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 (Text with EEA relevance)

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

(Text with EEA relevance)

THE EUROPEAN COMMISSION,

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

Having regard to Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC[(1)], and in particular Article 8b(6) thereof,

Having regard to Regulation (EC) No 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (the service provision Regulation)[(2)], and in particular Articles 4 and 6 thereof,

Having regard to Regulation (EC) No 551/2004 of the European Parliament and of the Council of 10 March 2004 on the organisation and use of the airspace in the single European sky (the airspace Regulation)[(3)], and in particular Article 6(7) thereof,

Whereas:

(1) Commission Implementing Regulations (EU) No 1034/2011[(4)] and (EU) No 1035/2011[(5)] lay down requirements on safety oversight in air traffic management and air navigation services and common requirements for the provision of air navigation services, respectively. Those latter requirements are to be complied with by the service providers concerned in order for them to be issued the certificates referred to in Article 7(1) of Regulation (EC) No 550/2004 and Article 8b(2) of Regulation (EC) No 216/2008. Those Regulations also lay down requirements concerning the competent authorities, which are responsible for issuing those certificates and exercising oversight and enforcement tasks, in accordance with Article 4 of Regulation (EC) No 549/2004 of the European Parliament and of the Council[(6)], Articles 2 and 7(7) of Regulation (EC) No 550/2004 and Articles 10 and 22a of Regulation (EC) No 216/2008.

(2) The requirements set out in Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 serve in particular to implement, at an initial stage, the essential requirements concerning the provision of air traffic management and air navigation services ('ATM/ANS') set out in Regulation (EC) No 216/2008, in particular to ensure compliance with Articles 8b and 22a of Regulation (EC) No 216/2008 and Annex Vb thereto and to allow the commencement of standardisation inspections in accordance with Article 24 of Regulation (EC) No 216/2008.

(3) Those requirements set out in Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 should now be complemented and updated, in light of technical progress. It should also be clarified that, for service providers to be issued and retain a certificate, or to make a declaration, in accordance with this Regulation, they must comply, and continue to comply, with those requirements as well as with the essential requirements referred to in Article 8b(1) of Regulation (EC) No 216/2008. In addition, consistency should be ensured between those requirements and the requirements set out in Commission Regulations (EU) No 965/2012[(7)], (EU) No 1178/2011[(8)], (EU) No 139/2014[(9)] and (EU) 2015/340[(10)], thus moving towards a 'total system approach', which entails a logical and technologically consistent approach across the various domains. Therefore, the requirements set out in Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 should now be laid down in a single instrument and Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 should be repealed.

(4) Common rules for the certification and oversight of the service providers concerned are essential to increase the Member States' confidence in each other's systems. Therefore, and in order to ensure the highest level of safety and security, uniform requirements for the provision of services and their oversight should be strengthened. That should ensure the safe, high-quality provision of services for the purpose of air navigation and the mutual recognition of certificates throughout the Union, thereby increasing freedom of movement and improving the availability of those services.

(5) In order to ensure a harmonised approach to certification and oversight, the measures to be implemented for security of systems, constituents in use and data should be coordinated across Member States, functional airspace blocks and the network formed by the services, functions and products offered by service providers, the Network Manager, aerodromes and other persons providing the necessary infrastructure for flight operations.

(6) Safety management ensures the identification, assessment and minimisation of safety risks as well as security vulnerabilities which have an impact on safety. Therefore, it is necessary to further elaborate the requirements related to the safety assessment of changes to the functional system by a certified organisation. Those requirements should be adapted taking into account the integration of requirements relating to change management into the common regulatory structure for civil aviation safety, as well as the experience gained by stakeholders and competent authorities in the field of safety oversight.

(7) It is appropriate to introduce safety culture as an aspect of the management systems of the service providers in a manner that promotes understanding and improvement of those systems, while acknowledging the need to strengthen management systems further, especially by integrating reliable occurrence reporting.

(8) It should be specified which authorities are responsible for the tasks related to certification, oversight and enforcement in respect of the service providers that are subject to this Regulation, in line with the criterion set out in Article 7(2) of Regulation (EC) No 550/2004 and the tasks of the European Aviation Safety Agency ('the Agency') pursuant to Article 22a of Regulation (EC) No 216/2008, and without prejudice to the requirements of Article 2 of Regulation (EC) No 550/2004. The Agency should be the competent authority for providers of data services and for the Network Manager, in light of the nature and scale of the services provided. In order to fulfil the objectives of Regulation (EC) No 216/2008, in particular the objective set out in point (d) of Article 2(2) thereof, and the objective set out in Article 1(3) of Regulation (EC) No 549/2004, it is also appropriate to align the requirements for the competent authorities with the progress in International Civil Aviation Organisation ('ICAO') safety management concepts, in particular the introduction of the authority management system, as well as in the implementation of the state safety programme and in ensuring coordination between those authorities.

(9) It should be clarified that, when exercising their certification, oversight and enforcement tasks under this Regulation, the competent authorities should be independent from any service provider, through ensuring adequate separation of those authorities from those providers at least at the functional level, and that any possible conflict of interest should be avoided. The aim is to guarantee the objectivity and impartiality of those authorities and to ensure that the exercise of their tasks under this Regulation is of high quality.

(10) The Agency should establish a database with relevant information relating to the competent authorities, so as to facilitate standardisation inspections of, and coordination with, the competent authorities, as well as to support the Commission in carrying out its tasks.

(11) With a view to ensuring that the requirements for service providers set out in this Regulation are complied with at all times and the competent authorities can effectively exercise their tasks under this Regulation, in accordance with Article 4(3) and (4) of Regulation (EC) No 549/2004, those authorities should be granted certain specific investigatory powers, in addition to the possibility to carry out investigations and surveys referred to in Article 2(2) of Regulation (EC) No 550/2004 and Article 10(2) and (3) of Regulation (EC) No 216/2008. It is appropriate to clarify that those powers should be exercised in accordance with the applicable rules of national law, while having due regard to a number of specific elements, which are meant to ensure a fair balance between all rights and interests at issue in a particular case.

(12) The air traffic safety electronics personnel employed by a service provider or the Network Manager should be subject to a harmonised training and competence assessment scheme. The service provider or Network Manager should also ensure that the personnel of contracted organisations are appropriately qualified. Therefore,

detailed provisions on training and competence assessment of such personnel should be included in this Regulation.

(13) In order to ensure a high level of civil aviation safety in the Union, the measures set out in this Regulation should reflect the state of the art in aviation safety, including best practice and scientific and technical progress in the field of meteorological services. Therefore, this Regulation should be based on the applicable ICAO standards and recommended practices, specifically Annex 3 to the Convention on International Aviation, signed in Chicago on 7 December 1944 ('Chicago Convention') on 'Meteorological Service for International Air Navigation', while drawing on the experience of Union and worldwide meteorological service provision and ensuring proportionality according to the size, type and complexity of the meteorological services provider.

(14) Common requirements should be established for the certification and oversight of data services providers to ensure that the providers of aeronautical data for use on aircraft process the data in an appropriate manner, which meets the airspace end-users' requirements and allows for safe performance-based navigation operations.

(15) The aeronautical industry and the competent authorities of the Member States should be allowed sufficient time to adapt to the new regulatory framework established by this Regulation and to replace certificates issued before the date of application of this Regulation.

(16) However, in order to ensure consistency with Regulation (EU) No 965/2012, the relevant provisions of this Regulation should apply to data services providers already from an earlier date. Moreover, those providers should be allowed, on a voluntary basis, to apply for, and be granted, the relevant certificates already immediately upon the entry into force of this Regulation, so as to allow them, as entities that are not subject to Implementing Regulation (EU) No 1035/2011 but that are subject to the practice of issuing voluntary letters of acceptance by the Agency, to benefit from an early application of this Regulation in this regard and the mutual recognition of those certificates. Such early application of this Regulation with respect to data services providers would also relieve aircraft operators from their oversight responsibilities when contracting the services of those providers, once the provider is certified for aeronautical databases. Where such a provider makes use of that possibility, it should be bound by the applicable requirements of this Regulation for the purposes of obtaining a certificate and subsequently continue to be bound by those requirements. In view of this possibility for data service providers, the relevant provisions of this Regulation concerning the competent authority in respect of those providers, which is in this case only the Agency, should also apply already from the date of entry into force of this Regulation.

(17) The provisions contained in Commission Implementing Regulation (EU) No 923/2012[11] should be complemented with aspects related to the provision of air traffic services, to ensure consistency of service provision with pilot and air traffic service personnel actions and requirements under that Regulation.

(18) The safety acceptability of any change proposed by a service provider should be assessed based on the analysis of the risks posed by the introduction of a change to its functional system, differentiated under either quantitative or qualitative objective assessment criteria, or a combination of both, to be determined at a local level.

(19) For reasons of consistency and ease of application, the provisions of Commission Regulation (EC) No 482/2008[(12)] should be integrated in this Regulation and Commission Regulation (EC) No 482/2008 should therefore be repealed.

(20) The requirements of Articles 12 and 21 of Commission Regulation (EU) No 677/2011[(13)] and Annex VI thereto should be integrated in this Regulation in order to ensure a harmonised approach to all service providers. Therefore, those provisions should be deleted.

(21) Commission Implementing Regulation (EU) 2016/1377[(14)], which has not yet become applicable, contains numerous errors. In order to eliminate those errors, while at the same time ensuring the required legal clarity, it is appropriate to repeal Implementing Regulation (EU) 2016/1377 in its entirety and to replace it with the rules set out in this Regulation.

(22) The measures provided for in this Regulation are based on the opinion of the Agency in accordance with Articles 17(2)(b) and 19(1) of Regulation (EC) No 216/2008.

(23) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 5(3) of Regulation (EC) No 549/2004,

HAS ADOPTED THIS REGULATION:

Article 1

Subject matter

This Regulation lays down common requirements for:

(1) the provision of air traffic management and air navigation services ('ATM/ANS') and other air traffic management network functions ('ATM network functions') for general air traffic, in particular for the legal or natural persons providing those services and functions;

(2) the competent **[**[F1]authority**]**, and the qualified entities acting on **[**[F2]its**]** behalf, which exercise certification, oversight and enforcement tasks in respect of the providers of the services and functions referred to in point (1).

Textual Amendments

F1 Word in Art. 1(2) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **3(a)**

F2 Word in Art. 1(2) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **3(b)**

Article 2

Definitions

For the purposes of this Regulation, the definitions in Annex I and the following definitions shall apply:

(1) the definitions in Article 2 of Regulation (EC) No 549/2004 and Article 3 of Regulation (EC) No 216/2008, except for the definition of 'certificate' in Article 2(15) of Regulation (EC) No 549/2004;

(1A) **[**F3'the CAA' means the Civil Aviation Authority;**]**

(2) **[**F4"ATM/ANS provider" means any legal or natural person providing any of the ATM/ANS as defined by Article 3(5) of Regulation (EU) 2018/1139, either individually or bundled, for general air traffic;**]**

(3) F5...

(4) F6...

(5) 'data services provider (DAT provider)' means an organisation, which is:

(a) type 1 DAT provider that processes aeronautical data for use on aircraft and provides an aeronautical database meeting the DQRs, under controlled conditions, for which no corresponding airborne application/equipment compatibility has been determined;

(b) type 2 DAT provider that processes aeronautical data and provides an aeronautical database for use on certified aircraft application/equipment meeting the DQRs for which compatibility with that application/equipment has been determined.

Textual Amendments

F3 Art. 2(1A) inserted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **4**

F4 Art. 2(2) substituted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **23**

F5 Art. 2(3) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **355**; 2020 c. 1, Sch. 5 para. 1(1)

F6 Art. 2(4) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **355**; 2020 c. 1, Sch. 5 para. 1(1)

Article 3

Provision of ATM/ANS and ATM network functions

1 **[**F7The Secretary of State**]** shall ensure that the appropriate ATM/ANS and ATM network functions are provided in accordance with this Regulation in a manner that facilitates general air traffic, while taking into account safety considerations and traffic requirements.

2 When **[**F8the Secretary of State adopts**]** additional provisions to complement this Regulation F9..., those provisions shall follow the standards and recommended practices set by the Chicago Convention. Where use is made of the provisions of Article 38 of the Chicago Convention, **[**F10the Secretary of State shall notify**]** the International Civil Aviation Organisation F11..., with due justification, at the latest two months after the additional provisions have been adopted.

3 **[**F12The CAA**]** shall publish, in accordance with the Chicago Convention, those additional provisions through **[**F13its**]** aeronautical information publications.

4 Where **[**F14the Secretary of State**]** decides to organise the provision of certain specific air traffic services in a competitive environment, **[**F15he or she**]** shall take all appropriate measures to ensure that the providers of those services shall neither engage in conduct that would have as its object or effect the prevention, restriction or distortion of competition, nor shall they engage in conduct that amounts to an abuse of a dominant position, in accordance with applicable F16... law.

5. **[**F17Organisations other than an ATM/ANS provider referred to in point (2) of Article 2 of this Regulation or aerodrome operators regulated by Regulation (EU) No 139/2014, when originating, processing or transmitting aeronautical data or aeronautical information intended for use in IFR traffic, shall meet the requirements laid down in:

(a) point ATM/ANS.OR.A.085 of Annex 3, except points (c), (d) and (f)(1) and (i);

(b) point ATM/ANS.OR.A.090 of Annex 3.

Such organisations shall ensure that aeronautical data and aeronautical information are originated, processed and transmitted by adequately trained, competent and authorised personnel.**]**

Textual Amendments

F7 Words in Art. 3(1) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(2)**

F8 Words in Art. 3(2) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(3)(a)**

F9 Words in Art. 3(2) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(3)(b)**

F10 Words in Art. 3(2) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(3)(c)**

F11 Words in Art. 3(2) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(3)(d)**

F12 Words in Art. 3(3) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(4)(a)**

F13 Word in Art. 3(3) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(4)(b)**

F14 Words in Art. 3(4) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(5)(a)**

F15 Words in Art. 3(4) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(5)(b)**

F16 Words in Art. 3(4) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **5(5)(c)**

F17 Art. 3(5) inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **24**

Article 4

Competent authority for certification, oversight and enforcement

1 **[**F18The competent authority responsible for the issuing of certificates to service providers, for the acknowledgement of receipts of declarations made by providers of flight information services referred to in Article 7 where relevant and for oversight and enforcement in respect of service providers shall be the CAA.**]**

F19...

2 The **[**F20competent authority**]** referred to in paragraph 1 shall comply with the requirements laid down in Annex II.

F213 . . . . . .

F224 . . . . . .

5 When exercising **[**F23its**]** certification, oversight and enforcement tasks under this Regulation, the competent **[**F24authority**]** shall be independent of any service provider. That independence shall be ensured by adequate separation, at least at the functional level, between the competent **[**F24authority**]** and the service providers. In this context, **[**F25the Secretary of State**]** shall ensure that the competent **[**F24authority**]****[**F26exercises**]****[**F23its**]** powers impartially and transparently.

6 **[**F27The Secretary of State**]** shall ensure that **[**F28the**]** competent **[**F29authority does**]** not allow **[**F30its**]** personnel to be involved in the exercise of the certification, oversight and enforcement tasks of that authority under this Regulation where there are indications that such involvement could result, directly or indirectly, in a conflict of interest, in particular relating to family or financial interests.

F317 . . . . . .

8 **[**F32The Secretary of State**]** shall determine the necessary resources and capabilities required by the competent **[**F33authority for the exercise of its**]** tasks, in accordance with Article 4(4) of Regulation (EC) No 549/2004 and Article 22a of Regulation (EC) No 216/2008, taking into account all relevant factors, including an assessment carried out by the F34... competent **[**F35authority**]** to determine the resources needed for the exercise of **[**F36its tasks**]** under this Regulation.

Textual Amendments

F18 Art. 4(1) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **6(2)**

F19 Words in Art. 4 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(3)**; 2020 c. 1, Sch. 5 para. 1(1)

F20 Words in Art. 4(2) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(4)**; 2020 c. 1, Sch. 5 para. 1(1)

F21 Art. 4(3) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **6(3)**

F22 Art. 4(4) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **6(3)**

F23 Word in Art. 4(5) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(5)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F24 Word in Art. 4(5) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(5)(b)**; 2020 c. 1, Sch. 5 para. 1(1)
F25 Words in Art. 4(5) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(5)(c)**; 2020 c. 1, Sch. 5 para. 1(1)
F26 Word in Art. 4(5) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(5)(d)**; 2020 c. 1, Sch. 5 para. 1(1)
F27 Words in Art. 4(6) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(6)(a)**; 2020 c. 1, Sch. 5 para. 1(1)
F28 Word in Art. 4(6) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(6)(b)**; 2020 c. 1, Sch. 5 para. 1(1)
F29 Words in Art. 4(6) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(6)(c)**; 2020 c. 1, Sch. 5 para. 1(1)
F30 Word in Art. 4(6) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(6)(d)**; 2020 c. 1, Sch. 5 para. 1(1)
F31 Art. 4(7) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **6(3)**
F32 Words in Art. 4(8) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(7)(a)**; 2020 c. 1, Sch. 5 para. 1(1)
F33 Words in Art. 4(8) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(7)(b)**; 2020 c. 1, Sch. 5 para. 1(1)
F34 Word in Art. 4(8) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(7)(c)**; 2020 c. 1, Sch. 5 para. 1(1)
F35 Word in Art. 4(8) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(7)(d)**; 2020 c. 1, Sch. 5 para. 1(1)
F36 Words in Art. 4(8) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **356(7)(e)**; 2020 c. 1, Sch. 5 para. 1(1)

Article 5

Powers of the competent authority referred to in Article 4

1 The competent **[**F37authority**]** shall, where required for the exercise of **[**F38its**]** certification, oversight and enforcement tasks under this Regulation, be empowered to:

a require the service providers subject to **[**F38its**]** oversight to provide all necessary information;

b require any representative, manager or other member of the personnel of those service providers to provide oral explanations on any fact, document, object, procedure or other subject matter relevant to the oversight of the service provider;

c enter any premises and land, including operating sites, and means of transport of those service providers;

d examine, copy or make extracts from any document, record or data held by or accessible to those service providers, irrespective of the medium on which the information in question is stored;

e carry out audits, assessments, investigations and inspections of those service providers.

2 The competent **[**F39authority**]** shall, where required for the exercise of **[**F40its**]** certification, oversight and enforcement tasks under this Regulation, also be empowered to exercise the powers set out in paragraph 1 in relation to the contracted organisations subject to the service providers' oversight, as referred to in point ATM/ANS.OR.B.015 of Annex III.

3 The powers provided for in paragraphs 1 and 2 shall be exercised in compliance with the **[**F41applicable law**]**, with due regard for the need to ensure the effective exercise of those

powers and for the rights and legitimate interests of the service provider and any third persons concerned, and in compliance with the principle of proportionality. Where, in accordance with the applicable [F42]... law, prior **[**[F43]judicial**]** authorisation [F44]... is needed to enter premises, land and means of transport as referred to in point (c) of paragraph 1, the related powers shall be exercised only after having obtained such prior authorisation.

When exercising the powers provided for in paragraphs 1 and 2, the competent authority shall ensure that the members of its staff and, where relevant, any other expert participating in the activities in question are duly authorised.

4 The competent **[**[F45]authority**]** shall take or initiate any appropriate enforcement measure necessary to ensure that the service providers to which **[**[F46]it**]** issued a certificate or, where relevant, which made a declaration to **[**[F47]it**]**, comply and continue to comply with the requirements of this Regulation.

Textual Amendments

F37 Word in Art. 5(1) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(2)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F38 Word in Art. 5(1) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(2)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

F39 Word in Art. 5(2) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(3)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F40 Word in Art. 5(2) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(3)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

F41 Words in Art. 5(3) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(4)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F42 Word in Art. 5(3) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(4)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

F43 Word in Art. 5(3) inserted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(4)(c)**; 2020 c. 1, Sch. 5 para. 1(1)

F44 Words in Art. 5(3) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(4)(d)**; 2020 c. 1, Sch. 5 para. 1(1)

F45 Word in Art. 5(4) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(5)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F46 Word in Art. 5(4) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(5)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

F47 Word in Art. 5(4) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **357(5)(c)**; 2020 c. 1, Sch. 5 para. 1(1)

Article 6

Service providers

Service providers shall be granted a certificate and be entitled to exercise the privileges granted within the scope of that certificate, where, in addition to the requirements referred to in Article 8b(1) of Regulation (EC) No 216/2008, they comply and continue to comply with the following requirements:

(a) for all service providers, the requirements laid down in Annex III (Part-ATM/ANS.OR), Subparts A and B, and in Annex XIII (Part-PERS);

(b) for service providers other than providers of air traffic services, in addition to the requirements of point (a), the requirements laid down in Annex III (Part-ATM/ANS.OR), Subpart C;

(c) for providers of air navigation services[F48]..., in addition to the requirements of point (a), the requirements laid down in Annex III (Part-ATM/ANS.OR), Subpart D;

(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);

(e) for providers of meteorological services, in addition to the requirements of points (a), (b) and (c), the requirements laid down in Annex V (Part-MET);

(f) for providers of aeronautical information services, in addition to the requirements of points (a), (b) and (c), the requirements laid down in Annex VI (Part-AIS);

(g) for data services providers, in addition to the requirements of points (a) and (b), the requirements laid down in Annex VII (Part-DAT);

(h) for providers of communication, navigation or surveillance services, in addition to the requirements of points (a), (b) and (c), the requirements laid down in Annex VIII (Part-CNS);

(i) for providers of air traffic flow management, in addition to the requirements of points (a), (b) and (c), the requirements laid down in Annex IX (Part-ATFM);

(j) for providers of airspace management, in addition to the requirements of points (a) and (b), the requirements laid down in Annex X (Part-ASM);

(k) for providers of procedure design, in addition to the requirements of points (a) and (b), the requirements laid down in Annex XI (Part-ASD)[F49]...;

(l) [F50]...

Textual Amendments

F48 Words in Art. 6(c) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **7(2)**

F49 Words in Art. 6(k) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **7(3)**

F50 Art. 6(l) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **7(4)**

Article 7

Declaration by providers of flight information services

Where **[**[F51]the Secretary of State allows**]** providers of flight information services to declare their capability and means of discharging the responsibilities associated with the services provided in accordance with Article 8b(3) of Regulation (EC) No 216/2008, those providers shall fulfil, in addition to the requirements referred to in Article 8b(1) of Regulation (EC) No 216/2008, the requirements laid down in point ATM/ANS.OR.A.015 in Annex III to this Regulation.

Textual Amendments

F51 Words in Art. 7 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **8**

Article 8

Existing certificates

1 Certificates that have been issued in accordance with Implementing Regulation (EU) No 1035/2011 shall be deemed to have been issued in accordance with this Regulation.

2 **[**F52The competent authority**]** shall replace the certificates referred to in paragraph 1 with certificates complying with the format laid down in Appendix 1 to Annex II by 1 January 2021 at the latest.

Textual Amendments

F52 Words in Art. 8(2) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **9**

Article 9

Repeal and amendment

1 Regulation (EC) No 482/2008 and Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 are repealed.

F532 . . . . . .

F543 . . . . . .

Textual Amendments

F53 Art. 9(2) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **359**; 2020 c. 1, Sch. 5 para. 1(1)

F54 Art. 9(3) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **10**

F55*Article 10*

Entry into force

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Textual Amendments

F55 Art. 10 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **360**; 2020 c. 1, Sch. 5 para. 1(1)

F56 …

Textual Amendments

F56 Words in Signature omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **361**; 2020 c. 1, Sch. 5 para. 1(1)

ANNEX I

DEFINITIONS OF TERMS USED IN ANNEXES II TO XIII (Part-DEFINITIONS)

For the purposes of Annexes II to XIII, the following definitions shall apply:

(1) ‘acceptable means of compliance (AMC)’ means non-binding standards adopted by the **[**F57competent authority**]** to illustrate means to establish compliance with Regulation (EC) No 216/2008 and its implementing rules;

(1A) **[**F58‘air-ground communication’ means two-way communication between aircraft and stations or locations on the surface of the Earth;**]**

(2) ‘aerial work’ means an aircraft operation in which an aircraft is used for specialised services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue or aerial advertisement;

(3) ‘aerodrome climatological summary’ means a concise summary of specified meteorological elements at an aerodrome, based on statistical data;

(4) ‘aerodrome climatological table’ means a table providing statistical data on the observed occurrence of one or more meteorological elements at an aerodrome;

(5) ‘aerodrome elevation’ means the elevation of the highest point of the landing area;

(6) ‘aerodrome flight information service (AFIS)’ means flight information service and alerting service for aerodrome traffic at an aerodrome;

(7) ‘aerodrome meteorological office’ means an office responsible for providing meteorological service for an aerodrome;

(8) ‘aerodrome warning’ means information issued by an aerodrome meteorological office concerning the occurrence or expected occurrence of meteorological conditions which could adversely affect aircraft on the ground, including parked aircraft and the aerodrome facilities and services;

(9) ‘aeronautical data’ means a representation of aeronautical facts, concepts or instructions in a formalised manner suitable for communication, interpretation or processing;

(10) ‘aeronautical database’ means a collection of aeronautical data organised and arranged as a structured data set, stored electronically on systems, which is valid for a dedicated period and may be updated;

(11) ‘aeronautical fixed service (AFS)’ means a telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services;

(12) ‘aeronautical fixed telecommunication network (AFTN)’ means a worldwide system of aeronautical fixed circuits provided, as part of the AFS, for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics;

(13) ‘aeronautical information’ means information resulting from the assembly, analysis and formatting of aeronautical data;

(14) ‘aerodrome mapping data’ means data collected for the purpose of compiling aerodrome mapping information;

(15) ‘aerodrome mapping database (AMDB)’ means a collection of aerodrome mapping data organised and arranged as a structured data set;

(16) ‘aeronautical meteorological station’ means a station making observations and meteorological reports for use in air navigation;

(17) ‘air-report’ means a report from an aircraft in flight prepared in conformity with the requirements for position and operational and/or meteorological reporting;

(18) ‘aircraft’ means any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface;

(19) ‘AIRMET message’ 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;

(20) ‘air traffic safety electronics personnel (ATSEP)’ means any authorised personnel who are competent to operate, maintain, release from, and return into operations equipment of the functional system;

(21) ‘air traffic services unit’ is a generic term meaning variously air traffic control unit, flight information centre, aerodrome flight information service unit or air traffic services reporting office;

(22) ‘alternate aerodrome’ means an aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing where the necessary services and facilities are available, where aircraft performance requirements can be met and which is operational at the expected time of use;

(23) ‘**[**F59means of compliance (MOC)**]**’ means those means of compliance that propose an alternative to an existing AMC or those that propose new means to establish compliance with Regulation (EC) No 216/2008 and its Implementing Rules for which no associated AMC have been adopted by the **[**F60competent authority**]**;

(24) ‘altitude’ means the vertical distance of a level, a point, or an object considered as a point, measured from mean sea level;

(25) ‘area control centre (ACC)’ means a unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction;

(26) ‘area forecast for low-level flights’ means a forecast of weather phenomena for a flight information region or sub-area thereof, issued to cover the layer below flight level 100 (or below flight level 150 in mountainous areas, or higher, where necessary);

(26A) **[**F61‘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;

(26B) '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;

(26C) '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 amendment and supplements;
— AIC;
— aeronautical charts;
— NOTAM;
— digital data sets;

(26D) '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;

(26E) 'AIP amendment' means a permanent change to the information contained in the AIP;

(26F) 'AIP supplement' means a temporary change to the information contained in the AIP, which is provided by means of special pages;

(26G) '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;**]**

(27) 'area navigation (RNAV)' means a method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of them;

(28) 'argument' means a claim that is supported via inferences by a body of evidence;

(29) 'ASHTAM' means a special series of NOTAM notifying by means of a specific format of a change in the activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations;

(29A) **[**F62'assemble' means a process of merging data from multiple sources into a database and establishing a baseline for subsequent processing;**]**

(30) **[**F63'ATM network functions' means the air traffic management (ATM) functions mentioned in Article 6(2) of Regulation (EU) No 551/2004;**]**

(30A) **[**F64'ATS route' means a specified route designated for channelling the flow of traffic as necessary for the provision of ATS;**]**

(31) 'audit' means a systematic, independent and documented process for obtaining evidence and evaluating it objectively to determine the extent to which requirements are complied with;

(32) 'authoritative source' means:

(a) **[**F65the competent authority**]**: or

(b) an organisation formally recognised by the **[**F66competent authority**]** to originate and/or publish data which meets the data quality requirements (DQRs) as specified by **[**F67the Secretary of State**]**;

(33) 'automatic observing system' means an observing system that measures, derives and reports all required elements without human interaction;

(34) 'aviation undertaking' means an entity, person or organisation, other than the service providers regulated by this Regulation, that is affected by or affects a service delivered by a service provider;

(35) 'break' means a period of time within the duty period when an air traffic controller is not required to perform duties, for recuperation purposes;

(35A) **[**F68'broadcast' means a transmission of information relating to air navigation that is not addressed to a specific station or stations;**]**

(36) 'certified aircraft application' means a software application approved by the **[**F69competent authority**]** as part of aircraft subject to Article 4 of Regulation (EC) No 216/2008;

(37) 'cloud of operational significance' means a cloud with the height of cloud base below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater, or a cumulonimbus cloud or a towering cumulus cloud at any height;

(38) 'commercial air transport' means any aircraft operation involving the transport of passengers, cargo or mail for remuneration or other valuable consideration;

(38A) **[**F70'completeness' means, in relation to data, the degree of confidence that all data needed to support the intended use is provided;

(38B) 'confidence level' means the probability that the true value of a parameter is within a certain interval around the estimate of its value;**]**

(39) 'control area' means a controlled airspace extending upwards from a specified limit above the earth;

(39A) **[**F71'control zone' means a controlled airspace extending upwards from the surface of the Earth to a specified upper limit;

(39B) 'controlled airspace' means an airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification;**]**

(40) 'critical incident stress' means the manifestation of unusual and/or extreme emotional, physical and/or behavioural reactions of an individual following an event or incident;

(40A) **[**F72'cruising level' means a level maintained during a significant portion of a flight;

(40B) '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;

(40C) 'danger area' means an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times;

(40D) 'data accuracy' means a degree of conformance between the estimated or measured value and the true value;

(40E) 'data collection surface' means a defined surface intended for the purpose of collecting obstacle or terrain data;

(40F) '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;

(40G) 'data item' means a single attribute of a complete data set, which is allocated a value that defines its current status;

(40H) '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;

(40I) '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;

(40J) 'data set' means an identifiable collection of data;**]**

(41) 'data quality' means a degree or level of confidence that the provided data meets the user's data requirements in terms of accuracy, resolution, integrity (or equivalent assurance level), traceability, timeliness, completeness, and format;

(41A) **[**F73'datum' means any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities;**]**

(42) 'data quality requirements (DQRs)' means a specification of the characteristics of data (i.e. accuracy, resolution, integrity (or equivalent assurance level), traceability, timeliness, completeness and format) to ensure that the data is compatible with its intended use;

(43) 'destination alternate' means an alternate aerodrome at which an aircraft would be able to land should it become either impossible or inadvisable to land at the aerodrome of intended landing;

(44) 'duty' means any task that an air traffic controller is required to perform by the air traffic control service provider;

(45) 'duty period' means a period which starts when an air traffic controller is required by the air traffic control service provider to report for or be available for or to commence duty and ends when the air traffic controller is free from duty;

(46) 'elevation' means the vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level;

(47) '*en-route* alternate' means an alternate aerodrome at which an aircraft would be able to land in the event that a diversion becomes necessary while *en-route*;

(48) 'fatigue' means a physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian phase or workload (mental or physical activity, or both) that can impair an individual's alertness and ability to safely perform his/her tasks;

(48A) **[**F74'feature' means an abstraction of real world phenomena;

(48B) 'feature attribute' means a characteristic of a feature that has a name, a date type and a value domain associated with it;

(48C) 'feature type' means a class of real world phenomena with common properties, which forms the basic level of classification in a feature catalogue;

(48D) '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 the 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;**]**

(49) 'flight documentation' means documents, including charts or forms, containing meteorological information for a flight;

(50) 'flight information centre (FIC)' means a unit established to provide flight information service and alerting service;

(51) 'flight information region (FIR)' means an airspace of defined dimensions within which flight information service and alerting service are provided;

(52) 'flight level (FL)' means a surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013,2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals;

(53) 'flight test' means a flight for the development phase of a new design (aircraft, propulsion systems, parts and appliances), a flight to demonstrate compliance to certification basis or to type design for aircraft coming from the production line, a flight intended to experiment new design concepts, requiring unconventional manoeuvres or profiles for which it could be possible to exit the already approved envelope of the aircraft or a training flight to perform either of those flights;

(54) 'forecast' means a statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace;

(55) 'forecast for take-off' means a forecast for a specified period of time, prepared by an aerodrome meteorological office, which contains information on expected conditions over the runways complex in regard to surface wind direction and speed and any variations thereof, temperature, pressure (QNH) and any other element as agreed locally;

(55A) **[**[F75]'format' means in relation to data, a structure of data items, records and files arranged to meet standards, specifications or data quality requirements;**]**

(56) 'functional system' means a combination of procedures, human resources and equipment, including hardware and software, organised to perform a function within the context of ATM/ANS and other ATM network functions;

(57) 'general aviation' means any civil aircraft operation other than aerial work or commercial air transport;

(57A) **[**F76‘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;

(57B) ‘geoid undulation’ means the distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid;**]**

(58) ‘grid point data in digital form’ means computer-processed meteorological data for a set of regularly spaced points on a chart, for transmission from a meteorological computer to another computer in a code form suitable for automated use;

(59) ‘guidance material’ means non-binding material developed by the **[**F77competent authority**]** that helps to illustrate the meaning of a requirement or specification and is used to support the interpretation of Regulation (EC) No 216/2008, its implementing rules and AMC;

(60) ‘gridded global forecasts’ means forecasts of expected values of meteorological elements on a global grid with a defined vertical and horizontal resolution;

(61) ‘hazard’ means any condition, event, or circumstance which could induce a harmful effect;

(62) ‘height’ means the vertical distance of a level, a point or an object considered as a point, measured from a specified datum;

(62A) **[**F78‘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;

(62B) ‘identification’ means the situation which exists when the position indication of a particular aircraft is seen on a situation display and positively identified;

(62C) ‘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;

(62D) ‘international NOTAM office (NOF)’ means an office designated by a State for the exchange of NOTAM internationally;**]**

(63) ‘level’ is a generic term relating to the vertical position of an aircraft in flight and meaning variously height, altitude or flight level;

(64) ‘local routine report’ means a meteorological report issued at fixed time intervals, intended only for dissemination at the aerodrome of origin where the observations were made;

(65) ‘local special report’ means a meteorological report issued in accordance with the criteria established for special observations, intended only for dissemination at the aerodrome of origin where the observations were made;

(65A) **[**F79‘metadata’ means data about data;**]**

(66) ‘meteorological bulletin’ means a text comprising meteorological information preceded by an appropriate heading;

(67) ‘meteorological information’ means meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions;

(68) 'meteorological observation' means the measurement and/or evaluation of one or more meteorological elements;

(69) 'meteorological report' means a statement of observed meteorological conditions related to a specified time and location;

(70) 'meteorological satellite' means an artificial Earth satellite making meteorological observations and transmitting these observations to Earth;

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

(72) 'minimum sector altitude (MSA)' means the lowest altitude which may be used which 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 significant point, the aerodrome reference point (ARP) or the heliport reference point (HRP);

(72A) **[**[F80]'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;

(72B) '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;**]**

(73) 'NOTAM' means a notice distributed by means of telecommunication containing information concerning the establishment, condition, or change in any aeronautical facility, service, procedure, or hazard, the timely knowledge of which is essential to personnel concerned with flight operations;

(74) 'obstacle' means all fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

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

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

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

(75) 'OPMET' means operational meteorological information for use in preparatory or in-flight planning of flight operations;

(76) 'OPMET databank' means a databank established to store and make available internationally operational meteorological information for aeronautical use;

(76A) **[**[F81]'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;**]**

(77) 'pre-eruption volcanic activity' means an unusual and/or increasing volcanic activity which could presage a volcanic eruption;

(78) 'prevailing visibility' means the greatest visibility value, observed in accordance with the definition of 'visibility', which is reached within at least half the horizon circle

or within at least half of the surface of the aerodrome. These areas could comprise contiguous or non-contiguous sectors;

(79) 'problematic use of psychoactive substances' means the use of one or more psychoactive substances by an individual, in a way that:

(a) constitutes a direct hazard to the user or endangers the lives, health, or welfare of others; and/or

(b) causes or worsens an occupational, social, mental or physical problem or disorder;

(80) 'prognostic chart' means a forecast of (a) specified meteorological element(s) for a specified time or period and a specified surface or portion of airspace, depicted graphically on a chart;

(80A) **[**F82'prohibited area' means an airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.**]**

(81) 'psychoactive substances' means alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas caffeine and tobacco are excluded;

(82) 'rescue coordination centre (RCC)' means a unit responsible for promoting efficient organisation of search and rescue services, and for coordinating the conduct of search and rescue operations within a search and rescue region;

(82A) **[**F83'resolution' means, in relation to data, a number of units or digits to which a measured or calculated value is expressed and used;**]**

(83) 'rest period' means a continuous and defined period of time, subsequent to and/or prior to duty, during which an air traffic controller is free of all duties;

(83A) **[**F84'restricted area' means an airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions;**]**

(84) 'rostering system' means the structure of duty and rest periods of air traffic controllers in accordance with legal and operational requirements;

(85) 'risk' means the combination of the overall probability or frequency of occurrence of a harmful effect induced by a hazard and the severity of that effect;

(85A) **[**F85'route stage' means a route or portion of a route flown without an intermediate landing;**]**

(86) 'runway' means a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft;

(87) 'runway visual range (RVR)' means the range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line;

(88) 'safety directive' means a document issued or adopted by **[**F86the competent authority**]** which mandates actions to be performed on a functional system or sets restrictions to its operational use to restore safety when evidence shows that aviation safety may otherwise be compromised;

(89) 'safety management system (SMS)' means a systematic approach to managing safety, including the necessary organisational structures, accountabilities, policies, and procedures;

(90) 'search and rescue services unit' is a generic term covering, as the case may be, rescue coordination centre, rescue sub-centre or alerting post;

(91) 'selected volcano observatory' means a provider, selected by the competent authority, that observes the activity of a volcano or a group of volcanoes and makes these observations available to an agreed list of aviation recipients;

(92) 'semi-automatic observing system' means an observing system that allows the augmentation of measured elements and requires a human in the loop for issuing the appropriate reports;

(93) 'SIGMET' means information concerning *en-route* weather phenomena, which may affect the safety of aircraft operations;

(94) 'SIGMET message' 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 aircraft operations and of the development of those phenomena in time and space;

(94A) **[**[F87]'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;**]**

(95) 'special air-report' means a meteorological report by an aircraft issued in accordance with the criteria based on observations made during the flight;

(96) 'stress' means the outcomes experienced by an individual when faced with a potential cause ('stressor') of human performance modification. The experience of the stressor may impact the individual's performance negatively (distress), neutrally or positively (eustress), based on the individual's perception of his/her ability to manage the stressor;

(97) 'system and equipment rating training' means training designed to impart specific system/equipment knowledge and skills leading towards operational competence;

(98) 'tailored data' means aeronautical data which is provided by the aircraft operator or DAT provider on the aircraft operator's behalf and produced for this aircraft operator for its intended operational use;

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

(99A) **[**[F88]'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;**]**

(100) 'terminal aerodrome forecast (TAF)' means a concise statement of the expected meteorological conditions at an aerodrome for a specified period;

(101) 'terrain' means the surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles;

(102) 'threshold' means the beginning of that portion of the runway usable for landing;

(102A) **[**F89'timeliness' means, in relation to data, the degree of confidence that the data is applicable to the period of its intended use;**]**

(103) 'touchdown zone' means the portion of a runway, beyond the threshold, where it is intended that landing aeroplanes first contact the runway;

(103A) **[**F90'traceability' means, in relation to data, the degree to which a system or 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;

(103B) '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);

(103C) 'transition altitude' means the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes;

(103D) 'transition level' means the lowest flight level available for use above the transition altitude;**]**

(104) 'tropical cyclone' is a generic term for a non-frontal synoptic-scale cyclone originating over tropical or subtropical waters with organised convection and definite cyclonic surface wind circulation;

(105) 'tropical cyclone advisory centre (TCAC)' means a meteorological centre providing advisory information to meteorological watch offices, world area forecast centres and international OPMET databanks regarding the position, forecast direction and speed of movement, central pressure and maximum surface wind of tropical cyclones;

(105A) **[**F91'validation' means, in relation to data, the process of ensuring that data meets the requirements for the specified application or intended use;

(105B) '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;**]**

(106) 'visibility' means visibility for aeronautical purposes, which is the greater of:

(a) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognised when observed against a bright background;

(b) the greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background;

(106A) **[**F92'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;

(106B) 'visual flight rules flight' or 'VFR flight' means a flight conducted in accordance with the visual flight rules;**]**

(107) 'volcanic ash advisory centre (VAAC)' means a meteorological centre providing advisory information to meteorological watch offices, area control centres, flight information centres, world area forecast centres and international OPMET databanks

regarding the lateral and vertical extent and forecast movement of volcanic ash in the atmosphere following volcanic eruptions;

(107A) **[**[F93]'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;**]**

(108) 'world area forecast centre (WAFC)' means a meteorological centre preparing and issuing significant weather forecasts and upper-air forecasts in digital form on a global basis direct to the **[**[F94]United Kingdom**]** by appropriate means as part of the aeronautical fixed service;

(109) 'world area forecast system (WAFS)' means a worldwide system by which world area forecast centres provide aeronautical meteorological *en-route* forecasts in uniform standardised formats.

Textual Amendments

F57 Words in Annex 1 point 1 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(2)**

F58 Annex 1 point 1A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(2)**

F59 Words in Annex 1 point 23 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(3)(a)**

F60 Words in Annex 1 point 23 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(3)(b)**

F61 Annex 1 points 26A-26G inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(3)**

F62 Annex 1 point 29A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(4)**

F63 Annex 1 point 30 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(4)**

F64 Annex 1 point 30A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(5)**

F65 Words in Annex 1 point 32(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(5)(a)**

F66 Words in Annex 1 point 32(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(5)(b)(i)**

F67 Words in Annex 1 point 32(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(5)(b)(ii)**

F68 Annex 1 point 35A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(6)**

F69 Words in Annex 1 point 36 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(6)**

F70 Annex 1 points 38A, 38B inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(7)**

F71 Annex 1 points 39A, 39B inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(8)**

F72 Annex 1 points 40A-40J inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(9)**

F73 Annex 1 point 41A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(10)**

F74 Annex 1 points 48A-48D inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(11)**

F75 Annex 1 point 55A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(12)**

F76 Annex 1 points 57A, 57B inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(13)**

F77 Words in Annex 1 point 59 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(7)**

F78 Annex 1 points 62A-62D inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(14)**

F79 Annex 1 point 65A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(15)**

F80 Annex 1 points 72A, 72B inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(16)**

F81 Annex 1 point 76A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(17)**

F82 Annex 1 point 80A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(18)**

F83 Annex 1 point 82A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(19)**

F84 Annex 1 point 83A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(20)**

F85 Annex 1 point 85A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(21)**

F86 Words in Annex 1 point 88 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(8)**

F87 Annex 1 point 94A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(22)**

F88 Annex 1 point 99A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(23)**

F89 Annex 1 point 102A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(24)**

F90 Annex 1 points 103A-103D inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(25)**

F91 Annex 1 points 105A, 105B inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(26)**

F92 Annex 1 points 106A. 106B inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(27)**

F93 Annex 1 point 107A inserted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **25(28)**

F94 Words in Annex 1 point 108 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **11(9)**

ANNEX II

REQUIREMENTS FOR COMPETENT AUTHORITIES — OVERSIGHT OF SERVICES AND OTHER ATM NETWORK FUNCTIONS (Part-ATM/ANS.AR)

SUBPART A — GENERAL REQUIREMENTS

ATM/ANS.AR.A.001 Scope

This Annex establishes the requirements for the administration and management systems of the **[**F95competent authority so far as it exercises**]** certification, oversight and enforcement **[**F96tasks**]** in respect of the application of the requirements set out in Annexes III to XIII by the service providers in accordance with Article 6.

Textual Amendments

F95 Words in Annex 2 point ATM/ANS.AR.A.001 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(2)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F96 Word in Annex 2 point ATM/ANS.AR.A.001 inserted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(2)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.AR.A.005 Certification, oversight and enforcement tasks

(a) The competent authority shall exercise certification, oversight and enforcement tasks in respect of the application of the requirements applicable to service providers, monitor the safe provision of their services and verify that the applicable requirements are met.

(b) The **[**F97competent authority**]** shall identify and exercise the responsibilities for certification, oversight and enforcement in a manner which ensures that:

(1) specific points of responsibility exist to implement each provision of this Regulation;

(2) **[**F98it is**]** aware of the safety oversight mechanisms and **[**F98its**]** results;

(3) F99...

F100...

(c) F101...

Textual Amendments

F97 Words in Annex 2 point ATM/ANS.AR.A.005(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(3)(a)(i)**; 2020 c. 1, Sch. 5 para. 1(1)

F98 Word in Annex 2 point ATM/ANS.AR.A.005(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **12(2)**

F99 Words in Annex 2 point ATM/ANS.AR.A.005(b) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(3)(a)(ii)**; 2020 c. 1, Sch. 5 para. 1(1)

F100 Words in Annex 2 point ATM/ANS.AR.A.005 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(3)(a)(iii)**; 2020 c. 1, Sch. 5 para. 1(1)

F101 Annex 2 point ATM/ANS.AR.A.005(c) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(3)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.AR.A.010 Certification, oversight and enforcement documentation

The competent authority shall make available the relevant legislative acts, standards, rules, technical publications and related documents to its personnel in order to perform their tasks and to discharge their responsibilities.

ATM/ANS.AR.A.015 Means of compliance

(a) F102...

(b) **[**F103Means of compliance (MOC)**]** may be used to establish compliance with the requirements of this Regulation.

(c) The competent authority shall establish a system to consistently evaluate that all **[**F104MOC**]** used by itself or by the service providers under its oversight allow the establishment of compliance with the requirements of this Regulation.

(d) The competent authority shall evaluate all **[**F105MOC**]** proposed by a service provider in accordance with point ATM/ANS.OR.A.020 by analysing the documentation provided and, if considered necessary, conducting an inspection of the service provider.

When the competent authority finds that the **[**F105MOC**]** are sufficient to ensure compliance with the applicable requirements of this Regulation it shall without undue delay:

(1) notify the applicant that the **[**F105MOC**]** may be implemented and, if applicable, amend the certificate of the applicant accordingly;

(2) F106...

(3) F106...

(e) When the competent authority itself uses **[**F107MOC**]** to achieve compliance with the applicable requirements of this Regulation, it shall:

(1) make them available to all service providers under its oversight;

(2) F108...

F108...

Textual Amendments

F102 Annex 2 point ATM/ANS.AR.A.015(a) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(4)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F103 Words in Annex 2 point ATM/ANS.AR.A.015(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(4)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

F104 Word in Annex 2 point ATM/ANS.AR.A.015(c) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(4)(c)**; 2020 c. 1, Sch. 5 para. 1(1)

F105 Word in Annex 2 point ATM/ANS.AR.A.015(d) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(4)(d)(i)**; 2020 c. 1, Sch. 5 para. 1(1)

F106 Words in Annex 2 point ATM/ANS.AR.A.015(d) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(4)(d)(ii)**; 2020 c. 1, Sch. 5 para. 1(1)

F107 Word in Annex 2 point ATM/ANS.AR.A.015(e) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(4)(e)(i)**; 2020 c. 1, Sch. 5 para. 1(1)

F108 Words in Annex 2 point ATM/ANS.AR.A.015(e) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(4)(e)(ii)** and by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **12(3)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.AR.A.020 Information to the Agency

(a) F109...

(b) F109...

Textual Amendments

F109 Annex 2 point ATM/ANS.AR.A.020 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(5)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.AR.A.025 Immediate reaction to safety problem

(a) Without prejudice to Regulation (EU) No 376/2014, the competent authority shall implement a system to appropriately collect, analyse, and disseminate safety information.

(b) F110...

(c) Upon receiving the information referred to in **[**F111point (a)**]** , the competent authority shall take adequate measures to address the safety problem, including the issuing of safety directives in accordance with point ATM/ANS.AR.A.030.

(d) Measures taken under point (c) shall immediately be notified to the service providers concerned to comply with them, in accordance with point ATM/ANS.OR.A.060. F112...

Textual Amendments

F110 Words in Annex 2 point ATM/ANS.AR.A.025(b) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(6)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F111 Words in Annex 2 point ATM/ANS.AR.A.025(c) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(6)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

F112 Words in Annex 2 point ATM/ANS.AR.A.025(d) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(6)(c)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.AR.A.030 Safety directives

(a) The competent authority shall issue a safety directive when it has determined the existence of an unsafe condition in a functional system requiring immediate action.

(b) The safety directive shall be forwarded to the service providers concerned and contain, as a minimum, the following information:

(1) the identification of the unsafe condition;

(2) the identification of the affected functional system;

(3) the actions required and their rationale;

(4) the time limit for completing the actions required;

(5) its date of entry into force.

(c) F113...

(d) The competent authority shall verify the compliance of service providers with the applicable safety directives.

Textual Amendments

F113 Annex 2 point ATM/ANS.AR.A.030(c) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(7)**; 2020 c. 1, Sch. 5 para. 1(1)

SUBPART B — MANAGEMENT (ATM/ANS.AR.B)

ATM/ANS.AR.B.001 Management system

(a) The competent authority shall establish and maintain a management system, including, as a minimum, the following elements:

(1) documented policies and procedures to describe its organisation, means and methods to achieve compliance with Regulation (EC) No 216/2008 and its implementing rules as necessary for the exercise of its certification, oversight and enforcement tasks under this Regulation. The procedures shall be kept up to date and serve as the basic working documents within **[**F114the**]** competent authority for all related tasks;

(2) a sufficient number of personnel, including inspectors, to perform its tasks and discharge its responsibilities under this Regulation. Such personnel shall be qualified to perform their allocated tasks and have the necessary knowledge, experience, initial, on-the-job and recurrent training to ensure continuing competence. A system shall be in place to plan the availability of personnel, in order to ensure the proper completion of all related tasks;

(3) adequate facilities and office accommodation to perform those allocated tasks;

(4) a process to monitor compliance of the management system with the relevant requirements and adequacy of the procedures, including the establishment of

an internal audit process and a safety risk management process. Compliance monitoring shall include a feedback system of audit findings to the senior management of the competent authority to ensure implementation of corrective actions as necessary;

(5) a person or group of persons ultimately responsible to the senior management of the competent authority for the compliance monitoring function.

(b) The competent authority shall, for each field of activity included in the management system, appoint one or more persons with the overall responsibility for the management of the relevant task(s).

(c) F115...

(d) F115...

Textual Amendments

F114 Word in Annex 2 point ATM/ANS.AR.B.001(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(8)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F115 Annex 2 point ATM/ANS.AR.B.001(b)(c) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(8)(b)**; 2020 c. 1, **Sch. 5 para. 1(1)**

ATM/ANS.AR.B.005 Allocation of tasks to qualified entities

(a) The competent authority may allocate its tasks related to the certification or oversight of service providers under this Regulation, other than the issuance of certificates themselves, to qualified entities. When allocating such tasks, the competent authority shall ensure that it has:

(1) a system in place to initially and continuously assess that the qualified entity complies with Annex V to Regulation (EC) No 216/2008. This system and the results of the assessments shall be documented; and

(2) established a documented agreement with the qualified entity, approved by both parties at the appropriate management level, which clearly defines:

(i) the tasks to be performed;

(ii) the declarations, reports and records to be provided;

(iii) the technical conditions to be met when performing such tasks;

(iv) the related liability coverage;

(v) the protection given to information acquired when carrying out such tasks.

(b) The competent authority shall ensure that the internal audit process and the safety risk management process required by point ATM/ANS.AR.B.001(a)(4) cover all tasks performed on its behalf by the qualified entity.

ATM/ANS.AR.B.010 Changes in the management system

(a) The competent authority shall have a system in place to identify changes that affect its capability to perform its tasks and discharge its responsibilities under this Regulation. This system shall enable it to take action, as appropriate, to ensure that the management system remains adequate and effective.

(b) The competent authority shall update its management system to reflect any change to this Regulation in a timely manner, so as to ensure effective implementation.

(c) The competent authority shall notify the **[**F116Secretary of State**]** of significant changes affecting its capability to perform its tasks and discharge its responsibilities under this Regulation

Textual Amendments

F116 Words in Annex 2 point ATM/ANS.AR.B.010 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **12(4)**

ATM/ANS.AR.B.015 Record-keeping

(a) The competent authority shall establish a system of record-keeping providing for adequate storage, accessibility, and reliable traceability of:

(1) the management system's documented policies and procedures;

(2) training, qualification, and authorisation of personnel as required by point ATM/ANS.AR.B.001(a)(2);

(3) the allocation of tasks, covering the elements required by point ATM/ANS.AR.B.005, as well as the details of tasks allocated;

(4) certification and/or declaration processes;

(5) designations of air traffic services and meteorological services providers, as appropriate;

(6) certification and oversight of service providers exercising activities within **[**F117the United Kingdom**]**, but certified by the competent authority of **[**F118a**]** Member State or the Agency, as agreed between those authorities;

(7) the evaluation F119... of **[**F120MOC**]** proposed by service providers and the assessment of **[**F120MOC**]** used by the competent authority itself;

(8) compliance of service providers with the applicable requirements of this Regulation after the issuance of the certificate or, where relevant, submission of a declaration, including the reports of all audits, covering findings, corrective actions, and date of action closure, and observations as well as other safety-related records;

(9) enforcement measures taken;

(10) safety information, safety directives and follow-up measures;

(11) the use of flexibility provisions in accordance with Article 14 of Regulation (EC) No 216/2008.

(b) The competent authority shall maintain a list of all service provider certificates issued and declarations received.

(c) All records shall be kept for a minimum period of 5 years after the certificate ceases to be valid or the declaration is withdrawn, subject to the applicable data protection law.

Textual Amendments

F117 Words in Annex 2 point ATM/ANS.AR.B.015(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(10)(b)(i)**; 2020 c. 1, Sch. 5 para. 1(1)

F118 Word in Annex 2 point ATM/ANS.AR.B.015(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(10)(b)(ii)**; 2020 c. 1, Sch. 5 para. 1(1)

F119 Words in Annex 2 point ATM/ANS.AR.B.015(a) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(10)(c)(i)**; 2020 c. 1, Sch. 5 para. 1(1)

F120 Word in Annex 2 point ATM/ANS.AR.B.015(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(10)(c)(ii)**; 2020 c. 1, Sch. 5 para. 1(1)

SUBPART C — OVERSIGHT, CERTIFICATION AND ENFORCEMENT (ATM/ANS.AR.C)

ATM/ANS.AR.C.001 Monitoring of safety performance

(a) The competent **[**[F121]authority**]** shall regularly monitor and assess the safety performance of the service providers under **[**[F122]its**]** oversight.

(b) The competent **[**[F121]authority**]** shall use the results of the monitoring of safety performance in particular within **[**[F122]its**]** risk-based oversight.

Textual Amendments

F121 Word in Annex 2 point ATM/ANS.AR.C.001 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(11)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F122 Word in Annex 2 point ATM/ANS.AR.C.001 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(11)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.AR.C.005 Certification, declaration, and verification of service providers' compliance with the requirements

(a) Within the framework of point ATM/ANS.AR.B.001(a)(1), the competent authority shall establish a process in order to verify:

(1) service providers' compliance with the applicable requirements set out in Annexes III to XIII, and any applicable conditions attached to the certificate before the issue of that certificate. The certificate shall be issued in accordance with Appendix 1 to this Annex;

(2) compliance with any safety-related obligations in the designation act issued in accordance with Article 8 of Regulation (EC) No 550/2004;

(3) continued compliance with the applicable requirements of the service providers under its oversight;

(4) implementation of safety objectives, safety requirements and other safety-related conditions identified in declarations of verification of systems,

including any relevant declaration of conformity or suitability for use of constituents of systems issued in accordance with Regulation (EC) No 552/2004;

(5) the implementation of safety directives, corrective actions and enforcement measures.

(b) The process referred to in point (a) shall:

(1) be based on documented procedures;

(2) be supported by documentation specifically intended to provide its personnel with guidance to perform their tasks related to certification, oversight and enforcement;

(3) provide the organisation concerned with an indication of the results of the certification, oversight and enforcement activity;

(4) be based on audits, reviews and inspections conducted by the competent authority;

(5) with regard to certified service providers, provide the competent authority with the evidence needed to support further action, including measures referred to in [F123]... Article 7(7) of Regulation (EC) No 550/2004, and by Articles 10, 25, and 68 of Regulation (EC) No 216/2008 in situations where requirements are not complied with;

(6) with regard to service providers making declarations, provide the competent authority with the evidence to take, if appropriate, remedial action which may include enforcement actions, including, where appropriate, under **[**[F124]applicable**]** law.

Textual Amendments

F123 Words in Annex 2 point ATM/ANS.AR.C.005(b) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **12(5)**

F124 Word in Annex 2 point ATM/ANS.AR.C.005(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(12)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.AR.C.010 Oversight

(a) The competent authority, or qualified entities acting on its behalf, shall conduct audits, in accordance with Article 5.

(b) The audits referred to in point (a) shall:

(1) provide the competent authority with evidence of compliance with the applicable requirements and with the implementing arrangements;

(2) be independent of any internal auditing activities undertaken by the service provider;

(3) cover complete implementing arrangements or elements thereof, and processes or services;

(4) determine whether:

(i) the implementing arrangements comply with the applicable requirements;

(ii) the actions taken comply with the implementing arrangements and the applicable requirements;

(iii) the results of actions taken match the results expected from the implementing arrangements.

(c) The competent authority shall, on the basis of the evidence at its disposal, monitor the continuous compliance with the applicable requirements of this Regulation of the service providers under its oversight.

ATM/ANS.AR.C.015 Oversight programme

(a) The competent authority shall establish and update annually an oversight programme taking into account the specific nature of the service providers, the complexity of their activities, the results of past certification and/or oversight activities and shall be based on the assessment of associated risks. It shall include audits, which shall:

(1) cover all the areas of potential safety concern, with a focus on those areas where problems have been identified;

(2) cover all the service providers under the supervision of the competent authority;

(3) cover the means implemented by the service provider to ensure the competency of personnel;

(4) ensure that audits are conducted in a manner commensurate with the level of the risk posed by the service provider operations and services provided; and

(5) ensure that for service providers under its supervision, an oversight planning cycle not exceeding 24 months is applied.

The oversight planning cycle may be reduced if there is evidence that the safety performance of the service provider has decreased.

For a service provider certified by the competent authority, the oversight planning cycle may be extended to a maximum of 36 months if the competent authority has established that, during the previous 24 months:

(i) the service provider has demonstrated an effective identification of aviation safety hazards and management of associated risks;

(ii) the service provider has continuously demonstrated compliance with the change management requirements under points ATM/ANS.OR.A.040 and ATM/ANS.OR.A.045;

(iii) no level 1 findings have been issued;

(iv) all corrective actions have been implemented within the time period accepted or extended by the competent authority as defined in point ATM/ANS.AR.C.050.

If, in addition to the above, the service provider has established an effective continuous reporting system to the competent authority on the safety performance and regulatory compliance of the service provider, which has

been approved by the competent authority, the oversight planning cycle may be extended to a maximum of 48 months;

(6) ensure follow-up of the implementation of corrective actions;

(7) be subject to consultation with the service providers concerned and notification thereafter;

(8) indicate the envisaged interval of the inspections of the different sites, if any.

(b) The competent authority may decide to modify the objectives and the scope of pre-planned audits, including documentary reviews and additional audits, wherever that need arises.

(c) The competent authority shall decide which arrangements, elements, services, functions, physical locations, and activities are to be audited within a specified time frame.

(d) Audit observations and findings issued in accordance with point ATM/ANS.AR.C.050 shall be documented. The latter shall be supported by evidence, and identified in terms of the applicable requirements and their implementing arrangements against which the audit has been conducted.

(e) An audit report, including the details of the findings and observations, shall be drawn up and communicated to the service provider concerned.

ATM/ANS.AR.C.020 Issue of certificates

(a) Following the process laid down in point ATM/ANS.AR.C.005(a), upon receiving an application for the issuance of a certificate to a service provider, the competent authority shall verify the service provider's compliance with the applicable requirements of this Regulation.

(b) The competent authority may require any audits, inspections or assessments it finds necessary before issuing the certificate.

(c) The certificate shall be issued for an unlimited duration. The privileges of the activities that the service provider is approved to conduct shall be specified in the service provision conditions attached to the certificate.

(d) The certificate shall not be issued where a level 1 finding remains open. In exceptional circumstances, finding(s), other than level 1, shall be assessed and mitigated as necessary by the service provider and a corrective action plan for closing the finding(s) shall be approved by the competent authority prior to the certificate being issued.

ATM/ANS.AR.C.025 Changes

(a) Upon receiving a notification for a change in accordance with point ATM/ANS.OR.A.045, the competent authority shall comply with points ATM/ANS.AR.C.030, ATM/ANS.AR.C.035 and ATM/ANS.AR.C.040.

(b) Upon receiving a notification for a change in accordance with point ATM/ANS.OR.A.040(a)(2) that requires prior approval, the competent authority shall:

(1) verify the service provider's compliance with the applicable requirements before issuing the change approval;

(2) take immediate appropriate action, without prejudice to any additional enforcement measures, when the service provider implements changes

requiring prior approval without having received competent authority approval referred to in point (1).

(c) To enable a service provider to implement changes to its management system and/or safety management system, as applicable, without prior approval in accordance with point ATM/ANS.OR.A.040 (b), the competent authority shall approve a procedure defining the scope of such changes and describing how such changes will be notified and managed. In the continuous oversight process, the competent authority shall assess the information provided in the notification to verify whether the actions taken comply with the approved procedures and applicable requirements. In case of any non-compliance, the competent authority shall:

(1) notify the service provider of the non-compliance and request further changes;

(2) in case of level 1 and level 2 findings, act in accordance with point ATM/ANS.AR.C.050.

ATM/ANS.AR.C.030 Approval of change management procedures for functional systems

(a) The competent authority shall review:

(1) change management procedures for functional systems or any material modification to those procedures submitted by the service provider in accordance with point ATM/ANS.OR.B.010(b);

(2) any deviation from the procedures referred to in point (1) for a particular change, when requested by a service provider in accordance with point ATM/ANS.OR.B.010(c)(1).

(b) The competent authority shall approve the procedures, modifications and deviations referred to in point (a) when it has determined that they are necessary and sufficient for the service provider to demonstrate compliance with points ATM/ANS.OR.A.045, ATM/ANS.OR.C.005, ATS.OR.205, and ATS.OR.210, as applicable.

ATM/ANS.AR.C.035 Decision to review a notified change to the functional system

(a) Upon receipt of a notification in accordance with point ATM/ANS.OR.A.045(a)(1), or upon receipt of modified information in accordance with point ATM/ANS.OR.A.045(b), the competent authority shall make a decision on whether to review the change or not. The competent authority shall request any additional information needed from the service provider to support this decision.

(b) The competent authority shall determine the need for a review based on specific, valid and documented criteria that, as a minimum, ensure that the notified change is reviewed if the combination of the likelihood of the argument being complex or unfamiliar to the service provider and the severity of the possible consequences of the change is significant.

(c) When the competent authority decides the need for a review based on other risk based criteria in addition to point (b), these criteria shall be specific, valid and documented.

(d) The competent authority shall inform the service provider of its decision to review a notified change to a functional system and provide the associated rationale to the service provider upon request.

ATM/ANS.AR.C.040 Review of a notified change to the functional system

(a) When the competent authority reviews the argument for a notified change, it shall:

(1) assess the validity of the argument presented with respect to point ATM/ANS.OR.C.005(a)(2) or ATS.OR.205(a)(2);

(2) F125...

(b) The competent authority shall, alternatively:

(1) approve the argument referred to in point (a)(1), with conditions where applicable, when it is shown to be valid and so inform the service provider,

(2) reject the argument referred to in point (a)(1) and inform the service provider together with a supporting rationale.

Textual Amendments

F125 Words in Annex 2 point ATM/ANS.AR.C.040(a) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(13)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.AR.C.045 Declarations of flight information services providers

(a) Upon receiving a declaration from a provider of flight information services intending to provide such services, the competent authority shall verify that the declaration contains all the information required by point ATM/ANS.OR.A.015 and shall acknowledge receipt of the declaration to that service provider.

(b) If the declaration does not contain the required information, or contains information that indicates non-compliance with the applicable requirements, the competent authority shall notify the provider of flight information services concerned about the non-compliance and request further information. If necessary, the competent authority shall carry out an audit of the provider of flight information services. If the non-compliance is confirmed, the competent authority shall take action provided for in point ATM/ANS.AR.C.050.

(c) The competent authority shall keep a register of the declarations of providers of flight information services which were made to it in accordance with this Regulation.

ATM/ANS.AR.C.050 Findings, corrective actions, and enforcement measures

(a) The competent authority shall have a system to analyse findings for their safety significance and decide on enforcement measures on the basis of the safety risk posed by the service provider's non-compliance.

(b) In circumstances where no or very low additional safety risk would be present with immediate appropriate mitigation measures, the competent authority may accept the provision of services to ensure continuity of service whilst corrective actions are being taken.

(c) A level 1 finding shall be issued by the competent authority when any serious non-compliance is detected with the applicable requirements of Regulation (EC) No 216/2008 and its implementing rules as well as Regulations (EC) No 549/2004, (EC) No 550/2004, (EC) No 551/2004, and (EC) No 552/2004 and their implementing rules, with the service provider's procedures and manuals, with the terms of conditions of certificate or certificate[F126]... or with the content of a declaration which poses a significant risk to flight safety or otherwise calls into question the service provider's capability to continue operations.

Level 1 findings shall include but not be limited to:

(1) promulgating operational procedures and/or providing a service in a way which introduces a significant risk to flight safety;

(2) obtaining or maintaining the validity of the service provider's certificate by falsification of submitted documentary evidence;

(3) evidence of malpractice or fraudulent use of the service provider's certificate;

(4) the lack of an accountable manager.

(d) A level 2 finding shall be issued by the competent authority when any other non-compliance is detected with the applicable requirements of Regulation (EC) No 216/2008 and its implementing rules as well as Regulations (EC) No 549/2004, (EC) No 550/2004, (EC) No 551/2004, and (EC) No 552/2004 and their implementing rules, with the service provider's procedures and manuals or with the terms of conditions or certificate, or with the content of a declaration.

(e) When a finding is detected, during oversight or by any other means, the competent authority shall, without prejudice to any additional action required by Regulation (EC) No 216/2008 and this Regulation, as well as Regulations (EC) No 549/2004, (EC) No 550/2004, (EC) No 551/2004 and (EC) No 552/2004 and their implementing rules, communicate the finding to the service provider in writing and require corrective action to address the non-compliance(s) identified.

(1) In the case of level 1 findings, the competent authority shall take immediate and appropriate action, and may, if appropriate, limit, suspend or revoke in whole or in part the certificate while ensuring the continuity of services provided that safety is not compromised[F127].... The measure taken shall depend upon the extent of the finding and shall remain until successful corrective action has been taken by the service provider.

(2) In the case of level 2 findings, the competent authority shall:

(i) grant the service provider a corrective action implementation period included in an action plan appropriate to the nature of the finding;

(ii) assess the corrective action and implementation plan proposed by the service provider and, if the assessment concludes that they are sufficient to address the non-compliance(s), accept them.

(3) In the case of level 2 findings, where the service provider fails to submit a corrective action plan that is acceptable to the competent authority in light of the finding, or where the service provider fails to perform the corrective action within the time period accepted or extended by the competent authority, the finding may be raised to a level 1 finding, and action taken as laid down in point (1).

(f) For those cases not requiring level 1 and 2 findings, the competent authority may issue observations.

Textual Amendments

F126 Words in Annex 2 point ATM/ANS.AR.C.050(c) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(15)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F127 Words in Annex 2 point ATM/ANS.AR.C.050(e) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(15)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

Appendix 1

CERTIFICATE [F128...][F129THE CIVIL AVIATION AUTHORITY]SERVICE PROVIDER FOR SERVICE PROVIDER CERTIFICATE
[CERTIFICATE NUMBER/ISSUE No]

Pursuant to Implementing Regulation (EU) 2017/373 and subject to the conditions specified below, the [[F130Civil Aviation Authority]] hereby certifies

Textual Amendments

F130 Words in Annex 2 Appendix 1 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(16)(c)**; 2020 c. 1, Sch. 5 para. 1(1)

[NAME OF THE SERVICE PROVIDER] [ADDRESS OF THE SERVICE PROVIDER]

as a service provider with the privileges, as listed in the attached service provision conditions.

CONDITIONS:

This certificate is issued subject to the conditions and the scope of providing services and functions as listed in the attached service provision conditions.

This certificate is valid whilst the certified service provider remains in compliance with Implementing Regulation (EU) 2017/373 and the other applicable regulations and, when relevant, with the procedures in the service provider's documentation.

Subject to compliance with the foregoing conditions, this certificate shall remain valid unless the certificate has been surrendered, limited, suspended or revoked.

Date of issue:

Signed:

[[F131The Civil Aviation Authority]]

Textual Amendments

F131 Words in Annex 2 Appendix 1 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(16)(d)**; 2020 c. 1, Sch. 5 para. 1(1)

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Textual Amendments

F128 Words in Annex 2 Appendix 1 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(16)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F129 Words in Annex 2 Appendix 1 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(16)(b)**; 2020 c. 1, Sch. 5 para. 1(1)

SERVICE CERTIFICATESERVICE PROVISION CONDITIONS
PROVIDER

Attachment to service provider's certificate:

[CERTIFICATE [NAME OF THE SERVICE PROVIDER]
NUMBER/
ISSUE
No]

has obtained the privileges to provide the following scope of services/functions:

(Delete lines as appropriate)

Services/Functions	Type of Service/ Function	Scope of Service/ Function	Limitations[a]
Air traffic services (ATS)[d]	Air traffic control (ATC)	Area control service	
		Approach control service	
		Aerodrome control service	
	Flight information service (FIS)	Aerodrome flight information service (AFIS)	
		En-route flight information service (*En-route* FIS)	
	Advisory service	n/a	
Air traffic flow management (ATFM)	ATFM	Provision of the local ATFM	
Airspace management (ASM)	ASM	Provision of the local ASM (tactical/ASM Level 3) service	
Conditions[b]			

Services/Functions	Type of Service/ Function	Scope of Service/ Function	Limitations[a]
	Air traffic control (ATC)	Area control service	

a	As prescribed by the competent authority.
b	Where necessary.
c	If the competent authority considers it necessary to establish additional requirements.
d	ATS covers alerting service.

Air traffic services (ATS) for flight test[cd]		Approach control service	
		Aerodrome control service	
	Flight information service (FIS)	Aerodrome flight information service (AFIS)	
		En-route flight information service (*En-route* FIS)	
	Advisory service	n/a	
Conditions[b]			

Services/Functions	Type of Service/ Function	Scope of Service/ Function	Limitations[a]
Communication, navigation or surveillance services (CNS)	Communications (C)	Aeronautical mobile service (air-ground communication)	
		Aeronautical fixed service (ground-ground communications)	
		Aeronautical mobile satellite service (AMSS)	
	Navigation (N)	Provision of NDB signal in space	
		Provision of VOR signal in space	
		Provision of DME signal in space	
		Provision of ILS signal in space	
		Provision of MLS signal in space	
		Provision of GNSS signal in space	

a As prescribed by the competent authority.

b Where necessary.

c If the competent authority considers it necessary to establish additional requirements.

d ATS covers alerting service.

	Surveillance (S)	Provision of data from primary surveillance (PS)	
		Provision of data from secondary surveillance (SS)	
		Provision of automatic dependent surveillance (ADS) Data	
Conditions[b]			

'Services/Functions	Type of Service/Function	Scope of Service/Function	Limitations (*)
Aeronautical Information Services (AIS)	Aeronautical information products (including distribution services)	Aeronautical information publication (AIP)	
		Aeronautical information circular (AIC)	
		NOTAM	
		AIP data set	
		Obstacle data sets	
		Aerodrome mapping data sets	
		Instrument flight procedure data sets	
	Preflight information services	n/a	
Conditions (**)			

(*) As prescribed by the competent authority.
(**) Where necessary.';

[F132]

Services/Functions	Type of Service/ Function	Scope of Service/ Function	Limitations[a]
Data services (DAT)	Type 1	Provision of Type 1DAT authorises the supply of aeronautical databases in the following formats: [list of the generic data formats]	

a	As prescribed by the competent authority.
b	Where necessary.
c	If the competent authority considers it necessary to establish additional requirements.
d	ATS covers alerting service.

		Provision of Type 1 DAT does not authorise the supply of aeronautical databases directly to end-users/aircraft operators.	
	Type 2	Provision of Type 2 DAT authorises the supply of aeronautical databases to end-users/aircraft operators for the following airborne application/ equipment, for which compatibility has been demonstrated: [Manufacturer] Certified Application/ Equipment model [XXX], Part No [YYY]	
Conditions[b]			

Services/Functions	**Type of Service/ Function**	**Scope of Service/ Function**	**Limitations**[a]
Meteorological services (MET)	MET	Meteorological watch office	
		Aerodrome meteorological offices	
		Aeronautical meteorological stations	
		VAAC	
		WAFC	
		TCAC	
Conditions[b]			

a	As prescribed by the competent authority.
b	Where necessary.
c	If the competent authority considers it necessary to establish additional requirements.
d	ATS covers alerting service.

Services/Functions	Type of Service/ Functions	Scope of Service/ Function	Limitations[a]
ATM network functions	Design of ERN	n/a	
	Scarce resources	Radio frequency	
		Transponder code	
	ATFM	Provision of the central ATFM	
Conditions[b]			

a	As prescribed by the competent authority.
b	Where necessary.
c	If the competent authority considers it necessary to establish additional requirements.
d	ATS covers alerting service.

Textual Amendments

F132 Annex 2 Appendix 1 Table substituted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **26**

Date of issue:

Signed: [[F131The Civil Aviation Authority]]

F133...

Textual Amendments

F133 Words in Annex 2 Appendix 1 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **363(16)(f)**; 2020 c. 1, Sch. 5 para. 1(1)

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ANNEX III

COMMON REQUIREMENTS FOR SERVICE PROVIDERS (Part-ATM/ANS.OR)

SUBPART A — GENERAL REQUIREMENTS (ATM/ANS.OR.A)

ATM/ANS.OR.A.001 Scope

In accordance with Article 6, this Annex establishes the requirements to be met by the service providers.

ATM/ANS.OR.A.005 Application for a service provider certificate

(a) Application for a service provider certificate or an amendment to an existing certificate shall be made in a form and manner established by the competent authority, taking into account the applicable requirements of this Regulation.

(b) In accordance with Article 6, in order to obtain the certificate, the service provider shall comply with:

(1) the requirements referred to in Article 8b(1) of Regulation (EU) No 216/2008;

(2) the common requirements set out in this Annex;

(3) the specific requirements set out in Annexes IV to XIII, where those requirements are applicable in light of the services that the service provider provides or plans to provide.

ATM/ANS.OR.A.010 Application for a limited certificate

(a) Notwithstanding point (b), the air traffic services provider may apply for a certificate limited to the provision of services in the airspace under the responsibility of the **[**F134United Kingdom**]**, when it provides or plans to provide services only with respect to one or more of the following categories:

(1) aerial work;

(2) general aviation;

(3) commercial air transport limited to aircraft with less than 10 tonnes of maximum take-off mass or less than 20 passenger seats;

(4) commercial air transport with less than 10 000 movements per year, regardless of the maximum take-off mass and the number of passenger seats; for the purposes of this provision, 'movements' means, in a given year, the average over the previous three years of the total number of take-offs and landings.

(b) In addition, the following air navigation service providers may also apply for a limited certificate:

(1) an air navigation service provider F135..., with a gross annual turnover of **[**F136£875,000**]** or less in relation to the services they provide or plan to provide;

(2) F137...

(c) As determined by the competent authority, an air navigation service provider applying for a limited certificate in accordance with points (a) or (b)(1) shall comply, as a minimum, with the following requirements set out in:

(1) point ATM/ANS.OR.B.001 Technical and operational competence and capability;

(2) point ATM/ANS.OR.B.005 Management system;

(3) point ATM/ANS.OR.B.020 Personnel requirements;

(4) point ATM/ANS.OR.A.075 Open and transparent provision of services;

(5) Annexes IV, V, VI and VIII, where those requirements are applicable in light of the services that the service provider provides or plans to provide, in accordance with Article 6.

(d) F138...

(e) An applicant for a limited certificate shall submit an application to the competent authority in a form and manner established by the competent authority.

Textual Amendments

F134 Words in Annex 3 point ATM/ANS.OR.A.010(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(3)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F135 Words in Annex 3 point ATM/ANS.OR.A.010(b) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(3)(b)(i)**; 2020 c. 1, Sch. 5 para. 1(1)

F136 Sum in Annex 3 point ATM/ANS.OR.A.010(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(3)(b)(ii)**; 2020 c. 1, Sch. 5 para. 1(1)

F137 Words in Annex 3 point ATM/ANS.OR.A.010(b) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(3)(b)(iii)**; 2020 c. 1, Sch. 5 para. 1(1)

F138 Annex 3 point ATM/ANS.OR.A.010(d) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(3)(d)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.OR.A.015 Declaration by flight information services providers

(a) Pursuant to Article 7, a flight information services provider may declare its capability and means of discharging the responsibilities associated with the services provided where it meets, in addition to the requirements referred to in Article 8b(1) of Regulation (EU) No 216/2008, the following alternative requirements:

(1) the flight information services provider provides, or plans to provide, its services by operating regularly not more than one working position;

(2) those services are of a temporary nature, for a duration agreed with the competent authority as necessary to ensure proportional safety assurance.

(b) A flight information services provider declaring its activities shall:

(1) provide the competent authority with all the relevant information prior to commencing operations, in a form and manner established by the competent authority;

(2) provide the competent authority with a list of the alternative means of compliance used, in accordance with point ATM/ANS.OR.A.020;

(3) maintain compliance with the applicable requirements and with the information given in the declaration;

(4) notify the competent authority of any changes to its declaration or the means of compliance it uses through submission of an amended declaration;

(5) provide its services in accordance with its operations manual and comply with all the relevant provisions contained therein.

(c) Before ceasing the provision of its services, the flight information services provider declaring its activities shall notify the competent authority within a period determined by the competent authority.

(d) A flight information services provider declaring its activities shall comply with the following requirements set out in:

(1) point ATM/ANS.OR.A.001 Scope;

(2) point ATM/ANS.OR.A.020 Means of compliance;

(3) point ATM/ANS.OR.A.035 Demonstration of compliance;

(4) point ATM/ANS.OR.A.040 Changes — general;

(5) point ATM/ANS.OR.A.045 Changes to the functional system;

(6) point ATM/ANS.OR.A.050 Facilitation and cooperation;

(7) point ATM/ANS.OR.A.055 Findings and corrective actions;

(8) point ATM/ANS.OR.A.060 Immediate reaction to a safety problem;

(9) point ATM/ANS.OR.A.065 Occurrence reporting;

(10) point ATM/ANS.OR.B.001 Technical and operational competence and capability;

(11) point ATM/ANS.OR.B.005 Management system;

(12) point ATM/ANS.OR.B.020 Personnel requirements;

(13) point ATM/ANS.OR.B.035 Operations manuals;

(14) point ATM/ANS.OR.D.020 Liability and insurance cover,

(15) Annex IV.

(e) A flight information services provider declaring its activities shall only start operation after receiving the acknowledgement of receipt of the declaration from the competent authority.

ATM/ANS.OR.A.020 Means of compliance

(a) **[**F139Means of compliance (MOC)**]** may be used by the service provider to establish compliance with the requirements of this Regulation.

(b) When the service provider wishes to use **[**F140a MOC**]**, it shall, prior to implementing it, provide the competent authority with a full description of the **[**F141MOC**]**. The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating compliance with the requirements of this Regulation.

A service provider may implement these F142... means of compliance subject to prior approval by the competent authority and upon receipt of the notification as prescribed in point ATM/ANS.AR.A.015(d).

Textual Amendments

F139 Words in Annex 3 point ATM/ANS.OR.A.020(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(5)(a)**; 2020 c. 1, Sch. 5 para. 1(1)

F140 Words in Annex 3 point ATM/ANS.OR.A.020(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(5)(b)(i)**; 2020 c. 1, Sch. 5 para. 1(1)

F141 Word in Annex 3 point ATM/ANS.OR.A.020(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(5)(b)(ii)**; 2020 c. 1, Sch. 5 para. 1(1)

F142 Word in Annex 3 point ATM/ANS.OR.A.020 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(5)(c)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.OR.A.025 Continued validity of a certificate

(a) A service provider's certificate shall remain valid subject to:

(1) the service provider remaining in compliance with the applicable requirements of this Regulation, including those concerning facilitating and cooperating for the purposes of the exercise of the powers of the **[**[F143]competent authority**]** and those concerning the handling of findings as specified in points ATM/ANS.OR.A.050 and ATM/ANS.OR.A.055 respectively;

(2) the certificate not having been surrendered, suspended or revoked.

(b) Upon revocation or surrender, the certificate shall be returned to the competent authority without delay.

Textual Amendments

F143 Words in Annex 3 point ATM/ANS.OR.A.025(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(6)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.OR.A.030 Continued validity of a declaration of a flight information services provider

A declaration made by the flight information services provider in accordance with point ATM/ANS.OR.A.015 shall remain valid subject to:

(a) the flight information services remaining in compliance with the applicable requirements of this Regulation, including those concerning facilitating and cooperating for the purposes of the exercise of the powers of the competent authorities and those concerning the handling of findings as specified in point ATM/ANS.OR.A.050 and ATM/ANS.OR.A.055 respectively;

(b) the declaration not having been withdrawn by the provider of such services or deregistered by the competent authority.

ATM/ANS.OR.A.035 Demonstration of compliance

A service provider shall provide all the relevant evidence to demonstrate compliance with the applicable requirements of this Regulation at the request of the competent authority.

ATM/ANS.OR.A.040 Changes — general

(a) The notification and management of:

(1) a change to the functional system or a change that affects the functional system shall be carried out in accordance with point ATM/ANS.OR.A.045;

(2) a change to the provision of service, the service provider's management system and/or safety management system, that does not affect the functional system, shall be carried out in accordance with point (b).

(b) Any change as referred to in point (a)(2) shall require prior approval before implementation, unless such a change is notified and managed in accordance with a procedure approved by the competent authority as laid down in point ATM/ANS.AR.C.025(c).

ATM/ANS.OR.A.045 Changes to a functional system

(a) A service provider planning a change to its functional system shall:

(1) notify the competent authority of the change;

(2) provide the competent authority, if requested, with any additional information that allows the competent authority to decide whether or not to review the argument for the change;

(3) inform other service providers and, where feasible, aviation undertakings affected by the planned change.

(b) Having notified a change, the service provider shall inform the competent authority whenever the information provided in accordance with points (a)(1) and (2) is materially modified, and the relevant service providers and aviation undertakings whenever the information provided in accordance with point (a)(3) is materially modified.

(c) A service provider shall only allow the parts of the change, for which the activities required by the procedures referred to in point ATM/ANS.OR.B.010 have been completed, to enter into operational service.

(d) If the change is subject to competent authority review in accordance with point ATM/ANS.AR.C.035, the service provider shall only allow the parts of the change for which the competent authority has approved the argument to enter into operational service.

(e) When a change affects other service providers and/or aviation undertakings, as identified in point (a)(3), the service provider and these other service providers, in coordination, shall determine:

(1) the dependencies with each other and, where feasible, with the affected aviation undertakings;

(2) the assumptions and risk mitigations that relate to more than one service provider or aviation undertaking.

(f) Those service providers affected by the assumptions and risk mitigations referred to in point (e)(2) shall only use, in their argument for the change, agreed and aligned assumptions and risk mitigations with each other and, where feasible, with aviation undertakings.

ATM/ANS.OR.A.050 Facilitation and cooperation

A service provider shall facilitate inspections and audits by the competent authority or by a qualified entity acting on its behalf and it shall cooperate as necessary for the efficient and effective exercise of the powers of the **[**[F144]competent authority**]**.

Textual Amendments

F144 Words in Annex 3 point ATM/ANS.OR.A.050 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(8)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.OR.A.055 Findings and corrective actions

After receipt of notification of findings from the competent authority, the service provider shall:

(a) identify the root cause of the non-compliance;

(b) define a corrective action plan that meets the approval by the competent authority;

(c) demonstrate corrective action implementation to the satisfaction of the competent authority within the time period proposed by the service provider and agreed with that authority, as defined in point ATM/ANS.AR.C.050(e).

ATM/ANS.OR.A.060 Immediate reaction to a safety problem

A service provider shall implement any safety measures, including safety directives, mandated by the competent authority in accordance with point ATM/ANS.AR.A.025(c).

ATM/ANS.OR.A.065 Occurrence reporting

(a) A service provider shall report to the competent authority, and to any other organisation required by the **[**F145competent authority**]**, any accident, serious incident and occurrence as defined in Regulation (EU) No 996/2010 of the European Parliament and of the Council[15] and Regulation (EU) No 376/2014.

(b) Without prejudice to point (a), the service provider shall report to the competent authority and to the organisation responsible for the design of system and constituents, if different from the service provider, any malfunction, technical defect, exceeding of technical limitations, occurrence, or other irregular circumstance that has or may have endangered the safety of services and that has not resulted in an accident or serious incident.

(c) Without prejudice to Regulations (EU) No 996/2010 and (EU) No 376/2014, the reports referred to in points (a) and (b) shall be made in a form and manner established by the competent authority and contain all the pertinent information about the event known to the service provider.

(d) Reports shall be made as soon as possible and in any case within 72 hours of the service provider identifying the details of the event to which the report relates unless exceptional circumstances prevent this.

(e) Without prejudice to Regulation (EU) No 376/2014, where relevant, the service provider shall produce a follow-up report to provide details of actions it intends to take to prevent similar occurrences in the future, as soon as these actions have been identified. This report shall be produced in a form and manner established by the competent authority.

Textual Amendments

F145 Words in Annex 3 point ATM/ANS.OR.A.065(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(9)**; 2020 c. 1, Sch. 5 para. 1(1)

ATM/ANS.OR.A.070 Contingency plans

A service provider shall have in place contingency plans for all the services it provides in the case of events which result in significant degradation or interruption of its operations.

ATM/ANS.OR.A.075 Open and transparent provision of services

(a) A service provider shall provide its services in an open and transparent manner. It shall publish the conditions of access to its services and changes thereto and establish a consultation process with the users of its services on a regular basis or as needed for specific changes in service provision, either individually or collectively.

(b) A service provider shall not discriminate on grounds of nationality or other characteristic of the user or the class of users of its services in a manner that is contrary to **[**[F146]applicable**]** law.

Textual Amendments

F146 Word in Annex 3 point ATM/ANS.OR.A.075(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2019 (S.I. 2019/459), regs. 1(2), **364(10)**; 2020 c. 1, Sch. 5 para. 1(1)

[[F147]**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 conforms with the ‘Aeronautical Data Catalogue’ referred to in ICAO PANS-AIM (Doc 10066);

(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 as defined in ICAO PANS-AIM, corruption is avoided throughout the processing of the data;

(ii) for essential data as defined in ICAO PANS-AIM, 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 as defined in ICAO PANS-AIM, 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.**]**

SUBPART B — MANAGEMENT (ATM/ANS.OR.B)

ATM/ANS.OR.B.001 Technical and operational competence and capability

A service provider shall ensure that it is able to provide its services in a safe, efficient, continuous and sustainable manner, consistent with any foreseen level of overall demand for a given airspace. To this end, it shall maintain adequate technical and operational capacity and expertise.

ATM/ANS.OR.B.005 Management system

(a) A service provider shall implement and maintain a management system that includes:

(1) clearly defined lines of responsibility and accountability throughout its organisation, including a direct accountability of the accountable manager;

(2) a description of the overall philosophies and principles of the service provider with regard to safety, quality, and security of its services, collectively constituting a policy, signed by the accountable manager;

(3) the means to verify the performance of the service provider's organisation in light of the performance indicators and performance targets of the management system;

(4) a process to identify changes within the service provider's organisation and the context in which it operates, which may affect established processes, procedures and services and, where necessary, change the management system and/or the functional system to accommodate those changes;

(5) a process to review the management system, identify the causes of substandard performance of the management system, determine the

implications of such substandard performance, and eliminate or mitigate such causes;

(6) a process to ensure that the personnel of the service provider are trained and competent to perform their duties in a safe, efficient, continuous and sustainable manner. In this context, the service provider shall establish policies for the recruitments and training of its personnel;

(7) a formal means for communication that ensures that all personnel of the service provider are fully aware of the management system that allows critical information to be conveyed and that makes it possible to explain why particular actions are taken and why procedures are introduced or changed.

(b) A service provider shall document all management system key processes, including a process for making personnel aware of their responsibilities, and the procedure for the amendment of those processes.

(c) A service provider shall establish a function to monitor compliance of its organisation with the applicable requirements and the adequacy of the procedures. Compliance monitoring shall include a feedback system of findings to the accountable manager to ensure effective implementation of corrective actions as necessary.

(d) A service provider shall monitor the behaviour of its functional system and, where underperformance is identified, it shall establish its causes and eliminate them or, after having determined the implication of the underperformance, mitigate its effects.

(e) The management system shall be proportionate to the size of the service provider and the complexity of its activities, taking into account the hazards and associated risks inherent in those activities.

(f) Within its management system, the service provider shall establish formal interfaces with the relevant service providers and aviation undertakings in order to:

(1) ensure that the aviation safety hazards entailed by its activities are identified and evaluated, and the associated risks are managed and mitigated as appropriate;

(2) ensure that it provides its services in accordance with the requirements of this Regulation.

(g) In the case that the service provider holds also an aerodrome operator certificate, it shall ensure that the management system covers all activities in the scope of its certificates.

ATM/ANS.OR.B.010 Change management procedures

(a) A service provider shall use procedures to manage, assess and, if necessary, mitigate the impact of changes to its functional systems in accordance with points ATM/ANS.OR.A.045, ATM/ANS.OR.C.005, ATS.OR.205 and ATS.OR.210, as applicable.

(b) The procedures referred to in point (a) or any material modifications to those procedures shall:

(1) be submitted, for approval, by the service provider to the competent authority;

(2) not be used until approved by the competent authority.

(c) When the approved procedures referred to in point (b) are not suitable for a particular change, the service provider shall:

(1) make a request to the competent authority for an exemption to deviate from the approved procedures;

(2) provide the details of the deviation and the justification for its use to the competent authority;

(3) not use the deviation before being approved by the competent authority.

ATM/ANS.OR.B.015 Contracted activities

(a) Contracted activities include all the activities within the scope of the service provider's operations, in accordance with the terms of the certificate, that are performed by other organisations either themselves certified to carry out such activity or if not certified, working under the service provider's oversight. A service provider shall ensure that when contracting or purchasing any part of its activities to external organisations, the contracted or purchased activity, system or constituent conforms to the applicable requirements.

(b) When a service provider contracts any part of its activities to an organisation that is not itself certified in accordance with this Regulation to carry out such activity, it shall ensure that the contracted organisation works under its oversight. The service provider shall ensure that the competent authority is given access to the contracted organisation to determine continued compliance with the applicable requirements under this Regulation.

ATM/ANS.OR.B.020 Personnel requirements

(a) A service provider shall appoint an accountable manager, who has the authority over ensuring that all activities can be financed and carried out in accordance with the applicable requirements. The accountable manager shall be responsible for establishing and maintaining an effective management system.

(b) A service provider shall define the authority, duties and responsibilities of the nominated post holders, in particular of the management personnel in charge of safety, quality, security, finance and human resources-related functions as applicable.

ATM/ANS.OR.B.025 Facilities requirements

A service provider shall ensure that there are adequate and appropriate facilities to perform and manage all tasks and activities in accordance with the applicable requirements.

ATM/ANS.OR.B.030 Record-keeping

(a) A service provider shall establish a system of record-keeping that allows adequate storage of the records and reliable traceability of all its activities, covering in particular all the elements indicated in point ATM/ANS.OR.B.005.

(b) The format and the retention period of the records referred to in point (a) shall be specified in the service provider's management system procedures.

(c) Records shall be stored in a manner that ensures protection against damage, alteration and theft.

ATM/ANS.OR.B.035 Operations manuals

(a) A service provider shall provide and keep up to date its operations manuals relating to the provision of its services for the use and guidance of operations personnel.

(b) It shall ensure that:

(1) operations manuals contain the instructions and information required by the operations personnel to perform their duties;

(2) relevant parts of the operations manuals are accessible to the personnel concerned;

(3) the operations personnel are informed of amendments to the operations manual applying to their duties in a manner that enables their application as of their entry into force.

SUBPART C — SPECIFIC ORGANISATION REQUIREMENTS FOR SERVICE PROVIDERS OTHER THAN ATS PROVIDERS (ATM/ANS.OR.C)

ATM/ANS.OR.C.001 Scope

This Subpart establishes the requirements to be met by the service provider other than the air traffic services provider, in addition to the requirements set out in Subparts A and B.

ATM/ANS.OR.C.005 Safety support assessment and assurance of changes to the functional system

(a) For any change notified in accordance with point ATM/ANS.OR.A.045(a)(1), the service provider other than the air traffic services provider shall:

(1) ensure that a safety support assessment is carried out covering the scope of the change which is:

(i) the equipment, procedural and human elements being changed;

(ii) interfaces and interactions between the elements being changed and the remainder of the functional system;

(iii) interfaces and interactions between the elements being changed and the context in which it is intended to operate;

(iv) the life cycle of the change from definition to operations including transition into service;

(v) planned degraded modes;

(2) provide assurance, with sufficient confidence, via a complete, documented and valid argument that the service will behave and will continue to behave only as specified in the specified context.

(b) A service provider other than an air traffic services provider shall ensure that the safety support assessment referred to in point (a) comprises:

(1) verification that:

(i) the assessment corresponds to the scope of the change as defined in point (a)(1);

(ii) the service behaves only as specified in the specified context;

(iii) the way the service behaves complies with and does not contradict any applicable requirements of this Regulation placed on the services provided by the changed functional system; and

(2) specification of the monitoring criteria necessary to demonstrate that the service delivered by the changed functional system will continue to behave only as specified in the specified context.

SUBPART D — SPECIFIC ORGANISATIONAL REQUIREMENTS FOR ANS [F148]... (ATM/ANS.OR.D)

ATM/ANS.OR.D.001 Scope

This Subpart establishes the requirements to be met by air navigation services (ANS) **[**[F149]providers**]**, in addition to the requirements set out in Subparts A, B and C.

Textual Amendments

F149 Word in Annex 3 point ATM/ANS.OR.D.001 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(3)**

ATM/ANS.OR.D.005 Business, annual, and performance plans

(a) *Business plan*

(1) Air navigation services [F150]... providers shall produce a business plan covering a minimum period of five years. The business plan shall:

(i) set out the overall aims and goals of the air navigation services [F151]... providers, and their strategy towards achieving them in consistency with any overall longer-term plan of the air navigation services provider [F152]... and with the relevant requirements of **[**[F153]applicable**]** law for the development of infrastructure or other technology;

(ii) contain performance targets in terms of safety, capacity, environment and cost-efficiency, as may be applicable pursuant to **[**[F154]Chapter IV of Part 1 of the Transport Act 2000**]**.

(2) The information listed in points (i) and (ii) of point (1) shall be aligned with **[**[F155]any performance plan that may be required pursuant to Chapter IV of Part 1 of the Transport Act 2000**]** and, as far as safety data is concerned, it shall be consistent with the state safety programme referred to in Standard 3.1.1 of Annex 19 to the Chicago Convention in its first edition of July 2013.

(3) Air navigation services [F156]... providers shall provide safety and business justifications for major investment projects including, where relevant, the estimated impact on the appropriate performance targets referred to in point (1)(ii)[F157]....

Textual Amendments

F150 Words in Annex 3 point ATM/ANS.OR.D.005(a)(1) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(a)(i)**

F151 Words in Annex 3 point ATM/ANS.OR.D.005(a)(1)(i) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(a)(ii)(aa)**

F152 Words in Annex 3 point ATM/ANS.OR.D.005(a)(1)(i) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(a)(ii)(bb)**

F153 Word in Annex 3 point ATM/ANS.OR.D.005(a)(1)(i) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(a)(ii)(cc)**

F154 Words in Annex 3 point ATM/ANS.OR.D.005(a)(1)(ii) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(a)(iii)**

F155 Words in Annex 3 point ATM/ANS.OR.D.005(a)(2) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(a)(iv)**

F156 Words in Annex 3 point ATM/ANS.OR.D.005(a)(3) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(a)(v)(aa)**

F157 Words in Annex 3 point ATM/ANS.OR.D.005(a)(3) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(a)(v)(bb)**

(b) *Annual plan*

(1) Air navigation services [F158]... providers shall produce an annual plan covering the forthcoming year which shall further specify the features of the business plan and describe any changes to it as compared to the previous plan.

(2) The annual plan shall cover the following provisions on the level and quality of service, such as the expected level of capacity, safety, environment and cost-efficiency:

(i) information on the implementation of new infrastructure or other developments, and a statement on how they will contribute to improving the performance of the air navigation services provider [F159]..., including level and quality of services;

(ii) performance indicators, as may be applicable, consistent with **[**[F160]any performance plan that may be required pursuant to Chapter IV of Part 1 of the Transport Act 2000**]**, against which the performance level and quality of service may be reasonably assessed;

(iii) information on the measures foreseen to mitigate the safety risks identified by the air navigation services [F161]... provider, including safety indicators to monitor safety risk and, where appropriate, the estimated cost of mitigation measures;

(iv) the air navigation services [F161]... providers' expected short-term financial position as well as any changes to or impacts on the business plan.

Textual Amendments

F158 Words in Annex 3 point ATM/ANS.OR.D.005(b)(1) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(b)(i)**

F159 Words in Annex 3 point ATM/ANS.OR.D.005(b)(2)(i) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(b)(ii)**

F160 Words in Annex 3 point ATM/ANS.OR.D.005(b)(2)(ii) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(b)(iii)**

F161 Words in Annex 3 point ATM/ANS.OR.D.005(b)(2)(iii)(iv) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(b)(iv)**

(c) *Performance part of the plans*

The air navigation services [F162]... providers shall make the content of the performance part of their business plans and of their annual plans available to the **[**[F163]competent authority**]** on its request, under the conditions set by the competent authority in accordance with **[**[F164]applicable**]** law.

Textual Amendments

F162 Words in Annex 3 point ATM/ANS.OR.D.005(c) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(c)(i)**

F163 Words in Annex 3 point ATM/ANS.OR.D.005(c) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(c)(ii)**

F164 Word in Annex 3 point ATM/ANS.OR.D.005(c) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(4)(c)(iii)**

ATM/ANS.OR.D.010 Security management

(a) Air navigation services **[**F165providers**]** shall, as an integral part of their management system as required in point ATM/ANS.OR.B.005, establish a security management system to ensure:

(1) the security of their facilities and personnel so as to prevent unlawful interference with the provision of services;

(2) the security of operational data they receive, or produce, or otherwise employ, so that access to it is restricted only to those authorised.

(b) The security management system shall define:

(1) the procedures relating to security risk assessment and mitigation, security monitoring and improvement, security reviews and lesson dissemination;

(2) the means designed to detect security breaches and to alert personnel with appropriate security warnings;

(3) the means of controlling the effects of security breaches and to identify recovery action and mitigation procedures to prevent re-occurrence.

(c) Air navigation services **[**F165providers**]** shall ensure the security clearance of their personnel, if appropriate, and coordinate with the relevant civil and military authorities to ensure the security of their facilities, personnel and data.

(d) Air navigation services **[**F165providers**]** shall take the necessary measures to protect their systems, constituents in use and data and prevent compromising the network against information and cyber security threats which may have an unlawful interference with the provision of their service.

Textual Amendments

F165 Word in Annex 3 point ATM/ANS.OR.D.010 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(5)**

ATM/ANS.OR.D.015 Financial strength — economic and financial capacity

Air navigation services F166... providers shall be able to meet their financial obligations, such as fixed and variable costs of operation or capital investment costs. They shall use an appropriate cost-accounting system. They shall demonstrate their ability through the annual plan as referred to in point ATM/ANS.OR.D.005(b), as well as through balance sheets and accounts, as applicable under their legal statute, and regularly undergo an independent financial audit.

Textual Amendments

F166 Words in Annex 3 point ATM/ANS.OR.D.015 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(6)**

ATM/ANS.OR.D.020 Liability and insurance cover

(a) Air navigation services **[**F167providers**]** shall have in place arrangements to cover liabilities related to the execution of their tasks in accordance with the applicable law.

(b) The method employed to provide the cover shall be appropriate to the potential loss and damage in question, taking into account the legal status of the providers concerned F168... and the level of commercial insurance cover available.

(c) Air navigation services **[**F167providers**]** which avail themselves of services of another service provider shall ensure that the agreements that they conclude to that effect specify the allocation of liability between them.

Textual Amendments

F167 Word in Annex 3 point ATM/ANS.OR.D.020 substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(7)(a)**

F168 Words in Annex 3 point ATM/ANS.OR.D.020(b) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(7)(b)**

ATM/ANS.OR.D.025 Reporting requirements

(a) Air navigation services F169... providers **[**F170may, under any requirement pursuant to Chapter IV of Part 1 of the Transport Act 2000, be required to**]** provide an annual report of their activities to the competent authority.

(b) For air navigation services F169... providers, the annual report shall cover their financial results, without prejudice to Article 12 of Regulation (EC) No 550/2004, as well as their operational performance and any other significant activities and developments in particular in the area of safety.

(c) F171...

(d) The annual **[**F172report**]** referred to in points (a) F173... shall include as a minimum:

(1) an assessment of the level of performance of services provided;

(2) for air navigation services F169... providers, their performance compared to the performance targets established in the business plan referred to in point ATM/ANS.OR.D.005(a), comparing actual performance against the performance set out in **[**F174any plan required pursuant to Chapter IV of Part 1 of the Transport Act 2000**]** by using the indicators of performance established in the annual plan;

(3) F171...

(4) an explanation for differences with the relevant targets and objectives and an identification of the measures required to address any gaps between the plans and actual performance, during **[**F175any relevant reference period that may be established pursuant to Chapter IV of Part 1 of the Transport Act 2000**]**;

(5) developments in operations and infrastructure;

(6) the financial results, where they are not published separately in accordance with Article 12(1) of Regulation (EC) No 550/2004;

(7) information about the formal consultation process with the users of its services;

(8) information about the human resources policy.

(e) Air navigation services **[**F176providers**]** shall make their annual reports available to the **[**F177competent authority**]** on **[**F178its**]** request. They shall also make those reports available to the public, under the conditions set by the competent authority in accordance with **[**F179applicable**]** law.

Textual Amendments

F169 Words in Annex 3 point ATM/ANS.OR.D.025 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(a)**

F170 Words in Annex 3 point ATM/ANS.OR.D.025(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(b)**

F171 Words in Annex 3 point ATM/ANS.OR.D.025 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(c)**

F172 Word in Annex 3 point ATM/ANS.OR.D.025(d) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(d)**

F173 Words in Annex 3 point ATM/ANS.OR.D.025(d) omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(d)**

F174 Words in Annex 3 point ATM/ANS.OR.D.025(d) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(e)**

F175 Words in Annex 3 point ATM/ANS.OR.D.025(d) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(f)**

F176 Word in Annex 3 point ATM/ANS.OR.D.025(e) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(g)(i)**

F177 Words in Annex 3 point ATM/ANS.OR.D.025(e) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(g)(ii)**

F178 Word in Annex 3 point ATM/ANS.OR.D.025(e) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(g)(iii)**

F179 Word in Annex 3 point ATM/ANS.OR.D.025(e) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **13(8)(g)(iv)**

ANNEX IV

SPECIFIC REQUIREMENTS FOR PROVIDERS OF AIR TRAFFIC SERVICES (Part-ATS)

SUBPART A — ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF AIR TRAFFIC SERVICES (ATS.OR)

SECTION 1 — GENERAL REQUIREMENTS

ATS.OR.100 Ownership

(a) An air traffic services provider shall notify the competent **[**F180authority**]** of:

(1) its legal status, its ownership structure and any arrangements having a significant impact on control over its assets;

(2) any links with organisations not involved in the provision of air navigation services, including commercial activities in which they are engaged either directly or through related undertakings, which account for more than 1 % of their expected revenue; furthermore, it shall notify any change of any single shareholding which represents 10 % or more of their total shareholding.

(b) An air traffic services provider shall take all necessary measures to prevent any situation of conflict of interests that could compromise the impartial and objective provision of its services.

Textual Amendments

F180 Word in Annex 4 point ATS.OR.100(a) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **14(2)**

ATS.OR.105 Open and transparent provision of service

In addition to point ATM/ANS.OR.A.075 of Annex III, the air traffic service provider shall neither engage in conduct that would have as its object or effect the prevention, restriction or distortion of competition, nor shall they engage in conduct that amounts to an abuse of a dominant position, in accordance with applicable [F181]... law.

Textual Amendments

F181 Words in Annex 4 point ATS.OR.105 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **14(3)**

[F182ATS.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.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 pre-flight information and to meet the need for in-flight information, an air traffic services provider shall make arrangements to report to the 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;

(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.

(d) An air traffic services provider shall observe the predetermined, internationally agreed aeronautical information regulation and control (AIRAC) effective dates when submitting to aeronautical information services providers the information or data, or both, subject to the AIRAC cycle.**]**

SECTION 2 — SAFETY OF SERVICES

ATS.OR.200 Safety management system

An air traffic services provider shall have in place a safety management system (SMS), which may be an integral part of the management system required in point ATM/ANS.OR.B.005, that includes the following components:

(1) *Safety policy and objectives*

(i) Management commitment and responsibility regarding safety which shall be included in the safety policy.

(ii) Safety accountabilities regarding the implementation and maintenance of the SMS and the authority to make decisions regarding safety.

(iii) Appointment of a safety manager who is responsible for the implementation and maintenance of an effective SMS;

(iv) Coordination of an emergency response planning with other service providers and aviation undertakings that interface with the ATS provider during the provision of its services.

(v) SMS documentation that describes all the elements of the SMS, the associated SMS processes and the SMS outputs.

(2) *Safety risk management*

(i) A process to identify hazards associated to its services which shall be based on a combination of reactive, proactive and predictive methods of safety data collection.

(ii) A process that ensures analysis, assessment and control of the safety risks associated with identified hazards.

(iii) A process to ensure that its contribution to the risk of aircraft accidents is minimised as far as is reasonably practicable.

(3) *Safety assurance*

(i) Safety performance monitoring and measurement means to verify the safety performance of the organisation and validate the effectiveness of the safety risk controls.

(ii) A process to identify changes which may affect the level of safety risk associated with its service and to identify and manage the safety risks that may arise from those changes.

(iii) A process to monitor and assess the effectiveness of the SMS to enable the continuous improvement of the overall performance of the SMS.

(4) *Safety promotion*

(i) Training programme that ensures that the personnel are trained and competent to perform their SMS duties.

(ii) Safety communication that ensures that the personnel are aware of the SMS implementation.

ATS.OR.205 Safety assessment and assurance of changes to the functional system

(a) For any change notified in accordance with point ATM/ANS.OR.A.045(a)(1), the air traffic services provider shall:

(1) ensure that a safety assessment is carried out covering the scope of the change, which is:

(i) the equipment, procedural and human elements being changed;

(ii) interfaces and interactions between the elements being changed and the remainder of the functional system;

(iii) interfaces and interactions between the elements being changed and the context in which it is intended to operate;

(iv) the life cycle of the change from definition to operations including transition into service;

(v) planned degraded modes of operation of the functional system; and

(2) provide assurance, with sufficient confidence, via a complete, documented and valid argument that the safety criteria identified via the application of point ATS.OR.210 are valid, will be satisfied and will remain satisfied.

(b) An air traffic services provider shall ensure that the safety assessment referred to in point (a) comprises:

(1) the identification of hazards;

(2) the determination and justification of the safety criteria applicable to the change in accordance with point ATS.OR.210;

(3) the risk analysis of the effects related to the change;

(4) the risk evaluation and, if required, risk mitigation for the change such that it can meet the applicable safety criteria;

(5) the verification that:

(i) the assessment corresponds to the scope of the change as defined in point (a)(1);

(ii) the change meets the safety criteria;

(6) the specification of the monitoring criteria necessary to demonstrate that the service delivered by the changed functional system will continue to meet the safety criteria.

ATS.OR.210 Safety criteria

(a) An air traffic services provider shall determine the safety acceptability of a change to a functional system, based on the analysis of the risks posed by the introduction of the change, differentiated on basis of types of operations and stakeholder classes, as appropriate.

(b) The safety acceptability of a change shall be assessed by using specific and verifiable safety criteria, where each criterion is expressed in terms of an explicit, quantitative level of safety risk or another measure that relates to safety risk.

(c) An air traffic services provider shall ensure that the safety criteria:

(1) are justified for the specific change, taking into account the type of change;

(2) when fulfilled, predict that the functional system after the change will be as safe as it was before the change or the air traffic services provider shall provide an argument justifying that:

(i) any temporary reduction in safety will be offset by future improvement in safety; or

(ii) any permanent reduction in safety has other beneficial consequences;

(3) when taken collectively, ensure that the change does not create an unacceptable risk to the safety of the service;

(4) support the improvement of safety whenever reasonably practicable.

ATS.OR.215 Licensing and medical certification requirements for air traffic controllers

An air traffic services provider shall ensure that air traffic controllers are properly licensed and hold a valid medical certificate, in accordance with Regulation (EU) 2015/340.

SECTION 3 — SPECIFIC HUMAN FACTORS REQUIREMENTS FOR AIR TRAFFIC CONTROL SERVICE PROVIDERS

ATS.OR.300 Scope

This section establishes the requirements to be met by the air traffic control service provider with regard to human performance in order to:

(a) prevent and mitigate the risk that air traffic control service is provided by air traffic controllers with problematic use of psychoactive substances;

(b) prevent and mitigate the negative effects of stress on air traffic controllers to ensure the safety of air traffic;

(c) prevent and mitigate the negative effects of fatigue on air traffic controllers to ensure the safety of air traffic.

ATS.OR.305 Responsibilities of air traffic control service providers with regard to the problematic use of psychoactive substances by air traffic controllers

(a) An air traffic control service provider shall develop and implement a policy, with related procedures, in order to ensure that the problematic use of psychoactive substances does not affect the provision of air traffic control service.

(b) Without prejudice to provisions laid down in **[**[F183]Regulation (EU) 2016/679 and the applicable**]** legislation on testing of individuals, the air traffic control service provider shall develop and implement an objective, transparent and non-discriminatory procedure for the detection of cases of problematic use of psychoactive substances by air traffic controllers. This procedure shall take into account provisions laid down in point ATCO.A.015 of Regulation (EU) 2015/340.

(c) The procedure in point (b) shall be approved by the competent authority.

Textual Amendments

F183 Words in Annex 4 point ATS.OR.305(b) substituted (31.12.2020) by The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **14(4)**

ATS.OR.310 Stress

In accordance with point ATS.OR.200, an air traffic control service provider shall:

(a) develop and maintain a policy for the management of air traffic controllers' stress, including the implementation of a critical incident stress management programme;

(b) provide air traffic controllers with education and information programmes on the prevention of stress, including critical incident stress, complementing human factors training provided in accordance with Sections 3 and 4 of Subpart D of Annex I to Regulation (EU) 2015/340.

ATS.OR.315 Fatigue

In accordance with point ATS.OR.200, an air traffic control service provider shall:

(a) develop and maintain a policy for the management of air traffic controllers' fatigue;

(b) provide air traffic controllers with information programmes on the prevention of fatigue, complementing human factors training provided in accordance with Sections 3 and 4 of Subpart D of Annex I to Regulation (EU) 2015/340.

ATS.OR.320 Air traffic controllers' rostering system(s)

(a) An air traffic control service provider shall develop, implement and monitor a rostering system in order to manage the risks of occupational fatigue of air traffic controllers through a safe alternation of duty and rest periods. Within the rostering system, the air traffic control service provider shall specify the following elements:

(1) maximum consecutive working days with duty;

(2) maximum hours per duty period;

(3) maximum time providing air traffic control service without breaks;

(4) the ratio of duty periods to breaks when providing air traffic control service;

(5) minimum rest periods;

(6) maximum consecutive duty periods encroaching the night time, if applicable, depending upon the operating hours of the air traffic control unit concerned;

(7) minimum rest period after a duty period encroaching the night time;

(8) minimum number of rest periods within a roster cycle.

(b) An air traffic control services provider shall consult those air traffic controllers who will be subject to the rostering system, or, as applicable, their representatives, during its development and its application, to identify and mitigate risks concerning fatigue which could be due to the rostering system itself.

SUBPART B — TECHNICAL REQUIREMENTS FOR PROVIDERS OF AIR TRAFFIC SERVICES (ATS.TR)

SECTION 1 — GENERAL REQUIREMENTS

ATS.TR.100 Working methods and operating procedures for providers of air traffic services

(a) An air traffic services provider shall be able to demonstrate that its working methods and operating procedures are compliant with:

(1) Implementing Regulation (EU) No 923/2012; and

(2) the standards laid down in the following Annexes to the Chicago Convention, as far as they are relevant to the provision of air traffic services in the airspace concerned:

(i) Annex 10 on aeronautical telecommunications, Volume II on communication procedures including those with PANS Status in its 6th edition of October 2001, including all amendments up to and including No 89;

(ii) without prejudice to Regulation (EU) No 923/2012, Annex 11 on air traffic services in its 13th edition of July 2001, including all amendments up to and including No 49.

(b) Notwithstanding point (a), for air traffic services units providing services for flight testing, the competent authority may specify additional or alternative conditions and procedures to those contained in point (a) when so required for the provision of services for flight testing.

ANNEX V

SPECIFIC REQUIREMENTS FOR PROVIDERS OF METEOROLOGICAL SERVICES (Part-MET)

SUBPART A — ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF METEOROLOGICAL SERVICES (MET.OR)

SECTION 1 — GENERAL REQUIREMENTS

MET.OR.100 Meteorological data and information

(a) A meteorological services provider shall provide operators, flight crew members, air traffic services units, search and rescue services units, aerodrome operators, accident and incident investigation bodies, and other service providers and aviation entities with the meteorological information necessary for the performance of their respective functions, as determined by the competent authority.

(b) A meteorological services provider shall confirm the operationally desirable accuracy of the information distributed for operations, including the source of such information, whilst also ensuring that such information is distributed in a timely manner and updated, as required.

MET.OR.105 Retention of meteorological information

(a) A meteorological services provider shall retain meteorological information issued for a period of at least 30 days from the date of issue.

(b) This meteorological information shall be made available, on request, for inquiries or investigations and, for these purposes, shall be retained until the inquiry or investigation is completed.

MET.OR.110 Meteorological information exchange requirements

A meteorological services provider shall ensure it has systems and processes in place, as well as access to suitable telecommunications facilities to:

(a) enable the exchange of operational meteorological information with other meteorological services providers;

(b) provide the required meteorological information to the users in a timely manner.

MET.OR.115 Meteorological bulletins

The meteorological services provider responsible for the area concerned shall provide meteorological bulletins to the relevant users, via the aeronautical fixed service or the internet.

[F184MET.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.**]**

SECTION 2 — SPECIFIC REQUIREMENTS

Chapter 1 — Requirements for aeronautical meteorological stations

MET.OR.200 Meteorological reports and other information

(a) An aeronautical meteorological station shall disseminate:

(1) local routine reports at fixed intervals, only for dissemination at the aerodrome of origin;

(2) local special reports, only for dissemination at the aerodrome of origin;

(3) METAR at half-hourly intervals at aerodromes serving scheduled international commercial air transport operations for dissemination beyond the aerodrome of origin.

(b) An aeronautical meteorological station shall inform the air traffic service units and aeronautical information service of an aerodrome of changes in the serviceability status of the automated equipment used for assessing runway visual range.

(c) An aeronautical meteorological station shall report to the associated air traffic services unit, aeronautical information services unit, and meteorological watch office the occurrence of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud.

(d) An aeronautical meteorological station shall establish a list of criteria to provide local special reports in consultation with the appropriate ATS units, operators and others concerned.

MET.OR.205 Reporting of meteorological elements

[[F184]An aeronautical meteorological station shall report:**]**

(a) surface wind direction and speed;

(b) visibility;

(c) runway visual range, if applicable;

(d) present weather at the aerodrome and its vicinity;

(e) clouds;

(f) air temperature and dew point temperature;

(g) atmospheric pressure;

(h) supplementary information when applicable.

Where authorised by the competent authority, at aerodromes not serving scheduled international commercial air transport operations, an aeronautical meteorological station may report only a subset of the meteorological elements as relevant to the types of flights at that aerodrome. This data set shall be published in the aeronautical information publication.

MET.OR.210 Observing meteorological elements

[[F184]An aeronautical meteorological station shall observe and/or measure:**]**

(a) surface wind direction and speed;

(b) visibility;

(c) runway visual range, if applicable;

(d) present weather at the aerodrome and its vicinity;

(e) clouds;

(f) air temperature and dew point temperature;

(g) atmospheric pressure;

(h) supplementary information, when applicable:

Where authorized by the competent authority, at aerodromes not serving scheduled international commercial air transport operations, an aeronautical meteorological station may observe and/or measure only a subset of the meteorological elements as relevant to the types of flights at that aerodrome. This data set shall be published in the aeronautical information publication.

Chapter 2 — Requirements for aerodrome meteorological offices

MET.OR.215 Forecasts and other information

An aerodrome meteorological office shall:

(a) prepare and/or obtain forecasts and other relevant meteorological information necessary for the performance of its respective functions for flights with which it is concerned, as determined by the competent authority;

(b) provide forecasts and/or warnings for local meteorological conditions on aerodromes for which it is responsible;

(c) keep the forecasts and warnings under continuous review and issue amendments promptly when necessary, and cancel any forecast of the same type previously issued for the same place and for the same period of validity or part thereof;

(d) provide briefing, consultation and flight documentation to flight crew members and/or other flight operations personnel;

(e) provide climatological information;

(f) provide its associated air traffic services unit, aeronautical information service unit and meteorological watch office with information received on pre-eruption volcanic activity, a volcanic eruption or volcanic ash cloud;

(g) provide, if applicable, meteorological information to search and rescue services units and maintain liaison with the search and rescue services unit(s) throughout a search and rescue operation;

(h) provide meteorological information to relevant aeronautical information services units, as necessary, for the conduct of their functions;

(i) prepare and/or obtain forecast and other relevant meteorological information necessary for the performance of the ATS units functions in accordance with point MET.OR.242;

(j) provide its associated air traffic services unit, aeronautical information service unit and meteorological watch offices with information received on the release of radioactive materials into the atmosphere.

MET.OR.220 Aerodrome forecasts

(a) An aerodrome meteorological office shall issue aerodrome forecasts as a TAF at a specified time.

(b) When issuing TAF, the aerodrome meteorological office shall ensure that not more than one TAF is valid at an aerodrome at any given time.

MET.OR.225 Forecasts for landing

(a) An aerodrome meteorological office shall prepare forecasts for landing as determined by the competent authority.

(b) This forecast for landing shall be issued in the form of a TREND forecast.

(c) The period of validity of a TREND forecast shall be 2 hours from the time of the report which forms part of the landing forecast.

MET.OR.230 Forecasts for take-off

An aerodrome meteorological office shall:

(a) prepare forecasts for take-off as determined by the competent authority;

(b) supply forecasts for take-off to operators and flight crew members on request within the 3 hours before the expected time of departure.

MET.OR.235 Aerodrome warnings and wind shear warnings and alerts

An aerodrome meteorological office shall:

(a) provide aerodrome warnings information;

(b) prepare wind shear warnings for aerodromes where wind shear is considered a factor, in accordance with local arrangements with the appropriate ATS unit and operators concerned;

(c) issue, at aerodromes where wind shear is detected by automated, ground-based, wind shear remote-sensing or detection equipment, wind shear alerts generated by these systems;

(d) cancel warnings when the conditions are no longer occurring and/or no longer expected to occur at the aerodrome.

MET.OR.240 Information for use by operator or flight crew

(a) An aerodrome meteorological office shall provide operators and flight crew members with:

(1) forecasts, originating from the WAFS, of the elements listed in points (1) and (2) of point MET.OR.275(a);

(2) **[**F184METAR 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;**]**

(3) aerodrome forecasts for take-off;

(4) SIGMET and special air-reports relevant to the whole route;

(5) volcanic ash and tropical cyclone advisory information relevant to the whole route;

(6) **[**F184area 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;**]**

(7) aerodrome warnings for the local aerodrome;

(8) meteorological satellite images;

(9) ground-based weather radar information.

(b) Whenever the meteorological information to be included in the flight documentation differs materially from that made available for flight planning, the aerodrome meteorological office shall:

(1) advise immediately the operator or flight crew concerned;

(2) if practicable, provide the revised meteorological information in agreement with the operator.

MET.OR.242 Information to be provided to air traffic services units

(a) **[**[F184]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.**]**

(b) An aerodrome meteorological office shall provide its associate approach control unit with:

(1) **[**[F184]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;**]**

(3) any additional meteorological information agreed upon locally;

(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 approach control unit concerned;

(5) information received on pre-eruption volcanic activity and/or a volcanic eruption as agreed between the aerodrome meteorological office and the approach control unit concerned.

Chapter 3 Requirements for meteorological watch offices

MET.OR.245 Meteorological watch and other information

Within its area of responsibility, the meteorological watch office shall:

(a) maintain continuous watch over meteorological conditions affecting flight operations;

(b) **[**[F184]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;**]**

(c) coordinate with selected volcano observatories to ensure that information on volcanic activity is received in an efficient and timely manner;

(d) provide its associated VAAC with information received on pre-eruption volcanic activity, a volcanic eruption and volcanic ash cloud for which a SIGMET has not already been issued;

(e) provide its aeronautical information service units with information received on the release of radioactive materials into the atmosphere in the area or adjacent areas for which it maintains watch and for which a SIGMET has not already been issued;

(f) provide its associated area control centre and flight information centre (ACC/FIC), as necessary, with relevant:

(1) **[**[F184]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;**]**

(3) any other meteorological information required by the ACC/FIC to meet requests from aircraft in flight;

(4) information received on volcanic ash cloud, for which a SIGMET has not already been issued, as agreed between the meteorological watch office and the ACC/FIC;

(5) information received concerning the release of radioactive material into the atmosphere, as agreed between the meteorological watch office and the ACC/FIC;

(6) **[**[F184]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;**]**

(g) **[**[F185]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.**]**

Textual Amendments

F185 Inserted by 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).

[[F184]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.**]**

[F184MET.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.**]**

MET.OR.260 Area forecasts for low-level flights

A meteorological watch office shall:

(a) provide area forecast for low-level flights when the density of traffic operating below flight level 100, or up to flight level 150 in mountainous areas, or higher, where necessary, warrants the routine issue and dissemination of area forecasts for such operations;

(b) ensure that the frequency of issue, the form, and the fixed time or period of validity of area forecast for low-level flights and the criteria for amendments thereto, are as determined by the competent authority;

(c) **[F184**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.**]**

Chapter 4 — Requirements for volcanic ash advisory centre (VAAC)

MET.OR.265 Volcanic ash advisory centre responsibilities

In its area of responsibility, the VAAC shall:

(a) when a volcano has erupted, or is expected to erupt, or volcanic ash is reported, provide advisory information regarding the extent and forecast movement of the volcanic ash cloud to:

(1) the European aviation crisis coordination cell;

(2) meteorological watch offices serving flight information regions in its area of responsibility which may be affected;

(3) operators, area control centres, and flight information centres serving flight information regions in its area of responsibility which may be affected;

(4) **[**F184WAFCs, 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;**]**

(5) other VAACs whose areas of responsibility may be affected.

(b) coordinate with selected volcano observatories to ensure that information on volcanic activity is received in an efficient and timely manner;

(c) provide the advisory meteorological information referred to in point (a) at least every 6 hours until such time as the volcanic ash cloud is no longer identifiable from satellite data, no further meteorological reports of volcanic ash are received from the area and no further eruptions of the volcano are reported; and

(d) maintain a 24-hour watch.

Chapter 5 — Requirements for tropical cyclone advisory centre (TCAC)

MET.OR.270 Tropical cyclone advisory centre responsibilities

[F184A TCAC shall provide:**]**

(a) advisory information concerning the position of the cyclone centre, its direction and speed of movement, central pressure and maximum surface wind near the centre in abbreviated plain language to:

(1) meteorological watch offices in its area of responsibility;

(2) other TCACs whose areas of responsibility may be affected;

(3) **[**F184WAFCs, international OPMET databanks and centres responsible for the operation of the aeronautical fixed service internet-based services;**]**

(b) updated advisory information to meteorological watch offices for each tropical cyclone, as necessary, but at least every 6 hours.

Chapter 6 — Requirements for world area forecast centre (WAFC)

MET.OR.275 World area forecast centre responsibilities

(a) The WAFC shall provide, in a digital form:

(1) gridded global forecasts of:

(i) upper wind;

(ii) upper-air temperature and humidity;

(iii) geopotential altitude of flight levels;

(iv) flight level and temperature of tropopause;

(v) direction, speed and flight level of maximum wind;

(vi) cumulonimbus clouds;

(vii) icing;

(viii) turbulence;

(2) global forecasts of significant weather (SIGWX) phenomena, including volcanic activity and release of radioactive materials.

(b) The WAFC shall ensure that world area forecast system products in digital form are transmitted using binary data communications techniques.

SUBPART B — TECHNICAL REQUIREMENTS FOR PROVIDERS OF METEOROLOGICAL SERVICES (MET.TR)

SECTION 1 — GENERAL REQUIREMENTS

MET.TR.115 Meteorological bulletins

(a) Meteorological bulletins shall contain a heading consisting of:

(1) an identifier of four letters and two figures;

(2) the ICAO four-letter location indicator corresponding to the geographical location of the meteorological service provider originating or compiling the meteorological bulletin;

(3) a day-time group;

(4) if required, a three-letter indicator.

(b) Meteorological bulletins containing operational meteorological information to be transmitted via the AFTN shall be encapsulated in the text part of the AFTN message format.

SECTION 2 — SPECIFIC REQUIREMENTS

Chapter 1 — Technical requirements for aeronautical meteorological stations

MET.TR.200 Meteorological reports and other information

(a) **[**F184Local routine report, local special report and METAR shall contain the following elements in the order indicated:**]**

(1) identification of the type of report;

(2) location indicator;

(3) time of the observation;

(4) identification of an automated or missing report, when applicable;

(5) surface wind direction and speed;

(6) visibility;

(7) runway visual range, when the reporting criteria are met;

(8) present weather;

(9) cloud amount, cloud type only for cumulonimbus and towering cumulus clouds and height of cloud base or, where measured, vertical visibility;

(10) air temperature and dew-point temperature;

(11) QNH and, when applicable, in local routine and local special reports, QFE;

(12) supplementary information, when applicable.

(b) **[**F184In local routine report and local special report:**]**

(1) if the surface wind is observed from more than one location along the runway, the locations for which these values are representative shall be indicated;

(2) when there is more than one runway in use and the surface wind related to these runways is observed, the available wind values for each runway shall be given, and the runways to which the values refer shall be reported;

(3) when variations from the mean wind direction are reported in accordance with point MET.TR.205(a)(3)(ii)(B), the two extreme directions between which the surface wind has varied shall be reported;

(4) when variations from the mean wind speed (gusts) are reported in accordance with point MET.TR.205(a)(3)(iii), they shall be reported as the maximum and minimum values of the wind speed attained.

(c) METAR

(1) METAR shall be issued in accordance with the template shown in Appendix 1 and disseminated in the METAR code form prescribed by the World Meteorological Organisation.

(2) If disseminated in digital form, METAR shall be:

(i) formatted in accordance with a globally interoperable information exchange model and shall use geography markup language (GML);

(ii) accompanied by the appropriate metadata.

(3) METAR shall be filed for transmission not later than 5 minutes after the actual time of observation.

(d) Information on visibility, runway visual range, present weather and cloud amount, cloud type and height of cloud base shall be replaced in all meteorological reports by the term ‘CAVOK’ when the following conditions occur simultaneously at the time of observation:

(1) visibility, 10 km or more, and the lowest visibility is not reported;

(2) no cloud of operational significance;

(3) no weather of significance to aviation.

(e) The list of criteria to provide local special reports shall include:

(1) those values which most closely correspond to the operating minima of the operators using the aerodrome;

(2) those values which satisfy other local requirements of the ATS units and of the operators;

(3) an increase in air temperature of 2 °C or more from that given in the latest local report, or an alternative threshold value as agreed

between the meteorological service providers, the appropriate ATS unit and the operators concerned;

(4) the available supplementary information concerning the occurrence of significant meteorological conditions in the approach and climb-out areas;

(5) when noise abatement procedures are applied and the variation from the mean surface wind speed has changed by 5 kt (2,5 m/s) or more from that at the time of the latest local report, the mean speed before and/or after the change being 15 kt (7,5 m/s) or more;

(6) when the mean surface wind direction has changed by 60° or more from that given in the latest report, the mean speed before and/or after the change being 10 kt (5 m/s) or more;

(7) when the mean surface wind speed has changed by 10 kt (5 m/s) or more from that given in the latest local report;

(8) when the variation from the mean surface wind speed (gusts) has changed by 10 kt (5 m/s) or more from that at the time of the latest local report, the mean speed before and/or after the change being 15 kt (7,5 m/s) or more;

(9) when the onset, cessation or change in intensity of any of the following weather phenomena occurs:

(i) freezing precipitation;

(ii) moderate or heavy precipitation, including showers thereof; and

(iii) thunderstorm, with precipitation;

(10) when the onset or cessation of any of the following weather phenomena occurs:

(i) freezing fog;

(ii) thunderstorm, without precipitation;

(11) when the amount of a cloud layer below 1 500 ft (450 m) changes:

(i) from scattered (SCT) or less to broken (BKN) or overcast (OVC); or

(ii) from BKN or OVC to SCT or less.

(f) When so agreed between the meteorological services provider and the competent authority, local special reports shall be issued whenever the following changes occur:

(1) when the wind changes through values of operational significance. The threshold values shall be established by the meteorological service provider in consultation with the appropriate ATS unit and operators concerned, taking into account changes in the wind which would:

(i) require a change in runway(s) in use;

(ii) indicate that the runway tailwind and crosswind components have changed through values representing the main operating limits for typical aircraft operating at the aerodrome;

(2) when the visibility is improving and changes to or passes through one or more of the following values, or when the visibility is deteriorating and passes through one or more of the following values:

(i) 800, 1 500 or 3 000 m;

(ii) 5 000 m, in cases where significant numbers of flights are operated in accordance with the visual flight rules;

(3) when the runway visual range is improving and changes to or passes through one or more of the following values, or when the runway visual range is deteriorating and passes through one or more of the following values: 50, 175, 300, 550 or 800 m;

(4) when the onset, cessation or change in intensity of any of the following weather phenomena occurs:

(i) dust storm;

(ii) sandstorm;

(iii) funnel cloud (tornado or waterspout);

(5) when the onset or cessation of any of the following weather phenomena occurs:

(i) low drifting dust, sand or snow;

(ii) blowing dust, sand or snow;

(iii) squall;

(6) when the height of base of the lowest cloud layer of BKN or OVC extent is lifting and changes to or passes through one or more of the following values, or when the height of base of the lowest cloud layer of BKN or OVC extent is lowering and passes through one or more of the following values:

(i) 100, 200, 500 or 1 000 ft (30, 60, 150 or 300 m);

(ii) 1 500 ft (450 m), in cases where significant numbers of flights are operated in accordance with the visual flight rules;

(7) when the sky is obscured and the vertical visibility is improving and changes to or passes through one or more of the following values, or when the vertical visibility is deteriorating and passes through one or more of the following values: 100, 200, 500 or 1 000 ft (30, 60, 150 or 300 m);

(8) any other criteria based on local aerodrome operating minima, as agreed between the meteorological services providers and the operators.

MET.TR.205 Reporting of meteorological elements(a)Surface wind direction and speed

(1) **[**F184In 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.**]**

(2) Any observed value that does not fit the reporting scale in use shall be rounded to the nearest step in the scale.

(3) **[**F184In local routine report, local special report and METAR:**]**

(i) the units of measurement used for the wind speed shall be indicated;

(ii) variations from the mean wind direction during the past 10 minutes shall be reported as follows, if the total variation is 60° or more, alternatively:

(A) when the total variation is 60° or more and less than 180° and the wind speed is 3 kt (1,5 m/s) or more, such directional variations shall be reported as the two extreme directions between which the surface wind has varied;

(B) when the total variation is 60° or more and less than 180° and the wind speed is less than 3 kt (1,5 m/s), the wind direction shall be reported as variable with no mean wind direction;

(C) when the total variation is 180° or more, the wind direction shall be reported as variable with no mean wind direction;

(iii) variations from the mean wind speed (gusts), during the past 10 minutes shall be reported when the maximum wind speed exceeds the mean speed by, alternatively:

(A) **[**F1845 kt (2,5 m/s) or more in local routine report and local special report when noise abatement procedures are applied;**]**

(B) 10 kt (5 m/s) or more otherwise;

(iv) when a wind speed of less than 1 kt (0,5 m/s) is reported, it shall be indicated as calm;

(v) when a wind speed of 100 kt (50 m/s) or more is reported, it shall be indicated to be more than 99 kt (49 m/s);

(vi) when variations from the mean wind speed (gusts) are reported in accordance with point MET.TR.205(a), the maximum value of the wind speed attained shall be reported;

(vii) when the 10-minute period includes a marked discontinuity in the wind direction and/or speed, only variations from the mean wind direction and mean wind speed occurring since the discontinuity shall be reported.

(b)Visibility

(1) **[**F184In 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.**]**

(2) Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

(3) **[**F184In 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.**]**

(c)Runway visual range (RVR)

(1) **[**F184In 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.**]**

(2) Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

(3) **[**F184In 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.**]**

(4) **[**F184In local routine report and local special report:**]**

(i) the units of measurement used shall be included;

(ii) if the RVR is observed from only one location along the runway, such as the touchdown zone, it shall be included without any indication of location;

(iii) if the RVR is observed from more than one location along the runway, the value representative of the touchdown zone shall be reported first, followed by the values representative of the mid-

point and stop-end, and the locations for which these values are representative shall be indicated;

(iv) when there is more than one runway in use, the available RVR values for each runway shall be reported, and the runways to which the values refer shall be indicated.

(d)Present weather phenomena

(1) **[**F184In 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.**]**

(2) In METAR, observed present weather phenomena shall be reported in terms of type and characteristics and qualified with respect to intensity or proximity to the aerodrome, as appropriate.

(3) **[**F184In 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:**]**

(i) Thunderstorm (TS)

Used to report a thunderstorm with precipitation. When thunder is heard or lightning is detected at the aerodrome during the 10-minute period preceding the time of observation but no precipitation is observed at the aerodrome, the abbreviation ‘TS’ shall be used without qualification.

(ii) Freezing (FZ)

Supercooled water droplets or precipitation, used with types of present weather phenomena in accordance with Appendix 1.

(4) **[**F184In local routine report, local special report and METAR:**]**

(i) one or more, up to a maximum of three, of the present weather abbreviations shall be used, as necessary, together with an indication, where appropriate, of the characteristics and intensity or proximity to the aerodrome, so as to convey a complete description of the present weather of significance to flight operations;

(ii) the indication of intensity or proximity, as appropriate, shall be reported first followed respectively by the characteristics and the type of weather phenomena;

(iii) where two different types of weather are observed, they shall be reported in two separate groups, where the intensity or proximity indicator refers to the weather phenomenon which follows the indicator. However, different types of precipitation occurring at the time of observation shall be reported as one single group with the dominant type of precipitation reported first and preceded by only one intensity qualifier which refers to the intensity of the total precipitation.

(e)Clouds

(1) **[**F184In 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).**]**

(2) Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

(3) **[**F184In local routine report and local special report:**]**

(i) the units of measurement used for the height of cloud base and vertical visibility shall be indicated;

(ii) when there is more than one runway in use and the heights of cloud bases are observed by instruments for these runways, the available heights of cloud bases for each runway shall be reported, and the runways to which the values refer shall be indicated.

(f)Air temperature and dew-point temperature

(1) **[**F184In 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.**]**

(2) Any observed value which does not fit the reporting scale in use shall be rounded to the nearest whole degree Celsius, with observed values involving 0,5° rounded up to the next higher whole degree Celsius.

(3) **[**F184In local routine report, local special report and METAR, a temperature below 0 °C shall be identified.**]**

(g)Atmospheric pressure

(1) **[**F184In 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.**]**

(2) Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower whole hectopascal.

(3) **[**F184In local routine report and local special report:**]**

(i) QNH shall be included;

(ii) QFE shall be included if required by users or, if so agreed locally between the provider of meteorological services, the ATS unit and the operators concerned, on a regular basis;

(iii) the units of measurement used for QNH and QFE values shall be included;

(iv) if QFE values are required for more than one runway, the required QFE values for each runway shall be reported, and the runway(s) to which the values refer shall be indicated.

(4) In METAR, only QNH values shall be included.

MET.TR.210 Observing meteorological elements

The following meteorological elements shall be observed and/or measured with specified accuracy and disseminated by automatic or semi-automatic meteorological observing system.

(a)Surface wind direction and speed

The mean direction and the mean speed of the surface wind shall be measured, as well as significant variations of the wind direction and speed (gusts), and reported in degrees true and knots, respectively.

(1)Siting

The meteorological instrument used to measure surface wind direction and speed shall be situated in such a way as to provide data which is representative of the area for which the measurements are required.

(2)Display

Surface wind displays relating to each sensor shall be located in the meteorological station. The displays in the meteorological station and in the air traffic services units shall relate to the same sensors, and where separate sensors are required, the displays shall be clearly marked to identify the runway and section of runway monitored by each sensor.

(3)Averaging

The averaging period for surface wind observations shall be:

(i) **[**F184 2 minutes for local routine report and local special report and for wind displays in ATS units;**]**

(ii) 10 minutes for METAR, except that when the 10-minute period includes a marked discontinuity in the wind direction and/or speed; only data occurring after the discontinuity shall be used for obtaining mean values; hence, the time interval in these circumstances shall be correspondingly reduced.

(b)Visibility(1)

The visibility shall be measured or observed, and reported in metres or kilometres.

(2)Siting

The meteorological instrument used to measure visibility shall be situated in such a way as to supply data which is representative of the area for which the measurements are required.

(3)Displays

When instrumented systems are used for the measurement of visibility, visibility displays relating to each sensor shall be located in the meteorological station. The displays in the meteorological station and in the air traffic services units shall relate to the same sensors, and where separate sensors are required, the displays shall be clearly marked to identify the area monitored by each sensor.

(4)Averaging

The averaging period shall be 10 minutes for METAR, except that when the 10-minute period immediately preceding the observation includes a marked discontinuity in the visibility, only those values occurring after the discontinuity shall be used for obtaining mean values.

(c)Runway visual range (RVR)(1)Siting

The meteorological instrument used to assess the RVR shall be situated in such a way as to provide data which is representative of the area for which the observations are required.

(2)Instrumented systems

Instrumented systems based on transmissometers or forward-scatter meters shall be used to assess RVR on runways intended for Categories II and III instrument approach and landing operations, and for Category I instrument approach and landing operations as determined by the competent authority.

(3)Display

Where the RVR is determined by instrumented systems, one display or more, if required, shall be located in the meteorological station. The displays in the meteorological station and in the air traffic services units shall relate to the same sensors, and where separate sensors are required, the displays shall be clearly marked to identify the runway and section of runway monitored by each sensor.

(4)Averaging

(i) Where instrumented systems are used for the assessment of the RVR, their output shall be updated at least every 60 seconds to permit the provision of current, representative values.

(ii) The averaging period for RVR values shall be:

(A) **[**F184 1 minute for local routine report and local special report and for RVR displays in ATS units;**]**

(B) 10 minutes for METAR, except that when the 10-minute period immediately preceding the observation includes a marked discontinuity in RVR values; then only those values occurring after the discontinuity shall be used for obtaining mean values.

(d)Present weather phenomena(1)

The following present weather phenomena shall be reported, as a minimum: rain, drizzle, snow and freezing precipitation, including intensity thereof, haze, mist, fog, freezing fog and thunderstorms, including thunderstorms in the vicinity.

(2)Siting

The meteorological instrument used to measure present weather at the aerodrome and its vicinity shall be situated in such a way as to provide data which is representative of the area for which the measurements are required.

(e)Clouds(1)

Cloud amount, cloud type and height of cloud base shall be observed and reported as necessary to describe the clouds of operational significance. When the sky is obscured, vertical visibility shall be observed and reported, where measured, instead of cloud amount, cloud type and height of cloud base. The height of cloud base and vertical visibility shall be reported in feet.

(2)Siting

The meteorological instrument used to measure clouds amount and height shall be situated in such a way as to provide data which is representative of the area for which the measurements are required.

(3)Display

When automated equipment is used for the measurement of the height of cloud base, at least one display shall be located in the meteorological station. The displays in the meteorological station and in the air traffic services units shall relate to the same sensors, and where separate sensors are required, the displays shall be clearly marked to identify the area monitored by each sensor.

(4)Reference level

(i) The height of cloud base shall be reported above aerodrome elevation.

(ii) When a precision approach runway in use has a threshold elevation of 50 ft (15 m) or more below the aerodrome elevation, local arrangements shall be made in order that the height of cloud bases reported to arriving aircraft shall refer to the threshold elevation.

(iii) In the case of reports from offshore structures, the height of cloud base shall be given above mean sea level.

(f)Air temperature and dew-point temperature

(1) The air temperature and dew-point temperature shall be measured, displayed and reported in degrees Celsius.

(2) When automated equipment is used for the measurement of air temperature and dew-point temperature, the displays shall be located in the meteorological station. The displays in the meteorological station and in the air traffic services units shall relate to the same sensors.

(g)Atmospheric pressure(1)

The atmospheric pressure shall be measured, and QNH and QFE values shall be computed and reported in hectopascals.

(2)Display

(i) When automated equipment is used for the measurement of atmospheric pressure, QNH and, if required in accordance with point MET.TR.205(g)(3)(ii), QFE displays relating to the barometer shall be located in the meteorological station with corresponding displays in the appropriate air traffic services units.

(ii) When QFE values are displayed for more than one runway, the displays shall be clearly marked to identify the runway to which the QFE value displayed refers.

(3)Reference level

A reference level for the computation of QFE shall be used.

Chapter 2 — Technical requirements for aerodrome meteorological offices

MET.TR.215 Forecast and other information

(a) Meteorological information for operators and flight crew members shall:

(1) cover the flight in respect of time, altitude and geographical extent;

(2) relate to appropriate fixed times or periods of time;

(3) extend to the aerodrome of intended landing, also covering the meteorological conditions expected between the aerodrome of intended landing and alternate aerodromes designated by the operator;

(4) be up to date.

(b) Meteorological information provided to rescue coordination centres shall include the meteorological conditions that existed in the last known position of a missing aircraft and along the intended route of that aircraft with particular reference to elements which are not being distributed routinely.

(c) Meteorological information provided to aeronautical information services units shall include:

(1) information on meteorological service intended for inclusion in the aeronautical information publication(s) concerned;

(2) information necessary for the preparation of NOTAM or ASHTAM;

(3) information necessary for the preparation of aeronautical information circulars.

(d) Meteorological information included in flight documentation shall be represented as follows:

(1) winds on charts shall be depicted by arrows with feathers and shaded pennants on a sufficiently dense grid;

(2) temperatures shall be depicted by figures on a sufficiently dense grid;

(3) wind and temperature data selected from the data sets received from a world area forecast centre shall be depicted in a sufficiently dense latitude/longitude grid;

(4) wind arrows shall take precedence over temperatures and chart background;

(5) height indications referring to *en-route* meteorological conditions shall be expressed as determined to be appropriate for the situation, for instance in flight levels, pressure, altitude or height above ground level, whilst all references referring to aerodrome meteorological conditions shall be expressed in height above the aerodrome elevation.

(e) Flight documentation shall comprise:

(1) forecasts of upper-wind and upper-air temperature;

(2) SIGWX phenomena;

(3) METAR or, when issued, SPECI for the aerodromes of departure and intended landing, and for take-off, *en-route* and destination alternate aerodromes;

(4) TAF or amended TAF for the aerodromes of departure and intended landing, and for take-off, *en-route* and destination alternate aerodromes;

(5) **[**[F184]SIGMET, and, when issued, AIRMET and appropriate special air-reports relevant to the whole route;**]**

(6) volcanic ash and tropical cyclone advisory information relevant to the whole route.

However, when agreed between the aerodrome meteorological office and the operators concerned, flight documentation for flights of two hours' duration or less, after a short stop or turnaround, may be limited to the information operationally needed, but in all cases the flight documentation shall at least comprise the meteorological information listed in points (3), (4), (5) and (6).

(f) Charts generated from digital forecasts shall be made available, as required by operators, for fixed areas of coverage as shown in Appendix 2.

(g) **[**[F184]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).**]**

(h) The forecasts of upper-wind and upper-air temperature and of SIGWX phenomena above flight level 100 shall be supplied as soon as they become available, but not later than 3 hours before departure.

(i) Aeronautical climatological information shall be prepared in the form of aerodrome climatological tables and aerodrome climatological summaries.

MET.TR.220 Aerodrome forecasts

(a) Aerodrome forecasts and amendments thereto shall be issued as a TAF and shall include, in the order indicated, the:

(1) identification of the type of forecast;

(2) location indicator;

(3) time of issue of forecast;

(4) identification of a missing forecast, when applicable;

(5) date and period of validity of forecast;

(6) identification of a cancelled forecast, when applicable;

(7) surface wind;

(8) visibility;

(9) weather;

(10) cloud;

(11) expected significant changes to one or more of these elements during the period of validity.

(b) TAF shall be issued in accordance with the template shown in Appendix 3 and disseminated in the TAF code form.

(c) **[**[F184]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.**]**

(d) **[**[F184]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.**]**

(e) The meteorological elements included in TAF shall be:

(1) Surface wind

(i) In forecasting surface wind, the expected prevailing direction shall be given.

(ii) When it is not possible to forecast a prevailing surface wind direction due to its expected variability, the forecasted wind direction shall be indicated as variable using 'VRB'.

(iii) When the wind is forecasted to be less than 1 kt (0,5 m/s), the forecasted wind speed shall be indicated as calm.

(iv) When the forecasted maximum speed exceeds the forecasted mean wind speed by 10 kt (5 m/s) or more, the forecasted maximum wind speed shall be indicated.

(v) When a wind speed of 100 kt (50 m/s) or more is forecasted, it shall be indicated to be more than 99 kt (49 m/s).

(2) Visibility

(i) When the visibility is forecasted to be less than 800 m, it shall be expressed in steps of 50 m; when it is forecasted to be 800 m or more, but less than 5 km, in steps of 100 m; when it is forecasted to be 5 km or more, but less than 10 km, in kilometre steps; and when it is forecasted to be 10 km or more, it shall be expressed as 10 km, except when conditions of CAVOK are forecasted to apply. The prevailing visibility shall be forecasted.

(ii) When visibility is forecasted to vary in different directions and the prevailing visibility cannot be forecasted, the lowest forecasted visibility shall be given.

(3) Weather phenomena

(i) One or more, up to a maximum of three, of the following weather phenomena or combinations thereof, together with their characteristics and, where appropriate, intensity, shall be forecasted if they are expected to occur at the aerodrome:

(A) freezing precipitation;

(B) freezing fog;

(C) moderate or heavy precipitation (including showers thereof);

(D) low drifting dust, sand or snow;

(E) blowing dust, sand or snow;

(F) dust storm;

(G) sandstorm;

(H) thunderstorm (with or without precipitation);

(I) squall;

(J) funnel cloud (tornado or waterspout);

(K) other weather phenomena, as agreed by the aerodrome meteorological office with the ATS units and operators concerned.

(ii) The expected end of occurrence of those phenomena shall be indicated by the abbreviation 'NSW'.

(4) Cloud

(i) The cloud amount shall be forecast using the abbreviations 'FEW', 'SCT', 'BKN' or 'OVC', as necessary. When it is expected that the sky will remain or become obscured and clouds cannot be forecasted and information on vertical visibility is available at the aerodrome, the vertical visibility shall be forecasted in the form 'VV' followed by the forecasted value of the vertical visibility.

(ii) When several layers or masses of cloud are forecasted, their amount and height of base shall be included in the following order:

(A) the lowest layer or mass regardless of amount, to be forecasted as FEW, SCT, BKN or OVC as appropriate;

(B) the next layer or mass covering more than 2/8, to be forecast as SCT, BKN or OVC as appropriate;

(C) the next higher layer or mass covering more than 4/8, to be forecast as BKN or OVC as appropriate;

(D) cumulonimbus clouds and/or towering cumulus clouds, whenever forecasted and not already included under points (A) to (C).

(iii) Cloud information shall be limited to cloud of operational significance; when no cloud of operational significance is forecasted and 'CAVOK' is not appropriate, the abbreviation 'NSC' shall be used.

(f) Use of change groups

(1) The criteria used for the inclusion of change groups in TAF or for the amendment of TAF shall be based on any of the following weather phenomena, or combinations thereof, being forecasted to begin or end or change in intensity:

(i) freezing fog;

(ii) freezing precipitation;

(iii) moderate or heavy precipitation (including showers thereof);

(iv) thunderstorm;

(v) dust storm;

(vi) sandstorm.

(2) When a change in any of the elements given in point (a) is required to be indicated, the change indicators 'BECMG' or 'TEMPO' shall be used followed by the time period during which the change is expected to occur. The time period shall be indicated as the beginning and end of the period in whole hours UTC. Only those elements for which a significant change is expected shall be included following a change indicator. However, in the case of significant changes in respect of cloud, all cloud groups, including layers or masses not expected to change, shall be indicated.

(3) The change indicator 'BECMG' and the associated time group shall be used to describe changes where the meteorological conditions are expected to reach or pass through specified threshold values at a regular or irregular rate and at an unspecified time during the time period. The time period shall not exceed 4 hours.

(4) The change indicator 'TEMPO' and the associated time group shall be used to describe expected frequent or infrequent temporary fluctuations in the meteorological conditions which reach or pass specified threshold values and last for a period of less than 1 hour in each instance and, in the aggregate, cover less than one half of the forecast period during which the fluctuations are expected to occur. If the temporary fluctuation is expected to last 1 hour or longer, the change group 'BECMG' shall be used in accordance with point (3), or the validity period should be subdivided in accordance with point (5).

(5) Where one set of prevailing weather conditions is expected to change significantly and more or less completely to a different set of conditions, the period of validity shall be subdivided into self-contained periods using the abbreviation 'FM' followed immediately by a six-figure time group in days, hours and minutes UTC indicating the time the change is expected to occur. The subdivided period following the abbreviation 'FM' shall be self-contained and all forecasted conditions given before the abbreviation shall be superseded by those following the abbreviation.

(g) The probability of occurrence of an alternative value of a forecast element or elements shall be included when:

(1) **[**[F184]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.**]**

This shall be indicated in the TAF by using the abbreviation 'PROB' followed by the probability in tens of per cent and, in the case referred to in point (1), the time period during which the values are expected to apply, or in the case referred to in point (2), by using the abbreviation 'PROB' followed by the probability in tens of per cent, the change indicator 'TEMPO' and associated time group.

MET.TR.225 Forecasts for landing

(a) TREND forecasts shall be issued in accordance with Appendix 1.

(b) The units and scales used in the TREND forecast shall be the same as those used in the report to which it is appended.

(c) The TREND forecast shall indicate significant changes in respect of one or more of the elements: surface wind, visibility, weather phenomena and clouds. Only those elements for which a significant change is expected shall be included. However, in the case of significant changes in respect of cloud, all cloud groups, including layers or masses not expected to change, shall be indicated. In the case of a significant change in visibility, the phenomenon causing the reduction of visibility shall also be indicated. When no change is expected to occur, this shall be indicated by the term 'NOSIG'.

(1) Surface wind

The TREND forecast shall indicate changes in the surface wind which involve:

(i) a change in the mean wind direction of 60° or more, the mean speed before and/or after the change being 10 kt (5 m/s) or more;

(ii) a change in mean wind speed of 10 kt (5 m/s) or more;

(iii) changes in the wind through values of operational significance.

(2) Visibility

(i) When the visibility is expected to improve and change to or pass through one or more of the following values, or when the visibility is expected to deteriorate and pass through one or more of the following values: 150, 350, 600, 800, 1 500 or 3 000 m, the trend forecast shall indicate the change.

(ii) When significant numbers of flights are conducted in accordance with the visual flight rules, the forecast shall additionally indicate changes to or passing through 5 000 m.

(iii) In TREND forecasts appended to METAR, visibility shall refer to the forecast prevailing visibility.

(3) Weather phenomena

(i) The TREND forecast shall indicate the expected onset, cessation or change in intensity of any of the following weather phenomena or combinations thereof:

(A) freezing precipitation;

(B) moderate or heavy precipitation, including showers thereof;

(C) thunderstorm, with precipitation;

(D) dust storm;

(E) sandstorm;

(F) other weather phenomena as agreed by the aerodrome meteorological office with the ATS units and operators concerned.

(ii) The TREND forecast shall indicate the expected onset or cessation of any of the following weather phenomena or combinations thereof:

(A) freezing fog;

(B) low drifting dust, sand or snow;

(C) blowing dust, sand or snow;

(D) thunderstorm (without precipitation);

(E) squall;

(F) funnel cloud (tornado or waterspout).

(iii) The total number of phenomena reported in points (i) and (ii) shall not exceed three.

(iv) The expected end of occurrence of the weather phenomena shall be indicated by the abbreviation 'NSW'.

(4) Clouds

(i) When the height of base of a cloud layer of BKN or OVC extent is expected to lift and change to or pass through one or more of the following values, or when the height of base of a cloud layer of BKN or OVC extent is expected to lower and pass through one or more of the following values: 100, 200, 500, 1 000 and 1 500 ft (30, 60, 150, 300 and 450 m), the TREND forecast shall indicate the change.

(ii) When the height of base of a cloud layer is below or is expected to fall below or rise above 1 500 ft (450 m), the TREND forecast shall also indicate changes in cloud amount from FEW, or SCT increasing to BKN or OVC, or changes from BKN or OVC decreasing to FEW or SCT.

(iii) When no clouds of operational significance are forecast and 'CAVOK' is not appropriate, the abbreviation 'NSC' shall be used.

(5) Vertical visibility

When the sky is expected to remain or become obscured and vertical visibility observations are available at the aerodrome, and the vertical visibility is forecast to improve and change to or pass through one or more of the following values, or when the vertical visibility is forecast to deteriorate and pass through one or more of the following values: 100, 200, 500 or 1 000 ft (30, 60, 150 or 300 m), the TREND forecast shall indicate the change.

(6) Additional criteria

The aerodrome meteorological office and the users may agree on additional criteria to be used, based on local aerodrome operating minima.

(7) Use of change groups

(i) When a change is expected to occur, the TREND forecast shall begin with one of the change indicators 'BECMG' or 'TEMPO'.

(ii) The change indicator 'BECMG' shall be used to describe forecast changes where the meteorological conditions are expected to reach or pass through specified values at a regular or irregular rate. The period during which, or the time at which, the change is forecast to occur shall be indicated using the abbreviations 'FM', 'TL' or 'AT', as appropriate, each followed by a time group in hours and minutes.

(iii) The change indicator 'TEMPO' shall be used to describe forecast temporary fluctuations in the meteorological conditions which reach or pass specified values and last for a period of less than 1 hour in each instance and, in the aggregate, cover less than one half of the period during which the fluctuations are forecast to occur. The period during which the temporary fluctuations are forecast to occur shall be indicated using the abbreviations 'FM' and/or 'TL', as appropriate, each followed by a time group in hours and minutes.

(8) Use of the probability indicator

The indicator 'PROB' shall not be used in TREND forecasts.

MET.TR.230 Forecasts for take-off

(a) A forecast for take-off shall refer to a specified period of time and shall contain information on expected conditions over the runway complex in regard to surface wind direction and speed and any variations thereof, temperature, pressure, and any other elements as agreed between the aerodrome meteorological office and the operators.

(b) The order of the elements and the terminology, units and scales used in forecasts for take-off shall be the same as those used in reports for the same aerodrome.

MET.TR.235 Aerodrome warnings and wind shear warnings and alerts

(a) Wind shear warnings shall be issued in accordance with the template in Appendix 4.

(b) The sequence number referred to in the template in Appendix 4 shall correspond to the number of wind shear warnings issued for the aerodrome since 00.01 UTC on the day concerned.

(c) Wind shear alerts shall give concise, up-to-date information related to the observed existence of wind shear involving a headwind/tailwind change of 15 kt (7,5 m/s) or more which could adversely affect aircraft on the final approach path or initial take-off path and aircraft on the runway during the landing roll or take-off run.

(d) Wind shear alert shall, if practicable, relate to specific sections of the runway and distances along the approach path or take-off path as agreed between the aerodrome meteorological office, the appropriate ATS units and the operators concerned.

Chapter 3 Technical requirements for meteorological watch offices

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.**]**

MET.TR.260 Area forecasts for low-level flights

(a) When chart form is used for area forecasts for low-level flights, the forecast of upper wind and upper-air temperature shall be issued for points separated by no more than 300 NM and for, as a minimum, the following altitudes: 2 000, 5 000 and 10 000 ft (600, 1 500 and 3 000 m) and 15 000 ft (4 500 m) in mountainous areas. The issuance of forecasts of upper wind and upper-air temperature at an altitude of 2 000 ft (600 m) may be subject to local orographic considerations as determined by the competent authority.

(b) When chart form is used for area forecasts for low-level flights, the forecast of SIGWX phenomena shall be issued as low-level SIGWX forecast for flight levels up to 100, or up to flight level 150 in mountainous areas, or higher, where necessary. Low-level SIGWX forecasts shall include:

(1) the following phenomena warranting the issuance of a SIGMET: icing, turbulence, cumulonimbus clouds that are obscured, frequent, embedded or occurring at a squall line, sandstorms/dust storms and volcanic eruptions or a release of radioactive materials into the atmosphere, and which are expected to affect low-level flights;

(2) the following elements in area forecasts for low-level flights: surface wind, surface visibility, significant weather phenomena, mountain obscuration, cloud, icing, turbulence, mountain wave and height of zero-degree isotherm.

(c) **[**[F184]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.**]**

Chapter 4 — Technical requirements for volcanic ash advisory centres (VAAC)

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.**]**

Chapter 5 — Technical requirements for tropical cyclone advisory centres (TCAC)

MET.TR.270 Tropical cyclone advisory centre responsibilities

(a) The advisory information on tropical cyclones shall be issued for tropical cyclones when the maximum of the 10-minute mean surface wind speed is expected to reach or exceed 34 kt during the period covered by the advisory.

(b) The advisory information on tropical cyclones shall be in accordance with Appendix 7.

(c) **[**[F185]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.**]**

Chapter 6 — Technical requirements for world area forecast centres (WAFCs)

MET.TR.275 World area forecast centre responsibilities

(a) WAFCs shall use processed meteorological data in the form of grid point values expressed in binary form (GRIB code form) for the supply of gridded global forecasts and BUFR code form for the supply of forecast of significant weather phenomena.

(b) For global gridded forecasts, WAFCs shall:

(1) prepare forecasts of:

(i) upper wind;

(ii) upper-air temperature;

(iii) humidity;

(iv) direction, speed and flight level of maximum wind;

(v) flight level and temperature of tropopause;

(vi) areas of cumulonimbus clouds;

(vii) icing;

(viii) clear-air and in-cloud turbulence;

(ix) geopotential altitude of flight levels;

four times a day and be valid for fixed valid times at 6, 9, 12, 15, 18, 21, 24, 27, 30, 33 and 36 hours after the time (00.00, 06.00, 12.00 and 18.00 UTC) of the synoptic data on which the forecasts were based;

(2) issue forecasts in the order referred to in point (1) and complete their dissemination as soon as technically feasible, but not later than 6 hours after standard time of observation;

(3) provide grid point forecasts in a regular grid with a horizontal resolution of 1,25° of latitude and longitude and comprising:

(i) **[**[F184]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);**]**

(iv) horizontal extent and flight levels of base and top of cumulonimbus clouds;

(v) icing for layers centred at flight levels 60 (800 hPa), 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 240 (400 hPa) and 300 (300 hPa);

(vi) clear-air turbulence for layers centred at flight levels 240 (400 hPa), 270 (350 hPa), 300 (300 hPa), 340 (250 hPa), 390 (200 hPa) and 450 (150 hPa);

(vii) in-cloud turbulence for layers centred at flight levels 100 (700 hPa), 140 (600 hPa), 180 (500 hPa), 240 (400 hPa) and 300 (300 hPa);

(viii) **[**[F184]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).**]**

(c) For global forecasts of *en-route* significant weather phenomena, WAFCs shall:

(1) prepare SIGWX forecasts four times a day and shall be valid for fixed valid times at 24 hours after the time (00.00, 06.00, 12.00 and 18.00 UTC) of the synoptic data on which the forecasts were based. The dissemination of each forecast shall be completed as soon as technically feasible, but not later than 9 hours after standard time of observation;

(2) issue SIGWX forecasts as high-level SIGWX forecasts for flight levels between 250 and 630;

(3) include in SIGWX forecasts the following items:

(i) tropical cyclone provided that the maximum of the 10-minute mean surface wind speed is expected to reach or exceed 34 kt (17 m/s);

(ii) severe squall lines;

(iii) moderate or severe turbulence (in cloud or clear air);

(iv) moderate or severe icing;

(v) widespread sandstorm/dust storm;

(vi) cumulonimbus clouds associated with thunderstorms and with points (i) to (v);

(vii) non-convective cloud areas associated with in-cloud moderate or severe turbulence and/or moderate or severe icing;

(viii) flight level of tropopause;

(ix) jet streams;

(x) information on the location of volcanic eruptions that are producing ash clouds of significance to aircraft operations, comprising: volcanic eruption symbol at the location of the volcano and, in a separate text box on the chart, the volcanic eruption symbol, the name of the volcano, if known, and the latitude/longitude of the eruption. In addition, the legend of SIGWX charts should indicate 'CHECK SIGMET, ADVISORIES FOR TC AND VA, AND ASHTAM AND NOTAM FOR VA';

(xi) information on the location of a release of radioactive materials into the atmosphere of significance to aircraft operations, comprising: the radioactive materials in the atmosphere symbol at the location of the release and, in a separate box on the chart, the radioactive materials in the atmosphere symbol, latitude/longitude of the site of the release and, if known, the name of the site of the radioactive source. In addition, the legend of SIGWX charts on which a release of radiation is indicated should contain 'CHECK SIGMET AND NOTAM FOR RDOACT CLD'.

(4) The following criteria shall be applied for SIGWX forecasts:

(i) points (i) to (vi) of point (3) shall only be included if expected to occur between the lower and upper levels of the SIGWX forecast;

(ii) the abbreviation 'CB' shall only be included when it refers to the occurrence or expected occurrence of cumulonimbus clouds:

(A) affecting an area with a maximum spatial coverage of 50 % or more of the area concerned;

(B) along a line with little or no space between individual clouds; or

(C) embedded in cloud layers or concealed by haze;

(iii) the inclusion of 'CB' shall be understood to include all weather phenomena normally associated with cumulonimbus clouds, i.e. thunderstorm, moderate or severe icing, moderate or severe turbulence, and hail;

(iv) where a volcanic eruption or a release of radioactive materials into the atmosphere warrants the inclusion of

the volcanic activity symbol or the radioactivity symbol in SIGWX forecasts, the symbols shall be included on SIGWX forecasts irrespective of the height to which the ash column or radioactive material is reported or expected to reach;

(v) in the case of coincident or the partial overlapping of points (i), (x) and (xi) of point (3), the highest priority shall be given to point (x), followed by points (xi) and (i). The point with the highest priority shall be placed at the location of the event, and an arrow shall be used to link the location of the other point(s) to its (their) associated symbol(s) or text box(es).

(d) Medium-level SIGWX forecasts for flight levels between 100 and 250 for limited geographical areas shall be issued.

Appendix 1

Template for METAR

Key:

M = inclusion mandatory, part of every message;
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 shown below this template.

Note 2: The explanations for the abbreviations can be found in *Procedures for Air Navigation Services — ICAO Abbreviations and Codes (PANS-ABC, Doc 8400)*.

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 of the observation in UTC (M)	nnnnnnZ		221630Z
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 (24008KT) VRB01MPS (VRB02KT) 19006MPS (19012KT) 00000MPS (00000KT) 140P149MPS (140P99KT)
	Wind speed (M)	[P]nn[n]		
	Significant speed variations (C)	G[P]nn[n]		12003G09MPS (12006G18KT) 24008G14MPS (24016G28KT)

a To be included if visibility or runway visual range < 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.

	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
	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 R10/ M0050 R14L/ P2000
	Runway (M)	nn[L]/*or* nn[C]/*or* nn[R]/				
	Runway visual range (M)	[P *or* M]nnnn				R16L/0650 R16C/0500 R16R/0450 R17L/0450
	Runway visual range past tendency (C)	U, D *or* N				R12/1100U R26/0550N R20/0800D R12/0700
Present weather (C)[b]	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	FG *or* BR *or* SA *or* DU *or* HZ *or* FU *or* VA *or* SQ *or* PO *or* TS *or* BCFG	FG *or* PO *or* FC *or* DS *or* SS *or* TS *or* SH *or* BLSN *or* BLSA or		RA HZ VCFG +TSRA FG VCSH +DZ VA VCTS –SN MIFG

a To be included if visibility or runway visual range < 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.

		or FC[b] *or* SHGR *or* SHGS *or* SHRA *or* SHSN *or* SHUP *or* TSGR *or* TSGS *or* TSRA *or* TSSN *or* TSUP *or* UP	*or* BLDU *or* BLSA *or* BLSN *or* DRDU *or* DRSA *or* DRSN *or* FZFG *or* MIFG *or* PRFG *or* //	BLDU *or* VA		VCBLSA +TSRASN –SNRA 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/// //////CB
Air and dew-point temperature (M)	Air and dew-point temperature (M)	[M]nn/[M]nn				17/10 02/M08 M01/ M10

a To be included if visibility or runway visual range < 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.

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
	State of the runway (C)	Runway designator (M)	R nn[L]/ *or* Rnn[C]/ *or* Rnn[R]/		R/SNOCLO	R99/421594 R/ SNOCLO R14L/ CLRD//
		Runway deposits (M)	n *or* /	CLRD//		
		Extent of runway contamination (M)	n *or* /			
		Depth of deposit (M)	nn *or* //			
		Friction coefficient or braking action (M)	nn *or* //			
Trend forecast (O)	Change indicator (M)		NOSIG	BECMG *or* TEMPO		NOSIG BECMG FEW020

a To be included if visibility or runway visual range < 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.

Period of change (C)		FMnnnn *and/or* TLnnnn or ATnnnn				TEMPO 25018G25MPS (TEMPO 25036G50KT) BECMG FM1030 TL1130 CAVOK BECMG TL1700 0800 FG BECMG AT1800 9000 NSW BECMG FM1900 0500 +SNRA BECMG FM1100 SN TEMPO FM1130 BLSN TEMPO FM0330 TL0430 FZRA
Wind (C)		nnn[P]nn[n][G[P]nn[n]]MPS (*or* nnn[P]nn[G[P]nn]KT)				
Prevailing visibility (C)		nnnn			CAVOK	
Weather phenomenon: intensity (C)		– *or* +	—	NSW		
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			
Cloud amount and height of cloud base *or* vertical visibility (C)		FEWnnn *or* SCTnnn *or* BKNnnn *or* OVCnnn	VVnnn *or* VV///	NSC		TEMPO TL1200 0600 BECMG AT1200 8000 NSW NSC

a To be included if visibility or runway visual range < 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.

							BECMG AT1130 OVC010
	Cloud type (C)		CB *or* TCU	—			TEMPO TL1530 +SHRA BKN012CB

a To be included if visibility or runway visual range < 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

	Element		Range	Resolution
Runway:	(no units)		01–36	1
Wind direction:		°true	000–360	10
Wind speed:		MPS	00–99	1
		KT	00–199	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)
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)		000–100	1
Air temperature;			– 80 - +60	1
Dew-point temperature:		°C		
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

* 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 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

* 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 2

Fixed areas of coverage of WAFS forecasts in chart form

Mercator projection

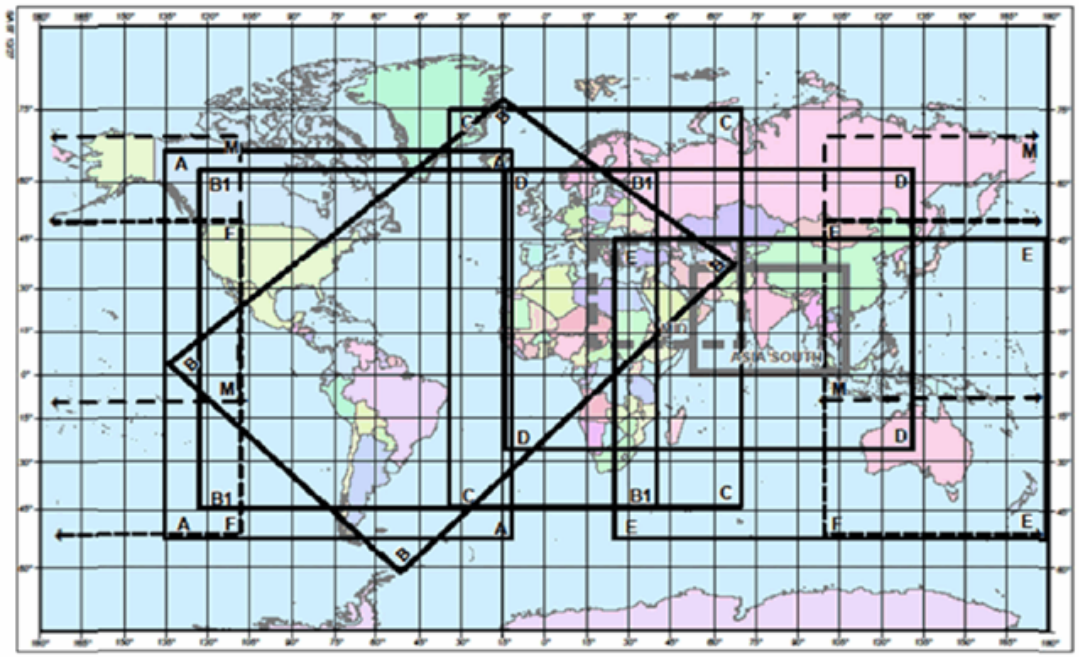


CHART	LATITUDE	LONGITUDE	CHART	LATITUDE	LONGITUDE
A	N6700	W13724	D	N6300	W01500
A	N6700	W01236	D	N6300	E13200
A	S5400	W01236	D	S2700	E13200
A	S5400	W13724	D	S2700	W01500
ASIA	N3600	E05300	E	N4455	E02446
ASIA	N3600	E10800	E	N4455	E18000
ASIA	0000	E10800	E	S5355	E18000
ASIA	0000	E05300	E	S5355	E02446
B	N0304	W13557	F	N5000	E10000
B	N7644	W01545	F	N5000	W11000
B	N3707	E06732	F	S5242	W11000
B	S6217	W05240	F	S5242	E10000
B1	N6242	W12500	M	N7000	E10000
B1	N6242	E04000	M	N7000	W11000
B1	S4530	E04000	M	S1000	W11000
B1	S4530	W12500	M	S1000	E10000
C	N7500	W03500	MID	N4400	E01700
C	N7500	E07000	MID	N4400	E07000
C	S4500	E07000	MID	N1000	E07000
C	S4500	W03500	MID	N1000	E01700

Polar stereographic projection (northern hemisphere)

CHART	LATITUDE	LONGITUDE	CHART	LATITUDE	LONGITUDE
EUR	N4633	W05634	I	N1912	E11130
EUR	N5842	E06824	I	N3330	W06012
EUR	N2621	E03325	I	N0126	W12327
EUR	N2123	W02136	I	S0647	E16601
G	N3552	W02822	L	N1205	E11449
G	N1341	E15711	L	N1518	E04500
G	S0916	E10651	L	N2020	W06900
G	S0048	E03447	L	N1413	W14338
H	N3127	W14836	NAT	N4439	W10143
H	N2411	E05645	NAT	N5042	E06017
H	S0127	W00651	NAT	N1938	E00957
H	N0133	W07902	NAT	N1711	W05406

Polar stereographic projection (southern hemisphere)

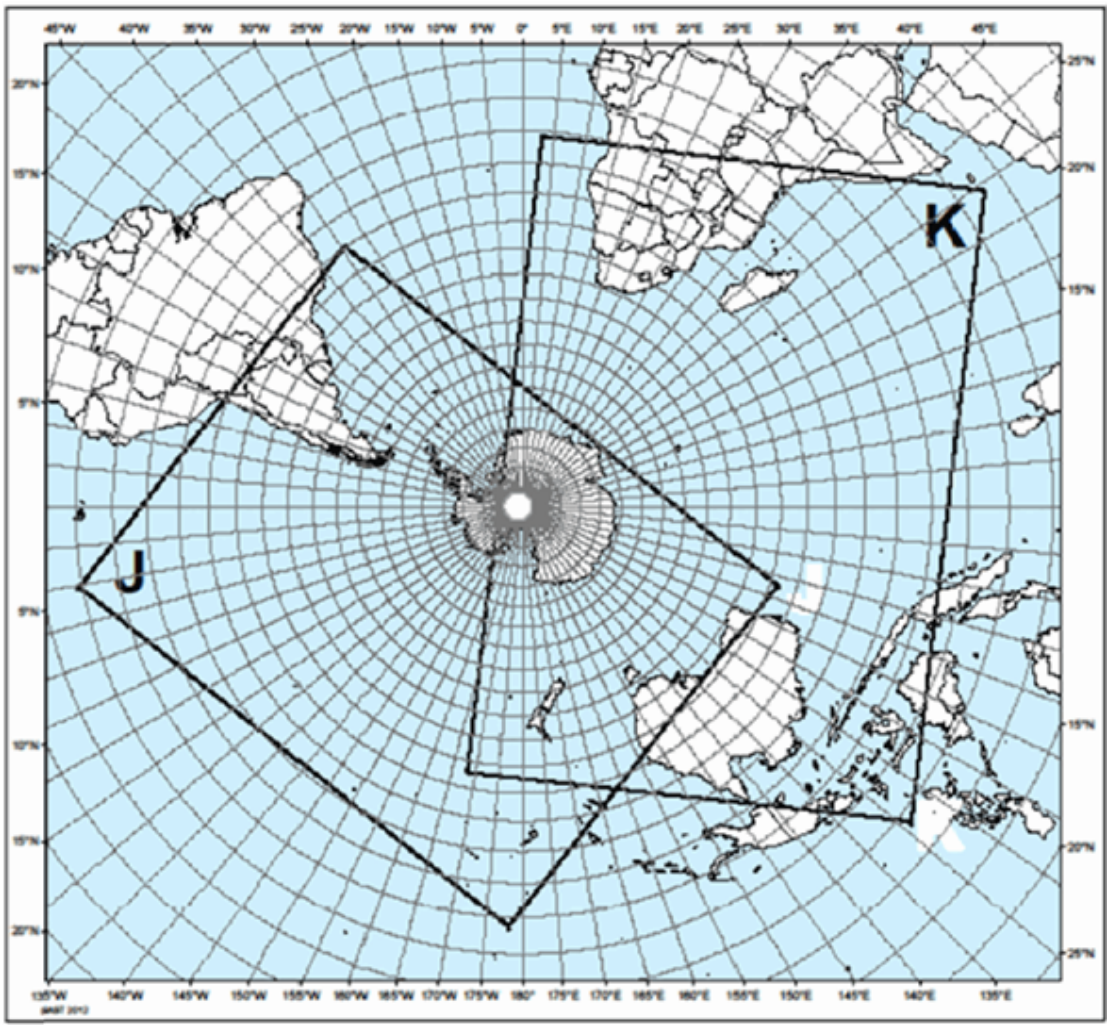


CHART	LATITUDE	LONGITUDE
J	S0318	W17812
J	N0037	W10032
J	S2000	W03400
J	S2806	E10717
K	N1255	E05549
K	N0642	E12905
K	S2744	W16841
K	S1105	E00317

[F184 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
Identification of a cancelled forecast (C)	Cancelled forecast identifier (C)	CNL	CNL

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).

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 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		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).

				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				
	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	Change or probability indicator (M)	PROB30 [TEMPO] or PROB40 [TEMPO] or BECMG or TEMPO or FM				
	Period of occurrence	nnnn/nnnn or nnnnnn				

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).

elements during the period of validity (C)	or change (M)					
	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			C A V O K	BECMG 3010/3011 00000MPS 2400 OVC010 (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

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).

					2923/30010500 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			
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

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.

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 MBST [APCH] RWYnnn or MBST IN CLIMB-OUT or MBST CLIMB-OUT RWYnnn	WS APCH RWY12 MOD WS RWY34 WS IN CLIMB-OUT MBST APCH RWY26 MBST IN CLIMB-OUT
Observed, reported or forecast phenomenon (M)	Identification whether the phenomenon is observed or reported	REP AT nnnn nnnnnnnn or OBS [AT nnnn] or FCST	REP AT 1510 B747 OBS AT 1205 FCST

	and expected to continue, or forecast		
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**]**

[F186]Appendix 5

F186

[F185 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 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 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	SFC WIND 040/40MPS SFC WIND 310/20KT SFC VIS 1500M (BR) ISOL TS 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 FRQ CB ISOL TCU
		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 SFC/ [ABV] [n]nnnnFT) ISOL CB OCNL CB FRQ CB ISOL TCU OCNL TCU FRQ TCU MOD TURB MOD ICE MOD MTW		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 and minutes))	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 [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]		N2020 W07005 N48 E010 S60 W160 S0530 E16530 N OF N50 S OF N5430 N OF S10 S OF S4530 W OF W155 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 –	

		[– 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] – 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	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
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 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	—
Forecast position (C) [e]	Forecast position of volcanic ash cloud or the centre of the tropical cyclone or other hazardous phenomena6 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	—	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	—

	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]] [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 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		– N38 E010 WI N20 W090 – N05 W090 – N10 W100 – N20 W100 – N20 W090 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

		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]			
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 151520/151800

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;]

[F184 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 and Chemistry of the Earth’s Interio (IAVCEI)	VOLCANO:	nnnnnnnnnnnn [nnnnnn] or UNKNOWN or UNNAMED	VOLCANO:	KARYMSKY 1000-13 UNNAMED

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

		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:	nnnnnnnnnnnnnnnn	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:	nnnn/nnnn	ADVISORY NR:	2008/4
9	Information source (M)	Information source using free text	INFO SOURCE:	Free text up to 32 characters	INFO SOURCE:	MTSAT-1R KVERT KEMSD
10	Colour code (O)	Aviation colour code	AVIATION COLOUR CODE:	RED or ORANGE or YELLOW or GREEN or UNKNOWN or NOT	AVIATION COLOUR CODE:	RED

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

				GIVEN or NIL		
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 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	OBS VA CLD or EST VA CLD:	TOP FLnnn or SFC/ FLnnn or FLnnn/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	OBS VA CLD:	FL250/300 N5400 E15930 – N5400 E16100 – N5300 E15945 MOV SE 20KT SFC/ FL200 N5130 E16130 – N5130 E16230 – N5230 E16230 – N5230 E16130 MOV SE 15KT TOP FL240 MOV W 40KMH VA NOT IDENTIFIABLE FM SATELLITE DATA

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]] MOV N nnKMH (or KT) or MOV NE nnKMH (or KT) or MOV E nnKMH (or KT) or 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) [a] or WIND FLnnn/nnn VRBnnMPS (or KT) or WIND SFC/FLnnn nnn/ nn[n]MPS (or KT) or		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.

				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] Wnnn[nn] or Ennn[nn]] [b] or NO VA EXP or NOT AVBL or NOT PROVIDED	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.

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 Ennn[nn]] or NO VA EXP or NOT AVBL or NOT PROVIDED	FCST VA CLD +12 HR:	23/1300Z SFC/FL270 N4830 E16130 – N4830 E16600 – N5300 E16600 – N5300 E16130 NO VA EXP NOT AVBL NOT PROVIDED
16	Forecast height and	Day and time (in	FCST VA CLD	nn/nnnnZ	FCST VA CLD	23/1900Z

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

	position of the volcanic ash clouds (+ 18 HR) (M)	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 valid time	+18 HR:	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]] or NO VA EXP or NOT AVBL or NOT PROVIDED	+18 HR:	NO VA EXP NOT AVBL NOT PROVIDED
17	Remarks (M)	Remarks, as necessary	RMK:	Free text up to 256 characters or NIL	RMK:	LATEST REP FM KVERT (0120Z) INDICATES

a Up to 4 selected layers.

b If volcanic ash cloud is reported (e.g. AIREP) but not identifiable from the satellite data.

						ERUPTION HAS CEASED. TWO DISPERSING VA CLD ARE EVIDENT ON SATELLITE IMAGERY NIL

18	Next advisory (M)	Year, month, day and time in UTC	NXT ADVISORY:	nnnnnnnn/ nnnnZ or NO LATER THAN nnnnnnnn/ nnnnZ or NO FURTHER ADVISORIES or WILL BE ISSUED BY nnnnnnnn/ nnnnZ	NXT ADVISORY:	20080923 /0730Z NO LATER THAN 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: TCAC:	YUFO MIAMI
4	Name of tropical cyclone	Name of tropical cyclone or ‘ NN ’ for unnamed tropical cyclone	TC:	nnnnnnnnnnnn or NN	TC:	GLORIA
5	Advisory number	Advisory number	NR:	nn	NR:	01

		(starting with ‘ 01 ’ for each tropical cyclone)				
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 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))	MOV:	N nnKMH (or KT) or 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	MOV:	NW 20KMH

				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 DTG given in Item 2); forecast position (in degrees and minutes) of the centre of the tropical cyclone	FCST PSN +18 HR:	nn/nnnnZ Nnn[nn] or Snn[nn] Wnnn[nn] or Ennn[nn]	FCST PSN +18 HR:	26/1000Z N2852 W07500
15	Forecast of maximum surface wind (+ 18 HR)	Forecast of maximum surface wind (18 hours after the DTG	FCST MAX WIND +18 HR:	nn[n]MPS (or nn[n]KT)	FCST MAX WIND +18 HR:	21MPS

		given in Item 2)				
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
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.; **]**

[F187 ANNEX VI

SPECIFIC REQUIREMENTS FOR THE PROVIDERS OF AERONAUTICAL INFORMATION SERVICES (Part-AIS)

Textual Amendments

F187 Annex 6 substituted (20.11.2021) by The Aviation Safety (Amendment) (No. 3) Regulations 2021 (S.I. 2021/1203), regs. 1(2), **29**

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 and airspace of the United Kingdom and Crown Dependencies as well as those areas over the high seas for which the United Kingdom 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 services, and

(3) the services responsible for pre-flight information.

An AIS provider shall provide 24-hour service for NOTAM origination and issuance in its area of responsibility and for pre-flight information needed in relation to route stages originating at any aerodrome or 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 the United Kingdom are provided under the authority of the United Kingdom, 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 conforms with the 'Aeronautical Data Catalogue' referred to in ICAO PANS-AIM (Doc 10066);

(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 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 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 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 (three months or longer), are made at short notice, except for extensive text 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.

An AIS provider shall ensure that 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 of Area 2a, as laid down in point AIS.TR.350(b)(1);

(2) Areas 2b, 2c and 2d or parts of those Areas, 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 of that area;

(4) an area, or parts of an area, bounded by the lateral extent of the aerodrome obstacle limitation surfaces;

(5) Area 3 or parts of Area 3, 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 of Area 4, 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 of Area 2a, for those obstacles that penetrate the relevant obstacle data collection surface;

(2) objects in the take-off flight path area or parts of that area, 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 of those surfaces;

(4) Areas 2b, 2c and 2d, for obstacles that penetrate the relevant obstacle data collection surfaces;

(5) Area 3 or parts of Area 3, for obstacles that penetrate the relevant obstacle data collection surface; and

(6) Area 4 or parts of Area 4, 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 or heliport, aeronautical information relative to the route stages originating at the aerodrome or 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

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.

PRODUCTS
UPDATES
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 or 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 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 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 3, the AIS provider shall ensure that personnel responsible for the provision of aeronautical data and aeronautical information are:

(a) made aware of and apply 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 in conformity with the 'Aeronautical Data Catalogue' referred to in ICAO PANS-AIM (Doc 10066).

(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 aeronautical data catalogue, procedures shall be put in place so that:

(1) for routine data as defined in ICAO PANS-AIM, corruption is avoided throughout the processing of the data;

(2) for essential data as defined in ICAO PANS-AIM, 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 as defined in ICAO PANS-AIM, 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 be in English.

(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 United Kingdom and, where available, the Crown Dependencies, and the related ICAO Standards and Recommended Practices (SARPs) and Procedures;

(4) the choice made by a 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 the Contents of the Aeronautical Information Publication (AIP) in PANS-AIM (Doc 10066).

(d) The issuer and AIS provider shall be clearly indicated.

(e) 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 are not prescribed 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 or the AIRAC effective date.

(j) When describing periods of activity, availability or operation, the applicable days and times shall be specified.

(k) Each AIP volume issued in printing format and each page of an AIP issued in printing format 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 State and producing organisation (authority); and

(4) page numbers/chart titles.

(l) Any amendment to the volume of the AIP issued in printing format shall be clearly identifiable by means of replacement pages.

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) AIP supplements issued in printing format 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 for international distribution 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 internationally 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 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 or 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 of areas or routes, 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, 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 of these, that could be affected, as well as the direction of movement;

(26) establishment of operations of humanitarian relief missions, together with procedures 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 referred to in the NOTAM FORMAT in PANS-AIM (Doc 10066)

(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.

(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 referred to in the SNOWTAM format in PANS-AIM (Doc 10066).

(g) Information concerning an operationally significant change to volcanic activity, volcanic eruption or volcanic ash cloud shall, when reported by means of an ASHTAM, contain the information in the order referred to in the ASHTAM format in PANS-AIM (Doc 10066).

(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 (three months or longer) 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. 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 of these, 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***
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.
ATS airspace	Type, name, lateral limits, vertical limits, class of airspace
Final approach and take-off area	Designation, length, width, threshold point
Radio navigation aid	Type identification, name, aerodrome served, hours of operation, magnetic variation, frequency/channel, position, elevation, magnetic bearing, zero bearing direction
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
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)
Special activity airspace	Type, name, lateral limits, vertical limits, restriction, activation
Touch down and lift-off area (TLOF)	Designator, centre point, length, width, surface type

Data subjects	*Associated properties as a minimum*
Waypoint – en route	Reporting requirement, identification, location, formation

(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 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;

(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;

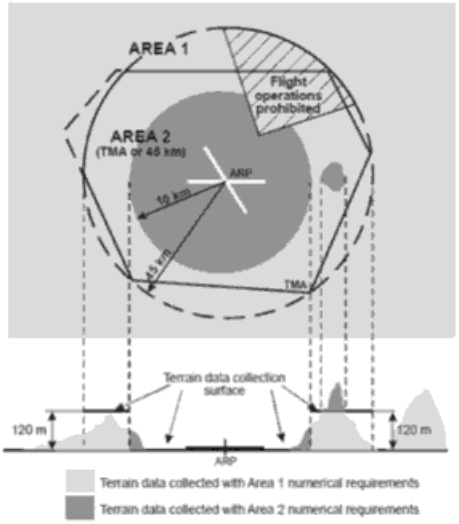
(g) in the area between 10 km and the TMA boundary or a 45-km radius, whichever is smaller, data on terrain that penetrates the horizontal plane 120 m above the lowest runway elevation shall comply with the Area-2 numerical requirements;

(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 or other local restrictions or regulations, terrain data shall comply with the Area 1 numerical requirements.

The following diagram contains a graphical illustration of Area 1 and Area 2 terrain data collection surfaces:

Terrain data collection surfaces – Area 1 and Area 2



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 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

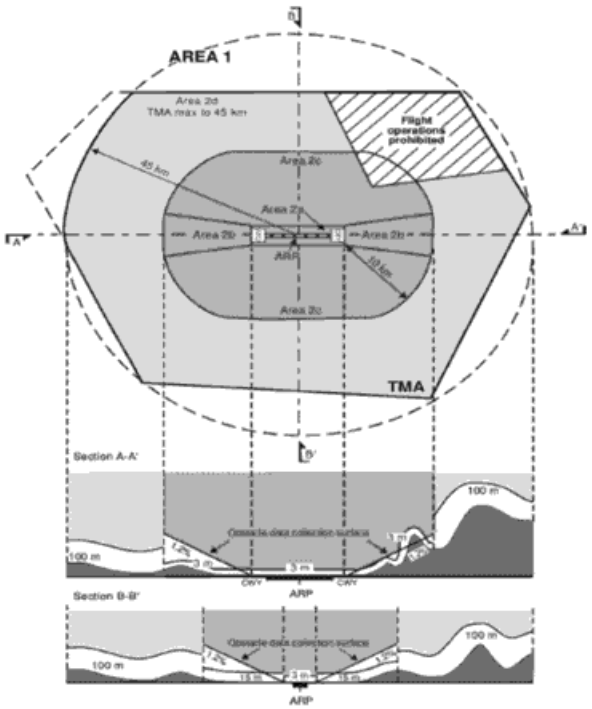
(3) the obstacle limitation surfaces;

(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.

The following diagram contains a graphical illustration of Area 1 and Area 2 obstacle data collection surfaces and criteria used to identify obstacles in Area 2.

Obstacle data collection surfaces – Area 1 and Area 2



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 PRE-FLIGHT 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 (Seventh Edition, July 2016) to the Chicago Convention.

(d) Each NOTAM shall be transmitted as a single telecommunication message.

(e) The international exchange of ASHTAM and NOTAM where NOTAM is used 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 or 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 –

AIS.TR.500 General – Aeronautical information products updates

AERONAUTICAL INFORMATION PRODUCTS

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.

UPDATES

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 (FIRSs);

(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 of these, where the possibility of interception exists;

(viii) RMZ, TMZ or both;

(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.

(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) 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) A 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 (three months or longer), 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 the case of an AIP amendment, a ‘trigger NOTAM’ shall remain valid for a period of 14 days.

(i) In the 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 the 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.**]**

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

DAT.OR.100 Aeronautical data and information

(a) The DAT provider shall receive, assemble, translate, select, format, distribute and/or integrate aeronautical data and information that is released by an authoritative source for use in aeronautical databases on certified aircraft application/equipment.

In specific cases, if aeronautical data is not provided in the aeronautical information publication (AIP) or by an authoritative source or does not meet the applicable data quality requirements (DQRs), that aeronautical data may be originated by the DAT provider itself and/or by other DAT providers. In this context, that aeronautical data shall be validated by the DAT provider originating it.

(b) When so requested by its customers, the DAT provider may process tailored data provided by the aircraft operator or originating from other DAT providers for use by that aircraft operator. The responsibility for this data and its subsequent update shall remain with the aircraft operator.

DAT.OR.105 Technical and operational competence and capability

(a) In addition to ATM/ANS.OR.B.001, the DAT provider shall:

(1) perform the reception, assembly, translation, selection, formatting, distribution and/or integration of aeronautical data and information that is released by aeronautical data source provider(s) into aeronautical databases for certified aircraft application/equipment under the applicable requirements. The type 2 DAT provider shall ensure that the DQRs are compatible with the intended use of the certified aircraft application/equipment through an appropriate arrangement with the specific equipment design approval holder or an applicant for an approval of that specific design;

(2) issue a statement of conformity that the aeronautical databases it has produced are produced in accordance with this Regulation and the applicable industry standards;

(3) provide assistance to the equipment design approval holder in dealing with any continuing airworthiness actions that are related to the aeronautical databases that have been produced.

(b) For release of databases, the accountable manager shall nominate attesting staff identified in point DAT.TR.100(b) and allocate their responsibilities in an independent manner to attest through the statement of conformity that data meets the DQRs and processes are followed. The ultimate responsibility for the databases release statements signed by the attesting staff shall remain with the accountable manager of the DAT provider.

DAT.OR.110 Management system

In addition to point ATM/ANS.OR.B.005, the DAT provider, as applicable for the type of DAT provision, shall establish and maintain a management system that includes control procedures for:

(a) document issue, approval or change;

(b) DQRs change;

(c) verification that incoming data has been produced in accordance with the applicable standards;

(d) timely update of the data used;

(e) identification and traceability;

(f) processes for reception, assembly, translation, selection, formatting, distribution and/or integration of data into a generic database or database compatible with the specific aircraft application/equipment;

(g) data verification and validation techniques;

(h) identification of tools, including configuration management and tools qualification, as necessary;

(i) handling of errors/deficiencies;

(j) coordination with the aeronautical data source provider(s) and/or DAT provider(s), and with the equipment design approval holder or an applicant for an approval of that specific design when providing type 2 DAT services;

(k) issue of statement of conformity;

(l) controlled distribution of databases to users.

DAT.OR.115 Record-keeping

In addition to ATM/ANS.OR.B.030, the DAT provider shall include in its record-keeping system the elements indicated in DAT.OR.110.

SECTION 2 — SPECIFIC REQUIREMENTS

DAT.OR.200 Reporting requirements

(a) The DAT provider shall:

(1) report to the customer and, where applicable, the equipment design approval holder all the cases where aeronautical databases have been released by the DAT provider and have been subsequently identified to have deficiencies and/or errors, thus not meeting the applicable data requirements.;

(2) report to the competent authority the deficiencies and/or errors identified according to point (1), which could lead to an unsafe condition. Such reports shall be made in a form and manner acceptable to the competent authority;

(3) where the certified DAT provider is acting as a supplier to another DAT provider, report also to that other organisation all the cases where it has released aeronautical databases to that organisation and have been subsequently identified to have errors;

(4) report to the aeronautical data source provider instances of erroneous, inconsistent or missing data in the aeronautical source.

(b) The DAT provider shall establish and maintain an internal reporting system in the interest of safety to enable the collection and assessment of reports in order to identify adverse trends or to address deficiencies, and to extract reportable events and actions.

This internal reporting system may be integrated into the management system as required in point ATM/ANS.OR.B.005.

SUBPART B — TECHNICAL REQUIREMENTS FOR PROVIDERS OF DATA SERVICES (DAT.TR)

SECTION 1 — GENERAL REQUIREMENTS

DAT.TR.100 Working methods and operating procedures

The DAT provider shall:

(a) with regard to all the necessary aeronautical data:

(1) establish DQRs that are agreed upon with the other DAT provider and in the case of a type 2 DAT provider, with the equipment design approval holder or an applicant for an approval of that specific design, to determine the compatibility of these DQRs with the intended use;

(2) use data from an authoritative source(s) and, if required, other aeronautical data verified and validated by the DAT provider itself and/or by other DAT provider(s);

(3) establish a procedure to ensure that the data is correctly processed;

(4) establish and implement processes to ensure that the tailored data provided or requested by an aircraft operator or other DAT provider shall only be distributed to the requester itself; and

(b) with regard to attesting staff that sign the statements of conformity issued under DAT.OR.105(b) ensure that:

(1) the knowledge, background (including other functions in the organisation), and experience of the attesting staff are appropriate to their allocated responsibilities;

(2) it maintains records of all attesting staff which include details of the scope of their authorisation;

(3) attesting staff are provided with evidence of the scope of their authorisation.

DAT.TR.105 Required interfaces

The DAT provider shall ensure the necessary formal interfaces with:

(a) aeronautical data source(s) and/or other DAT providers;

(b) the equipment design approval holder for type 2 DAT provision, or an applicant for an approval of that specific design;

(c) aircraft operators, as applicable.

ANNEX VIII

SPECIFIC REQUIREMENTS FOR PROVIDERS OF COMMUNICATION, NAVIGATION, OR SURVEILLANCE SERVICES (Part-CNS)

SUBPART A — ADDITIONAL ORGANISATION REQUIREMENTS FOR PROVIDERS OF COMMUNICATION, NAVIGATION, OR SURVEILLANCE SERVICES (CNS.OR)

SECTION 1 — GENERAL REQUIREMENTS

CNS.OR.100 Technical and operational competence and capability

(a) A communication, navigation or surveillance services provider shall ensure the availability, continuity, accuracy and integrity of their services.

(b) A communication, navigation or surveillance services provider shall confirm the quality level of the services they are providing, and shall demonstrate that their equipment is regularly maintained and, where required, calibrated.

SUBPART B — TECHNICAL REQUIREMENTS FOR PROVIDERS OF COMMUNICATION, NAVIGATION OR SURVEILLANCE SERVICES (CNS.TR)

SECTION 1 — GENERAL REQUIREMENTS

CNS.TR.100 Working methods and operating procedures for providers of communication, navigation or surveillance services

A communication, navigation or surveillance services provider shall be able to demonstrate that its working methods and operating procedures are compliant with the standards of Annex 10 to the Chicago Convention on aeronautical telecommunications in the following versions as far as they are relevant to the provision of communication, navigation or surveillance services in the airspace concerned:

(a) Volume I on radio navigation aids in its 6th edition of July 2006, including all amendments up to and including No 89;

(b) Volume II on communication procedures, including those with PANS status in its 6th edition of October 2001, including all amendments up to and including No 89;

(c) Volume III on communications systems in its 2nd edition of July 2007, including all amendments up to and including No 89;

(d) Volume IV on surveillance radar and collision avoidance systems in its 4th edition of July 2007, including all amendments up to and including No 89;

(e) Volume V on aeronautical radio frequency spectrum utilisation in its 3rd edition of July 2013, including all amendments up to and including No 89.

ANNEX IX

SPECIFIC REQUIREMENTS FOR PROVIDERS OF AIR TRAFFIC FLOW MANAGEMENT (Part-ATFM)

TECHNICAL REQUIREMENTS FOR PROVIDERS OF AIR TRAFFIC FLOW MANAGEMENT (ATFM.TR)

SECTION 1 — GENERAL REQUIREMENTS

ATFM.TR.100 Working methods and operating procedures for providers of air traffic flow management

An air traffic flow management provider shall be able to demonstrate that its working methods and operating procedures are compliant with Commission Regulations (EU) No 255/2010[16] and (EU) No 677/2011.

ANNEX X

SPECIFIC REQUIREMENTS FOR PROVIDERS OF AIRSPACE MANAGEMENT (Part-ASM)

TECHNICAL REQUIREMENTS FOR PROVIDERS OF AIRSPACE MANAGEMENT (ASM.TR)

SECTION 1 — GENERAL REQUIREMENTS

ASM.TR.100 Working methods and operating procedures for providers of airspace management

An airspace management provider shall be able to demonstrate that its working methods and operating procedures are compliant with Commission Regulations (EC) No 2150/2005[17] and (EU) No 677/2011.

ANNEX XI

SPECIFIC REQUIREMENTS FOR PROVIDERS OF PROCEDURE DESIGN (Part-ASD)

F188 ANNEX XII

. . . . . .

Textual Amendments

F188 Annex 12 omitted (31.12.2020) by virtue of The Air Traffic Management (Amendment etc.) (EU Exit) Regulations 2020 (S.I. 2020/694), regs. 1(2), **15**

ANNEX XIII

REQUIREMENTS FOR SERVICE PROVIDERS CONCERNING PERSONNEL TRAINING AND COMPETENCE ASSESSMENT (Part-PERS)

SUBPART A —AIR TRAFFIC SAFETY ELECTRONIC PERSONNEL

SECTION 1 — GENERAL REQUIREMENTS

ATSEP.OR.100 Scope

(a) This Subpart establishes the requirements to be met by the service provider with respect to the training and the competence assessment of air traffic safety electronics personnel (ATSEP).

(b) For the service providers applying for a limited certificate in accordance with points (a) and (b) of point ATM/ANS.OR.A.010 and/or declaring its activities in accordance with point ATM/ANS.OR.A.015, the minimum requirements to be met with respect to the training and the competence assessment of ATSEP may be determined by the competent authority. Those minimum requirements shall be based on qualification, experience and

recent experience, to maintain specific equipment or types of equipment and ensuring equivalent level of safety.

ATSEP.OR.105 Training and competence assessment programme

In accordance with point ATM/ANS.OR.B.005(a)(6), the service provider employing ATSEP shall establish a training and competence assessment programme to cover the duties and responsibilities to be performed by ATSEP.

When ATSEP are employed by a contracted organisation, the service provider shall ensure that those ATSEP have received the applicable training and competences foreseen in this Subpart.

ATSEP.OR.110 Record-keeping

In addition to point ATM/ANS.OR.B.030, the service provider employing ATSEP shall maintain records of all the training completed by ATSEP, as well as the competence assessment of ATSEP and make such records available:

(a) on request, to the ATSEP concerned;

(b) on request, and with the agreement of the ATSEP, to the new employer when the ATSEP is employed by a new entity.

ATSEP.OR.115 Language proficiency

The service provider shall ensure that ATSEP are proficient in the language(s) required to perform their duties.

SECTION 2 — TRAINING REQUIREMENTS

ATSEP.OR.200 Training requirements — General

A service provider shall ensure that ATSEP:

(a) have successfully completed:

(1) the basic training as set out in point ATSEP.OR.205;

(2) the qualification training as set out in point ATSEP.OR.210;

(3) the system/equipment rating training as set out in point ATSEP.OR.215;

(b) have completed continuation training in accordance with point ATSEP.OR.220.

ATSEP.OR.205 Basic training

(a) The basic training of ATSEPs shall comprise:

(1) the subjects, topics, and sub-topics contained in Appendix 1 (Basic training — Shared);

(2) where relevant to service provider's activities, the subjects contained in Appendix 2 (Basic training — Streams).

(b) A service provider may determine the most suitable educational requirements for its candidate ATSEP and, consequently, adapt the number and/or level of subjects, topics or sub-topics referred to in point (a) where relevant.

ATSEP.OR.210 Qualification training

The qualification training of ATSEPs shall comprise:

(a) the subjects, topics, and sub-topics contained in Appendix 3 (Qualification training — Shared);

(b) where relevant to its activities, at least one of the qualification streams, contained in Appendix 4 (Qualification training — Streams).

ATSEP.OR.215 System and equipment rating training

(a) The system and equipment rating training of ATSEPs shall be applicable to the duties to be performed and include one or several of the following:

(1) theoretical courses;

(2) practical courses;

(3) on-the-job training.

(b) The system and equipment rating training shall ensure that candidate ATSEP acquire knowledge and skills pertaining to:

(1) the functionality of the system and equipment;

(2) the actual and potential impact of ATSEP actions on the system and equipment;

(3) the impact of the system and equipment on the operational environment.

ATSEP.OR.220 Continuation training

The continuation training of ATSEPs shall comprise refresher, equipment/systems upgrades and modifications, and/or emergency training.

SECTION 3 — COMPETENCE ASSESSMENT REQUIREMENTS

ATSEP.OR.300 Competence assessment — General

A service provider shall ensure that ATSEP:

(a) have been assessed as competent before performing their duties;

(b) are subject to ongoing competence assessment in accordance with point ATSEP.OR.305.

ATSEP.OR.305 Assessment of initial and ongoing competence

A service provider employing ATSEP shall:

(a) establish, implement and document processes for:

(1) assessing the initial and ongoing competence of ATSEP;

(2) addressing a failure or degradation of ATSEP competence, including an appeal process;

(3) ensuring the supervision of personnel who have not been assessed as competent;

(b) define the following criteria against which initial and ongoing competence shall be assessed:

(1) technical skills;

(2) behavioural skills;

(3) knowledge.

SECTION 4 —

ATSEP.OR.400 ATSEP training instructors

A service provider employing ATSEP shall ensure that:

INSTRUCTORS AND ASSESSORS REQUIREMENTS

(a) ATSEP training instructors are suitably experienced in the field where instruction is to be given;

(b) on-the-job training instructors have successfully completed an on-the-job-training course and have the skills to intervene in instances where safety may be compromised during the training.

ATSEP.OR.405 Technical skills assessors

A service provider employing ATSEP shall ensure that technical skills assessors have successfully completed an assessor course and are suitably experienced to assess the criteria defined in point ATSEP.OR.305(b).

Appendix 1

Basic training — Shared
Subject 1: INDUCTION
TOPIC 1 BASIND — Induction

Sub-topic 1.1 — Training and Assessment Overview

Sub-topic 1.2 — National Organisation

Sub-topic 1.3 — Workplace

Sub-topic 1.4 — ATSEP role

Sub-topic 1.5 — European/Worldwide Dimension

Sub-topic 1.6 — International Standards and Recommended Practices

Sub-topic 1.7 — Data Security

Sub-topic 1.8 — Quality Management

Sub-topic 1.9 — Safety Management System

Sub-topic 1.10 — Health and Safety

Subject 2: AIR TRAFFIC FAMILIARISATION
TOPIC 1 BASATF — Air Traffic Familiarisation

Sub-topic 1.1 — Air Traffic Management

Sub-topic 1.2 — Air Traffic Control

Sub-topic 1.3 — Ground-based Safety Nets

Sub-topic 1.4 — Air Traffic Control Tools and Monitoring Aids

Sub-topic 1.5 — Familiarisation

Appendix 2

Basic training — Streams

Subject 3: AERONAUTICAL INFORMATION SERVICES

Subject 4: METEOROLOGY

Subject 5: COMMUNICATION

Subject 6: NAVIGATION

Subject 7: SURVEILLANCE

Subject 8: DATA PROCESSING

Subject 9: SYSTEM MONITORING & SYSTEM CONTROL

Subject 10: MAINTENANCE PROCEDURES

Appendix 3

Qualification training — Shared
Subject 1: SAFETY
TOPIC 1 — Safety Management

Sub-topic 1.1 — Policy and Principles

Sub-topic 1.2 — Concept of Risk and Principles of Risk Assessment

Sub-topic 1.3 — Safety Assessment Process

Sub-topic 1.4 — Air Navigation System Risk Classification Scheme

Sub-topic 1.5 — Safety Regulation
Subject 2: HEALTH AND SAFETY
TOPIC 1 — Hazard Awareness and Legal Rules

Sub-topic 1.1 — Hazard Awareness

Sub-topic 1.2 — Regulations and Procedures

Sub-topic 1.3 — Handling of Hazardous Material
Subject 3: HUMAN FACTORS
TOPIC 1 — Introduction to Human Factors

Sub-topic 1.1 — Introduction
TOPIC 2 — Working Knowledge and Skills

Sub-topic 2.1 — ATSEP knowledge, skills and competence
TOPIC 3 — Psychological Factors

Sub-topic 3.1 — Cognition
TOPIC 4 — Medical

Sub-topic 4.1 — Fatigue

Sub-topic 4.2 — Fitness

Sub-topic 4.3 — Work Environment
TOPIC 5 — Organisational and Social Factors

Sub-topic 5.1 — Basic Needs of People at Work

Sub-topic 5.2 — Team Resource Management

Sub-topic 5.3 — Teamwork and Team Roles
TOPIC 6 — Communication

Sub-topic 6.1 — Written Report

Sub-topic 6.2 — Verbal and Non-verbal Communication
TOPIC 7 — Stress

Sub-topic 7.1 — Stress

Sub-topic 7.2 — Stress Management
TOPIC 8 — Human Error

Sub-topic 8.1 — Human Error

Appendix 4

Qualification training — Streams

1. **COMMUNICATION — VOICE**

Subject 1: VOICE

TOPIC 1 — Air-Ground

Sub-topic 1.1 — Transmission/Reception

Sub-topic 1.2 — Radio Antenna Systems

Sub-topic 1.3 — Voice Switch

Sub-topic 1.4 — Controller Working Position

Sub-topic 1.5 — Radio Interfaces

TOPIC 2 — COMVCE — Ground-Ground

Sub-topic 2.1 — Interfaces

Sub-topic 2.2 — Protocols

Sub-topic 2.3 — Switch

Sub-topic 2.4 — Communication chain

Sub-topic 2.5 — Controller working position

Subject 2: TRANSMISSION PATH

TOPIC 1 — Lines

Sub-topic 1.1 — Lines Theory

Sub-topic 1.2 — Digital Transmissions

Sub-topic 1.3 — Types of Lines

TOPIC 2 — Specific Links

Sub-topic 2.1 — Microwave Link

Sub-topic 2.2 — Satellite

Subject 3: RECORDERS

TOPIC 1 — Legal Recorders

Sub-topic 1.1 — Regulations

Sub-topic 1.2 — Principles

Subject 4: FUNCTIONAL SAFETY

TOPIC 1 — Safety Attitude

Sub-topic 1.1 — Safety Attitude

TOPIC 2 — Functional Safety

Sub-topic 2.1 — Functional safety

2. **COMMUNICATION — DATA**

Subject 1: DATA

TOPIC 1 — Introduction to Networks

Sub-topic 1.1 — Types

Sub-topic 1.2 — Networks

Sub-topic 1.3 — External Network Services

Sub-topic 1.4 — Measuring Tools

Sub-topic 1.5 — Troubleshooting
TOPIC 2 — Protocols

Sub-topic 2.1 — Fundamental Theory

Sub-topic 2.2 — General Protocols

Sub-topic 2.3 — Specific Protocols
TOPIC 3 — National Networks

Sub-topic 3.1 — National Networks
TOPIC 4 — European Networks

Sub-topic 4.1 — Network Technologies
TOPIC 5 — Global Networks

Sub-topic 5.1 — Networks and Standards

Sub-topic 5.2 — Description

Sub-topic 5.3 — Global Architecture

Sub-topic 5.4 — Air-Ground Sub-Networks

Sub-topic 5.5 — Ground-Ground Sub-Networks

Sub-topic 5.6 — Networks on Board of the Aircraft

Sub-topic 5.7 — Air-Ground Applications
Subject 2: TRANSMISSION PATH
TOPIC 1 — Lines

Sub-topic 1.1 — Lines Theory

Sub-topic 1.2 — Digital Transmission

Sub-topic 1.3 — Types of Lines
TOPIC 2 — Specific Links

Sub-topic 2.1 — Microwave Link

Sub-topic 2.2 — Satellite
Subject 3: RECORDERS
TOPIC 1 — Legal Recorders

Sub-topic 1.1 — Regulations

Sub-topic 1.2 — Principles
Subject 4: FUNCTIONAL SAFETY
TOPIC 1 — Safety Altitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — Functional Safety

Sub-topic 2.1 — Functional Safety

3. **NAVIGATION — NON-DIRECTIONAL BEACON (NDB)**
Subject 1: PERFORMANCE-BASED NAVIGATION
TOPIC 1 — Navigation Concepts

Sub-topic 1.1 — Operational Requirements

Sub-topic 1.2 — Performance-based Navigation

Sub-topic 1.3 — Area Navigation Concept (RNAV)

Sub-topic 1.4 — NOTAM
Subject 2: GROUND-BASED SYSTEMS — NDB
TOPIC 1 — NDB/Locator

Sub-topic 1.1 — Use of the System

Sub-topic 1.2 — Ground Station Architecture

Sub-topic 1.3 — Transmitter Sub-system

Sub-topic 1.4 — Antenna Sub-system

Sub-topic 1.5 — Monitoring and Control Sub-systems

Sub-topic 1.6 — On-board Equipment

Sub-topic 1.7 — System Check and Maintenance
Subject 3: GLOBAL NAVIGATION SATELLITE SYSTEM
TOPIC 1 — GNSS

Sub-topic 1.1 — General View
Subject 4: ON-BOARD EQUIPMENT
TOPIC 1 — On-board Systems

Sub-topic 1.1 — On-board Systems
TOPIC 2 — Autonomous Navigation

Sub-topic 2.1 — Inertial Navigation
TOPIC 3 — Vertical Navigation

Sub-topic 3.1 — Vertical Navigation
Subject 5: FUNCTIONAL SAFETY
TOPIC 1 — Safety Attitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — Functional Safety

Sub-topic 2.1 — Functional Safety

4. **NAVIGATION — DIRECTION FINDING (DF)**
Subject 1: PERFORMANCE-BASED NAVIGATION
TOPIC 1 — Navigation Concepts

Sub-topic 1.1 — Operational Requirements

Sub-topic 1.2 — Performance-Based Navigation

Sub-topic 1.3 — Area Navigation Concept (RNAV)

Sub-topic 1.4 — NOTAM
Subject 2: GROUND-BASED SYSTEMS — DF
TOPIC 1 — DF

Sub-topic 1.1 — Use of the System

Sub-topic 1.2 — VDF/DDF Equipment Architecture

Sub-topic 1.3 — Receiver Sub-system

Sub-topic 1.4 — Antenna Sub-system

Sub-topic 1.5 — Monitoring and Control Sub-systems

Sub-topic 1.6 — System Check and Maintenance
Subject 3: GLOBAL NAVIGATION SATELLITE SYSTEM
TOPIC 1 — GNSS

Sub-topic 1.1 — General View
Subject 4: ON-BOARD EQUIPMENT
TOPIC 1 — On-board Systems

Sub-topic 1.1 — On-board Systems
TOPIC 2 — Autonomous Navigation

Sub-topic 2.1 — Inertial Navigation
TOPIC 3 — Vertical Navigation

Sub-topic 3.1 — Vertical Navigation
Subject 5: FUNCTIONAL SAFETY
TOPIC 1 — Safety Attitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — Functional Safety

Sub-topic 2.1 — Functional Safety

5. **NAVIGATION — VHF OMNIDIRECTIONAL RADIO RANGE (VOR)**
Subject 1: PERFORMANCE-BASED NAVIGATION
TOPIC 1 — Navigation Concepts

Sub-topic 1.1 — Operational Requirements

Sub-topic 1.2 — Performance-Based Navigation

Sub-topic 1.3 — Area Navigation Concept (RNAV)

Sub-topic 1.4 — NOTAM
Subject 2: GROUND-BASED SYSTEMS — VOR
TOPIC 1 — VOR

Sub-topic 1.1 — Use of the System

Sub-topic 1.2 — Fundamentals of CVOR and/or DVOR

Sub-topic 1.3 — Ground Station Architecture

Sub-topic 1.4 — Transmitter Sub-system

Sub-topic 1.5 — Antenna Sub-system

Sub-topic 1.6 — Monitoring and Control Sub-system

Sub-topic 1.7 — On-board Equipment

Sub-topic 1.8 — System Check and Maintenance
Subject 3: GLOBAL NAVIGATION SATELLITE SYSTEM
TOPIC 1 — GNSS

Sub-topic 1.1 — General View
Subject 4: ON-BOARD EQUIPMENT
TOPIC 1 — On-board Systems

Sub-topic 1.1 — On-board Systems
TOPIC 2 — Autonomous Navigation

Sub-topic 2.1 — Inertial Navigation
TOPIC 3 — Vertical Navigation

Sub-topic 3.1 — Vertical Navigation
Subject 5: — FUNCTIONAL SAFETY
TOPIC 1 — Safety Attitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — Functional Safety

Sub-topic 2.1 — Functional Safety

6. **NAVIGATION — DISTANCE MEASURING EQUIPMENT (DME)**
Subject 1: PERFORMANCE-BASED NAVIGATION
TOPIC 1 — Navigation concepts

Sub-topic 1.1 — Operational Requirements

Sub-topic 1.2 — Performance-Based Navigation

Sub-topic 1.3 — Area Navigation Concept (RNAV)

Sub-topic 1.4 — NOTAM
Subject 2: GROUND-BASED SYSTEMS — DME
TOPIC 1 — DME

Sub-topic 1.1 — Use of the System

Sub-topic 1.2 — Fundamentals of DME

Sub-topic 1.3 — Ground Station Architecture

Sub-topic 1.4 — Receiver Sub-system

Sub-topic 1.5 — Signal Processing

Sub-topic 1.6 — Transmitter Sub-system

Sub-topic 1.7 — Antenna Sub-system

Sub-topic 1.8 — Monitoring and Control Sub-system

Sub-topic 1.9 — On-board Equipment

Sub-topic 1.10 — System Check and Maintenance

Subject 3: GLOBAL NAVIGATION SATELLITE SYSTEM
TOPIC 1 — GNSS

Sub-topic 1.1 — General View
Subject 4: ON-BOARD EQUIPMENT
TOPIC 1 — On-board Systems

Sub-topic 1.1 — On-board Systems
TOPIC 2 — Autonomous Navigation

Sub-topic 2.1 — Inertial Navigation
TOPIC 3 — Vertical Navigation

Sub-topic 3.1 — Vertical Navigation
Subject 5: FUNCTIONAL SAFETY
TOPIC 1 — Safety Attitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — Functional Safety

Sub-topic 2.1 — Functional Safety

7. **NAVIGATION — INSTRUMENT LANDING SYSTEM (ILS)**
Subject 1: PERFORMANCE-BASED NAVIGATION
TOPIC 1 — Navigation concepts

Sub-topic 1.1 — Operational Requirements

Sub-topic 1.2 — Performance-Based Navigation

Sub-topic 1.3 — Area Navigation Concept (RNAV)

Sub-topic 1.4 — NOTAM
Subject 2: GROUND-BASED SYSTEMS — ILS
TOPIC 1 — ILS

Sub-topic 1.1 — Use of the System

Sub-topic 1.2 — Fundamentals of ILS

Sub-topic 1.3 — 2F-Systems

Sub-topic 1.4 — Ground Station Architecture

Sub-topic 1.5 — Transmitter Sub-system

Sub-topic 1.6 — Antenna Sub-system

Sub-topic 1.7 — Monitoring and Control Sub-system

Sub-topic 1.8 — On-board Equipment

Sub-topic 1.9 — System Check and Maintenance
Subject 3: GLOBAL NAVIGATION SATELLITE SYSTEM
TOPIC 1 — GNSS

Sub-topic 1.1 — General View
Subject 4: ON-BOARD EQUIPMENT
TOPIC 1 — On-board Systems

Sub-topic 1.1 — On-board Systems
TOPIC 2 — Autonomous navigation

Sub-topic 2.1 — Inertial Navigation
TOPIC 3 — Vertical Navigation

Sub-topic 3.1 — Vertical Navigation
Subject 5: FUNCTIONAL SAFETY
TOPIC 1 — Safety Attitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — Functional Safety

Sub-topic 2.1 — Functional Safety

8. **NAVIGATION — MICROWAVE LANDING SYSTEM (MLS)**
Subject 1: PERFORMANCE-BASED NAVIGATION
TOPIC 1 — Navigation Concepts

Sub-topic 1.1 — Operational Requirements

Sub-topic 1.2 — Performance-Based Navigation

Sub-topic 1.3 — Area Navigation Concept (RNAV)

Sub-topic 1.4 — NOTAM
Subject 2: GROUND-BASED SYSTEMS — MLS
TOPIC 1 — MLS

Sub-topic 1.1 — Use of the System

Sub-topic 1.2 — Fundamentals of MLS

Sub-topic 1.3 — Ground Station Architecture

Sub-topic 1.4 — Transmitter Sub-system

Sub-topic 1.5 — Antenna Sub-system

Sub-topic 1.6 — Monitoring and Control Sub-system

Sub-topic 1.7 — On-board Equipment

Sub-topic 1.8 — System Check and Maintenance
Subject 3: GLOBAL NAVIGATION SATELLITE SYSTEM
TOPIC 1 — GNSS

Sub-topic 1.1 — General View
Subject 4: ON-BOARD EQUIPMENT
TOPIC 1 — On-board Systems

Sub-topic 1.1 — On-board Systems
TOPIC 2 — Autonomous navigation

Sub-topic 2.1 — Inertial Navigation
TOPIC 3 — Vertical navigation

Sub-topic 3.1 — Vertical Navigation
Subject 5: FUNCTIONAL SAFETY
TOPIC 1 — Safety attitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — Functional safety

Sub-topic 2.1 — Functional Safety

9. **SURVEILLANCE — PRIMARY SURVEILLANCE RADAR**
Subject 1: PRIMARY SURVEILLANCE RADAR
TOPIC 1 — ATC surveillance

Sub-topic 1.1 — Use of PSR for Air Traffic Services

Sub-topic 1.2 — Antenna (PSR)

Sub-topic 1.3 — Transmitters

Sub-topic 1.4 — Characteristics of Primary Targets

Sub-topic 1.5 — Receivers

Sub-topic 1.6 — Signal Processing and Plot Extraction

Sub-topic 1.7 — Plot Combining

Sub-topic 1.8 — Characteristics of Primary Radar
TOPIC 2 — SURPSR — Surface Movement Radar

Sub-topic 2.1 — Use of SMR for Air Traffic Services

Sub-topic 2.2 — Radar Sensor
TOPIC 3 — SURPSR — Test and Measurement

Sub-topic 3.1 — Test and Measurement
Subject 2: HUMAN MACHINE INTERFACE (HMI)
TOPIC 1 — SURPSR — HMI

Sub-topic 1.1 — ATCO HMI

Sub-topic 1.2 — ATSEP HMI

Sub-topic 1.3 — Pilot HMI

Sub-topic 1.4 — Displays
Subject 3: SURVEILLANCE DATA TRANSMISSION
TOPIC 1 — SDT

Sub-topic 1.1 — Technology and Protocols

Sub-topic 1.2 — Verification Methods
Subject 4: FUNCTIONAL SAFETY
TOPIC 1 — SURPSR — Safety Attitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — SURPSR — Functional Safety

Sub-topic 2.1 — Functional Safety
Subject 5: DATA PROCESSING SYSTEMS
TOPIC 1 — System Components

Sub-topic 1.1 — Surveillance Data Processing Systems

10. **SURVEILLANCE — SECONDARY SURVEILLANCE RADAR**
Subject 1: SECONDARY SURVEILLANCE RADAR (SSR)
TOPIC 1 — SSR and Mono-pulse SSR

Sub-topic 1.1 — Use of SSR for Air Traffic Services

Sub-topic 1.2 — Antenna (SSR)

Sub-topic 1.3 — Interrogator

Sub-topic 1.4 — Transponder

Sub-topic 1.5 — Receivers

Sub-topic 1.6 — Signal Processing and Plot Extraction

Sub-topic 1.7 — Plot Combining

Sub-topic 1.8 — Test and Measurement
TOPIC 2 — Mode S

Sub-topic 2.1 — Introduction to Mode S

Sub-topic 2.2 — Mode S System
TOPIC 3 — Multilateration

Sub-topic 3.1 — MLAT in use

Sub-topic 3.2 — MLAT Principles
TOPIC 4 — SURSSR — Environment

Sub-topic 4.1 — SSR Environment
Subject 2: HUMAN MACHINE INTERFACE (HMI)
TOPIC 1 — HMI

Sub-topic 1.1 — ATCO HMI

Sub-topic 1.2 — ATSEP HMI

Sub-topic 1.3 — Pilot HMI

Sub-topic 1.4 — Displays
Subject 3: SURVEILLANCE DATA TRANSMISSION
TOPIC 1 — SDT

Sub-topic 1.1 — Technology and Protocols

Sub-topic 1.2 — Verification Methods
Subject 4: FUNCTIONAL SAFETY
TOPIC 1 — Safety attitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — Functional safety

Sub-topic 2.1 — Functional Safety
Subject 5: DATA PROCESSING SYSTEMS
TOPIC 1 — System components

Sub-topic 1.1 — Surveillance Data Processing Systems

11. **SURVEILLANCE — AUTOMATIC DEPENDENT SURVEILLANCE**
Subject 1: AUTOMATIC DEPENDENT SURVEILLANCE (ADS)
TOPIC 1 — General view on ADS

Sub-topic 1.1 — Definition of ADS
TOPIC 2 — SURADS — ADS-B

Sub-topic 2.1 — Introduction to ADS-B

Sub-topic 2.2 — Techniques of ADS-B

Sub-topic 2.3 — VDL Mode 4 (STDMA)

Sub-topic 2.4 — Mode S Extended Squitter

Sub-topic 2.5 — UAT

Sub-topic 2.6 — ASTERIX
TOPIC 3 — ADS-C

Sub-topic 3.1 — Introduction to ADS-C

Sub-topic 3.2 — Techniques in ADS-C
Subject 2: HUMAN MACHINE INTERFACE (HMI)
TOPIC 1 — HMI

Sub-topic 1.1 — ATCO HMI

Sub-topic 1.2 — ATSEP HMI

Sub-topic 1.3 — Pilot HMI

Sub-topic 1.4 — Displays
Subject 3: SURVEILLANCE DATA TRANSMISSION
TOPIC 1 — SDT

Sub-topic 1.1 — Technology and Protocols

Sub-topic 1.2 — Verification Methods
Subject 4: FUNCTIONAL SAFETY
TOPIC 1 — Safety Attitude

Sub-topic 1.1 — Safety Attitude
TOPIC 2 — SURADS — Functional Safety

Sub-topic 2.1 — Functional Safety
Subject 5: DATA PROCESSING SYSTEMS
TOPIC 1 — System components

Sub-topic 1.1 — Surveillance Data Processing Systems

12. **DATA — DATA PROCESSING**
Subject 1: FUNCTIONAL SAFETY
TOPIC 1 — Functional Safety

Sub-topic 1.1 — Functional Safety

Sub-topic 1.2 — Software Integrity and Security
TOPIC 2 — Safety Attitude

Sub-topic 2.1 — Safety Attitude
Subject 2: DATA PROCESSING SYSTEMS
TOPIC 1 — User requirements

Sub-topic 1.1 — Controller requirements

Sub-topic 1.2 — Trajectories, Prediction and Calculation

Sub-topic 1.3 — Ground-based Safety Nets

Sub-topic 1.4 — Decision Support
TOPIC 2 — System Components Data

Sub-topic 2.1 — Data processing Systems

Sub-topic 2.2 — Flight Data Processing Systems

Sub-topic 2.3 — Surveillance Data Processing Systems
Subject 3: DATA PROCESS
TOPIC 1 — Software process

Sub-topic 1.1 — Middleware

Sub-topic 1.2 — Operating Systems

Sub-topic 1.3 — Configuration Control

Sub-topic 1.4 — Software Development Process
TOPIC 2 — Hardware platform

Sub-topic 2.1 — Equipment Upgrade

Sub-topic 2.2 — COTS

Sub-topic 2.3 — Interdependence

Sub-topic 2.4 — Maintainability
TOPIC 3 — Testing

Sub-topic 3.1 — Testing
Subject 4: DATA
TOPIC 1 — Data Essential Features

Sub-topic 1.1 — Data Significance

Sub-topic 1.2 — Data Configuration Control

Sub-topic 1.3 — Data Standards
TOPIC 2 — ATM Data — Detailed structure

Sub-topic 2.1 — System Area

Sub-topic 2.2 — Characteristic Points

Sub-topic 2.3 — Aircraft Performances

Sub-topic 2.4 — Screen Manager

Sub-topic 2.5 — Auto-coordination Messages

Sub-topic 2.6 — Configuration Control Data

Sub-topic 2.7 — Physical Configuration Data

Sub-topic 2.8 — Relevant Meteo Data

Sub-topic 2.9 — Alert and Error Messages to ATSEP

Sub-topic 2.10 — Alert and Error Messages to ATCO
Subject 5: COMMUNICATION DATA
TOPIC 1 — Introduction to Networks

Sub-topic 1.1 — Types

Sub-topic 1.2 — Networks

Sub-topic 1.3 — External Network Services

Sub-topic 1.4 — Measuring Tools

Sub-topic 1.5 — Troubleshooting
TOPIC 2 — Protocols

Sub-topic 2.1 — Fundamental Theory

Sub-topic 2.2 — General Protocols

Sub-topic 2.3 — Specific Protocols
TOPIC 3 — DATDP — National Networks

Sub-topic 3.1 — National Networks
Subject 6: SURVEILLANCE — PRIMARY
TOPIC 1 — ATC Surveillance

Sub-topic 1.1 — Use of PSR for Air Traffic Services
Subject 7: SURVEILLANCE — SECONDARY
TOPIC 1 — SSR AND MSSR

Sub-topic 1.1 — Use of SSR for Air Traffic Services
TOPIC 2 — Mode S

Sub-topic 2.1 — Introduction to Mode S
TOPIC 3 — Multilateration

Sub-topic 3.1 — MLAT Principles
Subject 8: SURVEILLANCE — HMI
TOPIC 1 — HMI

Sub-topic 1.1 — ATCO HMI
Subject 9: SURVEILLANCE DATA TRANSMISSION
TOPIC 1 — Surveillance Data Transmission

Sub-topic 1.1 — Technology and Protocols

13. **SYSTEM MONITORING AND CONTROL — COMMUNICATION**
Subject 1: ANS STRUCTURE
TOPIC 1 — ANSP Organisation and Operation

Sub-topic 1.1 — SMCCOM — ANSP Organisation and Operation
TOPIC 2 — ANSP Maintenance Program

Sub-topic 2.1 — Policy

TOPIC 3 — ATM Context

Sub-topic 3.1 — ATM Context
TOPIC 4 — ANSP Administrative Practices

Sub-topic 4.1 — Administration
Subject 2: ANS SYSTEM/EQUIPMENT
TOPIC 1 — Operational Impacts

Sub-topic 1.1— Degradation or Loss of System/Equipment Services
TOPIC 2 — SMCCOM — User Working Position Functionality and Operation

Sub-topic 2.1 — User Working Position

Sub-topic 2.2 — SMC Working Position
Subject 3: TOOLS, PROCESSES AND PROCEDURES
TOPIC 1 — Requirements

Sub-topic 1.1 — SMS

Sub-topic 1.2 — QMS

Sub-topic 1.3 — SMS application in the working environment
TOPIC 2 — Maintenance Agreements with Outside Agencies

Sub-topic 2.1 — Principles of agreements
TOPIC 3 — SMC General Processes

Sub-topic 3.1 — Roles and responsibilities
TOPIC 4 — Maintenance Management Systems

Sub-topic 4.1 — Reporting
Subject 4: TECHNOLOGY
TOPIC 1 — Technologies and Principles

Sub-topic 1.1 — General

Sub-topic 1.2 — Communication

Sub-topic 1.3 — Facilities
Subject 5: COMMUNICATION VOICE
TOPIC 1 — Air-Ground

Sub-topic 1.1 — Controller Working Position
TOPIC 2 — Ground-Ground

Sub-topic 2.1 — Interfaces

Sub-topic 2.2 — Switch

Sub-topic 2.3 — Controller Working Position
Subject 6: COMMUNICATION — DATA
TOPIC 1 — European Networks

Sub-topic 1.1 — Network Technologies
TOPIC 2 — Global Networks

Sub-topic 2.1 — Networks and Standards

Sub-topic 2.2 — Description

Sub-topic 2.3 — Global Architecture

Sub-topic 2.4 — Air-Ground Sub-networks

Sub-topic 2.5 — Ground-Ground Sub-networks

Sub-topic 2.6 — Air-Ground Applications
Subject 7: COMMUNICATION — RECORDERS
TOPIC 1 —Legal recorders

Sub-topic 1.1 — Regulations

Sub-topic 1.2 — Principles
Subject 8: NAVIGATION — PBN
TOPIC 1 — NAV Concepts

Sub-topic 1.1 — NOTAM

14. **SYSTEM MONITORING AND CONTROL — NAVIGATION**
Subject 1: ANS STRUCTURE
TOPIC 1 — ANSP Organisation and Operation

Sub-topic 1.1 — ANSP Organisation and Operation
TOPIC 2 — ANSP Maintenance Program

Sub-topic 2.1 — Policy
TOPIC 3 — ATM Context

Sub-topic 3.1 — ATM Context
TOPIC 4 — ANSP Administrative Practices

Sub-topic 4.1 — Administration
Subject 2: ANS SYSTEM/EQUIPMENT
TOPIC 1 — Operational Impacts

Sub-topic 1.1 — SMCNAV — Degradation or Loss of System/Equipment Services
TOPIC 2 — User Position Functionality and Operation

Sub-topic 2.1 — User Working Position

Sub-topic 2.2 — SMC Working Position
Subject 3: TOOLS, PROCESSES AND PROCEDURES
TOPIC 1 — SMCNAV — Requirements

Sub-topic 1.1 — SMS

Sub-topic 1.2 — QMS

Sub-topic 1.3 — SMS application in the working environment
TOPIC 2 — Maintenance Agreements with Outside Agencies

Sub-topic 2.1 — Principles of agreements
TOPIC 3 — SMC General Processes

Sub-topic 3.1 — Roles and responsibilities
TOPIC 4 — SMCNAV — Maintenance Management Systems

Sub-topic 4.1 — Reporting
Subject 4: TECHNOLOGY

TOPIC 1 — SMCNAV — Technologies and Principles

Sub-topic 1.1 — General

Sub-topic 1.2 — Communication

Sub-topic 1.3 — Facilities
Subject 5: COMMUNICATION — DATA
TOPIC 1 — SMCNAV — European Networks

Sub-topic 1.1 — Network Technologies
TOPIC 2 — Global Networks

Sub-topic 2.1 — Networks and Standards

Sub-topic 2.2 — Description

Sub-topic 2.3 — Global Architecture

Sub-topic 2.4 — Air-Ground Sub-networks

Sub-topic 2.5 — Ground-Ground Sub-networks

Sub-topic 2.6 — Air-Ground Applications
Subject 6: COMMUNICATION — RECORDERS
TOPIC 1 — Legal Recorders

Sub-topic 1.1 — Regulations

Sub-topic 1.2 — Principles
Subject 7: NAVIGATION — PBN
TOPIC 1 — NAV Concepts

Sub-topic 1.1 — NOTAM
Subject 8: NAVIGATION — GROUND-BASED SYSTEMS — NDB
TOPIC 1 — NDB/Locator

Sub-topic 1.1 — Use of the System
Subject 9: NAVIGATION — GROUND-BASED SYSTEMS — DFI
TOPIC 1 — SMCNAV — DF

Sub-topic 1.1 — Use of the System
Subject 10: NAVIGATION — GROUND-BASED SYSTEMS — VOR
TOPIC 1 — VOR

Sub-topic 1.1 — Use of the System
Subject 11: NAVIGATION — GROUND-BASED SYSTEMS — DME
TOPIC 1 — DME

Sub-topic 1.1 — Use of the System
Subject 12: NAVIGATION — GROUND-BASED SYSTEMS — ILS
TOPIC 1 — ILS

Sub-topic 1.1 — Use of the System

15. **SYSTEM MONITORING AND CONTROL — SURVEILLANCE**
Subject 1: ANS STRUCTURE
TOPIC 1 — ANSP Organisation and Operation

Sub-topic 1.1 — ANSP Organisation and Operation
TOPIC 2 — ANSP Maintenance Program

Sub-topic 2.1 — Policy
TOPIC 3 — ATM Context

Sub-topic 3.1 — ATM Context
TOPIC 4 — ANSP Administrative Practices

Sub-topic 4.1 — Administration
Subject 2: ANS SYSTEM/EQUIPMENT
TOPIC 1 — Operational Impacts

Sub-topic 1.1 — SMCSUR — Degradation or Loss of System/Equipment Services
TOPIC 2 — User Position Functionality and Operation

Sub-topic 2.1 — User Working Position

Sub-topic 2.2 — SMC Working Position
Subject 3: TOOLS, PROCESSES AND PROCEDURES
TOPIC 1 — Requirements

Sub-topic 1.1 — SMS

Sub-topic 1.2 — QMS

Sub-topic 1.3 — SMS application in the working environment
TOPIC 2 — Maintenance Agreements with Outside Agencies

Sub-topic 2.1 — Principles of agreements
TOPIC 3 — SMC General Processes

Sub-topic 3.1 — Roles and responsibilities
TOPIC 4 — Maintenance Management Systems

Sub-topic 4.1 — Reporting
Subject 4: TECHNOLOGY
TOPIC 1 — Technologies and Principles

Sub-topic 1.1 — General

Sub-topic 1.2 — Communication

Sub-topic 1.3 — Facilities
Subject 5: COMMUNICATION — DATA
TOPIC 1 — European Networks

Sub-topic 1.1 — Network Technologies
TOPIC 2 — Global Networks

Sub-topic 2.1 — Networks and Standards

Sub-topic 2.2 — Description

Sub-topic 2.3 — Global Architecture

Sub-topic 2.4 — Air-Ground Sub-networks

Sub-topic 2.5 — Ground-Ground sub-networks

Sub-topic 2.6 — Air-Ground Applications
Subject 6: COMMUNICATION — RECORDERS
TOPIC 1 — Legal Recorders

Sub-topic 1.1 — Regulations

Sub-topic 1.2 — Principles
Subject 7: NAVIGATION — PBN
TOPIC 1 — NAV Concepts

Sub-topic 1.1 — NOTAM
Subject 8: SURVEILLANCE — PRIMARY
TOPIC 1 — ATC Surveillance

Sub-topic 1.1 — Use of PSR for Air Traffic Services
Subject 9: SURVEILLANCE — SECONDARY
TOPIC 1 — SSR AND MSSR

Sub-topic 1.1 — Use of SSR for Air Traffic Services
TOPIC 2 — Mode S

Sub-topic 2.1 — Introduction to Mode S
TOPIC 3 — Multilateration

Sub-topic 3.1 — MLAT Principles
Subject 10: SURVEILLANCE — HMI
TOPIC 1 — HMI

Sub-topic 1.1 — ATCO HMI
Subject 11: SURVEILLANCE — DATA TRANSMISSION
TOPIC 1 — Surveillance Data Transmission

Sub-topic 1.1 — Technology and Protocols

16. **SYSTEM MONITORING AND CONTROL — DATA**
Subject 1: ANS STRUCTURE
TOPIC 1 — ANSP Organisation and Operation

Sub-topic 1.1 — ANSP Organisation and Operation
TOPIC 2 — ANSP Maintenance Program

Sub-topic 2.1 — Policy
TOPIC 3 — ATM Context

Sub-topic 3.1 — ATM Context
TOPIC 4 — ANSP ADMINISTRATIVE PRACTICES

Sub-topic 4.1 — Administration
Subject 2: ANS SYSTEM/EQUIPMENT
TOPIC 1 — Operational Impacts

Sub-topic 1.1 — Degradation or Loss of System/Equipment Services
TOPIC 2 — User Position Functionality and Operation

Sub-topic 2.1 — User Working Position

Sub-topic 2.2 — SMC Working Position
Subject 3: TOOLS, PROCESSES AND PROCEDURES

TOPIC 1 — SMCDAT — Requirements

Sub-topic 1.1 — SMS

Sub-topic 1.2 — QMS

Sub-topic 1.3 — SMS application in the working environment
TOPIC 2 — Maintenance Agreements with Outside Agencies

Sub-topic 2.1 — Principles of agreements
TOPIC 3 — SMC General Processes

Sub-topic 3.1 — Roles and responsibilities
TOPIC 4 — Maintenance Management Systems

Sub-topic 4.1 — Reporting
Subject 4: TECHNOLOGY
TOPIC 1 — Technologies and Principles

Sub-topic 1.1 — General

Sub-topic 1.2 — Communication

Sub-topic 1.3 — Facilities
Subject 5: COMMUNICATION — DATA
TOPIC 1 — European Networks

Sub-topic 1.1 — Network Technologies
TOPIC 2 — Global Networks

Sub-topic 2.1 — Networks and Standards

Sub-topic 2.2 — Description

Sub-topic 2.3 — Global Architecture

Sub-topic 2.4 — Air-Ground Sub-networks

Sub-topic 2.5 — Ground-Ground sub-networks

Sub-topic 2.6 — Air-Ground Applications
Subject 6: COMMUNICATION — RECORDERS
TOPIC 1 — Legal Recorders

Sub-topic 1.1 — Regulations

Sub-topic 1.2 — Principles
Subject 7: NAVIGATION — PBN
TOPIC 1 — SMCDAT — NAV Concepts

Sub-topic 1.1 — NOTAM
Subject 8: SURVEILLANCE — PRIMARY
TOPIC 1 — ATC Surveillance

Sub-topic 1.1 — Use of PSR for Air Traffic Services
Subject 9: SURVEILLANCE — SECONDARY
TOPIC 1 — SSR AND MSSR

Sub-topic 1.1 — Use of SSR for Air Traffic Services
TOPIC 2 — Mode S

Sub-topic 2.1 — Introduction to Mode S
TOPIC 3 — Multilateration

Sub-topic 3.1 — MLAT Principles
Subject 10: SURVEILLANCE — HMI
TOPIC 1 — HMI

Sub-topic 1.1 — ATCO HMI
Subject 11: SURVEILLANCE — DATA TRANSMISSION
TOPIC 1 — Surveillance Data Transmission

Sub-topic 1.1 — Technology and Protocols
Subject 12: SURVEILLANCE — DATA PROCESSING SYSTEMS
TOPIC 1 — User Requirements

Sub-topic 1.1 — Controller requirements

Sub-topic 1.2 — Trajectories, Prediction and Calculation

Sub-topic 1.3 — Ground-based Safety Nets

Sub-topic 1.4 — Decision Support
Subject 13: SURVEILLANCE — DATA PROCESS
TOPIC 1 — Hardware Platform

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Sub-topic 1.2 — COTS

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Subject 14: SURVEILLANCE — DATA
TOPIC 1 — Data Essentials Features

Sub-topic 1.1 — Data Significance

Sub-topic 1.2 — Data Configuration Control

Sub-topic 1.2 — Data Standards

(**1**) OJ L 79, 19.3.2008, p. 1.

(**2**) OJ L 96, 31.3.2004, p. 10.

(**3**) OJ L 96, 31.3.2004, p. 20.

(**4**) Commission Implementing Regulation (EU) No 1034/2011 of 17 October 2011 on safety oversight in air traffic management and air navigation services and amending Regulation (EU) No 691/2010 (OJ L 271, 18.10.2011, p. 15).

(**5**) Commission Implementing Regulation (EU) No 1035/2011 of 17 October 2011 laying down common requirements for the provision of air navigation services and amending Regulations (EC) No 482/2008 and (EU) No 691/2010 (OJ L 271, 18.10.2011, p. 23).

(**6**) Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European Sky (OJ L 96, 31.3.2004, p. 1).

(**7**) Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1).

(**8**) Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 311, 25.11.2011, p. 1).

(**9**) 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).

(**10**) Commission Regulation (EU) 2015/340 of 20 February 2015 laying down technical requirements and administrative procedures relating to air traffic controllers' licences and certificates pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 923/2012 and repealing Commission Regulation (EU) No 805/2011 (OJ L 63, 6.3.2015, p. 1).

(**11**) 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).

(**12**) Commission Regulation (EC) No 482/2008 of 30 May 2008 establishing a software safety assurance system to be implemented by air navigation service providers and amending Annex II to Regulation (EC) No 2096/2005 (OJ L 141, 31.5.2008, p. 5).

(**13**) Commission Regulation (EU) No 677/2011 of 7 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions and amending Regulation (EU) No 691/2010 (OJ L 185, 15.7.2011, p. 1).

(**14**) Commission Implementing Regulation (EU) 2016/1377 of 4 August 2016 laying down common requirements for service providers and the oversight in air traffic management/air navigation services and other air traffic management network functions, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 and amending Regulation (EU) No 677/2011 (OJ L 226, 19.8.2016, p. 1).

(**15**) Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (OJ L 295, 12.11.2010, p. 35).

(**16**) Commission Regulation (EU) No 255/2010 of 25 March 2010 laying down common rules on air traffic flow management (OJ L 80, 26.3.2010, p. 10).

(**17**) Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace (OJ L 342, 24.12.2005, p. 20).

Changes to legislation:
There are currently no known outstanding effects for the Commission Implementing Regulation (EU) 2017/373.