



Notice of Proposed Amendment 2023-05

in accordance with Article 6 of MB Decision 01-2022

Acceptable means of compliance, guidance material and detailed specifications supporting the new regulatory framework on the conformity assessment of ATM/ANS systems and ATM/ANS constituents

RMT.0161 (SUBTASK 3) AND RMT.0524 (SUBTASKS 3 AND 4)

EXECUTIVE SUMMARY

This NPA proposes the first set of the acceptable means of compliance (AMC), guidance material (GM) and detailed specification (DSs) supporting the implementation of the conformity assessment framework for air traffic management/air navigation services systems and air traffic management/air navigation services constituents (hereafter ATM/ANS equipment) as well as the approval of organisations involved in its design and/or production.

Due to the novelty of the subject, it is important to provide the necessary means for the implementation of the above-mentioned framework as regards:

- the certification and declaration specifications for ATM/ANS equipment;
- the technical requirements and administrative procedures for the organisations involved in the design and/or production of ATM/ANS equipment;
- the common requirements on aircraft equipment and the operating procedures related to the use of the single European sky (SES) airspace;
- the requirements for the ATM/ANS providers when introducing changes to their functional system as regards the ATM/ANS equipment;
- the declaration specifications and AMC and GM for ATM/ANS (ground) equipment (DS-GE); and
- the detailed specifications for ATM/ANS equipment subject to statement of compliance (DS-SoC).

This proposal is expected to facilitate the effective modernisation of the European air traffic management network (EATMN), ensuring more streamlined conformity assessment mechanisms and increased harmonisation and interoperability of ATM/ANS equipment brought to the EU market.

REGULATION(S) TO BE AMENDED/ISSUED

N/A

ED DECISIONS TO BE ISSUED/AMENDED/REPEALED

- ED Decisions — AMC/GM/DSs to support the implementation of the regulations proposed with Opinion No 01/2023, and
- [ED Decision 2017/001/R](#) — AMC/GM to Part-ATM/ANS.OR
- [ED Decision 2020/014/R](#) — AMC & GM to Commission Implementing Regulation (EU) No 1207/2011 (the surveillance performance and interoperability (SPI) Regulation)

AFFECTED STAKEHOLDERS: Organisations involved in the design and/or production of ATM/ANS equipment, ATM/ANS providers; aircraft operators; aerodrome operators where applicable; national competent authorities (NCAs); and EASA.

WORKING METHOD(S)

Development	Impact assessment(s)	Consultation
By EASA with external support	Refer to NPA 2022-09 and NPA 2022-107	Public – NPA

Related documents / information

- ToR RMT.0161
- NPA 2022-09
- NPA 2022-107
- Opinion No 01/2023
- <https://www.easa.europa.eu/en/newsroom-and-events/events/easa-workshop-new-conformity-assessment-framework-atmans-systems-and>

PLANNING MILESTONES: European Plan for Aviation Safety (EPAS) for 2023-2025



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1. About this NPA

1.1. How this regulatory material was developed

The European Union Aviation Safety Agency (EASA) developed this Notice of Proposed Amendment (NPA) in the context of the activities under Subtask 3 of Rulemaking Task (RMT).0161, which is included in Volume II of the European Plan for Aviation Safety (EPAS) for 2023-2025¹, and whose scope was defined in the associated Terms of Reference (ToR)².

RMT.0161 has been structured into four subtasks to clearly describe the work undertaken with this rulemaking activity as follows:

- Subtask 1: Establishment of an EU regulatory framework and amendment of the respective provisions on the conformity assessment of ATM/ANS equipment to contribute to the safety and interoperability of the EATMN.
- Subtask 2: Review of the content of the repealed SES interoperability framework previously established on the basis of Regulation (EC) No 552/2004³ and the related implementing rules⁴ and adaptation of them to the new EU regulatory framework concerning ATM/ANS ground equipment (being developed under Subtask 1).
- Subtask 3: Establishment of the related AMC, GM and DSs supporting the implementation of the framework.

¹ <https://www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-2023-2025>

² <https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions/tor-rmt0161>

³ Regulation (EC) No 552/2004 of the European Parliament and of the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation) (OJ L 96, 31.3.2004, p. 26) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0552&qid=1674542992703>).

⁴ Regulation (EC) No 1032/2006 of 6 July 2006 laying down requirements for automatic systems for the exchange of flight data for the purpose of notification, coordination and transfer of flights between air traffic control units (OJ L 186, 7.7.2006, p. 27) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32006R1032&qid=1674543148369>).

Commission Regulation (EC) No 1033/2006 of 4 July 2006 laying down the requirements on procedures for flight plans in the pre-flight phase for the single European sky (OJ L 186, 7.7.2006, p. 46) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32006R1033&qid=1674543264393>).

Commission Regulation (EC) No 633/2007 of 7 June 2007 laying down requirements for the application of a flight message transfer protocol used for the purpose of notification, coordination and transfer of flights between air traffic control units (OJ L 146, 8.6.2007, p. 7) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32007R0633&qid=1674543291364>).

Commission Regulation (EC) No 29/2009 of 16 January 2009 laying down requirements on data link services for the single European sky (OJ L 13, 17.1.2009, p. 3) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009R0029&qid=1674543405636>).

Commission Regulation (EC) No 262/2009 of 30 March 2009 laying down requirements for the coordinated allocation and use of Mode S interrogator codes for the single European sky (OJ L 84, 31.3.2009, p. 20) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009R0262&qid=1674543453221>).

Commission Implementing Regulation (EU) No 1206/2011 of 22 November 2011 laying down requirements on aircraft identification for surveillance for the single European sky (OJ L 305, 23.11.2011, p. 23) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32011R1206&qid=1674543651219>).

Commission Implementing Regulation (EU) No 1207/2011 of 22 November 2011 laying down requirements for the performance and the interoperability of surveillance for the single European sky (OJ L 305, 23.11.2011, p. 35) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32011R1207&qid=1674543710782>).

Commission Implementing Regulation (EU) No 1079/2012 of 16 November 2012 laying down requirements for voice channels spacing for the single European sky (OJ L 320, 17.11.2012, p. 14) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32012R1079&qid=1674543767639>).

- Subtask 4: Establishment of the related EU regulatory framework (delegated/implementing acts, certification specifications (CSs), AMC and GM) to implement the Basic Regulation as regards safety-related aerodrome equipment — to be developed with a separate regulatory activity.

Furthermore, considering the nature of RMT.0524 Subtask 3 and Subtask 4, namely the establishment of the related AMC and GM supporting the data link services (DLS) and the first set of the EASA DSs based on the existing interoperability DLS rules and the relevant DLS Community Specifications (e.g. based on ETSI EN 303 214), this NPA covers the referenced aspects as well.

EASA developed this regulatory material in line with Regulation (EU) 2018/1139⁵ (the Basic Regulation) and the Rulemaking Procedure⁶, as well as in accordance with the objectives and working methods described in the ToR for RMT.0161.

EASA developed this NPA with the support of Rulemaking Group (RMG) RMT.0161. As regards the development of the proposed detailed specifications in particular, the inputs of an expert group were considered. Both the RMG and the expert group were composed of representatives of national supervisory authorities (NSAs), air navigation services providers (ANSPs) and industry.

1.2. How to comment on this NPA

The draft regulatory material is hereby submitted to all interested parties for public consultation with Article 115 of the Basic Regulation and Article 6(3) of the Rulemaking Procedure.

Please submit your comments using the automated **Comment-Response Tool (CRT)** available at <http://hub.easa.europa.eu/crt/>⁷.

The deadline for the submission of comments is **2 August 2023**.

1.3. The next steps

Following the public consultation period, EASA will review and analyse all the comments received, and further revise the proposed regulatory proposal, as appropriate. In this context, EASA might perform focused consultation activities to discuss and address specific issues, as deemed appropriate, for which the stakeholders' views are considered essential or require further evaluation.

Considering the feedback received under this NPA and upon adoption and publication by the European Commission of the implementing and delegated acts proposed with Opinion No 01/2023, EASA will issue the ED decision(s) containing the first set of the related DSs, AMC and GM in order to support the implementation of the new regulatory framework on the conformity assessment of ATM/ANS

⁵ Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1535612134845&uri=CELEX:32018R1139>).

⁶ EASA is bound to follow a structured rulemaking process as required by Article 115(1) of Regulation (EU) 2018/1139. Such a process has been adopted by the EASA Management Board (MB) and is referred to as the 'Rulemaking Procedure'. See MB Decision No 01-2022 of 2 May 2022 on the procedure to be applied by EASA for the issuing of opinions, certification specifications and other detailed specifications, acceptable means of compliance and guidance material ('Rulemaking Procedure'), and repealing Management Board Decision No 18-2015 (<https://www.easa.europa.eu/the-agency/management-board/decisions/easa-mb-decision-01-2022-rulemaking-procedure-repealing-mb>).

⁷ In case of technical problems, please send an email to crt@easa.europa.eu with a short description.

equipment and the approval of organisations involved in the design and/or production of ATM/ANS equipment.

When issuing the ED Decision(s), EASA will also provide feedback to the commentators and information to the public on who engaged in the process and/or provided comments during the consultation of the draft regulatory material, which comments were received, and how the comments were considered.



2. In summary — why and what

2.1. Why we need to act

The Basic Regulation lays down interoperability requirements for the EATMN and mandates the development of the related delegated and implementing acts as regards the certification or declaration of ATM/ANS systems and ATM/ANS constituents as well as of the organisations involved in their design, production, and maintenance.

The interoperability Regulation (Regulation (EC) No 552/2004) was repealed by the Basic Regulation, but Article 139 of the Basic Regulation establishes the transitional provisions whereby certain articles of the interoperability Regulation and its annexes remain applicable until the date of application of the new framework, and in any case not later than 12 September 2023. In this context, the new regulatory framework on the ATM/ANS systems and ATM/ANS constituents (referred to as ‘ATM/ANS equipment’) was proposed with Opinion No 01/2023. The new regulatory framework will enable the conformity assessment of ATM/ANS equipment by means of certification or declaration(s) as well as the approval of organisations involved in their design and/or production.

The first set of AMC, GM and DSs are required to support the implementation of the new regulatory framework on the conformity assessment of ATM/ANS equipment.

2.2. What we want to achieve — objectives

The proposed AMC, GM and DSs aim at contributing to the achievement of the overall objectives of the EASA system as defined in Article 1 of the Basic Regulation, by addressing the issues described in Section 2.1.

More specifically, the proposed AMC, GM and DSs are expected to ensure that the relevant safety, security, performance, and interoperability objectives are met, supporting efficient operations of the EATMN, in compliance with the applicable requirements of the Basic Regulation and of the delegated and implementing acts adopted on its basis.

In this context, the specific objectives of the proposed AMC, GM and DSs are to:

- provide a common understanding of the new requirements on the conformity assessment of ATM/ANS equipment;
- support the effective and harmonised certification and oversight of ATM/ANS equipment subject to conformity assessment; and
- support the application by all effected/regulated parties,

while promoting and enabling the development and implementation of new technologies and allocating clear responsibilities to the various actors involved in this activity.

2.3. How we want to achieve it — overview of the proposed amendments

The presentation of the proposed first set of AMC & GM and set of DSs follows the structure of Opinion No 01/2023 on the new EU regulatory framework for the conformity assessment of ATM/ANS equipment for the safe and seamless operation of the EATMN.

The proposal is structured as follows:



- three new ED Decisions with AMC & GM to the following (draft) Commission Regulations:
 - COMMISSION DELEGATED REGULATION (EU) .../... on the certification and declaration of compliance of the design of air traffic management/air navigation services systems and air traffic management/air navigation services constituents;
 - COMMISSION IMPLEMENTING REGULATION (EU) .../... on technical requirements and administrative procedures for the approval of organisations involved in the design and/or production of air traffic management/air navigation services systems and air traffic management/air navigation services constituents; and
 - COMMISSION IMPLEMENTING REGULATION (EU) .../... on common requirements on aircraft equipment and operating procedures for the use of the single European sky airspace; and
- amendments to ED Decision 2017/001/R as regards ATM/ANS systems and ATM/ANS constituents;
- two new ED Decisions with DSs as follows:
 - DSs and AMC & GM for ATM/ANS (ground) equipment (CDS-GE); and
 - DSs for ATM/ANS equipment subject to statement of compliance (DS-SoC).

2.4. AMC & GM to COMMISSION DELEGATED REGULATION (EU) .../... on the certification and declaration of design compliance of air traffic management/air navigation services systems and air traffic management/air navigation services constituents

The draft delegated act proposed with Opinion No 01/2023 (please refer to Section 2.3.1 thereof) establishes the new framework on the conformity assessment of ATM/ANS equipment. The new regulatory framework is established taking into account the nature and the risk of the operation or functionality enabled by the particular ATM/ANS equipment as per point 3 of Annex VIII to the Basic Regulation. It introduces three different instruments based on the principles established by the Basic Regulation:

- certification by EASA of ATM/ANS equipment based on detailed (certification) specifications (**Article 4**).
- declaration of design compliance by an approved organisation involved in the design and/or production of ATM/ANS equipment for ATM/ANS equipment based on detailed declaration specifications (**Article 5**); and
- statement of compliance (SoC) by the ATM/ANS provider or by an approved organisation involved in the design and/or production of ATM/ANS equipment for ATM/ANS equipment acting on behalf of the ATM/ANS provider, confirming that the equipment complies with the technical standards listed in DSs (**Article 6**).

To support the implementation of the proposed new regulatory framework, this NPA proposes AMC & GM that are considered essential for the initial phase of implementation, which amongst others include:

- AMC & GM associated with Article 3 and Article 6, proposed to illustrate the role and required activities of the competent authority for the oversight of a statement of compliance issued by



- an organisation involved in the design and/or production of ATM/ANS equipment approved in accordance with Commission Implementing Regulation (EU) .../...;
- GM illustrating the interactions between the regulated parties when the ATM/ANS equipment is subject to certification, declaration of design compliance or statement of compliance;
 - an extensive set of AMC & GM associated with Article 6 to address the statement of compliance, the template, the activities to be performed before being issued as well as to address the cases in which a reissue of the SoC is required, i.e. management of minor and major changes of the ATM/ANS equipment subject to the statement of compliance; and
 - an essential set of AMC & GM relating to the transitional provisions and the set of information to be provided from the competent authority to the Agency for the purpose of evaluation of the legacy systems; and
 - AMC & GM on the novelties introduced with the new framework such as the ATM/ANS equipment certification basis and the level of involvement.

2.5. AMC & GM to COMMISSION IMPLEMENTING REGULATION (EU) .../... on technical requirements and administrative procedures for the approval of organisations involved in the design and/or production of air traffic management/air navigation services systems and air traffic management/air navigation services constituents

This NPA includes the proposed AMC and GM for the implementing act on the technical requirements and administrative procedures for the approval of organisations involved in the design and/or production of ATM/ANS equipment. Considering the essential nature of the subjects listed below, AMC and GM are proposed to support the implementation of the related Implementing rules, as follows:

- application for a design and/or production organisation approval and demonstration of capability;
- failures, malfunctions and defects;
- management system;
- contracted activities; and
- the issue of the release form for the ATM/ANS equipment after being manufactured.

2.6. AMC & GM to COMMISSION IMPLEMENTING REGULATION (EU) .../... on common requirements on aircraft equipment and operating procedures for the use of the single European sky airspace

This NPA includes the proposed AMC and GM for the implementing act on common requirements on aircraft equipment and operating procedures for the use of the single European sky airspace. The proposed AMC and GM provide a reference to the appropriate airworthiness requirements, primarily defined in the Certification Specification for Airborne Communications, Navigation and Surveillance (CS-ACNS), that are necessary to comply with the ATM/ANS equipment carriage requirements. In addition, guidance is provided with respect to information to be included in the flight plan as regards the equipage and operational status.



2.7. Amendment to ED Decision 2017/001/R as regards ATM/ANS systems and ATM/ANS constituents

The amendment to Regulation (EU) 2017/373 as presented in Opinion No 01/2023 results from:

- the introduction of the new conformity assessment framework for ATM/ANS equipment; and
- the implementation of Article 140(2) ‘Transitional provisions’ of the Basic Regulation that requires not later than 12 September 2023 the implementing rules adopted on the basis of Regulations (EC) No 216/2008 and (EC) No 552/2004 to be adapted to the Basic Regulation.

This NPA includes a set of proposed AMC and GM primarily facilitating the application of the requirements on the ATM/ANS providers’ responsibilities as regards the changes to the functional system that are stipulated in ATM/ANS.OR.A.045. Said AMC and GM cover the ATM/ANS provider’s activities before integrating ATM/ANS equipment into the functional system.

Some of the proposed AMC and GM are developed based on the principles stipulated in Annex VIII to Regulation (EU) No 1207/2011 laying down requirements for the performance and the interoperability of surveillance for the single European sky to address the verification and the required checking activities before ATM/ANS equipment being deployed.

2.8. Declaration specifications and AMC and GM for ATM/ANS equipment, i.e. ground equipment (DS-GE)

This NPA includes the proposed Detailed Specification (DS-GE) for ATM/ANS equipment structured into three parts. Part 1 addresses the ‘General’ specifications that are applicable to all ATM/ANS equipment subject to both certification and declaration, as defined by the Commission Delegated Regulation (EU) .../... of XXX ‘laying down common technical requirements and administrative procedures for the conformity assessment of ATM/ANS systems and ATM/ANS constituents’ as presented in Opinion No 01/2023. Parts 2 and 3, applicable to certification and declaration respectively, are further divided into ‘Subparts’ addressing specific ATM/ANS equipment associated with the functions as per point 3 of Annex VIII to the Basic Regulation, as illustrated in Figure 1 at the end of this Section.

For the specific ATM/ANS equipment within the ‘Subparts’, the functional, performance and interface specifications are specified in a technology agnostic manner. To facilitate compliance with these specified specifications, associated AMC and GM are proposed, that primarily list published industry standards from standards development organisations or transpose requirements currently contained in the Community Specifications developed under the SES regulatory framework.

The ATM/ANS equipment proposed for inclusion within the scope of this first set of DS-GE is necessary to:

- complete the transposition of SES interoperability Regulations as proposed with Opinion No 01/2023 (for further details, please refer to Section 2.1 thereof). This transposition also results from the recast of the requirements specified in the Community Specifications published in accordance with Article 4 of Regulation (EC) No 552/2004; and



- enable the implementation of Commission Implementing Regulation (EU) 2021/116 (the Common Project 1 Regulation (CP1))⁸.

Such ATM/ANS equipment is:

- Certification
 - Flight data processing (FDP)
 - Extended arrival management (EAMAN)
 - Departure management (DMAN)
 - Advanced surface movement guidance and control system (A-SMGCS)
 - Data link applications
 - Surveillance data processing (SDP)
 - Data communications (air ground)
 - Voice communications (air ground)
- Declaration
 - ATS message handling system (AMHS)
 - System wide information management (SWIM)
 - Flight message transfer protocol (FTMP)
 - Mode S ground station
 - ADS-B

As stated above, this proposal includes EAMAN and DMAN within the ATM/ANS equipment that is subject to certification as defined by Article 4 of Commission Delegated Regulation(EU) .../... of XXX 'laying down common technical requirements and administrative procedures for the conformity assessment of ATM/ANS systems and ATM/ANS constituents' as presented in Opinion No 01/2023.

The inclusion of EAMAN and DMAN is a result of the work of the expert group that assisted with the drafting of DS-GE. It is recognised that EAMAN and DMAN are ATM/ANS equipment that enables efficient approach and departure sequencing thus improving flow management, and assist in enabling appropriate separation, hence the expert group concluded that these functionalities are within the scope of functionalities subject to certification. EASA has developed the proposed specifications based on that assumption and introduces a question in this NPA to receive further advice complementing the work of the expert group.

⁸ Commission Implementing Regulation (EU) 2021/116 of 1 February 2021 on the establishment of the Common Project One supporting the implementation of the European Air Traffic Management Master Plan provided for in Regulation (EC) No 550/2004 of the European Parliament and of the Council, amending Commission Implementing Regulation (EU) No 409/2013 and repealing Commission Implementing Regulation (EU) No 716/2014 (OJ L 36, 2.2.2021, p. 10) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0116&qid=1686132542704>).

Question

EASA requests the stakeholders' views as to whether the EAMAN and DMAN ATM/ANS equipment supports the functionalities described in Article 4 of the delegated act and therefore should be subject to certification or, alternatively, it is more appropriate that they are attributed to the statement of compliance (SoC) specifications. EASA looks forward to stakeholders' feedback on the relevant categorisation of these two functionalities.

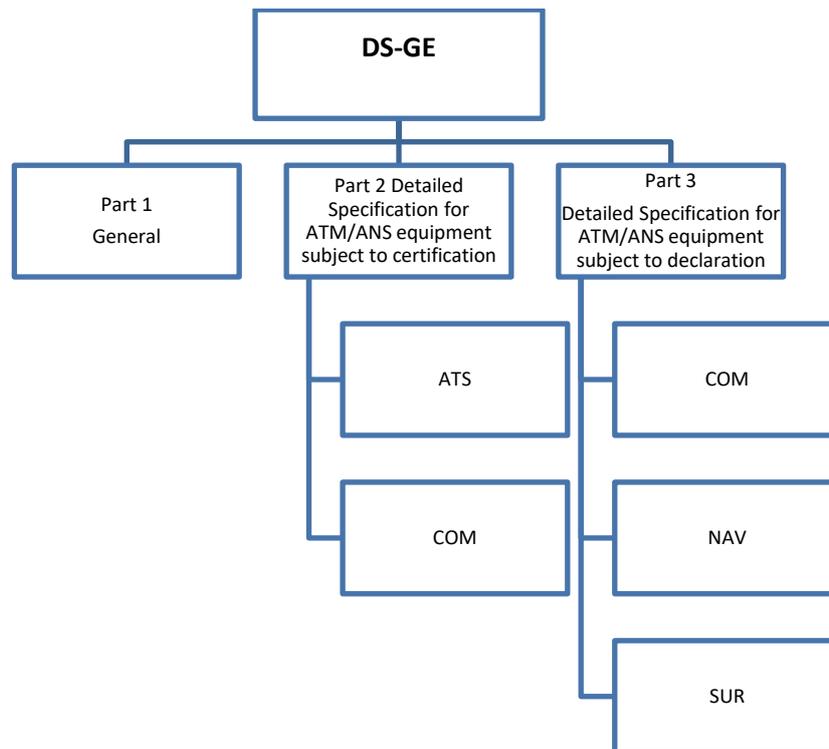


Figure 1: DS-GE structure

2.9. Detailed specifications for ATM/ANS equipment, i.e. ground equipment subject to statement of compliance (DS-SoC)

This NPA includes the proposed detailed specification for the ATM/ANS equipment subject to statement of compliance (DS-SoC), which are structured into two 'Subparts'. Subpart A addresses the (technical) specifications that are applicable to all ATM/ANS equipment subject to SoC, as defined in Commission Delegated Regulation (EU) .../... of XXX 'laying down common technical requirements and administrative procedures for the conformity assessment of ATM/ANS systems and ATM/ANS constituents' as presented in Opinion No 01/2023. Subpart B addresses the specific ATM/ANS equipment associated with the functions as per point 3 of Annex VIII to the Basic Regulation, as illustrated in Figure 2. For the specific ATM/ANS equipment subject to SoC, either the appropriate published industry standards from standards development organisations are listed, or requirements currently contained in the Community Specifications developed under the SES regulatory framework are transposed.

As in the case of DS-GE, the ATM/ANS equipment proposed for inclusion in this first set of DS-SoC is necessary to:

- complete the transposition of SES interoperability Regulations as proposed with Opinion No 01/2023 (for further details, please refer to Section 2.1 thereof). This transposition also results from the recast of the requirements specified in the Community Specifications published in accordance with Article 4 of Regulation (EC) No 552/2004; and
- enable the implementation of the Common Project 1 Regulation (CP1).

Consequently, the proposal includes the following ATM/ANS equipment:

- Aeronautical information management system (AIM)
- Local ASM support system
- ATFM system
- MET data distribution

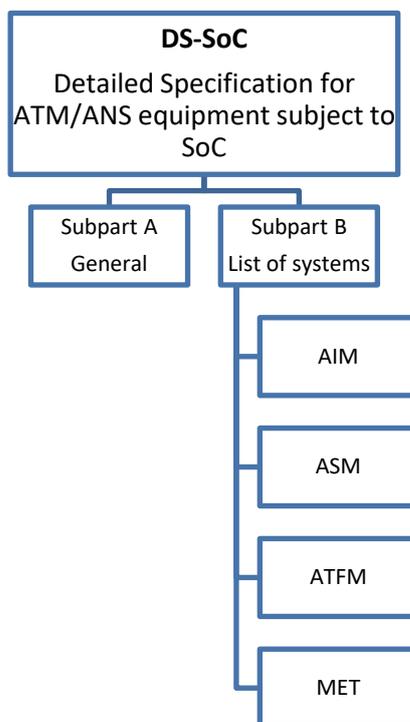


Figure 2: DS-SoC structure

2.10. Repeal

The scope of the draft Commission Implementing Regulation (EU) .../... on common requirements on aircraft equipment and operating procedures for the use of the single European sky airspace is limited to the transposition of those requirements contained in amongst others Commission Implementing Regulation (EU) No 1207/2011 laying down requirements for the performance and the interoperability of surveillance for the single European sky. It contains detailed provisions concerning the operating rules related to the use of airspace and aircraft equipment required for the use of airspace. Therefore, taking into account the proposed draft AMC & GM to Commission Implementing Regulation (EU) .../...

on common requirements on aircraft equipment and operating procedures for the use of the single European sky airspace, ED Decision 2020/014/R 'AMC and GM to Commission Implementing Regulation (EU) No 1207/2011' is proposed to be repealed.



3. What are the expected benefits and drawbacks of the proposed regulatory material

The proposed AMC, GM and DSs complement the regulatory framework on the new conformity assessment framework proposed in EASA Opinion No 01/2023.

The main benefits of the proposed material are that:

- when the regulated parties make use of it, they can demonstrate compliance with the applicable requirements;
- it increases efficiency in certification and oversight;
- facilitate harmonisation in the implementation of the regulatory framework on the conformity assessment.

No drawbacks are expected.



4. Proposed regulatory material

4.1. Draft acceptable means of compliance and guidance material (draft EASA decision) associated with the detailed rules for the certification and declaration of air traffic management/air navigation services systems and air traffic management/air navigation services constituents

The text of the amendment is arranged to show deleted, new, and unchanged text as follows:

- deleted text is ~~struck through~~;
- new text is highlighted in **blue**;
- an ellipsis '[...]' indicates that the rest of the text is unchanged.

AMC2 Article 3(2) Competent authority

OVERSIGHT

Within the scope of point ATM/ANS.AR.B.001(a)(1) of Regulation (EU) 2017/373, the competent authority for the oversight of a SoC should establish a process in order to verify, as part of its continuous oversight, the ATM/ANS provider's compliance with the applicable requirements as regards the compliance of ATM/ANS equipment before the issue of the SoC.

GM1 Article 3(2) Competent authority; Article 6(1) Statement of compliance

GENERAL

As part of the support during the oversight activities, the ATM/ANS provider may request the presence of a representative of the approved DPO.

AMC1 Article 3(2) Competent authority; Article 6(1) Statement of compliance

GENERAL

- The competent authority for the oversight of a statement of compliance (SoC) issued by an organisation involved in the design and/or production of ATM/ANS equipment (DPO) approved in accordance with Commission Implementing Regulation (EU) .../... should be the competent authority responsible for the certification and oversight of the ATM/ANS provider requesting the issue of the SoC on its behalf.
- The entity subject to oversight as regards the SoC issued by an approved DPO should be considered to be the ATM/ANS provider requesting it.



GM1 Article 4 Certification of ATM/ANS equipment; Article 5 Declaration of design compliance of the ATM/ANS equipment; Article 6 Statement of compliance

SCOPE

The table below provides a pictorial representation of which means of conformity assessment applies for the various types of ATM/ANS equipment.

#	Point 3 of Annex VIII 'Essential requirements for ATM/ANS and air traffic controllers' to Regulation (EU) 2018/1139	Article 4 Certification of ATM/ANS equipment	Article 5 Declaration of design compliance of the ATM/ANS equipment	Article 6 Statement of compliance
	The <i>equipment</i> shall include in particular <i>equipment</i> required to support the following functions and services:			
1.	airspace management (ASM)			X
2.	air traffic flow management (ATFM)			X
3.	air traffic services (ATS), in particular flight data processing systems, surveillance data processing systems and human-machine interface systems;			
	3a. controller-pilot communications			
	3b. air traffic control (ATC) services when enabling the separation of aircraft or the prevention of collisions	X		
	3c. other ATS equipment supporting air traffic control (ATC) services when enabling the separation of aircraft or the prevention of collisions			X
4.	communications (COM) including ground-to-ground/space, air-to-ground and air-to-air/space communications			
	4a. ground-to-ground communications		X	

	4b. air-to-ground communications (i.e. controller–pilot communication)	X		
5.	navigation (NAV)		X	
6.	surveillance (SUR)		X	
7.	aeronautical information services (AIS)			X
8.	meteorological services (MET)			X

GM2 Article 4 Certification of ATM/ANS equipment; Article 5 Declaration of design compliance of the ATM/ANS equipment; Article 6 Statement of compliance

GENERAL

- (a) For ATM/ANS equipment subject to certification in accordance with Article 4 of this Regulation, the approved DPO shall, following the acceptance of the certification programme by EASA, demonstrate compliance with the ATM/ANS equipment certification basis before a certificate against the design is issued. The DPO produces ATM/ANS equipment against the design data and issues an EASA release form to be provided to the ATM/ANS provider. Figure 1 shows the interactions between the regulated parties when the ATM/ANS equipment is subject to certification.



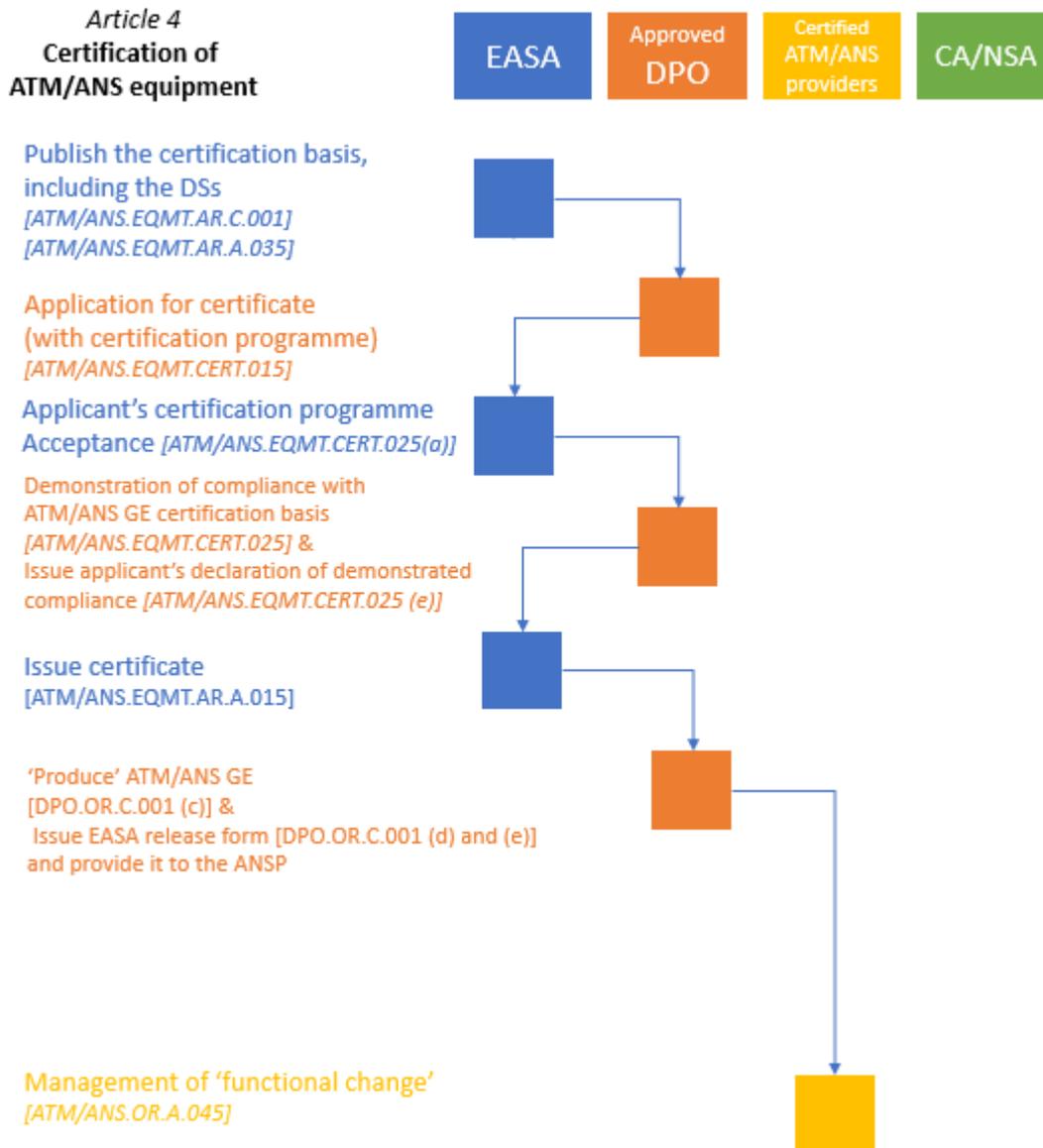


Figure 1

(b) For ATM/ANS equipment subject to declaration of design compliance in accordance with Article 5 of this Regulation, the DPO is privileged to design and produce ATM/ANS equipment in accordance with the terms of the EASA approval. The test and verification activities leading to the issue of declaration of design compliance will be subject to continuous oversight by EASA. Figure 2 shows the interactions between the regulated parties when the ATM/ANS equipment is subject to declaration of design compliance.

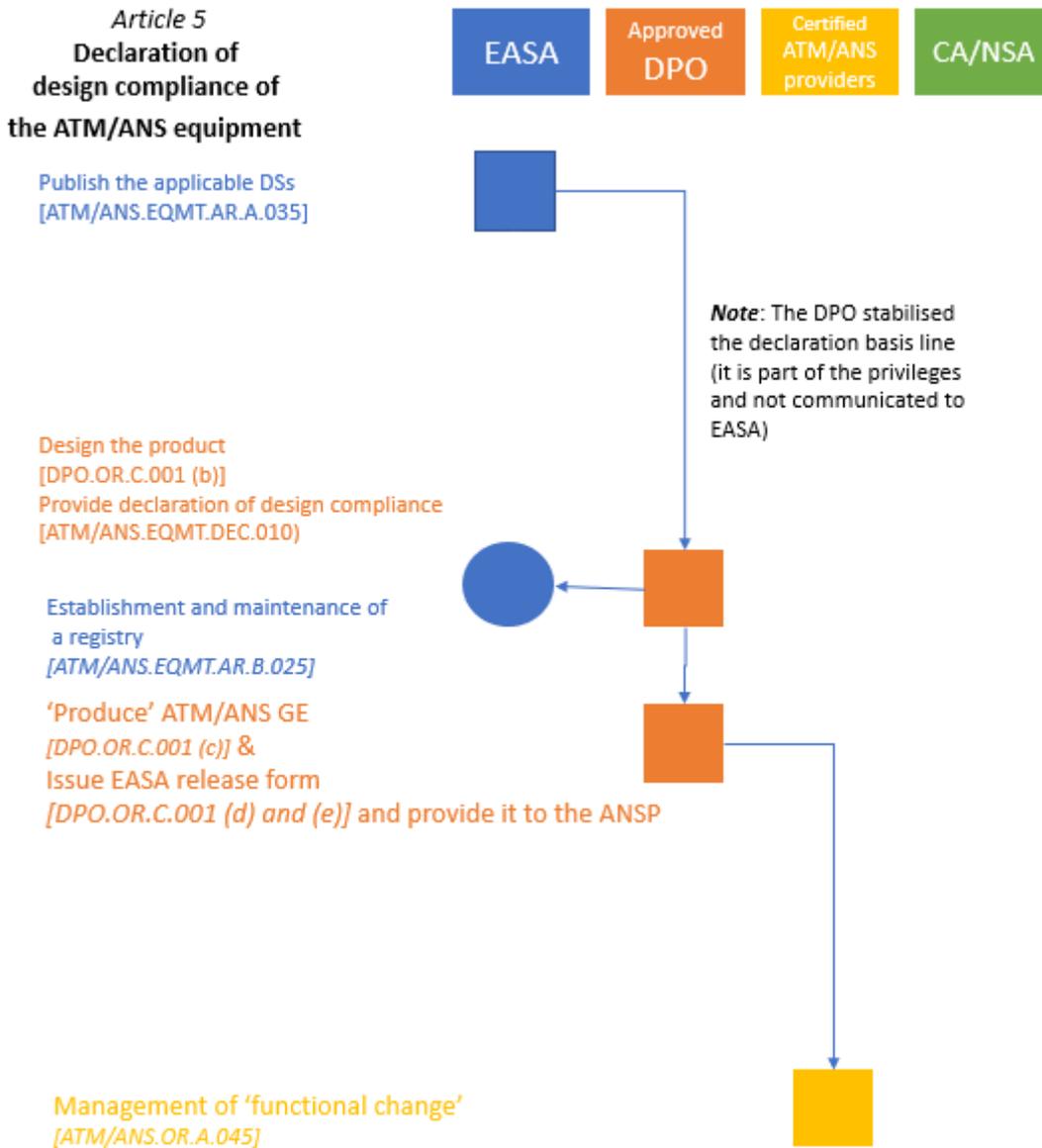


Figure 2

(c) To issue a SoC for ATM/ANS equipment, the ATM/ANS provider performs the necessary verification and test activities, as required. The competent authority oversees the SoC as part of the continuous oversight and, as necessary, applies enforcement measures to the ATM/ANS provider(s). Figure 3 shows the interactions between the regulated parties when the ATM/ANS equipment is subject to a SoC.

Article 6

Statement of compliance of ATM/ANS GE | Scenario 1

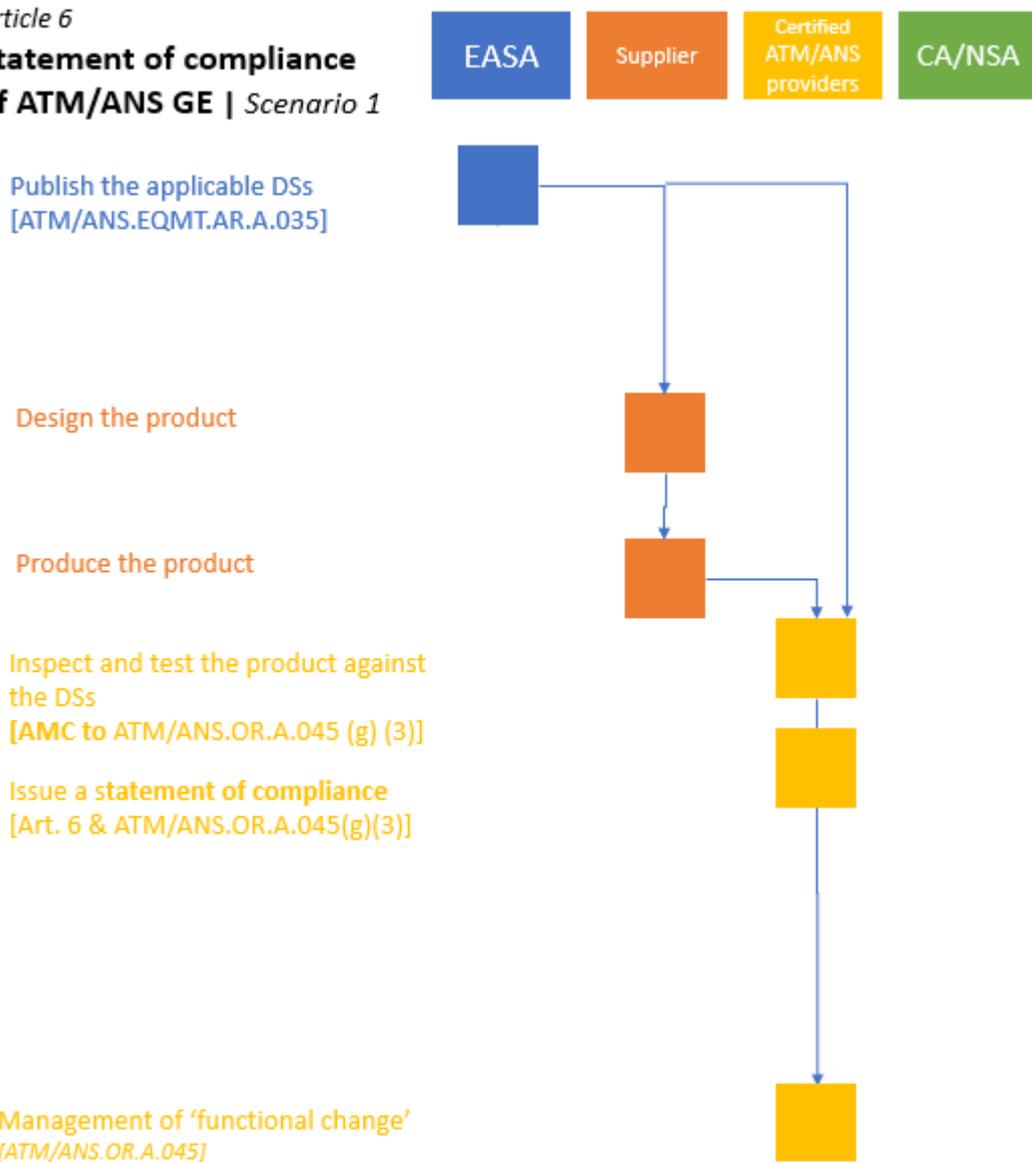


Figure 3

(d) A DPO can be privileged in accordance with the terms of the EASA approval to issue a SoC on behalf of an ATM/ANS provider. If during the continuous oversight of the ATM/ANS provider by the competent authority any non-compliances of the SoC are identified, that competent authority informs EASA whether any enforcement measures are required. Figure 4 shows the interactions between the regulated parties when the ATM/ANS equipment is subject to a SoC.

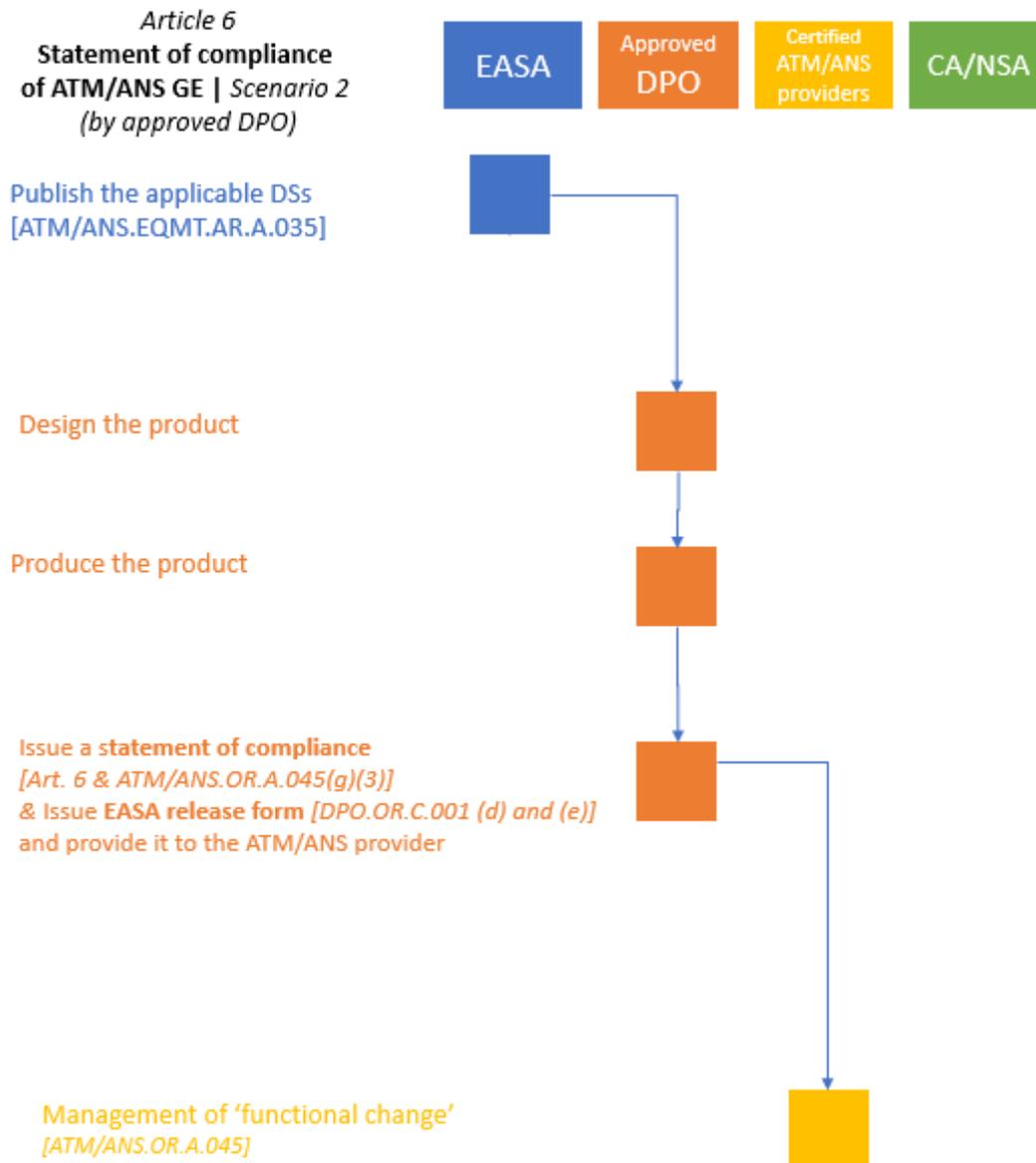


Figure 4

AMC1 Article 6 Statement of compliance

REISSUE

- (a) Having identified the need for a change to ATM/ANS equipment, the ATM/ANS provider or an approved DPO acting on its behalf should classify the change as minor unless one or more of the following apply, in which case the change is classified as major and reissue of the SoC is required:
- (1) The change introduces a new means of compliance with unselected requirements of the previously approved compliance demonstration basis;
 - (2) The change introduces a new limitation to or a new deviation from the previously approved certification basis;

(3) The change introduces a new selected means of compliance.

(b) Minor changes should be processed according to the approved change management procedure ensuring that the change does not adversely affect the compliance with the detailed specifications. For minor changes, the ATM/ANS provider should:

(1) record the change description and the justification for the change classification;

(2) update all related technical documents including the user manual;

(3) record continued compliance with the ATM/ANS equipment SoC.

(c) Major changes should be notified to the competent authority upon identification by the ATM/ANS provider. For major changes, the ATM/ANS provider should apply Article 6 of this Regulation and reissue a SoC.

(d) The table below presents an overview of the management of minor and major changes.

	Minor change	Major change
Notification by the ATM/ANS provider of a change to the competent authority prior to the implementation	No	Yes
Notification by the ATM/ANS provider of a change to the competent authority after completion	Yes, in accordance with the approved change management procedure(*)	Yes
Reissue SoC	N/A	ATM/ANS provider or an approved DPO

(*) The frequency of the notification will be defined in the change management procedure.

(e) The procedure may also include the process for the reaction by the ATM/ANS provider to an unplanned (major) change that may arise with the need for urgent action. This is the case in which the ATM/ANS provider responds immediately to a safety, security or interoperability problem or when an emergency situation arises in which the ATM/ANS provider has to take immediate action (e.g. security patches) to ensure the safety, security or interoperability of its equipment in operation.

GM1 Article 6 Statement of compliance

ISSUE | STANDARD FORM

SoC No [internal numbering]

Issue No [version of this SoC⁹]

1. Name and address of ATM/ANS provider

2. Description, identification and scope of the ATM/ANS equipment(*)

Note: It should include e.g. type, SW/HW version number and master drawing record, as applicable.

3. Specification reference, i.e. EASA detailed specification No.

4. Reference to the qualification test report.

5. Service and instruction manual reference number.

6. SoC with the applicable EASA detailed specification, as far as applicable for the intended use, and any deviations therefrom.

7. The declaration in this document is made under the authority of (Name of ATM/ANS provider or approved DPO).

(ATM/ANS provider's or approved DPO's name) cannot accept responsibility for equipment used outside the limiting conditions stated above without their agreement.

Date: Signed.....(ATM/ANS provider's or approved DPO's authorised representative)

Question

EASA requests the stakeholders' views as to whether the subject GM should be retained as a separate dedicated GM paragraph (as in the current proposal) or it should be integrated into AMC1 Article 6(1). EASA looks forward to stakeholders' feedback.

AMC1 Article 6(1) Statement of compliance

ISSUE

The SoC should contain the following information:

- a brief description, identification and scope of the ATM/ANS equipment;
- the Regulation reference requiring the issue of the SoC;
- the name and address of the certified, in accordance with Regulation (EU) 2017/373, ATM/ANS provider, where the ATM/ANS equipment will be deployed or on its behalf, the trade name and full address of the DPO approved in accordance with Regulation (EU) .../... [implementing act on DPO approval] issuing the SoC;

⁹ A 'new' version is introduced in case of major changes.



- the reference to the detailed specifications adopted by EASA in accordance with Article 76(3) of Regulation (EU) 2018/1139, as far as applicable for the intended use, and any deviations therefrom;
- the reference to the procedure followed in order to declare compliance with the applicable ATM/ANS equipment detailed specifications;
- remarks;
- limitations;
- conditions;
- date and version;
- identification of the signatory.

AMC2 Article 6(1) Statement of compliance

ACTIVITIES

The ATM/ANS provider should verify the functionalities of the purchased ATM/ANS equipment to ensure that it complies with the applicable detailed specifications in the context in which it is intended to operate within the functional system.

AMC3 Article 6(1) Statement of compliance

RECORD-KEEPING

In the context of ATM/ANS.OR.B.030 of Regulation (EU) 2017/373, a copy of the SoC should be kept by the ATM/ANS provider throughout the service life of the ATM/ANS equipment and should be provided to the competent authority concerned upon request.

AMC4 Article 6(1) Statement of compliance

ISSUE BY APPROVED ORGANISATIONS INVOLVED IN THE DESIGN AND/OR PRODUCTION OF ATM/ANS EQUIPMENT (DPOs)

- (a) When an ATM/ANS provider contracts a SoC to be issued by an approved DPO, the ATM/ANS provider should ensure that the SoC is provided with all documents that form the basis for the issuance of it.
- (b) The SoC issued by an approved DPO should be accompanied by an EASA release form by the same DPO.
- (c) During oversight activities on a SoC issued by an approved DPO, that DPO should support the ATM/ANS provider to the extent required.



GM1 Article 6(1) Statement of compliance

RESPONSIBILITY WHEN PURCHASING ATM/ANS EQUIPMENT SUBJECT TO SoC

- (a) A contract exists between the ATM/ANS provider and the manufacturer(s) clearly defining the ATM/ANS equipment to be purchased and the applicable detailed specifications.
- (b) The ATM/ANS provider could ensure via the contract that the ATM/ANS equipment purchased from the manufacturer(s) is:
 - (1) designed in accordance with the applicable EASA detailed specification;
 - (2) manufactured and verified and the ATM/ANS functions thereof were tested for the intended use.

GM2 Article 6(1) Statement of compliance

DOCUMENTS

The documents that form the basis for the issuance of the SoC by an approved DPO should encompass, but not limited to:

- (a) test results; and
- (b) descriptions of the test environment.

AMC1 Article 7(2) Transitional provisions

RELEVANT INFORMATION

For the purpose of the evaluation referred to in Article 7(2), the competent authorities responsible for the certification and oversight of the ATM/ANS providers referred to in Article 4(1) of Implementing Regulation (EU) 2017/373 should provide the following information to EASA upon request:

ATM/ANS provider's name: the name of the ATM/ANS provider(s) that has deployed the ATM/ANS equipment subject to Articles 4 and 5 of this Regulation and has issued the declaration of verification (DoV) in accordance with Article 6 of Regulation (EC) No 552/2004.

Company Name: the name of the responsible approved DPO that has issued the Declaration of Compliance (DoC) or the Declaration for Suitability for Use (DSU).

Date: the date on which the information was released.

Description: a brief description of the ATM/ANS equipment.

Reference: reference to the Community specifications, when available, and the references to the documents contained in the technical file.

Additional information: additional information, if any, that has been required and requested by the competent authority to oversee the DoV(s) confirming compliance.



Limitations/Remarks:

- all the relevant temporary or definitive provisions to be complied with by the ATM/ANS equipment and in particular, where appropriate, any operating restrictions or conditions;
- if temporary: duration of validity of DoV.

Authorised signature: identification of the signatory empowered to enter into commitments on behalf of the manufacturer or of the manufacturer's authorised representative, where available.

GM1 Article 7(2) Transitional provisions**SUBMISSION OF INFORMATION**

The relevant information may be provided in a form of the DoV for the ATM/ANS system(s), including its technical file, issued by the ATM/ANS provider under the oversight of the competent authority.

GM2 Article 7(2) Transitional provisions**RELEVANT INFORMATION**

For the purpose of the evaluation referred to in Article 7(2), the competent authorities responsible for the certification and oversight of the ATM/ANS providers referred to in Article 4(1) of Implementing Regulation (EU) 2017/373 may provide EASA with any certificate, approval, licence, authorisation, attestation, technical file or other document issued as a result of a process attesting compliance of the ATM/ANS equipment with the applicable essential requirements laid down in Regulation (EC) No 552/2004.

GM1 ATM/ANS.EQMT.AR.A.030 ATM/ANS equipment directives**ATM/ANS EQUIPMENT DIRECTIVE IN CASES WHERE THE ATM/ANS EQUIPMENT CERTIFICATE OR DECLARATION LOSES ITS VALIDITY AS A CONSEQUENCE OF THE DISCONTINUATION OF THE APPROVAL OF THE ORGANISATION INVOLVED IN THE DESIGN AND/OR PRODUCTION (DPO) OF THAT ATM/ANS EQUIPMENT**

Certificates of ATM/ANS equipment issued in accordance with Article 4 and Declarations of design compliance of ATM/ANS equipment issued in accordance with Article 5 would lose their validity because of the holder of the certificate/issuer of the declaration of design compliance being no longer compliant with Implementing Regulation (EU) .../... [implementing act on DPO approval].

In the above situation, EASA would:

- issue an ATM/ANS equipment directive, as an unsafe condition is likely to develop in the absence of an DPO with appropriate privileges taking responsibility for ensuring that the equipment continues complying with the applicable technical specifications.

This ATM/ANS equipment directive will be addressed by EASA to all known users of the ATM/ANS equipment and to all EU competent authorities.



Note: In case of the DPO still existing, e.g. during suspension/revocation process, EASA will require the DPO to make available to all known users of the ATM/ANS equipment and the competent authorities concerned, appropriate descriptive data and accomplishment instructions.

The ATM/ANS equipment directive will inform ATM/ANS providers and their competent authorities about the fact that the certificate or declaration of the equipment is/will be no longer valid, due to the discontinuation of the DPO approval.

The ATM/ANS equipment directive would indicate that from that moment on:

- the affected ATM/ANS equipment cannot be integrated into the functional system of ATM/ANS providers as the requirements in ATM/ANS.OR.A.045 (g) of Regulation (EU) 2017/373 will be no longer met;
- the continuous operation of the ATM/ANS equipment already integrated in the functional system of ATM/ANS providers will not necessarily be immediately impacted. However, the directive will require ATM/ANS providers to consider how the absence of the DPO impacts the suitability for use of the equipment, the defined conditions of use, and any prescribed limitations. In case of determined unsafe conditions, adequate mitigations will be necessary;
- in accordance with ATM/ANS.OR.A.045 (g)(1) and (g)(2) of Regulation (EU) 2017/373, ATM/ANS equipment already integrated in the functional system cannot be modified until a valid certificate or declaration is in place (this requires another DPO with appropriate privileges taking responsibility for the compliance of the equipment with the applicable technical specifications).

Urgent operational needs might require certain exceptions to the principles described above, allowing integration or modification of equipment without a valid certificate or declaration. In those cases, the exemptions are to be managed under the flexibility provisions in Article 71 of Regulation (EU) 2018/1139, i.e. Member States may grant exceptions subject to the relevant conditions being met. In particular, the Member State shall provide adequate justification for the following aspects:

- (1) it is not possible for another DPO to obtain a valid certificate or issue a declaration for the equipment;
 - (2) safety, environmental protection and compliance with the applicable essential requirements are ensured, where necessary through the application of mitigation measures;
 - (3) any possible distortion of market conditions as a consequence of the granting of the exemption will be mitigated as far as possible; and
 - (4) the exemption is limited in scope and duration to the extent strictly necessary and it is applied in a non-discriminatory manner.
- (b) take any other necessary further enforcement measures which are necessary to mitigate the consequences of the discontinuation of a DPO approval.



GM1 ATM/ANS.EQMT.AR.B.001(a)(1) ATM/ANS equipment certification basis

DETAILED SPECIFICATION

The ATM/ANS equipment certification basis consists of the detailed specifications that were effective on the date of application and were applicable for that certificate.

The validity period of an application for the issue of an ATM/ANS equipment certificate may be extended, as per point ATM/ANS.EQMT.CERT.015(e)(2), when either the validity period of an application for a type certificate is exceeded or it is evident that it will be exceeded, and the applicant requests an extension.

The certification basis is then revised accordingly.

ELECT TO COMPLY (see point ATM/ANS.EQMT.AR.B.001(a)(1)(i))

It is also possible for an applicant to elect to comply with a detailed specification that became applicable after the date of the submission of the application.

EASA should assess whether the proposed certification basis is appropriate to ensure that the 'elect to comply' proposal includes any other detailed specifications that are 'directly related' to one or several of the detailed specifications in it. Directly related detailed specifications are those that are deemed to contribute to the same safety objective by building on each other's requirements, addressing complementary aspects of the same safety concern, etc. Typically, they are adopted simultaneously with, or prior to, the detailed specifications with which the applicant has elected to comply.

EQUIVALENT LEVEL OF SAFETY (see point ATM/ANS.EQMT.AR.B.001(a)(1)(ii))

In cases in which the applicable detailed specifications cannot be complied with, either fully or in part, EASA may accept a suitable alternative which provides an equivalent level of safety through the use of appropriate compensating factors.

In cases in which the requirements contain not only objectives but also prescriptive parts, an equivalent level of safety may be accepted if:

- the objectives are met by designs or features other than those required in the CSs; or
- suitable compensating factors are proposed.

ALTERNATIVE MEANS OF COMPLIANCE (see point ATM/ANS.EQMT.AR.B.001(a)(1)(ii))

If the intent of the detailed specifications defined in point ATM/ANS.EQMT.AR.B.001(a) cannot be met, EASA may accept mitigating factors to not meeting the intent of the detailed specifications, provided that the safety objective is met.

Note: 'Alternative means of compliance' should not be confused with 'AMC'.



SPECIAL CONDITIONS (see point ATM/ANS.EQMT.AR.B.005)

EASA may also prescribe special conditions in accordance with point ATM/ANS.EQMT.AR.B.005.

AMC1 ATM/ANS.EQMT.AR.C.001(b) ATM/ANS equipment certification basis

Additional features, characteristics or functions not specified into the applicable detailed specifications should be addressed through demonstration and declaration that the non-specified functions in the detailed specification do not interfere with the specified in the applicable detailed specification functions, as per point (f) of ATM/ANS.EQMT.CERT.025, when demonstrating compliance with those applicable detailed specifications.

AMC1 ATM/ANS.EQMT.CERT.015(b)(2) Application for an ATM/ANS equipment certificate**GENERAL****1. Definitions**

Risk: the combination of the likelihood of a non-compliance with the certification basis and its associated level of criticality.

Likelihood: a prediction of how likely an occurrence of non-compliance with part of the certification basis is, based on a combination of the novelty and complexity of the proposed design and its related compliance demonstration activities, as well as on the performance of the approved DPO.

Criticality: a measure of the potential impact of a non-compliance with part of the certification basis on the product safety.

Compliance demonstration item (CDI): a meaningful group of compliance demonstration activities and data of the certification programme, which can be considered in isolation for the purpose of performing a certification risk assessment.

EASA discipline: an EASA discipline is a technical subarea (e.g. software assurance, security).

EASA's level of involvement (LoI): the compliance demonstration activities and data that EASA retains for verification during the certification process, as well as the depth of the verification.

2. Background

The applicant should submit a certification programme for their compliance demonstrations in accordance with point ATM/ANS.EQMT.CERT.015(b)(2). The applicant could break down the certification programme into one or more meaningful groups of compliance demonstration activities and data, hereinafter referred as 'CDIs', and provide their proposal for EASA's LoI.

EASA will review the proposal and determine its LoI. Both parties, in mutual trust, should ensure that the certification project is not delayed through the LoI proposal and determination.



Additionally, in accordance with point ATM/ANS.EQMT.CERT.015(c), the applicant has the obligation to update the certification programme, as necessary, during the certification process, and report to EASA any difficulty or event encountered during the compliance demonstration process which may require a change to the LoI that was previously notified to the applicant.

In such a case, or when EASA has other information that affects the assumptions on which the LoI was based, EASA will revisit its LoI determination.

In accordance with points ATM/ANS.EQMT.CERT.040, irrespective of the LoI, EASA has the right to review any data and information related to compliance demonstration.

3. Principles and generic criteria for the LoI determination

EASA determines its LoI based on the applicant's proposal in view of the risk (the combination of the likelihood of an unidentified non-compliance and its potential impact). This is performed after proper familiarisation with the certification project in three steps:

- Step 1: identification of the likelihood of an unidentified non-compliance,
- Step 2: identification of the risk class, and
- Step 3: determination of EASA's LoI.

3.1. LoI determination at CDI level

The determination of EASA's LoI is performed at the level of the CDI.

The applicant should demonstrate that all the affected elements of the certification basis, the corresponding means and methods of compliance, as well as the corresponding certification activities and data, are fully covered by the proposed CDIs. If the provided data does not clearly show that this is the case, the applicant should clearly state to EASA that all the above-mentioned elements are fully covered.

3.2. Method for determining the likelihood of an unidentified non-compliance

3.2.1. Principle

The likelihood of an unidentified non-compliance is assessed on the basis of the following criteria:

- novelty,
- complexity, and
- the performance of the approved DPO.

3.2.2. Novelty

For the purpose of risk class determination, the following simplification has been made: a CDI may be either novel or non-novel.

Whether or not a CDI is novel is based on the extent to which the respective elements of the certification project, as well as the related requirements or means of compliance, are new/novel to either the industry as a whole, or to the applicant, including their subcontractors, or from an EASA perspective.

The determination that a CDI is novel may be driven by the use of new technology, new operations, new kind(s) of installations, the use of new requirements or the use of new means of compliance.



When an applicant utilises a type of technology for the first time, or when that applicant is relatively unfamiliar with the technology, this technology is considered to be 'novel', even if other applicants may be already familiar with it. This also means that while a type of technology may no longer be novel for one applicant, it may still be novel for other applicants.

The following list includes some examples, as applicable:

- new materials or combinations of materials, if applicable;
- new manufacturing processes;
- a new or unusual equipment architecture;
- a new or unusual use;
- new kind(s) of operations;
- novel operating conditions or limitations;
- new technologies; or
- a new type of human-machine interface (HMI).

Another consideration is the extent to which the requirements, means of compliance or guidance have changed or need to be adapted due to particular novel features of the design.

The following list includes some examples:

- recently issued or amended detailed specifications with which the applicant has little or no experience;
- new or adapted special conditions;
- new or adapted equivalent safety findings;
- new or adapted deviations;
- new or adapted guidance or interpretative material;
- new or adapted means of compliance (i.e. other than those previously applied by the applicant) or unusual means of compliance (different from the existing guidance material and/or different from industry standard practices), e.g. the replacement of tests by simulation, numerical models or analytical methods;
- the use of new or adapted industry standards or in-house methods, as well as EASA's familiarity with these standards and methods;
- a change in methodology (compared with those previously applied by the applicant), including changes in software tools/programmes; or
- novelty in the interpretation of the results of the compliance demonstration, e.g. due to in-service occurrences (compliance demonstration results are interpreted differently from the past).

Additional new guidance/interpretative material in the form of new certification memoranda (CM)¹⁰ may be considered for the determination of novelty if its incorrect application/use may lead to an unidentified non-compliance. In the context of novelty, the time between the last similar project and the current project of the applicant should also be considered.

Regardless of the extent of an approved DPO's previous experience in similar projects, a CDI may be classified as novel if there are specific discontinuities in the process for transferring information and know-how within the DPO.

3.2.3. Complexity

For the purpose of risk class determination, the following simplification has been made: a CDI may be either complex or non-complex. For each CDI, the determination of whether it is complex or not may vary based on factors such as the design, technology, associated manufacturing process, compliance demonstration (including test set-ups or analysis), interpretation of the results of the compliance demonstration, interfaces with other technical disciplines/CDIs, and the requirements. The compliance demonstration may be considered to be 'complex' for a complex (or highly integrated) system, which typically requires more effort from the applicant.

The following list includes some examples:

- Compliance demonstration in which challenging assessments are required, e.g.:
 - for requirements of a subjective nature, i.e. they require a qualitative assessment, and do not have an explicit description of the means of compliance with that requirement, or the means of compliance are not a common and accepted practice; this is typically the case where the requirement uses terms such as 'subjective', 'qualitative', 'assessment' or 'suitable'/'unsuitable' — in contrast, engineering judgement for a very simple compliance demonstration should not be classified as 'complex';
 - a test for which extensive interpretation of the results may be anticipated;
 - an analysis that is sensitive to assumptions and could potentially result in a small margin of safety;
 - when the representativeness of a test specimen is questionable, e.g. due to its complexity;
- The introduction of a complex work-sharing scheme with system or equipment suppliers.

For major changes, the complexity of the change should be taken into account, rather than the complexity of the original system.

¹⁰ EASA Certification Memoranda clarify the Agency's general course of action on specific certification items. They are intended to provide guidance on a particular subject and, as non-binding material, may provide complementary information and guidance for compliance demonstration with current standards. Certification Memoranda are provided for information purposes only and must not be misconstrued as formally adopted Acceptable Means of Compliance (AMC) or as Guidance Material (GM). Certification Memoranda are not intended to introduce new requirements or to modify existing detailed specifications and do not constitute any legal obligation. EASA Certification Memoranda are living documents into which either additional criteria or additional issues can be incorporated as soon as a need is identified by EASA.

Whether or not a CDI is complex should be determined in a conservative manner if this cannot be determined at an early stage of the certification project. When greater clarity has been achieved, the complexity may be re-evaluated and the Lol adapted accordingly.

3.2.4. Performance of the DPO

The assessment of the level of performance of the DPO takes into account the applicant's experience with the applicable certification processes, including their performance on previous projects and their degree of familiarity with the applicable certification requirements.

For approved DPOs, EASA uses relevant data to consider the DPO's expected performance at an organisational, panel or discipline level, depending on the availability of data.

This data stems from DPO audits, the applicant's measured level of performance on previous projects, and their performance during the familiarisation phase. EASA shares this data with the respective DPOs (in the form of the DPO approval (DPOA) dashboard).

If, for a well-established DPO, there is no shared performance data available, it may be acceptable to propose the overall DPOA holder's performance. If the DPO or its scope are fundamentally new, the 'unknown' level of performance should be conservatively proposed by the applicant.

The determination of the performance of the DPO may also take into consideration information that is more specific or more recent than the information on the DPOA holder's dashboard, e.g. experience gained during technical familiarisation with the current certification project, the performance of compliance verification engineers and of the affected technical areas, as well as the performance of the DPO in overseeing subcontractors and suppliers.

The following list includes some examples:

- a CDI with which EASA is fully familiar and satisfied (from previous similar projects) regarding the demonstration of compliance proposed by the applicant;
- if the applicant fully delegates the demonstration of compliance to a supplier that holds a DPO approval, the performance level of the supplier may be proposed.

3.2.5. Likelihood of an unidentified non-compliance

Assessing the likelihood of an unidentified non-compliance is the first step that is necessary to determine the risk class.

The likelihood of an unidentified non-compliance should not be confused with the likelihood of occurrence of an unsafe condition. In fact, that AMC provides EASA's confidence level that the DPO addresses all the details of the certification basis for the CDI concerned, and that a non-compliance will not occur.

The likelihood of an unidentified non-compliance is established as being in one of four categories (very low, low, medium, high), depending on the level of performance of the DPO as assessed by EASA, and on whether the CDI is novel or complex, as follows:



Step 1 — Likelihood of an unidentified non-compliance

CDI	No novel aspects, no complex aspects	No novel aspects, but complex ones;	Novel and complex aspects
Performance level of the DPO approval holder		Novel aspects, but no complex ones	
High	Very low	Low	Medium
Medium	Low	Medium	High
Low or unknown	Medium	High	High

3.3. Criticality

The second step that is necessary to determine the risk class is the assessment of the potential impact of a non-compliance on part of the certification basis regarding the fitness of the ATM/ANS equipment. For the purpose of risk class determination, the following simplification has been made: the impact of a non-compliance can be either critical or non-critical.

The potential impact of a non-compliance within a CDI should be classified as critical if, for example:

- a function or system is introduced or affected where the failure of that function or system may contribute to a failure condition that is classified as per GM3 GE.GEN.007 of the Detailed Specifications and Acceptable Means of Compliance and Guidance Material for ATM/ANS ground equipment (DS-GE);
- limitations or operating limitations are established or potentially affected; or
- a CDI is affected by an existing ATM/ANS equipment directive or affected by an occurrence (or occurrences) potentially subject to a directive, a known in-service issue or by a safety information bulletin (SIB).

During the early stages of a project, the criticality in terms of the potential safety consequence of a failure may not always be known but should be conservatively estimated and the LoI should be subsequently re-evaluated, if appropriate.

3.4. Method for the determination of risk classes

The risk is determined as a combination of the potential impact of an unidentified non-compliance with part of the certification basis (vertical axis) and of the likelihood of the unidentified non-compliance (horizontal axis) using the following matrix.

As a consequence, four qualitative risk classes are established at the CDI level.



Step 2 — Risk classes				
Likelihood (see Section 3.2.5)	Very low	Low	Medium	High
Criticality (see Section 3.3)	Class 1		Class 2	Class 3
Non-critical	Class 1	Class 1	Class 2	Class 3
Critical	Class 1	Class 2	Class 3	Class 4

The various inputs and the resulting risk class determination are of a continuous nature, rather than consisting of discrete steps. The selected risk class provides the order of magnitude of EASA's involvement and is used as a qualitative indicator for the determination of EASA's LoI described in Section 3.5 below.

Under specific circumstances, the risk class that is determined on the basis of the above criteria may be reduced or increased on the basis of justified and recorded arguments. For a reused and well-proven item of compliance demonstration for which:

- the CDI is independent of the affected product type or model; and
- the design, operation, qualification, and installation of the product are basically the same; and
- the certification process is identical to one that was used in a modification already approved by EASA,

the CDI may be accepted as being similar, resulting in reduced LoI, as the likelihood of an unidentified non-compliance is low. Furthermore, when an identical CDI is reused for the compliance demonstration in a new project, there is no involvement in the compliance demonstration verification, as the likelihood of an unidentified non-compliance is very low.

3.5. Determination of EASA's LoI

EASA's LoI in the verification of compliance demonstration is proposed by the applicant and determined by EASA in Step 3 on the basis of the qualitative risk class identified per CDI in Step 2, as well as by applying sound engineering judgement.

EASA's LoI is reflected in a list of activities and data, in which EASA retains the verification of compliance demonstration (e.g. review and acceptance of compliance data, witnessing of tests, etc.), as well as the depth of the verification. The depth of the verification for individual compliance reports, data, test witnessing, etc. may range from spot checks to extensive reviews. EASA always responds to those retained compliance demonstration activities and data with corresponding comments or a 'statement of no objection'.

In addition, some data that is not retained for verification may be requested for information. In this case, no 'statement of no objection' will be provided.

Depending on the risk classes determined in Section 3.4 above, EASA's LoI in:

- (a) compliance demonstration verification data; and
- (b) compliance demonstration activities (witnessing of tests, audits, etc.), may be as follows:

- risk Class 1: there is no EASA involvement in verifying the compliance data/activities performed by the applicant to demonstrate compliance at the CDI level;
- risk Class 2: EASA's Lol is typically limited to the review of a small portion of the compliance data; there is either no participation in the compliance activities, or EASA participates in a small number of compliance activities (witnessing of tests, audits, etc.);
- risk Class 3: in addition to the Lol defined for Class 2, EASA's Lol typically comprises the review of a large amount of compliance data, as well as the participation in some compliance activities (witnessing of tests, audits, etc.); and
- risk Class 4: in addition to the Lol defined for Class 3, EASA's Lol typically comprises the review of a large amount of compliance data, the detailed interpretation of test results, and the participation in a large number of compliance activities (witnessing of tests, audits, etc.).

If the risk assessment (Steps 1 and 2 above) is made on the level of a compliance demonstration activity or on the level of a document, the risk class provides an indication for the depth of the involvement, i.e. the verification may take place only for certain compliance data within a compliance document.

4. Documentation of the Lol

The Lol proposal in the certification programme should include the applicant's proposal regarding the compliance demonstration verification activities and data that would be retained by EASA, as well as the data on which the Lol proposal has been based. For this purpose, the applicant should appropriately document the analysis per CDI, considering the above criteria. In cases where the rationale for the assessment is obvious, it is considered to be sufficient for the applicant to indicate whether or not a CDI is novel or complex, and whether or not the impact is critical.

EASA documents the Lol determination by accepting the certification programme or, if it deviates from the proposal, by recording its analysis regarding the deviations from the proposal, and notifies the applicant accordingly.

5. Sampling during surveillance of the DPOA holder

It should be noted that all the previously defined risk classes may be complemented by the sampling of project files during surveillance of the DPOA holder, independently from the ongoing certification project. This is necessary in order to maintain confidence in the DPOA system and to constantly monitor its performance.

AMC2 ATM/ANS.EQMT.CERT.015(b)(2) Application for an ATM/ANS equipment certificate

CERTIFICATION PROGRAMME

The certification programme is a document that allows the applicant and EASA to manage and control the evolving design, as well as the process of compliance demonstration by the applicant and its verification by EASA when required.



The certification programme may be based on modules/sections that may be updated independently.

The level of detail in the certification programme depends on the complexity of the ATM/ANS equipment and its intended use.

GM1 ATM/ANS.EQMT.CERT.015(b)(2) Application for an ATM/ANS equipment certificate

CERTIFICATION PROGRAMME

The following information could be typically provided/presented:

General

- Identification of the relevant personnel who make decisions affecting safety, security and interoperability, and who will interface with EASA, unless otherwise identified to EASA (e.g. within the DPO procedures).
- A project schedule including major milestones.
- Subcontracting arrangements for design and/or production.

An overview of the:

- Type of system, architecture, functions, systems;
- Performance.
- dimensions, if applicable;
- materials, if applicable, and technologies;
- Operational limitations; and
- other items, if considered to be more appropriate, that address the specific ATM/ANS equipment.

ATM/ANS.EQMT.CERT.015(b)(2)(iv) 'a proposal for the initial certification basis' should include applicable certification specifications, proposed special conditions, proposed equivalent safety findings, as well as a proposed 'elect to comply' and proposed deviations, as applicable.

The information provided should be sufficient for EASA to determine its (initial) Lol. This should include the following, as far as this information is available at the time of submission to EASA:

- a compliance checklist addressing each specification requirement, the proposed means of compliance, and the related compliance document(s) as specified in Appendix 1 to GM1 ATM/ANS.EQMT.CERT.015(b)(2);
- identification of industry standards, methodology documents, handbooks, technical procedures, technical documents and specifications specified in the certificate data sheet, certification memoranda, policy statements, guidance material, etc., that should be followed in the demonstration of compliance;



- when the compliance demonstration involves testing, a description of the test article(s), test method(s), test location(s), test schedule, test house(s), test conditions, as well as of the intent/objective(s) of the testing; and
- when the compliance demonstration involves analyses/calculations, a description/identification of the tools (e.g. name and version/release of the software programmes) and methods used, the associated assumptions, limitations and/or conditions, as well as of the intended use and purpose; furthermore, the validation and verification of such tools and methods should be addressed.

For every aspect mentioned above, the applicant should clearly identify whether the demonstration of compliance involves any method (analysis or test) which is novel or unusual for the applicant.

ATM/ANS.EQMT.CERT.015(b)(2)(v) 'a proposal for a breakdown of the certification programme into subjective groups of compliance-demonstration activities and data, including a proposal for the means of compliance and related compliance-demonstration documents;'

A compliance demonstration item (CDI) should be used as a meaningful group of compliance demonstration activities and data identified in the certification programme which can be considered in isolation for the purpose of performing the risk assessment that allows EASA to determine its level of involvement (LoI) using a risk-based approach.

The applicant should provide sufficient detailed information about the novelty, complexity, and criticality aspects of the proposed CDI.

Appendix 1 to GM1 ATM/ANS.EQMT.CERT.015(b)(2) Application for an ATM/ANS equipment certificate

Type of compliance	Means of compliance	Associated compliance documents
Engineering evaluation	MCO:	
	(a) compliance statement	(a) Design data
	(b) reference to design data	(b) Recorded statements
	(c) election of methods, factors, etc.	
	(d) definitions	
	MC1: design review	(c) Descriptions (d) Drawings
	MC2: calculation/analysis	(e) Substantiation reports
	MC3: safety assessment	(f) Safety analysis
Tests	MC4: laboratory tests	
	MC5: tests on related ATM/ANS equipment	(g) Test programmes (h) Test reports
	MC6: simulation	(i) Test interpretations
Inspection	MC7: design inspection/audit	(j) Inspection or audit reports
	MC8: ATM/ANS equipment qualification	Note: Equipment qualification is a process that may include all

previous means of compliance at
equipment level.



4.2. Draft acceptable means of compliance and guidance material (draft EASA decision) associated with the technical requirements and administrative procedures for the organisations involved in the design and/or production of air traffic management/air navigation services systems and air traffic management/air navigation services constituents

The text of the amendment is arranged to show deleted, new, and unchanged text as follows:

- deleted text is ~~struck through~~;
- new text is highlighted in blue;
- an ellipsis '[...]' indicates that the rest of the text is unchanged.

AMC1 DPO.OR.A.010(a) Application for a design and/or production organisation approval and demonstration of capability

FORM

The dedicated EASA Form should be obtained from the EASA website and completed and signed by the accountable manager of the design and/or production organisation (DPO). The completed form should be submitted to EASA, accompanied by a copy of the organisation exposition and the company's registration.

AMC1 DPO.OR.A.045(a)(1) Failures, malfunctions and defects

COLLECTION, INVESTIGATION AND ANALYSIS OF EVENTS

In the context of the following AMC and GM, the word 'event' refers to any failure, malfunction, defect, error, near miss, hazard identification, incident, accident or other occurrence that will be subject to the system.

The 'collection', 'investigation' and 'analysis' functions of the system should include means to:

- analyse events, and related available information;
- identify adverse trends;
- investigate associated root cause(s); and
- establish any necessary corrective action(s).

GM1 DPO.OR.A.045(a)(1) Failures, malfunctions and defects

GENERAL — COLLECTION SYSTEM

The word 'collection' refers to the setting up of systems and procedures which will enable relevant failures, malfunctions and defects or other occurrences to be properly collected when they occur.



As the collection system needs to accept reports that originate outside the organisation (from ATM/ANS providers, suppliers, etc.), it is necessary to inform possible reporters of the existence of the system and the appropriate means to make reports into it. This does not presume that direct access to the system is to be granted if other mechanisms are more appropriate.

The collection system should also ensure the collection, through an internal reporting scheme, of internal errors, near misses and hazards that are perceived by the reporter as an actual or potential aviation safety risk.

Considerations for the collection of information related to events should include the following:

- grouping of events;
- analysis of failure rates;
- the early rejection of parts from service; and
- comparison with the certification assumptions.

AMC1 DPO.OR.A.045(b);(c) Failures, malfunctions and defects

GENERAL

The system established for the collection, investigation and analysis of events should include the reporting to EASA of any failure, malfunction and defect introducing a new limitation to or a new deviation from the approved certification basis.

GM1 DPO.OR.A.045(b);(c) Failures, malfunctions and defects

GENERAL

The reporting process could include:

- a description of applicable requirements for the reporting;
- a description of the reporting mechanism, including forms, means and deadlines;
- the personnel responsible for reporting.

GM1 DPO.OR.A.045(b);(c);(d) Failures, malfunctions and defects

REPORTING TO EASA — GENERAL

The reference to 'is aware' of an occurrence implies that the organisation identifies the event as one that falls into the category of occurrences to be reported. The 72-hour period starts when the possible unsafe condition is identified by the DPO.



AMC1 DPO.OR.A.045(e) Failures, malfunctions and defects

FOLLOW-UP AND CLOSURE OF REPORTED OCCURRENCES

(a) The organisation should transmit the following information to EASA within 30 days from the date of notification of the occurrence to EASA:

- (1) the latest position of the organisation responsible for design as to whether an unsafe condition is confirmed;
- (2) the results of the analysis and of the first investigation — including the cause(s) of the occurrence and missing information, if known; and
- (3) the measures it has taken, intends to take or proposes to take, including:
 - (i) containment measures that have already been defined by the reporting organisation and put in place (if any); and
 - (ii) in the case of reports made by the organisation responsible for design, for unsafe conditions, an assessment supporting that the product can be operated safely until the corrective action is defined and implemented, or that immediate mitigation measures need to be implemented until a more refined assessment can be provided.

The final (close-out) report should include:

- the final position of the organisation involved in the design as to whether a (possible) unsafe condition exists;
- the results of the occurrence/incident analysis and of the final investigation — including the cause(s) of the occurrence and missing information;
- any corrective and preventive action by the reporting organisation; and
- in the case of reports made by the organisation responsible for the design, an assessment supporting that these corrective and preventive measures allow the product to be operated as intended.

(b) Notwithstanding point (a), when the organisation identifies that no unsafe condition exists as a result of their analysis of a voluntarily reported occurrence, it can delay further communication to EASA up to the issuance of the final report and report the occurrence as closed upon issue (data exchange). In such cases, no follow-up report should be submitted. The final report to EASA should include confirmation and justification that no unsafe condition exists. The organisation is requested to provide information on the cause(s) of the occurrence and on the corrective or preventive action that was taken by the organisation.

This way of reporting should not be understood as an accepted deviation from the applicable requirements. If, at any stage during the investigation, the organisation identifies that a possible unsafe condition exists, it should be communicated to EASA via a mandatory report within 72 hours.



AMC1 DPO.OR.B.001 Management system

GENERAL

An ISO 9001 certificate, relevant to the scope of approval being requested, issued by an appropriately accredited organisation, addressing all the management elements required should be considered a sufficient means of compliance for the organisation involved in the design and/or production of ATM/ANS equipment. In this case, the organisation involved in the design and/or production of ATM/ANS equipment should accept the disclosure of the documentation related to the approval to EASA upon the latter's request.

GM1 DPO.OR.B.001 Management system

GENERAL

ISO 9001 certificates cover the quality management elements of the management system. Other elements required by this Regulation in reference to the management system that are not covered by the ISO 9001 certificate issued by an appropriately accredited organisation should be subject to oversight by the competent authority.

GM1 DPO.OR.B.001(a) Management system

GENERAL

The term 'management system' of DPO in the context of this Regulation refers to those elements of ATM/ANS equipment development and certification and/or declaration that ensure the control and supervision of the initial design, of changes to the design, and its continued fitness and adequacy with respect to the applicable ATM/ANS equipment certification basis requirements. Therefore, elements to be considered as part of the DPO management system are:

- (a) the generation, iteration, EASA acceptance and maintenance of the certification programme, if applicable;
- (b) the demonstration of compliance and its verification within the design and/or production organisation;
- (c) the declaration of design compliance provided by the design and/or production organisation to EASA;
- (d) the independent checking function of the demonstration of compliance;
- (e) the independent management system monitoring of the compliance with the applicable requirements and the adequacy of the documented procedures of this system.



GM2 DPO.OR.B.001(a) Management system

GENERAL

The management system should include:

- (a) an organisational structure to:
 - (1) control the design;
 - (2) demonstrate compliance with the applicable detailed specifications;
 - (3) independently check demonstrations of compliance;
 - (4) liaise with EASA;
 - (5) continuously evaluate the organisation;
 - (6) control contracted activities;
- (b) procedures and responsibilities associated with the functions listed above, taking due account of the requirements applicable to design and approval of changes to ATM/ANS equipment design.

AMC1 DPO.OR.B.001(c) Management system

COMPLIANCE MONITORING

- (a) Compliance monitoring that the implemented management system is adequate, and that it is complied with, is done by systematic means. The systematic means of compliance monitoring may include structured experience exchanges, regular design meetings, brainstorming or lessons-learned sessions, project reviews at appropriate phases of the development, or by other similar means.
- (b) Audits should be one element of compliance monitoring. When implemented, audits should be conducted as combined process/product (project) audits that focus on the implemented key processes or methods practised. In addition, audits should also allow the design and/or production organisation to find ways to become more efficient by continuous improvement.

AMC1 DPO.OR.B.005(b) Change management

GENERAL

- (a) Having identified the need for a change to ATM/ANS equipment, the approved design and/or production organisation should classify the change as minor unless one or more of the following apply, in which case the change is classified as major:
 - (1) The change introduces a new compliance with unselected requirements of the previously approved certification basis;
 - (2) The change introduces a new limitation to or a new deviation from the previously approved certification basis;



- (3) The change introduces a new selected means of compliance by the DPO, not previously investigated by EASA.
- (b) Minor changes should be processed according to the privileges of the approved design organisation ensuring that the change does not adversely affect the compliance with the detailed specifications. For minor changes, the approved design organisation should:
 - (1) record the change description and the justification for the change classification;
 - (2) update all related technical documents including the user manual;
 - (3) record continued compliance with the ATM/ANS equipment certificate or ATM/ANS equipment declaration.
- (c) Major changes should be notified to EASA upon identification by the approved design organisation. For major changes, the approved design organisation should follow:
 - (1) ATM/ANS.EQMT.CERT.020 for ATM/ANS equipment subject to Article 4 of [Regulation 2023/xxx]
 - (2) ATM/ANS.EQMT.DEC.020 (b) for ATM/ANS equipment subject to Article 5 of [Regulation 2023/xxx].
- (d) The table below presents an overview of the management of minor and major changes.

	Minor change to 'certified' functionality or any change to client functionality	Major change to 'certified' functionality
Notification of a change to EASA prior to implementation	No	Yes
Authorisation to proceed	No — DPO privilege	Yes
Notification of a change to EASA after completion	Yes, in accordance with the approved change management procedure(*)	Yes
Reissue Certificate/Declaration	N/A	EASA

(*) The frequency of the notification will be defined in the change management procedure.

GM1 DPO.OR.B.005(b) Change management

GENERAL

Major changes to certified ATM/ANS equipment are always communicated to EASA prior to their implementation, indicating:

- (a) Description of the change;
- (b) Impact on the demonstration of compliance with the EASA detailed specifications and certification basis, in particular:
 - (1) Identification of compliance demonstration with a new detailed specification, not subject to the initial certificate or declaration;



- (2) Identification of new limitation;
 - (3) Identification of new deviation;
 - (4) Identification of changes in the means of compliance with the applicable detailed specification; and
- (c) the proposed EASA level of involvement.

AMC2 DPO.OR.B.005(b) Change management

CHANGES

The procedure may also include the process for the reaction by the DPO to an unplanned (major) change that may arise with the need for urgent action that would normally require prior approval by the Agency.

GM1 DPO.OR.B.005(b) Change Management

CHANGES

The cases in which the DPO reacts to an unplanned (major) change usually are when the DPO responds immediately to a safety, security or interoperability problem or when an emergency situation arises in which the DPO has to take immediate action (e.g. security patches) to ensure the safety, security or interoperability of its equipment in operation.

AMC1 DPO.OR.B.015 Contracted activities

GENERAL

- (a) The organisation is responsible for ensuring that the design of the ATM/ANS equipment complies with the applicable certification basis requirements. This includes the determination that components designed by, or tasks performed by, external parties are acceptable. To discharge this responsibility, the DPO has to implement documented methods that ensure the compliance of the final ATM/ANS equipment, and that make use of these components or task results, prior to making the final EASA release form.
- (b) As the responsibility for verification of compliance remains with the applicant, no specific qualification measures are required other than to pragmatically verify the capabilities of the external party, and to ensure that the required level of detail is met to enable the work results to be adequately verified.
- (c) If a DPO subcontracts the compliance monitoring function to an external party that conducts the task, but does not hold its own DPO approval, then the same requirements for the qualification, nomination and documentation of qualification and nomination apply to the person who is nominated and indicated in the DPO handbook of the contracting DPO.
- (d) Alternatively, if an organisation with a DPO approval obtains design substantiation data from a subcontractor that also holds a DPO approval, and the work that is conducted is within the



approved scope of this subcontractor DPO, the subcontractor's design data becomes acceptable when the contracting DPO has verified that the results adequately meet the needs of the ATM/ANS equipment under development. Additional formal compliance verification by the contracting DPO is not required if the compliance verification engineer of the contracted DPO signs and approves the document under its DPO approval.

AMC2 DPO.OR.B.015 Contracted activities

RESPONSIBILITY WHEN CONTRACTING ACTIVITIES

- (a) A contract should exist between the DPO and the contracted organisation clearly defining the contracted activities and the applicable requirements.
- (b) The contracted activities, performed by an organisation that is not itself approved in accordance with this Regulation to carry out such activity, should be included in the DPO's oversight process.
- (c) A DPO should ensure that the contracted organisation has the necessary authorisation, declaration or approval when required, and commands the resources and competence to undertake the task.

GM1 DPO.OR.B.015 Contracted activities

RESPONSIBILITY WHEN CONTRACTING ACTIVITIES

Regardless of the approval status of the contracted organisation, the DPO is responsible for ensuring that all contracted activities are subject to compliance monitoring.

AMC1 DPO.OR.C.001(b) Organisations involved in the design and/or production of ATM/ANS equipment

DESIGN ACTIVITIES

- (a) Design should be considered as specifying, implementing and verifying the ATM/ANS equipment.
- (b) Design activities should also specify the requirements for the 'third-party' components, if applicable.

AMC1 DPO.OR.C.001(c) Organisations involved in the design and/or production of ATM/ANS equipment

PRODUCTION ACTIVITIES

Production activities should be considered as:



- (a) Manufacturing / Acquisition
- (b) Conformance to design data
- (c) Release process
- (d) Delivery to customers

GM1 DPO.OR.C.001(c) Organisations involved in the design and/or production of ATM/ANS equipment

PRODUCTION ACTIVITIES

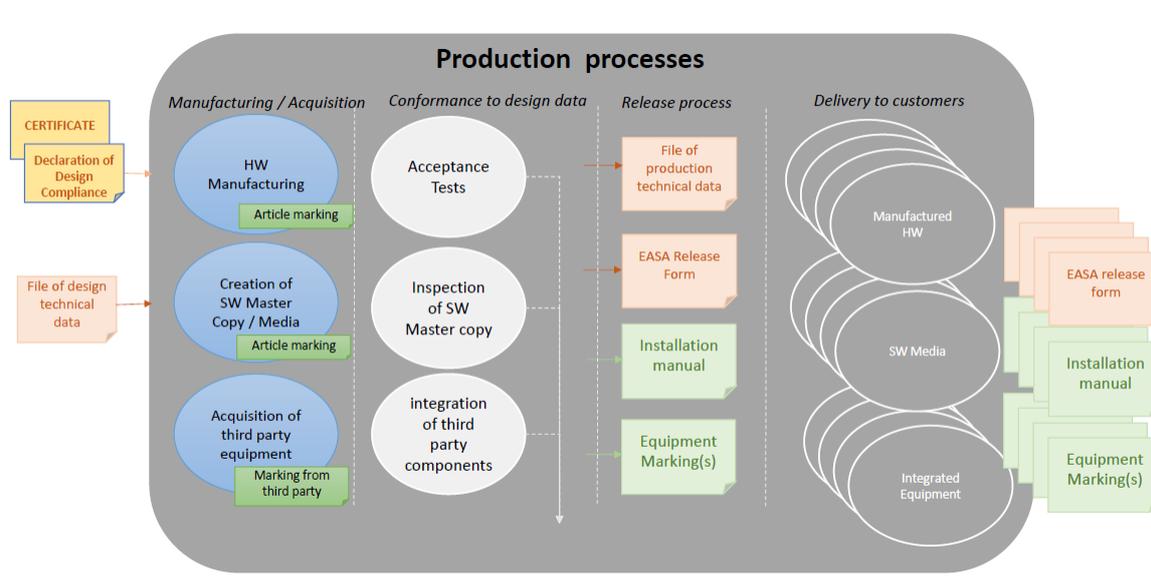


Figure 1 — Production activities

AMC1 DPO.OR.C.001(e) Organisations involved in the design and/or production of ATM/ANS equipment

EASA RELEASE FORM

- (a) An EASA release form should be issued for ATM/ANS equipment produced by the DPO as per the organisation's scope of work relevant to the terms of approval.
- (b) Each organisation involved in the production of ATM/ANS equipment subject to conformity assessment under this Regulation should issue a statement of conformity, an EASA release form XX (see Appendix XX). This statement should be signed by an authorised person involved in the production of the ATM/ANS equipment.
- (c) An EASA release form should contain a statement that:
 - (1) the ATM/ANS equipment conforms to the approved design data of the ATM/ANS equipment subject to certification or declaration in accordance with Article 4 or Article 5 of Regulation (EU) 2023/XXX respectively;

- (2) the ATM/ANS equipment has been manufactured in compliance with Regulation (EU) 2023/xxx [DPO approval].

GM1 DPO.OR.C.001(e) Organisations involved in the design and/or production of ATM/ANS equipment

EASA RELEASE FORM

The term ‘produced’ should be considered as ‘released’ for ATM/ANS software equipment.

AMC2 DPO.OR.C.001(e) Organisations involved in the design and/or production of ATM/ANS equipment

EASA RELEASE FORM | STANDARD FORM

ATM/ANS EQUIPMENT RELEASE FORM		
EASA FORM XXX		
1. DPO reference	2. Statement Ref No:	
3. ATM/ANS equipment Identification No		
4. ATM/ANS EQUIPMENT NAME	5. Certificate/Declaration Refs:	
6. Design changes, if any		
7. ATM/ANS equipment directives		
8. (unintended) Deviations		
9. Exemptions, waivers or derogations		
10. Remarks		
11. Statement of Conformity It is hereby certified that this ATM/ANS equipment conforms fully to the certificated design/the declaration of design compliance and to the items above in boxes 7, 8, 9 and 10. The ATM/ANS equipment is manufactured in compliance with Regulation (EU) 2023/xxx [DPO approval].		
12. Signed	13. Name	14. Date (d/m/y)
15. DPO Approval Reference		

Block 1: The full name and the address of the location of the DPO that issues the statement. This block may be preprinted. Logos, etc. are permitted if the logo, etc. can be contained within the block.

Block 2: A unique statement reference number must be indicated.

Block 3: The identification number(s) or reference to a configuration document assigned by the organisation involved in the production for control and traceability and product support purposes.

Block 4: The ATM/ANS equipment in full as specified in the certificate or declaration of design compliance.

Block 5: The certificate or declaration of design compliance reference numbers and issue for the subject ATM/ANS equipment.

Block 6: Design changes to the ATM/ANS equipment.



Block 7: A list of all the applicable ATM/ANS equipment directives (or equivalent).

Block 8: Unintentional deviations from the approved design, sometimes referred to as 'concessions', 'divergences' or 'non-conformances'.

Block 9: Only agreed⁽¹¹⁾ exemptions, waivers or derogations may be included here.

Block 10: Any statement, information, particular data or limitation which may affect the compliance of the ATM/ANS equipment. If there is no such information or data, state 'NONE'.

Block 11: The validity of the EASA release form is subject to the full completion of all the blocks on the form.

Block 12: The EASA release form is signed by an authorised person.

Block 13: The name of the person that signs the statement.

Block 14: The date on which the EASA release form is signed should be given.

Block 15: The EASA DPO approval reference should be quoted.

¹¹ 'agreed' refers to agreement between the approved DPO and EASA.



4.3. Draft acceptable means of compliance and guidance material (draft EASA decision) to Commission Implementing Regulation (EU) 2023/xxx

AMC & GM to Part-COM

AMC1 AUR.COM.2010 Requirements on aircraft equipment

DATA LINK EQUIPMENT

With regard to the requirements for data link equipment, aircraft operators that are subject to Commission Regulation (EU) No 965/2012 should ensure that their aircraft comply with the EASA Certification Specifications for Airborne Communications, Navigation and Surveillance (CS-ACNS), SUBPART B — COMMUNICATIONS (COM) — SECTION 2 – DATA LINK SERVICES (DLS).

Third-country operator (TCO) aircraft that operate within the single European sky (SES) airspace should comply with national requirements equivalent to the requirements of CS-ACNS, Subpart B, Section 2.

AMC2 AUR.COM.2010 Requirements on aircraft equipment

All qualifying aircraft accessing the SES airspace should provide information on the equipment and the operational status of data link capability to ATS units.

As required by point SERA.4001 of the Annex to Commission Implementing Regulation (EU) No 923/2012, information relative to an intended flight should be provided to ATS units in the form of a flight plan. The information required is specified in SERA.4005 and SERA.4010 of the Annex to Commission Implementing Regulation (EU) No 923/2012. For data link capability, the letter code 'J1' should be used to reflect CPDLC ATN VDL Mode 2 capability in item 10 'Equipment and capabilities'; furthermore, the letter 'Z' should be used in item 18 preceded by 'DAT'.

Aircraft to which Commission Implementing Regulation (EU) 2023/xxx [COMMISSION IMPLEMENTING REGULATION (EU) .../... of XXX laying down common requirements on aircraft equipment for the use of the single European sky airspace and repealing Regulation (EC) No 29/2009, Regulation (EU) No 1206/2011, Regulation (EU) No 1207/2011 and Regulation (EU) No 1079/2012] does not apply or are equipped with data link capability that is temporarily inoperative, should insert the designators 'DAT/CPDLCX' in Item 18 of the flight plan.

Note: Operators which voluntarily equip their aircraft in compliance with Commission Implementing Regulation (EU) xxx/2023 [COMMISSION IMPLEMENTING REGULATION (EU) .../... of XXX laying down common requirements on aircraft equipment for the use of the single European sky airspace and repealing Regulation (EC) No 29/2009, Regulation (EU) No 1206/2011, Regulation (EU) No 1207/2011 and Regulation (EU) No 1079/2012] and intend to use the CPDLC capability should not indicate in their flight plan the status as exempted.



GM1 AUR.COM.2010 Requirements on aircraft equipment

CONTINUED OPERATIONS

Operators may operate their aircraft within the SES airspace without data link capability, irrespective of the date of issue of the first certificate of airworthiness (CofA) or maximum certified take-off mass, if aircraft are flown for the purpose of:

- maintenance, i.e. routine or non-routine checks and modification action, for which flights into, out of, or over the SES airspace should be operated as non-revenue flights;
- delivery, for which flights out of or over the SES airspace should also be operated as non-revenue flights;
- testing, for which flight into, out of or over the SES airspace should be subject to a permit to fly.

Applicable aircraft data link equipment capability should be compliant with:

- EUROCAE ED-100 - Interoperability Requirements for ATS Applications using ARINC 622 Data Communications (FANS 1/A Interop Standard); or
- EUROCAE ED-100A - Interoperability Requirements for ATS Applications using ARINC 622 Data Communications (FANS 1/A Interop Standard)

to be interoperable with ATS applications over Aircraft Communications Addressing and Reporting System (ACARS).

AMC1 AUR.COM.3005 Requirements on aircraft equipment

With regard to the requirements for voice communications, aircraft operators that are subject to Commission Regulation (EU) No 965/2012 should ensure that their aircraft comply with the EASA Certification Specifications for Airborne Communications, Navigation and Surveillance (CS-ACNS), SUBPART B — COMMUNICATIONS (COM) — SECTION 1 – VOICE CHANNEL SPACING (VCS).

Aeroplanes not being complex motor-powered aircraft with a maximum cruising speed in ISA conditions below 250 kt IAS, rotorcraft that are not complex motor-powered aircraft, and ELA2 aircraft installations that comply with CS-STAN, CS-SC001b (or later versions), are considered to be an acceptable alternative to compliance with CS-ACNS.

Third-country operator (TCO) aircraft that operate within the SES airspace should comply with national requirements equivalent to the requirements of CS-ACNS, Subpart B, Section 1.



AMC & GM to Part-SUR**AMC1 AUR.SUR.2005 Requirements on aircraft equipment****SECONDARY SURVEILLANCE RADAR TRANSPONDERS**

With regard to the requirements for secondary surveillance radar transponders, aircraft operators that are subject to Commission Regulation (EU) No 965/2012 should ensure that their aircraft comply with the EASA Certification Specifications for Airborne Communications, Navigation and Surveillance (CS-ACNS), SUBPART D — SURVEILLANCE (SUR), and particularly:

- SECTION 2 – MODE S ELEMENTARY SURVEILLANCE;
- SECTION 3 – MODE S ENHANCED SURVEILLANCE; and
- SECTION 4 – 1090 MHZ EXTENDED SQUITTER ADS-B,

as applicable.

Aircraft that only require the ELS capability and were certified according to JAA TGL 13, Revision 1¹², or aeroplanes not being complex motor-powered aircraft with a maximum cruising speed in ISA conditions below 250 kt IAS, rotorcraft that are not complex motor-powered aircraft, and ELA2 installations that comply with CS-STAN, CS-SC002b (or later versions), are considered to be an acceptable alternative to compliance with CS-ACNS.

Third-country operator (TCO) aircraft that operate within the single European sky (SES) airspace should comply with national requirements equivalent to the requirements of CS-ACNS, Subpart D, Sections 2, 3, and 4, as applicable.

GM1 AUR.SUR.2005 Requirements on aircraft equipment**CONTINUITY OF SECONDARY SURVEILLANCE RADAR TRANSPONDERS**

The continuity requirement for secondary surveillance radar transponders ('they have the continuity sufficient to avoid presenting an operational risk') states that such equipment should function without unscheduled interruption so as not to pose a hazard to other airspace users. The required continuity to ensure continued operation of that equipment in the airspace is established by CS-ACNS. Continuity figures that are less stringent than those specified in CS-ACNS for Mode S ELS and/or ADS-B may be acceptable. Typically, continuity figures not exceeding 2×10^{-4} per flight hour may be acceptable.

GM2 AUR.SUR.2005 Requirements on aircraft equipment**SERVICEABLE SECONDARY SURVEILLANCE RADAR TRANSPONDERS**

A secondary surveillance radar transponder is considered to be serviceable when it transmits all the data and parameters required by CS-ACNS, Subpart D — Surveillance (SUR), and particularly:

- Section 2 'Mode S elementary surveillance (ELS)';

¹² Joint Aviation Authorities (JAA) Temporary Guidance Leaflet (TGL) 13, Revision 1 'Certification of Mode S Transponder Systems for Elementary Surveillance', 1 June 2003.

- Section 3 ‘Mode S Enhanced Surveillance (EHS)’; and
- Section 4 ‘1090 MHz Extended Squitter ADS-B (ADSB),

as applicable.

The transponders should be operated in accordance with Section 13 ‘SSR Transponder’ of the Annex to Commission Implementing Regulation (EU) No 923/2012 and the related AMC and GM.

GM3 AUR.SUR.2005 Requirements on aircraft equipment

CONTINUED OPERATIONS

Operators may continue to operate their aircraft within the SES airspace without the Mode S EHS and/or the ADS-B capability, irrespective of the date of issue of the first certificate of airworthiness (CofA), if aircraft are flown for the purpose of:

- maintenance, i.e. routine or non-routine checks and modification action, for which flights into, out of, or over the SES airspace should be operated as non-revenue flights.
- export, for which flights out of or over the SES airspace should also be operated as non-revenue flights.

Operators may also continue to operate their aircraft within the SES airspace without the Mode S EHS and/or the ADS-B capability if the aircraft will cease to be operated by 31 October 2025. This condition is applicable to aircraft whose operators have determined prior to 7 December 2020 that they will cease their operation within the SES airspace prior to 31 October 2025. The operators should have evidence, such as a fleet planning document, of their intention to cease operation of their aircraft prior to 31 October 2025 and make it available upon request to their competent authority. This condition is not intended to provide a means to extend the compliance date for the Mode S EHS and/or the ADS-B capability.

AMC1 AUR.SUR.2010 Inoperative transponder

All qualifying aircraft accessing the SES airspace, should provide information on the equipment and the operational status of Mode S and/or ADS-B capability to ATS units.

As required by point SERA.4001 of the Annex to Commission Implementing Regulation (EU) No 923/2012, information relative to an intended flight should be provided to ATS units in the form of a flight plan. The information required is specified in SERA.4005 and SERA.4010 of the Annex to Commission Implementing Regulation (EU) No 923/2012.

Aircraft to which Commission Implementing Regulation (EU) 2023/xxx [COMMISSION IMPLEMENTING REGULATION (EU) .../... of XXX laying down common requirements on aircraft equipment for the use of the single European sky airspace and repealing Regulation (EC) No 29/2009, Regulation (EU) No 1206/2011, Regulation (EU) No 1207/2011 and Regulation (EU) No 1079/2012] does not apply or are equipped with Mode S EHS and/or ADS-B that are temporarily inoperative, should insert the designators ‘SUR/EUADSBX’ or ‘SUR/EUEHSX’, or a combination of them, in Item 18 of the flight plan.



Note: GM2 AUR.SUR.2005 'Requirements on aircraft equipage' explains the conditions under which a transponder is considered to be serviceable.



4.4. Draft acceptable means of compliance and guidance material (draft EASA decision) amending ED Decision 2017/001/R

The text of the amendment is arranged as follows to show deleted, new, and unchanged text as follows:

- deleted text is ~~struck through~~;
- new text is highlighted in **blue**;
- an ellipsis '[...]' indicates that the rest of the text is unchanged.



AMC & GM to PART-ATM/ANS.AR**AMC1 ATM/ANS.AR.C.025 Changes; ATM/ANS.AR.C.030 Approval of change management procedures for functional systems****PROCEDURES**

The competent authority should include in the scope of the review the system engineering activities related to the verification of compliance of ATM/ANS equipment subject to statement of compliance as per Article 6 of Regulation (EU) 2023/XXX [Delegated act on conformity assessment of ATM/ANS equipment] and integration of all ATM/ANS equipment as prescribed in accordance with ATM/ANS.OR.A.045(g) before granting the approval of such procedures, modifications and deviations.

AMC1 ATM/ANS.AR.C.035 Decision to review a notified change to the functional system**CRITERIA**

The risk-based oversight should include topics and criteria related to the novelty of ATM/ANS equipment subject to certification/declaration/statement of compliance. New functionalities, new concept of operation, new technologies, etc. should be considered to be novelty.

GM1 ATM/ANS.AR.C.040(b) Review of a notified change to functional system; ATM/ANS.OR.A.045(g) Changes to a functional system;**ARGUMENT**

The supporting rationale for rejection of the argument could relate, totally or partially, to topics associated with the integration of ATM/ANS equipment into the functional system.



AMC & GM to PART-ATM/ANS.OR**SUBPART A — GENERAL REQUIREMENTS (ATM/ANS.OR.A)****AMC2 ATM/ANS.OR.A.035 Demonstration of compliance****EVIDENCE — STATEMENT OF COMPLIANCE**

The ATM/ANS provider should, when demonstrating the compliance of the ATM/ANS equipment, allow the competent authority, if so requested, to participate in any compliance activity of the ATM/ANS equipment in the final or suitably mature design configuration. This is necessary to determine that the product has no feature or characteristic that renders the ATM/ANS equipment unsafe for the intended use.

Stakeholders are invited to provide their views on whether the proposed provision should be addressed at AMC level (as proposed) or be placed as GM, and provide a justification.

GM1 ATM/ANS.OR.A.045(g) Changes to a functional system**ASSURANCE**

The ATM/ANS provider should ensure that an EASA release form or a statement of compliance, as appropriate, exists for each ATM/ANS equipment affected by the change prior to putting the changed functional system into service.

GM1 ATM/ANS.OR.A.045(g) and (i) Changes to a functional system**MODIFIED ATM/ANS EQUIPMENT**

ATM/ANS equipment is considered 'modified' when there is:

- modification of the ATM/ANS equipment itself [software and hardware];
- modification of (i.e. change in) the usage without technical modification.

For that purpose, the category of the equipment [certification, declaration, or statement of compliance] or the applicable detailed specifications may be impacted and therefore reassessed.

GM1 ATM/ANS.OR.A.045(g)(4) Changes to a functional system**EQUIPMENT NOT SUBJECT TO CONFORMITY ASSESSMENT**

- (a) There will be equipment (such as flight procedure design and data services tools) that will not be subject to the ATM/ANS conformity assessment framework, but it will be subject to changes to the functional system and fall under the safety (support) assessment framework; consequently, there will be no obligation for it to be manufactured by an approved DPO or for the ANSP to issue a SoC.
- (b) Following point (a) nevertheless, such equipment would belong to the functional system of the ATM/ANS provider; consequently, Regulation (EU) 2017/373 applies for equipment which is not subject to the conformity assessment framework.

AMC1 ATM/ANS.OR.A.045(h) Changes to a functional system and

ATM/ANS EQUIPMENT INTO SERVICE

- (a) As part of the change management procedures as laid down in ATM/ANS.OR.B.010, the ATM/ANS provider should establish deployment procedures for putting ATM/ANS equipment into service to ensure that the new ATM/ANS equipment, or the modified ATM/ANS equipment, is deployed according to the conditions of use, as well as according to any prescribed limitations.
- (b) The deployment procedures referred to in point (a) could be integrated with the compliance procedures established in accordance with AMC1 ATM/ANS.OR.A.045(g)(3).

GM1 ATM/ANS.OR.A.045(h) Changes to a functional system

ATM/ANS EQUIPMENT INTO SERVICE | DEPLOYMENT ACTIVITIES

Deployment activities that may be conducted as part of a deployment procedure may include the following:

- (a) Assess the operating conditions the ATM/ANS equipment will be subject to in order to determine whether the conditions of use or limitations are adhered to;
- (b) Perform testing and inspections of the ATM/ANS equipment in its deployment environment to determine whether the conditions of use or limitations are adhered to. The testing may include a period of operation in the deployment environment of a sufficient duration to ensure that the conditions of use or limitations are adhered to;
- (c) Evaluate the results of the deployment procedure.

GM2 ATM/ANS.OR.A.045(h) Changes to a functional system

ATM/ANS EQUIPMENT INTO SERVICE | STAFF INVOLVED IN THE DEPLOYMENT PROCEDURE

The deployment procedure referred to in AMC1 ATM/ANS.OR.A.045(h) may encompass the necessary measures to prevent any situation of conflict of interest as regards the deployment of the ATM/ANS equipment, in particular regarding the staff who should evaluate the results of the procedure in an impartial and objective manner.

SUBPART B — MANAGEMENT (ATM/ANS.OR.B)

AMC2 ATM/ANS.OR.B.005(b) Management system

COMPLIANCE PROCEDURE FOR THE ISSUE OF A STATEMENT OF COMPLIANCE

In accordance with ATM/ANS.OR.B.005(b), the ATM/ANS provider should establish compliance procedures for making a statement of compliance in accordance with Article 6 of Delegated Regulation (EU) 2023/XXX [*Delegated act on conformity assessment of ATM/ANS equipment*] and should submit these compliance procedures to the competent authority for approval. Each compliance procedure should encompass all compliance activities for demonstrating with sufficient confidence the compliance of the ATM/ANS equipment with the applicable technical standards established in accordance with Article 6(1) of Delegated Regulation (EU) .../....



AMC3 ATM/ANS.OR.B.005(b) Management system

COMPLIANCE PROCEDURE FOR THE ISSUE OF A STATEMENT OF COMPLIANCE

- (a) Major changes to ATM/ANS equipment subject to a statement of compliance in accordance with Article 6 of Regulation (EU) 2023/XXX [Delegated act on conformity assessment of ATM/ANS equipment] are always communicated to the competent authority prior to their implementation, indicating the description of the changes and the impact on the demonstration of compliance with the EASA detailed specifications.
- (b) The ATM/ANS provider should classify the change to the ATM/ANS equipment subject to Article 6 of Regulation (EU) 2023/XXX [Delegated act on conformity assessment of ATM/ANS equipment] as minor unless one or more of the following apply, in which case the change is classified as major:
 - (1) Identification of compliance demonstration with a new detailed specification, not subject to the initial SoC;
 - (2) Identification of a new limitation;
 - (3) Identification of a new deviation;
 - (4) Identification of changes in the means of compliance with the applicable detailed specification.
- (c) In addition to AMC1 ATM/ANS.OR.B.010(a), the ATM/ANS provider should establish a compliance procedure for each change class.

GM2 ATM/ANS.OR.B.005(b) Management system

COMPLIANCE PROCEDURE FOR THE ISSUE OF A STATEMENT OF COMPLIANCE | COMPLIANCE ACTIVITIES

Compliance activities that may be conducted as part of a compliance procedure may include the following:

- (a) record the justification of compliance within compliance documents;
- (b) perform testing and inspections, as necessary;
- (c) ensure and record the conformity of the test ATM/ANS equipment and ensure that the test specimen conforms, as applicable, to the:
 - (1) specifications,
 - (2) drawings,
 - (3) manufacturing processes,
 - (4) software development standards,
 - (5) construction, and



- (6) assembly means;
- (d) ensure that the test and measuring equipment to be used for testing is adequate for testing and appropriately calibrated;
- (e) carry out testing, in accordance with the methods for such testing, to determine whether the ATM/ANS equipment complies with the applicable detailed specifications.

AMC2 ATM/ANS.OR.B.005(d) Management system

MONITORING — ATS PROVIDERS

ATS providers should monitor the quality of communication services and verify their conformance with the level of performance required for the operational environment under their responsibility.

AMC1 ATM/ANS.OR.B.005(f) Management system

FORMAL INTERFACES — ATS PROVIDERS

ATS providers should make appropriate arrangements to ensure that data exchanges can be established with all aircraft flying in the airspace under their responsibility and having data link capability in accordance with the applicable requirements, with due regard to possible coverage limitations inherent in the communication technology used.

AMC4 ATM/ANS.OR.B.015 Contracted activities

GENERAL — ATS PROVIDERS

ATS providers that rely upon other organisations for the provision of communication services for data exchanges with aircraft which are necessary for air-ground applications should ensure that those services are provided in accordance with the terms and conditions of a service level agreement, including in particular:

- (a) the description of communication services in accordance with the requirements of the data link services;
- (b) the description of the security policy put in place to secure data exchanges of the air-ground applications;
- (c) the relevant materials to be supplied for the monitoring of the quality and performance of communication services.

AMC5 ATM/ANS.OR.B.015 Contracted activities

SERVICE LEVEL AGREEMENT — SURVEILLANCE DATA



-
- (a) ATM/ANS providers when transferring surveillance data from their ground-based surveillance systems and surveillance data processing systems to other air navigation service providers, should establish formal arrangements with them for the exchange of the data.
- (b) Formal arrangements between ATM/ANS providers for the exchange or provision of surveillance data should include the following minimum content:
- (1) the parties to the arrangements;
 - (2) the period of validity of the arrangements;
 - (3) the scope of the surveillance data;
 - (4) the sources of the surveillance data;
 - (5) the exchange format of the surveillance data;
 - (6) the service delivery point of the surveillance data;
 - (7) agreed service levels in terms of the following:
 - (i) surveillance data performance;
 - (ii) procedures in case of unavailability;
 - (8) change management procedures;
 - (9) reporting arrangements with respect to performance and availability including unforeseen outages;
 - (10) management and coordination arrangements;
 - (11) ground-based surveillance chain safeguarding and notification arrangements.



4.5. Draft detailed specifications and acceptable means of compliance and guidance material for ATM/ANS ground equipment (DS-GE)

PART 1 — General

DS GE.GEN.001 Scope

These detailed specifications prescribe the standards and related acceptable means of compliance (AMC) and guidance material (GM) for the design, or for changes to the design, of ATM/ANS equipment for which certification is to be required in accordance Regulation (EU) 2023/xxxx [COMMISSION DELEGATED REGULATION (EU) .../... of XXX laying down detailed rules for the certification and declaration of air traffic management/air navigation services systems and air traffic management/air navigation services constituents] or a declaration is to be made by an approved organisation in accordance Regulation (EU) 2023/xxxx [COMMISSION IMPLEMENTING REGULATION (EU) .../... of XXX laying down technical requirements and administrative procedures for the approval of organisations involved in the design and/or production of air traffic management/air navigation services systems and constituents]

DS GE.GEN.002 Information security

(See AMC1 GE.GEN.002 and GM1 GE.GEN.002)

The ATM/ANS equipment provides information security appropriate for the intended purpose of the ATM/ANS systems in the intended environment.

AMC1 GE.GEN.002 Information security

An acceptable level of information security may include the following measures:

- (a) System isolation
 - System interfaces may be isolated from critical servers, flows and specific security zones by:
 - (1) data isolation (e.g. firewalls) and dependency on network layout (physical layer); and/or
 - (2) physical isolation (server rooms, disaster recovery requirements).
- (b) Authentication
 - (1) Authentication and encryption mechanisms to protect, control and filter exchanges
 - (2) Specific logon settings, particularly in the case of system restart
- (c) System configuration record and security register
 - (1) Systems support the recording of security events.
 - (2) Systems should have the ability to export and to fully restore the system configurations.



(d) Interfaces

- (1) Systems and interfaces should be designed to reduce the overall attack surface (audits of access privileges, disabling certain network protocols, non-necessary network ports, network services, etc.).
- (2) Usage of data integrity checks.
- (3) Security threats on internal and external interfaces should be addressed

Note: The term 'interfaces' may refer to physical or network interfaces, and to external or internal equipment interfaces.

GM1 GE.GEN.002 Information security

The framework provided by EUROCAE ED-205A 'Process standard for information security certification and declaration of ATM ANS ground systems' may be used to define the required level of information security.

DS GE.GEN.003 Software

(See AMC1 GE.GEN.003, GM1 GE.GEN.003 and GM2 GE.GEN.003)

- (a) The software is suitable for the intended purpose.
- (b) A software portability specification or equivalent is provided.

AMC1 GE.GEN.003 Software

- (a) Software should function as intended to support the intended purpose.
- (b) Software should be developed with an assurance level that is commensurate with the severity of the effect of failure.
- (c) The software portability specification or equivalent should provide the minimum features required by the target hardware to ensure that software can run correctly.

Note 1: The development assurance level for software supporting ATM/ANS functions is derived from the assurance level to be defined for these ATM/ANS functions.

Note 2: Software development assurance should be understood to ensure that the probability of development errors causing or contributing to ATM/ANS failures is minimised with an appropriate level of rigour. In this respect, assurance applies also to the selection and installation of commercial off-the-shelf (COTS) software.

GM1 GE.GEN.003 Software

Software includes different types of software such as COTS software, as well as previously and newly developed specific software. Firmware is considered as software.



GM2 GE.GEN.003 Software

- (a) EUROCAE ED-153 - Guidelines for ANS Software Safety Assurance may be used to allocate software assurance level (SWAL) associated with the risk assessment as defined in DS GE.GEN.007.
- (b) EUROCAE ED-109 - Software Integrity Assurance Considerations for CNS/ATM Systems may be used to allocate SWAL associated with the risk assessment as defined in DS GE.GEN.007.

DS GE.GEN.004 Hardware

(See AMC1 GE.GEN.004 and GM1 GE.GEN.004)

The hardware is suitable for the intended purpose.

AMC1 GE.GEN.004 Hardware

Evidence regarding the ability of the hardware to behave as intended and to support the intended purpose (commensurate with the associated risk assessment) should be provided. The hardware architecture design should be considered in the assessment.

GM1 GE.GEN.004 Hardware

- (a) Hardware includes different types of hardware such as COTS hardware, as well as previously and newly developed specific hardware.
- (b) Hardware may be a single piece or a set of pieces (i.e. network).

DS GE.GEN.005 Human-machine interface

(See GM1 GE.GEN.005)

A means is provided for:

- (a) Annunciations
 - (1) Aural and/or visual indications upon receipt of a message intended for display to or use by the operator
 - (2) Indication to the operator of equipment failure, including interface failures (degraded mode or loss of function)
- (b) Controls
 - (1) Means for the operator to activate or deactivate system(s) or constituent(s).
 - (2) Means for the operator to view, create, store, retrieve, edit, delete, and send messages.

GM1 GE.GEN.005 Human-machine interface

- (a) To a large extent, a human-machine interface is needed to verify and monitor that the functions of the ATM/ANS equipment are compliant with the applicable detailed specifications.



- (b) Human-machine interface requirements are applicable to ATM/ANS equipment which require or allow user interaction and/or automation in the accomplishment of a task. For ATM/ANS equipment that provides messages to support safe operation, as a minimum, DS GE.GEN.005(a)(2) and DS GE.GEN.005(b)(1) should be considered.

DS GE.GEN.006 Environmental conditions

(See AMC1 GE.GEN.006 and GM1 GE.GEN.006)

The ATM/ANS equipment is to be designed so that it performs as intended under the operating and environmental conditions expected in service.

AMC1 GE.GEN.006 Environmental conditions

The ATM/ANS equipment should comply where applicable with:

- (a) ETSI EN 300 019-1-3 (V2.4.1) (2014-04) 'Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-3: Classification of environmental conditions; Stationary use at weather protected locations';
- (b) ETSI EN 300 019-1-4 (V2.2.1) (2014-04) Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-4: Classification of environmental conditions; Stationary use at non-weather protected locations';
- (c) ETSI EN 301 489-1 (V2.2.3) (2019-11) 'Electromagnetic Compatibility (EMC) standard for radio equipment and services - Part 1: Common technical requirements';
- (d) ETSI EN 301 489-22 (V2.1.1) (2020-10) 'Electromagnetic compatibility (EMC) standard for radio equipment and services - Part 22: Specific conditions for ground-based VHF aeronautical mobile for fixed radio equipment'.

GM1 GE.GEN.006 Environmental conditions

Depending on the intended environment (e.g. the ATM/ANS equipment may be located in a ground station equipment room, a remote equipment shelter or outside), the environmental conditions may include criteria such as, but not limited to, temperature, relative humidity, radio frequency susceptibility (radiated and conducted).

DS GE.GEN.007 Risk assessment

(See AMC1 GE.GEN.007, GM1.GE.GEN.007, GM2.GE.GEN.007, GM3.GE.GEN.007, and GM4.GE.GEN.007)

The ATM/ANS equipment is to be designed such that the probability of a failure has an inverse relationship with the severity of the effect of the failure with respect to its intended purpose.



AMC1 GE.GEN.007 Risk assessment

- (a) A failure mode effects analysis (FMEA) should be applied to evaluate the rates of the failure effects.
- (b) The FMEA should be performed at different levels (e.g. system, subsystem, constituent, etc.), by postulating the ways the chosen level's specific implementation may fail. The effect of each failure mode should be determined at the given level and the next higher level, if applicable, for each operating mode. Specific operating scenarios should be considered when performing such analysis. It should account for all safety-/service-related effects and the effects identified in these detailed specifications. In cases where it is not possible to identify the specific nature of a failure mode, the worst-case effect should be assumed.
- (c) The following major FMEA steps should be taken:
 - preparation,
 - analysis,
 - documentation.

GM1 GE.GEN.007 Risk assessment

An FMEA is a systematic, bottom-up method to identify the failure modes of a system, item, function, or piece-part, and to determine the effects on the next higher level of the design. It is used to address failure effects resulting from single failures, including the effect of software errors that can also be analysed qualitatively. The detection methods (if any) for each failure mode may also be determined. This analysis may be quantitative or qualitative and may be performed on all types of systems/constituents (e.g. electrical, electronic, or mechanical systems). If quantitative aspects are considered, it will be possible to determine a failure rate for each failure mode.

GM2 GE.GEN.007 Risk assessment

PREPARATION

The FMEA includes a systematic evaluation of the failure effects of the equipment. For that purpose, the analysis requires the availability of information of the equipment under analysis to ensure the correctness and completeness of the result. The following sources may be necessary before starting the activity:

- (a) equipment requirements including safety-related requirements and failure effects, and specific operating modes of interest;
- (b) specifications;
- (c) current drawings or schematics;
- (d) parts lists for each system or item;
- (e) functional block diagrams;
- (f) explanatory material including the theory of operation;



- (g) an applicable list of failure rates;
- (h) FMEA for previous versions of the system/item.

GM3 GE.GEN.007 Risk assessment

ANALYSIS

Every identified failure mode should be analysed to determine its effect on a given level and usually on higher levels as well, and assigned to an effect category.

Failures modes or failure conditions are malfunctions of function. This means either the loss or corruption of some intended function, e.g. function that is considered to be:

- (a) more than (quantity, information);
- (b) less than (quantity, information);
- (c) additional to;
- (d) faster than;
- (e) slower than;
- (f) part of;
- (g) reverse of;
- (h) other than;
- (i) not;
- (j) earlier than;
- (k) later than;
- (l) before; or
- (m) after.

If the function of the equipment is altered in any way because of the malfunctions, the altered function needs to be accounted for.

The means by which the failure is detected should be determined and documented. Examples of detection methods include detection by hardware or software monitors, operator detection, power up tests, and/or maintenance checks.

For a quantitative analysis, a failure rate could be assigned to each failure mode. Whenever possible, failure rates should be determined from failure data of similar ATM/ANS equipment already in use.

There are two types of FMEA, functional and piece-part:

- **Functional analyses** are typically performed to support the safety analysis with piece-part contributions performed as necessary to provide further refinement of the failure rates.
- **Piece-part analyses** are typically done when the more conservative failure rates from a functional one will not allow the equipment to meet the target probability of the failure budget. This type of analysis may also be useful for equipment that relies on redundancy, since the



functional one may not reveal single component failures affecting more than one redundant element.

- **Functional FMEA** may be performed at any level. The appropriate level of subdivision is determined by the complexity of the system and the objectives of the analysis. If the required analysis is on a section of circuitry or mechanical devices larger than a particular function, it should be broken down into functional blocks. From an overall perspective, this may mean defining each line replaceable unit (LRU) or sub-system or constituent as a functional block. Once the functional blocks have been determined, a functional block diagram may be created, including the identification of internal and interface functions relative to system operation.

The next step is postulating the failure modes for each functional block. Determining the failure modes by thinking about the intent of the functional block and trying to determine how that function might fail regardless of the specific parts used. It is necessary to ensure that no significant failure modes have been overlooked, including single component failures that could affect more than one redundant functional block. Often, given a clear description of the block's function, many of the failure modes will become apparent.

The effect of each failure mode is determined by considering how the function fits into the overall design. Failure effect categories may be created for each effect type and a failure effect category code can be assigned. All failure modes that cause this identical effect are assigned to the effect category. Software and fault monitoring must be considered when determining failure effects and means of detection. As part of this analysis, it is necessary to verify that the monitoring can indeed detect the failure mode.

If a quantitative analysis is performed, a failure rate is assigned to each failure mode. One technique may be to perform a failure rate prediction for each block and apportion the failure rate across the various failure modes based on past experience of similar functions or other sources allowing determination of probability of occurrence.

Piece-part FMEA is similar to the functional one except that instead of analysing at the functional or block diagram level, the failure modes of each individual component contained in the equipment are analysed. A piece-part analysis can be used to determine the failure effects of potential electrical, electronic, or mechanical failures. For example, the effect of failures of an integrated circuit or a mechanical part can be considered as part of a piece-part analysis. Piece-part analysis on electronic equipment is usually performed only as necessary when the more conservative results of a functional analysis will not allow the item to meet the target probability of failure budget. This is due in part to the difficulty in determining the failure modes for complex components.

The first step in a piece-part analysis is to create the list of all components to be covered. The next step is to determine the failure modes of each component type. This is the most demanding part of the piece-part analysis, particularly when performed on electronic items containing complex integrated circuits. Determining all the failure modes of any but the simplest components (where industry data is available) may be difficult. When in doubt, the worst-case assumptions of part failure modes may be made.

The next step is to determine the effect of the failure on the next higher-level assembly and assign a failure effect category to the failure. The detailed description of each failure effect category can then be described in the analysis. All failure modes that cause this identical effect are assigned to the effect



category. Software and fault monitoring must be considered when determining failure effects and means of detection. As part of this analysis, it is necessary to assess whether the monitoring can indeed detect the failure mode. To properly perform such analysis, detailed knowledge of the system requirements and software design including internal fault management techniques as applicable is necessary.

If a quantitative analysis is performed, a failure rate should be assigned to each failure mode.

GM4 GE.GEN.007 Risk assessment

DOCUMENTATION

These FMEAs are typically documented in worksheets where the following information is presented:

- (a) Identification of component, signal, and/or function;
- (b) Failure modes and associated hardware failure rates (numerical or categorical);
- (c) Failure effects (directly and/or at the next higher level);
- (d) Detectability and means of detection;
- (e) Compensating actions (i.e. automatic or manual);
- (f) Operational mode in which the failure occurs;
- (g) Severity of failure effects.

In addition, other information may also be recorded for future evolutions of the FMEA such as the justification of each failure mode or the rationale for the assigned failure rate.

DS GE.GEN.008 ATM/ANS equipment documentation

- (a) Instructions for the continued operation of the ATM/ANS equipment as specified in this DS GE and any information related to the interfaces with other ATM/ANS equipment are to be provided.
- (b) The operations manuals, or similar documentation, provide:
 - (1) the list of capabilities;
 - (2) operation procedures to be applied; and
 - (3) limitations.
- (c) If there are deviations from these specifications which result in limitation(s), they are to be clearly stated in the operations manuals or similar documentation.

DS GE.GEN.009 Definitions

reserved



DS GE.GEN.010 Verification method

(See GM1.GE.GEN.010)

Each condition as specified in the applicable detailed specifications is to be verified.

GM1 GE.GEN.010 Verification method

The demonstration of compliance with the prescribed standard may be accomplished by various means of compliance (MOC) used in conjunction with each other or separately. Possible MOC are:

- (a) design review;
- (b) drawings, calculations;
- (c) safety assessment;
- (d) laboratory tests;
- (e) simulation;
- (f) real-world testing/large scale demonstrations.



PART 2 — ATM/ANS equipment subject to certification

DS GE.CER.GEN.001 Scope

These detailed specifications prescribe the standards for the certification and approval of designs, or of changes to the design, of ATM/ANS equipment supporting the following services:

- (a) air traffic services;
- (b) air-ground communications.



Subpart A — Air traffic services

Section 1 — General

DS GE.CER.ATS.101 Applicability

This Section provides the standards applicable to the certification and approval of design, or of changes to the design, of ATM/ANS equipment, supporting air traffic services in relation to:

- (a) flight data processing;
- (b) extended arrival management;
- (c) departure manager;
- (d) advanced surface movement guidance and control system (A-SMGCS);
- (e) data link applications;
- (f) surveillance data processing.

DS GE.CER.ATS.110 ATS recording

ATM/ANS equipment specified in this Subpart is to provide recording and replay capability of technical and operational data, and system status.



Section 2 — Flight data processing

APPLICABILITY

DS GE.CER.FDP.201 Applicability

This Section provides the functional and performance standards applicable to flight data processing equipment.

FUNCTION

DS GE.CER.FDP.210 Flight data processing equipment

(See AMC1 GEC.CER.FDP.210 and GM1 GEC.CER.FDP.210)

FDP equipment supports:

- (a) initial flight planning; and
- (b) notification, coordination, and transfer of flights between air traffic control units.

AMC1 GE.CER.FDP.210 Flight data processing equipment

- (a) For the initial flight planning, systems should comply with EUROCONTROL-SPEC-0107 Specification for ATS Data Exchange Presentation (ADEXP), Edition 3.4, Chapter E.2 Flight Plan Messages.
- (b) For the notification, coordination, and transfer of flights between air traffic control units, systems should comply with following specifications:
 - (1) EUROCONTROL SPEC-106 Specification for On-Line Data Interchange (OLDI), Edition 5.1, Chapter 4, Chapter 6, and Chapter 10;
 - (2) EUROCONTROL SPEC-0107 Specification for ATS Data Exchange Presentation (ADEXP), Edition 3.4, Sections 1.4.3, 1.4.4, 3, 4, 5, 6, Annex B, and Section E.4.

GM1 GE.CER.FDP.210 Flight data processing equipment

For the initial flight planning, additional information can be found in EUROCONTROL GUID-101 Specification for the Initial Flight Plan, Edition 2.0.

PERFORMANCE

DS GE.CER.FDP.220 FDP equipment performance

(See AMC1 GE.CER.FDP.220)

The performance of the FDPS equipment supports the intended purpose.



AMC1 GE.CER.FDP.220 FDP equipment performance

- (a) FDPs should comply with EUROCONTROL-SPEC-106 Specification for On-Line Data Interchange (OLDI), Edition.5.1, Sections 4.6 and 5.2.
- (b) Additional performance conditions applicable to the intended purpose of FDPs may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.GEN.002, DS GE.GEN.003, and DS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.

INTERFACE

DS GE.CER.FDP.230 FDP equipment interfaces

(See AMC1 GE.CER.FDP.230. and GM1 GE.CER.FDP.230)

FDP equipment interfaces support the functions and levels of performance as required in DS GE.CER.FDP.210 and DS GE.CER.FDP.220.

AMC1 GE.CER.FDP.230 FDP equipment interfaces

- (a) For the initial flight planning, FDP equipment should comply with:
 - (1) Part 3, Subpart A, Section 2 'AMHS' of this DS; or
 - (2) Part 3, Subpart A, Section 3 'SWIM technical infrastructure' of this DS.
- (b) For the notification, coordination, and transfer of flights between air traffic control units, FDP equipment should comply with Part 3, Subpart A, Section 4 'FMTP' of this DS.

GM1 GE.CER.FDP.230 FDP equipment interfaces

Interfaces should include communications supporting external information exchanges and the human-machine interface (HMI) as defined in DS GE.GEN.005.



Section 3 — Extended arrival management

APPLICABILITY

DS GE.CER.AMAN.301 Applicability

This Section provides the functional and performance standards applicable to extended arrival management (AMAN) equipment.

FUNCTION

DS GE.CER.AMAN.310 Extended arrival management equipment

(See AMC1 GE.CER.AMAN.310)

Extended AMAN equipment provides arrival sequence time information into en-route ATC systems as well as into ATC systems of aerodromes impacted by the extended AMAN horizon.

AMC1 GE.CER.AMAN.310 Extended arrival management equipment

Extended AMAN equipment should comply with the following specifications:

- (a) EUROCONTROL SPEC-106 Specification for On-Line Data Interchange (OLDI), Edition 5.1, Section 11.6.
- (b) EUROCONTROL SPEC-0107 Specification for ATS Data Exchange Presentation (ADEXP) Edition 3.4, Section E.4.2.

PERFORMANCE

DS GE.CER.AMAN.320 Extended AMAN equipment performance

(See AMC1 GE.CER.AMAN.320)

The performance of extended AMAN equipment supports the intended purpose.

AMC1 GE.CER.AMAN.320 Extended AMAN equipment performance

- (a) Extended AMAN equipment should comply with the following specifications:
 - (1) EUROCONTROL SPEC-106 Specification for On-Line Data Interchange (OLDI), Edition 5.1, Sections 4.6 and 5.2;
 - (2) EUROCAE ED-254 – Arrival Sequence Service Performance Standard.
- (b) Additional performance conditions applicable to the intended purpose of AMAN equipment may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.GEN.002, DS GE.GEN.003, and DS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.



INTERFACE

DS GE.CER.AMAN.330 Extended AMAN equipment interfaces

(See AMC1 GE.CER.AMAN.330 and GM1 GE.CER.AMAN.330)

Extended AMAN equipment interfaces support the functions and levels of performance as required in DS GE.CER.AMAN.310 and DS GE.CER.AMAN.320.

AMC1 GE.CER.AMAN.330 Extended AMAN equipment interfaces

Extended AMAN equipment should comply with:

- (a) Part 3, Subpart A, Section 2 'AMHS' of this DS; or
- (b) Part 3, Subpart A, Section 3 'SWIM technical infrastructure of this DS; or
- (c) Part 3, Subpart A, Section 4 'FMTP' of this DS.

GM1 GE.CER.AMAN.330 Extended AMAN equipment interfaces

Interfaces include communications supporting external information exchanges and the human-machine interface (HMI) as defined in DS GE.GEN.005.



Section 4 — Departure manager

APPLICABILITY

DS GE.CER.DMAN.401 Applicability

This Section provides the functional and performance standards applicable to departure manager (DMAN) equipment.

FUNCTION

DS GE.CER.DMAN.410 Departure manager equipment

(See AMC1 GE.CER.DMAN.410 and GM1 GE.CER.DMAN.410)

DMAN equipment provide departure flow information.

AMC1 GE.CER.DMAN.410 Departure manager equipment

DMAN equipment should comply with:

- (a) EUROCAE ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems;
- (b) EUROCAE ED-145 - Airport-CDM Interface Specification;
- (c) EUROCAE ED-146 - Guidelines for Test and Validation Related to Airport CDM Interoperability.

GM1 GE.CER.DMAN.410 Departure manager equipment

Extended AMAN and DMAN equipment should share the same data for their planning algorithms respectively, to calculate the arrival and departure flows.

PERFORMANCE

DS GE.CER.DMAN.420 DMAN equipment performance

(See AMC1 GE.CER.DMAN.420)

The performance of DMAN equipment supports the intended purpose.

AMC1 GE.CER.DMAN.420 DMAN equipment performance

- (a) DMAN equipment should comply with:
 - (1) EUROCAE ED-141 - Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems, Section 4.1;
 - (2) EUROCAE ED-146 – Guidelines for Test and Validation Related to Airport CDM Interoperability – Section 5.4.



- (b) Additional performance conditions applicable to the intended purpose of DMAN equipment may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.GEN.002, DS GE.GEN.003, and CS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.

INTERFACE

DS GE.CER.DMAN.430 DMAN equipment interfaces

(See, AMC1 GE.CER.DMAN.430 and GM1 GE.CER.DMAN.430)

DMAN equipment interfaces support the functions and levels of performance as required in DS GE.CER.DMAN.410 and DS GE.CER.DMAN.420.

AMC1 GE.CER.DMAN.430 DMAN equipment interfaces

DMAN equipment should comply with:

- (a) Part 3, Subpart A, Section 2 'AMHS' of this DS; or
- (b) Part 3, Subpart A, Section 3 'SWIM technical infrastructure' of this DS; or
- (c) Part 3, Subpart A, Section 4 'FMTP' of this DS.

GM1 GE.CER.DMAN.430 DMAN equipment interfaces

Interfaces include communications supporting external information exchanges and the human-machine interface (HMI) as defined in DS GE.GEN.005.



Section 5 — Advanced surface movement guidance and control system (A-SMGCS)

APPLICABILITY

DS GE.CER.ASMGCS.501 Applicability

(See GM1 GE.CER.ASMGCS.501)

This Section provides the functional and performance standards applicable to advanced surface movement guidance and control systems (A-SMGCSs) and constituents.

GM1 GE.CER.ASMGCS.501

A-SMGCSs and constituents support the control of aircraft and vehicles in the aerodrome environment to maintain the declared surface movement rate under all weather conditions within the aerodrome visibility operational level (AVOL).

FUNCTION

DS GE.CER.ASMGCS.510 A-SMGCS

(See AMC1 GE.CER.ASMGCS.510 and GM1 GE.CER.ASMGCS.510)

A-SMGCSs and constituents provide:

- (a) surveillance service capable of;
 - (1) using deployed cooperative and non-cooperative sensors;
 - (2) manually correlating targets (with call signs);
 - (3) including surveillance information for aircraft on approach;
- (b) airport safety support service;
- (c) routing service.

AMC1 GE.CER.ASMGCS.510 A-SMGCS

A-SMGCSs and constituents should comply with EUROCAE ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service, Sections 2.1.2, 2.1.3 and 2.1.4.

GM1 GE.CER.ASMGCS.510 A-SMGCS

- (a) Additional information can be found in the following:
 - (1) ICAO Doc 9830, Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual;
 - (2) EUROCONTROL-SPEC-171, Edition 2.0, EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services;



- (3) EUROCAE ED-128 - Guidelines for Surveillance Data Fusion in Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Levels 1 and 2.
- (b) Aerodrome conformance monitoring should integrate A-SMGCS surveillance data and, when available, surface movement routing and air traffic controller routing clearances.

PERFORMANCE

DS GE.CER.ASMGCS.520 A-SMGCS performance

(See AMC1 GE.CER.ASMGCS.520)

The performance of ASMGCS and constituents supports the intended purpose.

AMC1 GE.CER.ASMGCS.520 A-SMGCS performance

- (a) A-SMGCSs and constituents should comply with:
 - (1) EUROCAE ED-87E - MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service, Section 3;
 - (2) EUROCAE ED-116 - MOPS for Surface Movement Radar Sensor Systems for use in A-SMGCS, Section 3;
 - (3) EUROCAE ED-117A - MOPS for Mode S Multilateration Systems for use in Advanced Surface Movement Guidance and Control Systems (A-SMGCS), Section 3;
 - (4) ETSI EN 303 213-5-1 (V1.1.1) (2020-03) Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 5: Harmonised Standard for access to radio spectrum for Multilateration (MLAT) equipment; Sub-part 1: Receivers and Interrogators;
 - (5) ETSI EN 303 213-5-2 (V1.1.1) (2022-04) Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 5: Harmonised Standard for access to radio spectrum for Multilateration (MLAT) equipment; Sub-part 2: Reference and Vehicle Transmitters;
 - (6) ETSI EN 303 213-6-1 (V3.1.1) (2019-07) Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 6: Harmonised Standard for access to radio spectrum for deployed surface movement radar sensors; Sub-part 1: X-band sensors using pulsed signals and transmitting power up to 100 kW.
- (b) Additional performance conditions applicable to the intended purpose of ASMGCSs may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.GEN.002, DS GE.GEN.003, and DS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.



INTERFACE

DS GE.CER.ASMGCS.530 A-SMGCS interfaces

(See AMC1 GE.CER.ASMGCS.530 and GM1 GE.CER.ASMGCS.530)

- (a) The interfaces of ASMGCSs and constituents support the functions and levels of performance as required in DS GE.CER.ASMGCS.510 and DS GE.CER.ASMGCS.520.
- (b) A clear and unambiguous means is provided:
 - (1) to inform the controller of:
 - (i) the aerodrome environment; and
 - (ii) traffic information (position and identity);
 - (2) for the controller to input clearances.

AMC1 GE.CER.ASMGCS.530 A-SMGCS interfaces

- (a) A raw video image may be displayed.
- (b) Aerodrome environment and information data that should be integrated are:
 - (1) status of ATS systems: landing systems, visual aids, ATIS;
 - (2) air traffic monitor (approach radar);
 - (3) meteorological information;
 - (4) information relating to emergencies.
- (c) Clearances should be provided via a controller electronic clearance input (ECI).

GM1 GE.CER.ASMGCS.530 A-SMGCS interfaces

Interfaces include the communications supporting external information exchanges and the human-machine interface (HMI) as defined in DS GE.GEN.005.

Additional information can be found in EUROCONTROL-SPEC-171, Edition 2.0, EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services.

The identification of the detected mobiles and their unambiguous representation on the HMI is essential. Depending on the quality of the video signal, valuable information about the detected aircraft size and orientation can be obtained. It also helps to detect intruders which do not have an operating transponder or transmitter.



Section 6 — Data link services

APPLICABILITY

DS GE.CER.DLS.601 Applicability

This Section provides the functional and performance standards applicable to data link services equipment supporting ATS B2 and ATN B1.

FUNCTION

DS GE.CER.DLS.610 DLS equipment

(See AMC1 GE.CER.DLS.610 and GM1 GE.CER.DLS.610)

DLS equipment provides capabilities to:

- (a) establish CPDLC and ADS-C transactions;
- (b) exchange operational CPDLC and ADS-C messages;
- (c) transfer CPDLC authority;
- (d) terminate CPDLC and ADS-C transactions;
- (e) forward ADS-C data.

AMC1 GE.CER.DLS.610 DLS equipment

DLS equipment should comply with:

- (a) EUROCAE ED-228A - Safety and Performance Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 SPR Standard), Sections 3.1, 3.2, 3.3, 3.4, 3.9, 4, 5.1, 5.2, 6.1 and 6.2;
- (b) EUROCAE ED-229A - Interoperability Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 Interop Standard), Sections 2, 3, 4, 5.1 and 5.3;
- (c) EUROCAE ED-231A - Interoperability Requirements Standard for Baseline 2 ATS Data Communications and ATN Baseline 1 Accommodation (ATN Baseline 1 - Baseline 2 Interop Standard), Sections 4 and 5;
- (d) ICAO Doc 9880 - Technical Specifications for ATN using ISO/OSI Standards and Protocols – Part I – Air-Ground Applications, Second edition, 2016;
- (e) EUROCONTROL-SPEC-106, Edition 5.1, EUROCONTROL Specification for On-Line Data Interchange (OLDI), Chapter 10.



GM1 GE.CER.DLS.610 DLS equipment

The ATS B2 referred to in this Section supports the services ATC communications management (ACM), ATC clearances (ACL) and ATC microphone check (AMC) through the CPDLC application and the downlink of extended projected profile (EPP) through the ADS-C application.

Through the ATS B2 / ATN B1 backward compatibility, the ATN B1 referred to in this Section supports the data link services ACM, ACL and AMC.

The context management (CM) application and supporting datalink initiation and capability (DLIC) service are prerequisites for the initiation of CPDLC and ADS-C applications and consequently are part of this Section.

PERFORMANCE

DS GE.CER.DLS.620 DLS equipment performance

(See AMC1 GE.CER.DLS.620)

The performance of DLS equipment supports the intended purpose.

AMC1 GE.CER.DLS.620 DLS equipment performance

- (a) DLS equipment should comply with EUROCAE ED-228A - Safety and Performance Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 SPR Standard), Sections 5.3 CPDLC Safety and Performance Requirements, and 6.3 ADS-C Safety and Performance Requirements.
- (b) Additional performance conditions applicable to the intended purpose of DLS may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.GEN.002, DS GE.GEN.003, and DS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.

Interface

DS GE.CER.DLS.630 DLS equipment interfaces

(See AMC1 GE.CER.DLS.630)

- (a) DLS equipment interfaces support the functions and levels of performance as required in DS GE.CER.DLS.610 and DS GE.CER.DLS.620.
- (b) A clear and unambiguously means is provided to the air traffic controller to:
 - (1) initiate and to terminate the data link services and ADS-C contracts;
 - (2) know in real time the identifiers of the connected aircraft;
 - (3) prepare and transmit uplink messages (UM);
 - (4) inform when downlink messages (DM) are received;
 - (5) inform that pending or open messages are waiting for a response;



- (6) display all messages (UM and DM), with minimal human action, in a format that is easy to comprehend and distinguishable from each other;
 - (7) determine the status of the data link system.
- (c) A means is provided to the air traffic controller to prohibit the deletion, confirmation, or clearance of a message until the entire message is displayed.

AMC1 GE.CER.DLS.630 DLS equipment interfaces

DLS equipment should comply with:

- (a) Part 2, Subpart B, Section 1 'Data Communications' of this DS; and
- (b) Part 3, Subpart A, Section 4 'FMTP' of this DS.



Section 7 — Surveillance data processing

APPLICABILITY

DS GE.CER.SURS.701 Scope

(See GM1 GE.CER.SURS.701)

This Section provides the functional and performance standards applicable to surveillance data processing systems (SDPSs) and constituents supporting air traffic services.

GM1 GE.CER.SURS.701 Scope

Surveillance data processing encompasses the complete ground surveillance processing chain after the detection of aircraft by sensors up to the provision of surveillance data on the controller working position (CWP). It is independent of detection technologies (e.g. Mode S, WAM, ADS-B, etc.).

FUNCTION

DS GE.CER.SURS.710 Data items to support 3 NM or 5 NM horizontal separation

The SDPS provides, for each aircraft within its operational coverage, the following data items:

- (a) Positional data
 - (1) Horizontal (2D) position;
 - (2) Time of applicability of horizontal position;
 - (3) Vertical position based upon pressure altitude received from the aircraft;
 - (4) Time of applicability of vertical position.
- (b) Operational identification data
 - (1) Aircraft identity (ICAO aircraft identification or Mode 3/A code) reported by the aircraft;
 - (2) Supplementary indicators:
 - (i) emergency indicator (general emergency, radio failure and unlawful interference);
 - (ii) special position identification (or indicator) SPI.
- (c) Surveillance data status
 - (1) Cooperative/non-cooperative/combined;
 - (2) Coasted/not coasted (position).



PERFORMANCE

DS GE.CER.SURS.720 Required performance to support 3 NM and 5 NM horizontal separation

(See GM1 GE.CER.SURS.720)

The performance of the SDPS is to be supports the intended purpose.

GM1 GE.CER.SURS.720 Required performance to support 3 NM and 5 NM horizontal separation

The assessment of these performance indicators could be performed as described in EUROCONTROL-SPEC-0147, Edition 1.1, EUROCONTROL Specification for ATM Surveillance System Performance, Section 4.

INTERFACE

DS GE.CER.SURS.730 Surveillance data items Interface

(See AMC1 GE.CER.SURS.730)

Surveillance data processing equipment interfaces support the functions and levels of performance as required in DS GE.CER.SURS.710 and DS GE.CER.SURS.720.

AMC1 GE.CER.SURS.720 Surveillance data items Interface

The data items should comply with the following Asterix messages:

- (a) Cat 062 in accordance with EUROCONTROL-SPEC-0149-9, Edition 1.20, CAT062 - EUROCONTROL Specification for Surveillance Data Exchange ASTERIX - Part 9 Category 062 SDPS Track Reports; or
- (b) Cat 048 in accordance with EUROCONTROL-SPEC-0149-4, Edition 1.31, EUROCONTROL Specification for Surveillance Data Exchange ASTERIX - Part 4 Category 048 Monoradar Target Reports; or
- (c) Cat 021 in accordance with EUROCONTROL-SPEC-0149-12, Edition 2.6, EUROCONTROL Specification for Surveillance Data Exchange ASTERIX - Part 12 Category 021 ADS-B Target Reports; or
- (d) Cat 020 in accordance with EUROCONTROL-SPEC-0149-14, Edition 1.10, EUROCONTROL Specification for Surveillance Data Exchange ASTERIX - Part 14 Category 020 Multilateration Target Reports.



INTEGRITY

DS GE.CER.SURS.740 Integrity

The integrity of the SDPS is to be commensurate with the intended purpose.



Subpart B — Air-ground communications (COM)

Section 1 — Data communications

APPLICABILITY

DS GE.CER.AGDC.101 Scope

(See GM1 GE.CER.AGDC.101)

This Section provides the functional and performance standards for air-ground data communications equipment.

GM1 GE.CER.AGDC.101 Applicability

Considering the ATN Data Link System Architecture, the constituents supporting air-ground data communications are inter alia:

- (a) VDL2 Ground Station (VGS) for air-to-ground data communications, operating in the band 117,975-137 MHz;
- (b) ATN routers in the CSP domain (i.e. GGR, AGR).

FUNCTION

DS GE.CER.AGDC.110 Data communications equipment

(See AMC1 GE.CER.AGDC.110)

Air-ground data communications equipment supports the intended purpose.

AMC1 GE.CER.AGDC.110 Data communications equipment — VDL M2

VGS radio equipment should comply with:

- (a) ETSI EN 301 841-1 (V1.4.1) (2015-04) VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground-based equipment; Part 1: Physical layer and MAC sub-layer
- (b) ETSI EN 301 841-2 (V1.2.1) (2019-05) VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground-based equipment; Part 2: Upper layers



PERFORMANCE

DS GE.CER.AGDC.120 Data communications equipment performance

(See AMC1 GE.CER.AGDC.120)

The performance of air-ground data communications equipment supports the intended purpose.

AMC1 GE.CER.AGDC.120 Data communications equipment performance — VDL M2

- (a) Air-ground data communications equipment should comply with:
- (1) EUROCAE ED-228A - Safety and Performance Requirements Standard for Baseline 2 ATS Data Communications (Baseline 2 SPR Standard) with respect to the air-ground link;
 - (2) ARINC 631-7 VHF DIGITAL LINK (VDL) MODE 2 IMPLEMENTATION PROVISIONS;
 - (3) ICAO Doc 9776 Manual on VHF Digital Link (VDL) Mode 2;
 - (4) regarding the performance of ATN routers, in ICAO Doc 9880 - Technical Specifications for ATN using ISO/OSI Standards and Protocols, Second Edition, 2016, Part III – Upper Layer Communications Service (ULCS) and Internet Communications Service (ICS);
 - (5) ETSI EN 301 841-3 V1.2.1 (2015-04) VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground-based equipment; Part 3: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive
- (b) Additional performance conditions applicable to the intended purpose of air-ground data communications may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.GEN.002, DS GE.GEN.003, and DS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.

INTERFACE

DS GE.CER.B.AGDC.130 Air-ground data communications equipment interfaces

(See AMC1 GE.CER.AGDG.130)

Air-ground data communications equipment interfaces support the functions and levels of performance as required in DS GE.CER.AGDC.110 and DS GE.CER.AGDC.120.

AMC1 GE.CER.AGDC.130 Air-ground data communications equipment interfaces

Air-ground data communications equipment interfaces should comply with:

- (a) ARINC 631-7 VHF DIGITAL LINK (VDL) MODE 2 IMPLEMENTATION PROVISIONS;



- (b) ICAO Doc 9776 Manual on VHF Digital Link (VDL) Mode 2,
- (c) regarding ATN routers: ICAO Doc 9880 - Technical Specifications for ATN using ISO/OSI Standards and Protocols, Ed.2, Part III – Upper Layer Communications Service (ULCS) and Internet Communications Service (ICS).



Section 2 — Voice communications

APPLICABILITY

DS GE.CER.AGVC.201 Scope

The Section provides the functional and performance standards for air-to-ground voice communications operating in the band 117,975-137 MHz.

FUNCTION

DS GE.CER.AGVC.210 Air-to-ground voice communications

(See AMC1 GE.CER.AGVC.210)

Air-to-ground voice communications support the connections to the VCS.

AMC1 GE.CER.AGVC.210 Air-to-ground voice communications

The air-to-ground voice communication equipment should comply with:

- (a) ETSI EN 300 676-1 (V1.5.2) (2011-03) Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation; Part 1: Technical characteristics and methods of measurement
- (b) EUROCAE ED-136 – Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements, Section 2.4, requirement 25 [REQ RADIO FUNCTIONAL] Climax operation to be implemented for the off-set carrier or Climax system configuration to support the multi-carrier operation in the ground to air direction.

PERFORMANCE

DS GE.CER.AGVC.220 Air-to-ground voice communication performance

(See AMC1 GE.CER.AGVC.220, AMC2 GE.CER.AGVC.220 and AMC3 GE.CER.AGVC.220)

The performance of the air-to-ground voice communication equipment supports the intended purpose.

AMC1 GE.CER.AGVC.220 Air-to-ground voice communication performance

The air-to-ground voice communication equipment should comply with:

- (a) ICAO Annex 10, Volume III, Part 2 (Second Edition – July 2007 incorporating Amendment No 91), Chapter 2, 'Aeronautical Mobile Service':
 - (1) Section 2.1 'Air-ground VHF communication system characteristics';



- (2) Section 2.2 ‘System Characteristics of the Ground Installation’.
- (b) ETSI EN 300 676-2 (V2.1.1) (2015-12) Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation; Part 2: Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU.

AMC 2 GE.CER.AGVC.220 Voice delay

The voice delay for ground transmission components should comply with EUROCAE ED-136 – Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements, Section 2.3, requirement 6 [REQ RADIO PERFORMANCE].

AMC3 GE.CER.AGVC.220 Climax performance

In multi-carrier/climax operation the difference between the longest and the shortest voice latencies for ground transmission components should comply with:

- (a) EUROCAE ED-136 – Voice over Internet Protocol (VoIP) Air Traffic Management (ATM) System Operational and Technical Requirements, Section 2.3, requirement n. [REQ RADIO PERFORMANCE];
- (b) EUROCAE ED 137/1C - Interoperability Standards For VOIP ATM Components (Volume 1: Radio), Section 5.6.3 – Climax-Time-Delay.

DS GE.CER.AGVC.225 Voice coding

(See AMC1 GE.CER.AGVC.225)

The air-to-ground voice communications equipment supports voice codec.

AMC1 GE.CER.AGVC.225 Voice coding

The air-to-ground voice communications equipment should comply with:

- (a) ITU-T G.711 PCM A-low or u-law G.711 PCM;
- (b) EUROCAE ED-137/1C- Interoperability Standards For VOIP ATM Components (Volume 1: Radio) – Section 4.2.3, requirement 5 – [AUDIO] Voice coding requirement.

DS GE.CER.AGVC.230 RTP Class of service (CoS)

(See AMC1 GEC.CER.AGVC.230)

The air-to-ground voice communications equipment supports differentiated services (DiffServ).

AMC GE.CER.AGVC.230 Class of service (CoS)

Differentiated services should comply with ED 137/1C Interoperability Standards For VOIP ATM Components (Volume 1: Radio), Section 5.2.3, requirement 7 – [RTP] RTP Class of Service (CoS).

INTERFACE

DS GE.CER.AGVC.240 Air-to-ground voice communications interfaces

(See AMC1 GE.CER.AGVC.240)

The air-to-ground voice communications equipment provides interfaces to support the functions and levels of performance as required in DS GE.CER.AGVC.210, DS GE.CER.AGVC.220, DS GE.CER.AGVC.225, and DS GE.CER.AGVC.230.

AMC1 GE.CER.AGVC.240 Air-to-ground voice communications interfaces

- (a) The air-to-ground voice communications system should support the following interfaces:
 - (1) analogue 4W and 4WE&M,
 - (2) voice over IP (VoIP)
- (b) The air-to-ground voice communications system should comply with:
 - (1) ICAO Annex 10, Section 2.2;
 - (2) EUROCAE ED-136, Section 2.2.1;
 - (3) EUROCAE ED-137.1/C, Sections 2.3, 3.1, 3.3, 3.4, 3.8.4, and 5.5.4



PART 3 — ATM/ANS equipment subject to declaration of design compliance

DS GE.DEC.GEN.001 Scope

These detailed specifications provide standards for the declaration of design compliance, or for changes to the design, of ATM equipment which supports the following ATM/ANS services:

- (a) communications — ground-to-ground;
- (b) navigation;
- (c) surveillance.



Subpart A — Ground-to-ground communications (COM)**Section 1 — General****DS GE.DEC.GGCOM.001 Scope**

This Subpart provides the functional and performance standards applicable to the following ground-to-ground data communications:

- (a) ATS message handling system (AMHS);
- (b) system wide information management (SWIM) technical infrastructure;
- (c) flight message transfer protocol (FMTP).



Section 2 — ATS message handling system (AMHS)

APPLICABILITY

DS GE.DEC.AMHS.201 Scope

This Section provides the functional and performance standards for the:

- (a) basic; and
- (b) extended AMHS.

FUNCTION

DS GE.DEC.AMHS.210 Basic AMHS

(See AMC1 GE.DEC.AMHS.210 and GM1.GE.DEC.AMHS.210)

The basic AMHS is to be suitable for the intended purpose.

AMC1 GE.DEC.AMHS.210 Basic AMHS

The basic AMHS should comply with EUROCONTROL-SPEC-0136, Edition 2.1, EUROCONTROL Specification for the Air Traffic Services Message Handling System (AMHS), Chapter 2, Annex A.

GM1 GE.DEC.AMHS.210 Basic AMHS

The basic AMHS meets the basic requirements of the MHS Profiles published by ISO as International Standardized Profiles (ISPs), and it incorporates additional features to support the service offered by the aeronautical fixed telecommunications network (AFTN).

DS GE.DEC.AMHS.220 Extended AMHS

(See AMC1 GE.DEC.AMHS.220 and GM1.GE.DEC.AMHS.220)

The extended AMHS is to be suitable for the intended use.

AMC1 GE.DEC.AMHS.220 Extended AMHS

The extended AMHS should comply with EUROCONTROL-SPEC-0136, Edition 2.1, EUROCONTROL Specification for the Air Traffic Services Message Handling System (AMHS), Chapter 3, Annex B, Annex C and Annex D.

GM1 GE.DEC.AMHS.220 Extended AMHS

The extended ATS message handling service (use of FTBP and IHE) provides functionalities in addition to those of the basic AMHS such as the support of file transfer containing binary coded data, files, etc.



PERFORMANCE

DS GE.DEC.AMHS.230 AMHS performance

(See AMC1 GE.DEC.AMHS.230)

The performance of AMHS is to be suitable for the intended purpose.

AMC1 GE.DEC.AMHS.230 AMHS performance

- (a) Basic and extended AMHSs should comply with EUROCONTROL-SPEC-0136, Edition 2.1, EUROCONTROL Specification for the Air Traffic Services Message Handling System (AMHS), Chapter 3, Annex A and Annex B.
- (b) Additional performance conditions applicable to the intended purpose of AMHS may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.GEN.002, DS GE.GEN.003, and DS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.

INTERFACE

DS GE.DEC.AMHS.240 AMHS interfaces

(See AMC1 GE.DEC.AMHS.240)

AMHS interfaces support the functions and levels of performance as required in DS GE.DEC.AMHS.210, DS GE.DEC.AMHS.220 and DS GE.DEC.AMHS.230.

AMC1 GE.DEC.AMHS.240 AMHS interfaces

AMHS interfaces should comply with:

- (a) EUROCONTROL-SPEC-0136, Edition 2.1, EUROCONTROL Specification for the Air Traffic Services Message Handling System (AMHS), Annex A - Basic
- (b) EUROCONTROL-SPEC-0136, Edition 2.1, EUROCONTROL Specification for the Air Traffic Services Message Handling System (AMHS), Annex B - Extended



Section 3 — System wide information management (SWIM) technical infrastructure

APPLICABILITY

DS GE.DEC.SWIM.301 Scope

This Section provides the standards for SWIM technical infrastructure.

FUNCTION

DS GE.DEC.SWIM.310 SWIM

(See AMC1 GE.DEC.SWIM.310)

SWIM is to be suitable for the intended operations.

AMC1 GE.DEC.SWIM.310 SWIM

SWIM technical infrastructure should comply with EUROCONTROL-SPEC-170, Edition 1.1, EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile.

PERFORMANCE

DS GE.DEC.SWIM.320 SWIM performance

(See AMC1 GE.DEC.SWIM.320)

The performance of SWIM is to be suitable for the intended purpose.

AMC1 GE.DEC.SWIM.320 SWIM performance

- (a) The SWIM Technical infrastructure should comply with EUROCONTROL-SPEC-170, Edition 1.1, EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile.
- (b) Additional performance conditions applicable to the intended purpose of SWIM technical infrastructure yellow profile may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.GEN.002, DS GE.GEN.003, and DS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.

INTERFACE

DS GE.DEC.SWIM.330 SWIM interfaces

(See AMC1 GE.DEC.SWIM.330)

The SWIM technical infrastructure interfaces support the functions and levels of performance as required in DS GE.DEC.SWIM.310 and DS GE.DEC.SWIM.320.



AMC1 GE.DEC.330 SWIM Interfaces

The SWIM technical infrastructure interfaces should comply with EUROCONTROL-SPEC-170, Edition 1.1, EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile.



Section 4 — Flight message transfer protocol (FMTP)

APPLICABILITY

DS GE.DEC.FMTP.401 Scope

This Section provides the standards for the FMTP.

FUNCTION

DS GE.DEC.FMTP.410 FMTP

(See AMC1 GE.DEC.FMTP.410)

The FMTP is to be suitable for the intended purpose.

AMC1 GE.DEC.FMTP.410 FMTP

The FMTP should comply with EUROCONTROL-SPEC-0100, Edition 2.0, EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol.

PERFORMANCE

DS GE.DEC.FMTP.420 FMTP performance

(See AMC1 GE.DEC.FMTP.420)

The performance of the FMTP is to be suitable for the intended purpose.

AMC1 GE.DEC.FMTP.420 FMTP performance

- (a) The FMTP should comply with EUROCONTROL-SPEC-0100, Edition 2.0, EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol.
- (b) Additional performance conditions applicable to the intended purpose of the FMTP may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.GEN.002, DS GE.GEN.003, and DS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.

INTERFACE

DS GE.DEC.FMTP.430 FMTP interfaces

(See AMC1 GE.DEC.FMTP.430)

FMTP interfaces support the functions and levels of performance as required in DS GE.DEC.FMTP.410 and DS GED.FMTP.420.



AMC1 GE.DEC.FMTP.430 FMTP interfaces

FMTP interfaces should comply with EUROCONTROL-SPEC-0100, Edition 2.0, EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol.



Subpart B — Navigation (NAV)

Section 1 — General

Reserved



Subpart C — Surveillance (SUR)

Section 1 — General

DS GE.DEC.MSS.101 Scope

This Subpart provides standards applicable to the following surveillance technologies:

- (a) Mode S;
- (b) ADS-B;
- (c) WAM.



Section 2 — Mode S ground station system (MSS)

APPLICABILITY

DS GE.DEC.MSS.201 Scope

This Section provides the standards applicable to the Mode S ground station system (MSS) composed of the following elements:

- (a) interrogator;
- (b) processing (SMF, DLF, PAI);
- (c) local display;
- (d) data recorder and playback;
- (e) control and monitoring systems (CMS);
- (f) far field monitor;
- (g) NTP time server.

FUNCTION

DS GE.DEC.MSS.210 Data items

(See AMC1 GE.DEC.MSS.210)

The MSS detects aircraft equipped with a transponder and provides the following the data items:

- (a) measured horizontal position;
- (b) barometric pressure-altitude (Mode C code);
- (c) time of applicability;
- (d) identity (Mode A code);
- (e) special position indicator (SPI);
- (f) 24-bit ICAO aircraft address;
- (g) flight status (ground/airborne);
- (h) data link capability;
- (i) GICB capabilities;
- (j) aircraft identification;
- (k) ACAS resolution advisories;
- (l) MCP/FCU selected altitude;
- (m) roll angle;
- (n) true track angle;
- (o) ground speed;



- (p) magnetic heading;
- (q) indicated airspeed (IAS);
- (r) Mach number;
- (s) vertical rate;
- (t) barometric pressure setting;
- (u) track angle rate;
- (v) true airspeed.

AMC1 GE.DEC.MSS.210 Data items

The MSS should comply with EUROCONTROL-SPEC-189, Edition 4.0, EUROCONTROL Specification for European Mode S Station (EMS), Chapters 3, 5 and 6.

DS GE.DEC.MSS.220 Operating conditions

(See AMC1 GE.DEC.MSS.220)

The MSS is to be suitable for the intended purpose.

AMC1 GE.DEC.MSS.220 Operating conditions

The MSS should comply with EUROCONTROL-SPEC-189, Edition 4.0, EUROCONTROL Specification for European Mode S Station (EMS), Chapters 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.11, 7.12, and Annex D.

PERFORMANCE

DS GE.DEC.MSS.230 MSS performance

(See AMC1 GE.DEC.MSS.230)

The MSS performance is suitable for the intended purpose in the intended operational environment.

AMC1 GE.DEC.MSS.230 MSS performance

- (a) The MSS should comply with EUROCONTROL-SPEC-189, Edition 4.0, EUROCONTROL Specification for European Mode S Station (EMS).
- (b) ETSI EN 303 363-1 (V1.1.1) (2022-02) Air Traffic Control Surveillance Radar Sensors; Secondary Surveillance Radar (SSR); Harmonised Standard for access to radio spectrum; Part 1: SSR Interrogator¹³.
- (c) Additional performance conditions applicable to the intended purpose of the MSS may be defined as required. Such potential additional performance conditions may be derived from

¹³ This document is not yet officially available. It will be available by the time the ED Decision stemming from the consultation of this NPA is officially published.

activities related to DS GE.GEN.002, DS GE.GEN.003, and DS GE.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.

INTERFACE

DS GE.DEC.MSS.240 MSS Interfaces

(See AMC1 GE.DEC.MSS.240)

MSS interfaces support the functions and levels of performance as required in DS GE.DEC.MSS.210 and DS GE.DEC.MSS.230.

AMC1 GE.DEC.MSS.240 MSS interfaces

The MSS should comply with EUROCONTROL-SPEC-189, Edition 4.0, EUROCONTROL Specification for European Mode S Station (EMS), Chapter 4.

INTEGRITY

DS GE.DEC.MSS.250 Integrity

(See AMC1 GE.DEC.MSS.250)

The MSS reliability, availability, and maintainability are suitable for the intended purpose.

AMC1 GE.DEC.MSS 250 Integrity

The MSS should comply with EUROCONTROL-SPEC-189, Edition 4.0, EUROCONTROL Specification for European Mode S Station (EMS), Chapter 9.7.2.

HARDWARE

DS GE.DEC.MSS.260 Hardware

(See AMC1 GE.DEC.MSS.260)

The MSS hardware is commensurate with its intended purpose.

AMC1 GE.DEC.MSS 260 Hardware

The MSS hardware should comply with EUROCONTROL-SPEC-189, Edition 4.0, EUROCONTROL Specification for European Mode S Station (EMS), Chapters 8.4 and 8.5.4.



SPECIFIC ENVIRONMENTAL CONDITIONS

DS GE.DEC.MSS 270 Environmental conditions

(See AMC1 GE.DEC.MSS.270)

The MSS is capable of operating in the environmental conditions corresponding to its intended purpose.

AMC1 GE.DEC.MSS 270 Environmental conditions

The MSS should comply EUROCONTROL-SPEC-189, Edition 4.0, EUROCONTROL Specification for European Mode S Station (EMS), Chapter 9.2.



Section 3 — ADS-B

APPLICABILITY

DS GE.DEC.ADSB.301 Scope

This Section provides the standards applicable to 1090 MHz extended squitter ADS-B ground systems.

FUNCTION

DS GE.DEC.ADSB.310 Function

(See AMC1 GE.DEC.ADSB.310)

The ADS-B system detects aircraft equipped with an ADS-B 1090ES transponder and provides the following data items:

- (a) 24-bit ICAO aircraft address;
- (b) aircraft identification;
- (c) Mode A code;
- (d) special position indication (SPI);
- (e) emergency status;
- (f) ADS-B version number;
- (g) ADS-B emitter category;
- (h) geodetic horizontal position in accordance with the world geodetic system revision 1984 (WGS84) latitude and longitude;
- (i) geodetic horizontal position quality indicators;
- (j) pressure altitude;
- (k) geometric altitude;
- (l) geometric vertical accuracy (GVA);
- (m) velocity over ground, while airborne (east/west and north/south airborne velocity over ground) or on the ground (surface heading/ground track and movement);
- (n) velocity quality indicator (corresponding to the navigation accuracy category for velocity (NACv));
- (o) aircraft length and width;
- (p) global navigation satellite system (GNSS) antenna offset;
- (q) vertical rate;
- (r) selected altitude;
- (s) barometric pressure setting;
- (t) ACAS active resolution advisories.



AMC1 GE.DEC.ADSB.310 Function

The ADS-B system should comply with EUROCAE ED-129B - Technical Specification for 1090 MHz Extended Squitter ADS-B Ground System, Sections 2 and 3.2.

DS GE.DEC.ADSB.315 Control and monitoring

(See AMC1 GE.DEC.ADSB.315)

The ADS-B system provides control and monitoring functions that are commensurate with the intended purpose.

AMC1 GE.DEC.ADSB.315 Control and monitoring

The ADS-B system should comply with EUROCAE ED-129B - Technical Specification for 1090 MHz Extended Squitter ADS-B Ground System, Section 3.5.

PERFORMANCE

DS GE.DEC.ADSB.320 ADS-B performance

(See AMC1 GE.DEC.ADSB.320)

The ADS-B system performance is to be commensurate with the intended purpose.

AMC1 GE.DEC.ADSB.320 ADS-B performance

- (a) The ADS-B system should comply with EUROCAE ED-129B - Technical Specification for 1090 MHz Extended Squitter ADS-B Ground System, Section 3.3.
- (b) Additional performance conditions applicable to the intended purpose of ADS-B systems may be defined as required. Such potential additional performance conditions may be derived from activities related to DS GE.CER.GEN.002, DS GE.CER.GEN.003, and DS GE.CER.GEN.004, for which the possible effects of the severity of the effect of failure on safety should be assessed.

INTERFACE

DS GE.DEC.ADSB.330 ADS-B interfaces

(See AMC1 GE.DEC.ADSB.330)

The ADS-B system interfaces support the intended purpose.

AMC1 GE.DEC.ADSB.330 ADS-B Interfaces

The ADS-B system should comply with EUROCAE ED-129B - Technical Specification for 1090 MHz Extended Squitter ADS-B Ground System, Section 3.4.



ENVIRONMENTAL CONDITIONS

DS GE.DEC.ADSB.340 Environmental Conditions

(See AMC1 GE.DEC.ADSB.340)

The ADS-B system is capable of operating in the environmental conditions corresponding to its intended purpose.

AMC1 GE.DEC.ADSB.340 Environmental Conditions

The ADS-B system should comply with EUROCAE ED-129B - Technical Specification for 1090 MHz Extended Squitter ADS-B Ground System, Section 4.



Section 4 — Wide area multilateralism

General

Reserved



4.6. Draft detailed specifications and and guidance material for ATM/ANS equipment subject to Statement of Compliance (DS-SoC)

SUBPART A — General

DS SoC.GEN.001 Scope

These detailed specifications prescribe the standards and related and guidance material (GM) for the design, or for changes to the design, of ATM/ANS equipment for which a statement of compliance (SoC) is to be made.

DC SoC.GEN.005 Standards to meet technical conditions

Unless otherwise stated in the detailed specification, the ATM/ANS equipment needs to meet the following:

(a) Environmental standards

The ATM/ANS equipment is to be designed to operate in the environmental conditions for the intended operations.

Compliance should be demonstrated with one of the following environmental standards, as applicable:

- (1) ETSI EN 300 019-1-3 (V2.4.1) (2014-04) 'Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-3: Classification of environmental conditions; Stationary use at weather protected locations'
- (2) ETSI EN 300 019-1-4 (V2.2.1) (2014-04) 'Environmental Engineering (EE); Environmental conditions and environmental tests for telecommunications equipment; Part 1-4: Classification of environmental conditions; Stationary use at non-weather protected locations'

(b) Software

Software is to be developed with an assurance level that is commensurate with the intended operations.

Compliance should be demonstrated with one of the following, as applicable:

- (1) EUROCAE ED-109 - Software Integrity Assurance Considerations for CNS/ATM Systems
- (2) EUROCAE ED-153 - Guidelines for ANS Software Safety Assurance

The software assurance level, known as SWAL, should be determined according to the risk assessment, see point (d).

The use of any other means of compliance is to be subject to authority approval.

(c) Hardware

Hardware is to be suitable for the intended operations of the ATM/ANS system or constituent.



The hardware is to behave as intended commensurate with the risk assessment, see point (d).

(d) Risk assessment

The ATM/ANS equipment is to be designed such that the probability of a failure has an inverse relationship with the severity of the effect of the failure with respect to its intended operations.

(e) Information security

The ATM/ANS equipment is to be appropriate for the intended purpose in the intended security environment.

The framework provided by EUROCAE ED-205A 'Process standard for information security certification and declaration of ATM ANS ground systems' may be used to define the required level of security functions.

GM1 SoC.GEN.005 Standards to meet technical conditions

The standards documents referred to in these detailed specifications may be purchased or obtained from the following organisations:

ETSI European Telecommunications Standards Institute

650, Route des Lucioles

06560 Valbonne - Sophia Antipolis

FRANCE

Telephone: +33 4 92 94 42 00

<https://www.etsi.org/standards>

EUROCAE documents:

European Organisation for Civil Aviation Equipment

9-23 rue Paul Lafargue, "Le Triangle" building, 93200 Saint-Denis, France

Telephone: +33 1 49 46 19 65

Email: eurocae@eurocae.net

website: www.eurocae.net

EUROCONTROL Document Library:

<https://www.eurocontrol.int/standardisation> —

DC SoC.GEN.010 Identification

When a SoC has been issued, the ATM/ANS equipment is to be permanently identified with the appropriate SoC number.



SUBPART B — Detailed specifications for ATM/ANS equipment subject to statement of compliance

SoC list

EASA DS SoC Ref	Title	Amendment
DS SoC.001	Aeronautical information management (AIM) system	Issue 1
DS SoC.002	Local ASM support system	Issue 1
DS SoC.003	ATFM system	Issue 1
DS SoC.004	MET data distribution	Issue 1



DS SoC.001 Aeronautical information management (AIM) system

1.1 This detailed specification provides the minimum requirements which national and pan-European aeronautical information management (AIM) systems that are designed and manufactured on or after the date of issue of this document must meet.

1.2 Minimum performance standard

The applicable standards are those provided in:

(a) AIS data collection

- Annex 15 to the Convention on International Civil Aviation - Aeronautical Information Services (Sixteenth Edition, July 2018) – Chapters 1 (Sections 1.2 and 1.3), 3 and 4
- ICAO Doc 10066 – Procedures for Air Navigation Services (PANS) Aeronautical Information Management (AIM) (First Edition, 2018) – Chapters 2, 3, 4 and Appendices 1, 6 and 8
- EUROCAE ED-76A – Standards for processing aeronautical data (June 2015) – Chapter 2 and Appendix B

(b) Data management system and data maintenance system

- Annex 15 to the Convention on International Civil Aviation - Aeronautical Information Services (Sixteenth Edition, July 2018) – Chapters 1 (Sections 1.2 and 1.3) and 3
- ICAO Doc 10066 – Procedures for Air Navigation Services (PANS) Aeronautical Information Management (AIM) (First Edition, 2018) – Chapters 3 and 4
- EUROCAE ED-76A – Standards for processing aeronautical data (June 2015) – Chapter 2 and Appendix C

(c) AIP Production

- Annex 15 to the Convention on International Civil Aviation - Aeronautical Information Services (Sixteenth Edition, July 2018) – Chapters 5 (Sections 5.1 and 5.2) and 6 (Sections 6.2 and 6.3.1)
- ICAO Doc 10066 – Procedures for Air Navigation Services (PANS) Aeronautical Information Management (AIM) (First Edition, 2018) – Chapter 5 (Sections 5.1 and 5.2), 6 (Sections 6.1.2 and 6.1.3) and Appendix 2
- EUROCONTROL SPEC-146 Specification for the Electronic Aeronautical Information Publication (eAIP)

(d) Charting production

- Annex 4 to the Convention on International Civil Aviation - Aeronautical Charts (Eleventh Edition, July 2009)



- Annex 15 to the Convention on International Civil Aviation - Aeronautical Information Services (Sixteenth Edition, July 2018) – Chapter 5 (Section 5.2.5)
- ICAO Doc 10066 – Procedures for Air Navigation Services (PANS) Aeronautical Information Management (AIM) (First Edition, 2018) – Chapter 5

(e) NOTAM production

- Annex 15 to the Convention on International Civil Aviation - Aeronautical Information Services (Sixteenth Edition, July 2018) – Chapters 5 (Sections 5.2.6 and 5.4.2) and 6 (Section 6.3.2)
- ICAO Doc 10066 – Procedures for Air Navigation Services (PANS) Aeronautical Information Management (AIM) (First Edition, 2018) – Chapters 5 (Sections 5.2.5 and 5.4.2), 6 (Section 6.1.4) and Appendices 3, 4, 5 and 7

(f) Digital data set production

- Annex 15 to the Convention on International Civil Aviation - Aeronautical Information Services (Sixteenth Edition, July 2018) – Chapter 5 (Section 5.3)
- ICAO Doc 10066 – Procedures for Air Navigation Services (PANS) Aeronautical Information Management (AIM) (First Edition, 2018) – Chapter 5 (Section 5.3) and Appendices 1 and 8
- EUROCAE ED-76A – Standards for processing aeronautical data (June 2015) – Chapter 2

(g) Workflow management system

- Annex 15 to the Convention on International Civil Aviation - Aeronautical Information Services (Sixteenth Edition, July 2018) – Chapter 3
- ICAO Doc 10066 – Procedures for Air Navigation Services (PANS) Aeronautical Information Management (AIM) (First Edition, 2018) – Chapter 3

(h) Interfaces

- ICAO Doc 10066 – Procedures for Air Navigation Services (PANS) Aeronautical Information Management (AIM) (First Edition, 2018) – Chapter 5 (Section 5.4)
- EUROCONTROL-SPEC-170 Specification for SWIM Technical Infrastructure (TI) Yellow Profile (Edition 1.1, July 2020)

(i) Distribution

- Annex 15 to the Convention on International Civil Aviation - Aeronautical Information Services (Sixteenth Edition, July 2018) – Chapter 5 (Sections 5.4 and 5.5)
- ICAO Doc 10066 – Procedures for Air Navigation Services (PANS) Aeronautical Information Management (AIM) (First Edition, 2018) – Chapter 5 (Sections 5.4. and 5.5)
- EUROCONTROL-SPEC-169 Specification for SWIM Information Definition (Edition 1.0, December 2017)

- EUROCONTROL-SPEC-168 Specification for SWIM Service Description (SD) (Edition 2.0, March 2022)
- EUROCONTROL-SPEC-170 Specification for SWIM Technical Infrastructure (TI) Yellow Profile (Edition 1.1, July 2020)

1.3 Environmental standard

See Subpart A, point (a) of DS SoC.GEN.005.

1.4 Software

See Subpart A, point (b) of DS SoC.GEN.005.

1.5 Electronic hardware

See Subpart A, point (c) of DS SoC.GEN.005.

1.6 Failure condition classification

See Subpart A, point (d) of DS SoC.GEN.005.

1.7 Information security

See Subpart A, point (e) of DS SoC.GEN.005.



DC SoC.002 Local ASM support system

1.1 This detailed specification provides the minimum requirements for Local ASM support systems that are designed and manufactured on or after the date of issue of this document must meet.

1.2 Minimum performance standard

The applicable standards are those provided in:

- EUROCONTROL-SPEC-166 Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level - Part 1 - Baseline requirements (Edition 1.1¹⁴)
- EUROCONTROL-SPEC-179 - Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level - Part 2 - ASM to ASM Systems Interface Requirements (Edition 1.1¹⁵)

1.3 Environmental standard

See Subpart A, point (a) of DS SoC.GEN.005.

1.4 Software

See Subpart A, point (b) of DS SoC.GEN.005.

1.5 Electronic hardware

See Subpart A, point (c) of DS SoC.GEN.005.

1.6 Failure condition classification

See Subpart A, point (d) of DS SoC.GEN.005.

1.7 Information security

See Subpart A, point (e) of DS SoC.GEN.005.

¹⁴ Edition 1.1 is not yet officially available. It will be available by the time the ED Decision stemming from the consultation of this NPA is officially published.

¹⁵ Edition 1.1 is not yet officially available. It will be available by the time the ED Decision stemming from the consultation of this NPA is officially published.



DS SoC.003 ATFM system

1.1 This detailed specification provides the minimum requirements which ATM/ANS equipment for ATFM that are designed and manufactured on or after the date of issue of this document must meet.

1.2 Minimum performance standard

The applicable standards are those provided in:

(a) ATFM equipment of the NM

- ATFM measures
 - None
- Collaborative NOP
 - None
- Automated support for traffic complexity assessment
 - None
- Flight plan information processing
 - EUROCONTROL-GUID-0101 Specification for the Initial Flight Plan (Edition 2.0, December 2020)
- Interfaces
 - EUROCONTROL-SPEC-0107 Specification for ATS Data Exchange Presentation (ADEXP) (Edition 3.4, May 2023)
 - EUROCONTROL-GUID-0101 Specification for the Initial Flight Plan (Edition 2.0, December 2020)
 - EUROCONTROL NMB2B/27.0 NM 27.0 - NM B2B Reference Manual Edition 3

(b) ATFM equipment of an ATS provider

- Collaborative NOP
 - None
- Interfaces
 - EUROCONTROL-SPEC-0107 Specification for ATS Data Exchange Presentation (ADEXP) (Edition 3.4, May 2023)
 - EUROCONTROL-GUID-0101 Specification for the Initial Flight Plan (Edition 2.0, December 2020)
 - EUROCONTROL NMB2B/27.0 NM 27.0 - NM B2B Reference Manual Edition 3

1.3 Environmental standard



See Subpart A, point (a) of DS SoC.GEN.005.

1.4 Software

See Subpart A, point (b) of DS SoC.GEN.005.

1.5 Electronic hardware

See Subpart A, point (c) of DS SoC.GEN.005.

1.6 Failure condition classification

See Subpart A, point (d) of DS SoC.GEN.005.

1.7 Information security

See Subpart A, point (e) of DS SoC.GEN.005.



DS SoC.004 MET data distribution

1.1 This detailed specification provides the minimum requirements for SWIM services supporting distribution of MET data that are designed and manufactured on or after the date of issue of this document must meet.

1.2 Minimum performance standard

The applicable standards are those provided in:

- EUROCONTROL-SPEC-168 Specification for SWIM Service Description (SD) (Edition 2.0, March 2022)
- EUROCONTROL-SPEC-169 Specification for SWIM Information Definition (Edition 1.0, December 2017)
- EUROCONTROL-SPEC-170 Specification for SWIM Technical Infrastructure (TI) Yellow Profile (Edition 1.1, July 2020)
- IWXXM Version 2021-2 (<https://schemas.wmo.int/iwxxm/2021-2/>)

1.3 Environmental standard

See Subpart A, point (a) of DS SoC.GEN.005.

1.4 Software

See Subpart A, point (b) of DS SoC.GEN.005.

1.5 Electronic hardware

See Subpart A, point (c) of DS SoC.GEN.005.

1.6 Failure condition classification

See Subpart A, point (d) of DS SoC.GEN.005.

1.7 Information security

See Subpart A, point (e) of DS SoC.GEN.005.



5. Monitoring and evaluation

As this NPA introduces the first set of DSs, AMC and GM to enable the certification and declaration scheme for certain ATM/ANS equipment that will apply to new and modified (e.g. upgraded) ATM/ANS equipment designs, EASA will monitor their implementation as follows:

- (a) by evaluating feedback from future ATM/ANS equipment certification projects; and
- (b) in the long term, by evaluating the trend of the issues encountered with the ATM/ANS equipment during the investigation of accidents and incidents, as well as other feedback from ATM/ANS equipment manufacturers, ATM/ANS service providers, and oversight authorities.

Further to monitoring, an evaluation might be performed in the long term but in any case, not earlier than 5 years from the completion of the transition period; this evaluation would require the availability of experience gained from several ATM/ANS equipment certification projects and the issuance of SoCs by ATM/ANS service providers and oversight authorities.

Feedback on item (b) above would be available once new and modified (e.g. upgraded) ATM/ANS equipment designs have entered into service and sufficient experience has been gained with their operation.



6. Proposed actions to support implementation

In order to support affected stakeholders in the implementation of the regulatory material proposed with this NPA, EASA plans to take the following actions, as appropriate:

- Focused communication for Advisory Body meeting(s) (MAB/SAB/TeB/TEC/COM)
(Advisory Body members)
- Detailed explanation with clarifications on the EASA website
(Primarily targeted audience: industry, competent authorities)
- Dedicated thematic workshop/session
(Primarily targeted audience: industry, competent authorities)



7. References

7.1. Related EU regulations

- Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1)
- Commission Implementing Regulation (EU) 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011, (EU) No 1035/2011 and (EU) 2016/1377 and amending Regulation (EU) No 677/2011 (OJ L 62, 8.3.2017, p. 1)

7.2. Related EASA decisions

- ED Decision 2017/001/R Common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight
- ED Decision 2020/014/R Commission Implementing Regulation (EU) No 1207/2011 (the surveillance performance and interoperability (SPI) Regulation)

7.3. Other references

- Regulation (EC) No 552/2004 of the European Parliament and of the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation) (OJ L 96, 31.3.2004, p. 26)
- [NPA 2022-09](#) 'Establishment of a regulatory framework on the conformity assessment of ATM/ANS systems and ATM/ANS constituents (ATM/ANS equipment) (Subtask 1)' issued on 16 August 2022
- [NPA 2022-107](#) 'Simpler interoperability framework for the single European sky airspace' issued to EASA Advisory Bodies on 30 November 2022
- [Opinion No 01/2023](#) 'Regulatory framework on the conformity assessment of ATM/ANS systems and ATM/ANS constituents (ATM/ANS equipment) for the safe and seamless operation of the European ATM network' issued on 31 January 2023
- ICAO Annex 10 'Aeronautical Telecommunications' (Volume II 'Communication Procedures' including those with PANS status) — Seventh Edition, July 2016
- ICAO Annex 10, Volume III, Part 2 (Second Edition – July 2007 incorporating Amendment No 91)
- ICAO Annex 10 'Aeronautical Telecommunications' (Volume V 'Aeronautical Radio Frequency Spectrum Utilization') — Third Edition, July 2013
- ICAO Annex 11 'Air Traffic Services' — Fifteenth Edition, July 2018



- ICAO Doc 4444 'Procedures for Air Navigation Services — Air Traffic Management' (PANS ATM) — Sixteenth Edition, 2016
- ICAO Doc 7030 'Regional Supplementary Procedures' — Fifth Edition, 2008 — Amendment No 9, dated 25.4.2014



Appendix 1 — Quality of the NPA

To continuously improve the quality of its documents, EASA welcomes your feedback on the quality of this document with regard to the following aspects:

Please provide your feedback on the quality of this document as part of the other comments you have on this NPA. We invite you to also provide a brief justification, especially when you disagree or strongly disagree, so that we consider this for improvement. Your comments will be considered for internal quality assurance and management purposes only and will not be published (e.g. as part of the CRD).

1. The regulatory proposal is of technically good/high quality

Please choose one of the options

Fully agree / Agree / Neutral / Disagree / Strongly disagree

2. The text is clear, readable and understandable

Please choose one of the options

Fully agree / Agree / Neutral / Disagree / Strongly disagree

3. The regulatory proposal is well substantiated

Please choose one of the options

Fully agree / Agree / Neutral / Disagree / Strongly disagree

4. The regulatory proposal is fit for purpose (achieving the objectives set)

Please choose one of the options

Fully agree / Agree / Neutral / Disagree / Strongly disagree

5. The regulatory proposal is proportionate to the size of the issue

Please choose one of the options

Fully agree / Agree / Neutral / Disagree / Strongly disagree

6. The regulatory proposal applies the ‘better regulation’ principles^[1]

Please choose one of the options

Fully agree / Agree / Neutral / Disagree / Strongly disagree

7. Any other comments on the quality of this document (please specify)

^[1] For information and guidance, see:

- https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how_en
- https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox_en
- https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how/better-regulation-guidelines-and-toolbox/better-regulation-toolbox_en