

Detailed Specifications and Acceptable Means of Compliance & Guidance Material for statement of compliance of ATM/ANS ground equipment (DS-GE.SoC)

Issue 1

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SUBPART A — General

DS SoC.GEN.001 Scope

These Detailed Specifications (DSs) and the related acceptable means of compliance (AMC) and guidance material (GM) are applicable to the design, or changes to the design, of ATM/ANS equipment for which a statement of compliance (SoC) is to be made in accordance with Article 6 of Regulation (EU) 2023/1768.

The basis for the issue of a SoC should be the DSs that are applicable to the ATM/ANS equipment on or after the date of the issue of the SoC.

AMC1 DS SoC.GEN.001 Scope

In order to issue a SoC, the ATM/ANS providers or the organisations involved in the design or production of ATM/ANS equipment (DPOs), on their behalf, should demonstrate compliance of ATM/ANS equipment with:

- (a) the DS set out in this Subpart A; and
- (b) the additional specific DS set out in Subpart B, if available.

DS SoC.GEN.005 Standards to meet technical conditions

Unless otherwise stated in the DS, 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 use.

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 use. The software assurance level should be determined according to the safety assessment.

(c) Hardware

Hardware is to be suitable for the intended use of the ATM/ANS equipment.

The hardware is to behave as intended and to be commensurate with the safety assessment.

(d) Assessment of failure conditions

The ATM/ANS equipment is to be designed such that the probability of a failure condition is low when the severity of the effect of the failure is high, with respect to its intended use.

(e) Information security

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

GM1 SoC.GEN.005 Standards to meet technical conditions

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

- ETSI European Telecommunications Standards Institute

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

- EUROCAE documents

website: www.eurocae.net

- EUROCONTROL Document Library:

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

GM1 SoC.GEN.005(b) Standards to meet technical conditions

The following standards may be used to support the allocation of software assurance level (SWAL):

- (1) EUROCAE ED-109A including Corrigendum 1 — *Software Integrity Assurance Considerations for CNS/ATM Systems*;
- (2) EUROCAE ED-153 — *Guidelines for ANS Software Safety Assurance*.

GM1 SoC.GEN.005(e) Standards to meet technical conditions

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

DS 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 — Specific detailed specifications for ATM/ANS equipment subject to
statement of compliance**

SoC list

EASA DS SoC Ref	Title	Issue
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.005	Extended arrival management (EAMAN)	Issue 1
DS SoC.006	Departure management (DMAN)	Issue 1

DS SoC.001 Aeronautical information management (AIM) system

1.1 This DS provides the minimum requirements for national and pan-European ATM/ANS equipment supporting aeronautical information management (AIM).

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) — Chapters 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 DS provides the minimum requirements for local airspace management (ASM) support systems.

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 1.0)
- 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 1.0)

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.003 ATFM system

1.1 This DS provides the minimum requirements for ATM/ANS equipment supporting air traffic flow management (ATFM).

1.2 Minimum performance standard

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

(a) ATFM equipment of the NM

- EUROCONTROL-SPEC-101 Specification for the Initial Flight Plan (Edition 2.0, December 2020)
- EUROCONTROL-SPEC-0107 Specification for ATS Data Exchange Presentation (ADEXP) (Edition 3.4, May 2023) Chapter E.2 Flight Plan Messages
- EUROCONTROL-SPEC-0136, Edition 2.1, EUROCONTROL Specification for the Air Traffic Services Message Handling System (AMHS), Chapters 2, 3, 4, 5 and Section A.2.1.4.

or

- 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, Edition 1.1, EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile

(b) ATFM equipment of an ATS provider

- EUROCONTROL-SPEC-0107 Specification for ATS Data Exchange Presentation (ADEXP) (Edition 3.4, May 2023)
- EUROCONTROL-SPEC-101 Specification for the Initial Flight Plan (Edition 2.0, December 2020)

GM1 SoC.003 ATFM system

Additional information is available in 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 DS provides the minimum requirements for ATM/ANS equipment supporting system wide information management (SWIM) services supporting distribution of MET data.

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.

DS SoC.005 Extended arrival management (EAMAN)

1.1 This DS provides the minimum requirements for ATM/ANS equipment supporting extended arrival management (EAMAN).

1.2 Minimum performance standard

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

- EUROCAE ED-254 – Arrival Sequence Service Performance Standard;
- EUROCONTROL SPEC-107 Specification for ATS Data Exchange Presentation (ADEXP) Edition 3.4, Section E.4.2;
- EUROCONTROL SPEC-106 Specification for On-Line Data Interchange (OLDI), Edition 5.1, Sections 4.6, 5.2 and 11.6;
- EUROCONTROL-SPEC-0136, Edition 2.1, EUROCONTROL Specification for the Air Traffic Services Message Handling System (AMHS), Chapters 2, 3, 4, 5 and Section A.2.1.4;
- EUROCONTROL-SPEC-0100, Edition 2.0, EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol.

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.006 Departure management (DMAN)

1.1 This DS provides the minimum requirements for ATM/ANS equipment supporting departure management (DMAN).

1.2 Minimum performance standard

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

- EUROCAE ED-141 — Minimum Technical Specifications for Airport Collaborative Decision Making (Airport-CDM) Systems;
- EUROCAE ED-145 — Airport-CDM Interface Specification;
- EUROCONTROL-SPEC-0136, Edition 2.1, EUROCONTROL Specification for the Air Traffic Services Message Handling System (AMHS), Chapter 2, Chapters 3, 4, 5 and Section A.2.1.4;

or

- EUROCONTROL-SPEC-170, Edition 1.1, EUROCONTROL Specification for SWIM Technical Infrastructure (TI) Yellow Profile;
- 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-0100, Edition 2.0, EUROCONTROL Specification of Interoperability and Performance Requirements for the Flight Message Transfer Protocol.

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.

GM1 SoC.005 DMAN

Additional information is available in EUROCAE ED-146, which provides guidelines for test and validation related to airport CDM interoperability.