Commission Implementing Regulation (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/ air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010 (Text with EEA relevance)

COMMISSION IMPLEMENTING REGULATION (EU) 2020/469

of 14 February 2020

amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation (EC) No 73/2010

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union,

Having regard to Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91[(1)], and in particular points (c) and (g) of Article 36(1), points (a) and (f) of Article 43(1) and Article 44(1) thereof,

Whereas:

(1) Commission Regulation (EU) No 923/2012[(2)] lays down the common rules of the air and operational provisions regarding services and procedures in air navigation applicable to general air traffic (the so called 'rules of the air').

(2) Commission Regulation (EU) No 139/2014[(3)] lays down requirements and administrative procedures related to aerodromes, including their management, operation, certification and oversight.

(3) Commission Regulation (EU) 2017/373[(4)] lays down common requirements for providers of air traffic management/air navigation services ('ATM/ANS') and other air traffic management network functions ('ATM network functions') for general air traffic and their oversight.

(4) In order to ensure a high level of civil aviation safety in the Union, flight crews should be required to report to the air traffic service units, when the runway braking action they encounter is not as good as reported to them. Those reporting obligations should be set out in Implementing Regulation (EU) No 923/2012.

(5) On 31 March 2016 the International Civil Aviation Organisation ('the ICAO') adopted Amendment 77-A to Annex 3 to the Convention on International Civil Aviation, signed on 7 December 1944 in Chicago (the 'Chicago Convention') aiming at improving the provision of information on hazardous meteorological conditions, enhancing situational awareness and contributing to a more efficient routing, including circumvention of hazardous meteorological conditions. That amendment is applicable in ICAO Contracting States as of 10 November 2016 and it should be reflected in Regulation (EU) 2017/373, in particular in the provisions on meteorological services (Annex V – Part-MET).

(6) Regulation (EU) 2017/373 should reflect the state of the art in aviation safety, as well as best practices and scientific and technical progress in aeronautical information services ('AIS'). Therefore, amendments to Regulation (EU) 2017/373 should be based on the applicable ICAO Standards and recommended practices ('SARPs'), in particular on the Sixteenth Edition of Annex 15 'Aeronautical Information Services' to the Chicago Convention, while drawing on the experience of the Union in AIS provision and ensuring proportionality according to the size, type and complexity of the AIS provider ('AISP').

(7) On 31 March 2016 ICAO adopted also Amendment 77-B to Annex 3 to the Chicago Convention which aims at reducing runway excursion incidents and accidents. That Amendment 77-B to Annex 3 will be applicable in the ICAO Contracting States as of 5 November 2020. That amendment should also be reflected in Regulation (EU) 2017/373, in particular in the requirements laid down in Annex V as regards the provision of meteorological services and in Annex VI as regards the provision of aeronautical information services.

(8) Pilots should be informed through notices to airmen when a runway is temporarily unavailable due to marking works. In order to increase runway safety, pilots intending to operate on a specially prepared winter runway or on a slippery wet runway should be appropriately informed. The dissemination of friction measurements to pilots should not be allowed because friction measurements are not correlated with aeroplane performance.

(9) Common technical rules for the design of airspace structures as well as common requirements for service providers of flight procedure design ('FPD') should be established in Regulation (EU) 2017/373 to ensure that the airspace structures and flight procedures are properly designed, surveyed and validated before they can be deployed and used by aircraft.

(10) Flight procedures and any changes thereto can affect the safety of flight operations at the aerodrome. Consequently, a clear link between the existing Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 should be introduced.

(11) With the adoption of the Seventh Edition of Annex 10 to the Chicago Convention on 'Aeronautical Telecommunications' (Volume II) published in July 2016, the Fifteenth Edition of Annex 11 to the Chicago Convention on 'Air Traffic Services' and the Sixteenth Edition of Doc 4444 'Procedures for Air Navigation Services – Air Traffic

Management (PANS ATM)', the ICAO adopted new ICAO SARPs on aviation safety in the provision of air traffic services ('ATS').

(12) For those reasons, and in order to ensure the uniform implementation and compliance with the essential requirements set out in point 2.3 of Annex VIII to Regulation (EU) 2018/1139, Regulation (EU) 2017/373 should be amended accordingly.

(13) Regulation (EU) No 923/2012 and Regulation (EU) 2017/373 should also include detailed provisions with regard to the availability and the conditions for the use of the Very-high frequency (VHF) emergency channel.

(14) Additionally, taking into account the impact of ATM/ANS on pilot actions and aerodrome operations, those new measures should also be reflected in the relevant provisions of Regulation (EU) No 923/2012.

(15) Those new measures include also detailed provisions on the quality of aeronautical data and aeronautical information and therefore Regulation (EU) No 73/2010[(5)] should be repealed.

(16) The industry and the competent authorities of the Member States should be given sufficient time to adapt to the measures introduced by this Regulation.

(17) The measures provided for in this Regulation are based on Opinion, 02/2018, Opinion 03/2018 and Opinion 03/2019 of the European Union Aviation Safety Agency in accordance with point (b) and (c) of Article 75(2) and Article 76(1) of Regulation (EU) 2018/1139.

(18) The measures provided for in this Regulation are in accordance with the opinion of the committee established by Article 127 of Regulation (EU) 2018/1139.

HAS ADOPTED THIS REGULATION:

Article 1

Regulation (EU) No 923/2012 is amended as follows:

(1) Article 2 is amended as follows:

(a) point (57) is replaced by the following:

(57) ''controlled aerodrome'' means an aerodrome at which air traffic control service is provided to aerodrome traffic;

(b) the following points (144) and (145) are added:

(144) ''critical area'' means an area of defined dimensions extending around the ground equipment of a precision instrument approach within which the presence of vehicles or aircraft will cause unacceptable disturbance of the guidance signals;

(145) 'sensitive area' means an area extending beyond the critical area where the parking or movement, or both, of aircraft or vehicles will affect the guidance signal to the extent that it may be rendered as an unacceptable disturbance to aircraft using the signal.;

(2) the following Article 4a is inserted:

Article 4a

Very-high frequency (VHF) emergency frequency

1 Without prejudice to paragraph 2, Member States shall ensure that the VHF emergency frequency (121.500 MHz) is only used for emergency purposes specified in point SERA.14095(d) of the Annex.

2 Member States may exceptionally allow the use of the VHF emergency frequency referred to in paragraph 1 for other purposes than those specified in point SERA.14095(d) of the Annex, if those are limited to what is necessary to achieve their aim and in order to reduce the impact upon aircraft in distress or emergency and on the operations of air traffic services units.;

(3) the Annex is amended in accordance with Annex I to this Regulation.

Article 2

Annex III to Regulation (EU) No 139/2014 is amended in accordance with Annex II to this Regulation.

Article 3

Implementing Regulation (EU) 2017/373 is amended as follows:

(1) Article 1 is replaced by the following:

Article 1

Subject matter

This Regulation lays down common requirements for:

(a) the provision of air traffic management and air navigation services (‘ATM/ANS’) for general air traffic, in particular for the legal or natural persons providing those services and functions;

(b) the competent authorities and the qualified entities acting on their behalf, which perform certification, oversight and enforcement tasks in respect of the services referred to in point (a);

(c) the rules and procedures for the design of airspace structures.;

(2) Article 2 is amended as follows:

(a) point (2) is replaced by the following:

(2) ‘‘ATM/ANS provider’’ means any legal or natural person providing any of the ATM/ANS as defined in Article 3(5) of Regulation (EU) 2018/1139, either individually or bundled, for general air traffic;;

(b) New points (6), (7) and (8) are added:

(6) ‘‘design of airspace structures’’ means a process that ensures that airspace structures are properly designed, surveyed and validated before they are deployed and used by aircraft

(7) ‘airborne collision avoidance system (ACAS)’ means an aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders’;

(8) ‘entity originating aeronautical data and aeronautical information’ – means any public or private entity responsible for origination of aeronautical data and aeronautical information used as a source for aeronautical information products and services. These entities do not include ATM/ANS providers referred to in point (2) of Article 2 of this Regulation and aerodromes defined in point (1)(e) of Article 2 of Regulation (EU) 2018/1139.;

(3) Article 3 is amended as follows:

(a) the heading is replaced by the following:

Provision of ATM/ANS and design of airspace structures;

(b) paragraph 1 is replaced by the following:

1. Member States shall ensure that the appropriate ATM/ANS are provided and airspace structures are designed in accordance with this Regulation in a manner that facilitates general air traffic, while taking into account safety considerations, traffic requirements and environmental impact.;

(c) the following paragraphs 5, 6, 7, 8 and 9 are added:

5. Member States shall ensure that:

a entities originating aeronautical data or aeronautical information meet the requirements laid down in:

(i) point ATM/ANS.OR.A.085 of Annex III, except those in points (c), (d), (f)(1) and (i) thereof;

(ii) point ATM/ANS.OR.A.090 of Annex III;

b aeronautical data and aeronautical information are originated, processed and transmitted by adequately trained, competent and authorised personnel.

When aeronautical data or aeronautical information is intended to be used for the purpose of IFR or special VFR flights, the requirements referred to in letters (a) and (b) of the first subparagraph shall apply to all entities originating such data and information.

6 Where it is determined that air traffic services are to be provided in particular portions of the airspace or at particular aerodromes, Member States shall ensure that those portions of the airspace or those aerodromes are specified in relation to the air traffic services that are to be provided.

7 Member States shall ensure that appropriate arrangements between the relevant ATM/ANS providers and aircraft operators are established for the adequate coordination of activities and services provided as well as for the exchange of relevant data and information.

8 Member States shall identify the persons or organisations, which are responsible for the design of airspace structures and shall ensure that those persons or organisations apply the requirements laid down in Appendix 1 to Annex XI (Part-FPD).

9 Member States shall ensure that maintenance and periodic review of flight procedures for aerodromes and airspace under their authority are conducted. For that purpose, Member States shall identify the persons or organisations, which are responsible for those tasks and shall ensure that the persons or organisations comply with the requirements laid down in Article 6, points (a) and (k).;

(4) the following Articles 3a, 3b, 3c and 3d are inserted:

Article 3a

Determination of the need for the provision of air traffic services

1 Member States shall determine the need for the provision of air traffic services by taking into account all of the following factors:

a the types of air traffic involved;

b the density of air traffic;

c the meteorological conditions;

d other relevant factors related to the objectives of the air traffic services defined in point ATS.TR.100 of Annex IV.

2 While determining the need for the provision of air traffic services Member States shall not take into account the carriage of airborne collision avoidance systems by aircraft.

Article 3b

Coordination between military units and air traffic service providers

Without prejudice to Article 6 of Regulation (EC) No 2150/2005, Member States shall establish special procedures so that:

(a) air traffic service providers are notified if a military unit observes that an aircraft, which is, or might be, a civil aircraft is approaching, or has entered, any area in which interception might become necessary;

(b) the air traffic service provider shall in close coordination with the military unit confirm the identity of the aircraft and provide it with the navigational guidance necessary to avoid the need for interception.

Article 3c

Coordination of air operations potentially hazardous to civil aviation

1 Member States shall ensure that operations potentially hazardous to civil aircraft over their territory are coordinated, including over the high seas, in case the competent authority has accepted, pursuant to an ICAO Regional Air Navigation Agreement, the responsibility to provide air traffic services within the airspace concerned. The coordination shall be effected early enough to permit timely promulgation of information regarding those activities.

2 Member States shall establish arrangements for the promulgation of information regarding the activities referred to in paragraph 1.

Article 3d

Very-high frequency (VHF) emergency frequency

1 Without prejudice to paragraph 2, Member States shall ensure that the VHF emergency frequency (121,500 MHz) is only used for genuine emergency purposes as specified in point ATS.OR.405(a) of Annex IV.

2 Member States may exceptionally allow the use of the VHF emergency frequency referred to in paragraph 1 for other purposes than those specified in point ATS.OR.405(a) of Annex IV, if those are limited to the extent necessary to achieve their aim and in order to reduce the impact upon aircraft in distress or emergency and upon the operations of air traffic services units.;

(5) Article 6 is amended as follows:

(a) point (d) is replaced by the following:

(d) for providers of air traffic services, in addition to the requirements of points (a) and (c), the requirements laid down in Annex IV (Part-ATS) and the requirements laid down in Regulation (EU) No 923/2012;;

(b) point (k) is replaced by the following:

(k) for providers of flight procedure design services, in addition to the requirements of points (a) and (b), the requirements laid down in Annex XI (Part-FPD);;

(6) Annexes I, II, III, IV, V, VI and XI are amended in accordance with Annex III to this Regulation.

Article 4

Regulation (EU) No 73/2010 is repealed with effect from 27 January 2022.

[F1 Article 5

This Regulation shall enter into force on the twentieth day following that of its publication in the *Official Journal of the European Union.*

It shall apply from 27 January 2022.

The following provisions shall apply from 12 August 2021:

(a) in Annex I, point 10(b);

(b) in Annex III, point 6: Appendix 3 ‘SNOWTAM FORMAT’.

Point 5 of Annex III shall apply from 5 November 2020, with the exception of point 5(v): Appendix 1 Template for METAR, which shall apply from 12 August 2021.**]**

Textual Amendments

F1 Substituted by Commission Implementing Regulation (EU) 2020/1177 of 7 August 2020 amending Implementing Regulation (EU) 2020/469 as regards postponing dates of application of certain measures in the context of the COVID-19 pandemic (Text with EEA relevance).

This Regulation shall be binding in its entirety and directly applicable in all Member States.

ANNEX I

Amendments to Implementing Regulation (EU) No 923/2012

The Annex is amended as follows:

(1) in point SERA.3210(d)(4)(ii), points (A) and (B) are replaced by the following:

(A) persons and vehicles operating on the manoeuvring area of an aerodrome shall be restricted to the essential minimum and particular regard shall be given to the requirements to protect the critical and sensitive area(s) of radio navigation aids;

(B) subject to the provisions of point (iii), the method or methods to separate vehicles and taxiing aircraft shall be as specified by the air navigation service provider (‘ANSP’) and approved by the competent authority taking into account the aids available;;

(2) in point SERA.3210(d)(4) (iv), point (A) is replaced by the following:

(A) vehicles and vehicles towing aircraft shall give way to aircraft which are landing, taking-off or taxiing

(3) point SERA.8005 is amended as follows:

(a) in point (a), point (3) is replaced by the following:

(3) issue one or more of the following: clearances, instructions or information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;;

(b) point (c) is amended as follows:

(a) the introductory phrase is replaced by the following:

Except for cases of operations on parallel or near-parallel runways as in point ATS.TR.255 of Annex IV to Commission Implementing Regulation (EU) 2017/373[(6)], or when a reduction in separation minima in the vicinity of aerodromes can be applied, separation by an ATC unit shall be obtained by at least one of the following:;

(b) point (1) is replaced by the following:

(1) vertical separation, obtained by assigning different levels selected from the table of cruising levels in Appendix 3, except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or ATC clearances. The vertical separation minimum shall be a nominal 300 m (1 000 ft) up to and including FL 410 and a nominal 600 m (2 000 ft) above that level. Geometric height information shall not be used to establish vertical separation;;

(4) point SERA.8012 is replaced by the following:

(a) Air traffic control units shall apply wake turbulence separation minima to aircraft in the approach and departure phases of flight in any of the following circumstances:

(1) an aircraft is operating directly behind another aircraft at the same altitude or less than 300 m (1 000 ft) below it;

(2) both aircraft are using the same runway or parallel runways separated by less than 760 m (2 500 ft);

(3) an aircraft is crossing behind another aircraft at the same altitude or less than 300 m (1 000 ft) below it.

(b) Paragraph (a) shall not apply to arriving VFR flights and to arriving IFR flights executing visual approach when the aircraft has reported the preceding aircraft in sight and has been instructed to follow and maintain own separation from that aircraft. In those cases, the air traffic control unit shall issue caution for wake turbulence.;

(5) point SERA.8015 is amended as follows:

(a) in point (b), the following point (6) is added:

(6) When vectoring or assigning a direct routing not included in the flight plan, which takes an IFR flight off published ATS route or instrument procedure, an air traffic controller providing ATS surveillance service shall issue clearances such that the prescribed obstacle clearance exists at all times until the aircraft reaches the point where the pilot re-joins the flight plan route or joins a published ATS route or instrument procedure.;

(b) in point (d), point (5) is replaced by the following:

(5) any necessary instructions or information on other matters, such as ATFM departure slot if applicable, approach or departure manoeuvres, communications and the time of expiry of the clearance.;

(c) in point (e), the heading is replaced by the following:

Read back of clearances, instructions and safety-related information;

(d) point (eb) is amended as follows:

(i) point (3) is replaced by the following:

(3) Except when it is known that the aircraft has already received the information in a directed transmission, an QNH altimeter setting shall be included in:

(i) the descent clearance, when first cleared to an altitude below the transition level;

(ii) the approach clearance or the clearance to enter the traffic circuit;

(iii) the taxi clearance for departing aircraft.;

(ii) in point (5), the introductory phrase is replaced by the following:

> When an aircraft has been given clearance to land or where an aircraft has been informed that the runway is available for landing at AFIS aerodromes and that aircraft is completing its approach using atmospheric pressure at aerodrome elevation (QFE), the vertical position of that aircraft shall be expressed in terms of height above aerodrome elevation during that portion of its flight for which QFE may be used, except that it shall be expressed in terms of height above runway threshold elevation:;

(6) point SERA.9005 is amended as follows:

(a) point (a) is amended as follows:

(i) the following points (7) and (8) are added:

(7) information on abnormal aircraft configuration and condition;

(8) any other information likely to affect safety.;

(ii) the second paragraph is deleted;

(b) point (b) is amended as follows:

(i) point (3) is replaced by the following:

(3) for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc. of surface vessels in the area; and;

(ii) the following point (4) is added:

(4) messages, including clearances, received from other air traffic services units to relay to aircraft.;

(c) the following point (d) is added:

(d) AFIS provided to flights shall include, in addition to relevant items outlined in points (a) and (b), the provision of the information concerning:

(1) collision hazards with aircraft, vehicles and persons operating on the manoeuvring area;

(2) the runway-in-use.;

(7) in point SERA.9010(a), point (4) is replaced by the following:

(4) If an aircraft acknowledges receipt of an ATIS that is no longer current, the ATS unit shall without delay take one of the following actions:

(i) communicate to the aircraft any element of information which has to be updated;

(ii) instruct the aircraft to obtain the current ATIS information.;

(8) in point SERA.13010, point (b) is replaced by the following:

(b) Unless otherwise prescribed by the competent authority, verification of the pressure-altitude-derived level information displayed shall be effected at least once by each suitably equipped ATS unit on initial contact with the aircraft concerned or, if this is not feasible, as soon as possible thereafter.;

(9) in point SERA.14095, the following point (d) is added:

(d) As laid down in Article 4a the VHF emergency frequency (121,500 MHz) shall be used for genuine emergency purposes including any of the following:

(1) to provide a clear channel between aircraft in distress or emergency and a ground station when the normal channels are being utilised for other aircraft;

(2) to provide a VHF communication channel between aircraft and aerodromes, not normally used by international air services, in case of an emergency condition arising;

(3) to provide a common VHF communication channel between aircraft, either civil or military, and between such aircraft and surface services, involved in common search and rescue operations, prior to changing when necessary to the appropriate frequency;

(4) to provide air–ground communication with aircraft when airborne equipment failure prevents the use of the regular channels;

(5) to provide a channel for the operation of emergency locator transmitters, and for communication between survival craft and aircraft engaged in search and rescue operations;

(6) to provide a common VHF channel for communication between civil aircraft and intercepting aircraft or intercept control units and between civil or intercepting aircraft and air traffic services units in the event of interception of the civil aircraft..

(10) point SERA.12005(a) is amended as follows:

(a) point (8) is replaced by the following:

(8) pre-eruption volcanic activity or a volcanic eruption; or;

(b) the following point (9) is added:

(9) the runway braking action encountered is not as good as reported..

ANNEX II

Amendments to Regulation (EU) No 139/2014

Annex III is amended as follows:

(a) in point ADR.OR.B.015(b)(2), point (ii) is replaced by the following:

(ii) the type of operations at the aerodrome and the associated airspace; and;

(b) in point ADR.OR.B.025(a)(1), point (iii) is replaced by the following:

(iii) that the flight procedures of the aerodrome and the associated changes thereto, have been established in accordance with Commission Implementing Regulation (EU) 2017/373[7].;

ANNEX III

Amendments to Implementing Regulation (EU) 2017/373

Annexes I, II, III, IV, V, VI and XI are amended as follows:

(1) Annex I is amended as follows:

(a) the following table of contents is inserted before the heading 'DEFINITIONS OF TERMS USED IN ANNEXES II TO XIII':

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SUBPART B –	MANAGEMENT (ATM/ANS.AR.B)
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ANNEX III	COMMON REQUIREMENTS FOR SERVICE PROVIDERS (Part-ATM/ANS.OR)
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SUBPART D –	SPECIFIC ORGANISATIONAL REQUIREMENTS FOR ANS AND ATFM PROVIDERS AND THE NETWORK MANAGER (ATM/ANS.OR.D)
Appendix 1 –	AERONAUTICAL DATA CATALOGUE
ANNEX IV –	SPECIFIC REQUIREMENTS FOR PROVIDERS OF AIR TRAFFIC SERVICES (Part-ATS)
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Chapter 3 –	Requirements for meteorological watch offices
Chapter 4 –	Requirements for volcanic ash advisory centres (VAACs)
Chapter 5 –	Requirements for tropical cyclone advisory centres (TCACs)
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SUBPART B –	TECHNICAL REQUIREMENTS FOR PROVIDERS OF METEOROLOGICAL SERVICES (MET.TR)
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Chapter 2 –	Technical requirements for aerodrome meteorological offices

Chapter 3 –	Technical requirements for meteorological watch offices
Chapter 4 –	Technical requirements for volcanic ash advisory centres (VAACs)
Chapter 5 –	Technical requirements for tropical cyclone advisory centres (TCACs)
Chapter 6 –	Technical requirements for world area forecast centres (WAFCs)
Appendix 1 –	Template for METAR
Appendix 2 –	Fixed areas of coverage of WAFS forecasts in chart form
Appendix 3 –	Template for TAF
Appendix 4 –	Template for wind shear warnings
Appendix 5A –	Template for SIGMET and AIRMET
Appendix 5B –	Template for special air-reports (uplink)
Appendix 6 –	Template for advisory for volcanic ash
Appendix 7 –	Template for advisory for tropical cyclones
Appendix 8 –	Ranges and resolutions for the numerical elements included in a volcanic ash advisory, tropical cyclone advisory, SIGMET, AIRMET, aerodrome warning and wind shear warning
ANNEX VI	SPECIFIC REQUIREMENTS FOR PROVIDERS OF AERONAUTICAL INFORMATION SERVICES (Part-AIS)
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Appendix 1 –	CONTENTS OF THE AERONAUTICAL INFORMATION PUBLICATION (AIP)
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Appendix 3 –	SNOWTAM FORMAT
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ANNEX VII –	SPECIFIC REQUIREMENTS FOR PROVIDERS OF DATA SERVICES (Part-DAT)
SUBPART A –	ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF DATA SERVICES (DAT.OR)
SECTION 1 –	GENERAL REQUIREMENTS
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ANNEX VIII –	SPECIFIC REQUIREMENTS FOR PROVIDERS OF COMMUNICATION, NAVIGATION, OR SURVEILLANCE SERVICES (Part-CNS)
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ANNEX IX –	SPECIFIC REQUIREMENTS FOR PROVIDERS OF AIR TRAFFIC FLOW MANAGEMENT (Part-ATFM)
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SUBPART A –	ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE DESIGN SERVICES (FPD.OR)
SECTION 1 –	GENERAL REQUIREMENTS
SUBPART B –	TECHNICAL REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE DESIGN SERVICES (FPD.TR)
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(b) point (6) is replaced by the following:

(6) ‘aerodrome flight information service (AFIS)’ means flight information service for aerodrome traffic provided by a designated air traffic services provider;;

(c) point 19 is replaced by the following:

(19) 'AIRMET' means information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather phenomena which may affect the safety of low-level aircraft operations and of the development of those phenomena in time and space, and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof;;

(d) point (71) is replaced by the following:

(71) 'meteorological watch office (MWO)' means an office monitoring meteorological conditions affecting flight operations and providing information concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere which may affect the safety of aircraft operations within its specified area of responsibility;;

(e) point (91) is deleted;

(f) point (93) is replaced by the following:

(93) 'SIGMET' means information, issued by a meteorological watch office, concerning the occurrence or expected occurrence of specified en-route weather and other phenomena in the atmosphere which may affect the safety of aircraft operations and of the development of those phenomena in time and space;;

(g) point (94) is deleted;

(h) point (99) is replaced by the following:

(99) 'take-off alternate aerodrome' means an alternate aerodrome at which an aircraft would be able to land should this become necessary shortly after take-off and if it is not possible to use the aerodrome of departure;;

(i) point (108) is replaced by the following:

(108) 'world area forecast centre (WAFC)' means a meteorological centre preparing and issuing significant weather (SIGWX) forecasts and upper-air forecasts in digital form on a global basis direct to the Member States as part of the aeronautical fixed service (AFS) internet-based services;;

(j) the following points (110) to (259) are added:

(110) 'aerodrome control tower' means a unit established to provide air traffic control service to aerodrome traffic;

(111) 'aerodrome traffic' means all traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome. An aircraft operating in the vicinity of an aerodrome includes but is not limited to aircraft entering or leaving an aerodrome traffic circuit;

(112) ‘aerodrome traffic circuit’ means the specified path to be flown by aircraft operating in the vicinity of an aerodrome;

(113) ‘aeronautical fixed station’ means a station in the aeronautical fixed service;

(114) ‘aeronautical ground light’ means any light specially provided as an aid to air navigation, other than a light displayed on an aircraft;

(115) ‘aeronautical information circular (AIC)’ means a notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the aeronautical information publication, but which relates to flight safety, air navigation, technical, administrative or legislative matters;

(116) ‘aeronautical information management (AIM)’ means the dynamic, integrated management of aeronautical information through the provision and exchange of quality-assured digital aeronautical data in collaboration with all parties;

(117) ‘aeronautical information product’ means aeronautical data and aeronautical information provided either as digital data sets or as a standardised presentation in paper or electronic media. Aeronautical information products include:

— aeronautical information publication, including amendments and supplements;
— AIC;
— aeronautical charts;
— NOTAM;
— digital data sets;

(118) ‘aeronautical information publication (AIP)’ means a publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation;

(119) ‘AIP amendment’ means a permanent change to the information contained in the AIP;

(120) ‘AIP supplement’ means a temporary change to the information contained in the AIP, which is provided by means of special pages;

(121) ‘aeronautical information regulation and control’ (AIRAC) means a system aimed at advance notification, based on common effective dates, of circumstances that necessitate significant changes in operating practices;

(122) ‘aeronautical mobile service’ means a mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies;

(123) ‘aeronautical station’ means a land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example, on board a ship or on a platform at sea;

(124) ‘aeronautical telecommunication station’ means a station in a telecommunication service provided for any aeronautical purpose;

(125) ‘AFIS aerodrome’ means an aerodrome where AFIS is provided within the airspace associated with such aerodrome;

(126) ‘AFIS unit’ means a unit established to provide AFIS and alerting service;

(127) ‘aircraft identification’ means a group of letters, figures or a combination thereof which is either identical to, or the coded equivalent of, the aircraft call sign to be used in air-ground communications, and which is used to identify the aircraft in ground-ground air traffic service communications;

(128) ‘air-ground communication’ means two-way communication between aircraft and stations or locations on the surface of the earth;

(129) ‘air traffic advisory service’ means a service provided within an airspace of defined dimensions, or a designated route (advisory airspace) to ensure separation, in so far as practical, between aircraft which are operating on instrument flight rules (IFR) flight plans;

(130) ‘air traffic control clearance’ or ‘ATC clearance’ means authorisation for an aircraft to proceed under conditions specified by an air traffic control unit;

(131) ‘air traffic control instruction’ or ‘ATC instruction’ means directives issued by ATC for the purpose of requiring a pilot to take a specific action;

(132) ‘air traffic control (ATC) unit’ or ‘ATC unit’ is a generic term meaning variously, area control centre, approach control unit or aerodrome control tower;

(133) ‘ALERFA’ is the code word used to designate an alert phase;

(134) ‘alerting service’ means a service provided to notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required;

(135) ‘alert phase’ means a situation wherein apprehension exists as to the safety of an aircraft and its occupants;

(136) ‘approach control unit’ means a unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes;

(137) ‘area navigation route’ means an ATS route established for the use of aircraft capable of employing area navigation;

(138) 'assemble' means a process of merging data from multiple sources into a database and establishing a baseline for subsequent processing;

(139) 'ATS route' means a specified route designed for channelling the flow of traffic as necessary for the provision of ATS;

(140) 'ATS surveillance service' means a service provided directly by means of an ATS surveillance system;

(141) 'ATS surveillance system' means a generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft;

(142) 'automatic dependent surveillance – broadcast (ADS-B)' means a means by which aircraft, aerodrome vehicles and other objects can automatically transmit or receive, or transmit and receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link;

(143) 'automatic dependent surveillance – contract (ADS-C)' means 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;

(144) 'automatic terminal information service (ATIS)' means the automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours a day or a specified portion thereof;

(145) 'data link-automatic terminal information service (D-ATIS)' means the provision of ATIS via data link;

(146) 'voice-automatic terminal information service (Voice-ATIS)' means the provision of ATIS by means of continuous and repetitive voice broadcasts;

(147) 'broadcast' means a transmission of information relating to air navigation that is not addressed to a specific station or stations;

(148) 'ceiling' means the height above the ground or water of the base of the lowest layer of cloud below 6 000 m (20 000 ft) covering more than half of the sky;

(149) 'clearance limit' means the point to which an aircraft is granted an ATC clearance;

(150) 'cloud base' means the height of the base of the lowest observed or forecast cloud element in the vicinity of an aerodrome or operating site or within a specified area of operations, normally measured above aerodrome elevation or, in the case of offshore operations, above mean sea level;

(151) 'completeness' means, in relation to data, the degree of confidence that all data needed to support the intended use is provided;

(152) ‘confidence level’ means the probability that the true value of a parameter is within a certain interval around the estimate of its value;

(153) ‘conference communications’ means communication facilities whereby direct speech conversation may be conducted between three or more locations simultaneously;

(154) ‘control zone’ means a controlled airspace extending upwards from the surface of the Earth to a specified upper limit;

(155) ‘controlled aerodrome’ means an aerodrome at which air traffic control service is provided to aerodrome traffic;

(156) ‘controlled airspace’ means an airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification;

(157) ‘controlled flight’ means any flight which is subject to an ATC clearance;

(158) ‘controller-pilot data link communications (CPDLC)’ means a means of communication between air traffic controller and pilot, using data link for ATC communications;

(159) ‘critical area’ means an area of defined dimensions extending around the ground equipment of a precision instrument approach within which the presence of vehicles or aircraft will cause unacceptable disturbance of the guidance signals;

(160) ‘cruising level’ means a level maintained during a significant portion of a flight;

(161) ‘cyclic redundancy check (CRC)’ means a mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data;

(162) ‘danger area’ means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times;

(163) ‘data accuracy’ means a degree of conformance between the estimated or measured value and the true value;

(164) ‘data collection surface’ means a defined surface intended for the purpose of collecting obstacle or terrain data;

(165) ‘data integrity’ means a degree of assurance that aeronautical data and its value has not been lost or altered since the data origination or authorised amendment;

(166) ‘data item’ means a single attribute of a complete data set, which is allocated a value that defines its current status;

(167) ‘data link communications’ means a form of communication intended for the exchange of messages via a data link;

(168) 'data link-VOLMET (D-VOLMET)' means the 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;

(169) 'data origination' means the creation of a new data item with its associated value, the modification of the value of an existing data item or the deletion of an existing data item;

(170) 'data product specification' means a detailed description of a data set or a collection of data sets together with additional information that will enable it to be created, supplied to and used by another party;

(171) 'data set' means an identifiable collection of data;

(172) 'datum' means any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities;

(173) 'DETRESFA' is the code word used to designate a distress phase;

(174) 'distress phase' means a situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance;

(175) 'downstream clearance' means a clearance issued to an aircraft by an air traffic control unit that is not the current controlling authority of that aircraft;

(176) 'essential traffic' means controlled traffic to which the provision of separation by air traffic control service is applicable, but which, in relation to a particular controlled flight is not, or will not be, separated from other controlled traffic by the appropriate separation minimum;

(177) 'essential local traffic' means any aircraft, vehicle or personnel on or near the manoeuvring area, or traffic in the take-off and climb-out area or the final approach area, which may constitute a hazard to the aircraft concerned;

(178) 'estimated time of arrival' means:

(a) for IFR flights, the time at which it is estimated that the aircraft will arrive over a designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome;

(b) for visual flight rules (VFR) flights, the time at which it is estimated that the aircraft will arrive over the aerodrome;

(179) 'feature' means an abstraction of real world phenomena;

(180) 'feature attribute' means a characteristic of a feature that has a name, a data type and a value domain associated with it;

(181) 'feature type' means a class of real world phenomena with common properties, which forms the basic level of classification in a feature catalogue;

(182) 'final approach' means that part of an instrument approach procedure which:

(a) commences at the specified fix or point, or, where such a fix or point is not specified, at either of the following places:

(i) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified;

(ii) at the point of interception of the last track specified in the approach procedure,

(b) ends at a point in the vicinity of an aerodrome from which a landing can be made or a missed approach procedure is initiated;

(183) 'flight information zone' means an airspace of defined dimension within which aerodrome flight information service and alerting service for aerodrome traffic are provided;

(184) 'flight procedure design services' means services for the design, documentation, validation, maintenance and periodic review of flight procedures necessary for the safety, regularity and efficiency of air navigation;

(185) 'flight procedure designer' means a qualified person who performs design, documentation, validation, continuous maintenance, and periodic review of flight procedures;

(186) 'flight procedure' means a set of predetermined flight manoeuvres intended to be followed by a pilot, published by electronic, printed or digital means, or both. Flight procedure is conducted either in accordance with instrument flight rules (IFR) or visual flight rules (VFR);

(187) 'flight plan' means specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft;

(188) 'flight visibility' means the visibility forward from the cockpit of an aircraft in flight;

(189) 'format' means, in relation to data, a structure of data items, records and files arranged to meet standards, specifications or data quality requirements;

(190) ‘geoid’ means the equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents;

(191) ‘geoid undulation’ means the distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid;

(192) ‘glide path’ means a descent profile determined for vertical guidance during a final approach;

(193) ‘ground visibility’ means the visibility at an aerodrome, as reported by an accredited observer or by automatic systems;

(194) ‘heading’ means the direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid);

(195) ‘heliport’ means 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;

(196) ‘integrity classification’ means, in relation to aeronautical data, a classification based upon the potential risk resulting from the use of corrupted data, defining routine, essential and critical data;

(197) ‘international NOTAM office (NOF)’ means an office designated by a Member State for the exchange of NOTAM internationally;

(198) ‘holding fix’ means a geographical location that serves as a reference for a holding procedure;

(199) ‘holding procedure’ means a predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance;

(200) ‘identification’ means the situation which exists when the position indication of a particular aircraft is seen on a situation display and positively identified;

(201) ‘instrument flight rules’ are rules which allow an aircraft which is equipped with suitable navigation equipment appropriate to the route to be flown in accordance with the applicable requirements on air operations.

(202) ‘INCERFA’ is the code word used to designate an uncertainty phase;

(203) ‘instrument approach operations’ means an approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

(a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only;

(b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance;

(204) ‘instrument approach procedure (IAP)’ means a series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:

(a) ‘non-precision approach (NPA) procedure’ means an instrument approach procedure designed for 2D instrument approach operations Type A.

(b) ‘approach procedure with vertical guidance (APV)’ means a performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A.

(c) ‘precision approach (PA) procedure’ means an instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS Cat I) designed for 3D instrument approach operations Type A or B;]

(205) ‘instrument meteorological conditions (IMC)’ means meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions;

(206) ‘low-visibility operations (LVOs)’ means approach or take-off operations on a runway with any RVR less than 550 m or taxiing at an aerodrome at which any RVR is less than 550 m;

(207) ‘manoeuvring area’ means that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons;

(208) ‘metadata’ means data about data;

(209) ‘movement area’ means 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;

(210) ‘navigation aid’ means a facility or system external to the aircraft, which generates electro-magnetic signals to be used by aircraft navigation systems for position determination or flight path guidance;

(211) ‘mode Secondary Surveillance Radar (SSR)’ means the conventional identifier related to specific functions of the interrogation signals transmitted by an SSR interrogator. There are four modes specified in ICAO Annex 10: A, C, S and intermode;

(212) ‘near-parallel runways’ means non-intersecting runways whose extended centre lines have an angle of convergence/divergence of 15 degrees or less;

(213) 'pilot-in-command' means the pilot designated by the operator, or in the case of General Aviation, the owner, as being in command and charged with the safe conduct of a flight;

(214) 'position' means, in a geographical context, a 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;

(215) 'position indication' means the visual indication, in non-symbolic or symbolic form, or both, on a situation display, of the position of an aircraft, aerodrome vehicle or other object;

(216) 'pressure-altitude' means an atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere;

(217) 'primary radar' means a radar system which uses reflected radio signals;

(218) 'printed communications' means communications which automatically provide a permanent printed record at each terminal of a circuit of all messages which pass over such circuit;

(219) 'prohibited area' means an airspace of defined dimensions, above the land areas or territorial waters of a Member State, within which the flight of aircraft is prohibited;

(220) 'radio navigation service' means a service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids;

(221) 'radiotelephony' means a form of radio communication primarily intended for the exchange of information in the form of speech;

(222) 'required communication performance specification' or 'RCP specification' means a set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication;

(223) 'required surveillance performance specification' or 'RSP specification' means a set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance;

(224) 'resolution' means, in relation to data, a number of units or digits to which a measured or calculated value is expressed and used;

(225) 'restricted area' means an airspace of defined dimensions, above the land areas or territorial waters of a Member State, within which the flight of aircraft is restricted in accordance with certain specified conditions;

(226) 'route stage' means a route or portion of a route flown without an intermediate landing;

(227) ‘runway-in-use’ means the runway or runways that, at a particular time, are considered by the air traffic services unit to be the most suitable for use by the types of aircraft expected to land or take off at the aerodrome. Separate or multiple runways may be designated runway-in-use for arriving aircraft and departing aircraft;

(228) ‘secondary radar’ means a radar system wherein a radio signal transmitted from the radar station initiates the transmission of a radio signal from another station;

(229) ‘secondary surveillance radar (SSR)’ means a surveillance radar system which uses transmitters and receivers (interrogators) and transponders;

(230) ‘sensitive area’ means an area extending beyond the critical area where the parking or movement of aircraft or vehicles will affect the guidance signal to the extent that it may be rendered as an unacceptable disturbance to aircraft using the signal;

(231) ‘SNOWTAM’ means a special series NOTAM given in a standard format, which provides a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost or water associated with snow, slush, ice, or frost on the movement area;

(232) ‘significant point’ means a specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and air traffic services purposes;

(233) ‘situation display’ means an electronic display depicting the position and movement of aircraft and other information as required;

(234) ‘standard instrument arrival (STAR)’ means a designated IFR arrival route that links a significant point, normally on an ATS route, with a point from which a published instrument approach procedure can be commenced;

(235) ‘standard instrument departure (SID)’ means a designated IFR departure route that links the aerodrome or a specified runway of the aerodrome with a specified significant point, normally on a designated ATS route, at which the en-route phase of a flight commences;

(236) ‘special VFR flight’ means a VFR flight cleared by ATC to operate within a control zone in meteorological conditions below VMC;

(237) ‘taxiing’ means movement of an aircraft on the surface of an aerodrome or an operating site under its own power, excluding take-off and landing;

(238) ‘taxiway’ means a defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another;

(239) ‘terminal control area (TMA)’ means a control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes;

(240) ‘timeliness’ means, in relation to data, the degree of confidence that the data is applicable to the period of its intended use;

(241) ‘traceability’ means, in relation to data, the degree to which 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 party originating data;

(242) ‘track’ means the projection on the Earth’s surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic or grid);

(243) ‘traffic information’ means information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot avoid a collision;

(244) ‘transfer of control point’ means a defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control position to the next;

(245) ‘transferring unit’ means air traffic control unit in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit or air traffic controller along the route of flight;

(246) ‘transition altitude’ means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes;

(247) ‘transition layer’ means the airspace between the transition altitude and the transition level;

(248) ‘transition level’ means the lowest flight level available for use above the transition altitude;

(249) ‘validation’ means, in relation to data, the process of ensuring that data meets the requirements for the specified application or intended use;

(250) ‘verification’ means, in relation to data, the evaluation of the output of an aeronautical data process to ensure correctness and consistency with respect to the inputs and applicable data standards, rules and conventions used in that process;

(251) ‘uncertainty phase’ means a situation wherein uncertainty exists as to the safety of an aircraft and its occupants;

(252) ‘unmanned free balloon’ means a non-power-driven, unmanned, lighter-than-air aircraft in free flight;

(253) 'vectoring' means the provision of navigational guidance to aircraft in the form of specific headings, based on the use of an ATS surveillance system;

(254) 'visual flight rules flight' or 'VFR flight' means a flight conducted in accordance with the visual flight rules;

(255) 'visual approach' means an approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain;

(256) 'visual meteorological conditions (VMC)' means meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, equal to or better than specified minima;

(257) 'VOLMET' means meteorological information for aircraft in flight;

(258) 'VOLMET broadcast' means the provision, as appropriate, of current METAR, SPECI, TAF and SIGMET by means of continuous and repetitive voice broadcasts;

(259) 'waypoint' means a specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

(a) fly-by waypoint – a waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or

(b) fly-over waypoint – a waypoint at which a turn is initiated in order to join the next segment of a route or procedure;;

(2) in Annex II, Appendix 1 is amended as follows:

(a) the table on 'Aeronautical information services (AIS)' is replaced by the following:

'Services/ Functions	**Type of Service/ Function**	**Scope of Service/ Function**	**Limitations[a]**
Aeronautical Information Services (AIS)	Aeronautical information products (including distribution services)	Aeronautical information publication (AIP)	
		Aeronautical information circular (AIC)	
		NOTAM	
		AIP data set	

a As prescribed by the competent authority.

b Where necessary.';

		Obstacle data sets	
		Aerodrome mapping data sets	
		Instrument flight procedure data sets	
	Preflight information services	n/a	
Conditions[b]			
a As prescribed by the competent authority.			
b Where necessary.’;			

(b) the following table is inserted before the table on ‘ATM network functions’:

‘Services/ Functions	**Type of Service/ Function**	**Scope of Service/ Function**	**Limitations**[a]
Flight procedure design (FPD)	Design, documentation and validation of flight procedures[c]	n/a	
Conditions[b]			
a As prescribed by the competent authority.			
b Where necessary.			
c Design, documentation and validation of flight procedures includes maintenance and periodic review activities.’			

(3) Annex III is amended as follows:

(a) the following points ATM/ANS.OR.A.080, ATM/ANS.OR.A.085 and ATM/ANS.OR.A.090 are added:

ATM/ANS.OR.A.080 Provision of aeronautical data

(a) A service provider shall ensure that aeronautical data related to its services is provided in due time to the AIS provider.

(b) When aeronautical data related to its services is published, the service provider shall:

(1) monitor the data;

(2) notify the AIS provider of any changes necessary to ensure that the data is correct and complete;

(3) notify the AIS provider when the data is incorrect or inappropriate.

ATM/ANS.OR.A.085 Aeronautical data quality management

When originating, processing or transmitting data to the AIS provider, the service provider shall:

(a) ensure that aeronautical data referred to in Appendix 1 conform to the specifications of the aeronautical data catalogue;

(b) ensure that the following data quality requirements are met:

(1) the accuracy of aeronautical data is as specified in the aeronautical data catalogue;

(2) the integrity of aeronautical data is maintained;

(3) based on the integrity classification specified in the aeronautical data catalogue, procedures are put in place so that:

(i) for routine data, corruption is avoided throughout the processing of the data;

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

(iii) for critical data, corruption does not occur at any stage of the entire process and additional integrity assurance processes are included to fully mitigate the effects of faults identified as potential data integrity risks by thorough analysis of the overall system architecture;

(4) the resolution of aeronautical data is commensurate with the actual data accuracy;

(5) the traceability of aeronautical data is ensured;

(6) the timeliness of the aeronautical data is ensured, including any limits on the effective period of the data;

(7) the completeness of the aeronautical data is ensured;

(8) the delivered data meet the specified format requirements;

(c) with regard to data origination, establish specific formal arrangements with the party originating data that contain instructions for data creation, modification or deletion, which include as a minimum:

(1) an unambiguous description of the aeronautical data to be created, modified or deleted;

(2) the entity to which the aeronautical data is to be provided;

(3) the date and time by which the aeronautical data is to be provided;

(4) the format of the data origination report to be used;

(5) the format of the aeronautical data to be transmitted;

(6) the requirement to identify any limitation on the use of the data;

(d) ensure that data validation and verification techniques are employed to ensure that the aeronautical data meets the associated data quality requirements and in addition:

(1) the verification shall ensure that aeronautical data is received without corruption and that corruption does not occur at any stage of the entire aeronautical data process;

(2) aeronautical data and aeronautical information entered manually shall be subject to independent verification to detect any errors that may have been introduced;

(3) when using aeronautical data to derive or calculate new aeronautical data, the initial data shall be verified and validated, except when provided by an authoritative source;

(e) transmit aeronautical data by electronic means;

(f) establish formal arrangements with:

(1) all parties transmitting data to them;

(2) other service providers or aerodrome operators when exchanging aeronautical data and aeronautical information;

(g) ensure that the information listed in point AIS.OR.505(a) is provided in due time to the AIS provider;

(h) collect and transmit metadata which include as a minimum:

(1) the identification of the organisations or entities performing any action of originating, transmitting or manipulating the aeronautical data;

(2) the action performed;

(3) the date and time the action was performed;

(i) ensure that tools and software used to support or automate aeronautical data and aeronautical information processes perform their functions without adversely impacting the quality of aeronautical data and aeronautical information;

(j) ensure that digital data error detection techniques are used during the transmission or storage of aeronautical data, or both, in order to support the applicable data integrity levels;

(k) ensure that the transfer of aeronautical data is subject to a suitable authentication process such that recipients are able to confirm that the data has been transmitted by an authorised source;

(l) ensure that errors identified during data origination and after data delivery are addressed, corrected or resolved and that priority is given to managing errors in critical and essential aeronautical data.

ATM/ANS.OR.A.090 Common reference systems for air navigation

For the purpose of air navigation, service providers shall use:

(a) the World Geodetic System – 1984 (WGS-84) as the horizontal reference system;

(b) the mean sea level (MSL) datum as the vertical reference system;

(c) the Gregorian calendar and coordinated universal time (UTC) as the temporal reference systems.;

(b) the following Appendix 1 is added:

Appendix
1

AERONAUTICAL DATA CATALOGUE

Introduction

(a) The aeronautical data catalogue is a reference to the aeronautical data subjects, properties and sub-properties organised in:

(1) aerodrome data;

(2) airspace data;

(3) ATS and other routes data;

(4) instrument flight procedure data;

(5) radio navigation aids/systems data;

(6) obstacle data;

(7) geographical position data.

(b) The tables of the aeronautical data catalogue are composed of the following columns:

(1) subject for which data can be collected;

(2) property: an identifiable characteristic of a subject which may be further defined into sub-properties;

(3) same as 2;

(4) types: the data is classified into different types;

(5) description: a description of the data item;

(6) notes: containing additional information or conditions for the provision of the data;

(7) accuracy: requirements for aeronautical data are based on a 95 % confidence level;

(8) integrity classification;

(9) origination type: data is identified as surveyed, calculated or declared;

(10) publication resolution;

(11) chart resolution.

Note for items 2 and 3 under point (b): the classification of a catalogue element as subject, property or sub-property does not impose a certain data model.

Note for item 7 under point (b): for those fixes and points that serve a dual purpose, e.g. holding point and missed approach point, the higher accuracy applies. Accuracy requirements for obstacle and terrain data are based on a 90 % confidence level.

Note for item 10 under point (b): 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.

1. **Aerodrome data**

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Aerodrome/ Heliport				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.						
	Designator			Designator of the aerodrome/ heliport						
		ICAO location indicator	Text	The four-letter ICAO location indicator of the aerodrome/ heliport, as	If any					

				listed in ICAO Doc 7910 'Location Indicators'					
		IATA designator	Text	The identifier that is assigned to a location in accordance with IATA rules (Resolution 767)	If any				
		Other	Text	A locally defined airport identifier, if other than an ICAO Location indicator					
	Name		Text	The primary official name of an aerodrome as designated by the competent authority					
	Served city		Text	The full name (free text) of					

				the city or town the aerodrome/ heliport is serving						
	Type of traffic permitted									
		International/ national	Code list	Indication if international and/ or national flights are permitted at the aerodrome/ heliport						
		Instrument flight rules (IFR)/ Visual flight rules (VFR)	Code list	Indication if IFR and/ or VFR flights are permitted at the aerodrome/ heliport						
		Scheduled/ non-scheduled	Code list	Indication if scheduled and/ or non-scheduled flights are permitted at the						

				aerodrome/ heliport					
		Civil/ military	Code list	Indication if civil commercial aviation and/ or general aviation and/ or military flights are permitted at the aerodrome/ heliport					
		Restricted use	Text	Indication if an aerodrome or heliport is not open for the public (only for use by the owners)					
	Heliport type		Text	The type of the heliport (surface level, elevated, shipboard or helideck)					
	Control type		Text	Indication if an					

			aerodrome is under civil control, military control or joint control					
	Certified	Text	Indication if an aerodrome is/is not certified in accordance with the ICAO rules or Regulation (EU) No 139/2014					
	Certification date	Date	The date when the airport certification was issued by the competent authority					
	Certification expiration date	Date	The date when the aerodrome certification becomes invalid					
	Field elevation							

		Elevation	Elevation	The vertical distance above mean sea level (MSL) from the highest point of the landing area		0.5 m	Essential	Surveyed	1 m or 1 ft	1 m or 1 ft
		Geoid undulation	Height	The geoid undulation at the aerodrome/ heliport elevation position	Where appropriate	0.5 m	Essential	Surveyed	1 m or 1 ft	1 m or 1 ft
	Reference temperature		Value	The monthly mean of the daily maximum temperatures for the hottest month of the year at an aerodrome; this temperature must be averaged over a period						

				of years.					
	Mean low temperature		Value	The mean lowest temperature of the coldest month of the year, for the last five years of data at the aerodrome elevation	5 degrees				
	Magnetic variation			The angular difference between the true and the magnetic north					
		Angle	Angle	The angle value of the magnetic variation	1 degree	Essential	Surveyed	1 degree	1 degree
		Date	Date	The date on which the magnetic variation had the					

				corresponding value					
		Annual change	Value	The annual rate of change of the magnetic variation					
	Reference point			The designated geographical location of an aerodrome					
		Position	Point	Geographical location of the aerodrome reference point	30 m	Routine	Surveyed / calculated	1 sec	1 sec
		Site	Text	Location of the reference point on the aerodrome					
		Direction	Text	Direction of the aerodrome reference point from the centre of the city or town which the aerodrome serves					

		Distance	Distance	Distance of the aerodrome reference point from the centre of the city or town which the aerodrome serves.					
Landing direction indicator				A device to visually indicate the direction currently designated for landing and for take-off.					
	Location		Text	Location of the landing direction indicator					
	Lighting		Text	Lighting of the landing direction indicator	If any				
Secondary power supply									
	Characteristics		Text	Description of					

				the secondary power supply					
	Switch-over time		Value	Secondary power supply switch-over time					
Anemometer				Device used for measuring the wind speed					
	Location		Text	Location of the anemometer					
	Lighting		Text	Lighting of the anemometer	If any				
Aerodrome beacon (ABN)/ identification beacon (IBN)				Aerodrome beacon/ identification beacon used to indicate the location of an aerodrome from the air					
	Location		Text	Location of the aerodrome beacon/ identification beacon	If any				
	Characteristics		Text	Description of the					

			aerodrome beacon/ identification beacon					
	Hours of operation	Schedule	Hours of operation of the aerodrome beacon/ identification beacon					
Wind direction indicator								
	Location	Text	Location of the wind direction indicator					
	Lighting	Text	Lighting of the wind direction indicator					
Runway visual range (RVR) observation site			The observation site of the RVR.					
	Position	Point	Geographical location of the RVR observation sites					
Frequency area			The designated part of a surface movement area where					

				a specific frequency is required by ATC or ground control.					
	Station		Text	Name of the station providing the service					
	Frequency		Value	Frequency of the station providing the service					
	Boundary		Polygon	Area boundary of the frequency area					
Hot spot				A location on an aerodrome movement area with a history, or potential risk, of collision or RWY incursion, and where heightened					

				attention by pilots/ drivers is necessary.					
	Identifier		Text	The identifier of the hot spot					
	Annotation		Text	Additional information about the hot spot					
	Geometry		Polygon	Geographical area of the hot spot					

Subject	**Property**	**Sub-property**	**Type**	**Description**	**Note**	**Accuracy**	**Integrity**	**Orig. Type**	**Pub. Res.**	**Chart Res.**
RWY				A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft						
	Designator		Text	The full textual designator of the RWY,						

				used to uniquely identify the RWY at an aerodrome/ heliport(e.g. 09/27, 02R/20L, RWY 1)					
	Nominal length		Distance	The declared longitudinal extent of the RWY for operational (performance) calculations.	1 m	Critical	Surveyed	1 m or 1 ft	1 m
	Nominal width		Distance	The declared transversal extent of the RWY for operational (performance) calculations.	1 m	Essential	Surveyed	1 m or 1 ft	1 m
	Geometry		Polygon	Geometries of the RWY element, RWY displaced area and RWY intersection					
	Centre line points								

		Position	Point	Geographical location of the RWY centre line at each end of the RWY, at the stopway (SWY), and at the origin of each take-off flight path area, as well as at each significant change in the slope of the RWY and SWY	Default from Annex 4 3.8.4.2	1 m	Critical	Surveyed		
		Elevation	Elevation	The elevation of the corresponding centre line point. For non-		0.25 m	Critical	Surveyed		

				precision approaches any significant high and low intermediate points along the RWY shall be measured to the accuracy of one-half metre or foot,						
		Geoid undulation	Height	The geoid undulation at the corresponding centre line point						
	RWY exit line									
		Exit guidance line	Line	Geographical location of the RWY exit line		0.5 m	Essential	Surveyed	1/100 sec	1 sec
		Colour	Text	Colour of the RWY exit line						

		Style	Text	Style of the RWY exit line						
		Directionality	Code list	Directionality of the RWY exit line (one-way or two-way)						
	Surface type		Text	The surface type of the RWY						
	Strength									
		Pavement classification number (PCN)	Text	PCN						
		Pavement type	Text	Pavement type for the aircraft classification number – pavement classification number (ACN-PCN) determination						
		Subgrade category	Text	Subgrade strength category of the RWY						

		Allowable pressure	Text	The maximum allowable tire pressure category or the maximum allowable tire pressure value					
		Evaluation method	Text	The evaluation method used					
	Strip			A defined area including the RWY and the SWY, if provided: (a) to reduce the risk of damage to aircraft running off a RWY; and (b) to protect aircraft flying over the RWY during take-off					

					or landing operations					
		Length	Distance	The longitudinal extent of the RWY strip						
		Width	Distance	The transversal extent of the RWY strip						
		Surface type	Text	The surface type of the RWY strip						
	Shoulder			An area adjacent to the edge of a pavement, so prepared as to provide a transition area between the pavement and the adjacent surface						
		Geometry	Polygon	Geographical location of the						

				RWY shoulders					
		Surface type	Text	The surface type of the RWY shoulder					
		Width	Distance	The width of the RWY shoulder	1 m	Essential	Surveyed	1 m or 1 ft	
	Blast pad			Specially prepared surface placed adjacent to the end of a RWY to eliminate the erosive effect of the strong wind forces produced by aeroplanes at the beginning of their take-off roll					
		Geometry	Polygon	Geographical location of the					

				blast pad						
	Obstacle-free zone		Text	Existence of an obstacle-free zone for a precision approach RWY category I	When provided					
	RWY marking									
		Type	Text	Type of the RWY marking						
		Description	Text	Description of the RWY markings						
		Geometry	Polygon	The geographical location of the RWY marking						
	RWY centre line LGT									
		Length	Distance	The longitudinal extent of the RWY centre line lights						
		Spacing	Distance	Spacing of the						

				RWY centre line lights						
		Colour	Text	Colour of the RWY centre line lights						
		Intensity	Text	Intensity of the RWY centre line lights						
		Position	Point	Geographical location of each individual light of the RWY centre line lights						
	RWY edge LGT									
		Length	Distance	The longitudinal extent of the RWY edge lights						
		Spacing	Distance	Spacing of the RWY edge lights						
		Colour	Text	Colour of						

				the RWY edge lights						
		Intensity	Text	Intensity of the RWY edge lights						
		Position	Point	Geographical location of each individual light of the RWY edge lights						
	Reference code			The intent of the reference code is to provide a simple method for interrelating the numerous specifications concerning the characteristics of aerodromes so as to provide a series of aerodrome facilities that						

				are suitable for the aeroplanes intended to operate at the aerodrome.						
		Number	Code list	A number based on the aeroplane reference field length						
		Letter	Code list	A letter based on the aeroplane wingspan and outer main gear wheel span						
	Restriction		Text	Description of restrictions imposed on the RWY						
RWY direction										
	Designator		Text	The full textual designator of the landing and						

				take-off direction – examples: 27, 35L, 01R					
	True bearing		Bearing	The true bearing of the RWY	1/100 degree	Routine	Surveyed	1/100 degree	1 degree
	Type		Text	Type of RWY: precision (Cat I, II, III)/ non-precision/ non-instrument					
	Threshold			The beginning of the portion of the RWY usable for landing					
		Position	Point	The geographical location of the RWY threshold	1 m	Critical	Surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the RWY threshold	See Note 1				
		Geoid undulation	Height	WGS-84 geoid	See Note 2				

				undulation at the RWY threshold position						
		Type	Text	The indication if the threshold is displaced or not displaced; a displaced threshold is not located at the extremity of the RWY						
		Displacement	Distance	Distance of the displaced threshold	If threshold displaced	1 m	Routine	Surveyed		
	RWY end			RWY end (flight path alignment point)						
		Position	Point	Location of the RWY end in the direction of departure		1 m	Critical	Surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of		See RWY				

				the end position of the RWY		centre line points				
	Departure end of RWY (DER)			The end of the area declared suitable for take-off (i.e. the end of the RWY or, where a clearway is provided, the end of the clearway)	Beginning of the departure procedure					
		Position	Point	The geographical location of the DER						
		Elevation	Elevation	The elevation of the DER is the elevation of the end of the						

				RWY or of the clearway, whichever is higher.						
	Touchdown zone			The portion of a RWY beyond the threshold, where landing aeroplanes are intended to first contact the RWY						
		Elevation	Elevation	The highest elevation of the touchdown zone of a precision approach RWY	Precision approach RWY	0.25 m or 0.25 ft				
		Slope	Value	The slope of the RWY touchdown zone						
	Slope		Value	The slope of the RWY						
	Land-and-hold			LAHSOs						

	short operations (LAHSOs)									
		Geometry	Line	The geographical location of the LAHSOs						
		Protected element	Text	The name of the RWY or taxiway (TWY) being protected						
	Displaced area			The portion of a RWY between the beginning of the RWY and the displaced threshold						
		Geometry	Polygon	Geographical location of the displaced area						
		PCN	Text	The PCN of the displaced area						
		Surface type	Text	The surface type of the						

				displaced area						
		Aircraft restriction	Text	Usage restriction for a specific aircraft type						
	SWY			A defined rectangular area on the ground at the end of the take-off RWY available, prepared as a suitable area in which aircraft may be stopped in case of an abandoned take-off						
		Length	Distance	The longitudinal extent of the SWY	If applicable	1 m	Critical	Surveyed	1 m or 1 ft	1 m
		Width	Distance	The width of		1 m	Critical	Surveyed	1 m or 1 ft	1 m

				the SWY						
		Geometry	Polygon	Geographical location of the SWY						
		Slope	Value	The slope of the SWY						
		Surface type	Text	The surface type of the SWY						
	Clearway			A defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb						

				to a specified height					
		Length	Distance	The longitudinal extent of the clearway	1 m	Essential	Surveyed	1 m or 1 ft	
		Width	Distance	The transversal extent of the clearway	1 m	Essential	Surveyed	1 m or 1 ft	
		Ground profile		The vertical profile (or slope) of the clearway	If any				
	RWY end safety area (RESA)			An area symmetrical about the extended RWY centre line and adjacent to the end of the strip, primarily intended to reduce the risk of damage to an aeroplane undershooting					

				or overrunning the RWY						
		Length	Distance	The longitudinal extent of the RESA						
		Width	Distance	The transversal extent of the RESA						
		Longitudinal slope	Value	The longitudinal slope of the RESA						
		Transversal slope	Value	The transversal slope of the RESA						
	Declared distances									
		Take-off run available (TORA)	Distance	The length of the RWY, declared available and suitable for the ground run of an aeroplane taking off		1 m	Critical	Surveyed	1 m or 1 ft	1 m

		Take-off distance available (TODA)	Distance	The length of the take-off run available plus the length of the clearway, if provided	1 m	Critical	Surveyed	1 m or 1 ft	1 m
		Accelerate-stop distance available (ASDA)	Distance	The length of the take-off run available plus the length of the SWY, if provided	1 m	Critical	Surveyed	1 m or 1 ft	1 m
		Landing distance available (LDA)	Distance	The length of the RWY, declared available and suitable for the ground run of an aeroplane landing.	1 m	Critical	Surveyed	1 m or 1 ft	1 m
		Remarks	Text	Remarks including RWY					

				entry or start point, where alternative reduced distances have been declared						
	RWY end LGT									
		Colour	Text	Colour of the RWY end lights						
		Position	Point	Geographical location of each individual light of the RWY end lights						
	SWY LGT									
		Length	Distance	The longitudinal extent of the SWY lights						
		Colour	Text	Colour of the SWY lights						
		Position	Point	Geographical location of each						

				individual light of the SWY lights					
	Approach lighting system								
		Type	Text	Classification of the approach lighting system, using as criteria Regulation (EU) No 139/2014 and CS-ADR, especially CS ADR-DSN.M.625 and CS ADR-DSN.M.626.					
		Length	Distance	The longitudinal extent of the approach lighting system.					
		Intensity	Text	A code indicating the relative intensity of the approach					

				lighting system.					
		Position	Point	Geographical location of each individual light of the approach lighting system					
	RWY threshold lights								
		Colour	Text	Colour of the RWY threshold lights					
		Wing bar colour	Text	Colour of the RWY threshold wing bars					
		Position	Point	Geographical location of each individual light of the threshold and wing bar lights					
	Touchdown zone lights								
		Length	Distance	The longitudinal extent of					

				the RWY touchdown zone lights					
		Position	Point	Geographical location of each individual light of the RWY touchdown zone lights					
	Visual-approach slope indicator system								
		Minimum eye height over the threshold (MEHT)	Height	MEHT					
		Location	Point	Geographical location of the visual-approach slope indicator system					
		Angle	Angle	The nominal-approach slope angle(s)					
		Type	Text	The type of visual glide slope indicator					

				(VGSI), visual approach slope indicator (VASI), precision approach path indicator (PAPI), etc.					
		Displacement angle	Angle	Where the axis of the system is not parallel to the RWY centre line, the angle of and the direction of displacement, i.e. left or right					
		Displacement direction	Text	Where the axis of the system is not parallel to the RWY centre line,					

				the angle of and the direction of displacement, i.e. left or right					
	Arresting gear		Line	The geographical location of the arresting-gear cable across the RWY					
	Arresting system			High-energy-absorbing material located at the end of a RWY or SWY, designed to be crushed under the weight of an aeroplane as the material exerts deceleration forces on the aircraft					

				landing gear					
		Geometry	Polygon	Geographical location of the arresting system					
		Setback	Distance	Setback of the arresting system					
		Length	Distance	The longitudinal extent of the arresting system					
		Width	Distance	The transversal extent of the arresting system					
Radio altimeter area									
	Length		Distance	The longitudinal extent of the radio altimeter area					
	Width		Distance	The transversal extent of the radio altimeter area					
	Geometry		Polygon	Geographical location					

				of the radio altimeter area						
			Note 1	Threshold elevation for RWYs with non-precision approaches	0.5 m	Essential	Surveyed	1 m or 1 ft	1 m or 1 ft
				Threshold elevation for RWYs with precision approaches	0.25 m	Critical	Surveyed	0.1 m or 0.1 ft	0.5 m or 1 ft
			Note 2	WGS-84 geoid undulation at the RWY threshold for non-precision approaches	0.5 m	Essential	Surveyed	1 m or 1 ft	1 m or 1 ft
				WGS-84 geoid undulation at the RWY threshold for precision approaches	0.25 m	Critical	Surveyed	0.1 m or 0.1 ft	0.5 m or 1 ft

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res
Final-approach and take-				A defined area over						

off area (FATO)				which the final phase of the approach manoeuvre before hover or landing is completed and from which the take-off manoeuvre is commenced; where the FATO is used by helicopters operated in performance class 1, the defined area includes the rejected take-off area available.						
	Threshold point			The beginning of the portion of the						

				FATO, usable for landing					
		Position	Point	Geographical location of the FATO threshold point	1 m	Critical	Surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the FATO threshold	See Note 1				
		Geoid undulation	Height	WGS-84 geoid undulation at the FATO threshold position	See Note 2				
	DER			The end of the area declared suitable for take-off (i.e. the end of the RWY or, where a clearway is provided, the end of the clearway					

				or the end of the FATO area)					
		Position	Point	Geographical location of the DER	1 m	Critical	Surveyed	1/100 sec	1 sec
		Elevation	Elevation	The higher of the elevations of the beginning and of the end of the RWY/FATO					
	Type		Text	Type of FATO					
	Designation		Text	The full textual designator of the landing and take-off area.					
	Length		Distance	The longitudinal extent of FATO	1 m	Critical	Surveyed	1 m or 1 ft	1 m
	Width		Distance	The transversal extent					

				of FATO						
	Geometry		Polygon	Geographical location of the FATO element						
	Slope		Value	The slope of FATO						
	Surface type		Text	The surface type of FATO						
	True bearing		Bearing	The true bearing of the RWY		1/100 degree	Routine	Surveyed	1/100 degree	
	Declared distances									
		Take-off distance available (TODAH)	Distance	The FATO length plus the helicopter clearway length (if provided)	And, if applicable, alternative reduced declared distances	1 m	Critical	Surveyed	1 m or 1 ft	
		Rejected take-off distance available (RTODAH)	Distance	The length of FATO, declared available and suitable for helicopters operated in performance class		1 m	Critical	Surveyed	1 m or 1 ft	

				1, to complete a rejected take-off					
		Landing distance available (LDAH)	Distance	The length of FATO plus any additional area declared available and suitable for helicopters to complete the landing manoeuvre from a defined height	1 m	Critical	Surveyed	1 m or 1 ft	
		Remarks	Text	Remarks including RWY entry or start point, where alternative reduced distances have been declared					
	FATO marking								
		Description	Text	Description of the FATO markings					

	Approach lighting system								
		Type	Text	Classification of the approach lighting system, using as criteria Regulation (EU) No 139/2014 and CS-ADR, specifically CS ADR-DSN.M.625 and CS ADR-DSN.M.626.					
		Length	Distance	The longitudinal extent of the approach lighting system.					
		Intensity	Text	A code indicating the relative intensity of the approach lighting system					
		Position	Point	Geographical location of each					

				individual light of the approach lighting system					
	Area lights								
		Description	Text	Description of the area lights					
		Position	Point	Geographical location of each individual light of the area lights					
	Aiming point lights								
		Description	Text	Description of the aiming point lights					
		Position	Point	Geographical location of each individual light of the aiming point lights					
Touchdown and lift-off				An area on which a					

area (TLOF)				helicopter may touch down or lift off.					
	Designator		Text	The full textual designator of TLOF					
	Centre point								
		Position	Point	Geographical location of the TLOF threshold point	1 m	Critical	Surveyed	1/100 sec	1 sec
		Elevation	Elevation	Elevation of the TLOF threshold	See Note 1				
		Geoid undulation	Height	The WGS-84 geoid undulation TLOF centre point position	See Note 2				
	Length		Distance	The longitudinal extent of TLOF	1 m	Critical	Surveyed	1 m or 1 ft	1 m
	Width		Distance	The transversal extent of TLOF	1 m	Critical	Surveyed	1 m or 1 ft	1 m
	Geometry		Polygon	The geographical location					

				of the TLOF element					
	Slope		Value	The slope of TLOF					
	Surface type		Text	The surface type of TLOF					
	Bearing strength		Value	The bearing strength of TLOF				1 ton	
	Visual-approach slope indicator system type		Text	Type of the visual-approach slope indicator system					
	Marking								
		Description	Text	Description of the TLOF markings					
Safety area				A defined area on a heliport surrounding the FATO, which is free of obstacles, other than those required					

				for air navigation purposes, and intended to reduce the risk of damage to helicopters accidentally diverging from the FATO.					
	Length		Distance	The longitudinal extent of the safety area					
	Width		Distance	The transversal extent of the safety area					
	Surface type		Text	The surface type of the safety area					
Helicopter clearway				A defined area on the ground or water, selected and/or					

				prepared as a suitable area over which a helicopter operated in performance class 1 may accelerate and achieve a specific height					
	Length		Distance	The longitudinal extent of the helicopter clearway					
	Ground profile		Value	The vertical profile (or slope) of the helicopter clearway					
			Note 1	The FATO threshold for heliports with or without a Point-in-Space	0.5 m	Essential	Surveyed	1 m or 1 ft	

				(PinS) approach					
				The FATO threshold for heliports intended to be operated.	0.25 m	Critical	Surveyed	1 m or 1 ft (non-precision) 0.1 m or 0.1 ft (precision)	
			Note 2	The WGS–84 geoid undulation at the FATO threshold and the TLOF geometric centre, for heliports with or without a PinS approach	0.5 m	Essential	Surveyed	1 m or 1 ft	
				The WGS–84 geoid undulation at the FATO threshold and the TLOF geometric centre, for heliports intended	0.25 m	Critical	Surveyed	1 m or 1 ft (non-precision) 0.1 m or 0.1 ft (precision)	

				to be operated.						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Apron				A defined area on a land aerodrome, intended to accommodate aircraft as regards loading or unloading passengers, mail or cargo, fuelling, parking or maintenance						
	Designator		Text	The full textual name or designator used to identify an apron at an aerodrome/ heliport						
	Geometry		Polygon	Geographical location of the apron element		1 m	Routine	Surveyed	1-10 sec	1 sec
	Type		Text	Classification of the						

				primary use of the apron					
	Aircraft restriction		Text	Usage restriction (prohibition) for a specified aircraft type					
	Surface type		Text	The surface type of the apron					
	Strength								
		PCN	Text	PCN of the apron					
		Pavement type	Text	ACN-PCN determination					
		Subgrade category	Text	Subgrade strength category of the apron					
		Allowable pressure	Text	The maximum allowable tire pressure category or the maximum allowable tire pressure value					
		Evaluation method	Text	The evaluation method					

				used to determine the apron strength					
	Elevation		Elevation	The elevation of the apron					
TWY				A defined path on a land aerodrome, established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another					
	Designator		Text	The full textual designator of the TWY					
	Width		Distance	The transversal extent of the TWY	1 m	Essential	Surveyed	1 m or 1 ft	

	Geometry	Polygon	Geographical location of the TWY element						
	Bridge	Text	Type of the bridge (none, overpass, underpass)						
	Surface type	Text	Surface type of the TWY						
	Strength								
	PCN	Text	PCN of the TWY						
	Pavement type	Text	ACN-PCN determination						
	Subgrade category	Text	Subgrade strength category of the TWY						
	Allowable pressure	Text	Maximum allowable tire pressure category or maximum allowable tire pressure value						
	Evaluation method	Text	The evaluation method used to						

				determine the taxiway strength					
	Aircraft restrictions		Text	Usage restriction (prohibition) for a specified aircraft type					
	Reference code letter		Code list	A letter based on the aeroplane wingspan and outer main gear wheel span					
	Centre line points								
		Position	Point	Geographical coordinates of the TWY centre line points	0.5 m	Essential	Surveyed	1/100 sec	1/100 sec
		Elevation	Elevation	Elevation of taxiway centre line points	1 m	Essential	Surveyed		
	Shoulder			An area adjacent to the edge of a pavement, so					

				prepared as to provide a transition between the pavement and the adjacent surface					
		Geometry	Polygon	The geographical location of the TWY shoulder					
		Surface type	Text	Surface type of the TWY shoulder					
		Width	Distance	The width of the TWY shoulder	1 m	Essential	Surveyed	1 m or 1 ft	
	Guidance lines								
		Geometry	Line	Geographical location of the guidance lines	0.5 m	Essential	Surveyed	1/100 sec	1/100 sec
		Colour	Text	Colour of TWY guidance lines					
		Style	Text	Style of TWY guidance lines					

		Wingspan	Value	Wingspan					
		Maximum speed	Value	Maximum speed					
		Direction	Text	Direction					
	Intermediate-holding-position marking line		Line	Intermediate holding position marking line	0.5 m	Essential	Surveyed	1/100 sec	1 sec
	TWY marking								
		Description	Text	Description of the TWY marking					
	TWY edge lights								
		Description	Text	Description of the TWY edge lights					
		Position	Point	Geographical location of each individual light of the TWY edge lights					
	TWY centre line lights								
		Description	Text	Description of the TWY centre line lights					

		Position	Point	Geographical location of each individual light of the TWY centre line lights						
	Stop bars									
		Description	Text	Description of the stop bars	If any					
		Location	Line	Location of the stop bars						
	RWY guard lights									
		Description	Text	Description of the RWY guard lights and other RWY protection measures	If any					
		Location	Point	Location of the stop bar	Configuration A					
		Location	Line	Location of the stop bar	Configuration B					

	RWY holding position		A designated position intended to protect a RWY, an obstacle limitation surface, or an instrument landing system (ILS)/ microwave landing system (MLS) critical/ sensitive area, at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorised by the aerodrome control tower					
		Geometry	Line	Geographical location of the RWY holding position	0.5 m	Essential	Surveyed	1/100 sec	1 sec
		Protected RWY	Text	Designator of					

Changes to legislation: *There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2020/469. (See end of Document for details)*

				the RWY protected						
		Cat stop	Code list	Category (CAT) of the RWY (0, I, II, III)						
		RWY ahead text	Text	Actual text as in the marking; e.g. 'RWY AHEAD' or 'RUNWAY AHEAD'						
	Intermediate holding position	Geometry	Line	Geographical location of the intermediate holding position – a designated position intended for traffic control, at which taxiing aircraft and vehicles shall stop and hold until further cleared to proceed,						

				when so instructed by the aerodrome control tower					
Helicopter ground TWY				A ground TWY intended for the ground movement of wheeled undercarriage helicopters.					
	Designator		Text	The full textual designator of the helicopter ground TWY					
	Centre line points		Point	Geographical location of the helicopter ground centre line TWY points	0.5 m	Essential	Surveyed/ calculated		
	Elevation		Elevation	Elevation of the helicopter ground TWY	1 m	Essential	Surveyed		
	Width		Distance	The transversal extent of the	1 m	Essential	Surveyed		

				helicopter ground TWY					
	Surface type		Text	The surface type of the helicopter ground TWY					
	Intersection marking line		Line	Helicopter ground TWY intersection marking line	0.5 m	Essential	Surveyed	1/100 sec	1 sec
	Lighting								
		Description	Text	Description of the helicopter ground TWY light					
		Position	Point	Geographical location of each individual light of the helicopter ground TWY lights					
	Marking								
		Description	Text	Description of helicopter ground TWY marking					
Helicopter air TWY				A defined path on					

				the surface, established for the air taxiing of helicopters					
	Designator			The full textual designator of the helicopter air TWY					
	Centre line points		Point	Geographical location of the helicopter air TWY centre line points	0.5 m	Essential	Surveyed/ calculated		
	Elevation		Elevation	Elevation of the helicopter air TWY	1 m	Essential	Surveyed		
	Width		Distance	The transversal extent of the helicopter air TWY	1 m	Essential	Surveyed		
	Surface type		Text	Surface type of the helicopter air TWY					

	Lighting								
		Description	Text	Description of the helicopter air TWY lighting					
		Position	Point	Geographical location of each individual light of the helicopter air TWY lights					
	Marking								
		Description	Text	Description of the helicopter air TWY marking					
Helicopter air transit routes				A defined path established for the movement of helicopters from one part of a heliport to another; a taxiing route includes a helicopter					

				air or ground TWY centred on the taxiing route.					
	Designator		Text	Designator of the helicopter air transit route					
	Geometry		Line	Geographical location of the helicopter air transit route					
	Width		Distance	The transversal extent of the helicopter air transit route	1 m	Essential	Surveyed		
INS checkpoint									
	Location		Point	Geographical location of the INS checkpoint	Where available	0.5 m	Routine	Surveyed	1/100 sec	1/100 sec
Very-high-frequency (VHF) omnidirectional range (VOR) checkpoint									

	Location	Point	Geographical location of the VOR checkpoint	Where available				
	Frequency	Value	Frequency of the VOR checkpoint					
Altimeter checkpoint								
	Location	Point	Geographical location of the altimeter checkpoints					
	Elevation	Elevation	Elevation of the altimeter checkpoints					
Aircraft stand			A designated area on an apron intended to be used for parking an aircraft					
	Name	Text	Name of the aircraft stand point					
	Aircraft stand points	Location	Point	Geographical location of the aircraft	0.5 m	Routine	Surveyed	1/100 sec	1/100 sec

				stand point					
		Aircraft types	Code list	Aircraft types					
	Identification sign		Text	Description of the aircraft stand identification sign					
	Visual docking/ parking guidance system		Text	Description of the visual docking/ parking guidance system at the aircraft stand					
	Parking-stand area		Polygon	Geographical location of the parking-stand area					
	Jetway		Code list	Jetway available at the aircraft stand					
	Fuel		Code list	Fuel available at the aircraft stand					
	Ground power		Code list	Ground power available at the aircraft stand					

	Towing		Code list	Towing available at the aircraft stand					
	Terminal		Text	Terminal-building reference					
	Surface type		Text	Surface type of the aircraft stand					
	Aircraft restriction		Text	Usage restriction (prohibition) for a specified aircraft type					
	PCN		Text	PCN of the aircraft stand					
	Stand guidance line								
		Geometry	Line	Geographical location of the stand guidance line	0.5 m	Essential	Surveyed	1/100 sec	
		Elevation	Elevation	Elevation of the parking guidance line points	1 m	Essential	Surveyed		
		Direction	Text	Direction of the stand					

				guidance line					
		Wingspan	Value	Wingspan					
		Colour	Code list	Colour of the stand guidance line					
		Style	Code list	Style of the stand guidance line					
Helicopter stand				An aircraft stand that provides for parking a helicopter, and where ground taxi operations are completed, or where the helicopter touches down and lifts off for air taxiing operations.					
	Name		Text	Name of the helicopter stand					

	Location		Point	Geographical location of the helicopter stand point/ INS checkpoints	0.5 m	Essential	Surveyed	1/100 sec	
De-icing area				A facility where frost, ice or snow is removed (de-icing) from the aeroplane to provide clean surfaces, and/ or where clean surfaces of the aeroplane receive protection (anti-icing) against the formation of frost or ice, and accumulation of snow or slush,					

				for a limited period of time						
	Identifier		Text	Identifier of the de-icing area						
	Geometry		Polygon	Geographical location of the de-icing area	1 m	Routine	Surveyed	1/10 sec	1 sec	
	Surface type		Text	The surface type of the de-icing area						
	Id base		Text	Name of the underlying TWY, parking stand or apron element						
	Aircraft restriction		Text	Usage restriction (prohibition) for a specified aircraft type						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Communication facility										

	Service designation	Text	Designation of the service provided						
	Call sign	Text	Call sign of the communication facility						
	Channel	Text	Channel/ frequency of the communication facility						
	Logon address	Text	Logon address of the facility	As appropriate					
	Hours of operation	Schedule	Operational hours of the station serving the unit						

2. **Airspace data**

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
ATS airspace				Airspace of defined dimensions, alphabetically designated, within which specific types of flights may operate,						

				and for which ATS and air traffic rules of operation are specified					
	Type		Text	Type of ATS airspace in accordance with Appendix 4 to Implementing Regulation (EU) No 923/2012 (SERA)					
	Designation		Text	The designator given to the airspace by a responsible authority					
	Lateral limits		Polygon	The surface defining the horizontal shape of the airspace	See Note 1				
	Vertical limits								
		Upper limit	Altitude	The upper limit					

				of the airspace					
		Lower limit	Altitude	The lower limit of the airspace	50 m	Routine	Calculated	50 m or 100 ft	50 m or 100 ft
	Class of airspace		Code list	A categorisation of airspace which determines the operating rules, flight requirements and services provided.					
	Transition altitude		Altitude	The altitude at or below which the vertical position of aircraft is controlled by reference to altitudes					
	Hours of applicability		Schedule	The hours of applicability of the airspace					
	ATS unit			Unit providing service					

		Name	Text	The name of the unit providing the service						
		Call sign	Text	The call sign of the aeronautical station serving the unit						
		Language	Code list	Information on the language(s) used, specifying area and conditions, as well as when and where to be used, if applicable						
		Applicability	Text	Information on the area and conditions when to be used						
		Hours of service	Schedule	Operational hours of the						

				station serving the unit					
	Frequency								
		Value	Value	The frequency of the ATS airspace					
		Purpose	Text	Indications for specific purposes of the frequency					
			Note 1	FIR, UIR	2 km	Routine	Declared	1 min	As plotted
				TMA, CTA	100 m	Essential	Calculated	1 sec	As plotted
				Controlled traffic region (CTR)	100 m	Essential	Calculated	1 sec	As plotted

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Special-activity airspace										
	Type		Code list	Type of the special-activity airspace (see Note 1)						
	Identification		Text	The identification given to uniquely identify						

				the airspace					
	Name		Text	The name given to the airspace by an authority nominated by the Member State					
	Lateral limits		Polygon	The surface defining the horizontal shape of the airspace	See Note 2 for P, R, and D areas only				
	Vertical limits								
		Upper limit	Altitude	The upper limit of the airspace					
		Lower limit	Altitude	The lower limit of the airspace					
	Restriction		Text	Type of restriction or nature of hazard					
	Activation		Text	Information on system					

				and means of activation announcements together with information pertinent to civil flights and applicable to air defence identification zone (ADIZ) procedures						
	Time of activity		Schedule	Time interval when the special activity takes place						
	Risk of interception		Text	Risk of interception in the event of penetration						
			Note 1 type	Prohibited area	Note 2	100 m	Essential	Calculated	1 sec	As plotted
				Restricted area		2 km	Routine	Declared	1 min	As plotted
				Danger area						
				Military exercise area						

				Military training area					
				ADIZ					
				Other					

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Other regulated airspace										
	Type		Text	Type of airspace (reduced vertical separation minima (RVSM), emergency locator transmitter (ELT), etc.)						
	Identification		Text	The identification given to uniquely identify the airspace						
	Name		Text	The name given to the airspace by an authority nominated by the Member State						
	Lateral limits		Polygon	The surface defining						

				the horizontal shape of the airspace					
	Vertical limits								
		Upper limit	Altitude	The upper limit of the airspace					
		Lower limit	Altitude	The lower limit of the airspace					
	Restriction		Text	Type of restriction, if any					
	Activation		Text	Information on system and means of activation announcements together with information pertinent to civil flights and applicable to ADIZ procedures					
	Time of activity		Schedule	Time interval when the special					

				activity takes place						

Subject	Property	Sub-property	Type	Description	Notation	Accuracy	Integrity	ID Orig. Type	Pub. Res.	Chart Res.
ATS control sector										
	Identification		Text	The identification given to the sector						
	Lateral limits		Polygon	The surface defining the horizontal shape of the ATC sector						
	Vertical limits									
		Upper limit	Altitude	The upper limit of the sector						
		Lower limit	Altitude	The lower limit of the sector						

3. **ATS and other routes data**

Subject	Property	Sub-property	Type	Description	Notation	Accuracy	Integrity	ID Orig. Type	Pub. Res.	Chart Res.
ATS route				A specified route designed						

				for channelling the flow of traffic as necessary for the provision of ATS					
	Designator		Text	Designators for ATS routes in accordance with Annex XI (Part-FPD) to this Regulation					
	Designator prefix		Text	The prefix of the route designator as specified in Note 1					
Other route				A specified route designed for channelling the flow of traffic as necessary without provision					

				of ATS						
	Designator		Text	Designator of the route						
	Type		Text	Type of route (e.g. VFR uncontrolled navigation routes)						
	Flight rules		Code list	Information on the flight rules that apply to the route (IFR/ VFR)						
Route segment										
	Navigation specification		Text	Designation of the navigation specification(s) applicable to a specified segment or segments; there are two kinds of navigation specifications: (a) required navigation performance (RNP)						

					specifications: navigation specifications based on area navigation (RNAV) that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH, etc.; and				
				(b)	RNAV specifications: navigation specifications based on RNAV that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g.				

					RNAV 5, RNAV 1, etc.				
	From point			Reference to the first point of a route segment					
		Name	Text	The coded designators or code names of a significant point					
		Reporting	Code list	Indication of the ATS/ MET reporting requirement as ‘compulsory’ or ‘on request’					
	To point			Reference to the second point of a route segment					
		Name	Text	The coded designators or code names of a					

				significant point					
		Reporting	Code list	Indication of the ATS/MET reporting requirement as 'compulsory' or 'on request'					
	Track		Bearing	Track, VOR radial or magnetic bearing of a route segment	1/10 degree (terminal arrival departure)	Routine (terminal arrival departure)	Calculated (terminal arrival departure)	1 degree (terminal arrival departure)	1 degree (terminal arrival departure)
	Change over point		Point	The point at which an aircraft navigating on an ATS route segment defined by reference to the VOR ranges is expected to transfer its primary navigation reference from	In case of a VOR radial				

				the facility behind it to the next facility ahead of it						
	Length		Distance	The geodesic distance between ‘from point’ and ‘to point’		See Note 2				
	Upper limit		Altitude	The upper limit of the route segment						
	Lower limit		Altitude	The lower limit of the route segment						
	Minimum en-route altitude (MEA)		Altitude	It is the altitude of an en-route segment that provides adequate reception of relevant navigation facilities and ATS communications, complies	Lower ATS routes	50 m	Routine	Calculated	50 m or 100 ft	50 m or 100 ft

			with the airspace structure, and provides the required obstacle clearance					
	Minimum obstacle clearance altitude (MOCA)	Altitude	It is the minimum altitude of a defined segment that provides the required obstacle clearance	50 m	Routine	Calculated	50 m or 100 ft	50 m or 100 ft
	Minimum flight altitude	Altitude	Minimum flight route altitude	Helicopter 50 m	Routine	Calculated	50 m or 100 ft	50 m or 100 ft
	Lateral limits	Distance	Lateral limits of the route					
	Area minimum altitude (AMA)	Altitude	It is the minimum altitude to be used under instrument meteorological conditions (IMC), which provides a minimum obstacle clearance within a					

				specified area, normally formed by parallels and meridians					
	Minimum vectoring altitude (MVA)		Altitude	MVA					
	Restrictions		Text	Indication on any area speed and level/ altitude restrictions, where established					
	Direction of cruising levels			Indication of the direction of the cruising level (even, odd, none (NIL))					
		Forward	Code list	Indication of the direction of the cruising level (even, odd, NIL) from the first point to					

				the second point of the route segment						
		Backward	Code list	Indication of the direction of the cruising level (even, odd, NIL) from the second point to the first point of the route segment						
	Availability		Text	Information on the route availability						
	Class of airspace		Text	Classification of airspace which determines the operating rules, flight requirements and services provided						
	Performance-based navigation			Area navigation based	PBN only					

	(PBN) requirements			on PBN requirements for aircraft operating along an ATS route, on an instrument approach procedure, or in a designated airspace					
		Navigation performance requirements	Text	The navigation accuracy requirement for each PBN (RNAV or RNP) route segment					
		Sensor requirements	Text	Indication of the sensor requirements including any navigation specification limitations					
	Controlling unit								
		Name	Text	Name of the unit providing the service					

		Channel	Text	Operating channel/ frequency of the controlling unit						
		Logon address	Text	A specified code used for data link logon to the controlling ATS unit	If applicable					
			Note 1	U = upper	Note 2	1/10 km	Routine	Calculated	1/10 km or 1/10 nm	1 km or 1 nm
				H = helicopter		1/100 km	Essential	Calculated	1/100 km or 1/100 nm	1 km or 1 nm
				S = supersonic						
				T = tacan						
				Other						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Waypoint										
	Identification		Text	Names, coded designators or code names given to						

				the significant point.						
	Position		Point	Geographical location of the waypoint		100 m	Essential	Surveyed / calculated	1 sec	1 sec
	Formation									
		Navigation aid (navaid)	Text	The station identification of the VOR/DME reference						
		Bearing	Bearing	The bearing to the VOR/DME reference if the waypoint is not collocated with it		See Note 1 below				
		Distance	Distance	The distance from the VOR/DME reference if the waypoint is not collocated with it		See Note 2 below				
					Note 1	1/10 degree	Routine	Calculated	1/10 degree	1/10 degree

						1/100 degree	Essential	Calculated	1/100 degree	1/10 degree
								Calculated		
					Note 2	1/10 km	Routine	Calculated	1/10 km or 1/10 nm	2/10 km (1/10 nm)
						1/100 km	Essential	Calculated	1/100 km or 1/100 nm	2/10 km (1/10 nm)

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
En-route holding				A predetermined manoeuvre that keeps the aircraft within the specified airspace while awaiting further clearance						
	Identification		Text	Identification of the holding procedure						
	Fix		Text	Identification of the holding-procedure fix		100 m	Essential	Surveyed / calculated	1 sec	1 sec
	Waypoint		Point	Geographical location of the holding waypoint						

	Inbound track		Bearing	The inbound track of the holding procedure					
	Turn direction		Text	Direction of the procedure turn					
	Speed		Value	Maximum indicated airspeed					
	Level								
		Minimum holding level	Altitude	Minimum holding level of the holding procedure					
		Maximum holding level	Altitude	Maximum holding level of the holding procedure					
	Outbound time/ distance		Value	Time/ distance value of the holding procedure					
	Controlling unit								
		Name	Text	Indication of the controlling unit					
		Frequency	Value	The operating frequency/ channel					

				of the controlling unit						
	Special holding entry procedure		Text	Textual description of the special VOR/DME entry procedure	In case an entry radial to a secondary fix at the end of the outbound leg has been established for a VOR/DME holding pattern					

4. **Instrument flight procedure data**

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Procedure										
	Identification									
		Final-approach segment (FAS) guidance	Code list	The name describing the type of radio navigation aid providing the final approach lateral guidance e.g. ILS,	APCH					

				VOR, RNAV, etc.						
		RWY	Text	The RWY designator of the landing and take-off direction, e.g. 27, 35L, 01R						
		Circling	Code list	Indication if a procedure is/is not a circling approach	APCH					
		Multiple code	Text	A single-letter suffix, starting with the letter ‘z’, following the radio navigation aid type, shall be used if two or more procedures to the same RWY	APCH					

				cannot be distinguished by the radio navigation aid type only, e.g.VOR y RWY 20 or VOR z RWY 20.						
		NS limiter	Text	Sensor-specific information in case of a use limitation	PBN only					
		Name	Text	Name of the instrument flight procedure						
	Plain-language designation									
		Basic indicator	Text	The basic indicator shall be the name or code names of the significant point where the	SID, STAR					

				standard departure route terminates.						
		Validity indicator	Text	The validity indicator shall be a number from 1 to 9.	SID, STAR					
		Route indicator	Text	The route indicator shall be one letter of the alphabet. The letters ‘I’ and ‘O’ shall not be used.	SID, STAR					
		Visual indication	Text	Indication if the route has been established for aircraft operating in accordance with VFR	VFR only					
	Coded designation									
		Significant Point	Text	The coded designator	SID, STAR					

				or code names of the significant point						
		Validity indicator	Text	The validity indicator of the procedure	SID, STAR					
		Route indicator	Text	The route indicator of the procedure	SID, STAR					
	Procedure type		Code list	Indication of the type of procedure (departure, arrival, approach, other)						
	PBN or conventional		Code list	Indication if the procedure is PBN or conventional	IFR only					
	Precision type		Text	The instrument procedure type; instrument approach procedures are classified as follows: (a) non-precision approach	APCH					

					(NPA) procedure: an instrument approach procedure that utilises lateral but not vertical guidance.				
				(b)	approach procedure with vertical guidance (APV): an instrument procedure that utilises lateral and vertical guidance but does not meet the requirements established for precision-approach and - landing operations.				
				(c)	precision approach (PA) procedure: an instrument approach procedure using precision lateral				

				and vertical guidance with minima as determined by the category of operation.					
	Aircraft category	Code list	Indication of which aircraft categories the procedure is intended for						
	Magnetic variation	Value	The magnetic variation considered for the procedure design						
	Obstacle clearance altitude/ height (OCA/ H)		OCA/H	APCH					
		Aircraft category	Code list	Aircraft category	APCH				
		Approach type	Code list	Approach type (e.g. straight-in, Cat I, Cat II, LLZ, circling, etc.),	APCH				

				or specific navigation aid (e.g. step-down fixes), or a specific navigation specification						
		Altitude	Altitude	The lowest altitude used in establishing compliance with appropriate obstacle clearance criteria	APCH		Essential			
		Height	Height	The lowest height above the elevation of the relevant RWY threshold or the aerodrome elevation, as applicable, used in establishing compliance with appropriate obstacle clearance criteria	APCH		Essential			

	Decision altitude/ height (DA/ H)			DA/ H	APCH					
		Aircraft category	Code list	Aircraft category	APCH					
		Approach type	Code list	Approach type (e.g. straight-in, circling, etc.), or specific navigation aid (e.g. step-down fixes), or a specific navigation specification	APCH					
		Altitude	Altitude	A specified altitude in a 3D instrument approach operation at which a missed approach shall be initiated if the required visual reference to continue the approach is	APCH					

				not established						
		Height	Height	A specified height in a 3D instrument approach operation at which a missed approach shall be initiated if the required visual reference to continue the approach is not established	APCH					
	Minimum descent altitude/ height (MDA/ H)			MDA/ H	APCH					
		Aircraft category	Code list	Aircraft category	APCH					
		Approach type	Code list	Approach type (e.g. straight-in, circling, etc.), or specific navigation aid (e.g. step-down	APCH					

				fixes), or a specific navigation specification						
		Altitude	Altitude	A specified altitude in a 2D instrument approach operation or circling approach operation below which descent shall not be initiated without the required visual reference	APCH					
		Height	Height	A specified height in a 2D instrument approach operation or circling approach operation below which descent shall not be initiated without the required	APCH					

				visual reference					
	Minimum sector altitude (MSA)			The lowest altitude that may be used and will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 nm) radius centred on a radio aid to navigation	IFR only				
		Sector start angle	Angle	Start angle of a sector					
		Sector end angle	Angle	End angle of a sector					

		Based on fix	Text	Centre of the MSA					
		Altitude	Altitude	The minimum altitude for each sector					
		Restrictions	Text	MSA: the lowest altitude that may be used and will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an area contained within a sector of a circle of 46 km (25 nm) radius centred on a radio aid					

				to navigation.						
		Radius	Value	The radius of each sector						
	Terminal arrival altitude (TAA)			The lowest altitude that will provide a minimum clearance of 300 m (1 000 ft) above all objects located in an arc of a circle defined by a 46 km (25 nm) radius centred on the initial-approach fix (IAF) or, where there is no IAF, on the intermediate-approach	APCH or PBN only					

				fix (IF), delimited by straight lines joining the extremity of the arc to the IF; the combined TAAs associated with an approach procedure shall account for an area of 360 degrees around the IF.						
		Reference point	Text	TAA reference point (IAF or IF)						
		IAF	Text	TAA IAF reference point						
		IF	Text	TAA IF reference point						
		Distance to IAF	Distance	The distance of						

				the TAA area boundary from the IAF						
		Altitude	Altitude	The terminal arrival altitude value						
		Sector start angle	Angle	Start angle of a sector (bearing to the TAA reference point)						
		Sector end angle	Angle	End angle of a sector (bearing to the TAA reference point)						
		Step-down arc	Distance	Radius of the inner area at a lower altitude.						
	Navigation specification name		Text	A set of aircraft and flight crew requirements needed to support	PBN only					

				PBN operations within a defined airspace; there are two kinds of navigation specifications:						
				(a)	RNP specifications: navigation specifications based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.					
				(b)	RNAV specifications: navigation specifications 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.				
	Operating minima	Text	Aerodrome operating minima: the usability limits of an aerodrome for: (a) take-off, expressed in terms of RVR and/or visibility and, if necessary, cloud conditions; (b) landing in precision approach and landing operations, expressed in terms of visibility			APCH, DEP				

					and/or RVR and DA/H, as appropriate to the category of the operation;				
				(c)	landing in approach and landing operations with vertical guidance, expressed in terms of visibility and/or RVR and DA/H; and				
				(d)	landing in non-precision approach and landing operations, expressed in terms of visibility and/or RVR, minimum descent				

					altitude/ height (MDA/ H) and, if necessary, cloud conditions					
	Temperature									
		Minimum temperature	Value	Minimum temperature reference	APCH or PBN only					
		Maximum temperature	Value	Maximum temperature reference	APCH or PBN only					
	Remote altimeter source		Text	Cautionary note indicating the altimetry source	APCH					
	Proc Ref datum		Text	Aerodrome or landing threshold	APCH					
	PBN requirements			Specific PBN requirements related to a PBN procedure						
			Code list	Identification of the navigation specification (RNAV 5, RNP 0.3, etc.)						
		Navigation specification	Text	Any navigation sensor limitations						

				(global navigation satellite system (GNSS) required)						
		Functional requirements	Text	Any required functionalities described as options in the navigation specification, that is, not included in the core navigation specification (radio frequency (RF) required)						
Procedure segment					SID, STAR, APCH					
	Start		Text	Identification of the start point of the segment						
	End		Text	Identification of the end point, or a description of the end, of						

				the segment						
	End fix functionality		Code list	Indication if the end fix is a fly-by point (a waypoint that requires a turn to allow tangential interception of the next segment of a route or procedure) or flyover point (a waypoint at which a turn is initiated in order to join the next segment of a route or procedure)	PBN					
	End fix role		Code list	Indication of the						

				role of the end fix missed-approach point (MAPt), IF, IAF, final-approach fix (FAF), missed approach holding fix (MAHF), etc.						
	Procedure altitude/ height		Altitude/ height	A specified altitude/ height flown operationally above the minimum altitude/ height and established to accommodate a stabilised descent at a prescribed-descent gradient/ angle in the intermediate/ final approach segment	Certain segments of SID, STAR, APCH only		Essential			

	Minimum obstruction clearance altitude (MOCA)	Altitude	The minimum altitude of a defined segment, which provides the required obstacle clearance	SID, STAR, APCH					
	Distance	Distance	Geodesic distance to the nearest tenth of a kilometre or of a nautical mile between each successive designated significant point	1/100 km	Essential	Calculated	1/100 km or 1/100 nm	1 km or 1 nm	
	True bearing	Bearing	True track to the nearest tenth of a degree between each successive significant point	SID, STAR, APCH	1/10 degree	Routine	Calculated	1/10 degree	
	Magnetic bearing	Bearing	Magnetic track to the nearest tenth of a degree	SID, STAR, APCH	1/10 degree	Routine	Calculated	1 degree	1 degree

				between each successive significant point					
	Gradient		Value		APCH, DEP				
	Speed		Value	Speed limit at a significant point, expressed in units of 10 kt, as applicable					
	Controlling obstacle				APCH, DEP				
		Type	Text	Indication if the obstacle is lit/ unlit, type of obstacle (church/ wind turbine, etc.)					
		Position	Point	Coordinates of the controlling obstacle		See Section 6 ‘Obstacle data’.			
		Elevation	Elevation	Elevation of the top of the controlling obstacle		See Section 6 ‘Obstacle data’			
Final-approach segment				That segment of an instrument	SBAS APCH, GBAS APCH				

			approach procedure in which alignment and descent for landing are accomplished					
	Operation type	Text	A number indicating the type of the final approach segment (e.g. ‘0’ is coded for a straight-in approach procedure including offset procedures.)					
	Approach performance designator	Text	A number identifying the type of an approach (‘0’ is used to identify a localizer performance with vertical guidance (LPV) approach					

				procedure and a '1' indicates a Category I approach procedure)					
	SBAS provider	Text	Identifier of a service provider of a particular satellite-based approach system	SBAS only					
	Reference path data selector (RPDS)	Text	A numerical identifier, unique on a frequency in the broadcast region and used to select the FAS data block	GBAS only					
	Reference path identifier (RPI)	Text	A four-character identifier used to confirm the selection of the correct approach procedure						

	Landing threshold point (LTP) or fictitious threshold point (FTP)			LTP/ FTP					
		Position	Point	Latitude and longitude of the LTP/ FTP	0.3 m (1 ft)	Critical		0.0005" (0.01')	
		Ellipsoidal height	Elevation	The height of the LTP/ FTP above the WGS-84 ellipsoid	0.25 m	Critical		0.1 m	
		Orthometric height	Elevation	The height of the LTP/ FTP as related to the geoid and presented as an MSL elevation					
	Flight path alignment point (FPAP)			FPAP					
		Position	Point	Latitude and longitude	0.3 m (1 ft)	Critical		0.0005" (0.01')	

				of the FPAP					
		Orthometric height	Elevation	The height of the FPAP as related to the geoid and presented as an MSL elevation					
	Approach threshold crossing height (TCH)		Height	The designated crossing height of the flight path angle above the LTP (or FTP)	0.5 m	Critical	Calculated	0.5 m	
	Glide path angle (GPA)		Value	The angle of the approach path (glide path) with respect to the horizontal plane, defined in accordance with WGS-84	0.01°	N/a		0.01°	

				at the LTP/ FTP				
	Course width at threshold		Value	The semi-width of the lateral course width at the LTP/ FTP, defining the lateral offset at which the receiver achieves full-scale deflection.	N/a	Critical	0.25 m	
	Delta length offset		Distance	The distance from the stop end of the RWY to the FPAP; it defines the location where lateral sensitivity changes to missed-	N/a	N/a	8 m	

				approach sensitivity.					
	Horizontal alert limit (HAL)	Value	HAL	SBAS only					
	Vertical alert limit (VAL)	Value	VAL	SBAS only					
	FAS data block	Text	A binary string describing the FAS data block generated with an appropriate software tool; the FAS data block is a set of parameters to identify a single precision approach or an APV and define its associated approach.						
	CRC remainder	Text	An 8-character hexadecimal representation of						

				the calculated remainder bits, used to determine the integrity of the FAS data block during transmission and storage.						

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Procedure fix										
	Identification		Text	Names, coded designators or code names given to the significant point						
	ATC reporting requirements		Text	Indication of the ATS/ MET reporting requirement as ‘compulsory’, ‘on request’ or ‘NIL’						
	VFR reporting point		Text	Bridge VFR or						

				church name					
	Position		Point	Geographical location of the fix	See Note 1				
	Type		Text	Indication of the type of the fix, such as navaid, Int, waypoint					
	Formations								
		Navaid	Text	The station identification of the VOR/DME reference					
		Bearing	Bearing	The bearing to the VOR/DME reference if the waypoint is not collocated with it	See Note 2				
		Distance	Distance	The distance from the VOR/DME reference if the	1/100 km	Essential	Calculated	1/100 km or 1/100 nm	2/10 km (1/10 nm)

				waypoint is not collocated with it						
					Note 1	100 m	Essential	Surveyed / calculated	1 sec	1 sec
						3 m	Essential	Surveyed / calculated	1/10 sec	1 sec
					Note 2	1/10 degree	Routine	Calculated	1/10 degree	1/10 degree
						1/10 degree	Essential	Calculated	1/10 degree	1/10 degree

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Procedure holding				A predetermined manoeuvre that keeps the aircraft within the specified airspace while awaiting further clearance						
	Identification		Text	Identification of the holding procedure						
	Fix		Point	Geographical location that serves as a reference for a holding procedure		Same as the procedure fix				

	Inbound course	Course	Inbound true course				1/10 degree	
	Outbound course	Course	Outbound true course				1/10 degree	
	Leg distance	Distance	Outbound distance of the leg				1/10 km or 1/10 nm	
	Leg time	Value	Outbound time of the leg					
	Limiting radial	Angle	Limiting radial from the VOR/DME on which the holding is based					
	Turn direction	Value	Direction of the procedure turn					
	Minimum altitude	Altitude	Minimum holding level to the nearest higher (50 m or 100 ft)/ flight level	50 m	Routine	Calculated	50 m or 100 ft/ flight level	
	Maximum altitude	Altitude	Maximum holding level				50 m or 100	

				to the nearest higher (50 m or 100 ft)/ flight level					ft/ flight level	
	Speed		Value	Maximum indicated air speed					10 kt	
	Magnetic variation									
		Angle	Angle	The magnetic variation of the radio navigation aid of the procedure						
		Date	Date	The date on which the magnetic variation had the corresponding value						
	Navigation specifications name		Text	Name of the navigation specification – set of aircraft and aircrew requirements needed	RNAV/ RNP					

				to support a navigation application within a defined airspace concept					

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Helicopter procedure specifics										
	Helicopter procedure title (RNAV 263)		Text	Identification of the helicopter procedure						
	Heliport crossing height (HCH)		Height	Heliport crossing height			Essential		1 m or 1 ft	1 m or 1 ft
	Initial departure fix (IDF)		Point	Initial DEP departure fix						
	Missed-approach point (MAPt)		Point	MAPt APCH						
	Direct visual segment			For PinS APP: the portion of flight that connects directly the PinS to the landing location;						

				for PinS DEP: the portion of flight that connects directly the landing location to the IDF						
		Track	Line							
		Distance	Distance							
		Bearing	Angle							
		Crossing height	Height							
	Manoeuvring visual segment (VS)			PinS VS protected for the following manoeuvres: (a)	APCH	DEP				
					for PinS APCH: visual manoeuvre from the MAPt around the heliport or landing location to land from a direction other than directly					

				(b)	from the MAPt; and for PinS DEP: take-off in a direction other than directly to the IDF, followed by a visual manoeuvre to join the instrument segment at the IDF					
		Centre line	Angle	Centre line of the take-off climb surface	DEP					
		Manoeuvring area	Polygon	Area where the pilot is expected to manoeuvre visually	APCH DEP					
		No manoeuvring area	Polygon	Area where manoeuvring	APCH DEP					

				is prohibited						
		Ingress tracks	Line	PinS VS protected for the following manoeuvres: (a) (b)	APCH DEP for PinS APCH: visual manoeuvre from the MAPt around the heliport or landing location to land from a direction other than directly from the MAPt; and for PinS DEP: take-off in a direction other than directly to the IDF, followed by a					

					visual manoeuvre to join the instrument segment at the IDF					
	HAS			Height above the surface diagram	APCH					
		Radius	Distance							
		Height above surface	Height							
	‘Proceed visually’ text		Text	Text indicating that the procedure has a ‘Proceed visually’ instruction						
	‘Proceed VFR’ text		Text	Text indicating that the procedure has a ‘Proceed VFR’ instruction						
	Visual segment descent angle (VSDA)		Value	VSDA						
	Ingress tracks									
		Length	Distance							
		Width	Distance							
		Bearing	Angle							

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
AITF				Notes on charts (aeronautical information in textual format)						
	Non-aligned between instrument and visual slope indications		Text							
	Missed-approach description		Text	Missed-approach description of the procedure						
	SID/STAR route description		Text	Textual description of the SID or STAR procedure						
	Missed-approach climb gradient		Value	The value of the missed-approach climb gradient of the approach procedure						
	CATH note		Text							

	CAT D large		Text							
	Authorisation required (AR)		Text	Indication that RNP AR						
	Units of measurement		Text							
	GNSS in lieu of									
	Communication failure		Text	Communication failure description						
	Surveillance/ radar required									
	SID close-in obstacle note		Text	Indication wherever close-in obstacles exist which were not considered in the determination of the published-procedure design gradient						
	Offset alignment									
	PDG greater than 3 %									

5. **Radio navigation aids/systems data**

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Radio navigation aid										
	Type		Text	Type of the radio navigation aid						
	Identification		Text	The code assigned to uniquely identify the navaid						
	Name		Text	The textual name assigned to the navaid						
	Area of operation		Text	Indication whether navigation aid serves en-route (E), aerodrome (A) or dual (AE) purposes						
	Aerodrome served		Text	The ICAO location indicator or name of the						

			aerodromes served					
	RWY served	Text	Designator of the RWY served					
	Operating entity	Text	Name of the operating entity of the facility					
	Type of supported operations	Code list	Indication of the type of supported operation for ILS/ MLS, basic GNSS, satellite-based augmentation system (SBAS), and ground-based augmentation system (GBAS)					
	Collocation	Text	Information that a navaid is collocated with another navaid					
	Hours of operation	Schedule	The hours of					

				operation of the radio navigation aid						
	Magnetic variation			The angular difference between the true north and the magnetic north						
		Angle	Angle	The magnetic variation at the radio navigation aid	ILS/ NDB	See Note 1 below				
		Date	Date	The date on which the magnetic variation had the corresponding value						
	Station declination		Angle	An alignment variation of the navaid between the zero degree radial and the true north,	VOR/ LLZ/ MLS					

			determined at the time the station is calibrated						
	Zero bearing direction	Text	Direction of the 'zero bearing' provided by the station, e.g. magnetic north, true north, etc.	VOR					
	Frequency	Value	Frequency or tuning frequency of the radio navigation aid						
	Channel	Text	The channel number of the radio navigation aid	DME or GBAS					
	Position	Point	Geographical location of the radio navigation aid		See Note 2 below				
	Elevation	Elevation	The elevation of	DME or GBAS	See Note 3 below				

				the transmitting antenna of the DME or the elevation of the GBAS reference point						
	Ellipsoidal height		Height	The ellipsoidal height of the GBAS reference point	GBAS					
	Localiser alignment									
		Bearing	Bearing	The localiser course	ILS localiser	1/100 degree	Essential	Surveyed	1/100 degree (if true)	1 degree
		Type	Text	The type of localiser alignment, true or magnetic	ILS localiser					
	Zero azimuthal alignment		Bearing	MLS zero azimuthal alignment	MLS	1/100 degree	Essential	Surveyed	1/100 degree (if true)	1 degree
	Angle		Angle	The angle of the glide path of an ILS or the	ILS GP/ MLS					

				normal glide path angle of an MLS installation						
	RDH		Value	The value of the ILS reference datum height (ILS RDH)	ILS GP	0.5 m	Critical	Calculated		
	Localiser antenna to RWY end distance		Distance	ILS localiser – RWY/ FATO end distance	ILS localiser	3 m	Routine	Calculated	1 m or 1 ft	As plotted
	ILS glideslope antenna to TRSH distance		Distance	ILS glideslope antenna – threshold distance along the centre line	ILS GP	3 m	Routine	Calculated	1 m or 1 ft	As plotted
	ILS marker to TRSH distance		Distance	ILS marker – threshold distance	ILS	3 m	Essential	Calculated	1 m or 1 ft	2/10 km (1/10 nm)
	ILS DME antenna to TRSH distance		Distance	ILS DME antenna – threshold distance along the centre line	ILS	3 m	Essential	Calculated	1 m or 1 ft	As plotted

	MLS azimuthal antenna to RWY end distance	Distance	MLS azimuthal antenna – RWY/FATO end distance	MLS	3 m	Routine	Calculated	1 m or 1 ft	As plotted
	MLS elevation antenna to TRHS distance	Distance	MLS elevation antenna – threshold distance along the centre line	MLS	3 m	Routine	Calculated	1 m or 1 ft	As plotted
	MLS DME antenna to TRHS distance	Distance	MLS DME/P antenna – threshold distance along the centre line	MLS	3 m	Essential	Calculated	1 m or 1 ft	As plotted
	Signal polarisation	Code list	GBAS signal polarisation (GBAS/H or GBAS/E)	GBAS					
	Designated operational coverage (DOC)	Text	DOC or standard service volume (SSV) as range or service volume radius from the						

				navaid/ GBAS reference point, height and sectors, if required						
			Note 1		ILS Localiser	1 degree	Essential	Surveyed	1 degree	
					NDB	1 degree	Routine	Surveyed	1 degree	
								Surveyed		
			Note 2		Aerodrome navaid	3 m	Essential	Surveyed	1/10 sec	As plotted
					GBAS reference point	1 m		Surveyed		
					En-route	100 m	Essential	Surveyed	1 sec	
								Surveyed		
			Note 3		DME	30 m (100 ft)	Essential	Surveyed	30 m (100 ft)	30 m (100 ft)
					DME/P	3 m	Essential	Surveyed	3 m (10 ft)	
					GBAS reference point	0.25 m	Essential		1 m or 1 ft	

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
GNSS				A worldwide position and time determination system that includes one or						

				more satellite constellations, aircraft receivers and system integrity monitoring, augmented as necessary to support the required navigation performance for the intended operation					
	Name		Text	The name of the GNSS element (GPS, GBAS, GLONASS, EGNOS, MSAS, WAAS, etc.)					
	Frequency		Value	Frequency of the GNSS	As appropriate				
	Service area		Polygon	Geographical location of the GNSS service area					
	Coverage area		Polygon	Geographical location of the GNSS					

				coverage area					
	Operating authority		Text	Name of the operating authority of the facility					
Aeronautical ground lights				Ground lights and other light beacons designating geographical positions that are selected by the Member State as being significant					
	Type		Text	Type of beacon					
	Designator		Text	The code assigned to uniquely identify the beacon					
	Name		Text	The name of the city or town or other identification					

				of the beacon					
	Intensity		Value	Intensity of the light of the beacon				1000 cd	
	Characteristics		Text	Information about the characteristics of the beacon					
	Hours of operations		Schedule	The hours of operation of the beacon					
	Position		Point	Geographical location of the beacon					
Marine lights									
	Position		Point	Geographical location of the beacon					
	Visibility range		Distance	The visibility range of the beacon					
	Characteristics		Text	Information about the characteristics of					

				the beacon					

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Special navigation system				Stations associated with special navigation systems (DECCA, LORAN, etc.)						
	Type		Text	Type of service available (master signal, slave signal, colour)						
	Designator		Text	The code assigned to uniquely identify the special navigation system						
	Name		Text	The textual name assigned to the special navigation system						
	Frequency		Value	Frequency (channel number, basic pulse rate, recurrence rate,						

				as applicable) of the special navigation system					
	Hours of operations		Schedule	The hours of operation of the special navigation system					
	Position		Point	Geographical location of the special navigation system	100 m	Essential	Surveyed/ calculated		
	Operating entity		Text	Name of the operating entity of the facility					
	Facility coverage		Text	Description of the special navigation system facility coverage					

6. **Obstacle data**

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Obstacle				All fixed (whether temporary or						

			permanent) and mobile obstacles or parts thereof					
	Obstacle identifier	Text	Unique identifier of the obstacle					
	Operator/ owner	Text	Name and contact information of the obstacle operator or owner					
	Geometry type	Code list	An indication whether the obstacle is a point, line or polygon					
	Horizontal position	Point or line or polygon	Horizontal position of the obstacle	See Note 1 below				
	Horizontal extent	Distance	Horizontal extent of the obstacle					
	Elevation	Elevation	Elevation of the highest point of	See Note 2 below				

				the obstacle					
	Height		Height	Height of the obstacle above ground					
	Type		Text	Type of obstacle					
	Date and time stamp		Date	Date and time the obstacle was created					
	Operations		Text	Feature operations of the mobile obstacles					
	Effectivity		Text	Effectivity of temporary types of obstacles					
	Lighting								
		Type	Text	Type of lighting					
		Colour	Text	Colour of the obstacle lighting					
	Marking		Text	Type of obstacle marking					
	Material		Text	Predominant surface material of					

				the obstacle						
			Note 1	Obstacles in Area 1	50 m	Routine	Surveyed	1 sec	As plotted	
				Obstacles in Area 2 (including 2a, 2b, 2c, 2d, take-off flight path area, and obstacle limitation surfaces)	5 m	Essential	Surveyed	1/10 sec	1/10 sec	
				Obstacles in Area 3	0.5 m	Essential	Surveyed	1/10 sec	1/10 sec	
				Obstacles in Area 4	2.5 m	Essential	Surveyed			
			Note 2	Obstacles in Area 1	30 m	Routine	Surveyed	1 m or 1 ft	3 m (10 ft)	
				Obstacles in Area 2 (including 2a, 2b, 2c, 2d, take-off flight path area, and obstacle limitation surfaces)	3 m	Essential	Surveyed	1 m or 1 ft	1 m or 1 ft	
				Obstacles in Area 3	0.5 m	Essential	Surveyed	0.1 m or 0.1 ft or 0.01 m	1 m or 1 ft	
				Obstacles in	1 m	Essential	Surveyed	0.1 m		

				Area 4						

7. **Geographic data**

Subject	Property	Sub-property	Type	Description	Note	Accuracy	Integrity	Orig. Type	Pub. Res.	Chart Res.
Buildings				Buildings (of operational significance) and other salient/ prominent (aerodrome) features						
	Name		Text	Name of the building						
	Geometry		Polygon	Geographical location of the building						
Built-up areas				Areas covered by cities, towns and villages						
	Name		Text	Name of the built-up area						
	Geometry		Point/ polygon	Geographical location of the built-up area						
Railroads				All railroads						

				having landmark value					
	Name		Text	Name of the railroad					
	Geometry		Line	Geographical location of the railroads					
Highways and roads				All highways and roads having landmark value					
	Name		Text	Name of highways and roads					
	Geometry		Line	Geographical location of highways and roads					
Landmarks				Natural and cultural landmarks, such as bridges, prominent transmission lines, permanent cable car installations, wind turbines, mine structures, forts, ruins,					

				levees, pipelines, rocks, bluffs, cliffs, sand dunes, isolated lighthouses and lightships, when considered to be of importance for visual air navigation					
	Characteristics		Text	Description of the landmark					
	Geometry		Line	Geographical location of the railroads					
Political boundaries				International political boundaries					
	Geometry		Line	Geographical location of the international political boundaries					
Hydrography				All water features comprising shorelines, lakes, rivers and streams (including those					

				non-perennial in nature), salt lakes, glaciers and ice caps						
	Name		Text	Name of the water feature						
	Geometry		Line/ polygon	Geographical location of the water feature						
Wooded areas				Wooded areas						
	Geometry		Polygon	Geographical location of the wooded area						

Subject	**Property**	**Sub-property**	**Type**	**Description**	**Note**	**Accuracy**	**Integrity**	**Orig. Type**	**Pub. Res.**	**Chart Res.**
Service roads				Part of the aerodrome surface used by service vehicles						
	Geometry		Polygon	Geographical location of the service roads						
	Feature base		Text	Identification of						

				the feature type affected					
	Identifier base		Text	Name of the underlying TWY, parking stand area or apron					
Construction area				Part of the aerodrome area under construction					
	Geometry		Polygon	Geographical location of the construction area					
Area unsuitable for aircraft movement				Areas unsuitable for aircraft movement					
	Geometry		Polygon	Depicted movement area permanently unsuitable for aircraft and clearly identified as such					
Survey control point				A monumented survey control point					

	Identifier number	Text	Special unique identifier permanently assigned to a feature instance by the data provider					
	Location	Point	Geographical location of the survey control point					
	Elevation	Elevation	Elevation of the survey control point					
Aerodrome surface routing network (ASRN) node			A vertex in a graph defining the ASRN					
	Identifier network	Text	Logical name comprised of a delimited list of names for one or more features associated with the ASRN feature					

	Identifier threshold	Text	Name of the feature instance					
	Identifier number	Text	Special unique identifier permanently assigned to a feature instance by a data provider					
	Term ref	Text	Terminal building associated with the feature instance					
	Node type	Text	Type of node					
	Cat stop	Text	Low-visibility operation category of the holding position					
	Position	Point	Geographical location of the ASRN node					
ASRN edge			A connection between the nodes in a graph, which defines					

			the ASRN					
	Identifier network	Text	Logical name comprised of a delimited list of names for one or more features associated with the ASRN feature					
	Direction	Text	One-way or two-way directionality of the corresponding feature instance					
	Node1 ref	Text	The identifier number of the ASRN node corresponding to the start point of the edge geometry					
	Node2 ref	Text	The identifier number of					

				the ASRN node corresponding to the end point of the edge geometry					
	Edge type		Text	Type of edge					
	Edge derv		Text	Derivation method of the edge geometry					
	Geometry		Line	Geographical location of the ASRN edge					

Data types referred to in column 4 'Type'

Type	Description	Data items
Point	A pair of coordinates (latitude and longitude) referenced to the mathematical ellipsoid, which define the position of the point on the surface of the Earth	Latitude Longitude Horizontal reference system Units of measurement Horizontal accuracy achieved
Line	Sequence of points defining a linear object	Sequence of points
Polygon	Sequence of points forming the boundary of the polygon; the first and last point are identical	Closed sequence of points
Height	The vertical distance of a level, point or an object, considered as a	Numerical value Vertical reference system Units of measurement

	point, measured from a specific datum	Vertical accuracy achieved
Altitude	The vertical distance of a level, point or an object, considered as a point, measured from the MSL	Numerical value Vertical reference system Units of measurement Vertical accuracy achieved
Elevation	The vertical distance of a point or a level on, or affixed to, the surface of the Earth, measured from the MSL	Numerical value Vertical reference system Units of measurement Vertical accuracy achieved
Distance	An angular value	Numerical value Units of measurement Accuracy achieved
Angle/bearing	An angular value	Numerical value Units of measurement Accuracy achieved
Value	Any measured, declared or derived value not listed above	Numerical value Units of measurement Accuracy achieved
Date	A calendar date referencing a particular day or month	Text
Schedule	A repetitive time period, composed of one or more intervals or special dates (e.g. holidays) occurring cyclically	Text
Code list	A set of predefined text strings or values	Text
Text	Free text	String of characters without constraints;

(4) Annex IV is amended as follows:

(a) Subpart A is amended as follows:

(i) in Section 1, the following points ATS.OR.110 to ATS.OR.150 are added:

ATS.OR.110 Coordination between aerodrome operators and air traffic services providers

An air traffic services provider shall establish arrangements with the operator of the aerodrome at which it provides air traffic

services to ensure adequate coordination of activities and services provided as well as exchange of relevant data and information.

ATS.OR.115 Coordination between military units and air traffic services providers

Without prejudice to Article 6 of Regulation (EC) No 2150/2005, an air traffic services provider shall ensure that its air traffic services units, 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 facilitate their identification.

ATS.OR.120 Coordination between meteorological services providers and air traffic services providers

(a) To ensure that aircraft receive the most up-to-date meteorological information for aircraft operations, an air traffic services provider shall make arrangements with the associated meteorological services provider for air traffic services personnel:

(1) in addition to using indicating instruments, to report, if observed by air traffic services personnel or communicated by aircraft, such other meteorological elements as may be agreed upon;

(2) to report as soon as possible meteorological phenomena of operational significance, if observed by air traffic services personnel or communicated by aircraft, which have not been included in the aerodrome meteorological report;

(3) to report as soon as possible pertinent information concerning pre-eruption volcanic activity, volcanic eruptions and information concerning volcanic ash cloud. In addition, area control centres and flight information centres shall report the information to the associated meteorological watch office and volcanic ash advisory centres (VAACs).

(b) An air traffic services provider shall ensure that close coordination is maintained between area control centres, flight information centres and associated meteorological watch offices such that information on volcanic ash included in NOTAM and SIGMET messages is consistent.

ATS.OR.125 Coordination between aeronautical information services and air traffic services providers

(a) An air traffic services provider shall provide to the relevant aeronautical information services provider the aeronautical information to be published as necessary to permit the utilisation of such air traffic services.

(b) To ensure that the aeronautical information services providers obtain information to enable them to provide up-to-date preflight information and to meet the need for in-flight information, an air traffic services provider and aeronautical information services provider shall make arrangements to report to the responsible aeronautical information services provider, with a minimum of delay:

(1) information on aerodrome conditions;

(2) the operational status of associated facilities, services and navigation aids within their area of responsibility;

(3) the occurrence of volcanic activity observed by air traffic services personnel or reported by aircraft;

(4) any other information considered to be of operational significance.

(c) Before introducing changes to systems for air navigation under its responsibility, an air traffic services provider shall:

(1) ensure close coordination with the aeronautical information services provider(s) concerned;

(2) take due account of the time needed by the aeronautical information services provider for the preparation, production and issuance of relevant material for promulgation;

(3) provide the information in a timely manner to the aeronautical information services provider concerned.

(d) An air traffic services provider shall observe the predetermined, internationally agreed aeronautical information regulation and control (AIRAC) effective dates in addition to 14 days postage time when submitting to aeronautical information services providers the raw information or data, or both, subject to the AIRAC cycle.

ATS.OR.130 Time in air traffic services

(a) An air traffic services provider shall ensure that air traffic services units are equipped with clocks indicating the time in hours, minutes and seconds, clearly visible from each operating position in the unit concerned.

(b) An air traffic services provider shall ensure that air traffic services unit clocks and other time-recording devices are checked as necessary to ensure correct time to within plus or minus 30 seconds of UTC. Wherever data link communications are utilised by an air traffic services unit, clocks and other time-recording devices shall be

checked as necessary to ensure correct time to within 1 second of UTC.

(c) The correct time shall be obtained from a standard time station or, if not possible, from another unit which has obtained the correct time from such station.

ATS.OR.135 Contingency arrangements

An air traffic services provider shall develop contingency plans as required in point ATM/ANS.OR.A.070 of Annex III in close coordination with the air traffic services providers responsible for the provision of services in adjacent portions of airspace and, as appropriate, with airspace users concerned.

ATS.OR.140 Failure and irregularity of systems and equipment

An air traffic services provider shall establish appropriate arrangements for air traffic services units to immediately report any failure or irregularity of communication, navigation and surveillance systems or any other safety-significant systems or equipment which could adversely affect the safety or efficiency of flight operations or the provision of air traffic services, or both.

ATS.OR.145 Operation of air traffic control service

An air traffic services provider shall ensure that information on aircraft movements, together with a record of ATC clearances issued to such aircraft, are so displayed as to permit ready analysis in order to maintain an efficient flow of air traffic with adequate separation between aircraft.

ATS.OR.150 Transfer of responsibility for control and transfer of communications

Air traffic services provider shall establish applicable coordination procedures for transfer of responsibility for control of flights, including transfer of communications and transfer of control points, in letters of agreement and operation manuals, as appropriate.;

(ii) the following Sections 4 and 5 are added:

SECTION 4

REQUIREMENTS FOR COMMUNICATIONS

ATS.OR.400 Aeronautical mobile service (air-ground communications) – general

(a) An air traffic services provider shall use voice or data link, or both, in air-ground communications for air traffic services purposes.

(b) When direct pilot-controller two-way voice or data link communications are used for the provision of air traffic control service, recording facilities shall be provided by

the air traffic services provider on all such air-ground communication channels.

(c) When direct air-ground two-way voice or data link communications are used for the provision of flight information service, including AFIS, recording facilities on all such air-ground communication channels shall be provided by the air traffic services provider, unless otherwise prescribed by the competent authority.

[X1ATS.OR.405 Use and availability of the VHF emergency frequency

(a) As laid down in Article 3d, the VHF emergency frequency (121,500 MHz) shall be used for genuine emergency purposes, including any of the following:**]**

(1) to provide a clear channel between aircraft in distress or emergency and a ground station when the normal channels are being utilised for other aircraft;

(2) to provide a VHF communication channel between aircraft and aerodromes, not normally used by international air services, in case of an emergency condition arising;

(3) to provide a common VHF communication channel between aircraft, either civil or military, and between such aircraft and surface services, involved in common search and rescue operations, prior to changing when necessary to the appropriate frequency;

(4) to provide air-ground communication with aircraft when airborne equipment failure prevents the use of the regular channels;

(5) to provide a channel for the operation of emergency locator transmitters (ELTs), and for communication between survival craft and aircraft engaged in search and rescue operations;

(6) to provide a common VHF channel for communication between civil aircraft and intercepting aircraft or intercept control units and between civil or intercepting aircraft and air traffic services units in the event of interception of the civil aircraft.

(b) An air traffic services provider shall provide the frequency 121.500 MHz at:

(1) all area control centres and flight information centres;

(2) aerodrome control towers and approach control units serving international aerodromes and international alternate aerodromes;

(3) any additional location designated by the competent authority, where the provision of that frequency is considered necessary to ensure immediate reception of distress calls or to serve the purposes specified in point (a).

ATS.OR.410 Aeronautical mobile service (air-ground communications) – flight information service

(a) An air traffic services provider shall ensure, to the practicable extent and as approved by the competent authority, that air-ground communication facilities enable two-way communications to take place between a flight information centre and appropriately equipped aircraft flying anywhere within the flight information region.

(b) An air traffic services provider shall ensure that air-ground communication facilities enable direct, rapid, continuous and static-free two-way communications to take place between an AFIS unit and appropriately equipped aircraft operating within the airspace referred to in point ATS.TR.110(a)(3).

ATS.OR.415 Aeronautical mobile service (air-ground communications) – area control service

An air traffic services provider shall ensure that air-ground communication facilities enable two-way communications to take place between a unit providing area control service and appropriately equipped aircraft flying anywhere within the control area or areas.

ATS.OR.420 Aeronautical mobile service (air-ground communications) – approach control service

(a) An air traffic services provider shall ensure that air-ground communication facilities enable direct, rapid, continuous and static-free two-way communications to take place between the unit providing approach control service and appropriately equipped aircraft under its control.

(b) Where the unit providing approach control service functions as a separate unit, air-ground communications shall be conducted over communication channels provided for its exclusive use.

ATS.OR.425 Aeronautical mobile service (air-ground communications) – aerodrome control service

(a) An air traffic services provider shall ensure that air-ground communication facilities enable direct, rapid, continuous and static-free two-way communications to

take place between an aerodrome control tower and appropriately equipped aircraft operating at any distance within 45 km (25 NM) of the aerodrome concerned.

(b) Where conditions warrant, an air traffic services provider shall provide separate communication channels for the control of traffic operating on the manoeuvring area.

ATS.OR.430 Aeronautical fixed service (ground-ground communications) – general

(a) An air traffic services provider shall ensure that direct-speech or data link, or both, communications are used in ground-ground communications for air traffic services purposes.

(b) When communication for ATC coordination purposes is supported by automation, an air traffic services provider shall ensure that the failure of such automated coordination is presented clearly to the air traffic controller or controllers responsible for coordinating flights at a transferring unit.

ATS.OR.435 Aeronautical fixed service (ground-ground communications) – communication within a flight information region

(a) Communications between air traffic services units

(1) An air traffic services provider shall ensure that a flight information centre has facilities for communications with the following units providing a service within its area of responsibility:

(i) the area control centre;

(ii) approach control units;

(iii) aerodrome control towers;

(iv) AFIS units.

(2) An air traffic services provider shall ensure that an area control centre, in addition to being connected with the flight information centre as prescribed in point (1), has facilities for communications with the following units providing a service within its area of responsibility:

(i) approach control units;

(ii) aerodrome control towers;

(iii) AFIS units;

(iv) air traffic services reporting offices, when separately established.

(3) An air traffic services provider shall ensure that an approach control unit, in addition to being connected with the flight information centre and the area control centre as prescribed in points (1) and (2), has facilities for communications with:

(i) the associated aerodrome control tower or towers;

(ii) with relevant AFIS unit or units;

(iii) the associated air traffic services reporting office or offices, when separately established.

(4) An air traffic services provider shall ensure that an aerodrome control tower or an AFIS unit, in addition to being connected with the flight information centre, the area control centre and the approach control unit as prescribed in points (1), (2) and (3), has facilities for communications with the associated air traffic services reporting office, when separately established.

(b) Communications between air traffic services units and other units

(1) An air traffic services provider shall ensure that a flight information centre and an area control centre have facilities for communications with the following units providing a service within their respective area of responsibility:

(i) appropriate military units;

(ii) the meteorological services provider or providers serving the centre;

(iii) the aeronautical telecommunication station serving the centre;

(iv) appropriate aircraft operators' offices;

(v) the rescue coordination centre or, in the absence of such centre, any other appropriate emergency service;

(vi) the international NOTAM office serving the centre.

(2) An air traffic services provider shall ensure that an approach control unit, an aerodrome control tower and an AFIS unit have facilities

for communications with the following units providing a service within their respective area of responsibility:

(i) appropriate military units;

(ii) rescue and emergency services (including ambulance, firefighting etc.);

(iii) the meteorological services provider serving the unit concerned;

(iv) the aeronautical telecommunication station serving the unit concerned;

(v) the unit providing apron management service, when separately established.

(3) The communication facilities required under points (b)(1)(i) and (b)(2)(i) shall include provisions for rapid and reliable communications between the air traffic services unit concerned and the military unit or units responsible for control of interception operations within the area of responsibility of the air traffic services unit, in order to fulfil obligations set out in Section 11 of the Annex to Implementing Regulation (EU) No 923/2012.

(c) Description of communication facilities

(1) The communication facilities required under point (a), point (b)(1)(i) and points (b)(2)(i), (b)(2)(ii) and (b)(2)(iii) shall include provisions for:

(i) communications by direct speech alone, or in combination with data link communications, whereby for the purpose of transfer of control using radar or ADS-B, the communications are established instantaneously, and for other purposes, the communications are normally established within 15 seconds;

(ii) printed communications, when a written record is required; the message transit time for such communications is no longer than 5 minutes.

(2) In all cases not covered by point (c)(1), the communication facilities shall include provisions for:

(i) communications by direct speech alone, or in combination with data link communications, whereby the communications are normally established within 15 seconds;

(ii) printed communications, when a written record is required; the message transit time for such communications are no longer than 5 minutes.

(3) In all cases where automatic transfer of data to or from air traffic services computers, or both ways, is required, suitable facilities for automatic recording shall be provided.

(4) The communication facilities required under points (b)(2)(i);(ii);(iii) shall include provisions for communications by direct speech arranged for conference communications whereby the communications are normally established within 15 seconds.

(5) All facilities for direct-speech or data link communications between air traffic services units and between air traffic services units and other units described under points (b)(1) and (b)(2) shall be provided with automatic recording.

ATS.OR.440 Aeronautical fixed service (ground-ground communications) – communication between flight information regions

(a) An air traffic services provider shall ensure that flight information centres and area control centres have facilities for communications with all adjacent flight information centres and area control centres. Those communication facilities shall in all cases include provisions for messages in a form suitable for retention as a permanent record, and delivery in accordance with transit times specified by ICAO regional air navigation agreements.

(b) An air traffic services provider shall ensure that facilities for communications between area control centres serving contiguous control areas, 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 ATS surveillance data, the communications are

established instantaneously, and for other purposes, the communications are normally established within 15 seconds.

(c) When so required by agreement between the States concerned in order to eliminate or reduce the need for interceptions in the event of deviations from assigned track, an air traffic services provider shall ensure that facilities for communications between adjacent flight information centres or area control centres other than those mentioned in point (b):

(1) include provisions for direct speech alone, or in combination with data link communications;

(2) permit communications to be established normally within 15 seconds;

(3) are provided with automatic recording.

(d) An air traffic services provider concerned shall ensure that adjacent air traffic services units are connected in all cases where special circumstances exist.

(e) Wherever local conditions are such that it is necessary to clear aircraft into a controlled airspace prior to departure, the air traffic services provider or providers concerned shall ensure that the air traffic services units delivering the clearance to the aircraft are connected with the air traffic control unit serving the adjacent controlled airspace.

(f) The communication facilities supporting connections to be established in accordance with points (d) and (e) shall 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 ATS surveillance, the communications are established instantaneously, and for other purposes, the communications are normally established within 15 seconds.

(g) An air traffic services provider shall provide suitable facilities for automatic recording in all cases where automatic exchange of data between air traffic services computers is required.

ATS.OR.445 Communications for the control or management of vehicles other than aircraft on manoeuvring areas at aerodromes

(a) Except where communication by a system of visual signals is deemed to be adequate, an air traffic services provider shall ensure two-way radiotelephony communication facilities for either of the following services:

(1) aerodrome control service for the control of vehicles on the manoeuvring area;

(2) AFIS for the management of vehicles on the manoeuvring area where such service is provided in accordance with point ATS.TR.305(f).

(b) The need for separate communication channels for the control or for the management of the vehicles on the manoeuvring area shall be determined subject to a safety assessment.

(c) Automatic recording facilities on all channels referred to in point (b) shall be provided.

ATS.OR.450 Automatic recording of surveillance data

An air traffic services provider shall ensure that surveillance data from primary and secondary radar equipment or other systems (e.g. ADS-B, ADS-C), used as an aid to air traffic services, are automatically recorded for use in accident and incident investigations, search and rescue, air traffic services and surveillance systems evaluation and training.

ATS.OR.455 Retention of recorded information and data

(a) An air traffic services provider shall retain for a period of at least 30 days the following:

(1) recordings of communications channels, as specified in points ATS.OR.400(b) and (c);

(2) recordings of data and communications, as specified in points ATS.OR.435(c)(3) and (5);

(3) automatic recordings, as specified in point ATS.OR.440;

(4) recordings of communications, as specified in point ATS.OR.445;

(5) recordings of data, as specified in point ATS.OR.450;

(6) paper flight progress strips, electronic flight progress and coordination data.

(b) When the recordings and logs listed in point (a) 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.

ATS.OR.460 Background communication and aural environment recording

(a) Unless otherwise prescribed by the competent authority, air traffic services units shall be equipped with devices that record background communication and the aural

environment at air traffic controller's, or the flight information service officer's, or the AFIS officer's work stations, as applicable, capable of retaining the information recorded during at least the last 24 hours of operation.

(b) Such recordings shall only be used for the investigation of accidents and incidents which are subject to mandatory reporting.

SECTION 5

REQUIREMENTS FOR INFORMATION

ATS.OR.500 Meteorological information – General

(a) An air traffic services provider shall ensure that up-to-date information on existing and forecast meteorological conditions is made available to the relevant air traffic services units as necessary for the performance of their respective functions.

(b) An air traffic services provider shall ensure that available detailed information on the location, vertical extent, direction and rate of movement of meteorological phenomena in the vicinity of the aerodrome, and particularly in the climb-out and approach areas, which could be hazardous to aircraft operations, is supplied to the relevant air traffic services units.

(c) The information in points (a) and (b) shall be supplied in such a form as to require a minimum of interpretation on the part of air traffic services personnel and with a frequency which satisfies the requirements of the air traffic services units concerned.

ATS.OR.505 Meteorological information for flight information centres and area control centres

(a) An air traffic services provider shall ensure that flight information centres and area control centres are supplied with the meteorological information stipulated in point MET.OR.245(f) of Annex V, particular emphasis being given on the occurrence or expected occurrence of deterioration in a weather element as soon as this can be determined. Those reports and forecasts shall cover the flight information region or control area and such other areas, if so prescribed by the competent authority.

(b) An air traffic services provider shall ensure that flight information centres and area control centres are provided, at suitable intervals, with current pressure data for setting altimeters, for locations specified by the flight information centre or area control centre concerned.

ATS.OR.510 Meteorological information for units providing approach control service

(a) An air traffic services provider shall ensure that units providing approach control service are supplied with meteorological information for the airspace and the aerodromes with which they are concerned, as stipulated in point MET.OR.242(b) of Annex V.

(b) An air traffic services provider shall ensure that, where multiple anemometers are used, the displays to which they are related are clearly marked to identify the runway and section of the runway monitored by each anemometer.

(c) An air traffic services provider shall ensure that units providing approach control service are provided with current pressure data for setting altimeters, for locations specified by the unit providing approach control service.

(d) An air traffic services provider shall ensure that units providing approach control service for final approach, landing and take-off are equipped with surface wind display or displays. The display or displays shall be related to the same location or locations of observation and be fed from the same sensor or sensors as the corresponding display or displays in the aerodrome control tower or AFIS unit, or both, and in the aeronautical meteorological station, where such a station exists.

(e) An air traffic services provider shall ensure that units providing approach control service for final approach, landing and take-off at aerodromes where runway visual range values are assessed by instrumental means, are equipped with display or displays permitting read-out of the current runway visual range values. The display or displays shall be related to the same location or locations of observation and be fed from the same sensor or sensors as the corresponding display or displays in the aerodrome control tower or AFIS unit, or both, and in the aeronautical meteorological station, where such a station exists.

(f) An air traffic services provider shall ensure that units providing approach control service for final approach, landing and take-off at aerodromes where the height of cloud base is assessed by instrumental means, are equipped with display or displays permitting read-out of the current values of the height of cloud base. The displays shall be related to the same location or locations of observations and be fed from the same sensor or sensors as the corresponding display or displays in the aerodrome control tower or AFIS unit, or both, and in the aeronautical meteorological station, where such a station exists.

(g) An air traffic services provider shall ensure that units providing approach control service for final approach, landing and take-off are supplied with available information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach.

ATS.OR.515 Meteorological information for aerodrome control towers and AFIS units

(a) An air traffic services provider shall ensure that aerodrome control towers and, unless otherwise prescribed by the competent authority, AFIS units are supplied with meteorological information for the aerodrome with which they are concerned as stipulated in point MET.OR.242(a) of Annex V.

(b) An air traffic services provider shall ensure that aerodrome control towers and AFIS units are provided with current pressure data for setting altimeters for the aerodrome concerned.

(c) An air traffic services provider shall ensure that aerodrome control towers and AFIS units are equipped with surface wind display or displays. The display or displays shall be related to the same location or locations of observation and be fed from the same sensor or sensors as the corresponding display or displays in the aeronautical meteorological station, where such a station exists. Where multiple sensors are used, the displays to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each sensor.

(d) An air traffic services provider shall ensure that aerodrome control towers and AFIS units at aerodromes where runway visual range values are measured by instrumental means, are equipped with display or displays permitting read-out of the current runway visual range values. The display or displays shall be related to the same location or locations of observation and be fed from the same sensor or sensors as the corresponding display or displays in the aeronautical meteorological station, where such a station exists.

(e) An air traffic services provider shall ensure that aerodrome control towers and AFIS units at aerodromes where the height of cloud base is assessed by instrumental means, are equipped with display or displays permitting read-out of the current values of the height of cloud base. The displays shall be related to the same location or locations of observations and be fed from the same sensor or sensors as the corresponding display or displays in the aerodrome control tower

and AFIS units and in the aeronautical meteorological station, where such a station exists.

(f) An air traffic services provider shall ensure that aerodrome control tower and AFIS units are supplied with available information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach, and aircraft on the runway during the landing roll or take-off run.

(g) An air traffic services provider shall ensure that aerodrome control towers and AFIS units and/or other appropriate units are supplied with aerodrome warnings, in accordance with point MET.OR.215(b) of Annex V.

ATS.OR.520 Information on aerodrome conditions and the operational status of associated facilities

An air traffic services provider shall ensure that aerodrome control towers, AFIS units and units providing approach control service are kept currently informed of the operationally significant conditions of the movement area, including the existence of temporary hazards, and the operational status of any associated facilities at the aerodrome or aerodromes with which they are concerned, as reported by the aerodrome operator.

ATS.OR.525 Information on the operational status of navigation services

(a) An air traffic services provider shall ensure that air traffic services units are kept currently and timely informed of the operational status of radio navigation services and visual aids essential for take-off, departure, approach and landing procedures within their area of responsibility, and of those radio navigation services and visual aids essential for surface movement.

(b) An air traffic services provider shall establish appropriate arrangements in accordance with point ATM/ANS.OR.B.005(f) of Annex III to ensure that information in point (a) of this point with regard to the GNSS services is provided.';

ATS.OR.530 Forwarding of braking action information

If an air traffic services provider receives by a voice communication a special air-report concerning braking action which does not correspond to what was reported, it shall inform without delay the appropriate aerodrome operator.;

(b) Subpart B is amended as follows:

(i) Section 1 is amended as follows:

— point ATS.TR.100 is replaced by the following:

ATS.TR.100 Objectives of the air traffic services (ATS)

The objectives of the air traffic services shall be to:

(a) prevent collisions between aircraft;

(b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;

(c) expedite and maintain an orderly flow of air traffic;

(d) provide advice and information useful for the safe and efficient conduct of flights;

(e) notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.;

— the following points ATS.TR.105 to ATS.TR.160 are added:

ATS.TR.105 Divisions of the air traffic services

The air traffic services shall comprise the services identified as follows:

(a) the air traffic control service, to accomplish the objectives as in points (a), (b) and (c) of point ATS.TR.100, this service being divided in three parts as follows:

(1) area control service: the provision of air traffic control service for controlled flights, except for those parts of such flights described in points (2) and (3) of this point, in order to accomplish the objectives established in points (a) and (c) of point ATS.TR.100;

(2) approach control service: the provision of air traffic control service for those parts of controlled flights associated with arrival or departure, in order to accomplish the objectives established in points (a) and (c) of point ATS.TR.100; and

(3) aerodrome control service: the provision of air traffic control service for aerodrome traffic, except for those parts of flights described in point (2) of this point, in order to accomplish the objectives established in points (a), (b) and (c) of point ATS.TR.100.

(b) the flight information service or air traffic advisory service, or both, to accomplish the

objective established in point (d) of point ATS.TR.100;

(c) the alerting service, to accomplish the objective established in point (e) of point ATS.TR.100.

ATS.TR.110 Establishment of the units providing air traffic services

(a) The air traffic services shall be provided by units established as follows:

(1) flight information centres shall be established to provide flight information service and alerting service within flight information regions unless the responsibility of providing such services within a flight information region is assigned to an air traffic control unit having adequate facilities for the discharge of such responsibility;

(2) air traffic control units shall be established to provide air traffic control service, flight information service and alerting service within control areas, control zones and at controlled aerodromes;

(3) AFIS units shall be established to provide flight information service and alerting service at AFIS aerodromes and within the airspace associated with such aerodromes.

(b) Air traffic services reporting office or offices or other arrangements shall be established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure.

ATS.TR.115 Identification of air traffic services units

(a) Air traffic services units shall be unambiguously named as follows:

(1) an area control centre or flight information centre shall normally be identified by the name of a nearby town or city or geographic feature or area;

(2) an aerodrome control tower or approach control unit shall normally be identified by the name of the aerodrome at which it is providing services or by the name of a nearby

town or city or geographic feature or area;

(3) an AFIS unit shall normally be identified by the name of the aerodrome at which it is providing services or by the name of a nearby town or city or geographic feature or area.

(b) The name of the air traffic services units and services shall be complemented by one of the following suffixes, as appropriate:

(1) area control centre – CONTROL;

(2) approach control – APPROACH;

(3) approach control radar arrivals – ARRIVAL;

(4) approach control radar departures – DEPARTURE;

(5) air traffic control unit (in general) when providing ATS surveillance services – RADAR;

(6) aerodrome control – TOWER;

(7) surface movement control – GROUND;

(8) clearance delivery – DELIVERY;

(9) flight information centre – INFORMATION;

(10) AFIS unit – INFORMATION.

ATS.TR.120 Language for communication between air traffic services units

Except when communications between air traffic services units are conducted in a mutually agreed language, the English language shall be used for such communications.

ATS.TR.125 Expression of vertical position of aircraft

(a) For flights in areas where a transition altitude is established, the vertical position of the aircraft shall, except as provided for in point (b), be expressed in terms of altitudes at or below the transition altitude and in terms of flight levels at or above the transition level. While passing through the transition layer, the vertical position shall be expressed in terms of flight

levels when climbing and in terms of altitudes when descending.

(b) When an aircraft which has been given clearance to land, or when at AFIS aerodromes an aircraft which has been informed that the runway is available for landing, is completing its approach using atmospheric pressure at aerodrome elevation (QFE), the vertical position of the aircraft shall be expressed in terms of height above aerodrome elevation during that portion of its flight for which QFE may be used, except that it shall be expressed in terms of height above runway threshold elevation:

(1) for instrument runways if the threshold is 2 m (7 ft) or more below the aerodrome elevation;

(2) for precision approach runways.

ATS.TR.130 Determination of the transition level

(a) The appropriate air traffic services unit shall establish the transition level to be used in areas where a transition altitude is established, for the appropriate period of time on the basis of QNH (altimeter subscale setting to obtain elevation when on the ground) reports and forecast mean sea level pressure, if required.

(b) The transition level shall be located above the transition altitude such that at least a nominal 300 m (1 000 ft) vertical separation minimum is ensured between aircraft flying concurrently at the transition altitude and at the transition level.

ATS.TR.135 Minimum cruising level for IFR flights

(a) Air traffic control units shall not assign cruising levels below the minimum flight altitudes established by the Member States, except when specifically authorised by the competent authority.

(b) Air traffic control units shall:

(1) determine the lowest usable flight level or levels for the whole or parts of the control area for which they are responsible;

(2) assign flight levels at or above such level or levels;

(3) pass the lowest usable flight level or levels on to pilots on request.

ATS.TR.140 Provision of altimeter setting information

(a) The appropriate air traffic services units shall at all times have available for transmission to aircraft in flight, on request, the information required to determine the lowest flight level which will ensure adequate terrain clearance on routes or on segment of routes for which this information is required.

(b) Flight information centres and area control centres shall have available for transmission to aircraft, on request, an appropriate number of QNH reports or forecast pressures for the flight information regions and control areas for which they are responsible, and for those adjacent.

(c) The flight crew shall be provided with the transition level in due time prior to reaching it during descent.

(d) Except when it is known that the aircraft has already received the information in a directed transmission, an QNH altimeter setting shall be included in:

(1) the descent clearance, when first cleared to an altitude below the transition level;

(2) approach clearances or clearances to enter the traffic circuit;

(3) taxi clearances for departing aircraft.

(e) An QFE altimeter setting as described in point ATS.TR.125(b) shall be provided to aircraft on request or on a regular basis in accordance with local arrangements.

(f) The appropriate air traffic services units shall round down the altimeter settings provided to aircraft to the nearest lower whole hectopascal.

ATS.TR.145 Suspension of visual flight rules operations on and in the vicinity of an aerodrome

(a) Any or all VFR operations on and in the vicinity of an aerodrome may be suspended whenever safety requires such action by any of the following units, persons or authorities:

(1) the approach control unit or the appropriate area control centre;

(2) the aerodrome control tower;

(3) the competent authority.

(b) When any or all VFR operations on and in the vicinity of an aerodrome are suspended, the aerodrome control tower shall observe the following procedures:

(1) hold all VFR departures;

(2) recall all local flights operating under VFR or obtain approval for special VFR operations;

(3) notify the approach control unit or area control centre as appropriate of the action taken;

(4) notify all operators, or their designated representatives, of the reason for taking such action, if necessary or requested.

ATS.TR.150 Aeronautical ground lights

An air traffic services provider shall establish procedures for the operation of aeronautical ground lights, whether or not they are on or in the vicinity of an aerodrome.

ATS.TR.155 ATS surveillance services

(a) An air traffic services provider may use ATS surveillance systems in the provision of air traffic services. In such case, the air traffic services provider shall specify the functions for which ATS surveillance information is used.

(b) When providing ATS surveillance services, an air traffic services provider shall:

(1) ensure that the ATS surveillance system or systems in use provide for a continuously updated presentation of surveillance information, including position indications;

(2) when air traffic control service is provided:

(i) determine the number of aircraft simultaneously provided with ATS surveillance services which can be safely handled under the prevailing circumstances;

(ii) provide air traffic controllers at all times

with full and up-to-date information regarding:

A. established minimum flight altitudes within the area of responsibility;

B. the lowest usable flight level or levels determined in accordance with points ATS.TR.130 and ATS.TR.135;

C. established minimum altitudes applicable to procedures based on tactical vectoring and direct routing, including the necessary temperature correction or method to correct the effect of low temperatures on minimum altitudes.

(c) An air traffic services provider shall, in accordance with the functions for which ATS surveillance information is used in the provision of air traffic services, establish procedures for:

(1) establishing identification of aircraft;

(2) providing position information to aircraft;

(3) vectoring aircraft;

(4) providing navigation assistance to aircraft;

(5) providing information regarding adverse weather, if applicable;

(6) transferring of control of aircraft;

(7) failure of ATS surveillance system or systems;

(8) SSR transponder failure, in accordance with the provisions of Section 13 of the Annex to Implementing Regulation (EU) No 923/2012;

(9) ATS surveillance-based safety-related alerts and warnings, when implemented;

(10) interruption or termination of ATS surveillance service.

(d) Before providing an ATS surveillance service to an aircraft, identification shall be established and the pilot informed. Thereafter, identification shall be maintained until the termination of the ATS surveillance service. If identification is subsequently lost, the pilot shall be informed accordingly and, when applicable, appropriate instructions shall be issued.

(e) When an identified controlled flight is observed to be on a conflicting path with an unknown aircraft, deemed to constitute a collision hazard, the pilot of the controlled flight shall, whenever practicable:

(1) be informed of the unknown aircraft, and, if the pilot so requests or if the situation so warrants in the opinion of the controller, avoiding action shall be suggested; and

(2) be notified when the conflict no longer exists.

(f) Unless otherwise prescribed by the competent authority, verification of the pressure-altitude-derived level information displayed shall be effected at least once by each suitably equipped air traffic services unit on initial contact with the aircraft concerned or, if this is not feasible, as soon as possible thereafter.

(g) Only verified pressure-altitude-derived level information shall be used to determine that aircraft performed either of the following actions:

(1) maintain a level;

(2) vacate a level;

(3) pass a level in climb or descent;

(4) reach a level.

ATS.TR.160 Provision of air traffic services for flight testing

Additional or alternative conditions and procedures to those contained in this Subpart B, to be applied by air traffic services units for the provision of air traffic services for flight testing, may be specified by the competent authority.;

(ii) the following Sections 2, 3 and 4 are added:

SECTION 2

AIR TRAFFIC CONTROL SERVICE

ATS.TR.200 Application

Air traffic control service shall be provided:

(a) to all IFR flights in airspace Classes A, B, C, D and E;

(b) to all VFR flights in airspace Classes B, C and D;

(c) to all special VFR flights;

(d) to all aerodrome traffic at controlled aerodromes.

ATS.TR.205 Provision of air traffic control service

The parts of air traffic control service described in point ATS.TR.105(a) shall be provided by the various units as follows:

(a) area control service by either of the following units:

(1) an area control centre;

(2) the unit providing approach control service in a control zone or in a control area of limited extent which is designated primarily for the provision of approach control service and where no area control centre is established;

(b) approach control service by either of the following units:

(1) an approach control unit when it is necessary or desirable to establish a separate unit;

(2) an aerodrome control tower or area control centre when it is necessary or desirable to combine under the responsibility of one unit the functions of the approach control service with those of the aerodrome control service or the area control service;

(c) aerodrome control service: by an aerodrome control tower.

ATS.TR.210 Operation of air traffic control service

(a) In order to provide air traffic control service, an air traffic control unit shall:

(1) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft;

(2) determine from the information received, the relative positions of known aircraft to each other;

(3) issue clearances, instructions or information, or all of them, for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;

(4) coordinate clearances as necessary with other units:

(i) whenever an aircraft might otherwise conflict with traffic operated under the control of such other units;

(ii) before transferring control of an aircraft to such other units.

(b) Clearances issued by air traffic control units shall provide separation:

(1) between all flights in airspace Classes A and B;

(2) between IFR flights in airspace Classes C, D and E;

(3) between IFR flights and VFR flights in airspace Class C;

(4) between IFR flights and special VFR flights;

(5) between special VFR flights unless otherwise prescribed by the competent authority.

Where requested by the pilot of an aircraft and agreed by the pilot of the other aircraft and if so prescribed by the competent authority for the cases listed under point (2) of the first paragraph in airspace Classes D and E, a flight may be cleared subject to maintaining own separation in respect of a specific portion of the flight below 3 050 m (10 000 ft) during climb or descent, during day in visual meteorological conditions.

(c) Except for cases of operations on parallel or near-parallel runways referred to in point ATS.TR.255, or when a reduction in separation minima in the vicinity of aerodromes can be applied, separation by an air traffic control unit shall be obtained by at least one of the following:

(1) vertical separation, obtained by assigning different levels selected from the table of cruising levels in Appendix 3 to the Annex to Implementing Regulation (EU) No 923/2012, except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or ATC clearances. The vertical separation minimum shall be a nominal 300 m (1 000 ft) up to and including FL 410 and a nominal 600 m (2 000 ft) above that level. Geometric height information shall not be used to establish vertical separation;

(2) horizontal separation, obtained by providing either of the following:

(i) longitudinal separation, by maintaining an interval between aircraft operating along the same, converging or reciprocal tracks, expressed in time or distance;

(ii) lateral separation, by maintaining aircraft on different routes or in different geographical areas.

(d) When the air traffic controller becomes aware that the type of separation or minimum used to separate two aircraft cannot be maintained, the air traffic controller shall establish another type of separation or another minimum prior to the time when the current separation minimum would be infringed.

ATS.TR.215 Selection and notification of separation minima for the application of point ATS.TR.210(c)

(a) The selection of separation minima for application within a given portion of airspace shall be made by the air traffic services provider responsible for the provision of air traffic services and approved by the competent authority concerned.

(b) For traffic that will pass from one into the other of neighbouring airspaces and for routes that are closer to the common boundary of the neighbouring airspaces than the separation minima applicable in the circumstances, the selection of separation minima shall be made

in consultation with the air traffic services providers responsible for the provision of air traffic services in neighbouring airspace.

(c) Details of the selected separation minima and of their areas of application shall be notified:

(1) to the air traffic services units concerned;

(2) to pilots and aircraft operators through aeronautical information publications, where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

ATS.TR.220 Application of wake turbulence separation

(a) Air traffic control units shall apply wake turbulence separation minima to aircraft in the approach and departure phases of flight in either of the following circumstances:

(1) an aircraft is operating directly behind another aircraft at the same altitude or less than 300 m (1 000 ft) below it;

(2) both aircraft are using the same runway, or parallel runways separated by less than 760 m (2 500 ft);

(3) an aircraft is crossing behind another aircraft, at the same altitude or less than 300 m (1 000 ft) below it.

(b) Paragraph (a) shall not apply to arriving VFR flights and to arriving IFR flights executing visual approach when the aircraft has reported the preceding aircraft in sight and has been instructed to follow and maintain own separation from that aircraft. In those cases, the air traffic control unit shall issue caution for wake turbulence.

ATS.TR.225 Responsibility for control

(a) A controlled flight shall be under the control of only one air traffic control unit at any given time.

(b) Responsibility for the control of all aircraft operating within a given block of airspace shall be vested in a single air traffic control unit. However, control of an aircraft or groups of aircraft may be delegated to other air traffic control units provided that coordination between all air traffic control units concerned is assured.

ATS.TR.230 Transfer of responsibility for control

(a) Place or time of transfer

The responsibility for the control of an aircraft shall be transferred from one air traffic control unit to another as follows:

(1) Between two units providing area control service

The responsibility for the control of an aircraft shall be transferred from a unit providing area control service in a control area to the unit providing area control service in an adjacent control area at the time of crossing the common control area boundary as estimated by the area control centre having control of the aircraft or at such other point or time as has been agreed between the two units.

(2) Between a unit providing area control service and a unit providing approach control service or between two units providing approach control service

The responsibility for the control of an aircraft shall be transferred from one unit to another, and vice versa, at a point or time agreed between the two units.

(3) Between a unit providing approach control service and an aerodrome control tower

(i) Arriving aircraft – The responsibility for the control of an arriving aircraft shall be transferred, as specified in letters of agreement and operation manuals, as appropriate, from the unit providing approach control service to the aerodrome control tower when the aircraft is in either of the following states:

(A) is in the vicinity of the aerodrome, and:

(a) it is considered that approach and landing will be completed in visual reference to the ground, or

(b) it has reached uninterrupted VMC;

(B) is at a prescribed point or level;

(C) has landed.

(ii) Departing aircraft – The responsibility for control of a departing aircraft shall be transferred, as specified in letters of agreement and operation manuals, as appropriate, from the aerodrome control tower to the unit providing approach control service:

(A) when VMC prevail in the vicinity of the aerodrome:

(a) prior to the time the aircraft leaves the vicinity of the aerodrome, or

(b) prior to the aircraft entering instrument meteorological conditions (IMC), or

(c) at a prescribed point or level;

(B) when IMC prevail at the aerodrome:

(a) immediately after the aircraft is airborne, or

(b) at a prescribed point or level.

(4) Between control sectors or positions within the same air traffic control unit

The responsibility for control of an aircraft shall be transferred from one control sector or position to another control sector or position within the same air traffic control unit at a point, level or time, as specified in air traffic services unit instructions.

(b) Coordination of transfer

(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 points (2), (3), (4) and (5).

(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) Where transfer of control is to be effected using ATS surveillance systems, 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 ATS surveillance systems immediately prior to the transfer.

(4) 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.

(5) The accepting control unit shall:

(i) indicate its ability to accept control of the aircraft on the terms specified by the transferring control unit, unless by prior agreement between the two units concerned the absence of any such indication is understood to signify acceptance of the terms specified, or indicate any necessary changes thereto;

(ii) specify any other information or clearance for a subsequent portion of the flight, which it requires the aircraft to have at the time of transfer.

(6) Unless otherwise specified by an agreement between the two control units concerned, the accepting control unit shall not notify the transferring control unit when it has established two-way voice or data link communications, or both, with and assumed control of the aircraft concerned.

(7) Standardised phraseology shall be used in the coordination between air traffic services units or sectors, or both. Only when standardised phraseology cannot serve an intended transmission, plain language shall be used.

ATS.TR.235 ATC clearances

(a) ATC clearances shall be based solely on the requirements for providing air traffic control service.

(1) Clearances shall be issued solely for expediting and separating air traffic and be based on known traffic conditions which affect safety in aircraft operation. Such traffic conditions include not only aircraft in the air and on the manoeuvring area over which control is being exercised, but also any vehicular traffic or other obstructions not permanently installed on the manoeuvring area in use.

(2) Air traffic control units shall issue such ATC clearances as necessary to prevent collisions and to expedite and maintain an orderly flow of air traffic.

(3) ATC clearances shall be issued early enough to ensure that they are transmitted to the aircraft in sufficient time for it to comply with them.

(4) When the pilot-in-command of an aircraft informs an air traffic control unit that an ATC clearance is not satisfactory, the air traffic control unit shall issue an amended clearance, if practicable.

(5) When vectoring or assigning a direct routing not included in the flight plan, which takes an IFR flight off published ATS route or instrument procedure, an air traffic controller providing ATS surveillance service shall issue clearances such that the prescribed obstacle clearance exists at all times until the aircraft reaches the point where the pilot re-joins the flight plan route, or joins a published ATS route or instrument procedure.

(b) Contents of clearances

An ATC clearance shall indicate:

(1) aircraft identification as shown in the flight plan;

(2) clearance limit;

(3) route of flight:

(i) the route of flight shall be detailed in each clearance when deemed necessary;

(ii) the phrase ‘cleared flight planned route’ shall not be used when granting a re-clearance;

(4) level or levels of flight for the entire route or part thereof and changes of levels if required;

(5) any necessary instructions or information on other matters, such as ATFM departure slot if applicable, approach or departure manoeuvres, communications and the time of expiry of the clearance.

(c) In order to facilitate the delivery of the elements in point (b), an air traffic services provider shall assess the necessity for establishing standard departure and arrival routes and associated procedures to facilitate the:

(1) safe, orderly and expeditious flow of air traffic;

(2) description of the route and procedure in ATC clearances.

(d) Clearances for transonic flight

(1) The ATC clearance relating to the transonic acceleration phase of a supersonic flight shall extend at least to the end of that phase.

(2) The ATC clearance relating to the deceleration and descent of an aircraft from supersonic cruise to subsonic flight shall seek to provide for uninterrupted descent, at least during the transonic phase.

(e) Changes in clearance regarding route or level

(1) When issuing a clearance covering a requested change in route or level, the exact nature of the change shall be included in the clearance.

(2) When traffic conditions will not permit clearance of a requested change, the word ‘UNABLE’ shall be used. When warranted by circumstances, an alternative route or level shall be offered.

(f) Conditional clearances

Conditional phrases, such as ‘behind landing aircraft’ or ‘after departing aircraft’, shall not be used for movements affecting the active runway or runways except when the aircraft or vehicles concerned are seen by the appropriate air traffic controller and pilot. The aircraft or vehicle causing the condition in the clearance issued shall be the first aircraft or vehicle to pass in front of the other aircraft concerned. In all cases, a conditional clearance shall be given in the following order and consist of:

(1) the call sign;

(2) the condition;

(3) the clearance;

(4) a brief reiteration of the condition.

(g) Read-back of clearances, instructions and safety-related information

(1) The air traffic controller shall listen to the read-back concerning safety-related parts of ATC clearances and instructions as specified in points SERA.8015(e)(1) and (2) of the Annex to Implementing Regulation (EU) No 923/2012, to ascertain that the clearance or instruction, or both, have been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.

(2) Voice read-back of CPDLC messages shall not be required unless otherwise specified by the air traffic services provider.

(h) Coordination of clearances

An ATC clearance shall be coordinated between air traffic control units to cover the entire route of an aircraft or a specified portion thereof as follows.

(1) An aircraft shall be cleared for the entire route to the aerodrome of first intended landing in either of the following situations:

(i) when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come;

(ii) when there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.

(2) When coordination as in point (1) has not been achieved or is not anticipated, the aircraft shall be cleared only to that point where coordination is reasonably assured; prior to reaching such point, or at such point, the aircraft shall receive further clearance, holding instructions being issued as appropriate.

(3) When prescribed by the air traffic services unit, aircraft shall contact a downstream air traffic control unit, for the purpose of receiving a

downstream clearance prior to the transfer of control point.

(i) Aircraft shall maintain the necessary two-way communication with the current air traffic control unit whilst obtaining a downstream clearance.

(ii) A clearance issued as a downstream clearance shall be clearly identifiable as such to the pilot.

(iii) Unless coordinated, downstream clearances shall not affect the aircraft's original flight profile in any airspace, other than that of the air traffic control unit responsible for the delivery of the downstream clearance.

(4) When an aircraft intends to depart from an aerodrome within a control area to enter another control area within a period of 30 minutes, or such other specific period of time as has been agreed between the area control centres concerned, coordination with the subsequent area control centre shall be effected prior to issuance of the departure clearance.

(5) When an aircraft intends to leave a control area for flight outside controlled airspace, and will subsequently re-enter the same or another control area, a clearance from the point of departure to the aerodrome of first intended landing may be issued. Such clearance or revisions thereto shall apply only to those portions of the flight conducted within controlled airspace.

ATS.TR.240 Control of persons and vehicles at controlled aerodromes

(a) The movement of persons or vehicles, including towed aircraft, on the manoeuvring area of an aerodrome shall be controlled by the aerodrome control tower as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.

(b) In conditions where low-visibility procedures are in operation:

(1) persons and vehicles operating on the manoeuvring area of an aerodrome shall be restricted to the essential minimum, and particular regard shall be given to

the requirements to protect the critical and sensitive area or areas of radio navigation aids;

(2) subject to the provisions in point (c), the method or methods to separate vehicles and taxiing aircraft shall be as specified by the air traffic services provider and approved by the competent authority taking into account the aids available;

(3) when mixed ILS and MLS Category II or Category III precision instrument operations are taking place to the same runway continuously, the more restrictive ILS or MLS critical and sensitive areas shall be protected.

(c) Emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic.

(d) Subject to the provisions in point (c), vehicles on the manoeuvring area shall be required to comply with the following rules:

(1) vehicles and vehicles towing aircraft shall give way to aircraft which are landing, taking off or taxiing;

(2) vehicles shall give way to other vehicles towing aircraft;

(3) vehicles shall give way to other vehicles in accordance with air traffic services unit instructions;

(4) notwithstanding the provisions of points (1), (2) and (3), vehicles and vehicles towing aircraft shall comply with instructions issued by the aerodrome control tower.

ATS.TR.245 Use of surface movement surveillance equipment at aerodromes

Where deemed necessary, in the absence of visual observation of all or part of the manoeuvring area or to supplement visual observation, advanced surface movement guidance and control systems (A-SMGCS) or other suitable surveillance equipment, shall be utilised by the air traffic services unit in order to:

(a) monitor the movements of aircraft and vehicles on the manoeuvring area;

(b) provide directional information to pilots and vehicle drivers as necessary;

(c) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the manoeuvring area.

ATS.TR.250 Essential traffic and essential local traffic information

(a) Essential traffic information shall be given to controlled flights concerned whenever they constitute essential traffic to each other.

(b) Essential local traffic information known to the air traffic controller shall be given without delay to departing and arriving aircraft concerned.

ATS.TR.255 Operations on parallel or near-parallel runways

When independent or dependent operations on instrument approach to or departure from parallel or near-parallel runways are conducted, procedures shall be established by the air traffic services provider and approved by the competent authority.

ATS.TR.260 Selection of the runway-in-use

The aerodrome control tower shall select the runway-in-use for take-off and landing of aircraft taking into consideration the surface wind speed and direction as well as other local relevant factors, such as:

(a) runway configuration;

(b) meteorological conditions;

(c) instrument approach procedures;

(d) approach and landing aids available;

(e) aerodrome traffic circuits and air traffic conditions;

(f) length of the runway or runways;

(g) other factors indicated in local instructions.

ATS.TR.265 Control of aerodrome surface traffic in low-visibility conditions

(a) When there is a requirement for traffic to operate on the manoeuvring area in conditions of visibility which prevent the aerodrome control tower from applying visual separation between aircraft, and between aircraft and vehicles, the following shall apply:

(1) at the intersection of taxiways, an aircraft or vehicle on a taxiway shall not be permitted to hold closer to the other taxiway than the holding position limit defined by intermediate holding positions, stop bar or taxiway intersection marking, in accordance with the applicable aerodrome design specifications;

(2) the longitudinal separation method on taxiways shall be as specified for each particular aerodrome by the air traffic services provider and approved by the competent authority,

taking into account the characteristics of the aids available for surveillance and control of ground traffic, the complexity of the aerodrome layout and the characteristics of the aircraft using the aerodrome.

(b) Procedures applicable to the start and continuation of low-visibility operations shall be established in accordance with point ATS.OR.110 and shall be approved by the competent authority.

ATS.TR.270 Authorisation of special VFR

(a) Special VFR flights may be authorised to operate within a control zone, subject to an ATC clearance. Except when permitted by the competent authority for helicopters in special cases such as but not limited to police, medical, search and rescue operations and firefighting flights, the following additional conditions shall be applied:

(1) such special VFR flights may be conducted during day only, unless otherwise permitted by the competent authority;

(2) by the pilot:

(i) clear of cloud and with the surface in sight;

(ii) the flight visibility is not less than 1 500 m or, for helicopters, not less than 800 m;

(iii) fly at a speed of 140 kt IAS or less to give adequate opportunity to observe other traffic and any obstacles in time to avoid a collision;

(3) An air traffic control unit shall not issue a special VFR clearance to aircraft to take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or aerodrome traffic circuit when the reported meteorological conditions at that aerodrome are below the following minima:

(i) the ground visibility is less than 1 500 m or, for helicopters, less than 800 m;

(ii) the ceiling is less than 180 m (600 ft).

(b) An air traffic control unit shall handle requests for such an authorisation individually.

SECTION 3

FLIGHT INFORMATION SERVICE

ATS.TR.300 Application

(a) Flight information service shall be provided by the appropriate air traffic services units to all aircraft which are likely to be affected by the information and which are in either of the following situations:

(1) provided with air traffic control service;

(2) otherwise known to the relevant air traffic services units.

(b) Where air traffic services units provide both flight information service and air traffic control service, the provision of air traffic control service shall have precedence over the provision of flight information service whenever the provision of air traffic control service so requires.

(c) A flight information service provider shall establish arrangements for:

(1) recording and transmission of information on the progress of flights;

(2) coordination and transfer of responsibility for the provision of flight information service.

ATS.TR.305 Scope of flight information service

(a) Flight information service shall include the provision of pertinent:

(1) SIGMET and AIRMET information;

(2) information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds;

(3) information concerning the release into the atmosphere of radioactive materials or toxic chemicals;

(4) information on changes in the availability of radio navigation services;

(5) information on changes in the condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by snow, ice or significant depth of water;

(6) information on unmanned free balloons;

(7) information on abnormal aircraft configuration and condition;

(8) any other information likely to affect safety.

(b) Flight information service provided to flights shall include, in addition to that outlined in point (a), the provision of information concerning:

(1) weather conditions reported or forecast at departure, destination and alternate aerodromes;

(2) collision hazards, to aircraft operating in airspace Classes C, D, E, F and G;

(3) for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc. of surface vessels in the area;

(4) messages, including clearances, received from other air traffic services units to relay to aircraft.

(c) AFIS provided to flights shall include, in addition to relevant items outlined in points (a) and (b), the provision of information concerning:

(1) collision hazards with aircraft, vehicles and persons operating on the manoeuvring area;

(2) the runway-in-use.

(d) Air traffic services units shall transmit, as soon as practicable, special and non-routine air-reports to:

(1) other aircraft concerned;

(2) the associated meteorological watch office in accordance with Appendix 5 to Implementing Regulation (EU) No 923/2012;

(3) other air traffic services units concerned.

Transmissions to aircraft shall be repeated at a frequency and continued for a period of time which shall be determined by the air traffic services unit concerned.

(e) Flight information service provided to VFR flights shall include, in addition to that outlined in point (a), the provision of available information concerning traffic and weather conditions along the route of flight that are likely to make operation under the visual flight rules impracticable.

(f) When so prescribed by the competent authority, the AFIS unit shall manage the movement of vehicles and persons on the manoeuvring area in accordance with the set or subset of provisions in point ATS.TR.240.

ATS.TR.310 Voice-automatic terminal information service (Voice-ATIS) broadcasts

(a) Voice-automatic terminal information service (Voice-ATIS) broadcasts shall be provided at aerodromes where there is a requirement to reduce the communication load on the air traffic services VHF air-ground communication channels. When provided, they shall comprise either of the following:

(1) one broadcast serving arriving aircraft;

(2) one broadcast serving departing aircraft;

(3) one broadcast serving both arriving and departing aircraft;

(4) two broadcasts serving arriving and departing aircraft respectively at those aerodromes where the length of a broadcast serving both arriving and departing aircraft would be excessively long.

(b) A discrete VHF frequency shall, whenever practicable, be used for Voice-ATIS broadcasts. If a discrete frequency is not available, the transmission may be made on the voice channel or channels of the most appropriate terminal navigation aid or aids, preferably a VOR, provided the range and readability are adequate and the identification of the navigation aid is sequenced with the broadcast so that the latter is not obliterated.

(c) Voice-ATIS broadcasts shall not be transmitted on the voice channel of an ILS.

(d) Whenever Voice-ATIS is provided, the broadcast shall be continuous and repetitive.

(e) The information contained in the current broadcast shall immediately be made known to the air traffic services unit or units concerned with the provision to aircraft of information relating to approach, landing and take-off, whenever the message has not been prepared by that unit or those units.

(f) Voice-ATIS broadcasts provided at designated aerodromes for use by international air services shall be available in the English language as a minimum.

ATS.TR.315 Data link-automatic terminal information service (D-ATIS)

(a) Where a D-ATIS supplements the existing availability of Voice-ATIS, the information shall be identical in both content and format to the applicable Voice-ATIS broadcast. Where real-time meteorological information is included but the data remains within the parameters of the significant change criteria established in points MET.TR.200(e) and (f) of Annex V, the content, for the purpose of maintaining the same designator, shall be considered identical.

(b) Where a D-ATIS supplements the existing availability of Voice-ATIS and the ATIS requires updating, Voice-ATIS and D-ATIS shall be updated simultaneously.

ATS.TR.320 Automatic terminal information service (voice and/or data link)

(a) Whenever Voice-ATIS or D-ATIS, or both, are provided:

(1) the information communicated shall relate to a single aerodrome;

(2) the information communicated shall be updated immediately when a significant change occurs;

(3) the preparation and dissemination of the ATIS message shall be the responsibility of the air traffic services provider;

(4) individual ATIS messages shall be identified by a designator in the form of a letter of the spelling alphabet in accordance with point SERA.14020 of the Annex to Implementing Regulation (EU) No 923/2012. Designators assigned to consecutive ATIS messages shall be in alphabetical order;

(5) aircraft shall acknowledge receipt of the information upon establishing communication with the air traffic services unit providing approach control service or the aerodrome control tower or AFIS unit, as appropriate;

(6) the appropriate air traffic services unit shall, when replying to the message in point (5) or, in the case of arriving aircraft, at such other time as may be prescribed by the competent authority, provide the aircraft with the current altimeter setting;

(7) the meteorological information shall be extracted from the local routine report or local special report.

(b) When rapidly changing meteorological conditions make it inadvisable to include the meteorological information

as in point (a)(7) in the ATIS, the ATIS messages shall indicate that the relevant meteorological information will be given on initial contact with the appropriate air traffic services unit.

(c) Information contained in a current ATIS, the receipt of which has been acknowledged by the aircraft concerned, need not be included in a directed transmission to the aircraft, with the exception of the altimeter setting, which shall be provided in accordance with point (a).

(d) If an aircraft acknowledges receipt of an ATIS that is no longer current, the air traffic services unit shall without delay take either of the following actions:

(1) communicate to the aircraft any element of information which has to be updated;

(2) instruct the aircraft to obtain the current ATIS information.

ATS.TR.325 VOLMET broadcasts and D-VOLMET broadcasts

When so prescribed by the competent authority, HF or VHF VOLMET broadcasts, or D-VOLMET service, or all of those, shall be provided, using standard radiotelephony phraseologies.

SECTION 4

ALERTING SERVICE

ATS.TR.400 Application

(a) Alerting service shall be provided by the air traffic services units:

(1) for all aircraft provided with air traffic control service;

(2) in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the air traffic services;

(3) to any aircraft known or believed to be the subject of unlawful interference.

(b) Flight information centres or area control centres shall serve as the central point for collecting all information relevant to a state of emergency of an aircraft operating within the flight information region or control area concerned and for forwarding such information to the appropriate rescue coordination centre.

(c) In the event of a state of emergency arising to an aircraft while it is under the control of an aerodrome control tower or approach control unit or in contact with an

AFIS unit, such unit shall notify immediately the flight information centre or area control centre responsible which shall in turn notify the rescue coordination centre, except that notification of the area control centre, flight information centre, or rescue coordination centre shall not be required if the nature of the emergency is such that the notification would be superfluous.

(d) Nevertheless, the aerodrome control tower or approach control unit responsible or the relevant AFIS unit shall first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organisations which can give the immediate assistance required, in accordance with local instructions, whenever either of the following situations occurs:

(1) an aircraft accident has occurred on or in the vicinity of the aerodrome;

(2) information is received that the safety of an aircraft which is or will come under the jurisdiction of the aerodrome control tower or of the AFIS unit may have or has been impaired;

(3) requested by the flight crew;

(4) when otherwise deemed necessary or desirable or the urgency of the situation so requires.

ATS.TR.405 Notification to rescue coordination centres

(a) Without prejudice to any other circumstances that may render such notification advisable, air traffic services units shall, except as prescribed in point ATS.TR.420(a), notify rescue coordination centres immediately when an aircraft is considered to be in a state of emergency in accordance with the following:

(1) Uncertainty phase when either of the following situations applies:

(i) no communication has been received from an aircraft within a period of 30 minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier;

(ii) an aircraft fails to arrive within 30 minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is the later.

Uncertainty phase does not apply when no doubt exists as to the safety of the aircraft and its occupants.

(2) Alert phase when either of the following situations applies:

(i) following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft;

(ii) an aircraft has been cleared to land and fails to land within 5 minutes of the estimated time of landing and communication has not been re-established with the aircraft;

(iii) at AFIS aerodromes, under circumstances as prescribed by the competent authority;

(iv) information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely;

(v) an aircraft is known or believed to be the subject of unlawful interference.

Points (i) to (iv) do not apply when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants.

(3) Distress phase when either of the following situations applies:

(i) following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress;

(ii) the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety;

(iii) information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely;

(iv) information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing,

Distress phase does not apply when there is reasonable certainty that the aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance.

(b) The notification shall contain such of the following information as is available in the order listed:

(1) INCERFA, ALERFA or DETRESFA, as appropriate to the phase of the emergency;

(2) agency and person calling;

(3) nature of the emergency;

(4) significant information from the flight plan;

(5) unit which made last contact, time and means used;

(6) last position report and how it was determined;

(7) colour and distinctive marks of aircraft;

(8) dangerous goods carried as cargo;

(9) any action taken by the reporting office;

(10) other pertinent remarks.

(c) Such part of the information specified in point (b), which is not available at the time the notification is made to a rescue coordination centre, shall be sought by an air traffic services unit prior to the declaration of a distress phase where time permits and where there is reasonable certainty that this phase will eventuate.

(d) Further to the notification specified in point (a), air traffic services units shall, without delay, furnish the rescue coordination centre with either of the following:

(1) any useful additional information, especially on the development of the state of emergency through subsequent phases;

(2) information that the emergency situation no longer exists.

ATS.TR.410 Use of communication facilities

Air traffic services units shall, as necessary, use all available communication facilities to endeavour to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

ATS.TR.415 Plotting aircraft in a state of emergency

When a state of emergency is considered to exist, the air traffic services unit or units aware of the emergency shall plot the flight of the aircraft involved on a chart or other appropriate tool in order to determine the probable future position of the aircraft and its maximum range of action from its last known position.

ATS.TR.420 Information to the operator

(a) When an area control centre or a flight information centre decides that an aircraft is in the uncertainty or the alert phase, it shall, when practicable, advise the aircraft operator prior to notifying the rescue coordination centre.

(b) Whenever practicable, an area control centre or flight information centre shall, without delay, communicate all information notified to the rescue coordination centre to the aircraft operator.

ATS.TR.425 Information to aircraft operating in the vicinity of an aircraft in a state of emergency

(a) When it has been established by an air traffic services unit that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved shall, except as provided in point (b), be informed of the nature of the emergency as soon as practicable.

(b) When an air traffic services unit knows or believes that an aircraft is being subjected to unlawful interference, no reference shall be made in air traffic services air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.;

(5) Annex V is amended as follows:

(a) point MET.OR.120 is replaced by the following:

MET.OR.120 Notification of discrepancies to the world area forecast centres (WAFCs)

The meteorological services provider using WAFS SIGWX in binary universal form for the representation of meteorological data (BUFR) code form shall notify the WAFC concerned immediately if significant discrepancies are detected or reported in respect of WAFS SIGWX forecasts concerning:

(a) icing, turbulence, cumulonimbus clouds that are obscured, frequent, embedded, or occurring at a squall line, and sandstorms or dust storms;

(b) volcanic eruptions or a release of radioactive materials into the atmosphere of significance to aircraft operations.;

(b) in the first paragraph of point MET.OR.205, the introductory phrase is replaced by the following:

An aeronautical meteorological station shall report:;

(c) in the first paragraph of point MET.OR.210, the introductory phrase is replaced by the following:

An aeronautical meteorological station shall observe and/or measure:;

(d) point MET.OR.240(a) is amended as follows:

(i) point (2) is replaced by the following:

(2) METAR or SPECI, including TREND, TAF or amended TAF for the aerodromes of departure and intended landing, and for take-off, en-route and destination alternate aerodromes;;

(ii) point (6) is replaced by the following:

(6) area forecasts for low-level flights in chart form prepared in support of the issuance of an AIRMET, and an AIRMET for low-level flights relevant to the whole route;;

(e) MET.OR.242 is amended as follows:

(i) point (a) is replaced by the following:

(a) An aerodrome meteorological office shall provide, as necessary, its associate aerodrome control tower and AFIS unit with:

(1) local routine report, local special report, METAR, TAF and TREND and amendments thereto;

(2) SIGMET, AIRMET, wind shear warnings and alerts and aerodrome warnings;

(3) any additional meteorological information agreed upon locally, such as forecasts of surface wind for the determination of possible runway changes;

(4) information received on volcanic ash cloud, for which a SIGMET has not already been issued, as agreed between the aerodrome meteorological office and the aerodrome control tower or the AFIS unit concerned;

(5) information received on pre-eruption volcanic activity and/or a volcanic eruption as agreed between the aerodrome meteorological office and the aerodrome control tower or the AFIS unit concerned.;

(ii) in point (b), points (1) and (2) are replaced by the following:

(1) local routine report, local special report, METAR, TAF and TREND and amendments thereto;

(2) SIGMET, AIRMET, wind shear warnings and alerts, appropriate special air-reports and aerodrome warnings;;

(f) point MET.OR.245 is amended as follows:

(i) point (b) is replaced by the following:

(b) coordinate with the organisation responsible for the provision of NOTAM and/or ASHTAM to ensure that meteorological information on volcanic ash included in SIGMET and NOTAM and/or ASHTAM is consistent;;

(ii) point (f) is amended as follows:

— points (1) and (2) are replaced by the following:

(1) METAR, including current pressure data for aerodromes and other locations, TAF, TREND and amendments thereto;

(2) forecasts of upper winds, upper-air temperatures and significant en-route weather phenomena and amendments thereto, SIGMET, AIRMET and appropriate special air-reports;;

— points (6), (7) and (8) are replaced by the following:

(6) tropical cyclone advisory issued by a TCAC in its area of responsibility;

(7) volcanic ash advisory issued by a VAAC in its area of responsibility;

(8) information received on pre-eruption volcanic activity and/or a volcanic eruption as agreed between the meteorological watch office and the ACC/FIC;;

(iii) the following point (g) is added:

(g) when available, provide the relevant air traffic services units, in accordance with local agreement, with information regarding the release into the atmosphere of toxic chemicals which could affect the airspace used by flights within their area of responsibility.;

(g) point MET.OR.250 is replaced by the following:

MET.OR.250 SIGMET

A meteorological watch office shall:

(a) provide and disseminate SIGMET;

(b) ensure that the SIGMET is cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area covered by the SIGMET;

(c) ensure that the period of validity of a SIGMET is not more than 4 hours, and in the special case of SIGMET for volcanic ash cloud and tropical cyclones, it shall be extended up to 6 hours;

(d) ensure that SIGMET are issued not more than 4 hours before the commencement of the period of validity. In the special case of SIGMET for volcanic ash cloud and tropical cyclones, SIGMET shall be issued as soon as practicable, but not more than 12 hours before the commencement of the period of validity, and updated at least every 6 hours.;

(h) point MET.OR.255 is replaced by the following:

MET.OR.255 AIRMET

A meteorological watch office shall:

(a) provide and disseminate AIRMET when the competent authority has determined that the density of traffic operating below flight level 100, or up to flight level 150 in mountainous areas, or higher, where necessary, warrants the issue and dissemination of area forecasts for such operations;

(b) cancel the AIRMET when the phenomena are no longer occurring or are no longer expected to occur in the area;

(c) ensure that the period of validity of an AIRMET is not more than 4 hours.;

(i) point MET.OR.260(c) is replaced by the following:

(c) ensure that area forecasts for low-level flights prepared in support of the issuance of an AIRMET are issued every 6 hours for a period of validity of 6 hours and transmitted to the meteorological watch offices concerned not later than 1 hour prior to the beginning of their validity period.;

(j) point MET.OR.265(a)(4) is replaced by the following:

(4) WAFCs, international OPMET databanks, international NOTAM offices and centres designated by regional air navigation agreement for the operation of the aeronautical fixed service internet-based services;;

(k) point MET.OR.270 is amended as follows:

(i) the introductory phrase is replaced by the following:

A TCAC shall provide:;

(ii) point (a)(3) is replaced by the following:

(3) WAFCs, international OPMET databanks and centres responsible for the operation of the aeronautical fixed service internet-based services;;

(l) point MET.TR.200 is amended as follows:

(i) in point (a), the introductory phrase is replaced by the following:

Local routine report, local special report and METAR shall contain the following elements in the order indicated:;

(ii) in point (b), the introductory phrase is replaced by the following:

In local routine report and local special report:;

(m) MET.TR.205 is amended as follows:

(i) point (a) is amended as follows:

— point (1) is replaced by the following:

(1) In local routine report, local special report and METAR, the surface wind direction and speed shall be reported in steps of 10 degrees true and 1 kt (0,5 m/s) respectively.;

— in point (3), the introductory sentence is replaced by the following:

In local routine report, local special report and METAR:;

— in point (3), point (iii)(A) is replaced by the following:

(A) 5 kt (2,5 m/s) or more in local routine report and local special report when noise abatement procedures are applied;;

(ii) point (b) is amended as follows:

— point (1) is replaced by the following:

(1) In local routine report, local special report and METAR, the visibility shall be reported in steps of 50 m when the visibility is less than 800 m; in steps of 100 m when it is 800 m or more, but less than 5 km; in kilometre steps when the visibility is 5 km or more, but less than 10 km; and it shall be given as 10 km when the visibility is 10 km or more, except when the conditions for the use of CAVOK apply.;

— point (3) is replaced by the following:

(3) In local routine report and local special report, visibility along the runway or runways shall be reported together with the units of measurement used to indicate visibility.;

(iii) point (c) is amended as follows:

— point (1) is replaced by the following:

(1) In local routine report, local special report and METAR, the RVR shall be reported in steps of 25 m when it is less than 400 m; in steps of 50 m when it is between 400 and 800 m; and in steps of 100 m when it is more than 800 m.;

— point (3) is replaced by the following:

(3) In local routine report, local special report and METAR:

(i) when the RVR is above the maximum value that can be determined by the system in use, it shall be reported using the abbreviation 'ABV' in local routine report and local special report, and the abbreviation 'P' in METAR followed by the maximum value that can be determined by the system;

(ii) when the RVR is below the minimum value that can be determined by the system in use, it shall be reported using the abbreviation 'BLW' in local routine report and local special report, and the abbreviation 'M' in METAR, followed by the minimum value that can be determined by the system.;

— in point (4), the introductory phrase is replaced by the following:

In local routine report and local special report:;

(iv) point (d) is amended as follows:

— point (1) is replaced by the following:

(1) In local routine report and local special report, observed present weather phenomena shall be reported in terms of type and characteristics and qualified with respect to intensity, as appropriate.;

— in point (3), the introductory phrase is replaced by the following:

In local routine report, local special report and METAR, the following characteristics of present weather phenomena, as necessary, shall be reported using their respective abbreviations and relevant criteria, as appropriate:;

— in point (4), the introductory phrase is replaced by the following:

In local routine report, local special report and METAR:;

(v) point (e) is amended as follows:

— point (1) is replaced by the following:

(1) In local routine report, local special report and METAR, the height of cloud base shall be reported in steps of 100 ft (30 m) up to 10 000 ft (3 000 m) and in steps of 1 000 ft (300 m) above 10 000 ft (3 000 m).;

— in point (3), the introductory phrase is replaced by the following:

In local routine report and local special report:;

(vi) point (f) is amended as follows:

— point (1) is replaced by the following:

(1) In local routine report, local special report and METAR, the air temperature and the dew-point temperature shall be reported in steps of whole degrees Celsius.;

— point (3) is replaced by the following:

(3) In local routine report, local special report and METAR, a temperature below 0 °C shall be identified.;

(vii) point (g) is amended as follows:

— point (1) is replaced by the following:

(1) In local routine report, local special report and METAR, the QNH and QFE shall be computed in tenths of hectopascals and reported therein in steps of whole hectopascals, using four digits.;

— in point (3), the introductory phrase is replaced by the following:

In local routine report and local special report:;

(n) point MET.TR.210 is amended as follows:

(i) point (a)(3)(i) is replaced by the following:

(i) 2 minutes for local routine report and local special report and for wind displays in ATS units;;

(ii) point (c)(4)(ii)(A) is replaced by the following:

(A) 1 minute for local routine report and local special report and for RVR displays in ATS units;;

(o) point MET.TR.215 is amended as follows:

(i) point (e)(5) is replaced by the following:

(5) SIGMET, and, when issued, AIRMET and appropriate special air-reports relevant to the whole route;;

(ii) point (g) is replaced by the following:

(g) When forecasts of upper-wind and upper-air temperature listed under point MET.OR.275(a)(1) are supplied in chart form, they shall be fixed-time prognostic charts for flight levels as specified in point MET.TR.275(b)(3). When forecasts of SIGWX phenomena listed under point MET.OR.275(a)(2) are supplied in chart form, they shall be fixed-time prognostic charts for an atmospheric layer limited by flight levels as specified in points MET.TR.275(c) and MET.TR.275(d).;

(p) point MET.TR.220 is amended as follows:

(i) point (c) is replaced by the following:

(c) The period of validity of a routine TAF shall be either 9 or 24 or 30 hours, unless otherwise prescribed by the competent authority taking into account the traffic requirements for aerodromes with hours of operation of less than 9 hours. TAF shall be filed for transmission not earlier than 1 hour before the commencement of their period of validity.;

(ii) point (d) is replaced by the following:

(d) TAF, if disseminated in digital form, shall be:

(1) formatted in accordance with a globally interoperable information exchange model and shall use geography markup language (GML);

(2) accompanied by the appropriate metadata.;

(iii) in point (g), points (1) and (2) are replaced by the following:

(1) a 30 % or 40 % probability of alternative meteorological conditions exists during a specific forecast time period; or

(2) a 30 % or 40 % probability of temporary fluctuations in meteorological conditions exists during a specific forecast time period.;

(q) points MET.TR.250 and MET.TR.255 are replaced by the following:
MET.TR.250 SIGMET

(a) The content and order of elements in a SIGMET shall be in accordance with the template shown in Appendix 5A.

(b) SIGMET shall consist of three types:

(1) SIGMET for en-route weather phenomena other than volcanic ash or tropical cyclones;

(2) SIGMET for volcanic ash;

(3) SIGMET for tropical cyclones.

(c) The sequence number of SIGMET shall consist of three characters comprising one letter and two numbers.

(d) Only one of the phenomena listed in Appendix 5A shall be included in a SIGMET, using the appropriate abbreviations and the following threshold value of surface wind speed of 34 kt (17 m/s) or more for tropical cyclone.

(e) SIGMET concerning thunderstorms or a tropical cyclone shall not include references to associated turbulence and icing.

(f) SIGMET, if disseminated in digital form, shall be:

(1) formatted in accordance with a globally interoperable information exchange model and shall use geography markup language (GML);

(2) accompanied by the appropriate metadata.

MET.TR.255 AIRMET

(a) The content and order of elements in an AIRMET shall be in accordance with the template shown in Appendix 5A.

(b) The sequence number referred to in the template in Appendix 5 shall correspond to the number of AIRMET issued for the flight information region since 00.01 UTC on the day concerned.

(c) Only one of the phenomena in Appendix 5A shall be included in an AIRMET, using the appropriate abbreviations and the following threshold values, when the phenomenon is below flight level 100, or below flight level 150 in mountainous areas, or higher, where necessary:

(1) widespread surface wind speed above 30 kt (15 m/s) with relevant direction and units;

(2) widespread areas affected by reduction of visibility to less than 5 000 m, including the weather phenomenon causing the reduction of visibility;

(3) widespread areas of broken or overcast cloud with height of base less than 1 000 ft (300 m) above ground level.

(d) AIRMET concerning thunderstorms or cumulonimbus clouds shall not include references to associated turbulence and icing.

(e) AIRMET, if disseminated in digital form, shall be:

(1) formatted in accordance with a globally interoperable information exchange model and shall use geography markup language (GML);

(2) accompanied by the appropriate metadata. ;

(r) point MET.TR.260(c) is replaced by the following:

(c) When the competent authority has determined that the density of traffic operating below flight level 100 warrants the issuance of

an AIRMET, the area forecasts shall be issued to cover the layer between the ground and flight level 100, or up to flight level 150 in mountainous areas, or higher, where necessary, and shall contain information on en-route weather phenomena hazardous to low-level flights, in support of the issuance of the AIRMET and the additional information required for low-level flights.;

(s) point MET.TR.265 is replaced by the following:

MET.TR.265 Volcanic ash advisory centre responsibilities

(a) The advisory information on volcanic ash shall be issued in abbreviated plain language and in accordance with the template shown in Appendix 6. When no abbreviations are available, English plain language text, to be kept to a minimum, shall be used.

(b) Volcanic ash advisory, if disseminated in digital form, shall be:

(1) formatted in accordance with a globally interoperable information exchange model and shall use geography markup language (GML);

(2) accompanied by the appropriate metadata.

(c) Volcanic ash advisory information, when prepared in graphical format, shall be issued using the portable network graphics (PNG) format.;

(t) in point MET.TR.270, the following points (c) and (d) are added:

(c) Tropical cyclone advisory, if disseminated in digital form, shall be:

(1) formatted in accordance with a globally interoperable information exchange model and shall use geography markup language (GML);

(2) accompanied by the appropriate metadata.

(d) Tropical cyclone advisory information, when prepared in graphical format, shall be issued using the portable network graphics (PNG) format.;

(u) point MET.TR.275(b)(3) is amended as follows:

(i) points (i), (ii) and (iii) are replaced by the following:

(i) wind data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 210 (450 hPa), 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 410 (175 hPa), 450 (150 hPa), 480 (125 hPa) and 530 (100 hPa);

(ii) temperature data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 210 (450 hPa), 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 410 (175 hPa), 450 (150 hPa) 480 (125 hPa) and 530 (100 hPa);

(iii) humidity data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa) and 180 (500 hPa);;

(ii) point (viii) is replaced by the following:

(viii) geopotential altitude data for flight levels 50 (850 hPa), 80 (750 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 210 (450 hPa), 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 320 (275 hPa), 340 (250 hPa), 360 (225 hPa), 390 (200 hPa), 410 (175 hPa), 450 (150 hPa) 480 (125 hPa) and 530 (100 hPa).;

(v) Appendix 1 is replaced by the following:

Appendix 1

Template for METAR

Key

M	=	inclusion mandatory;
C	=	inclusion conditional, dependent on meteorological conditions or method of observation;
O	=	inclusion optional.

Note 1: The ranges and resolutions for the numerical elements included in METAR are provided in a separate table following this template.

Note 2: The explanations for the abbreviations can be found in ICAO Document 8400 'Procedures for Air Navigation Services – Abbreviations and Codes (PANS-ABC)'.

Element	Detailed content	Template(s)	Examples
Identification of the type of report (M)	Type of report (M)	METAR, METAR COR	METAR METAR COR
Location indicator (M)	ICAO location indicator (M)	nnnn	YUDO
Time of the observation (M)	Day and actual time	nnnnnnZ	221630Z

a To be included if visibility or runway visual range is < 1 500 m; for up to a maximum of four runways.

b 'Heavy' used to indicate 'tornado' or 'waterspout'; 'moderate' (no qualifier) to indicate 'funnel cloud not reaching the ground'

	of the observation in UTC (M)			
Identification of an automated or missing report (C)	Automated or missing report identifier (C)	AUTO or NIL		AUTO NIL
END OF METAR IF THE REPORT IS MISSING.				
Surface wind (M)	Wind direction (M)	nnn	VRB	24004MPS VRB01MPS (24008KT) (VRB02KT) 19006MPS (19012KT) 00000MPS (00000KT) 140P49MPS (140P99KT)
	Wind speed (M)	[P]nn[n]		
	Significant speed variations (C)	G[P]nn[n]		12003G09MPS (12006G18KT) 24008G14MPS (24016G28KT)
	Units of measurement (M)	MPS (or KT)		
	Significant directional variations (C)	nnnVnnn	—	02005MPS 350V070 (02010KT 350V070)
Visibility (M)	Prevailing or minimum visibility (M)	nnnn	CAVOK	0350 CAVOK 7000 9999 0800

a To be included if visibility or runway visual range is < 1 500 m; for up to a maximum of four runways.

b ‘Heavy’ used to indicate ‘tornado’ or ‘waterspout’; ‘moderate’ (no qualifier) to indicate ‘funnel cloud not reaching the ground’

	Minimum visibility and direction of the minimum visibility (C)	nnnn[N] or nnnn[NE] or nnnn[E] or nnnn[SE] or nnnn[S] or nnnn[SW] or nnnn[W] or nnnn[NW]				2000 1200NW 6000 2800E 6000 2800
Runway visual range (C)[a]	Name of the element (M)	R				R32/0400 R12R/1700 R16L/0650 R16C/0500 R16R/0450 R17L/0450
	Runway (M)	nn[L]/or nn[C]/or nn[R]/				
	Runway visual range (M)	[P or M]nnnn				R14L/ P2000 R10/ M0050
	Runway visual range past tendency (C)	U, D or N				R12/1100U R26/0550N R20/0800D R12/0700
Present weather (C)	Intensity or proximity of present weather (C)	– or +	—	VC		
	Characteristics and type of present weather (M)	DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZRA or FZUP or FC[b] or	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or TS or BCFG or BLDU or	FG or PO or FC or DS or SS or TS or SH or BLSN or BLSA or BLDU or VA		RA HZ VCFG +TSRA FG VCSH +DZ VA VCTS –SN MIFG VCBLSA +TSRASN –SNRA

a To be included if visibility or runway visual range is < 1 500 m; for up to a maximum of four runways.

b ‘Heavy’ used to indicate ‘tornado’ or ‘waterspout’; ‘moderate’ (no qualifier) to indicate ‘funnel cloud not reaching the ground’

		SHGR or SHGS or SHRA or SHSN or SHUP or TSGR or TSGS or TSRA or TSSN or TSUP or UP	BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or MIFG or PRFG or//			DZ FG +SHSN BLSN UP FZUP TSUP FZUP //
Cloud (M)	Cloud amount and height of cloud base or vertical visibility (M)	FEWnnn or SCTnnn or BKNnnn or OVCnnn or FEW/// or SCT/// or BKN/// or OVC/// or ///nnn or //////	VVnnn or VV///	NSC or NCD		FEW015 VV005 OVC030 VV/// NSC SCT010 OVC020 BKN/// ///015
	Cloud type (C)	CB or TCU or///	—			BKN009TCU NCD SCT008 BKN025CB BKN025///
Air and dew-point	Air and dew-point	[M]nn/[M]nn				17/10 02/M08

a To be included if visibility or runway visual range is < 1 500 m; for up to a maximum of four runways.

b 'Heavy' used to indicate 'tornado' or 'waterspout'; 'moderate' (no qualifier) to indicate 'funnel cloud not reaching the ground'

temperature (M)	temperature (M)			M01/ M10
Pressure values (M)	Name of the element (M)	Q		Q0995 Q1009 Q1022 Q0987
	QNH (M)	nnnn		
Supplementary information (C)	Recent weather (C)	REFZDZ or REFZRA or REDZ or RE[SH]RA or RERASN or RE[SH]SN or RESG or RESHGR or RESHGS or REBLSN or RESS or REDS or RETSRA or RETSSN or RETSGR or RETSGS or RETS or REFC or REVA or REPL or REUP or REFZUP or RETSUP or RESHUP		REFZRA RETSRA
	Wind shear (C)	WS Rnn[L] or WS Rnn[C] or WS Rnn[R] or WS ALL RWY		WS R03 WS ALL RWY WS R18C
	Sea–surface temperature and state of the sea or significant wave height (C)	W[M]nn/Sn or W[M]nn/Hn[n][n]		W15/ S2 W12/ H75
Trend forecast (O)	Change indicator (M)	NOSIG	BECMG or TEMPO	NOSIG BECMG FEW020 TEMPO 25018G25MPS (TEMPO 25036G50KT) BECMG FM1030 TL1130 CAVOK
	Period of change (C)		FMnnnn and/or TLnnnn or ATnnnn	
	Wind (C)		nnn[P]nn[n][G[P]nn[n]]MPS (or nnn[P]nn[G[P]nn]KT)	

a To be included if visibility or runway visual range is < 1 500 m; for up to a maximum of four runways.

b ‘Heavy’ used to indicate ‘tornado’ or ‘waterspout’; ‘moderate’ (no qualifier) to indicate ‘funnel cloud not reaching the ground’

	Prevailing visibility (C)		nnnn			C A V O K	BECMG TL1700 0800 FG BECMG AT1800 9000 NSW BECMG FM1900 0500 +SNRA BECMG FM1100 SN TEMPO FM1130 BLSN TEMPO FM0330 TL0430 FZRA
	Weather phenomenon: intensity (C)		– or +	—	N S W		TEMPO TL1200 0600 BECMG AT1200 8000 NSW NSC
	Weather phenomenon: characteristics and type (C)		DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZRA or SHGR or SHGS or SHRA or	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or FC or TS or BCFG or BLDU or BLSA or			BECMG AT1130 OVC010 TEMPO TL1530 +SHRA BKN012CB

a To be included if visibility or runway visual range is < 1 500 m; for up to a maximum of four runways.

b ‘Heavy’ used to indicate ‘tornado’ or ‘waterspout’; ‘moderate’ (no qualifier) to indicate ‘funnel cloud not reaching the ground’

			SHSN or TSGR or TSGS or TSRA or TSSN	BLSN or DRDU or DRSA or DRSN or FZFG or MIFG or PRFG			
	Cloud amount and height of cloud base or vertical visibility (C)		FEWnnn or SCTnnn or BKNnnn or OVCnnn	VVnnn or VV///	N S C		
	Cloud type (C)		CB or TCU	—			

a To be included if visibility or runway visual range is < 1 500 m; for up to a maximum of four runways.

b 'Heavy' used to indicate 'tornado' or 'waterspout'; 'moderate' (no qualifier) to indicate 'funnel cloud not reaching the ground'

Ranges and resolutions for the numerical elements included in METAR

Elements		Range	Resolution
Runway: (no units)		01–36	1
Wind direction:	°true	000–360	10
Wind speed:	MPS	00–99	1
	KT	00–199[a]	1
Visibility:	M	0000–0750	50
	M	0800–4 900	100
	M	5 000–9 000	1 000
	M	10 000–	0 (fixed value: 9 999)

a There is no aeronautical requirement to report surface wind speeds of 100 kt (50 m/s) or more; however, provision has been made for reporting wind speeds up to 199 kt (99 m/s) for non-aeronautical purposes, as necessary.;

Runway visual range:	M	0000–0375	25
	M	0400–0750	50
	M	0800–2 000	100
Vertical visibility:	30's M (100's FT)	000–020	1
Clouds: height of cloud base:	30's M (100's FT)	000–099 100-200	1 10
Air temperature; Dew-point temperature:	°C	–80 – +60	1
QNH:	hPa	0850–1 100	1
Sea–surface temperature:	°C	–10 – +40	1
State of the sea: (no units)		0–9	1
Significant wave height:	M	0–999	0,1
State of the runway	Runway designator: (no units)	01–36; 88; 99	1
	Runway deposits: (no units)	0–9	1
	Extent of runway contamination: (no units)	1; 2; 5; 9	—
	Depth of deposit: (no units)	00–90; 92–99	1
	Friction coefficient/ braking action: (no units)	00–95; 99	1

a There is no aeronautical requirement to report surface wind speeds of 100 kt (50 m/s) or more; however, provision has been made for reporting wind speeds up to 199 kt (99 m/s) for non-aeronautical purposes, as necessary.;

(w) Appendices 3 and 4 are replaced by the following:

Appendix 3

Template for TAF

Key:

M = inclusion mandatory;
C = inclusion conditional, dependent on meteorological conditions or method of observation;
O = inclusion optional.

Note 1: the ranges and resolutions for the numerical elements included in TAF are provided in a separate table below this template.

Note 2: the explanations for the abbreviations can be found in ICAO Doc 8400 'Procedures for Air Navigation Services – Abbreviations and Codes (PANS-ABC)'.

Element	Detailed content	Template(s)	Examples
Identification of the type of forecast (M)	Type of forecast (M)	TAF or TAF AMD or TAF COR	TAF TAF AMD TAF COR
Location indicator (M)	ICAO location indicator (M)	nnnn	YUDO
Time of issue of forecast (M)	Day and time of issue of the forecast in UTC (M)	nnnnnnZ	160000Z
Identification of a missing forecast (C)	Missing forecast identifier (C)	NIL	NIL
END OF TAF IF THE FORECAST IS MISSING			
Days and period of validity of forecast (M)	Days and period of validity of the forecast in UTC (M)	nnnn/nnnn	0812/0918

a To be included whenever applicable. No qualifier for moderate intensity.

b Up to four cloud layers.

c Consisting of up to a maximum of four temperatures (two maximum temperatures and two minimum temperatures).

Identification of a cancelled forecast (C)	Cancelled forecast identifier (C)	CNL			CNL
END OF TAF IF THE FORECAST IS CANCELLED					
Surface wind (M)	Wind direction (M)	nnn or VRB			24004MPS; VRB01MPS (24008KT); (VRB02KT) 19005MPS (19010KT)
	Wind speed (M)	[P]nn[n]			00000MPS (00000KT) 140P49MPS (140P99KT)
	Significant speed variations (C)	G[P]nn[n]			12003G09MPS (12006G18KT) 24008G14MPS (24016G28KT)
	Units of measurement (M)	MPS (or KT)			
Visibility (M)	Prevailing visibility (M)	nnnn		C A V O K	0350 CAVOK 7000 9000 9999
Weather (C)	Intensity of weather phenomena (C)[a]	– or +	—		
	Characteristics and type of weather phenomena (C)	DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZRA or SHGR or SHGS or SHRA or SHSN or	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or FC or		RA HZ +TSRA FG –FZDZ PRFG +TSRASN SNRA FG

a To be included whenever applicable. No qualifier for moderate intensity.

b Up to four cloud layers.

c Consisting of up to a maximum of four temperatures (two maximum temperatures and two minimum temperatures).

		TSGR or TSGS or TSRA or TSSN		TS or BCFG or BLDU or BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or MIFG or PRFG		
Cloud (M)[b]	Cloud amount and height of base or vertical visibility (M)	FEWnnn or SCTnnn or BKNnnn or OVCnnn	VVnnn or VV///	NSC		FEW010 VV005 OVC020 VV/// NSC SCT005 BKN012
	Cloud type (C)	CB or TCU	—			SCT008 BKN025CB
Temperature (O)[c]	Name of the element (M)	TX				TX25/1013Z TN09/1005Z TX05/2112Z TNM02/2103Z
	Maximum temperature (M)	[M]nn/				
	Day and time of occurrence of the maximum temperature (M)	nnnnZ				
	Name of the element (M)	TN				

a To be included whenever applicable. No qualifier for moderate intensity.

b Up to four cloud layers.

c Consisting of up to a maximum of four temperatures (two maximum temperatures and two minimum temperatures).

	Minimum temperature (M)	[M]nn/		
	Day and time of occurrence of the minimum temperature (M)	nnnnZ		
Expected significant changes to one or more of the above elements during the period of validity (C)	Change or probability indicator (M)	PROB30 [TEMPO] or PROB40 [TEMPO] or BECMG or TEMPO or FM		
	Period of occurrence or change (M)	nnnn/nnnn or nnnnnn		
	Wind (C)	nnn[P]nn[n][G[P]nn[n]]MPS or VRBnnMPS (or nnn[P]nn[G[P]nn]KT or VRBnnKT)		TEMPO 0815/0818 25017G25MPS (TEMPO 0815/0818 25034G50KT) TEMPO 2212/2214 17006G13MPS 1000 TSRA SCT010CB BKN020 (TEMPO 2212/2214 17012G26KT 1000 TSRA SCT010CB BKN020)
	Prevailing visibility (C)	nnnn	CAVOK	BECMG 3010/3011 00000MPS 2400 OVC010

a To be included whenever applicable. No qualifier for moderate intensity.

b Up to four cloud layers.

c Consisting of up to a maximum of four temperatures (two maximum temperatures and two minimum temperatures).

					(BECMG 3010/3011 00000KT 2400 OVC010) PROB30 1412/1414 0800 FG
Weather phenomenon: intensity (C)	– or +	—	NSW		BECMG 1412/1414 RA TEMPO 2503/2504 FZRA TEMPO 0612/0615 BLSN PROB40 TEMPO 2923/3001 0500 FG
Weather phenomenon: characteristics and type (C)	DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZRA or SHGR or SHGS or SHRA or SHSN or TSGR or TSGS or TSRA or TSSN	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or FC or TS or BCFG or BLDU or BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or MIFG or PRFG			

a To be included whenever applicable. No qualifier for moderate intensity.

b Up to four cloud layers.

c Consisting of up to a maximum of four temperatures (two maximum temperatures and two minimum temperatures).

Cloud amount and height of base or vertical visibility (C)	FEWnnn or SCTnnn or BKNnnn or OVCnnn	VVnnn or VV///	NSC		FM051230 15004MPS 9999 BKN020 (FM051230 15008KT 9999 BKN020) BECMG 1618/1620 8000 NSW NSC
Cloud type (C)	CB or TCU	—			BECMG 2306/2308 SCT015CB BKN020

a To be included whenever applicable. No qualifier for moderate intensity.

b Up to four cloud layers.

c Consisting of up to a maximum of four temperatures (two maximum temperatures and two minimum temperatures).

Ranges and resolutions for the numerical elements included in TAF

Elements		Range	Resolution
Wind direction:	° true	000–360	10
Wind speed:	MPS	00–99[a]	1
	KT	0–199[a]	1
Visibility:	M	0000–0750	50
	M	0800–4 900	100
	M	5 000–9 000	1 000
	M	10 000 –	0 (fixed value: 9 999)
Vertical visibility:	30's M (100's FT)	000–020	1
Cloud: height of cloud base:	30's M (100's FT)	000–099 100–200	1 10
Air temperature (maximum and minimum): °C		–80 – +60	1

a There is no aeronautical requirement to report surface wind speeds of 100 kt (50 m/s) or more; however, provision has been made for reporting wind speeds up to 199 kt (99 m/s) for non-aeronautical purposes, as necessary.

Appendix 4

Template for wind shear warnings

Key:

M = inclusion mandatory;
C = inclusion conditional, whenever applicable.

Note 1: the ranges and resolutions for the numerical elements included in wind shear warnings are shown in Appendix 8.

Note 2: the explanations for the abbreviations can be found in ICAO Doc 8400 'Procedures for Air Navigation Services – Abbreviations and Codes (PANS-ABC)'

Element	Detailed content	Template(s)	Example
Location indicator of the aerodrome (M)	Location indicator of the aerodrome	nnnn	YUCC
Identification of the type of message (M)	Type of message and sequence number	WS WRNG [n]n	WS WRNG 1
Time of origin and validity period (M)	Day and time of issue and, where applicable, validity period in UTC	nnnnnn [VALID TL nnnnnn] or [VALID nnnnnn/ nnnnnn]	211230 VALID TL 211330 221200 VALID 221215/221315
IF THE WIND SHEAR WARNING IS TO BE CANCELLED, SEE DETAILS AT THE END OF THE TEMPLATE			
Phenomenon (M)	Identification of the phenomenon and its location	[MOD] or [SEV] WS IN APCH or [MOD] or [SEV] WS [APCH] RWYnnn or [MOD] or [SEV] WS IN CLIMB-OUT or [MOD] or [SEV] WS CLIMB-OUT RWYnnn or MBST IN APCH or	WS APCH RWY12 MOD WS RWY34 WS IN CLIMB-OUT MBST APCH RWY26 MBST IN CLIMB-OUT

		MBST [APCH] RWYnnn or MBST IN CLIMB-OUT or MBST CLIMB-OUT RWYnnn	
Observed, reported or forecast phenomenon (M)	Identification whether the phenomenon is observed or reported and expected to continue, or forecast	REP AT nnnn nnnnnnnn or OBS [AT nnnn] or FCST	REP AT 1510 B747 OBS AT 1205 FCST
Details of the phenomenon (C)	Description of phenomenon causing the issuance of the wind shear warning	SFC WIND: nnn/nnMPS (or nnn/nnKT) nnnM (nnnFT)-WIND: nnn/nnMPS (or nnn/nnKT) or nnKMH (or nnKT) LOSS nnKM (or nnNM) FNA RWYnn or nnKMH (or nnKT) GAIN nnKM (or nnNM) FNA RWYnn	SFC WIND: 320/5MPS 60M-WIND: 360/13MPS (SFC WIND: 320/10KT 200FT-WIND: 360/26KT) 60KMH LOSS 4KM FNA RWY13 (30KT LOSS 2NM FNA RWY13)
OR			
Cancellation of wind shear warning	Cancellation of wind shear warning referring to its identification	CNL WS WRNG [n]n nnnnnn/nnnnnn	CNL WS WRNG 1 211230/211330;

(x) Appendix 5 is deleted;

(y) the following Appendices 5A and 5B are inserted:

Appendix 5A

Template for SIGMET and AIRMET

Key:

M = inclusion mandatory;
C = inclusion conditional, whenever applicable; and
= = a double line indicates that the text following it shall be placed on the subsequent line.

Note: the ranges and resolutions for the numerical elements included in SIGMET/AIRMET are shown in Appendix 8.

Element	Detailed content	SIGMET template	AIRMET template	SIGMET Examples	AIRMET Examples
Location indicator of FIR/ CTA (M)	ICAO location indicator of the ATS unit serving the FIR or CTA to which the SIGMET/ AIRMET refers	nnnn		YUCC YUDD	
Identification (M)	SIGMET or AIRMET identification and sequence number	SIGMET nnn	AIRMET [n][n]n	SIGMET U05 SIGMET I12	AIRMET 2 AIRMET 19 AIRMET B19
Validity period (M)	Day-time groups indicating the period of validity in UTC	VALID nnnnnn/nnnnnn		VALID 010000/010400 VALID 221215/221600 VALID 101520/101800 VALID 251600/252200	

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

			VALID 152000/160000 VALID 192300/200300
Location indicator of MWO (M)	Location indicator of MWO originating the SIGMET or AIRMET with a separating hyphen	nnnn–	YUDO– YUSO–

Name of the FIR/ CTA (M)	Location indicator and name of the FIR/ CTA for which the SIGMET/ AIRMET is issued	nnnn nnnnnnnnnn FIR[/ UIR] or nnnn nnnnnnnnnn CTA	nnnn nnnnnnnnnn FIR[/n]	YUCC AMSWELL FIR YUDD SHANLON FIR/UIR YUDD SHANLON CTA	YUCC AMSWELL FIR/2 YUDD SHANLON FIR
IF THE SIGMET IS TO BE CANCELLED, SEE DETAILS AT THE END OF THE TEMPLATE					
Phenomenon (M)	Description of the phenomenon causing the issuance of SIGMET/ AIRMET	OBSC TS[GR] EMBD TS[GR] FRQ TS[GR] SQL TS[GR]	SFC WIND nnn/ nn[n]MPS (or SFC WIND nnn/ nn[n]KT)	OBSC TS OBSC TSGR EMBD TS EMBD TSGR FRQ TS	SFC WIND 040/40MPS SFC WIND 310/20KT SFC VIS 1500M (BR) ISOL TS

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

		TC nnnnnnnnnn PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] CB or TC NN PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] CB SEV TURB SEV ICE SEV ICE (FZRA) SEV MTW HVY DS HVY SS [VA ERUPTION] [MT nnnnnnnnnn] [PSN Nnn[nn] or Snn[nn] Ennn[nn] or Wnnn[nn]] VA CLD RDOACT CLD	SFC VIS nnnnM (nn) ISOL TS[GR] OCNL TS[GR] MT OBSC BKN CLD nnn/ [ABV]nnnnM (or BKN CLD nnn/ [ABV] [n]nnnnFT) or BKN CLD SFC/ [ABV]nnnnM (or BKN CLD SFC/ [ABV] [n]nnnnFT) OVC CLD nnn/ [ABV]nnnnM (or OVC CLD nnn/ [ABV] [n]nnnnFT) or OVC CLD SFC/ [ABV]nnnnM (or OVC CLD	FRQ TSGR SQL TS SQL TSGR TC GLORIA PSN N10 W060 CB TC NN PSN S2030 E06030 CB SEV TURB SEV ICE SEV ICE (FZRA) SEV MTW HVY DS HVY SS VA ERUPTION MT ASHVAL PSN S15 E073 VA CLD RDOACT CLD	ISOL TSGR OCNL TS OCNL TSGR MT OBSC BKN CLD 120/900M BKN CLD 400/3000FT BKN CLD SFC/3000M BKN CLD SFC/ ABV10000FT OVC CLD 270/ ABV3000M OVC CLD 900/ ABV10000FT OVC CLD SFC/3000M OVC CLD SFC/ ABV10000FT ISOL CB OCNL CB

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

			SFC/ [ABV] [n]nnnnFT) ISOL CB OCNL CB FRQ CB ISOL TCU OCNL TCU FRQ TCU MOD TURB MOD ICE MOD MTW	FRQ CB ISOL TCU OCNL TCU FRQ TCU MOD TURB MOD ICE MOD MTW
Observed or forecast phenomenon (M)	Indication whether the information is observed and expected to continue, or forecast	OBS [AT nnnnZ] or FCST [AT nnnnZ]		OBS OBS AT 1210Z FCST FCST AT 1815Z
Location (C)	Location (referring to latitude and longitude (in degrees	Nnn[nn] Wnnn[nn] or Nnn[nn] Ennn[nn] or Snn[nn] Wnnn[nn] or Snn[nn] Ennn[nn] or N OF Nnn[nn] or S OF Nnn[nn] or N OF Snn[nn] or S OF Snn[nn] or		N2020 W07005 N48 E010 S60 W160 S0530 E16530 N OF N50 S OF N5430 N OF S10 S OF S4530 W OF W155

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

	and minutes))	[AND] W OF Wnnn[nn] or E OF Wnnn[nn] or W OF Ennn[nn] or E OF Ennn[nn] or N OF Nnn[nn] or N OF Snn[nn] AND S OF Nnn[nn] or S OF Snn[nn] or W OF Wnnn[nn] or W OF Ennn[nn] AND E OF Wnnn[nn] or E OF Ennn[nn] or N OF LINE or NE OF LINE or E OF LINE or SE OF LINE or S OF LINE or SW OF LINE or W OF LINE or NW OF LINE Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [AND N OF LINE or NE OF LINE or E OF LINE or SE OF LINE or S OF LINE or SW OF LINE or W OF LINE or NW OF LINE Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]]] or WI Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]	E OF W45 W OF E15540 E OF E09015 N OF N1515 AND W OF E13530 S OF N45 AND N OF N40 N OF LINE S2520 W11510 – S2520 W12010 SW OF LINE N50 W005 – N60 W020 SW OF LINE N50 W020 – N45 E010 AND NE OF LINE N45 W020 – N40 E010 WI N6030 E02550 – N6055 E02500 – N6050 E02630 – N6030 E02550 APRX 50KM WID LINE BTN N64 W017 – N60 W010 – N57 E010 ENTIRE FIR ENTIRE FIR/UIR ENTIRE CTA WI 400KM OF TC CENTRE WI 250NM OF TC CENTRE

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

		– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – [Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]][d] or APRX nnKM WID LINE BTN (or nnNM WID LINE BTN) Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]][– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] or ENTIRE FIR/UIR or ENTIRE CTA or WI nnnKM (or nnnNM) OF TC CENTRE	
Level (C)	Flight level or altitude	[SFC/]FLnnn or [SFC/]nnnnM (or [SFC/][n]nnnnFT) or FLnnn/nnn or TOP FLnnn or [TOP] ABV FLnnn or [nnnn/]nnnnM (or [[n]nnnn/][n]nnnnFT) or [nnnnM/]FLnnn (or [[n]nnnnFT/]FLnnn) or[a] TOP [ABV or BLW] FLnnn	FL180 SFC/FL070 SFC/3000M SFC/10000FT FL050/080 TOP FL390 ABV FL250 TOP ABV FL100 3000M 2000/3000M 8000FT 6000/12000FT 2000M/FL150 10000FT/FL250 TOP FL500

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

				TOP ABV FL500 TOP BLW FL450	
Movement or expected movement (C)[e]	Movement or expected movement (direction and speed) with reference to one of the 16 points of compass, or stationary	MOV N [nnKMH] or MOV NNE [nnKMH] or MOV NE [nnKMH] or MOV ENE [nnKMH] or MOV E [nnKMH] or MOV ESE [nnKMH] or MOV SE [nnKMH] or MOV SSE [nnKMH] or MOV S [nnKMH] or MOV SSW [nnKMH] or MOV SW [nnKMH] or MOV WSW [nnKMH] or MOV W [nnKMH] or MOV WNW [nnKMH] or MOV NW [nnKMH] or MOV NNW [nnKMH] (or MOV N [nnKT] or MOV NNE [nnKT] or MOV NE [nnKT] or MOV ENE [nnKT] or MOV E [nnKT] or MOV ESE [nnKT] or MOV SE [nnKT] or MOV SSE [nnKT] or MOV S [nnKT] or MOV SSW [nnKT] or MOV SW [nnKT] or MOV WSW [nnKT] or MOV W [nnKT] or MOV WNW [nnKT] or MOV NW [nnKT] or MOV NNW [nnKT]) or STNR		MOV SE MOV NNW MOV E 40KMH MOV E 20KT MOV WSW 20KT STNR	
Changes in intensity (C)	Expected changes in intensity	INTSF or WKN or NC		INTSF WKN NC	
Forecast time (C)[e]	Indication of the forecast time of phenomenon	FCST AT nnnnZ	—	FCST AT 2200Z	—

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

Forecast position (C)[e]	Forecast position of volcanic ash cloud or the centre of the tropical cyclone or other hazardous phenomena at the end of the validity period of the SIGMET	Nnn[nn] Wnnn[nn] or Nnn[nn] Ennn[nn] or Snn[nn] Wnnn[nn] or Snn[nn] Ennn[nn] or N OF Nnn[nn] or S OF Nnn[nn] or N OF Snn[nn] or S OF Snn[nn] [AND] W OF Wnnn[nn] or E OF Wnnn[nn] or W OF Ennn[nn] or E OF Ennn[nn] or N OF Nnn[nn] or N OF Snn[nn] AND S OF Nnn[nn] or S OF Snn[nn] or W OF Wnnn[nn] or W OF Ennn[nn] AND E OF Wnnn[nn] or E OF Ennn[nn] or N OF LINE or NE OF LINE or E OF LINE or SE OF LINE or S OF LINE or SW OF LINE or W OF LINE or NW OF LINE Nnn[nn] or Snn[nn] Wnnn[nn] or	—	N30 W170 N OF N30 S OF S50 AND W OF E170 S OF N46 AND N OF N39 NE OF LINE N35 W020 – N45 W040 SW OF LINE N48 W020 – N43 E010 AND NE OF LINE N43 W020 – N38 E010 WI N20 W090 – N05 W090 – N10 W100 – N20 W100 – N20 W090	—

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

		Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] [AND N OF LINE or NE OF LINE or E OF LINE or SE OF LINE or S OF LINE or SW OF LINE or W OF LINE or NW OF LINE Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]]] or WI Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or		APRX 50KM WID LINE BTN N64 W017 – N57 W005 – N55 E010 – N55 E030 ENTIRE FIR ENTIRE FIR/UIR ENTIRE CTA TC CENTRE PSN N2740 W07345 NO VA EXP	

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

		Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn][d] or APRX nnKM WID LINE BTN (nnNM WID LINE BTN) Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]][– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] or ENTIRE FIR[/UIR] or ENTIRE CTA or TC CENTRE PSN Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn][a] or NO VA EXP[b]			

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.

Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.

Repetition of elements (C)[c]	Repetition of elements included in a SIGMET for volcanic ash cloud or tropical cyclone	[AND]	—	AND	—

OR					
Cancellation of SIGMET/ AIRMET (C)	Cancellation of SIGMET/ AIRMET referring to its identification	CNL SIGMET nnn nnnnnn/nnnnnn or CNL SIGMET nnn nnnnnn/nnnnnn [VA MOV TO nnnn FIR][b]	CNL AIRMET [n][n]n nnnnnn/ nnnnnn	CNL SIGMET B04 101200/101600 CNL SIGMET I07 251030/251430 VA MOV TO YUDO FIR	CNL AIRMET 05 151020/151800

a	Only for SIGMET for tropical cyclones.
b	Only for SIGMET for volcanic ash.
c	To be used for two volcanic ash clouds or two centres of tropical cyclones simultaneously affecting the FIR concerned.
d	The number of coordinates shall be kept to a minimum and shall not normally exceed seven.
e	The elements ‘forecast time’ and ‘forecast position’ are not to be used in conjunction with the element ‘movement or expected movement’.
Note: severe or moderate icing and severe or moderate turbulence (SEV ICE, MOD ICE, SEV TURB, MOD TURB) associated with thunderstorms, cumulonimbus clouds or tropical cyclones shall not be included.	

Appendix
5B

Template for special air-reports (uplink)

Key:

M = inclusion mandatory, part of every special air-report (uplink);
C = inclusion conditional, whenever applicable;

= = a double line indicates that the text following it shall be placed on the subsequent line.

Note: the ranges and resolutions for the numerical elements included in special air-reports are shown in Appendix 8.

Element	**Detailed content**	**Template**	**Examples**
Identification (M)	Special air-report (uplink) identification	ARS	ARS
Aircraft Identification (M)	Aircraft radiotelephony call sign	nnnnnn	VA812
Observed phenomenon (M)	Description of observed phenomenon causing the issuance of the special air-report	TS TSGR SEV TURB SEV ICE SEV MTW HVY SS VA CLD VA [MT nnnnnnnnnn] MOD TURB MOD ICE	TSGR SEV TURB SEV ICE SEV MTW HVY SS VA CLD VA VA MT ASHVAL5 MOD TURB MOD ICE
Observation time (M)	Time of observation of observed phenomenon	OBS AT nnnnZ	OBS AT 1210Z
Location (C)	Location (referring to latitude and longitude (in degrees and minutes)) of observed phenomenon	NnnnnWnnnnn or NnnnnEnnnnn or SnnnnWnnnnn or SnnnnEnnnnn	N2020W07005 S4812E01036
Level (C)	Flight level or altitude of observed phenomenon	FLnnn or FLnnn/nnn or nnnnM (or [n]nnnnFT)	FL390 FL180/210 3000M 12000FT;

(z) Appendices 6, 7 and 8 are replaced by the following:

Appendix 6

Template for advisory for volcanic ash

Key:

M	=	inclusion mandatory;
O	=	inclusion optional;
=	=	a double line indicates that the text following it shall be placed on the subsequent line.

Note 1: the ranges and resolutions for the numerical elements included in volcanic ash advisory are shown in Appendix 8.

Note 2: the explanations for the abbreviations can be found in ICAO Doc 8400 'Procedures for Air Navigation Services —Abbreviations and Codes (PANS-ABC)'.

Note 3: inclusion of a 'colon' after each element heading is mandatory.

Note 4: numbers 1 to 18 are included only for clarity and they are not part of the advisory, as shown in the example.

Element		Detailed content	Template(s)		Examples	
1	Identification of the type of message (M)	Type of message	VA ADVISORY		VA ADVISORY	
2	Time of origin (M)	Year, month, day, time in UTC	DTG:	nnnnnnnn/nnnnZ	DTG:	20080923/0130Z
3	Name of VAAC (M)	Name of VAAC	VAAC:	nnnnnnnnnnnn	VAAC:	TOKYO
4	Name of volcano (M)	Name and International Association of Volcanology	VOLCANO:	nnnnnnnnnnnn [nnnnnn] or UNKNOWN or UNNAMED	VOLCANO:	KARYMSKY 1000-13 or UNNAMED

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

		and Chemistry of the Earth's Interio (IAVCEI) number of volcano				
5	Location of volcano (M)	Location of volcano in degrees and minutes	PSN:	Nnnnn or Snnnn Wnnnnn or Ennnnn or UNKNOWN	PSN: PSN:	N5403 E15927 UNKNOWN
6	State or region (M)	State, or region if ash is not reported over a State	AREA:	nnnnnnnnnnnnnn	AREA:	RUSSIA
7	Summit elevation (M)	Summit elevation in m (or ft)	SUMMIT ELEV:	nnnnM (or nnnnnFT)	SUMMIT ELEV:	1536M
8	Advisory number (M)	Advisory number: year in full and message number (separate sequence for each volcano)	ADVISORY NR:	YYYY/ nnnn	ADVISORY NR:	2008/4
9	Information source (M)	Information source	INFO SOURCE:	Free text up to 32 characters	INFO SOURCE:	MTSAT-1R KVERT KEMSD

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

		using free text				
10	Colour code (O)	Aviation colour code	AVIATION COLOUR CODE:	RED or ORANGE or YELLOW or GREEN or UNKNOWN or NOT GIVEN or NIL	AVIATION COLOUR CODE:	RED
11	Eruption details (M)	Eruption details (including date/ time of eruption(s))	ERUPTION DETAILS:	free text up to 64 characters or UNKNOWN	ERUPTION DETAILS:	ERUPTION AT 20080923/0000Z FL300 REPORTED
12	Time of observation (or estimation) of volcanic ash clouds (M)	Day and time (in UTC) of observation (or estimation) of volcanic ash clouds	OBS (or EST) VA DTG:	nn/ nnnnZ	OBS VA DTG:	23/0100Z
13	Observed or estimated volcanic ash clouds (M)	Horizontal (in degrees and minutes) and vertical extent at the time of observation of the observed	OBS VA CLD or EST VA CLD:	TOP FLnnn or SFC/ FLnnn or FLnnn/ nnn [nnKM WID LINE BTN (nnNM WID	OBS VA CLD:	FL250/300 N5400 E15930 – N5400 E16100 – N5300 E15945 MOV SE 20KT

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

		or estimated volcanic ash clouds or, if the base is unknown, the top of the observed or estimated volcanic ash clouds; Movement of the observed or estimated volcanic ash clouds		LINE BTN)] Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] MOV N nnKMH (or KT) or MOV NE nnKMH (or KT) or MOV E nnKMH (or KT) or		SFC/ FL200 N5130 E16130 – N5130 E16230 – N5230 E16230 – N5230 E16130 MOV SE 15KT TOP FL240 MOV W 40KMH VA NOT IDENTIFIABLE FM SATELLITE DATA WIND FL050/070 180/12MPS

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

				MOV SE nnKMH (or KT) or MOV S nnKMH (or KT) or MOV SW nnKMH (or KT) or MOV W nnKMH (or KT) or MOV NW nnKMH (or KT) or VA NOT IDENTIFIABLE FM SATELLITE DATA WIND FLnnn/ nnn nnn/ nn[n]MPS (or KT)[b] or WIND FLnnn/ nnn VRBnnMPS (or KT) or WIND SFC/ FLnnn nnn/ nn[n]MPS (or KT) or		

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

				WIND SFC/ FLnnn VRBnnMPS (or KT)		
14	Forecast height and position of the volcanic ash clouds (+ 6 HR) (M)	Day and time (in UTC) (6 hours from the 'Time of observation (or estimation) of volcanic ash clouds' given in Item 12); Forecast height and position (in degrees and minutes) for each volcanic ash cloud mass for that fixed valid time	FCST VA CLD +6 HR:	nn/ nnnnZ SFC or FLnnn/ [FL]nnn [nnKM WID LINE BTN (nnNM WID LINE BTN)] Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] [– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]– Nnn[nn] or Snn[nn]	FCST VA CLD +6 HR:	23/0700Z FL250/350 N5130 E16030 – N5130 E16230 – N5330 E16230 – N5330 E16030 SFC/ FL180 N4830 E16330 – N4830 E16630 – N5130 E16630 – N5130 E16330 NO VA EXP NOT AVBL NOT PROVIDED

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

				Wnnn[nn] or Ennn[nn]][a] or NO VA EXP or NOT AVBL or NOT PROVIDED		
15	Forecast height and position of the volcanic ash clouds (+ 12 HR) (M)	Day and time (in UTC) (12 hours from the 'Time of observation (or estimation) of volcanic ash clouds' given in Item 12); Forecast height and position (in degrees and minutes) for each volcanic ash cloud mass for that fixed valid time	FCST VA CLD +12 HR:	nn/ nnnnZ SFC or FLnnn/ [FL]nnn [nnKM WID LINE BTN (nnNM WID LINE BTN)] Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]– Nnn[nn] or Snn[nn] Wnnn[nn] or	FCST VA CLD +12 HR:	23/1300Z SFC/ FL270 N4830 E16130 – N4830 E16600 – N5300 E16600 – N5300 E16130 NO VA EXP NOT AVBL NOT PROVIDED

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

				Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] or NO VA EXP or NOT AVBL or NOT PROVIDED		
16	Forecast height and position of the volcanic ash clouds (+ 18 HR) (M)	Day and time (in UTC) (18 hours from the 'Time of observation (or estimation) of volcanic ash clouds' given in Item 12); Forecast height and position (in degrees and minutes) for each volcanic ash cloud mass for that fixed	FCST VA CLD +18 HR:	nn/ nnnnZ SFC or FLnnn/ [FL]nnn [nnKM WID LINE BTN (nnNM WID LINE BTN)] Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn]	FCST VA CLD +18 HR:	23/1900Z NO VA EXP NOT AVBL NOT PROVIDED

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

		valid time		Wnnn[nn] or Ennn[nn] – Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]– Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]] or NO VA EXP or NOT AVBL or NOT PROVIDED		
17	Remarks (M)	Remarks, as necessary	RMK:	Free text up to 256 characters or NIL	RMK:	LATEST REP FM KVERT (0120Z) INDICATES ERUPTION HAS CEASED. TWO DISPERSING VA CLD ARE EVIDENT ON SATELLITE IMAGERY NIL
18	Next advisory (M)	Year, month, day and	NXT ADVISORY:	nnnnnnnn/nnnnZ or	NXT ADVISORY:	20080923/0730Z NO LATER THAN

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

		time in UTC		NO LATER THAN nnnnnnnn/ nnnnZ or NO FURTHER ADVISORIES or WILL BE ISSUED BY nnnnnnnn/ nnnnZ		nnnnnnnn/ nnnnZ NO FURTHER ADVISORIES WILL BE ISSUED BY nnnnnnnn/ nnnnZ

a	Up to 4 selected layers.
b	If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

Appendix 7

Template for advisory for tropical cyclones

Key:

= = a double line indicates that the text following it shall be placed on the subsequent line.

Note 1: the ranges and resolutions for the numerical elements included in tropical cyclone advisory are shown in Appendix 8.

Note 2: the explanations for the abbreviations can be found in ICAO Doc 8400 ‘Procedures for Air Navigation Services – Abbreviations and Codes (PANS-ABC).

Note 3: all the elements are mandatory.

Note 4: inclusion of a ‘colon’ after each element heading is mandatory.

Note 5: numbers 1 to 19 are included only for clarity and they are not part of the advisory, as shown in the example.

Element		**Detailed content**	**Template(s)**		**Examples**	
1	Identification of the type of message	Type of message	TC ADVISORY		TC ADVISORY	

2	Time of origin	Year, month, day and time in UTC of issue	DTG:	nnnnnnnn/nnnnZ	DTG:	20040925/1600Z
3	Name of TCAC	Name of TCAC (location indicator or full name)	TCAC:	nnnn or nnnnnnnnnn	TCAC:	YUFO MIAMI
4	Name of tropical cyclone	Name of tropical cyclone or ‘NN’ for unnamed tropical cyclone	TC:	nnnnnnnnnn or NN	TC:	GLORIA
5	Advisory number	Advisory number (starting with ‘01’ for each tropical cyclone)	NR:	nn	NR:	01
6	Position of the centre	Position of the centre of the tropical cyclone (in degrees and minutes)	PSN:	Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]	PSN:	N2706 W07306
7	Direction and speed of movement	Direction and speed of movement given	MOV:	N nnKMH (or KT) or	MOV:	NW 20KMH

	in 16 compass points and km/h (or kt), respectively, or moving slowly (< 6 km/h (3 kt)) or stationary (< 2 km/h (1 kt))		NNE nnKMH (or KT) or NE nnKMH (or KT) or ENE nnKMH (or KT) or E nnKMH (or KT) or ESE nnKMH (or KT) or SE nnKMH (or KT) or SSE nnKMH (or KT) or S nnKMH (or KT) or SSW nnKMH (or KT) or SW nnKMH (or KT) or WSW nnKMH (or KT) or W nnKMH (or KT) or WNW nnKMH (or KT) or		

				NW nnKMH (or KT) or NNW nnKMH (or KT) or SLW or STNR		
8	Central pressure	Central pressure (in hPa)	C:	nnnHPA	C:	965HPA
9	Maximum surface wind	Maximum surface wind near the centre (mean surface wind over 10 minutes, in m/s (or kt))	MAX WIND:	nn[n]MPS (or nn[n]KT)	MAX WIND:	22MPS
10	Forecast of centre position (+ 6 HR)	Day and time (in UTC) (6 hours from the DTG given in Item 2); forecast position (in degrees and minutes) of the centre of the tropical cyclone	FCST PSN +6 HR:	nn/ nnnnZ Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]	FCST PSN +6 HR:	25/2200Z N2748 W07350

11	Forecast of maximum surface wind (+ 6 HR)	Forecast of maximum surface wind (6 hours after the DTG given in Item 2)	FCST MAX WIND +6 HR:	nn[n]MPS (or nn[n]KT)	FCST MAX WIND +6 HR:	22MPS
12	Forecast of centre position (+ 12 HR)	Day and time (in UTC) (12 hours from the DTG given in Item 2); forecast position (in degrees and minutes) of the centre of the tropical cyclone	FCST PSN +12 HR:	nn/ nnnnZ Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]	FCST PSN +12 HR:	26/0400Z N2830 W07430
13	Forecast of maximum surface wind (+ 12 HR)	Forecast of maximum surface wind (12 hours after the DTG given in Item 2)	FCST MAX WIND +12 HR:	nn[n]MPS (or nn[n]KT)	FCST MAX WIND +12 HR:	22MPS
14	Forecast of centre position (+ 18 HR)	Day and time (in UTC) (18 hours from the	FCST PSN +18 HR:	nn/ nnnnZ Nnn[nn] or Snn[nn] Wnnn[nn]	FCST PSN +18 HR:	26/1000Z N2852 W07500

		DTG given in Item 2); forecast position (in degrees and minutes) of the centre of the tropical cyclone		or Ennn[nn]		
15	Forecast of maximum surface wind (+ 18 HR)	Forecast of maximum surface wind (18 hours after the DTG given in Item 2)	FCST MAX WIND +18 HR:	nn[n]MPS (or nn[n]KT)	FCST MAX WIND +18 HR:	21MPS
16	Forecast of centre position (+ 24 HR)	Day and time (in UTC) (24 hours a day and seven days a week from the DTG given in Item 2); forecast position (in degrees and minutes) of the centre of the tropical cyclone	FCST PSN +24 HR:	nn/ nnnnZ Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]	FCST PSN +24 HR:	26/1600Z N2912 W07530

17	Forecast of maximum surface wind (+ 24 HR)	Forecast of maximum surface wind (24 hours a day and seven days a week after the DTG given in Item 2)	FCST MAX WIND +24 HR:	nn[n]MPS (or nn[n]KT)	FCST MAX WIND +24 HR:	20MPS

18	Remarks	Remarks, as necessary	RMK:	Free text up to 256 characters or NIL	RMK:	NIL

19	Expected time of issuance of next advisory	Expected year, month, day and time (in UTC) of issuance of next advisory	NXT MSG:	[BFR] nnnnnnnn/nnnnZ or NO MSG EXP	NXT MSG:	20040925/2000Z

Appendix 8

Ranges and resolutions for the numerical elements included in volcanic ash advisory, tropical cyclone advisory, SIGMET, AIRMET, aerodrome warning and wind shear warning

Elements		Range	Resolution
Summit elevation:	M	000–8 100	1
	FT	000–27 000	1

a Non-dimensional.;

Advisory number:	for VA (index)[a]	000–2 000	1
	for TC (index)[a]	00–99	1
Maximum surface wind:	MPS	00–99	1
	KT	00–199	1
Central pressure:	hPa	850–1 050	1
Surface wind speed:	MPS	15–49	1
	KT	30–99	1
Surface visibility:	M	0000–0750	50
	M	0800–5 000	100
Cloud: height of base:	M	000–300	30
	FT	000–1 000	100
Cloud: height of top:	M	000–2 970	30
	M	3 000–20 000	300
	FT	000–9 900	100
	FT	10 000–60 000	1 000
Latitudes:	° (degrees)	00–90	1
	(minutes)	00–60	1
Longitudes:	° (degrees)	000–180	1
	(minutes)	00–60	1
Flight levels:		000–650	10
Movement:	KMH	0–300	10
	KT	0–150	5

a Non-dimensional.;

(6) Annex VI is replaced by the following:

ANNEX VI

SPECIFIC REQUIREMENTS FOR THE PROVIDERS OF AERONAUTICAL INFORMATION SERVICES

(Part-AIS)

SUBPART A – ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF AERONAUTICAL INFORMATION SERVICES (AIS.OR)

SECTION 1 – GENERAL REQUIREMENTS

AIS.OR.100 Aeronautical information management

An aeronautical information services (AIS) provider shall establish information management resources and processes that are adequate to ensure the timely collection, processing, storing, integration, exchange and delivery of quality-assured aeronautical data and aeronautical information within the ATM system.

AIS.OR.105 Responsibilities of aeronautical information services (AIS) providers

An AIS provider shall ensure the provision of aeronautical data and aeronautical information necessary for the safety, regularity and efficiency of air navigation.

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

An AIS provider shall ensure that aeronautical data and aeronautical information are available for:

(1) personnel involved in flight operations, including flight crews, flight planning, and flight simulators;

(2) ATS providers responsible for flight information service, and

(3) the services responsible for pre-flight information.

An AIS provider shall provide 24-hour services for NOTAM origination and issuance in its area of responsibility and for pre-flight information needed in relation to route stages originating at the aerodrome/heliport in its area of responsibility.

An AIS provider shall make available to other AIS providers aeronautical data and aeronautical information required by them.

An AIS provider shall ensure that procedures are in place to assess and mitigate safety risks to aviation arising from data and information errors.

An AIS provider shall clearly indicate that aeronautical data and aeronautical information provided for and on behalf of a Member State are provided under the authority of that Member State, irrespective of the format in which it is provided.

SECTION 2 – DATA QUALITY MANAGEMENT

AIS.OR.200 General

An AIS provider shall ensure that:

(a) aeronautical data and aeronautical information are provided in accordance with the specifications laid down in the aeronautical data catalogue, specified in Appendix 1 to Annex III (Part-ATM/ANS.OR);

(b) data quality is maintained; and

(c) automation is applied to enable the processing and exchange of digital aeronautical data.

AIS.OR.205 Formal arrangements

An AIS provider shall ensure that formal arrangements are established with:

(a) all parties transmitting data to them; and

(b) other AIS providers, when exchanging aeronautical data and aeronautical information with them.

AIS.OR.210 Exchange of aeronautical data and aeronautical information

An AIS provider shall ensure that:

(a) the format of aeronautical data is based on an aeronautical information exchange model designed to be globally interoperable; and

(b) aeronautical data is exchanged through electronic means.

AIS.OR.215 Tools and software

An AIS provider shall ensure that tools and software used to support or automate aeronautical data and aeronautical information processes perform their functions without adversely impacting on the quality of aeronautical data and aeronautical information.

AIS.OR.220 Validation and verification

An AIS provider shall ensure that verification and validation techniques are employed so that the aeronautical data meets the associated data quality requirements (DQRs) specified in point AIS.TR.200.

AIS.OR.225 Metadata

An AIS provider shall collect and preserve metadata.

AIS.OR.230 Data error detection and authentication

An AIS provider shall ensure that:

(a) digital data error detection techniques are used during the transmission and/or storage of aeronautical data in order to support the applicable data integrity levels specified in point AIS.TR.200(c); and

(b) the transfer of aeronautical data is subject to a suitable authentication process such that recipients are able to confirm that the data or information has been transmitted by an authorised source.

AIS.OR.235 Error reporting, error measurement, and corrective actions

An AIS provider shall ensure that error reporting, error measurement and corrective action mechanisms are established and maintained.

AIS.OR.240 Data limitations

An AIS provider shall identify, in the aeronautical information products, except for NOTAM, the aeronautical data and aeronautical information that do not meet the DQRs.

AIS.OR.250 Consistency requirement

Where aeronautical data or aeronautical information is duplicated in the AIP of more than one Member State, the AIS providers responsible for those AIPs shall establish mechanisms to ensure consistency between the duplicated information.

SECTION 3 – AERONAUTICAL INFORMATION PRODUCTS

AIS.OR.300 General – Aeronautical information products

When providing aeronautical data and aeronautical information in multiple formats, an AIS provider shall ensure that processes are implemented for data and information consistency between those formats.

Chapter 1 – Aeronautical information in a standardised presentation

AIS.OR.305 Aeronautical information publication (AIP)

An AIS provider shall issue an AIP.

AIS.OR.310 AIP amendments

An AIS provider shall:

(a) issue permanent changes to the AIP as AIP amendments; and

(b) ensure that the AIP is amended or reissued at such regular intervals as necessary to ensure that the information is complete and up to date.

AIS.OR.315 AIP supplements

An AIS provider shall:

(a) issue, as AIP supplements, temporary changes of long duration – three months or longer – and information of short duration which contains extensive text and/or graphics;

(b) regularly provide a checklist of the valid AIP supplements; and

(c) publish a new AIP supplement as a replacement when an error occurs in an AIP supplement or when the period of validity of an AIP supplement is changed.

AIS.OR.320 Aeronautical information circular (AIC)

An AIS provider shall issue as an AIC any of the following:

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

(b) information of a purely explanatory or advisory nature which affects flight safety;

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

An AIS provider shall review at least once a year the validity of an AIC in force.

AIS.OR.325 Aeronautical charts

An AIS provider shall ensure that the following aeronautical charts, where made available:

(a) form part of the AIP or are provided separately to recipients of the AIP:

(1) aerodrome obstacle chart – Type A;

(2) aerodrome/heliport chart;

(3) aerodrome ground movement chart;

(4) aircraft parking/docking chart;

(5) precision approach terrain chart;

(6) ATC surveillance minimum altitude chart;

(7) area chart;

(8) standard arrival chart – instrument (STAR);

(9) standard departure chart – instrument (SID);

(10) instrument approach chart;

(11) visual approach chart; and

(12) en-route chart; and

(b) are provided as part of the aeronautical information products:

(1) aerodrome obstacle chart – Type B;

(2) world aeronautical chart 1:1 000 000;

(3) world aeronautical chart 1:500 000;

(4) aeronautical-navigation chart – small scale; and

(5) plotting chart.

AIS.OR.330 NOTAM

An AIS provider shall:

(a) promptly issue a NOTAM 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; and

(b) issue, as a NOTAM, information on the establishment, condition, or change of any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel involved with flight operations;

Compliance with point AIS.OR.200 shall not inhibit the urgent distribution of aeronautical information necessary to ensure the safety of flight.

Chapter 2 – Digital data sets

AIS.OR.335 General – Digital data sets

If available, an AIS provider shall ensure that digital data is in the form of the following data sets:

(1) AIP data set;

(2) terrain data set;

(3) obstacle data sets;

(4) aerodrome mapping data sets; and

(5) instrument flight procedure data sets.

When made available, terrain data shall be provided in the form of terrain data sets.

A checklist of valid data sets shall be regularly provided.

AIS.OR.340 Metadata requirements

Each data set shall include a minimum set of metadata to be provided to the next user.

AIS.OR.345 AIP data set

An AIS provider shall ensure that the AIP data set, if available, contains the digital representation of aeronautical information of lasting character, including permanent information and long-duration temporary changes.

AIS.OR.350 Terrain and obstacle data – General requirements

An AIS provider shall ensure that terrain and obstacle data, if available, are provided in accordance with point AIS.TR.350.

AIS.OR.355 Terrain data sets

An AIS provider shall ensure that terrain data, if available, is provided:

(a) for Area 1, as laid down in point AIS.TR.350; and

(b) for aerodromes to cover:

(1) Area 2a or parts thereof, as laid down in point AIS.TR.350(b)(1);

(2) Areas 2b, 2c and 2d or parts thereof, as laid down in points AIS.TR.350(b)(2), (3) and (4), for terrain:

(i) within 10 km from the aerodrome reference point (ARP); and

(ii) beyond 10 km from the ARP if the terrain penetrates the horizontal plane 120 m above the lowest runway elevation;

(3) the take-off flight path area or parts thereof;

(4) an area, or parts thereof, bounded by the lateral extent of the aerodrome obstacle limitation surfaces;

(5) Area 3 or parts thereof, as laid down in point AIS.TR.350(c), for terrain that extends 0.5 m above the horizontal plane, passing through the nearest point on the aerodrome movement area; and

(6) Area 4 or parts thereof, as laid down in point AIS.TR.350(d), 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.

AIS.OR.360 Obstacle data sets

An AIS provider shall ensure that obstacle data, if available, is provided:

(a) for obstacles in Area 1 whose height is 100 m or higher above ground;

(b) for aerodromes, for all obstacles within Area 2 that are assessed as being a hazard to air navigation; and

(c) for aerodromes, to cover:

(1) Area 2a or parts thereof, for those obstacles that penetrate the relevant obstacle data collection surface;

(2) objects in the take-off flight path area or parts thereof, which project above a plane surface having a 1,2 % slope and having a common origin with the take-off flight path area;

(3) penetrations of the aerodrome obstacle limitation surfaces or parts thereof;

(4) Areas 2b, 2c and 2d, for obstacles that penetrate the relevant obstacle data collection surfaces;

(5) Area 3 or parts thereof, for obstacles that penetrate the relevant obstacle data collection surface; and

(6) Area 4 or parts thereof, for all runways where precision approach Category II or III operations have been established.

AIS.OR.365 Aerodrome mapping data sets

An AIS provider shall ensure that aerodrome mapping data sets, if available, are provided in accordance with point AIS.TR.365.

AIS.OR.370 Instrument flight procedure data sets

An AIS provider shall ensure that instrument flight procedure data sets, if available, are provided in accordance with point AIS.TR.370.

SECTION 4 – DISTRIBUTION AND PRE-FLIGHT INFORMATION SERVICES

AIS.OR.400 Distribution services

An AIS provider shall:

(a) distribute available aeronautical information products to those users who request them;

(b) make available the AIP, AIP amendments, AIP supplements, NOTAM and AIC by the most expeditious means;

(c) ensure that NOTAM are distributed through the aeronautical fixed service (AFS), whenever practicable;

(d) ensure that international exchange of NOTAM takes place only as mutually agreed between the international NOTAM offices and multinational NOTAM processing units concerned; and

(e) arrange, as necessary, the issuance and receipt of NOTAM distributed by telecommunication to satisfy operational requirements.

AIS.OR.405 Pre-flight information services

An AIS provider shall ensure that:

(a) for any aerodrome/heliport, aeronautical information relative to the route stages originating at the aerodrome/heliport is made available to flight operations personnel, including flight crew and services responsible for pre-flight information; and

(b) aeronautical information provided for pre-flight planning purposes includes information of operational significance from the elements of the aeronautical information products.

SECTION 5 – AERONAUTICAL INFORMATION PRODUCTS UPDATES

AIS.OR.500 General – Aeronautical information products updates

An AIS provider shall ensure that aeronautical data and aeronautical information are amended or reissued to keep them up to date.

AIS.OR.505 Aeronautical information regulation and control (AIRAC)

An AIS provider shall ensure that information concerning the circumstances listed in point AIS.TR.505(a) is distributed under the AIRAC system.

An AIS provider shall ensure that:

(1) the information notified under the AIRAC system is not changed further for at least another 28 days after the AIRAC effective date unless the circumstance notified is of a temporary nature and would not persist for the full period;

(2) the information provided under the AIRAC system is distributed/made available so as to reach recipients at least 28 days in advance of the AIRAC effective date; and

(3) implementation dates other than the AIRAC effective dates are not used for pre-planned operationally significant changes requiring cartographic work and/or for updating of navigation databases.

AIS.OR.510 NOTAM

An AIS provider shall:

(a) ensure that NOTAM are provided in accordance with point AIS.TR.510; and

(b) provide a ‘trigger NOTAM’, as laid down in point AIS.TR.510(f), when an AIP amendment or an AIP supplement is published in accordance with AIRAC procedures.

AIS.OR.515 Data set updates

An AIS provider shall:

(a) amend or reissue data sets at such regular intervals as may be necessary to keep them up to date; and

(b) issue permanent changes and temporary changes of long duration – three months or longer – made available as digital data in the form of a complete data set and/or a subset that includes only the differences from the previously issued complete data set.

SECTION 6 – PERSONNEL REQUIREMENTS

AIS.OR.600 General requirements

In addition to point ATM/ANS.OR.B.005(a)(6) of Annex III, the AIS provider shall ensure that personnel responsible for the provision of aeronautical data and aeronautical information is:

(a) made aware of and applies the following:

(1) the requirements on aeronautical information products and services, as specified in Sections 2 to 5;

(2) the update cycles applicable to the issuing of AIP amendments and AIP supplements for the areas for which they provide aeronautical data or aeronautical information;

(b) adequately trained, competent and authorised for the job they are required to do.

SUBPART B – ADDITIONAL TECHNICAL REQUIREMENTS FOR PROVIDERS OF AERONAUTICAL INFORMATION SERVICES (AIS.TR)

SECTION 2 – DATA QUALITY MANAGEMENT

AIS.TR.200 General

(a) The accuracy of aeronautical data shall be as specified in the aeronautical data catalogue ('data catalogue'), specified in Appendix 1 to Annex III (Part-ATM/ANS.OR).

(b) The resolution of aeronautical data shall be commensurate with the actual data accuracy.

(c) The integrity of aeronautical data shall be maintained. Based on the integrity classification specified in the data catalogue, procedures shall be put in place so that:

(1) for routine data, corruption is avoided throughout the processing of the data;

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

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

(d) The traceability of aeronautical data shall be ensured.

(e) The timeliness of the aeronautical data shall be ensured, including any limits on the effective period of the data.

(f) The completeness of the aeronautical data shall be ensured.

(g) 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.

AIS.TR.210 Exchange of aeronautical data and aeronautical information

Except for terrain data, the exchange format of aeronautical data shall:

(a) enable the exchange of data for both individual features and feature collections;

(b) enable the exchange of baseline information as a result of permanent changes;

(c) be structured in accordance with the subjects and properties of the aeronautical data catalogue, and be documented through a mapping between the exchange format and the aeronautical data catalogue.

AIS.TR.220 Verification

(a) The verification shall ensure that:

(1) the aeronautical data was received without corruption;

(2) the aeronautical data process does not introduce corruption.

(b) Aeronautical data and aeronautical information entered manually shall be subject to independent verification to identify any errors that may have been introduced.

AIS.TR.225 Metadata

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

(a) the identification of the organisations or entities performing any action of originating, transmitting or manipulating the aeronautical data;

(b) the action performed;

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

AIS.TR.235 Error reporting, error measurement and corrective actions

The error reporting, error measurement and corrective mechanisms shall ensure that:

(a) problems identified during origination, production, storage, handling and processing, or those reported by users after publication, are recorded;

(b) all problems reported in relation to the aeronautical data and aeronautical information are analysed by the AIS provider and the necessary corrective actions are performed;

(c) priority is given to resolution of all errors, inconsistencies and anomalies detected in critical and essential aeronautical data;

(d) affected users are warned of errors by the most effective means, taking into account the integrity level of the aeronautical data and aeronautical information;

(e) error feedback is facilitated and encouraged.

AIS.TR.240 Data limitations

The identification of data not meeting the DQRs shall be made with an annotation or by explicitly providing the quality value.

SECTION 3 – AERONAUTICAL INFORMATION PRODUCTS

AIS.TR.300 General – Aeronautical information products

(a) Aeronautical information products intended for distribution shall include English text for those parts expressed in plain language, except those products intended to be distributed solely within a Member State.

(b) Place names shall be spelt in conformity with local usage and transliterated, when necessary, into the International Organization for Standardization (ISO) basic Latin alphabet.

(c) International Civil Aviation Organization (ICAO) abbreviations shall be used in the aeronautical information products whenever they are appropriate.

Chapter 1 – Aeronautical information in a standardised presentation

AIS.TR.305 Aeronautical information publication (AIP)

(a) The AIP, AIP amendments and AIP supplements shall be provided as an 'electronic AIP' (eAIP).The eAIP shall allow for displaying on computer screen and printing on paper. In addition, the AIP, AIP amendments and AIP supplements may also be provided on paper.

(b) The AIP shall include:

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

(2) the general conditions under which the services or facilities are available for use;

(3) a list of significant differences between the regulations and practices of the Member State and the related ICAO Standards and Recommended Practices (SAPRs) and Procedures;

(4) the choice made by a Member State in each significant case where an alternative course of action is provided for in the ICAO SARPs and procedures.

(c) The AIP shall contain information related to, and arranged under, the subject headings listed in Appendix 1.

(d) The issuing Member State and AIS provider shall be clearly indicated.

(e) When two or more Member States jointly provide an AIP, they shall be clearly indicated.

(f) Each AIP shall be self-contained and include a table of contents.

(g) An AIP shall be organised in three parts (GEN, ENR and AD), sections and subsections, except when the AIP, or a volume of the AIP, is designed to facilitate operational use in- flight, in which case the precise format and arrangement may be left to the discretion of the Member State provided that an adequate table of contents is included.

(h) Each AIP shall be dated.

(i) The date, consisting of the day, month (by name), and year, shall be the publication date and/or the effective date (AIRAC) of the information.

(j) When describing periods of activity, availability or operation, the applicable days and times shall be specified.

(k) Each AIP issued as a printed volume and each page of an AIP issued in a loose-leaf form shall be annotated to clearly indicate:

(1) the identity of the AIP;

(2) the territory covered and its subdivisions, when necessary;

(3) the identification of the issuing Member State and producing organisation (authority); and

(4) page numbers/chart titles.

(l) Any amendment to the printed volume of the AIP shall be made using replacement sheets.

AIS.TR.310 AIP amendments

(a) Any operationally significant changes to the AIP, in accordance with point AIS.OR.505, shall be issued under AIRAC and clearly identified as such.

(b) Each AIP amendment shall be allocated a serial number, which shall be consecutive.

(c) When an AIP amendment is issued, it shall include references to the serial number of the NOTAM which have been incorporated into the amendment.

(d) The most current update cycles applicable to AIP amendments shall be made publicly available.

(e) Recourse to hand amendments/annotations shall be kept to a minimum; the normal method of amendment shall be by reissuing or by replacement of pages.

(f) Each AIP amendment shall:

(1) include a checklist with the current dates and numbers of each loose-leaf page in the AIP; and

(2) provide a recapitulation of any outstanding hand amendments.

(g) New or revised information shall be identified by an annotation against it in the margin.

(h) Each AIP amendment page, including the cover sheet, shall contain a publication date and, when applicable, an effective date.

(i) The regular intervals between the AIP amendments shall be specified in Part 1 – General (GEN) of the AIP.

AIS.TR.315 AIP supplements

(a) The AIP supplement issued in printed form shall be provided by means of distinctive pages.

(b) The most current update cycles applicable to AIP supplements shall be made publicly available.

(c) Each AIP supplement shall be allocated a serial number which shall be consecutive and based on the calendar year.

(d) Whenever an AIP supplement is issued as a replacement of a NOTAM, a reference to the series and number of the NOTAM shall be included.

(e) A checklist of valid AIP supplements shall be issued at intervals of not more than one month, as part of the checklist of NOTAM and also with distribution as for the AIP supplements.

(f) Each AIP supplement page shall have a publication date. Each AIRAC AIP supplement page shall have both a publication and an effective date.

AIS.TR.320 Aeronautical information circular (AIC)

(a) The AIC shall be provided as an electronic document.

(b) The AIC shall be provided whenever it is desirable to promulgate:

(1) forecasts of important changes in the air navigation procedures, services and facilities;

(2) forecasts of implementation of new navigational systems;

(3) significant information derived from aircraft accident/incident investigation which has a bearing on flight safety;

(4) information on regulations related to the safeguarding of civil aviation against acts of unlawful interference that jeopardise the security of civil aviation;

(5) advice on medical matters of special interest to pilots;

(6) warnings to pilots concerning the avoidance of physical hazards;

(7) information on the effect of certain weather phenomena on aircraft operations;

(8) information on new hazards affecting aircraft handling techniques;

(9) information on regulations related to the carriage of restricted articles by air;

(10) references to the requirements of national and EU legislation and to the publication of changes therein;

(11) information on aircrew licensing arrangements;

(12) information on training of aviation personnel;

(13) information on the implementation of, or exemption from, requirements in national and EU legislation;

(14) advice on the use and maintenance of specific types of equipment;

(15) the actual or planned availability of new or revised editions of aeronautical charts;

(16) information on the carriage of communication equipment;

(17) explanatory information related to noise abatement;

(18) selected airworthiness directives;

(19) information on changes in NOTAM series or distribution, new editions of AIP or major changes in their content, coverage or format;

(20) advance information on the snow plan; and

(21) other information of a similar nature.

(c) The AIC shall not be used for information that qualifies for inclusion in AIP or NOTAM.

(d) The snow plan issued in accordance with point AD 1.2.2 of the AIP shall be supplemented by seasonal information to be issued as an AIC well in advance of the beginning of each winter – not less than one month before the normal onset of winter conditions.

(e) When the AIC is selected by the originating Member State for distribution beyond its territory, it shall have the same distribution as the AIP.

(f) Each AIC shall be allocated a serial number which shall be consecutive and based on the calendar year.

(g) In the event that an AIC is provided in more than one series, each series shall be separately identified by a letter.

(h) A checklist of AIC currently in force shall be issued at least once a year, with distribution as for the AIC.

(i) A checklist of AIC provided beyond the territory of a Member State shall be included in the NOTAM checklist.

AIS.TR.330 NOTAM

(a) A NOTAM shall be issued when it is necessary to provide the following information:

(1) establishment of, closure of, or significant changes in the operation of aerodromes or heliports or runways;

(2) establishment of, withdrawal of, and significant changes in, the operation of aeronautical services;

(3) establishment of, withdrawal of, and significant changes in, the operational capability of radio navigation and air-ground communication services;

(4) unavailability of backup and secondary systems, having a direct operational impact;

(5) establishment of, withdrawal of, or significant changes to, visual aids;

(6) interruption of, or return to operation of, major components of aerodrome lighting systems;

(7) establishment of, withdrawal of, or significant changes to, procedures for air navigation services;

(8) occurrence or correction of major defects or impediments in the manoeuvring area;

(9) changes to, and limitations on, the availability of fuel, oil and oxygen;

(10) major changes to search and rescue (SAR) facilities and services available;

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

(12) changes in regulations applicable in the Member State(s) concerned that require immediate action from an operational perspective;

(13) operational directives requiring immediate action or changes thereto;

(14) presence of hazards that affect air navigation;

(15) planned laser emissions, laser displays and search lights if pilots' night vision is likely to be impaired;

(16) erecting or removal of, or changes to, obstacles to air navigation in the take-off/climb, missed approach, approach areas as well as on the runway strip;

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

(18) establishment or discontinuance of areas or routes, or portions thereof, where the possibility of interception exists and where the maintenance of guard on the very high frequency (VHF) emergency frequency 121.500 MHz is required;

(19) allocation, cancellation or change of location indicators;

(20) changes in aerodrome/heliport rescue and firefighting (RFF) category;

(21) presence of, 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;

(22) outbreaks of epidemics necessitating changes in notified requirements for inoculations and quarantine measures;

(23) forecasts of solar cosmic radiation, where provided;

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

(25) (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, that could be affected, as well as the direction of movement;

(26) establishment of operations of humanitarian relief missions, together with procedures and/or limitations that affect air navigation;

(27) implementation of short-term contingency measures in cases of disruption, or partial disruption, of ATS and related supporting services;

(28) specific loss of integrity of satellite-based navigation systems.

(29) unavailability of a runway due to runway marking works or, if the equipment used for those works can be removed, a time lag required for making the runway available.'

(b) A NOTAM shall not be issued to provide any of the following information:

(1) routine maintenance work on aprons and taxiways that does not affect the safe movement of aircraft;

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

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

(4) partial temporary failure of air-ground communications when suitable alternative frequencies are available and are operative;

(5) lack of apron marshalling services, road traffic closures, limitations and control;

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

(7) parachuting when in uncontrolled airspace under visual flight rules (VFR), nor when in controlled airspace at promulgated sites or within danger or prohibited areas;

(8) training activities performed by ground units;

(9) unavailability of backup and secondary systems if these do not have an operational impact;

(10) limitations to airport facilities or general services, with no operational impact;

(11) national regulations not affecting general aviation;

(12) announcements or warnings about possible/potential limitations, with no operational impact;

(13) general reminders on already published information;

(14) availability of equipment for ground units, without information on the operational impact on airspace and facility users;

(15) information about laser emissions with no operational impact and about fireworks below the minimum flying heights;

(16) closure of parts of the movement area in connection with locally coordinated, planned work of duration of less than one hour;

(17) closure, changes, unavailability in the operation of aerodrome(s)/heliport(s) other than in the aerodrome(s)/heliport(s) operation hours; and

(18) other non-operational information of a similar temporary nature.

(c) Except as provided for in points AIS.TR.330(f) and AIS.TR.330(g), each NOTAM shall contain the information in the order shown in the NOTAM format of Appendix 2.

(d) 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.

(e) All NOTAM shall be issued in English language. If necessary for domestic users, NOTAM may additionally be issued in national language.

(f) Information concerning snow, slush, ice, frost, standing water or water associated with snow, slush, ice or frost on the movement area shall be disseminated by means of SNOWTAM and shall contain the information in the order shown in the SNOWTAM format of Appendix 3a.

(g) Information concerning an operationally significant change to volcanic activity, 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 of Appendix 4.

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

(i) When a NOTAM is issued that cancels or replaces a previous NOTAM:

(1) the series and number/year of the previous NOTAM shall be indicated;

(2) the series, location indicator and subject of both NOTAM shall be the same.

(j) Only one NOTAM shall be cancelled or replaced by a NOTAM.

(k) Each NOTAM shall deal with only one subject and one condition of the subject.

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

(m) A NOTAM containing permanent or temporary information of long duration shall include appropriate references to the AIP or AIP supplement.

(n) Location indicators included in the text of a NOTAM shall be those contained in ICAO Doc 7910 'Location Indicators'. A curtailed form of such indicators shall not be used. Where no ICAO location indicator is assigned to the location, its place name shall be entered in plain language.

(o) A series identified by a letter and a four-digit number followed by a stroke and a two-digit number for the year shall be allocated to each NOTAM. The four-digit number shall be consecutive and based on the calendar year.

(p) 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.

(q) If NOTAM are issued in both English and national language, the NOTAM series shall be organised so that the national language series are equivalent to the English language series in terms of content and numbering.

(r) The content and geographical coverage of each NOTAM series shall be stated in detail in the AIP, in point GEN 3.

(s) A checklist of valid NOTAM shall be regularly provided.

(t) One checklist NOTAM shall be issued for each series.

(u) A checklist NOTAM shall also refer to the latest AIP amendments, AIP supplements, data sets and, at least, to distributed AIC.

(v) A checklist NOTAM shall have the same distribution as the actual message series to which it refers and shall be clearly identified as a checklist.

(w) Series allocation shall be monitored and, if required, appropriate measures shall be taken to assure that no series reaches the maximum possible number of issued NOTAM before the end of a calendar year.

Chapter 2 – Digital data sets

AIS.TR.335 General— Digital data sets

(a) A standard for geographic information shall be used as a reference framework.

(b) A description of each available data set shall be provided in the form of a data product specification.

(c) A checklist of the available data sets, including their effective and publication dates, shall be made available to users to ensure that current data is being used.

(d) The checklist of data sets shall be made available through the same distribution mechanism as the one used for the data sets.

AIS.TR.340 Metadata requirements

The minimum metadata for each data set shall include:

(a) the name of the organisations or entities providing the data set;

(b) the date and time when the data set was provided;

(c) the validity of the data set; and

(d) any limitations on the use of the data set.

AIS.TR.345 AIP data set

(a) The AIP data set shall include data about the following subjects, including the properties indicated, if applicable:

Data subjects	Associated properties as a minimum
ATS airspace	Type, name, lateral limits, vertical limits, class of airspace
Special activity airspace	Type, name, lateral limits, vertical limits, restriction, activation
Route	Identifier prefix, flight rules, designator
Route segment	Navigation specification, start point, end point, track, distance, upper limit, lower limit, minimum en-route altitude (MEA), minimum obstacle clearance altitude (MOCA), direction of cruising level, reverse direction of cruising level, required navigation performance
Waypoint – en-route	Reporting requirement, identification, location, formation
Aerodrome/heliport	Location indicator, name, International Air Transport Association (IATA) designator, served city, certification date, certification expiration date, if applicable, control type, field elevation, reference temperature, magnetic variation, airport reference point
Runway	Designator, nominal length, nominal width, surface type, strength
Runway direction	Designator, true bearing, threshold, take-off run available (TORA), take-off distance available (TODA), accelerate-stop distance available (ASDA), landing distance available (LDA), rejected TODA (for helicopters)

Final approach and take-off area (FATO)	Designation, length, width, threshold point
Touchdown and lift-off area (TLOF)	Designator, centre point, length, width, surface type
Radio navigation aid	Type identification, name, aerodrome served, hours of operation, magnetic variation, frequency/channel, position, elevation, magnetic bearing, true bearing, zero bearing direction

(b) When a property is not defined for a particular occurrence of the subjects listed in (a), the AIP data subset shall include an explicit indication: 'not applicable'.

AIS.TR.350 Terrain and obstacle data – General requirements

The coverage areas for sets of terrain and obstacle data shall be specified as:

(a) Area 1: the entire territory of a Member State;

(b) Area 2: within the vicinity of an aerodrome, subdivided as follows:

(1) Area 2a: a rectangular area around a runway which comprises the runway strip plus any clearway that exists;

(2) 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;

(3) Area 2c: an area extending outside Areas 2a and 2b at a distance of not more than 10 km from the boundary of Area 2a; and

(4) Area 2d: an area outside Areas 2a, 2b and 2c up to a distance of 45 km from the aerodrome reference point, or to an existing terminal manoeuvring area (TMA) boundary, whichever is nearer;

(c) Area 3: the area bordering an aerodrome movement area which 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; and

(d) Area 4: the area extending 900 m prior to the runway threshold and 60 m to each side of the extended runway centre line in the direction of the approach on a precision approach runway, Category II or III.

AIS.TR.355 Terrain data sets

When terrain data sets are provided in accordance with point AIS.OR.355:

(a) terrain data sets shall contain the digital representation of the terrain surface in the form of continuous elevation values at all intersections of a defined grid, referenced to a common datum;

(b) a terrain grid shall be angular or linear and shall be of a regular or irregular shape;

(c) terrain data sets shall include spatial (position and elevation), thematic, and temporal aspects of the surface of the Earth, containing naturally occurring features, excluding obstacles;

(d) only one feature type, i.e. terrain, shall be provided;

(e) the following terrain feature attributes shall be recorded in the terrain data set:

(1) area of coverage;

(2) identification of the data originator er;

(3) data source identifier;

(4) acquisition method;

(5) post spacing;

(6) horizontal reference system;

(7) horizontal resolution;

(8) horizontal accuracy;

(9) horizontal confidence level;

(10) horizontal position;

(11) elevation;

(12) elevation reference;

(13) vertical reference system;

(14) vertical resolution;

(15) vertical accuracy;

(16) vertical confidence level;

(17) recorded surface;

(18) integrity;

(19) date and time stamp; and

(20) unit of measurement used;

(f) Within the area covered by a 10-km radius from the ARP, terrain data shall comply with the Area 2 numerical requirements;

(g) in the area between 10 km and the TMA boundary or a 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;

(h) in the area between 10 km and the TMA boundary or a 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; and

(i) 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.

AIS.TR.360 Obstacle data sets

When obstacle data sets are provided in accordance with point AIS.OR.360:

(a) obstacle data items are features that shall be represented in the data sets by points, lines or polygons;

(b) all defined obstacle feature types shall be provided and each of them shall be described according to the following list of attributes:

(1) area of coverage;

(2) identification of the data originator;

(3) data source identifier;

(4) obstacle identifier;

(5) horizontal accuracy;

(6) horizontal confidence level;

(7) horizontal position;

(8) horizontal resolution;

(9) horizontal extent;

(10) horizontal reference system;

(11) elevation;

(12) vertical accuracy;

(13) vertical confidence level;

(14) vertical resolution;

(15) vertical reference system;

(16) obstacle type;

(17) geometry type;

(18) integrity;

(19) date and time stamp;

(20) unit of measurement used;

(21) lighting; and

(22) marking;

(c) obstacle data for Areas 2 and 3 shall be collected in accordance with the following obstacle collection surfaces:

(1) the Area 2a obstacle collection surface has a 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;

(2) 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; obstacles less than 3 m in height above the ground need not be collected;

(3) the Area 2c obstacle collection surface has a 1,2 % slope extending outside Areas 2a and 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; obstacles less than 15 m in height above the ground need not be collected;

(4) the Area 2d obstacle collection surface has a height of 100 m above the ground; and

(5) the Area 3 obstacle collection surface extends 0.5 m above the horizontal plane passing through the nearest point on the aerodrome movement area;

(d) 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 numerical requirements;

(e) the obstacle data product specification, supported by geographical coordinates for each aerodrome included within the dataset, shall describe the following areas:

(1) Areas 2a, 2b, 2c and 2d;

(2) the take-off flight path area; and

(3) the obstacle limitation surfaces;

(f) obstacle data sets shall contain the digital representation of the vertical and horizontal extent of the obstacles; and

(g) obstacles shall not be included in terrain data sets.

AIS.TR.365 Aerodrome mapping data sets

(a) Aerodrome mapping data sets shall contain the digital representation of aerodrome features.

(b) ISO standards for geographic information shall be used as a reference framework.

(c) Aerodrome mapping data products shall be described following the relevant data product specification standard.

(d) The content and structure of aerodrome mapping data sets shall be defined in terms of an application schema and a feature catalogue.

AIS.TR.370 Instrument flight procedure data sets

(a) Instrument flight procedure data sets shall contain the digital representation of instrument flight procedures.

(b) The instrument flight procedure data sets shall include data about the following subjects, including all of their properties:

(1) procedure;

(2) procedure segment;

(3) final approach segment;

(4) procedure fix;

(5) procedure holding;

(6) helicopter procedure specifics.

SECTION 4 – DISTRIBUTION AND PREFLIGHT INFORMATION SERVICES

AIS.TR.400 Distribution services

(a) A predetermined distribution system for NOTAM transmitted on the AFS shall be used whenever possible.

(b) Distribution of NOTAM series other than those distributed internationally shall be granted upon request.

(c) NOTAM shall be prepared in conformity with ICAO communication procedures laid down in ICAO Annex 10, Volume II.

(d) Each NOTAM shall be transmitted as a single telecommunication message.

(e) The exchange of ASHTAM beyond the territory of a Member State, and NOTAM where Member States use NOTAM for distribution of information on volcanic activity, shall include volcanic ash advisory centres and the world area forecast centres, and take account of the requirements of long-range operations.

AIS.TR.405 Pre-flight information services

(a) 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.

(b) The human machine interface of the pre-flight information services facilities shall ensure easy access to all relevant information/data in a guided manner.

(c) Self-briefing facilities of an automated pre-flight information system shall provide access, as necessary, to the aeronautical information service for consultation by telephone or other suitable telecommunication means.

(d) Automated pre-flight information systems for the supply of aeronautical data and aeronautical information for self-briefing, flight planning and flight information service shall:

(1) provide for continuous and timely updating of the system database and monitoring of the validity and quality of the aeronautical data stored;

(2) permit access to the system by operations personnel, including flight crew members, aeronautical personnel concerned and other aeronautical users, through suitable telecommunications means;

(3) ensure the provision of the aeronautical data and aeronautical information accessed, in paper form, as required;

(4) use access and interrogation procedures based on abbreviated plain language and ICAO location indicators laid down in ICAO Doc 7910, as appropriate, or based on a menu-driven user interface or other appropriate mechanism;

(5) provide a timely response to a user request for information.

(e) All NOTAM shall be made available for briefing by default, and content reduction shall be at user's discretion.

SECTION 5 – AERONAUTICAL INFORMATION PRODUCTS UPDATES

AIS.TR.500 General – Aeronautical information products updates

The same AIRAC cycle update shall be applied to the AIP amendments, AIP supplements, AIP data set and the instrument flight procedure data sets in order to ensure consistency of the data items that appear in multiple aeronautical information products.

AIS.TR.505 AIRAC

(a) Information concerning the following circumstances shall be distributed under the AIRAC system:

(1) horizontal and vertical limits, regulations and procedures applicable to:

(i) flight information regions (FIRs);

(ii) control areas (CTAs);

(iii) control zones;

(iv) advisory areas;

(v) ATS routes;

(vi) permanent danger, prohibited and restricted areas (including type and periods of activity, when known) and air defence identification zones (ADIZs);

(vii) permanent areas or routes, or portions thereof, where the possibility of interception exists;

(viii) RMZ and/or TMZ;

(2) positions, frequencies, call signs, identifiers, known irregularities and maintenance periods of radio navigation aids, and communication and surveillance facilities;

(3) holding and approach procedures, arrival and departure procedures, noise abatement procedures and any other pertinent ATS procedures;

(4) transition levels, transition altitudes and minimum sector altitudes;

(5) meteorological facilities (including broadcasts) and procedures;

(6) runways and stopways;

(7) taxiways and aprons;

(8) aerodrome ground operating procedures (including low-visibility procedures);

(9) approach and runway lighting; and

(10) aerodrome operating minima, if published by a Member State.

(b) Special arrangements shall be made whenever major changes are planned and where advance notice is desirable and practicable.

(c) When information has not been submitted by the AIRAC date, a NIL notification shall be distributed through a NOTAM or other suitable means, not later than one cycle before the AIRAC effective date concerned.

AIS.TR.510 NOTAM

(a) NOTAM shall 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.

(b) NOTAM notifying unserviceability of aids to air navigation, facilities or communication services shall provide an estimate of the unserviceability period or of the time at which restoration of service is expected.

(c) 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.

(d) Within three months from the issuing of a temporary NOTAM of long duration, the information contained in the NOTAM shall be included in an AIP supplement.

(e) When a NOTAM with an 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 that case, an AIP supplement shall be issued.

(f) A ‘trigger NOTAM’ shall briefly describe the content, the effective date and time, as well as the reference number of the amendment, or supplement.

(g) A ‘trigger NOTAM’ shall come into force on the same effective date and time as the AIP amendment or supplement.

(h) In case of an AIP amendment, a 'trigger NOTAM' shall remain valid for a period of 14 days.

(i) In case of an AIP supplement that is valid for less than 14 days, the 'trigger NOTAM' shall remain valid for the complete validity period of the AIP supplement.

(j) In case of an AIP supplement that is valid for 14 days or more, the 'trigger NOTAM' shall remain valid for at least 14 days.

AIS.TR.515 Data set updates

(a) The update interval for the AIP data set and the instrument flight procedure data sets shall be specified in the data product specification.

(b) Data sets that have been made available in advance, according to the AIRAC cycle, shall be updated with the non-AIRAC changes that occurred between the publication and the effective date.

Appendix 1

CONTENTS OF THE AERONAUTICAL INFORMATION PUBLICATION (AIP)

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 shall appear only in Part 1 – GEN, and the annotation 'not applicable" shall be entered against each of those 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 shall be included in each volume.

GEN 0.1 Preface

Brief description of the AIP, including:

1. name of the publishing organisation;
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;
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);

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;

5. cancellation record.

GEN 0.4 Checklist of AIP pages

A checklist of AIP pages containing:

1. page number/chart title;

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).

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. email 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.

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 Subpart D of Annex IV (Part-CAT) to Regulation (EU) No 965/2012; and

2. emergency locator transmitter (ELT), signalling devices and life-saving equipment as presented in point CAT.IDE.A.280 of Annex IV (Part-CAT) and point NCC.IDE.A.215 of Annex VI (Part-NCC) to Regulation (EU) No 965/2012, 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 Member State.

GEN 1.7 Differences from ICAO Standards, Recommended Practices and Procedures

A list of significant differences between national regulations and practices of the Member State and related ICAO provisions, including:

1. provision affected (Annex and edition number, paragraph); and

2. difference in full text.

All significant differences shall be listed under this subsection. All Annexes shall be listed in numerical order even if there is no difference to an ICAO Annex, in which case a NIL notification shall be provided. National differences or the degree of non-application of the regional supplementary procedures (SUPPs) 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 ICAO Annex 11 and 14 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;
3. an explanation, if applicable, of the asterisk used to identify those elevations/geoid undulations that do not meet ICAO Annex 14 accuracy requirements.

GEN 2.1.5 Aircraft nationality and registration marks

Indication of aircraft nationality and registration marks adopted by the Member State.

GEN 2.1.6 Public holidays

A list of public holidays with an 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 Member 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 ICAO Document 8400 ‘Procedures for Air Navigation Services – ICAO Abbreviations and Codes (PANS-ABC)’.

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 ICAO 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) shall be provided.

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;
4. indication whether the 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;
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. email address;

6. AFS address;

7. website address, if available;

8. a statement concerning the provisions on which the service is based and a reference to the AIP location where differences, if any, are listed.

GEN 3.1.2 Area of responsibility

The area of responsibility for the AIS.

GEN 3.1.3 Aeronautical publications

Description of the elements of the aeronautical information 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;

6. how they may be obtained.

When an AIC is used to promulgate publication prices, that 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 aeronautical information products held;

2. maps and charts held;

3. general area of coverage of such data.

GEN 3.1.6 Digital data sets

1. Description of the available data sets, including:

   a) data set title;

   b) short description;

   c) data subjects included;

   d) geographical scope;

   e) if applicable, limitations related to its usage.

2. Contact details of how data sets may be obtained, containing:

   a) name of the individual, service or organisation responsible;

b) street address and email address of the individual, service or organisation responsible;

c) telefax number of the individual, service or organisation responsible;

d) contact telephone number of the individual, service or organisation 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 organisation; and

g) supplemental information, if necessary, on how and when to contact the individual, service or organisation.

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. email address;
6. AFS address;
7. website address, if available; and
8. a statement concerning the provisions on which the service is based and a reference to the AIP location where differences from ICAO, if any, are listed.

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. email address;
6. AFS address;
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;
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 Member State. If an Aeronautical Chart – ICAO 1:500 000 is produced instead of WAC 1:1 000 000, index charts 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. email address;
6. AFS address;
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 (ATS)

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. email address;
6. AFS address;
7. website address, if available;

8. a statement concerning the provisions on which the service is based and a reference to the AIP location where differences from ICAO, if any, are listed;

9. an indication if service is not available for 24 hours a day and seven days a week.

GEN 3.3.2 Area of responsibility

Brief description of area of responsibility for which ATS 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 affected.

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. email address;

6. AFS address;

7. website address, if available.

GEN 3.4 Communication 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. email address;

6. AFS address;

7. website address, if available;

8. a statement concerning the provisions on which the service is based and a reference to the AIP location where differences from ICAO, if any, are listed;

9. an indication if service is not available for 24 hours a day and seven days a week.

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. email address;
6. AFS address;
7. website address, if available;
8. a statement concerning the provisions on which the service is based and a reference to the AIP location where differences, if any, are listed;
9. an indication if service is not available for 24 hours a day and seven days a week.

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 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, transmissometers next to touchdown zone, etc.);

5. hours of operation;

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 service provider 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 service provider 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 ATS unit(s) provided with SIGMET and AIRMET information;

8. additional information, such as 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;

4. telephone and telefax number(s), email address, and, if available, website address.

GEN 3.6 Search and rescue (SAR)

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. email address;

6. AFS address;

7. website address, if available; and

8. a statement concerning the provisions on which the service is based and a reference to the AIP location where differences from ICAO, if any, are listed.

GEN 3.6.2 Area of responsibility

Brief description of area of responsibility within which SAR services are provided.

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 Member 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 SAR, including the general conditions under which the service and facilities are available for international use, including an indication of whether a facility available for SAR is specialised 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 used by rescue aircraft and a table showing the signals to be used by survivors.

GEN 4. CHARGES FOR AERODROMES/HELIPORTS AND AIR NAVIGATION SERVICES (ANS)

Reference may be made to where details of actual charges may be found, if not itemised 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 that may be applicable to ANS provided for international use, including:

1. approach control;
2. ANS route;
3. cost basis for ANS and exemptions/reductions;
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 shall be included in each volume. In the case of an AIP being

published as one volume, the annotation 'not applicable' shall be entered against each of the above subsections.

ENR 0.6 Table of contents to Part 2

A list of sections and subsections contained in Part 2 – En-route.

ENR 1. GENERAL RULES AND PROCEDURES

ENR 1.1 General rules

The general rules shall be published as applied within the Member State.

ENR 1.2 Visual flight rules

The visual flight rules shall be published as applied within the Member State.

ENR 1.3 Instrument flight rules

The instrument flight rules shall be published as applied within the Member State.

ENR 1.3.1 Rules applicable to all IFR flights

ENR 1.3.2 Rules applicable to IFR flights within controlled airspace

ENR 1.3.3 Rules applicable to IFR flights outside controlled airspace

ENR 1.3.4 Free route airspace (FRA) general procedures

Procedures related to the free route airspace, including explanation and definitions of applied FRA relevant points. In case of cross-border FRA implementation, the involved FIRs/UIRs or CTAs/UTAs shall be indicated in point ENR 1.3.

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 Appendix 4 to Implementing Regulation (EU) No 923/2012, appropriately annotated to indicate those airspace classes not used by the Member 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.

ENR 1.5.2 Arriving flights

Procedures (conventional or area navigation or both) for arriving flights which are common to flights into or within the same type of airspace shall be presented. If different procedures apply within a terminal airspace, a note to this effect shall be given together with a reference to where the specific procedures can be found.

ENR 1.5.3 Departing flights

Procedures (conventional or area navigation or both) for departing flights which are common to flights departing from any aerodrome/heliport shall be presented.

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 controller-pilot data link communications (CPDLC) position reporting requirements; and

5. graphic portrayal of the 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 the area of SSR coverage.

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 the area of ADS-B coverage.

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

A statement of altimeter setting procedures in use shall be published, 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 ICAO regional supplementary procedures

Regional supplementary procedures (SUPPs) affecting the entire area of responsibility shall be presented.

ENR 1.9 Air traffic flow management (ATFM) and airspace management

Brief description of 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 to 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

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 shall be indicated, 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

An indication, in tabular form, of the addresses allocated to flight plans shall be included, 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

A complete statement of interception procedures and visual signals to be used shall be indicated with a clear indication of whether ICAO provisions are applied and, if not, that differences exist.

ENR 1.13 Unlawful interference

Appropriate procedures to be applied in case of unlawful interference shall be presented.

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.

ENR 2. AIR TRAFFIC SERVICES AIRSPACE

ENR 2.1 FIR, UIR, TMA and CTA

Detailed description of flight information regions (FIRs), upper flight information regions (UIRs), and control areas (CTAs) (including specific CTAs such as TMAs), 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.

Control zones around military air bases not otherwise described in the AIP shall be included in this subsection. Where the requirements of Implementing Regulation (EU) No 923/2012 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 frequency 121.500 MHz is required, a statement to this effect 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 121.500 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.

ENR 2.2 Other regulated airspace

Detailed description of radio mandatory zones (RMZs) and transponder mandatory zones (TMZs), including:

1. name, geographical coordinates in degrees and minutes of the RMZ/TMZ lateral limits;

2. vertical limits in flight levels, or feet;

3. time of activity; and

4. remarks.

Where established, a detailed description of other types of regulated airspace and airspace classification.

ENR 3. ATS ROUTES

ENR 3.1 Lower ATS routes

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 performance-based navigation (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 limitations to navigation, RCP and RSP specification(s).

ENR 3.2 Upper ATS routes

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.

ENR 3.3 Area navigation routes

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.

ENR 3.4 Helicopter routes

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.

ENR 3.5 Other routes

The requirement is to describe other specifically designated routes which are compulsory within specified area(s).

Description of free route airspace (FRA), as specified airspace within which users may freely plan direct routes between a defined entry point and a defined exit point, including information on the direct routing, the restrictions on the use of waypoints for direct routings and the indication in the flight plan (item 15). The prerequisites for the issuance of ATC clearances shall be described.

ENR 3.6 En-route holding

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.

ENR 4. RADIO NAVIGATION AIDS/SYSTEMS

ENR 4.1 Radio navigation aids – en-route

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 authority, the name of the operating authority shall be indicated in the remarks column. Facility coverage shall be indicated in the remarks column.

ENR 4.2 Special navigation systems

Description of stations associated with special navigation systems, 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 authority, the name of the operating authority shall be indicated in the remarks column. Facility coverage 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 (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 authority, the name of the operating authority shall be indicated in the remarks column.

ENR 4.4 Name-code designators for significant points

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 of the position in degrees, minutes and seconds;
3. reference to ATS or other routes where the point is located; and
4. remarks, including a supplementary definition of positions, where required.

ENR 4.5 Aeronautical ground lights – en-route

A list of aeronautical ground lights and other light beacons designating geographical positions that are selected by the Member 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

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 shall be indicated in the remarks column.

ENR 5.2 Military exercise and training areas and air defence identification zone (ADIZ)

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

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

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

The list of obstacles affecting air navigation in Area 1 (the entire Member 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 point GEN 3.1.6.

ENR 5.5 Aerial sporting and recreational activities

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.

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 ICAO En-route Chart and index charts shall 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 shall be included in each volume. In the case of an AIP being published as one volume, the annotation 'not applicable' shall be entered against each of the above subsections.

AD 0.6 Table of contents to Part 3

A list of sections and subsections contained in Part 3 – Aerodromes (AD).

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 competent 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 provisions on which the services are based and a reference to the AIP location where differences from ICAO, 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 LVP applicable to Category II/III operations at aerodromes, if any, are applied.

AD 1.1.4 Aerodrome operating minima

Details of aerodrome operating minima applied by the Member State.

AD 1.1.5 Other information

If applicable, other information of a similar nature.

AD 1.2 Rescue and firefighting services (RFFSs) and snow plan

AD 1.2.1 Rescue and firefighting services

Brief description of rules governing the establishment of RFFSs at aerodromes/heliports available for public use together with an indication of rescue and firefighting categories established by a Member 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. organisation 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.

AD 1.3 Index of aerodromes and heliports

A list, supplemented by graphic portrayal, of aerodromes/heliports within a Member 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 Member State in grouping aerodromes/ heliports for production/distribution/provision of information purposes.

AD 1.5 Status of certification of aerodromes

A list of aerodromes in the Member 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 ICAO location indicator allocated to the aerodrome and the name of aerodrome shall be indicated. An ICAO location indicator 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**

Aerodrome geographical and administrative data shall be published, 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 that the aerodrome serves;

3. aerodrome elevation to the nearest metre or foot, and reference 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, email 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. ATS;

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;

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 the aerodrome;

2. restaurant(s) at or in the vicinity of the aerodrome;

3. transportation possibilities;

4. medical facilities;

5. bank and post office at or in the vicinity of the aerodrome;

6. tourist office;

7. remarks.

****** AD 2.6 Rescue and firefighting services**

Detailed description of the RFFSs 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;

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;

6. remarks.

If check locations/positions are presented on an aerodrome chart, a note to that effect 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 (if any);

4. 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);
   f) if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to point GEN 3.1.6; and
   g) 'NIL' indication, if appropriate.
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, and a reference to point GEN 3.1.6; and
   g) 'NIL' indication, if appropriate.

****** 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, such as weather radar and receiver for satellite images;

9. the ATS unit(s) provided with meteorological information; 10) additional information such as any limitation of service,

****** 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 (pavement classification number (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 shall be declared and the words ‘not usable’ or the abbreviation ‘NU’ entered.

****** 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 switchover 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 ATS airspace organised 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 ATS 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**

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 instrument landing system (ILS)/microwave landing system (MLS), basic GNSS, satellite-based augmentation system (SBAS), and ground-based augmentation system (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(s)), 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 DME transmitting antenna to the nearest 30 m (100 ft) and of the distance-measuring equipment precision (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 shall also be given in section ENR 4. If the ground-based augmentation system (GBAS) serves more than one aerodrome, a description of the aid shall be provided under each aerodrome. If the operating authority of the facility is other than the designated authority, the name of the operating authority shall be indicated in the remarks column. Facility coverage 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 organisation at the aerodrome. When established, detailed description of the low visibility procedures at the aerodrome, including:

1. runway(s) and associated equipment authorised 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.

Specific additional information regarding remote aerodrome ATS:

1. indication that remote aerodrome ATS is provided;
2. location of the signalling lamp by e.g. the phrase ‘signalling lamp positioned at [geographical fix]’ as well as a clear indication of the signalling lamp location in the aerodrome chart for each relevant aerodrome;
3. description of any specific communication methods as deemed necessary in case of multiple mode of operation, such as e.g. the inclusion of airport names/ATS unit call sign for all transmissions (i.e. not only for the first contact) between pilots and ATCOs/aerodrome flight information service offices (AFISOs);
4. description of any relevant actions required by the airspace users following an emergency/abnormal situation and possible contingency measures by the ATS provider in case of disruptions, if applicable (in point AD 2.22 ‘Flight Procedures’); and
5. description of the interdependencies of service availability or indication of aerodromes not suitable for diversion from the aerodrome (airspace users shall not plan an aerodrome as alternate when serviced by the same remote tower centre), if deemed applicable.

****** AD 2.24 Aeronautical charts related to an aerodrome**

Aeronautical charts related to an aerodrome shall 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 Terrain and Obstacle Chart – ICAO (Electronic);
6. Precision Approach Terrain Chart – ICAO (precision approach Category II and III runways);
7. Area Chart – ICAO (departure and transit routes);
8. Standard Departure Chart – Instrument – ICAO;
9. Area Chart – ICAO (arrival and transit routes);
10. Standard Arrival Chart – Instrument – ICAO;
11. ATC Surveillance Minimum Altitude Chart – ICAO;
12. Instrument Approach Chart – ICAO (for each runway and procedure type);
13. Visual Approach Chart – ICAO; and
14. bird concentrations in the vicinity of the aerodrome.

If some of the aeronautical charts are not produced, a statement to this effect shall be given in section GEN 3.2 'Aeronautical charts'.

AD 3. HELIPORTS

When a helicopter landing area is provided at the aerodrome, associated data shall be listed only under point **** AD 2.16.

Note.*— * is to be replaced by the relevant ICAO location indicator.**

****** AD 3.1 Heliport location indicator and name**

The ICAO location indicator assigned to the heliport and to the names of the heliport shall be included in AIP. An ICAO location indicator 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 that the heliport serves;
3. heliport elevation to the nearest metre or foot, and reference 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, email 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. ATS;
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 RFFSs 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 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**

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);

6. if appropriate, an indication that the list of obstacles is available in electronic form, and a reference to point GEN 3.1.6; and

7. '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, such as weather radar and receiver for satellite images;

9. the ATS unit(s) provided with meteorological information; and

10. additional information such as 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 switchover time; and

5. remarks.

****** AD 3.16 Air traffic services airspace**

Detailed description of ATS airspace organised 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 ATS communication facilities established at the heliport, including:

1. service designation;
2. call sign;
3. frequency(ies);
4. hours of operation; and
5. 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 (for VOR, station declination used for technical line-up of the aid) to the nearest degree, and type of operation for ILS, MLS, basic GNSS, SBAS and GBAS;
2. identification, if required;
3. frequency(ies), 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 DME transmitting antenna to the nearest 30 m (100 ft) and of DME/P to the nearest 3 m (10 ft); and
7. remarks.

When the same aid is used for both en-route and heliport purposes, a description shall also be given in section ENR 4. If the GBAS serves more than one heliport, a description of the aid shall be provided under each heliport. If the operating authority of the facility is other than the designated authority, the name of the operating authority

shall be indicated in the remarks column. Facility coverage 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 organisation 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 authorised 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**

Aeronautical charts related to a heliport shall 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 the heliport.

If some of the aeronautical charts are not produced, a statement to this effect shall be given in section GEN 3.2 ‘Aeronautical charts’.

Appendix 2

NOTAM FORMAT

Priority Indicator	→								
Address									
									«≡
Date and time of filing	→								
Originator's Indicator									«≡(
Message Series, Number and Identifier									
NOTAM containing new information	.....NOTAMN (series and number/year)								
NOTAM replacing a previous NOTAM	.....NOTAMR ..... (series and number/year) (series and number/year of NOTAM to be replaced)								
NOTAM cancelling a previous NOTAM	.....NOTAMC ..... (series and number/year) (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 the 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 in are shown in the *Aeronautical Information Services Manual* (ICAO Doc 8126). The definition of the field is as follows:

1. FIR

a) If the subject of the information is geographically located 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 Member 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 geographically located within more than one FIR, the FIR field shall be composed of the ICAO nationality letters of the Member 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 the indicator of the Member State or the delegated entity which is responsible for provision of a navigation service in more than one Member State.

b) If one Member State issues a NOTAM affecting FIRs in a group of Member States, the first two letters of the ICAO location indicator of the issuing Member State plus 'XX' shall be included. The location indicators of the FIRs concerned shall then be listed in Item A or the indicator of the Member State or the delegated entity which is responsible for provision of a navigation service in more than one Member State.

2. NOTAM CODE

All NOTAM Code groups contain a total of five letters, the first of which 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 ICAO Doc 8400 'Procedures for Air Navigation Services – ICAO Abbreviations and Codes (PANS-ABC)'. For combinations of second and third, and fourth and fifth letters, refer to the 'NOTAM Selection Criteria' contained in ICAO Doc 8126 or insert one of the following combinations, as appropriate:

a) if the subject is not listed in the NOTAM Code (ICAO Doc 8400) or in the NOTAM Selection Criteria (ICAO Doc 8126), insert 'XX' as the second and third letters (e.g. QXXAK); if the 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 (ICAO Doc 8400) or in the NOTAM Selection Criteria (ICAO Doc 8126), insert 'XX' as the fourth and fifth letters (e.g. QFAXX);

c) when a NOTAM containing operationally significant information is issued 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

As Q – - AO = Operational shall be used for NOTAM cancellation and NOTAM promulgating new equipment or services, use the following fourth and fifth letters Q – - CS = Installed.

Q – - CN = CANCELLED shall be used to cancel planned activities, e.g. navigation warnings; Q – - HV = WORK COMPLETED shall be used to cancel work in progress.

3. TRAFFIC

I	=	IFR
V	=	VFR
K	=	NOTAM is a checklist

Depending on the NOTAM subject and content, the qualifier field TRAFFIC may contain combined qualifiers.

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 available on request
K	=	NOTAM is a checklist

Depending on the NOTAM subject and content, the qualifier field PURPOSE may contain the combined qualifiers BO or NBO.

5. SCOPE

A	=	Aerodrome
E	=	En-route
W	=	Nav Warning
K	=	NOTAM is a checklist

Depending on the NOTAM subject and content, the qualifier field SCOPE may contain combined qualifiers.

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 the 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 ICAO 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 the GNSS (except GBAS).

In the case of GNSS, the location indicator may be used when identifying a GNSS element outage such as 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', '2400' shall not be used. 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.

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'.

Appendix 3

SNOWTAM FORMAT

(COM heading)	(PRIORITY INDICATOR)	(ADDRESSES)	<≡
	(DATE AND TIME OF FILING)	(ORIGINATOR'S INDICATOR)	<≡
(Abbrev-iated heading)	(SWAA* NUMBER) SERIAL	(LOCATION INDICATOR)	DATE-TIME OF ASSESSMENT (OPTIONAL GROUP)
	S W * *		<≡(
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 DESIGNATION NUMBER)	M	C)	→
(RUNWAY CONDITION CODE (RWYCC) ON EACH RUNWAY THIRD) (From Runway Condition Assessment Matrix (RCAM) 0, 1, 2, 3, 4, 5 or 6)	M	D)	// →
(PER CENT COVERAGE CONTAMINANT FOR EACH RUNWAY THIRD)	C	E)	// →
DEPTH (mm) OF LOOSE CONTAMINANT FOR EACH RUNWAY THIRD)	C	F)	// →
(CONDITION DESCRIPTION OVER TOTAL RUNWAY LENGTH (Observed on each 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 SLIPPERY WET SLUSH SPECIALLY PREPARED WINTER RUNWAY 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 RUNWAY CONDITIONS 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 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 ON A TAXIWAY	O	N)	→
(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

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 shall 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 shall not be 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 databanks. The explanation of these symbols is:

TT	=	data designator for SNOWTAM = SW;
AA	=	geographical designator for Member States, e.g. LF = FRANCE, EG = United Kingdom;
iiii	=	SNOWTAM serial number in a four-digit group;
CCCC	=	four-letter location indicator of the aerodrome to which the SNOWTAM refers;
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.

Brackets in (BBB) shall be used to indicate that this group is optional.

When reporting on more than one runway and individual dates/times of observation/assessment are indicated by repeated Item B, the latest date/ time of observation/assessment shall be inserted in the abbreviated heading (MMYYGGgg).

g) The text 'SNOWTAM' in the SNOWTAM Format and the SNOWTAM serial number in a four-digit group shall be separated by a space, e.g. SNOWTAM 0124.

h) For readability purposes for the SNOWTAM message, a linefeed shall be included after the SNOWTAM serial number, after Item A, and after the aeroplane performance calculation section.

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.

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 RUNWAY THIRD; and

5) CONDITION DESCRIPTION FOR EACH 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]).

Only one runway designator shall be inserted for each runway and always the lower number.

Item D – Runway condition code for each runway third. Only one digit (0, 1, 2, 3, 4, 5 or 6) is inserted for each runway third, separated by an oblique stroke (n/n/n).

Item E – Per cent coverage for each runway third. When provided, insert 25, 50, 75 or 100 for each runway third, separated by an oblique stroke ([n]nn/[n]nn/[n]nn).

This information shall be provided only when the runway condition for each runway third (Item D) has been reported as other than 6 and there is a condition description for each runway third (Item G) that has been reported other than 'DRY'.

When the conditions are not reported, this shall be signified by the insertion of 'NR' for the appropriate runway third(s).

Item F – Depth of loose contaminant for each runway third. When provided, insert in millimetres for each runway third, separated by an oblique stroke (nn/nn/nn or nnn/nnn/nnn).

This information shall only be 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.*

When the conditions are not reported, this shall be signified by the insertion of 'NR' for the appropriate runway third(s).

Item G – Condition description for each runway third. Any of the following condition descriptions for each runway third, separated by an oblique stroke, shall be inserted.

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)

When the conditions are not reported, this shall be signified by the insertion of 'NR' for the appropriate runway third(s).

Item H – Width of runway to which the runway condition codes apply. The width in metres if less than the published runway width shall be inserted.

3. **Situational awareness section**

Elements in the situational awareness section shall end with a full stop.

Elements in the situational awareness section for which no information exists, or where the conditional circumstances for publication are not fulfilled, shall be left out completely.

Item I – Reduced runway length. The applicable runway designator and available length in meters shall be inserted (e.g. RWY nn [L] *or* nn [C] *or* nn [R] REDUCED TO [n]nnn).

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, 'DRIFTING SNOW' shall be inserted.

Item K – Loose sand on the runway. When loose sand is reported on the runway, the lower runway designator shall be inserted 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, the lower runway designator shall be inserted 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 snow banks are reported present on the runway, the lower runway designator shall be inserted with a space 'SNOWBANK' and with a space left 'L' or right 'R' or both sides 'LR', followed by the distance in metres from centre line 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 N – Snow banks on a taxiway. When snow banks are present on a taxiway, the taxiway designator shall be inserted with a space 'SNOWBANK' and with a space left 'L' or right 'R' or both sides 'LR', followed by the distance in metres from centre line separated by a space FM CL (TWY [nn]n SNOWBANK Lnn *or* Rnn *or* LRnn FM CL).

Item O – Snow banks adjacent to the runway. When snow banks are reported present, penetrating the height profile in the aerodrome snow plan, the lower runway designator and 'ADJ SNOWBANKS' shall be inserted (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 poor, the taxiway designator followed by a space 'POOR' shall be inserted (TWY [n *or* nn] POOR *or* ALL TWYS POOR).

Item R – Apron conditions. When apron conditions are reported slippery or poor, the apron designator followed by a space 'POOR' shall be inserted (APRON [nnnn] POOR *or* ALL APRONS POOR).

Item S – (NR) Not reported.

This shall only be reported for Member States that have an established programme of runway friction measurement using a Member-State-approved friction measuring device.

Item T – Plain language remarks.

Appendix 4

ASHTAM FORMAT

(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 AIS.TR.400 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, shall **not** be delayed until complete information A to K is available but shall 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 shall 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 shall 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 a day. New ASHTAM shall be issued whenever there is a change in the level of alert.

2. **Abbreviated heading**

2.1 Following the usual 'Aeronautical fixed – telecommunications network (AFTN)' communications header, the abbreviated heading 'TT AAiiii CCCC MMYYGGgg (BBB)' shall be included to facilitate the automatic processing of ASHTAM messages in computer databanks. The explanation of these symbols is:

TT	=	data designator for ASHTAM = VA;
AA	=	geographical designator for States, e.g. NZ = New Zealand;
iiii	=	ASHTAM serial number in a four-figure group;
CCCC	=	four-letter location indicator of the flight information region concerned;
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.

Brackets in (BBB) shall be used to indicate that this group is optional.

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 ICAO Doc 9691 *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds*, 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 Doc 9691 *Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds*, 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 ofalert 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]*.

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 shall be provided to the area control centre by the responsible vulcanological agency in the Member 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, the horizontal extent and base/top of the ash cloud shall be indicated 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* – Forecast direction of movement of the ash cloud at selected levels shall be indicated based on advice from the responsible meteorological watch office and/or volcanic ash advisory centre.

3.8 *Item H* – Air routes and portions of air routes and flight levels affected, or expected to become affected, shall be indicated.

3.9 *Item I* – Closure of airspace, air routes or portions of air routes, and availability of alternative routes, shall be indicated.

3.10 *Item J* – Source of the information, e.g. 'special air-report' or 'vulcanological agency', etc. The source of information shall always be indicated, whether an eruption has actually occurred or ash cloud reported, or not.

3.11 *Item K* – Any operationally significant information, additional to the foregoing, shall be included in plain language.'

(7) Annex XI is replaced by the following:

ANNEX XI

SPECIFIC REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE DESIGN SERVICES

(Part-FPD)

SUBPART A – ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE DESIGN SERVICES (FPD.OR)

SECTION I – GENERAL REQUIREMENTS

FPD.OR.100 Flight procedure design (FPD) services

(a) A flight procedure design services provider shall perform design, documentation and validation of flight procedure(s) subject, if necessary, to approval by the competent authority thereof before being deployed and used.

In this context, the aeronautical data and aeronautical information used by the FPD provider shall meet the requirements of accuracy, resolution, and integrity as specified in the aeronautical data catalogue in accordance with Appendix 1 to Annex III (Part-ATM/ANS.OR).

(b) If aeronautical data for the design of flight procedures is not provided by an authoritative source or does not meet the applicable data quality requirements (DQRs), such aeronautical data may be obtained from other sources by the FPD provider. In this context, such aeronautical data shall be validated by the FPD provider intending to use it.

FPD.OR.105 Management system

In addition to point ATM/ANS.OR.B.005 of Annex III, the FPD provider shall establish and maintain a management system that includes control procedures for:

(a) data acquisition;

(b) flight procedure design in accordance with design criteria as set out in point FPD.TR.100;

(c) flight procedure design documentation;

(d) stakeholders consultation;

(e) ground validation and, when appropriate, flight validation of flight procedure;

(f) identification of tools, including configuration management and tools qualification, as necessary; and

(g) maintenance and periodic review of the flight procedure(s), as applicable.

FPD.OR.110 Record-keeping

In addition to point ATM/ANS.OR.B.030 of Annex III, the FPD provider shall include in its record-keeping system the elements indicated in point FPD.OR.105 of this Annex.

FPD.OR.115 Technical and operational competence and capability

(a) In addition to point ATM/ANS.OR.B.005(a)(6) of Annex III, the FPD provider shall ensure that its flight procedure designers:

(1) have successfully completed a training course that provides competency in flight procedure design;

(2) are suitably experienced to successfully apply the theoretical knowledge; and

(3) successfully complete continuation training.

(b) When flight validation is deemed necessary to be performed, the FPD provider shall ensure that it is undertaken by a competent pilot.

(c) In addition to point ATM/ANS.OR.B.030 of Annex III, the FPD provider shall maintain records of all the training as well as any design activity completed by the employed flight procedure designers and make such records available on request:

(1) to the flight procedure designers concerned; and

(2) in agreement with the flight procedure designers, to the new employer when a flight procedure designer is employed by a new entity.

FPD.OR.120 Required interfaces

(a) When obtaining the aeronautical data and aeronautical information in accordance with point FPD.OR.100, the FPD provider shall ensure the necessary formal arrangements are established, as applicable, with:

(1) aeronautical data sources;

(2) other service providers;

(3) aerodrome operators; and

(4) aircraft operators.

(b) To ensure that the requests for flight procedure design are clearly defined and subject to review, the FPD service provider shall establish the necessary formal arrangements with the next intended user.

SUBPART B – TECHNICAL REQUIREMENTS FOR PROVIDERS OF FLIGHT PROCEDURE DESIGN SERVICES (FPD.TR)

SECTION 1 – GENERAL REQUIREMENTS

FPD.TR.100 Flight procedure design requirements

The flight procedures shall be designed by flight procedure design services provider in compliance with the requirements laid down in Appendix 1 and with the design criteria as determined by the competent authority, so as to ensure safe aircraft operations. The design criteria shall permit the establishment of appropriate obstacle clearance for flight procedures, where required.

FPD.TR.105 Coordinates and aeronautical data

(a) In addition to point ATM/ANS.OR.A.090 of Annex III, geographical coordinates indicating latitude and longitude shall be determined and reported to the aeronautical information services provider(s) (AIS provider(s)) in terms of the World Geodetic System – 1984 (WGS-84) geodetic reference datum or equivalent.

(b) The order of accuracy of the field work and the determinations and calculations derived therefrom shall be such that the resulting operational navigation data for the phases of flight are within the maximum deviations with respect to an appropriate reference frame, as specified in Appendix 1 to Annex III (Part-ATM/ANS.OR).

Appendix 1

REQUIREMENTS FOR AIRSPACE STRUCTURES AND FLIGHT PROCEDURES CONTAINED THEREIN

SECTION I

Specifications for flight information regions, control areas, control zones and flight information zones

(a) FLIGHT INFORMATION REGIONS

Flight information regions as defined in point 23 of Article 2 to Regulation (EC) No 549/2004 shall:

(1) cover the whole of the air route structure to be served by such regions; and

(2) include all airspace within its horizontal limits, except when limited by an upper flight information region.

Member States shall retain their responsibilities towards the ICAO within the geographical limits of the flight information regions entrusted to them by the ICAO on the date of entry into force of this Regulation.

(b) CONTROL AREAS

(1) Control areas shall be delineated so as to encompass sufficient airspace to contain the flight paths of those instrument flight rules (IFR) flights or portions thereof to which the applicable parts of the air traffic control (ATC) service are provided, taking into account the capabilities of the navigation aids normally used in that area.

(2) A lower limit of a control area shall be established at a height above the ground or water of not less than 200 m (700 ft), unless otherwise prescribed by the competent authority.

(3) An upper limit of a control area shall be established when either:

(i) ATC service will not be provided above such upper limit; or

(ii) the control area is situated below an upper control area, in which case, the upper limit shall coincide with the lower limit of the upper control area.

(c) CONTROL ZONES

(1) The horizontal limits of a control zone shall encompass at least those portions of the airspace, which are not within control areas that contain the paths of IFR flights arriving at and departing from aerodromes to be used under instrument meteorological conditions (IMC).

(2) If located within the horizontal limits of a control area, the control zone shall extend upwards from the surface of the earth to at least the lower limit of the control area.

(d) FLIGHT INFORMATION ZONES

(1) The horizontal limits of a flight information zone shall encompass at least those portions of the airspace, which are neither within control areas nor within control zone, that contain the paths of IFR and/or VFR flights arriving at and departing from aerodromes.

(2) If located within the horizontal limits of a control area, the flight information zone shall extend upwards from the surface of the earth to at least the lower limit of the control area.

SECTION II

Identification of ATS routes other than standard departure and arrival routes

(a) When ATS routes are established, a protected airspace along each ATS route and a safe spacing between adjacent ATS routes shall be provided.

(b) ATS routes shall be identified through designators.

(c) When identifying ATS routes other than standard departure and arrival routes, the designation system used shall:

(1) permit the identification of any ATS route in a simple and unique manner;

(2) avoid redundancy;

(3) be usable by both ground and airborne automation systems;

(4) permit utmost brevity in operational use; and

(5) provide for a sufficient possibility of extension to cater for any future requirements without the need for fundamental changes;

(d) Basic ATS route designators shall be assigned in accordance with the following principles:

(1) the same basic designator shall be assigned to a main trunk route throughout its entire length, irrespective of terminal control areas, States or regions traversed;

(2) where two or more trunk routes have a common segment, the segment in question shall be assigned each of the designators of the routes concerned, except where this would introduce difficulties in the provision of air traffic services (ATS), in which case, by common agreement, one designator only shall be assigned; and

(3) a basic designator assigned to one route shall not be assigned to any other route.

SECTION III

Identification of standard departure and standard arrival routes and associated procedures

(a) When identifying standard departure and standard arrival routes and associated procedures, it shall be ensured that:

(1) the system of designators shall permit the identification of each route in a simple and unambiguous manner;

(2) each route shall be identified by a plain language designator and a corresponding coded designator; and

(3) in voice communications, the designators shall be easily recognisable as relating to a standard departure or standard arrival route and shall not create any difficulties in pronunciation for pilots and ATS personnel.

(b) When composing designators for standard departure and standard arrival routes and associated procedures, the following shall be used:

(1) a plain language designator;

(2) a basic indicator;

(3) a validity indicator that shall be a number from 1 to 9;

(4) a route indicator that shall be one letter of the alphabet; the letters 'I' and 'O' shall not be used; and

(5) a coded designator of a standard departure or standard arrival route, instrument or visual.

(c) Assignment of designators

(1) Each route shall be assigned a separate designator.

(2) To distinguish between two or more routes that relate to the same significant point (and are therefore assigned the same basic indicator), a separate route indicator as described in point (b)(4) shall be assigned to each route.

(d) Assignment of validity indicators

(1) A validity indicator shall be assigned to each route to identify the route that is currently in effect.

(2) The first validity indicator to be assigned shall be the number '1'.

(3) Whenever a route is amended, a new validity indicator, which consists of the next higher number, shall be assigned. The number '9' shall be followed by the number '1'.

SECTION IV

Establishment and identification of significant points

(a) Significant points shall be established for the purpose of defining an ATS route or flight procedure and/or in relation to the ATS requirements for information on the progress of aircraft in flight.

(b) Significant points shall be identified by designators.

SECTION V

Minimum flight altitudes

Minimum flight altitudes shall be determined for each ATS route and control area and shall be provided for promulgation. These minimum flight altitudes shall provide a minimum obstacle clearance within the areas concerned.

SECTION VI

Identification and delineation of prohibited, restricted and danger areas

When prohibited areas, restricted areas or danger areas are established, upon initial establishment, they shall be given an identification, and full details shall be provided for promulgation.'

Editorial Information

X1 Substituted by Corrigendum to Commission Implementing Regulation (EU) 2020/469 of 14 February 2020 amending Regulation (EU) No 923/2012, Regulation (EU) No 139/2014 and Regulation (EU) 2017/373 as regards requirements for air traffic management/air navigation services, design of airspace structures and data quality, runway safety and repealing Regulation No 73/2010 (Official Journal of the European Union L 104 of 3 April 2020).

(**1**) OJ L 212, 22.8.2018, p. 1.

(**2**) Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010, OJ L 281, 13.10.2012, p. 1.

(**3**) Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council, OJ L 44, 14.2.2014, p. 1.

(**4**) Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011, OJ L 62, 8.3.2017, p. 1.

(**5**) Commission Regulation (EU) No 73/2010 of 26 January 2010 laying down requirements on the quality of aeronautical data and aeronautical information for the single European sky, OJ L 23, 27.1.2010, p. 6.

(**6**) Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1).';

(**7**) Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1).';

Changes to legislation:
There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2020/469.