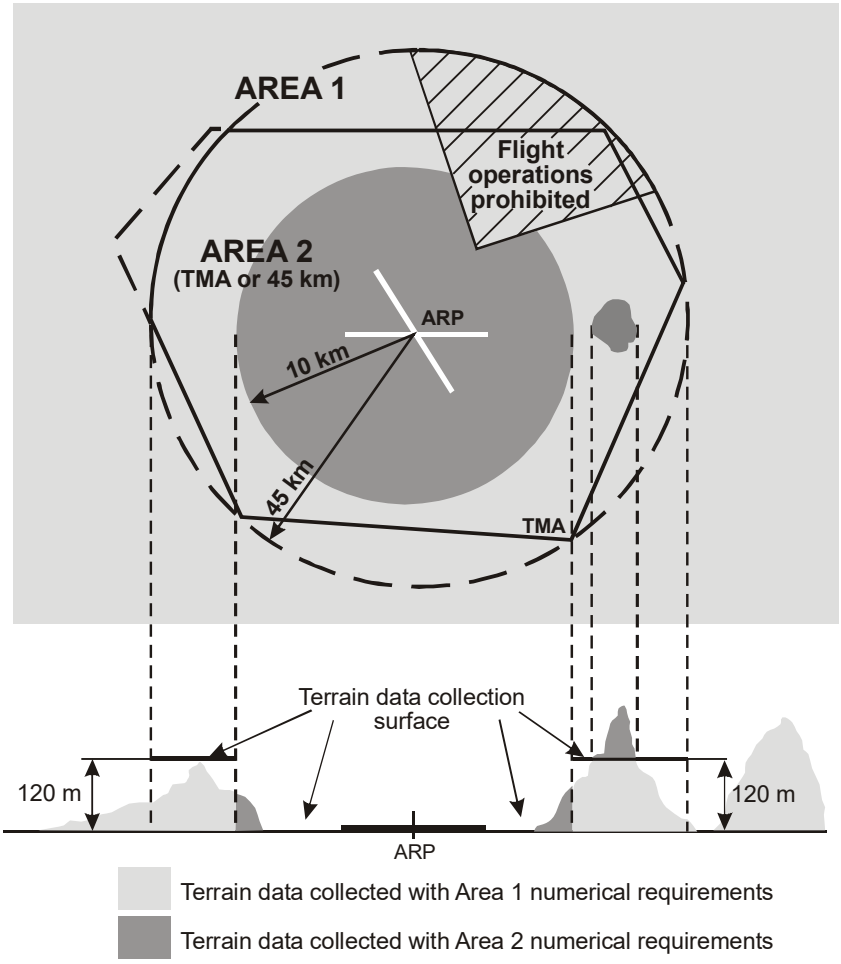

Figure A8-1. Terrain data collection surfaces — Area 1 and Area 2

1. Within the area covered by a 10-km radius from the ARP, terrain data shall comply with the Area 2 numerical requirements.

2. In the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller), data on terrain that penetrates the horizontal plane 120 m above the lowest runway elevation shall comply with the Area 2 numerical requirements.

3. In the area between 10 km and the TMA boundary or 45-km radius (whichever is smaller), data on terrain that does not penetrate the horizontal plane 120 m above the lowest runway elevation shall comply with the Area 1 numerical requirements.

4. In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, terrain data shall comply with the Area 1 numerical requirements.

Note.— Terrain datanumerical requirements for Areas 1 and 2 are specified in Appendix 1 ~~Table A8-1~~.

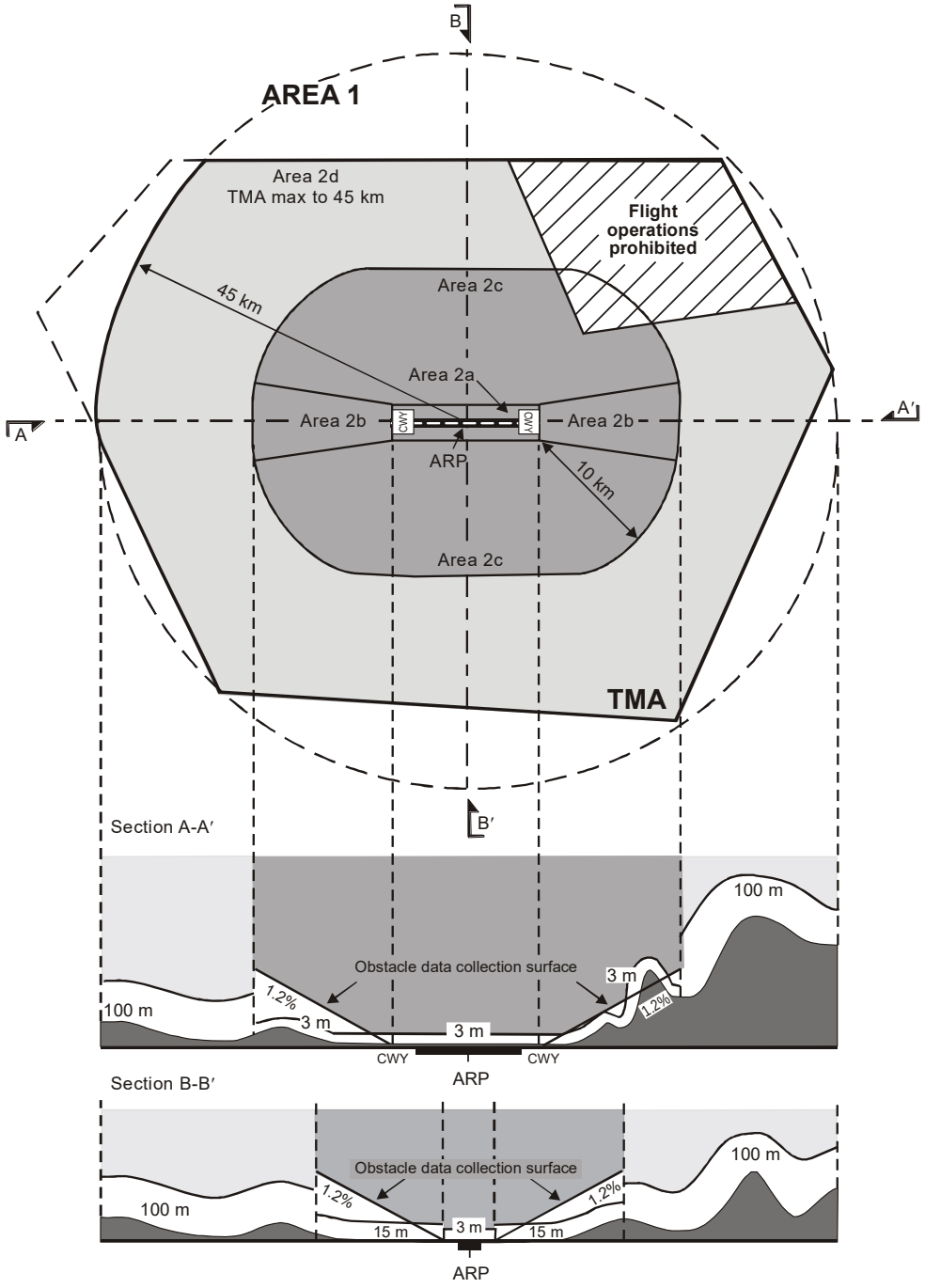

Figure A8-2. Obstacle data collection surfaces — Area 1 and Area 2

1. Obstacle data shall be collected and recorded in accordance with the Area 2 numerical requirements specified in Appendix 1 ~~Table A8-2:~~

2. In those portions of Area 2 where flight operations are prohibited due to very high terrain or other local restrictions and/or regulations, obstacle data shall be collected and recorded in accordance with the Area 1 requirements.

3. Data on every obstacle within Area 1 whose height above the ground is 100 m or higher shall be collected and recorded in the database in accordance with the Area 1 numerical requirements specified in Appendix 1 ~~Table A8-2~~.

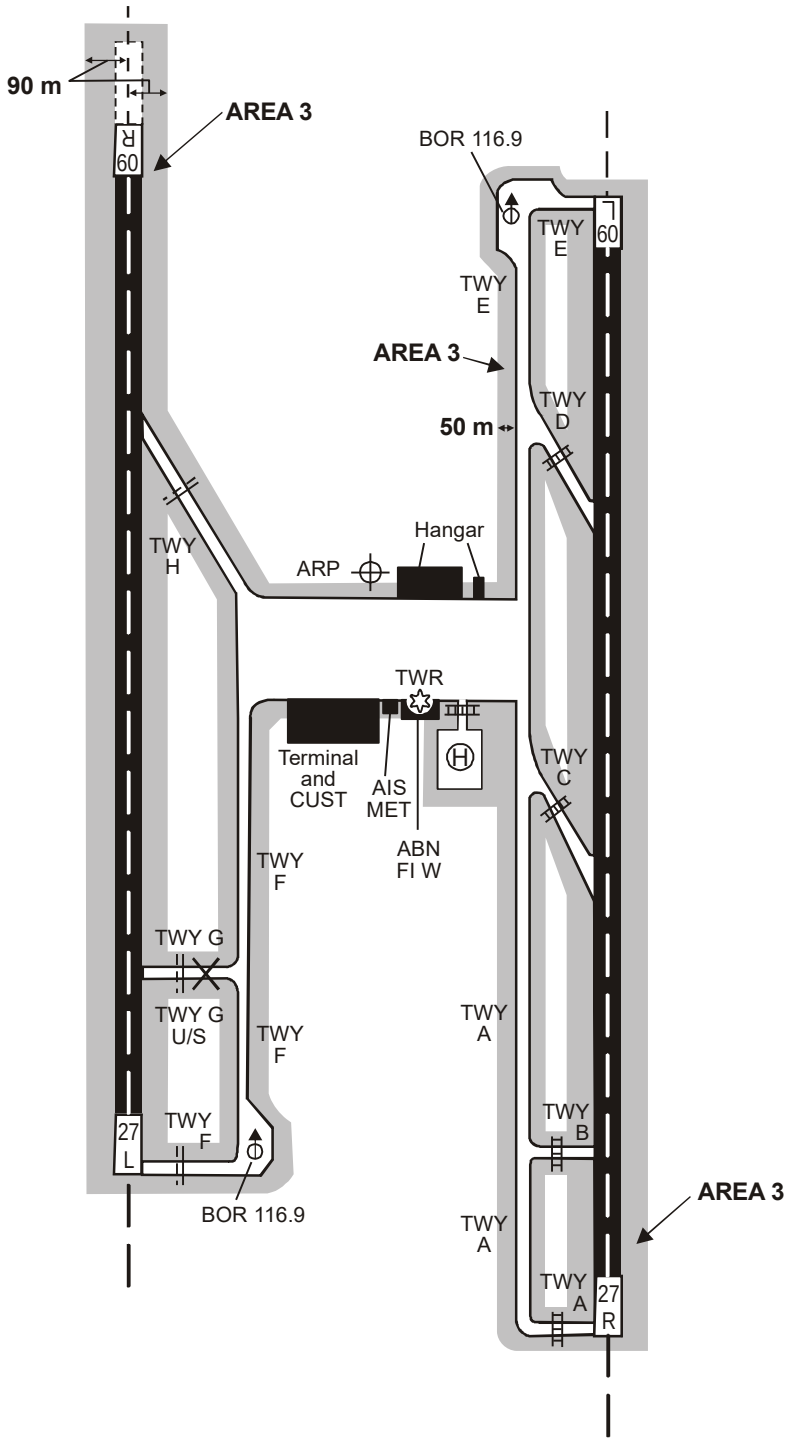

Figure A8-3. Terrain and obstacle data collection surface — Area 3

1. Terrain and obstacle data in Area 3 shall comply with the numerical requirements specified in Appendix 1 ~~Table A8-1 and Table A8-2, respectively~~.

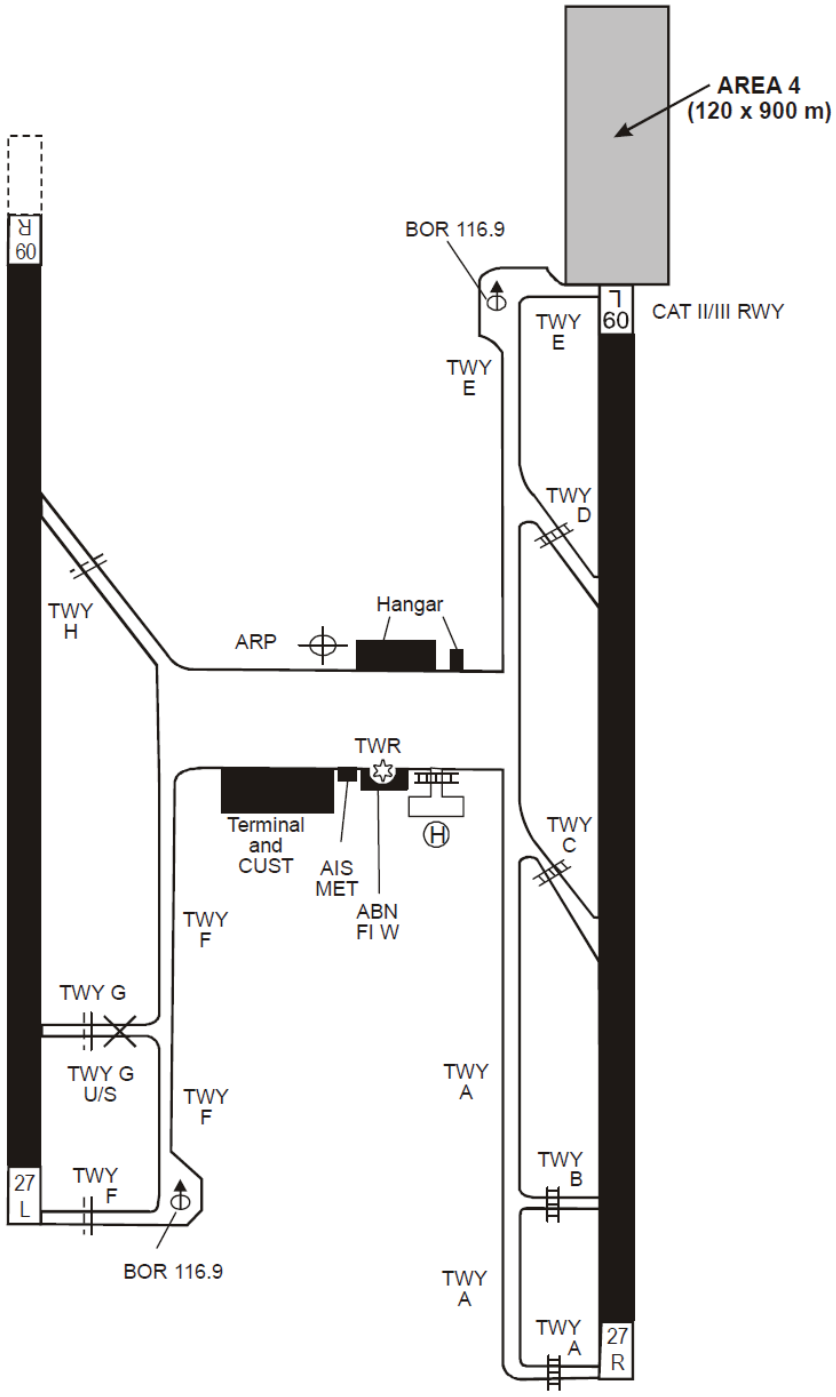

Figure A8-4. Terrain and obstacle data collection surface — Area 4

Terrain and obstacle data in Area 4 shall comply with the numerical requirements specified in Appendix 1 ~~Table A8-1 and Table A8-2 respectively~~.

~~*Note.— Area 4 may be extended in accordance with 10.1.2.*~~

— END —

Interregional EUR/MID Workshop on PANS AIM

Summary and Conclusions

Paris, France, 10-12 July 2018

ICAO UNITING AVIATION

Introduction

- Attendance
  - 101 Participants
  - 41 States (EUR/NAT and MID)
  - 9 International Organizations & Industry

ICAO UNITING AVIATION

Workshop Objectives

The objective of the Workshop was to:

- introduce the new PANS-AIM (Doc 10066) and latest Amendments to Annex 15; and

- address associated challenges and share best practices for a timely implementation of the new provisions, including the implementation of datasets.

ICAO UNITING AVIATION

Agenda

- Agenda Item 1: Opening
- Agenda Item 2: Global AIM developments
- Agenda Item 3: Amendment 39 to Annex 15
  - Introduction of the Amendment 39 to Annex 15
  - New SNOWTAM Format
  - Main changes and implications on States and Stakeholders
- Agenda Item 4: Amendment 40 to Annex 15
  - Introduction of the Amendment 40 to Annex 15
  - Main changes and implications on States and Stakeholders
- Agenda Item 5: PANS AIM (Doc 10066)
  - Introduction of the new PANS AIM (Doc 10066)
  - Aeronautical Data Catalogue
  - Main changes and implications on States and Stakeholders
- Agenda Item 6: Planning and implementation
  - Development of Implementation Plan (Plan of Actions)
- Agenda Item 7: Wrap up and Conclusion

Challenges

- Impact on States for the implementation of the new provisions (Amendment 40 to Annex 15 and PANS-AIM), including the transposition of the PANS-AIM provsions in National/Regional Regulations; and completion of the transition to digital AIM (including the implementation of datasets). The applicability date of the new provisons is 8 November 2018, and action should be taken to expedite implementation and change the current business models (business transformation).
- Readiness for change (availability of necessary human and financial resources, training, awareness, communication, etc)
- Need for additional guidance material from Global (ICAO HQ) and Regional levels (ROs/PIRGs, EUROCONTROL, EASA, etc)
- Interoperability issues
- More stringent need for cross-border data coordination, in a data-centric environment
- Difficulties that may be faced by Users, if digital datasets are implemented by States in different ways (no harmonization/standardization)

Recommendations

- A step-wise approach (balancing wins and efforts) should be followed for the implementation of the new AIM provisions (Amendment 40 to Annex 15 and PANS-AIM)
- All Stakeholders (ICAO HQ and ROs, International Organizations, States (regulators, Service Providers and Originators) and Industry) should joint efforts (coordinated approach) to support and expedite a harmonized implementation of the new AIM provisions to go fully digital, with three aligned parallel tracks: global, regional and national levels:

At the Global Level:

- ICAO HQ to expedite the establishment of a working structure/arrangement to:
  - address AIM domain-specific subjects (not only those SWIM-related), including AIM implementation issues
  - develop additional Guidance and/or update the current Manuals
  - develop an updated version of the Roadmap for the transition from AIS to AIM to support the transition for the upcoming 10 years
  - continue the enhancement of the AIM provisions,
  - Review of the ICAO provisions (other than Annex 15) to fully support the transition to digital AIM
  - provision of necessary assistance to States, such as conduct of Go-Team visits, organisation of global AIM events, etc.

Recommendations

At the Regional Level:

- Development/update of Regional Plans and Roadmaps
- Raise awareness about the new AIM provisions and identify associated difficulties and challenges, as well as the necessary resources and time to implement them and comply with the global and regional requirements (provide Forum for sharing information and best practices, e.g. Webinars)
- Development of necessary Regional Guidance
- Address Regional and Inter-regional issues, in particular interoperability and cross-border issues
- Provision of necessary assistance to States through the conduct of workshops/seminars, Go-Team visits, Assistance Missions to States, etc.
- Assess Stakeholders readiness for the transition from AIP tables to digital data sets and recommend necessary actions (transition period, visualization of data sets in tabular format or graphical viewer, etc.)
- ROs to establish ad-hoc group(s) composed of volunteers from States, International Organizations and other Stakeholders, to take necessary action(s) on the recommendations of the Workshop, in order to propose the needful to the relevant PIRGs.

Recommendations

At the National Level:

- Development/update of the National Plan/Roadmap for the transition to AIM and ensure alignment with Global and Regional Plans, including a step-wise approach (balancing wins and efforts) for the implementation of datasets
- Raise awareness about the importance of the new AIM provisions and associated difficulties and challenges, as well as the necessary resources and time to implement them and comply with the global and regional requirements
- Ensure the training of the AIM staff to support the implementation of digital AIM
- Assess the readiness of the different stakeholders (ANSP/AISP, data originators, end users, etc.) for the implementation of the new AIM provisions, in particular the datasets
- Ensure consistency between aeronautical information products, including digital datasets
- Support the global and regional AIM activities, through sharing of expertise and best practices

ICAO

THANK YOU

16th Edition		15th Edition		Assessment
Para No.	**Text of Standard**	**Para. No.**	**Text of Standard**	
1.2.1.1	The World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.	**1.2.1.1**	World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for international air navigation. Consequently, published aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.	No significant change / minor editorial amendment
1.2.2.1	Mean sea level (MSL) datum shall be used as the vertical reference system for international air navigation.	**1.2.2.1**	Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system for international air navigation.	No significant change / minor editorial amendment
1.2.2.2	The Earth Gravitational Model — 1996 (EGM-96) shall be used as the global gravity model for international air navigation.	**1.2.2.2**	The Earth Gravitational Model — 1996 (EGM-96), containing long wavelength gravity field data to degree and order 360, shall be used by international air navigation as the global gravity model.	No significant change / minor editorial amendment
1.2.2.3	At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data shall be developed and used. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Aeronautical Information Publication (AIP).	**1.2.2.3**	At those geographical positions where the accuracy of EGM-96 does not meet the accuracy requirements for elevation and geoid undulation specified in Annex 14, Volumes I and II, on the basis of EGM-96 data, regional, national or local geoid models containing high resolution (short wavelength) gravity field data shall be developed and used. When a geoid model other than the EGM-96 model is used, a description of the model used, including the parameters required for height transformation between the model and EGM-96, shall be provided in the Aeronautical Information Publication (AIP)	No significant change / minor editorial amendment
1.2.3.1	The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system for international air navigation.	**1.2.3.1**	The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system for international air navigation.	No significant change / minor editorial amendment
1.2.3.2	When a different temporal reference system is used for some applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system.	**1.2.3.2**	When a different temporal reference system is used for some applications, the feature catalogue, or the metadata associated with an application schema or a data set, as appropriate, shall include either a description of that system or a citation for a document that describes that temporal reference system.	No significant change / minor editorial amendment
1.3.1	Aeronautical information products intended for international distribution shall include English text for those parts expressed in plain language.	**1.3.1**	Each element of the Integrated Aeronautical Information Package for international distribution shall include English text for those parts expressed in plain language.	**Replacement of IAIP with "Aeronautical Information Products"**
1.3.2	Place names shall be spelt in conformity with local usage, transliterated, when necessary, into the ISO-Basic Latin alphabet.	**1.3.2**	Place names shall be spelt in conformity with local usage, transliterated, when necessary, into the Latin alphabet.	No significant change / minor editorial amendment
1.3.4	ICAO abbreviations shall be used in aeronautical information products whenever they are appropriate and their use will facilitate distribution of aeronautical data and aeronautical information.	**1.3.4**	ICAO abbreviations shall be used in the AIS whenever they are appropriate and their use will facilitate distribution of aeronautical data and aeronautical information.	**Replacement of AIS with "Aeronautical Information Products"**

MID REGION AIM IMPLEMENTATION ROADMAP FOR THE TRANSITION FROM AIS TO AIM

	Related Steps	2016		2017		2018		2019		2020		2021		2022		Priority	Remarks
		1	2	1	2	1	2	1	2	1	2	1	2	1	2		
AIXM	P07, P08															**1**	Target: 80% by 2018
eAIP	P11															**1**	Target: 80% by 2020
Integrated Aeronautical Information Database	P06															**2**	
Aeronautical Data Exchange	P09															**2**	
Interoperability with MET	P19															**3**	
Aeronautical Information Briefing	P12															**3**	
Agreement with data originators	P18															**1**	
Data Quality Monitoring	P01															**1**	
Data Integrity Monitoring	P02															**1**	
Terrain A-1	P13															**2**	Target: 70% by 2018
Obstacle A-1	P14															**2**	Target: 60% by 2018
Terrain A-4	P13															**2**	Target: 100% by 2018
Obstacle A-4	P14															**2**	Target: 100% by 2018
Terrain A-2a	P13															**2**	
Obstacle A-2a	P14															**2**	
Training	P16															**1**	Continuous
Communication networks	P10															**3**	
Digital NOTAM	P21															**3**	
Electronic Aeronautical Charts	P20															**3**	
Terrain and Obstacle for Areas 2b, 2c, 2d and 3	P13, P14															**3**	Optional based on the States' decision to be reflected in the States' national Regulations and AIM National Plans, in accordance with operational needs
Aerodrome Mapping	P15															**3**	Optional based on the States' decision to be reflected in the States' national Regulations and AIM National Plans, in accordance with operational needs

***White**: Planning* ***Light Green**: Initial/On-going Implementation* ***Dark Green**: Implemented (Performance Target achieved)*

- END -