



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.: +1 514-315-1872

Ref.: AN 7/64.2.3-24/25

24 April 2024

Subject: Adoption of Amendment 92 to Annex 10,
Volume III

Action required: a) Notify any disapproval before
22 July 2024; b) Notify any differences and compliance
before 28 October 2024; 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 92 to the *International Standards and Recommended Practices, Aeronautical Telecommunications — Communication Systems* (Annex 10, Volume III to the Convention on International Civil Aviation) was adopted by the Council at the fifth meeting of its 231st Session on 18 March 2024. 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 22 July 2024 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 92, to the extent it becomes effective, will become applicable on 28 November 2024.

3. Amendment 92 arises from:

- a) recommendations from the fourth meeting of the Surveillance Panel (SP/4) concerning 24-bit aircraft address; and
- b) consequential amendment arising from the Second meeting of the Information Management Panel (IMP/2) concerning system-wide information management (SWIM) and information security.

4. The amendment concerning 24-bit aircraft address contains new and modified provisions aiming at the effective management of the 24-bit aircraft address scheme. Air-ground and air-air surveillance systems are heavily reliant on the 24-bit aircraft address configured on board aircraft. There

have been occurrences where several aircraft reported identical aircraft addresses. The addition of provisions for aircraft address assignment as a part of the registration process is proposed in this amendment to mitigate such occurrences of operations with incorrect aircraft address. Furthermore, recognizing that some States have relatively small blocks of aircraft addresses allocated to them and are currently facing a shortage of available allocated aircraft addresses, this amendment also contains provisions for additional address-block allocations to those States. Also, it proposes to provide aircraft address blocks to new ICAO member States.

5. The consequential amendment concerning information management is intended to address the need to add a reference pointing to where the information security provisions can be found.

6. The subjects are given in the amendment to the Foreword of Annex 10, Volume III a copy of which is in Attachment A.

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

- a) that before 22 July 2024 you inform me if there is any part of the adopted Standards and Recommended Practices (SARPs) amendments in Amendment 92 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;
- b) that before 28 October 2024 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 28 November 2024 between the national regulations or practices of your Government and the provisions of the whole of Annex 10, Volume III, as amended by all amendments up to and including Amendment 92, 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 10, Volume III, as amended by all amendments up to and including Amendment 92.

8. With reference to the request in paragraph 7 a) above, it should be noted that a registration of disapproval of Amendment 92 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 7 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.

9. With reference to the request in paragraph 7 b) above, it should be also noted that the ICAO Assembly, at its 39th Session (27 September to 6 October 2016), resolved that Member States should be encouraged to use the EFOD System when notifying differences (Resolution A39-22 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.

10. 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.

11. I would appreciate it if you would also send a copy of your notifications, referred to in paragraph 7 b) above, to the ICAO Regional Office accredited to your Government.

12. 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. An overview of the approval process for Amendment 92 to Annex 10, Volume III, is also included for your information in Attachment G.

13. As soon as practicable after the amendment becomes effective, on 22 July 2024, replacement pages incorporating Amendment 92 will be forwarded to you.

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

for Juan Carlos Salazar
Secretary General

Enclosures:

- A — Amendment to the Foreword of Annex 10, Volume III
- B — Form on notification of disapproval of all or part of Amendment 92 to Annex 10, Volume III
- C — Form on notification of compliance with or differences from Annex 10, Volume III
- D — Note on the Notification of Differences
- E — Implementation task list and outline of guidance material in relation to Amendment 92 to Annex 10, Volume III
- F — Impact assessment in relation to Amendment 92 to Annex 10, Volume III
- G — Overview of approval process for Amendment 92 to Annex 10, Volume III

ATTACHMENT A to State letter AN 7/64.2.3-24/25

AMENDMENT TO THE FOREWORD OF ANNEX 10, VOLUME III

Add the following elements at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
92	Fourth meeting of the Surveillance Panel (SP/4); and the second meeting of the Information Management Panel (IMP/2)	a) 24-bit aircraft address; and b) system-wide information management (SWIM) and information security.	18 March 2024 22 July 2024 28 November 2024

**NOTIFICATION OF DISAPPROVAL OF ALL OR PART OF
AMENDMENT 92 TO ANNEX 10, VOLUME III**

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 92 to Annex 10, Volume III:

Signature _____

Date _____

NOTES

- 1) If you wish to disapprove all or part of Amendment 92 to Annex 10, Volume III, please dispatch this notification of disapproval to reach ICAO Headquarters by 22 July 2024. 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 92, 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 10, Volume III. Separate notifications on this are necessary. (See Attachment C.)
- 3) Please use extra sheets as required.

ATTACHMENT C to State letter AN 7/64.2.3-24/25

**NOTIFICATION OF COMPLIANCE WITH OR DIFFERENCES
FROM ANNEX 10, VOLUME III
(Including all amendments up to and including Amendment 92)**

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 10, Volume III, including all amendments up to and including Amendment 92.

2. The following differences will exist on _____ between the regulations and/or practices of **(State)** _____ and the provisions of Annex 10, Volume III, including Amendment 92 (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)
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(Please use extra sheets as required.)

3. By the dates indicated below, **(State)** _____ will have complied with the provisions of Annex 10, Volume III, including all amendments up to and including Amendment 92 for which differences have been notified in 2 above.

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

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).

* 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.

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

**IMPLEMENTATION TASK LIST AND OUTLINE OF GUIDANCE MATERIAL
IN RELATION TO AMENDMENT 92 TO ANNEX 10, VOLUME III**

1. IMPLEMENTATION TASK LIST

1.1 Essential steps to be followed by a State to implement Amendment 92 to Annex 10, Volume III:

- a) identification of the rule-making process necessary to transpose the modified ICAO provisions into the national regulations;
- b) establishment of a national implementation plan that takes into account the 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;
- f) publication of significant differences in AIP, if necessary;
- g) training of operational staff and inspectors in the use of new provisions; and
- h) update of software if States are using it in managing the assignment of aircraft addresses.

2. STANDARDIZATION PROCESS

2.1 Effective date: 22 July 2024

2.2 Applicability date: 28 November 2024

2.3 Embedded applicability date(s): None

3. SUPPORTING DOCUMENTATION

3.1 ICAO documentation

Title	Type (PANS/TI/Manual/Circ)	Planned publication date
<i>Aeronautical Surveillance Manual</i> (Doc 9924)	Manual	3rd edition published in 2020

3.2 **External documentation**

Title	External Organization	Publication date
Nil		

4. **IMPLEMENTATION ASSISTANCE TASKS**

Type	Global	Regional
Nil		

5. **UNIVERSAL SAFETY OVERSIGHT AUDIT PROGRAMME (USOAP)**

5.1 Existing Protocol Questions (PQs) may need amendment or new PQs may be required. This will be assessed during the next amendment cycle of the protocol questions.

**IMPACT ASSESSMENT IN RELATION TO
AMENDMENT 92 TO ANNEX 10, VOLUME III**

1. INTRODUCTION

1.1 Amendment 92 to Annex 10, Volume III addresses amendments developed by the fourth meeting of the Surveillance Panel (SP/4) and the Second Information Management Panel (IMP/2) to amend Annex 10 — *Aeronautical Telecommunications, Volume III — Communication Systems, Part I — Digital Data Communication Systems* related to the 24-bit aircraft address and a consequential amendment regarding system-wide information management (SWIM) and information security.

2. IMPACT ASSESSMENT

2.1 Amendment related to 24-bit aircraft address

2.1.1 *Safety impact:* Positive. The assignment of the aircraft address and its correct configuration in the aircraft is a key element for the safe operation of aircraft as well as associated communication protocols used to support ground-based surveillance systems. The new provisions for the registration process aim to mitigate occurrences of operations with incorrect aircraft address.

2.1.2 *Financial impact:* Negligible increase in costs for the States as indicated in 3.1.4.

2.1.3 *Security impact:* No Security impact is expected with the implementation of this amendment.

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

2.1.5 *Efficiency impact:* Positive. With additional aircraft addresses more aircraft can be accommodated to participate in advanced surveillance operations and services, ultimately resulting in more efficient airspace management.

2.1.6 *Expected implementation time:* Between two to three years for those affected States as described in 3.1.3.

2.2 Consequential amendment concerning system-wide information management (SWIM) and information security

2.2.1 *Safety impact:* No safety impact with the implementation of this amendment.

2.2.2 *Financial impact:* No financial impact with the implementation of this amendment.

2.2.3 *Security impact:* No security impact with the implementation of this amendment.

2.2.4 *Environmental impact:* No environmental impact with the implementation of this amendment.

2.2.5 *Efficiency impact:* No efficiency impact with the implementation of this amendment.

2.2.6 *Expected implementation time:* There is no significant change to State regulations foreseen with the implementation of this amendment.

ATTACHMENT G to State letter AN 7/64.2.3-24/25

**OVERVIEW OF APPROVAL PROCESS FOR
AMENDMENT 92 TO ANNEX 10, VOLUME III**

Amendment concerning	Source(s)	Preliminary review by the ANC	State letter and date	Final review by the ANC	No. of replies at final review	Adopted Effective Applicable
24-bit aircraft address	fourth meeting of the Surveillance Panel (SP/4)	29 November 2022 (ANC 221-6)	AN 7/1.3.95-22/106 22 December 2022	3 October 2023 (ANC 224-2)	58 Contracting States 5 int. orgs Total: 63 replies	18 March 2024 22 July 2024 28 November 2024
Consequential amendment concerning system-wide information management (SWIM) and information security	second meeting of the Information Management Panel (IMP/2)	29 November 2022 (ANC 221-6)	AN 2/36-23/6 13 February 2023 and Corr. No. 1	2 November 2023 (ANC 224-6)	71 Contracting States 4 int. orgs Total: 75 replies	18 March 2024 22 July 2024 28 November 2024

— END —

AMENDMENT 92

TO THE

**INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES**

**AERONAUTICAL
TELECOMMUNICATIONS**

ANNEX 10

TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION

**VOLUME III
COMMUNICATION SYSTEMS**

The amendment to Annex 10, Volume III, contained in this document was adopted by the Council of ICAO on **18 March 2024**. Such parts of this amendment as have not been disapproved by more than half of the total number of Contracting States on or before **22 July 2024** will become effective on that date and will become applicable on **28 November 2024** as specified in the Resolution of Adoption. (State letter AN 7/64.2.3-24/25 refers.)

MARCH 2024

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**AMENDMENT 92 TO THE INTERNATIONAL STANDARDS AND
RECOMMENDED PRACTICES**

**ANNEX 10 — AERONAUTICAL TELECOMMUNICATIONS
VOLUME III — COMMUNICATION SYSTEMS**

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 18 March 2024 Amendment 92 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Aeronautical Telecommunications — Communication Systems* which for convenience is designated Annex 10, Volume III to the Convention;
2. *Prescribes* 22 July 2024 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 28 November 2024;
4. *Requests the Secretary General:*
 - i) to notify each Contracting State immediately of the above action and immediately after 22 July 2024 of those parts of the amendment which have become effective;
 - j) 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 28 November 2024 between its national regulations or practices and the provisions of the Standards in the Annex as hereby amended, such notification to be made before 28 October 2024, and thereafter to notify the Organization of any further differences that arise;
 - 2) to notify the Organization before 28 October 2024 of the date or dates by which it will have complied with the provisions of the Standards in the Annex as hereby amended;
 - k) to invite each Contracting State to notify additionally any differences between its own practices and those established by the Recommended Practices, following the procedure specified in subparagraph b) above with respect to differences from Standards.

**NOTES ON THE PRESENTATION OF
AMENDMENT 92 TO ANNEX 10, VOLUME III**

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 AMENDMENT 92
TO THE
INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES
AERONAUTICAL TELECOMMUNICATIONS
ANNEX 10
TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION
VOLUME III
COMMUNICATION SYSTEMS

...

PART I – DIGITAL DATA COMMUNICATION SYSTEMS

CHAPTER 1. DEFINITIONS

...

Note 5.— Provisions related to information security can be found in the Procedures for Air Navigation Services — Information Management (PANS-IM, Doc 10199).

...

CHAPTER 5. SSR MODE S AIR-GROUND DATA LINK

...

Table 5-24. Register number assignments

<i>Transponder register No.</i>	<i>Assignment</i>
00 ₁₆	Not valid
01 ₁₆	Unassigned
02 ₁₆	Linked Comm-B, segment 2
03 ₁₆	Linked Comm-B, segment 3
04 ₁₆	Linked Comm-B, segment 4
05 ₁₆	Extended squitter airborne position
06 ₁₆	Extended squitter surface position
07 ₁₆	Extended squitter status
08 ₁₆	Extended squitter identification and type
09 ₁₆	Extended squitter airborne velocity
0A ₁₆	Extended squitter event-driven information
0B ₁₆	Air/air information 1 (aircraft state)

<i>Transponder register No.</i>	<i>Assignment</i>
0C ₁₆	Air/air information 2 (aircraft intent)
0D ₁₆ -0E ₁₆	Reserved for air/air state information
0F ₁₆	Reserved for ACAS
10 ₁₆	Data link capability report
11 ₁₆ -16 ₁₆	Reserved for extension to data link capability reports
17 ₁₆	Common usage GICB capability report
18 ₁₆ -1F ₁₆	Mode S specific services capability reports
20 ₁₆	Aircraft identification
21 ₁₆	Aircraft and airline registration markings
22 ₁₆	Antenna positions
23 ₁₆	Reserved for antenna position
24 ₁₆	Reserved for aircraft parameters
25 ₁₆	Aircraft type
26 ₁₆ -2F ₁₆	Unassigned
30 ₁₆	ACAS active resolution advisory
31 ₁₆ -3F ₁₆	Unassigned
40 ₁₆	Selected vertical intention
41 ₁₆	Next waypoint identifier
42 ₁₆	Next waypoint position
43 ₁₆	Next waypoint information
44 ₁₆	Meteorological routine air report
45 ₁₆	Meteorological hazard report
46 ₁₆	Reserved for flight management system Mode 1
47 ₁₆	Reserved for flight management system Mode 2
48 ₁₆	VHF channel report
49 ₁₆ -4F ₁₆	Unassigned
50 ₁₆	Track and turn report
51 ₁₆	Position report coarse
52 ₁₆	Position report fine
53 ₁₆	Air-referenced state vector
54 ₁₆	Waypoint 1
55 ₁₆	Waypoint 2
56 ₁₆	Waypoint 3
57 ₁₆ -5E ₁₆	Unassigned
5F ₁₆	Quasi-static parameter monitoring
60 ₁₆	Heading and speed report
61 ₁₆	Extended squitter emergency/priority status
62 ₁₆	Reserved for target state and status information
63 ₁₆	Reserved for extended squitter
64 ₁₆	Reserved for extended squitter
65 ₁₆	Aircraft operational status
66 ₁₆ -6F ₁₆	Reserved for extended squitter
70 ₁₆ -75 ₁₆	Reserved for future aircraft downlink parameters
76 ₁₆ -E0 ₁₆	Unassigned
E1 ₁₆ -E2 ₁₆	Reserved for Mode S BITE
E3 ₁₆	Transponder type/part number
E4 ₁₆	Transponder software revision number
E5 ₁₆	ACAS unit part number
E6 ₁₆	ACAS unit software revision number
E7 ₁₆ -F0 ₁₆	Unassigned
F1 ₄₆	Military applications
F2 ₄₆	Military applications
F3 ₁₆ -FF ₁₆	Unassigned

...

CHAPTER 9. AIRCRAFT ADDRESSING SYSTEM

...

APPENDIX TO CHAPTER 9. A WORLDWIDE SCHEME FOR THE ALLOCATION, ASSIGNMENT AND APPLICATION OF AIRCRAFT ADDRESSES

...

2. DESCRIPTION OF THE SCHEME

2.1 Table 9-1 provides for blocks of consecutive addresses available to States for assignment to aircraft. Each block is defined by a fixed pattern of the first 4, 6, 9, 11, 12 or 14-13 bits of the 24-bit address. Thus, blocks of different sizes (1 048 576, 262 144, 32 768, 8 192, 4 096 and 1-024-2 048 consecutive addresses, respectively) are made available.

...

4. ALLOCATION OF AIRCRAFT ADDRESSES

...

~~4.3 In the future management of the scheme, advantage shall be taken of the blocks of aircraft addresses not yet allocated. These spare blocks shall be distributed on the basis of the relevant ICAO region:~~

~~Addresses starting with bit combination 00100: AFI region~~

~~Addresses starting with bit combination 00101: SAM region~~

~~Addresses starting with bit combination 0101: EUR and NAT regions~~

~~Addresses starting with bit combination 01100: MID region~~

~~Addresses starting with bit combination 01101: ASIA region~~

~~Addresses starting with bit combination 1001: NAM and PAC regions~~

~~Addresses starting with bit combination 111011: CAR region~~

~~In addition, aircraft addresses starting with bit combinations 1011, 1101 and 1111 have been reserved for future use.~~

4.4-3 Any future requirement for additional aircraft addresses shall be accommodated through coordination between ICAO and the States of Registry or common mark registering authority concerned. A request for additional aircraft addresses shall only be made by a registering authority when at least 75 per cent of the number of addresses already allocated to that registering authority have been assigned to aircraft.

4.5-4 ICAO shall allocate blocks of aircraft addresses to non-Contracting States upon request.

5. ASSIGNMENT OF AIRCRAFT ADDRESSES

5.1 **During the registration process,** Using its allocated block of addresses, the State of Registry or common mark registering authority shall assign an individual aircraft address to each suitably equipped aircraft entered on a national or international register (Table 9-1).

...

5.2 Aircraft addresses shall be assigned to aircraft in accordance with the following principles:

...

b) only one address shall be assigned to an aircraft, irrespective of the composition of equipment on board. In the case when a removable transponder is shared by several light aviation aircraft such as balloons or gliders, it shall be possible to assign a unique address to the removable transponder. ~~The registers 08₁₆, and 20₁₆, 24₁₆, 22₁₆ and 25₁₆~~ of the removable transponder shall be correctly updated each time the removable transponder is installed in any aircraft;

...

5.2.1 **Recommendation.**— *Any method used to assign aircraft addresses should ensure efficient use of the entire address block that is allocated to that State.*

5.3 Assignment of aircraft addresses to unmanned aircraft (UA)

Note — States may need to consider withholding aircraft addresses to unmanned aircraft (UA) unless certain criteria have been met. Proper and efficient utilization of available bandwidth and capacity at 1 090 MHz is a key element to ensure the safe operation of aeronautical surveillance systems, including secondary surveillance radar (SSR), automatic dependent surveillance — broadcast (ADS-B) and airborne collision avoidance systems (ACAS). A large number of UA equipped with ADS-B OUT transmitters operating at 1 090 MHz may adversely affect the operation of surveillance systems in the area. Reference is made to the guidance material contained in the Aeronautical Surveillance Manual (Doc 9924), intended to assist States when validating the utilization of 1 090 MHz.

6. ADMINISTRATION OF THE AIRCRAFT ADDRESS ASSIGNMENTS

6.1 The State of Registry or common mark registering authority shall administer the allocated block of aircraft addresses so that appropriate assignment of aircraft addresses within its allocated block can be maintained.

Note. — The aircraft address is an essential element that needs to be correctly configured in an aircraft to support operation of systems and functions, such as SSR Mode S, ADS-B, datalink, collision avoidance and emergency location.

6.2 States shall establish and publish an administrative procedure for requesting and assigning aircraft addresses.

Note. — An example of an effective administrative procedure, including the indication of the aircraft address in the certificate of registration, which can be used by the State of Registry or common mark registering authority, can be found in the Aeronautical Surveillance Manual (Doc 9924).

6.3 The State of Registry or common mark registering authority shall put in place measures to ensure that aircraft registered under their responsibility are flying with a correct aircraft address.

Note. — Examples of such measures can be found in 2.1.7 of Appendix O of the Aeronautical Surveillance Manual (Doc 9924).

6.7. APPLICATION OF AIRCRAFT ADDRESSES

6.7.1 The aircraft addresses shall be used in applications which require the routing of information to or from individual suitably equipped aircraft.

Note 1.— Examples of such applications are the aeronautical telecommunication network (ATN), SSR Mode S, ADS-B, emergency locator transmitter (ELT) and airborne collision avoidance system (ACAS).

Note 2.— This Standard does not preclude assigning the aircraft addresses for special applications associated with the general applications defined therein. ~~Examples—An example of such a special applications is are the utilization of the 24-bit address in a pseudo-aeronautical earth station to monitor the aeronautical mobile satellite service ground earth station and in the fixed Mode S transponders (reporting the on-the-ground status as specified in Annex 10, Volume IV, 3.1.2.6.10.1.2) to monitor the Mode S ground station operation. Address assignments for special applications are to be carried out in conformance with the procedure established by the State to manage the 24-bit address assignments to aircraft.~~

6.7.2 An address consisting of 24 ZEROs shall not be used for any application.

7.8. ADMINISTRATION OF THE TEMPORARY AIRCRAFT ADDRESS ASSIGNMENTS

7.8.1 Temporary addresses shall be assigned to aircraft in exceptional circumstances, such as when operators have been unable to obtain an address from their individual States of Registry or ~~Common Mark Registering Authority~~ common mark registering authority in a timely manner. ICAO shall assign temporary addresses from the block “ICAO¹” shown in Table 9-1.

Editorial Note.—Renumber subsequent paragraphs

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Table 9-1. Allocation of aircraft addresses to States

Note.— The left-hand column of the 24-bit address patterns represents the most significant bit (MSB) of the address.

State	Number of addresses in block						Allocation of blocks of addresses (a dash represents a bit value equal to 0 or 1)					
	1 024 2 048	4 096	8 192	32 768	262 144	1 048 576						
Afghanistan		*					0111	00	000	000	--	-----
Albania	*						0101	00	000	001	00	-----
Algeria				*			0000	10	100	---	---	-----
Andorra	*						1100	10	010	001	0-	-----
Angola		*					0000	10	010	000	--	-----
Antigua and Barbuda	*						0000	11	001	010	00	-----
Argentina					*		1110	00	---	---	---	-----
Armenia	*						0110	00	000	000	00	-----
Australia					*		0111	11	---	---	---	-----
Austria				*			0100	01	000	---	---	-----
Azerbaijan	*						0110	00	000	000	10	-----
Bahamas		*					0000	10	101	000	--	-----
Bahrain		*					1000	10	010	100	--	-----
Bangladesh		*					0111	00	000	010	--	-----
Barbados	*						0000	10	101	010	00	-----
Belarus	*						0101	00	010	000	00	-----
Belgium				*			0100	01	001	---	---	-----
Belize	*						0000	10	101	011	00	-----
Benin	*						0000	10	010	100	00	-----
Bhutan	*						0110	10	000	000	00	-----
Bolivia (Plurinational State of)		*					1110	10	010	100	--	-----
Bosnia and Herzegovina	*						0101	00	010	011	00	-----
Botswana	*						0000	00	110	000	00	-----
Brazil					*		1110	01	---	---	---	-----
Brunei Darussalam	*						1000	10	010	101	00	-----
Bulgaria				*			0100	01	010	---	---	-----
Burkina Faso		*					0000	10	011	100	--	-----
Burundi		*					0000	00	110	010	--	-----
Cabo Verde	*						0000	10	010	110	0-	-----
Cambodia		*					0111	00	001	110	--	-----
Cameroon		*					0000	00	110	100	--	-----
Canada					*		1100	00	---	---	---	-----
Cape Verde	*						0000	10	010	110	00	-----
Central African Republic		*					0000	01	101	100	--	-----
Chad		*					0000	10	000	100	--	-----
Chile		*					1110	10	000	000	--	-----
China					*		0111	10	---	---	---	-----
Colombia		*	*				0000	10	101	100	--	-----
Comoros	*						0000	00	110	101	00	-----
Congo		*					0000	00	110	110	--	-----
Cook Islands	*						1001	00	000	001	00	-----
Costa Rica		*					0000	10	101	110	--	-----

State	Number of addresses in block						Allocation of blocks of addresses (a dash represents a bit value equal to 0 or 1)					
	1 024 2 048	4 096	8 192	32 768	262 144	1 048 576						
Côte d'Ivoire		*					0000	00	111	000	--	-----
Croatia	*						0101	00	000	001	11	-----
Cuba		*					0000	10	110	000	--	-----
Cyprus	*						0100	11	001	000	00	-----
Czechia					*		0100	10	011	---	--	-----
Democratic People's Republic of Korea				*			0111	00	100	---	--	-----
Democratic Republic of the Congo		*					0000	10	001	100	--	-----
Denmark				*			0100	01	011	---	--	-----
Djibouti	*						0000	10	011	000	00	-----
Dominica	*						1100	10	010	010	0-	-----
Dominican Republic		*					0000	11	000	100	--	-----
Ecuador		*					1110	10	000	100	--	-----
Egypt				*			0000	00	010	---	--	-----
El Salvador		*					0000	10	110	010	--	-----
Equatorial Guinea		*					0000	01	000	010	--	-----
Eritrea	*						0010	00	000	010	00	-----
Estonia	*						0101	00	010	001	00	-----
Eswatini	*						0000	01	111	010	0-	-----
Ethiopia		*					0000	01	000	000	--	-----
Fiji		*					1100	10	001	000	--	-----
Finland				*			0100	01	100	---	--	-----
France					*		0011	10	---	---	--	-----
Gabon		*					0000	00	111	110	--	-----
Gambia		*					0000	10	011	010	--	-----
Georgia	*						0101	00	010	100	00	-----
Germany					*		0011	11	---	---	--	-----
Ghana		*					0000	01	000	100	--	-----
Greece				*			0100	01	101	---	--	-----
Grenada	*						0000	11	001	100	00	-----
Guatemala		*					0000	10	110	100	--	-----
Guinea		*					0000	01	000	110	--	-----
Guinea-Bissau	*						0000	01	001	000	00	-----
Guyana		*					0000	10	110	110	--	-----
Haiti		*					0000	10	111	000	--	-----
Honduras		*					0000	10	111	010	--	-----
Hungary				*			0100	01	110	---	--	-----
Iceland		*					0100	11	001	100	--	-----
India					*		1000	00	---	---	--	-----
Indonesia				*			1000	10	100	---	--	-----
Iran, (Islamic Republic of)				*			0111	00	110	---	--	-----
Iraq				*			0111	00	101	---	--	-----
Ireland		*					0100	11	001	010	--	-----
Israel				*			0111	00	111	---	--	-----
Italy					*		0011	00	---	---	--	-----
Jamaica		*					0000	10	111	110	--	-----
Japan					*		1000	01	---	---	--	-----
Jordan				*			0111	01	000	---	--	-----

State	Number of addresses in block						Allocation of blocks of addresses (a dash represents a bit value equal to 0 or 1)					
	1 024 2 048	4 096	8 192	32 768	262 144	1 048 576						
Kazakhstan	*						0 110	10	000	0 11	00	-----
Kenya		*					0000	01	001	100	--	-----
Kiribati	*						1100	10	001	110	00	-----
Kuwait		*					0111	00	000	110	--	-----
Kyrgyzstan	*						0110	00	000	001	00	-----
Lao People's Democratic Republic		*					0111	00	001	000	--	-----
Latvia	*						0101	00	000	010	11	-----
Lebanon				*			0111	01	001	---	--	-----
Lesotho	*						0000	01	001	010	00	-----
Liberia		*					0000	01	010	000	--	-----
Libyan Arab Jamahiriya				*			0000	00	011	---	--	-----
Lithuania	*						0101	00	000	011	11	-----
Luxembourg	*						0100	11	010	000	00	-----
Madagascar		*					0000	01	010	100	--	-----
Malawi		*					0000	01	011	000	--	-----
Malaysia				*			0111	01	010	---	--	-----
Maldives	*						0000	01	011	010	00	-----
Mali		*					0000	01	011	100	--	-----
Malta	*						0100	11	010	010	00	-----
Marshall Islands	*						1001	00	000	000	00	-----
Mauritania	*						0000	01	011	110	00	-----
Mauritius	*						0000	01	100	000	00	-----
Mexico				*			0000	11	010	---	--	-----
Micronesia, (Federated States of)	*						0110	10	000	001	00	-----
Monaco	*						0100	11	010	100	00	-----
Mongolia	*						0110	10	000	010	00	-----
Montenegro	*						0101	00	010	110	00	-----
Morocco				*			0000	00	100	---	--	-----
Mozambique		*					0000	00	000	110	--	-----
Myanmar		*					0111	00	000	100	--	-----
Namibia	*						0010	00	000	001	00	-----
Nauru	*						1100	10	001	010	00	-----
Nepal		*					0111	00	001	010	--	-----
Netherlands, Kingdom of the				*			0100	10	000	---	--	-----
New Zealand				*			1100	10	000	---	--	-----
Nicaragua		*					0000	11	000	000	--	-----
Niger		*					0000	01	100	010	--	-----
Nigeria		*					0000	01	100	100	--	-----
North Macedonia	*						0101	00	010	010	0-	-----
Norway				*			0100	01	111	---	--	-----
Oman	*						0111	00	001	100	00	-----
Pakistan				*			0111	01	100	---	--	-----
Palau	*						0110	10	000	100	00	-----
Panama		*					0000	11	000	010	--	-----
Papua New Guinea		*					1000	10	011	000	--	-----
Paraguay		*					1110	10	001	000	--	-----

State	Number of addresses in block						Allocation of blocks of addresses (a dash represents a bit value equal to 0 or 1)					
	1 024 2 048	4 096	8 192	32 768	262 144	1 048 576						
Peru		*					1 110	10	001	100	--	-----
Philippines				*			0111	01	011	---	--	-----
Poland				*			0100	10	001	---	--	-----
Portugal				*			0100	10	010	---	--	-----
Qatar	*	*					0000	01	101	010	00	-----
Republic of Korea				*			0111	00	011	---	--	-----
Republic of Moldova	*						0101	00	000	100	11	-----
Romania				*			0100	10	100	---	--	-----
Russian Federation					*		0001	--	---	---	--	-----
Rwanda		*					0000	01	101	110	--	-----
Saint Kitts and Nevis	*						1100	10	010	011	0-	-----
Saint Lucia	*						1100	10	001	100	00	-----
Saint Vincent and the Grenadines	*						0000	10	111	100	00	-----
Samoa	*						1001	00	000	010	00	-----
San Marino	*						0101	00	000	000	00	-----
Sao Tome and Principe	*						0000	10	011	110	00	-----
Saudi Arabia				*			0111	00	010	---	--	-----
Senegal		*					0000	01	110	000	--	-----
Serbia				*			0100	11	000	---	--	-----
Seychelles	*						0000	01	110	100	00	-----
Sierra Leone	*						0000	01	110	110	00	-----
Singapore				*			0111	01	101	---	--	-----
Slovakia	*						0101	00	000	101	11	-----
Slovenia	*						0101	00	000	110	11	-----
Solomon Islands	*						1000	10	010	111	00	-----
Somalia		*					0000	01	111	000	--	-----
South Africa				*			0000	00	001	---	--	-----
South Sudan	*						1100	10	010	100	0-	-----
Spain					*		0011	01	---	---	--	-----
Sri Lanka				*			0111	01	110	---	--	-----
Sudan		*					0000	01	111	100	--	-----
Suriname		*					0000	11	001	000	--	-----
Swaziland	*						0000	01	111	010	00	-----
Sweden				*			0100	10	101	---	--	-----
Switzerland				*			0100	10	110	---	--	-----
Syrian Arab Republic				*			0111	01	111	---	--	-----
Tajikistan	*						0101	00	010	101	00	-----
Thailand				*			1000	10	000	---	--	-----
The former Yugoslav Republic of Macedonia	*						0101	00	010	010	00	-----
Timor-Leste	*						1100	10	010	101	0-	-----
Togo		*					0000	10	001	000	--	-----
Tonga	*						1100	10	001	101	00	-----
Trinidad and Tobago		*					0000	11	000	110	--	-----
Tunisia				*			0000	00	101	---	--	-----
Türkiye Turkey				*			0100	10	111	---	--	-----
Turkmenistan	*						0110	00	000	001	10	-----
Tuvalu	*						1100	10	010	111	0-	-----
Uganda		*					0000	01	101	000	--	-----

State	Number of addresses in block						Allocation of blocks of addresses (a dash represents a bit value equal to 0 or 1)					
	1 024 2 048	4 096	8 192	32 768	262 144	1 048 576						
Ukraine				*			0 1 0 1	0 0	0 0 1	---	--	-----
United Arab Emirates		*					1 0 0 0	1 0	0 1 0	1 1 0	--	-----
United Kingdom					*		0 1 0 0	0 0	---	---	--	-----
United Republic of Tanzania		*					0 0 0 0	1 0	0 0 0	0 0 0	--	-----
United States						*	1 0 1 0	--	---	---	--	-----
Uruguay		*					1 1 1 0	1 0	0 1 0	0 0 0	--	-----
Uzbekistan	*						0 1 0 1	0 0	0 0 0	1 1 1	1 1	-----
Vanuatu	*						1 1 0 0	1 0	0 1 0	0 0 0	0 0	-----
Venezuela (Bolivarian Republic of)				*			0 0 0 0	1 1	0 1 1	---	--	-----
Viet Nam				*			1 0 0 0	1 0	0 0 1	---	--	-----
Yemen		*					1 0 0 0	1 0	0 1 0	0 0 0	--	-----
Zambia		*					0 0 0 0	1 0	0 0 1	0 1 0	--	-----
Zimbabwe	*						0 0 0 0	0 0	0 0 0	1 0 0	0 0	-----
Other allocations												
ICAO ¹				*			1 1 1 1	0 0	0 0 0	---	--	-----
ICAO ²	*						1 0 0 0	1 0	0 1 1	0 0 1	0 0	-----
ICAO ²	*						1 1 1 1	0 0	0 0 1	0 0 1	0 0	-----

1. ICAO administers this block for assigning temporary aircraft addresses as described in section 8.

2. Block allocated for special use in the interest of flight safety.

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— END —