



International
Civil Aviation
Organization

Organisation
de l'aviation civile
internationale

Organización
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Международная
организация
гражданской
авиации

منظمة الطيران
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国际民用
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Tel.: +1 (514) 954-6711

Ref.: AN 13/13.1-07/20

30 March 2007

Subject: Adoption of Amendment 45 to Annex 11

Action Required: a) Notify any disapproval before 16 July 2007; b) Notify any differences and compliance before 22 October 2007

Sir/Madam,

1. I have the honour to inform you that Amendment 45 to the *International Standards and Recommended Practices, Air Traffic Services* (Annex 11 to the Convention on International Civil Aviation) was adopted by the Council at the fifth meeting of its 180th Session on 26 February 2007. 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 (www.icao.int/icaoenet).

2. When adopting the amendment, the Council prescribed .. July 2007 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 45, to the extent it becomes effective, will be applicable on 22 November 2007.

3. Amendment 45 arises from:

- a) a review undertaken by the Secretariat with regard to the provisions concerning air traffic services, which include new provisions related to unlawful interference;
- b) a review by the Commission of the OPLINKP/1 Report concerning the use of automatic dependent surveillance — broadcast (ADS-B), automatic dependent surveillance — contract (ADS-C) and required communication performance (RCP) in the provision of air traffic services; and
- c) consequential amendments concerning the introduction of wind shear alerts and specifications related to aerodrome observations and forecasts.

The subjects are given in the amendment to the Foreword of Annex 11, Thirteenth Edition, a copy of which is in Attachment A.

State letter amendment 45 to Annex 11.en.final.doc

4. This amendment will facilitate the coordination between ATS units, designated authorities and aircraft operators, in respect of all aircraft subjected to unlawful interference, and provide clarity in the use of five-letter name-code designators. The amendment will also facilitate implementation of the available technology in relation to ADS-B and ADS-C and it includes the initial high level provision necessary to support the introduction of RCP. Finally, the amendment aligns Annex 3 — *Meteorological Service for International Air Navigation* and provisions concerning meteorological information to be supplied by ATS.

5. In accordance with the decision of the 26th Session of the Assembly, I would like to bring to your attention the Organization's long-standing practice of providing documentation to States upon request. In this regard, I wish to refer you to the ICAO-NET website (www.icao.int/icaonet) where you can access all relevant documentation. The practice of dispatching printed copies of such documentation has now been discontinued.

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

- a) that before 16 July 2007 you inform me if there is any part of the adopted Standards and Recommended Practices (SARPs) amendments in Amendment 45, 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 22 October 2007 you inform me of the following, using the form in Attachment C for this purpose:
 - 1) any differences that will exist on 22 November 2007 between the national regulations or practices of your Government and the provisions of the whole of Annex 11, as amended by all amendments up to and including Amendment 45, and thereafter of any further differences that may arise;
 - 2) the date or dates by which your Government will have complied with the provisions of the whole of Annex 11, as amended by all amendments up to and including Amendment 45.

7. With reference to the request in paragraph 6 a) above, it should be noted that a registration of disapproval of Amendment 45 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 6 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.

8. Guidance on the determination and reporting of differences is given in the Note on the Notification of Differences in Attachment D.

9. 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.

10. I would appreciate it if you would also send a copy of your notifications, referred to in paragraph 6 b) above, to the ICAO Regional Director accredited to your Government.

11. As soon as practicable after the amendment becomes effective, on 16 July 2007, replacement pages incorporating Amendment 45 will be forwarded to you.

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



↳ Taïeb Chérif
Secretary General

Enclosures:

- A — Amendment to the Foreword of Annex 11
- B — Form on notification of disapproval of all or part of Amendment 45 to Annex 11
- C — Form on notification of compliance with or differences from Annex 11
- D — Note on the Notification of Differences

ATTACHMENT A to State letter AN 13/13.1-07/20

AMENDMENT TO THE FOREWORD OF ANNEX 11, THIRTEENTH EDITION

Add the following at the end of Table A (page *xiii*):

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
45	Air Navigation Commission	Definitions and associated procedures for ADS-B, ADS-C and RCP; coordination procedures between ATS and other entities; name-code designators; introduction of wind shear alerts.	26 February 2007 16 July 2007 22 November 2007

**NOTIFICATION OF DISAPPROVAL OF ALL OR PART OF
AMENDMENT 45 TO ANNEX 11**

To: The Secretary General
International Civil Aviation Organization
999 University Street
Montreal, Quebec
Canada H3C 5H7

(State) _____ hereby wishes to disapprove the following parts of
Amendment 45 to Annex 11:

Signature _____

Date _____

NOTES

- 1) If you wish to disapprove all or part of Amendment 45 to Annex 11, please dispatch this notification of disapproval to reach ICAO Headquarters by 16 July 2007. 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 45, 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 11. Separate notifications on this are necessary. (See Attachment C.)
- 3) Please use extra sheets as required.

ATTACHMENT C to State letter AN 13/13.1-07/20

**NOTIFICATION OF COMPLIANCE WITH OR DIFFERENCES
FROM ANNEX 11
(including all amendments up to and including Amendment 45)**

To: The Secretary General
International Civil Aviation Organization
999 University Street
Montreal, Quebec
Canada H3C 5H7

1. No differences will exist on _____ between the national regulations and/or practices of **(State)** _____ and the provisions of Annex 11, including all amendments up to and including Amendment 45.

2. The following differences will exist on _____ between the regulations and/or practices of **(State)** _____ and the provisions of Annex 11, including Amendment 45 (Please see Note 3) below.)

a) Annex Provision (Please give exact paragraph reference)	b) Difference Category (Please indicate A, B, or C)	c) Details of Difference (Please describe the difference clearly and concisely)	d) 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 11, including all amendments up to and including Amendment 45 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 you, 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) Please dispatch the form to reach ICAO Headquarters by 22 October 2007.
- 3) A detailed repetition of previously notified differences, if they continue to apply, may be avoided by stating the current validity of such differences.
- 4) Guidance on the notification of differences from Annex 11 is provided in the Note on the Notification of Differences at Attachment D.
- 5) Please send a copy of this notification to the ICAO Regional Director accredited to your Government.

**NOTE ON THE NOTIFICATION OF DIFFERENCES TO ANNEX 11
AND FORM OF NOTIFICATION**

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

1. *Introduction*

1.1 The Assembly and the Council, when reviewing the notification of differences by States in compliance with Article 38 of the Convention, have repeatedly noted that the state of such reporting is not entirely satisfactory.

1.2 With a view to achieving a more comprehensive coverage, this note is issued to facilitate the determination and reporting of such differences and to state the primary purpose of such reporting.

1.3 The primary purpose of reporting of differences is to promote safety 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 ICAO Standards.

1.4 Contracting States are, therefore, requested to give particular attention to the notification before 22 October 2007 of differences with respect to Standards in Annex 11. The Council has also urged Contracting States to extend the above considerations to Recommended Practices.

1.5 Contracting States are asked to note further that it is necessary to make an explicit statement of intent to comply where such intent exists, or where such is not the intent, of the difference or differences that will exist. This statement should be made not only to the latest amendment but to the whole Annex, including the amendment.

1.6 If previous notifications have been made in respect of this Annex, detailed repetition may be avoided, if appropriate, by stating the current validity of the earlier notification. States are requested to provide updates of the differences previously notified after each amendment, as appropriate, until the difference no longer exists.

2. *Notification of differences to Annex 11, including Amendment 45*

2.1 Past experience has indicated that the reporting of differences to Annex 11 has in some instances been too extensive since some appear merely to be a different manner of expressing the same intent.

2.2 Guidance to Contracting States in the reporting of differences to Annex 11 can only be given in very general terms. Where the national regulations of States call for compliance with procedures that are not identical but essentially similar to those contained in the Annex, no difference should be reported since the details of the procedures existing are the subject of notification through the medium of aeronautical information publications. Although differences to Recommended Practices are not notifiable under Article 38 of the Convention, Contracting States are urged to notify the Organization of the differences between their national regulations and practices and any corresponding Recommended Practices contained in an Annex. States should categorize each difference notified on the basis of whether the corresponding national regulation is:

- a) ***More exacting or exceeds the ICAO Standard or Recommended Practice (SARP) (Category A)***. This category applies when the national regulation is more demanding than the corresponding SARP, or imposes an obligation within the scope of the Annex which is not covered by a SARP. This is of particular importance where a State requires a higher standard which affects the operation of aircraft of other Contracting States in and above its territory;
- b) ***Different in character or other means of compliance (Category B)****. This category applies when the national regulation is different in character from the corresponding ICAO SARP, or when the national regulation differs in principle, type or system from the corresponding SARP, without necessarily imposing an additional obligation; and
- c) ***Less protective or partially implemented/not implemented (Category C)***. This category applies when the national regulation is less protective than the corresponding SARP; or when no national regulation has been promulgated to address the corresponding SARP, in whole or in part.

2.3 For States that have already fully reported differences from Annex 11 or have reported that no differences exist, the reporting of any further differences occasioned by the amendment should be relatively straightforward; however, attention is called to paragraph 1.5 wherein it is indicated that this statement should be not only to the latest amendment but to the whole Annex, including the amendment.

3. *Form of notification of differences*

3.1 Differences should be notified in the following form:

- a) ***Reference***: The number of the paragraph or subparagraph in Annex 11 as amended which contains the Standard or Recommended Practice to which the difference relates;
- b) ***Category***: Indicate the category of the difference as A, B or C in accordance with paragraph 2.2 above.
- c) ***Description of the difference***: Clearly and concisely describe the difference and its effect;
- d) ***Remarks***: Under “Remarks” indicate reasons for the difference and intentions including any planned date for implementation.

*The expression “different in character or other means of compliance” in b) would be applied to a national regulation which achieves, by other means, the same objective as that of the corresponding ICAO SARPs and so cannot be classified under a) or c).

3.2 The differences notified will be recorded in a Supplement to the Annex, normally in the terms used by the Contracting State when making the notification. In the interest of making the supplement as useful as possible, please make statements as clear and concise as possible and confine remarks to essential points. Comments on implementation, in accordance with paragraph 4 b) 2) of the Resolution of Adoption, should not be combined with those concerning differences. The provision of extracts from national regulations cannot be considered as sufficient to satisfy the obligation to notify differences. General comments that do not relate to specific differences will not be published in Supplements.

— END —

AMENDMENT No. 45

TO THE

**INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES**

AIR TRAFFIC SERVICES

ANNEX 11

TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION

The amendment to Annex 11 contained in this document was adopted by the Council of ICAO on **26 February 2007**. 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 2007** will become effective on that date and will become applicable on **22 November 2007** as specified in the Resolution of Adoption. (State letter AN 13/13.1 – 07/20 refers.)

FEBRUARY 2007

INTERNATIONAL CIVIL AVIATION ORGANIZATION

**AMENDMENT 45 TO THE INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES**

AIR TRAFFIC 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 26 February 2007 Amendment 45 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Annex 11 — Air Traffic Services* which for convenience is designated Annex 11 to the Convention;
2. *Prescribes* 16 July 2007 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 22 November 2007;
4. *Requests the Secretary General:*
 - a) to notify each Contracting State immediately of the above action and immediately after 16 July 2007 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 22 November 2007 between its national regulations or practices and the provisions of the Standards in the Annex as hereby amended, such notification to be made before 22 October 2007, and thereafter to notify the Organization of any further differences that arise;
 - 2) to notify the Organization before 22 October 2007 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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NOTES ON THE PRESENTATION OF AMENDMENT 45 TO ANNEX 11

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 45 TO INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES
AIR TRAFFIC SERVICES**

**ANNEX 11
TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION**

...

CHAPTER 1. DEFINITIONS

...

ADS-C agreement. A reporting plan which establishes the conditions of ADS-C data reporting (i.e. data required by the air traffic services unit and frequency of ADS-C reports which have to be agreed to prior to using ADS-C in the provision of air traffic services).

Note.— The terms of the agreement will be exchanged between the ground system and the aircraft by means of a contract, or a series of contracts.

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 dependent surveillance (ADS).** A surveillance technique in which aircraft automatically provide, via a data link, data derived from on board navigation and position fixing systems, including aircraft identification, four dimensional position and additional data as appropriate.~~

Required communication performance (RCP). A statement of the performance requirements for operational communication in support of specific ATM functions.

...

RCP type. A label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.

...

CHAPTER 2. GENERAL

...

2.8 Required communication performance (RCP)

2.8.1 RCP types shall be prescribed by States. When applicable, the RCP type(s) shall be prescribed on the basis of regional air navigation agreements.

2.8.2 The prescribed RCP type shall be appropriate to the air traffic services provided in the airspace concerned.

Note.— *Applicable RCP types and associated procedures are published in the Manual on Required Communication Performance (RCP) (Doc 9869).*

Editorial Note.— *Renumber subsequent paragraphs accordingly.*

...

2.15 Coordination between the operator and air traffic services

...

2.15.2 When so requested by an operator, messages (including position reports) received by air traffic services units and relating to the operation of the aircraft for which operational control service is provided by that operator shall, so far as practicable, be made available immediately to the operator or a designated representative in accordance with locally agreed procedures.

Note.— *For aircraft subjected to unlawful interference, see 2.22.3.*

2.16 Coordination between military authorities and air traffic services

...

2.16.3.1 Air traffic services units shall, either routinely or on request, in accordance with locally agreed procedures, provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft. In order to eliminate or reduce the need for interceptions, air traffic services authorities shall designate any areas or routes where the requirements of Annex 2 concerning flight plans, two-way communications and position reporting apply to all flights to ensure that all pertinent data is available in appropriate air traffic services units specifically for the purpose of facilitating identification of civil aircraft.

Note.— *For aircraft subjected to unlawful interference, see 2.22.3 and 2.23.1.3.*

...

2.22 Service to aircraft in the event of an emergency

2.22.1 An aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, shall be given maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances.

Note.— *To indicate that it is in a state of emergency, an aircraft equipped with an appropriate data link capability and/or an SSR transponder might operate the equipment as follows:*

- a) on Mode A, Code 7700; or
- b) on Mode A, Code 7500, to indicate specifically that it is being subjected to unlawful interference; *and/or*
- c) activate the appropriate emergency and/or urgency capability of ADS-B or ADS-C; *and/or*

d) *transmit the appropriate emergency message via CPDLC.*

2.22.1.1 **Recommendation.**— *In communications between ATS units and aircraft in the event of an emergency, Human Factors principles should be observed.*

...

2.22.2 When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units shall attend promptly to requests by the aircraft. Information pertinent to the safe conduct of the flight shall continue to be transmitted and necessary action shall be taken to expedite the conduct of all phases of the flight, especially the safe landing of the aircraft.

2.22.3 When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units shall, in accordance with locally agreed procedures, immediately inform the appropriate authority designated by the State and exchange necessary information with the operator or its designated representative.

Note 1.— A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference. See 2.23.1.3.

Note 2.— Procedures relating to the handling of strayed or unidentified aircraft are contained in 2.23.1.

Note 3.— PANS-ATM (Doc 4444), Chapter 15, 15.1.3 contains more specific procedures related to unlawful interference.

2.23 In-flight contingencies

...

2.23.1 Strayed or unidentified aircraft

Note 2.— An aircraft may be considered, at the same time, as a “strayed aircraft” by one unit and as an “unidentified aircraft” by another unit.

Note 3.— A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference.

...

2.23.1.2.1 The air traffic services unit shall, as necessary, inform the appropriate military unit as soon as the identity of the aircraft has been established.

2.23.1.3 Should the ATS unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference, the appropriate authority designated by the State shall immediately be informed, in accordance with locally agreed procedures.

...

CHAPTER 3. AIR TRAFFIC CONTROL SERVICE

...

3.6 Transfer of responsibility for control

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3.6.2 Coordination of transfer

3.6.2.1 Responsibility for control of an aircraft shall not be transferred from one air traffic control unit to another without the consent of the accepting control unit, which shall be obtained in accordance with 3.6.2.2, 3.6.2.2.1, 3.6.2.2.2 and 3.6.2.3.

3.6.2.2 The transferring control unit shall communicate to the accepting control unit the appropriate parts of the current flight plan and any control information pertinent to the transfer requested.

3.6.2.2.1 Where transfer of control is to be effected using radar or ADS-B data, the control information pertinent to the transfer shall include information regarding the position and, if required, the track and speed of the aircraft, as observed by radar or ADS-B immediately prior to the transfer.

3.6.2.2.2 Where transfer of control is to be effected using ADS-C data, the control information pertinent to the transfer shall include the four-dimensional position and other information as necessary.

...

3.9 Provision of radar and ADS-B

Recommendation.— *Radar and ADS-B ground systems should provide for the display of safety-related alerts and warnings, including conflict alert, conflict prediction, minimum safe altitude warning and unintentionally duplicated SSR codes.*

...

CHAPTER 6. AIR TRAFFIC SERVICES REQUIREMENTS FOR COMMUNICATIONS

6.1 Aeronautical mobile service (air-ground communications)

6.1.1 General

6.1.1.1 Radiotelephony and/or data link shall be used in air-ground communications for air traffic services purposes.

Note.— *Requirements for ATS units to be provided with and to maintain guard on the emergency channel 121.5 MHz are specified in Annex 10, Volumes II and V.*

6.1.1.2 Where RCP types have been prescribed by States for ATM functions, ATS units shall, in addition to the requirements specified in 6.1.1.1, be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP type(s).

Note.— *Information on RCP and associated procedures, and guidance concerning the approval process, are contained in the Manual on Required Communication Performance (RCP) (Doc 9869). This document also contains references to other documents produced by States and international bodies concerning communication systems and RCP.*

6.1.1.23 When direct pilot-controller two-way radiotelephony or data link communications are used for the provision of air traffic control service, recording facilities shall be provided on all such air-ground communication channels.

...

6.2 Aeronautical fixed service (ground-ground communications)

6.2.1 General

6.2.1.1 Direct-speech and/or data link communications shall be used in ground-ground communications for air traffic services purposes.

Note 1.— Indication by time of the speed with which the communication should be established is provided as a guide to communication services, particularly to determine the types of communication channels required, e.g. that “instantaneous” is intended to refer to communications which effectively provide for immediate access between controllers; “fifteen seconds” to accept switchboard operation and “five minutes” to mean methods involving retransmission.

Note 2.— Requirements for retention of all automatic recordings of communications in ATC are specified in Annex 10, Volume II, 3.5.1.5.

6.2.1.2 Where RCP types have been prescribed by States for ATM functions, ATS units shall, in addition to the requirements specified in 6.2.1.1, be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP type(s).

Note.— Information on RCP and associated procedures, and guidance concerning the approval process, are contained in the Manual on Required Communication Performance (RCP) (Doc 9869). This document also contains references to other documents produced by States and international bodies concerning communication systems and RCP.

...

6.2.2.3 *Description of communication facilities*

6.2.2.3.1 The communication facilities required under 6.2.2.1, 6.2.2.2.1 a) and 6.2.2.2.2 a), b) and c) shall include provisions for:

- a) communications by direct speech alone, or in combination with data link communications, whereby for the purpose of transfer of radar control using radar or ADS-B, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds; and
- b) printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.

...

6.2.3 Communications between flight information regions

...

6.2.3.1.2 Unless otherwise prescribed on the basis of regional air navigation agreements, facilities for communications between area control centres serving contiguous control areas shall, in addition, include provisions for direct-speech and, where applicable, data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

...

6.2.3.4 **Recommendation.**— *The communication facilities in 6.2.3.2 and 6.2.3.3 should include provisions for communications by direct speech alone, or in combination with data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.*

...

6.4 Aeronautical radio navigation service

6.4.1 Automatic recording of surveillance data

6.4.1.1 Surveillance data from primary and secondary radar equipment ~~or obtained through ADS or other surveillance systems (e.g. ADS-B, ADS-C)~~, used as an aid to air traffic services, shall be automatically recorded for use in accident and incident investigations, search and rescue, air traffic control and surveillance systems evaluation and training.

6.4.1.2 Automatic recordings shall be retained for a period of at least thirty days. When the recordings are pertinent to accident and incident investigations, they shall be retained for longer periods until it is evident that they will no longer be required.

...

CHAPTER 7. AIR TRAFFIC SERVICES REQUIREMENTS FOR INFORMATION

7.1 Meteorological information

...

~~7.1.1.2 **Recommendation.**— *Meteorological offices should be so situated as to facilitate personal consultation between meteorological personnel and personnel of units providing air traffic services. Where collocation is not practicable, the required consultation should be achieved by other means.*~~

Editorial Note.— *Renumber subsequent paragraphs accordingly.*

...

7.1.2 Flight information centres and area control centres

7.1.2.1 Flight information centres and area control centres shall be supplied with ~~SIGMET and AIRMET information, special air reports, current meteorological reports and forecasts~~ meteorological information as described in Annex 3, Appendix 9, 1.3, particular emphasis being given to the occurrence or expected occurrence of weather deterioration as soon as this can be determined. These reports and forecasts shall cover the flight information region or control area and such other areas as may be determined on the basis of regional air navigation agreements.

...

7.1.3 Units providing approach control service

7.1.3.1 Units providing approach control service shall be supplied with ~~current meteorological reports and forecasts~~ meteorological information as described in Annex 3, Appendix 9, 1.2 for the airspace and the aerodromes with which they are concerned. Special reports and amendments to forecasts shall be communicated to the units providing approach control service as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast. Where multiple anemometers are used, the indicators to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each anemometer.

...

7.1.3.6 Units providing approach control service for final approach, landing and take-off shall be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach.

Note.— Provisions concerning the issuance of wind shear warnings and alerts and ATS requirements for meteorological information are given in Annex 3, Chapters 7, 10 and Appendix Appendices 6 and 9.

...

7.1.4 Aerodrome control towers

7.1.4.1 Aerodrome control towers shall be supplied with ~~current meteorological reports and forecasts~~ meteorological information as described in Annex 3, Appendix 9, 1.1 for the aerodrome with which they are concerned. Special reports and amendments to forecasts shall be communicated to the aerodrome control towers as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast.

...

APPENDIX 2. PRINCIPLES GOVERNING THE ESTABLISHMENT AND IDENTIFICATION OF SIGNIFICANT POINTS

(Chapter 2, Section 2.13 refers)

3.4 The name-code designator assigned to a significant point shall not be assigned to any other significant point. When there is a need to relocate a significant point, a new name-code designator shall be chosen. In cases when a State wishes to keep the allocation of specific name-codes for re-use at a different location, such name-codes shall not be used until after a period of at least six months.

...

ATTACHMENT A. MATERIAL RELATING TO A METHOD OF ESTABLISHING ATS ROUTES DEFINED BY VOR

(Paragraph 2.7.1 and Section 2.11 refer)

...

3. Determination of protected airspace along VOR-defined routes

...

3.1 For VOR-defined routes where radar or ADS-B is not used to assist aircraft in remaining within the protected airspace, the following guidance is provided. However, when the lateral deviations of aircraft are being controlled with the aid of radar or ADS-B monitoring, the size of the protected airspace required may be reduced, as indicated by practical experience gained in the airspace under consideration.

...

4. Spacing of parallel routes defined by VORs

...

4.2 This spacing of parallel routes assumes:

- d) no real-time radar or ADS-B monitoring or control of the lateral deviations is exercised.

...

4.4 Application of radar or ADS-B monitoring and control of the lateral deviations of the aircraft may have a large effect on the minimum allowable distance between routes. Studies on the effect of radar monitoring indicate that:

- further work is necessary before a fully satisfactory mathematical model can be developed;
- any reduction of separation is closely related to:
 - traffic (volume, characteristics);
 - radar coverage and data processing, availability of an automatic alarm;
 - monitoring continuity;
 - sector workload; and
 - radiotelephony quality.

...

Even where the probability of total radar or ADS-B failure is very small, procedures to cover that case should be considered.

...

**ATTACHMENT B. METHOD OF ESTABLISHING ATS ROUTES
FOR USE BY RNAV-EQUIPPED AIRCRAFT**

(Paragraph 2.7.1 and Section 2.11 refer)

...

**3. Spacing between parallel tracks or
between parallel RNAV route centre lines
based on RNP type**

...

3.4.1 For procedural environments:

...

e) **RNP 4**

...

SUR — An ADS-C system in which an event contract must be set that includes a lateral deviation event report whenever a deviation from track centre line greater than 9.3 km (5 NM) occurs.

Other — Prior to implementation, a system verification of sufficient duration and integrity shall be performed to demonstrate that the maximum acceptable rate of lateral deviations greater than or equal to 27.8 km (15 NM) will not exceed those listed in Table B-1 and that the system meets operational and technical requirements. The verification should be conducted after the minimum navigation, communications and surveillance requirements listed above have been met. Following implementation, a monitoring programme must be established to periodically verify that the system's actual rate of lateral deviations greater than or equal to 27.8 km (15 NM) does not exceed the maximum prescribed in Table B-1 (information pertaining to monitoring can be found in the *Manual on Airspace Planning Methodology for the Determination of Separation Minima* (Doc 9689), Chapter 8.

...

Note 3.— Procedures pertaining to the use of ADS-C and CPDLC are contained in the PANS-ATM (Doc 4444), Chapters 13 and 14, respectively. Criteria for CPDLC and ADS-C should be established by an appropriate safety assessment. Information on safety assessments is contained in the Manual on Airspace Planning Methodology for the Determination of Separation Minima (Doc 9689).

— END —