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Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 8: Community Specification for A-SMGCS guidance service

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Foreword

This draft European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM), and is now submitted for the combined Public Enquiry and Vote phase of the ETSI standards EN Approval Procedure.

The presumption of conformity which is linked to the full application of ETSI EN 303 213 (parts 1-4, 7 and 8) [i.4] can only be claimed after ETSI EN 303 213 (parts 1-4, 7 and 8) [i.4] has been listed in the Official Journal of the European Union as Community Specification.

General requirements for presumption of conformity to Regulation (EU) 2018/1139 [i.3] are given in the normative annex of the present document.

NOTE: Other requirements and other EU Regulations and/or Directives may be applicable to the product(s) falling within the scope of the present document.

The present document is part 8 of a multi-part deliverable covering Advanced Surface Movement Guidance and Control System (A-SMGCS), as identified below:

Part 1: "Community Specification for A-SMGCS surveillance service including external interfaces";

Part 2: "Community Specification for A-SMGCS airport safety support service";

Part 3: "Community Specification for a deployed cooperative sensor including its interfaces";

Part 4: "Community Specification for a deployed non-cooperative sensor including its interfaces";

Part 5: "Harmonised Standard for access to radio spectrum for Multilateration (MLAT) equipment";

Part 6: "Harmonised Standard for access to radio spectrum for deployed surface movement radar sensors";

Part 7: "Community Specification for A-SMGCS routing service";

Part 8: "Community Specification for A-SMGCS guidance service".

Proposed national transposition dates	
Date of latest announcement of this EN (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document is applicable to the Advanced Surface Movement Guidance and Control System (A-SMGCS) Guidance Service. This service is based on the A-SMGCS surveillance service (as specified in ETSI EN 303 213-1 [3]) and generates individual guidance information for mobiles based on the surveillance and routing information and known constraints (e.g. standard taxi routes, taxiway closures). In most cases these guidance information will be provided to external partner systems of the A-SMGCS, such as the airfield ground lighting or electronic flight bag display systems in the cockpit of the mobiles. The guidance information can be modified by the controller at any time.

The present document provides a European Standard for Air Navigation Service Providers, who have to demonstrate and declare compliance of their systems and procedures to the Regulation (EU) 2018/1139 [i.3] , and takes into account Commission Implementing Regulation (EU) 2021/116 [i.2].

A mapping of requirements for the A-SMGCS guidance service to the relevant Essential Requirements of Regulation (EU) 2018/1139 [i.3] is provided in Annex A.

Any software elements related to the software assurance level of an A-SMGCS are outside of the scope of the present document. As such the essential requirements of the Regulation (EU) 2018/1139 [i.3] are not considered for software elements within the present document.

The present document does not give presumption of conformity related to the maintenance requirements, environmental constraints, procedure level, effect of harmful interference and civil/military coordination.

NOTE: For these ERs, refer to the Air Navigation Service Provider procedures.

Requirements in the present document which refer to "should" statements or recommendations in the normatively referenced material (clause 2.1) are to be interpreted as fully normative ("shall") for the purpose of compliance with the present document.

Currently there are no relevant Implementing Rules for A-SMGCS. The present document does not give presumption of conformity to any current interoperability Implementing Rules.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are necessary for the application of the present document.

[1] EUROCAE ED-87E (April 2022): "MASPS for A-SMGCS including Airport Safety Support Service Routing Service and Guidance Service".

[2] EUROCONTROL-SPEC-171 Version 2.0 (22/04/2020): "EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services".

[3] ETSI EN 303 213-1: "Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 1: Community Specification for A-SMGCS surveillance service including external interfaces".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] ICAO Document 9830, AN/452: "Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual", First Edition, 2004.

[i.2] 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.

[i.3] 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.

[i.4] ETSI EN 303 213 (all parts): "Advanced Surface Movement Guidance and Control System (A-SMGCS)".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in EUROCAE ED-87E [1] and the following apply:

Advanced Surface Movement Guidance and Control System: system providing as a minimum Surveillance and which can include Airport Safety Support, Routing and Guidance to aircraft and vehicles in order to maintain the airport throughput under all local weather conditions whilst maintaining the required level of safety

NOTE: This definition is derived from EUROCAE ED-87E [1].

aerodrome: defined area (including any buildings, installations, and equipment) intended to be used either wholly or in part for arrival, departure and surface movement of aircraft

NOTE: This definition is derived from the ICAO Document 9830 [i.1].

apron: defined area on an aerodrome, intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance

NOTE 1: This definition is derived from the ICAO Document 9830 [i.1].

NOTE 2: De-icing platforms, including remote de-icing areas, are considered as apron areas.

availability: probability that the system will operate satisfactorily at a given point in time when used under stated conditions in an ideal support environment

NOTE: This definition is derived from EUROCAE ED-87E [1].

constituents: tangible objects such as hardware and intangible objects such as software upon which the interoperability of the EATMN depends

manoeuvring area: part of an aerodrome to be used for take-off, landing and taxiing of aircraft, excluding Aprons

NOTE: This definition is derived from the ICAO Document 9830 [i.1].

movement area: part of an aerodrome to be used for take-off, landing and taxiing of aircraft, consisting of the Manoeuvring Area and Aprons

NOTE: This definition is derived from the ICAO Document 9830 [i.1].

procedure: standard method for either the technical or operational use of the system, in the context of agreed and validated concepts of operation requiring uniform implementation throughout the EATMN

system: aggregation of airborne and ground based constituents, as well as space-based equipment, that provides support for air navigation services for all phases of flight

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

A-SMGCS	Advanced Surface Movement Guidance and Control Systems
A-VDGS	Advanced Visual Docking Guidance Systems
AERO	Technical Committee Aeronautics
AGL	Above Ground Level
ATM	Air Traffic Management
doa	date of announcement
EATMN	European Air Traffic Management Network
EC	European Communities
EN	European Norm - (standard)
ER	Essential Requirement
EU	European Union
EUROCAE	EUROpean organization for Civil Aviation Equipment
EUROCONTROL	EUROpean organization for the safety of air navigation
HMI	Human Machine Interface
ICAO	International Civil Aviation Organization
IPRs	Intellectual Property Rights
SMGCS	Surface Movement Guidance and Control System

4 Requirements for the A-SMGCS Guidance Service

4.0 General

The A-SMGCS guidance service is based on the A-SMGCS surveillance service as defined in ETSI EN 303 213-1 [3].

Both, the surveillance and guidance services are constituents of the A-SMGCS. Hence requirements on the system level related to system safety, reliability, system security and documentation are already specified in ETSI EN 303 213-1 [3] and will not be duplicated in the present document.

4.1 Dependency on the A-SMGCS surveillance service

The A-SMGCS guidance service shall comply with the requirements as defined in ETSI EN 303 213-1 [3].

4.2 Guidance Service Basic Functionality

The guidance service shall comply with the requirements as defined as defined in EUROCAE ED-87E [1], clauses 2.1.5 and 3.6, requirements [REQ 26.] and [REQ 38.].

In addition, the guidance service shall comply with the requirements as defined in the EUROCONTROL Specification for A-SMGCS Services [2], chapter 6.1.1, requirements ASMGCS-[GUID]-[010], ASMGCS-[GUID]-[020], ASMGCS-[GUID]-[030], ASMGCS-[GUID]-[040], ASMGCS-[GUID]-[050], ASMGCS-[GUID]-[060], ASMGCS-[GUID]-[070], ASMGCS-[GUID]-[080], ASMGCS-[GUID]-[090].

4.3 Guidance Service specific requirements

4.3.1 Guidance service AGL specific requirements

In case the A-SMGCS Guidance Service incorporates an AGL interface and the functionality of automated switching of AGL is used, the requirements as defined in EUROCAE ED-87E [1], clauses 2.1.5, 3.6.6 and 3.6.7, requirements [REQ 38.] and [REQ 39.] as well as to the requirements defined in the EUROCONTROL Specification for A-SMGCS Services [2], chapter 6.5.2, requirements ASMGCS-[GUID100]-[260] shall be met.

4.3.2 Guidance Service requirements for automated switching of Stop Bars

In case the A-SMGCS Guidance Service incorporates a Stop Bar interface and the functionality of automated switching of Stop Bars is used, the requirements as defined in EUROCAE ED-87E [1], clauses 2.1.5, 3.6.6 and 3.6.7, requirements [REQ 38.] and [REQ 39.] as well as to the requirements defined in the EUROCONTROL Specification for A-SMGCS Services [2], chapter 6.5.2, requirements ASMGCS-[GUID270]-[330] shall be met.

4.3.3 Guidance Service A-VDGS specific requirements

In case the A-SMGCS Guidance Service incorporates an interface to A-VDGS and the functionality of automated switching of A-VDGS is used, the requirements as defined in EUROCAE ED-87E [1], clauses 2.1.5, 3.6.6 and 3.6.8, requirements [REQ 38.] and [REQ 40.] as well as to the requirements defined in the EUROCONTROL Specification for A-SMGCS Services [2], chapter 6.5.2, requirements ASMGCS-[GUID340]-[360] shall be met.

4.4 Design Requirements for the A-SMGCS Guidance Service

4.4.1 Design Requirements on System Level

The design requirements for the A-SMGCS Guidance service regarding Modularity, System Integrity, and Safety shall be identical to the design requirements for the A-SMGCS surveillance service as defined in ETSI EN 303 213-1 [3].

4.4.2 Performance and Capacity Parameters

The guidance service performance and capacity parameters shall comply with the requirements as defined in EUROCAE ED-87E [1], clause 3.5, requirements [REQ 23.], [REQ 24.], [REQ 25.].

4.4.3 Evolution

The evolution shall comply with the requirements as defined in EUROCAE ED-87E [1], clause 1.8.3.

4.4.4 HMI and Human capabilities

The A-SMGCS Guidance Service HMI shall be designed in such a way, that the human capabilities shall be compatible with the principals described in EUROCAE ED-87E [1], clause 2.2.1 as well as to the requirements defined in the EUROCONTROL Specification for A-SMGCS Services [2], chapters 5.3.1 and 6.1, requirements ASMGCS-[GENL]-[070], ASMGCS-[GENL]-[100], ASMGCS-[GENL]-[110], ASMGCS-[GENL]-[120], ASMGCS-[GENL]-[130], ASMGCS-[GENL]-[140], ASMGCS-[GENL]-[150].

5 Testing

5.1 Acceptance testing requirements for the A-SMGCS Guidance Service

5.1.1 Acceptance testing requirements on System Level

All system level tests shall be performed identical to the requirements as defined for the A-SMGCS surveillance service, as defined in ETSI EN 303 213-1 [3], clause 5 as well as EUROCAE ED-87E [1] requirements [REQ 33.], [REQ 34.] and [REQ 35.].

5.1.2 Acceptance testing requirements specific to the Guidance Service

The Guidance Service shall perform the deployment tests as defined in EUROCAE ED-87E [1], clauses 5.1. and 5.5 as well as requirements [REQ 33.], [REQ 34.] and [REQ 35.].

Annex A (normative): Regulation (EU) No 2018/1139 Essential Requirements mapping and Checklist

A.1 Correspondence between the present document and the Regulation (EU) 2018/1139

This annex provides a relationship between the present document and the Essential Requirements of Annex VIII of Regulation (EU) 2018/1139 [i.3].

The A-SMGCS Guidance Service shall comply with the Essential Requirements of Regulation (EU) 2018/1139 [i.3] as defined and described in the traceability matrixes of this annex (Table A.1 and Table A.2 below).

NOTE 1: Whenever "n/a" is used, that means that a given ER and/or an associated "keyword" is not applicable for presumption of conformity.

Table A.1: Traceability from Interoperability Regulation to clauses of the present document

Essential Requirements (ERs) of Regulation (EU) 2018/1139 [i.3]	Clause(s) of the present document	Qualifying remarks/Notes
ER 1 Use of the airspace	The present document does not give presumption of conformity.	
ER 2 Services	The present document does not give presumption of conformity.	
ER 3.1 Fit for purpose	4.1 Dependency on the A-SMGCS surveillance service 4.3 Guidance Service specific requirements 4.3.1 Guidance service AGL specific requirements 4.3.2 Guidance Service requirements for automated switching of Stop Bars 4.3.3 Guidance Service A-VDGS specific requirements 4.4.1 Design Requirements on System Level 4.4.2 Performance and Capacity Parameters 5.1.1 Acceptance testing requirements on System Level 5.1.2 Acceptance testing requirements specific to the Guidance Service	The present document does not give presumption of conformity related to maintenance of the system. Requirements related to system security are specified in ETSI EN 303 213-1 [3].
ER 3.2 Integrity and safety related performance and reliability	4.2 Guidance Service Basic Functionality 4.3 Guidance Service specific requirements 4.3.1 Guidance service AGL specific requirements 4.3.2 Guidance Service requirements for automated switching of Stop Bars 4.3.3 Guidance Service A-VDGS specific requirements 4.4.2 Performance and Capacity Parameters	Additional requirements related to ER2 are specified in ETSI EN 303 213-1 [3].
ER 3.3 Seamless operation	4.4.1 Design Requirements on System Level 4.3 Guidance Service specific requirements 4.3.1 Guidance service AGL specific requirements 4.3.2 Guidance Service requirements for automated switching of Stop Bars 4.3.3 Guidance Service A-VDGS specific requirements	The present document does not give presumption of conformity related to maintenance of the system.
ER 3.4 Support for new concepts of operation	4.2 Guidance Service Basic Functionality 4.3 Guidance Service specific requirements 4.3.1 Guidance service AGL specific requirements 4.3.2 Guidance Service requirements for automated switching of Stop Bars 4.3.3 Guidance Service A-VDGS specific requirements 4.4.3 Evolution	
ER 3.5 Civil-military coordination	The present document does not give presumption of conformity.	The present document does not give presumption of conformity.

Essential Requirements (ERs) of Regulation (EU) 2018/1139 [i.3]	Clause(s) of the present document	Qualifying remarks/Notes
ER 3.6 Design requirements	4.1 Dependency on the A-SMGCS surveillance service 4.3 Guidance Service specific requirements 4.3.1 Guidance service AGL specific requirements 4.3.2 Guidance Service requirements for automated switching of Stop Bars 4.3.3 Guidance Service A-VDGS specific requirements 4.4.1 Design Requirements on System Level 4.4.2 Performance and Capacity Parameters 4.4.3 Evolution 4.4.4 HMI and Human capabilities	Requirements related to documentation are specified in ETSI EN 303 213-1 [3].
ER 3.7 Continuity of service	The present document does not give presumption of conformity.	Specified in ETSI EN 303 213-1 [3].
ER 4 Qualification of Air Traffic Controllers	The present document does not give presumption of conformity.	
ER 5 Service providers and training organizations	The present document does not give presumption of conformity.	
ER 6 Aeromedical examiners and aeromedical centres	The present document does not give presumption of conformity.	

Table A.2: Traceability from clauses of the present document to the Regulation (EU) 2018/1139 [i.3]

Clause(s) of the present document	Essential Requirements (ERs) of Regulation (EU) 2018/1139, Annex VIII	Qualifying remarks/Notes
4.1 Dependency on the A-SMGCS surveillance service	ER 3.1, ER 3.6	
4.2 Guidance Service Basic Functionality	ER 3.2, ER 3.4	
4.3 Guidance Service specific requirements	ER 3.1, ER 3.2, ER 3.4, ER 3.3, ER 3.4, ER 3.6	
4.3.1 Guidance service AGL specific requirements	ER 3.1, ER 3.2, ER 3.4, ER 3.3, ER 3.4, ER 3.6	
4.3.2 Guidance Service requirements for automated switching of Stop Bars	ER 3.1, ER 3.2, ER 3.4, ER 3.3, ER 3.4, ER 3.6	
4.3.3 Guidance Service A-VDGS specific requirements	ER 3.1, ER 3.2, ER 3.4, ER 3.3, ER 3.4, ER 3.6	
4.4.1 Design Requirements on System Level	ER 3.1, ER 3.3, ER 3.6	
4.4.2 Performance and Capacity Parameters	ER 3.1, ER 3.2, ER 3.6	
4.4.3 Evolution	ER 3.4, ER 3.6	
4.4.4 HMI and Human capabilities	ER 3.6	
5.1.1 Acceptance testing requirements on System Level	ER 3.1	
5.1.2 Acceptance testing requirements specific to the Guidance Service	ER 3.2	

NOTE 2: Other requirements and other EU Regulations and/or Directives may be applicable to the product(s) falling within the scope of the present document.

A.2 Mapping of requirements for the A-SMGCS Guidance Service to the relevant Essential Requirements of Annex VIII, chapter 3 of Regulation (EU) No 2018/1139

The purpose of the present annex is to provide a comprehensive traceability of evidence on constituents and system levels against clauses of the relevant Essential Requirements (ERs) of the Regulation (EU) 2018/1139 [i.3], Annex VIII, analysing keywords of these same essential requirements.

These keywords mainly address the phases of design, build, operation and maintenance of systems and constituents as well as specifically required qualities or attributes.

The A-SMGCS Guidance Service shall comply with the relevant Essential Requirements specified in Annex VIII of the Regulation (EU) 2018/1139 [i.3] as defined and described in the tables of the present annex.

Table A.3

1	ER 3.1 Fit for purpose		
	Regulation (EU) 2018/1139 [i.3] requires in Annex VIII, chapter 3.1, first paragraph, that: *"ATM/ANS systems and ATM/ANS constituents providing related information to and from the aircraft and on the ground shall be properly designed, produced, installed, maintained, protected against unauthorised interference and operated to ensure that they are fit for their intended purpose."*		
	Keywords	Evidence on constituent level	Evidence on system level
1.1	properly designed	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.1
1.2	produced	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.1
1.3	installed	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.1
1.4	maintained	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.1
1.5	protected against unauthorised interference	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.1
1.6	operated	Operation is only applicable at the system level.	n/a - this is an operational requirement that needs to be proven by the system operator

Table A.4

2	ER 3.2 Integrity and safety-related performance and reliability		
	Regulation (EU) 2018/1139 [i.3] requires in Annex VIII, chapter 3.2, first paragraph, that: *"The integrity and safety-related performance of systems and constituents whether on aircraft, on the ground or in space, shall be fit for their intended purpose. They shall meet the required level of operational performance for all their foreseeable operating conditions and for their whole operational life."*		
	Keywords	Evidence on constituent level	Evidence on system level
2	All regulatory text	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.2

Table A.5

3	ER 3.3 Seamless operation		
	Regulation (EU) 2018/1139 [i.3] requires in Annex VIII, chapter 3.2, second paragraph, that: *"ATM/ANS systems and ATM/ANS constituents shall be designed, built, maintained and operated using the appropriate and validated procedures, in such a way as to ensure the seamless operation of the European air traffic management network (EATMN) at all times and for all phases of flight. Seamless operation can be expressed, in particular, in terms of information-sharing, including the relevant operational status information, common understanding of information, comparable processing performances and the associated procedures enabling common operational performances agreed for the whole or parts of the EATMN."*		
	Keywords	Evidence on constituent level	Evidence on system level
3.1	designed	n/a	EUROCAE ED-87E [1]: Chapters 2.1.5, [REQ 26.] and [REQ 38.] EUROCONTROL Specification for A-SMGCS Services [2]: Chapters 3.5, 5.8, 6.5, 6.5.1, 6.5.2, 6.5.3, 6.5.4, Requirements ASMGCS-[GUID]-[010], ASMGCS-[GUID]-[020], ASMGCS-[GUID]-[030], ASMGCS-[GUID]-[040], ASMGCS-[GUID]-[050], ASMGCS-[GUID]-[060], ASMGCS-[GUID]-[070], ASMGCS-[GUID]-[080], ASMGCS-[GUID]-[090]
3.2	built	n/a	EUROCAE ED-87E [1]: Chapters 2.1.5 EUROCONTROL Specification for A-SMGCS Services [2]: Chapters 3.5, 5.8, 6.5, 6.5.1, 6.5.2, 6.5.3, 6.5.4, Requirements ASMGCS-[GUID]-[010], ASMGCS-[GUID]-[020], ASMGCS-[GUID]-[030], ASMGCS-[GUID]-[040], ASMGCS-[GUID]-[050], ASMGCS-[GUID]-[060], ASMGCS-[GUID]-[070], ASMGCS-[GUID]-[080], ASMGCS-[GUID]-[090]
3.3	maintained	The present document does not give presumption of conformity	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.3
3.4	operated	Operation is only applicable at the system level.	EUROCAE ED-87E [1]: Chapters 2.1.5 EUROCONTROL Specification for A-SMGCS Services [2]: Chapters 3.5, 5.8, 6.5, 6.5.1, 6.5.2, 6.5.3, 6.5.4, Requirements ASMGCS-[GUID]-[010], ASMGCS-[GUID]-[020], ASMGCS-[GUID]-[030], ASMGCS-[GUID]-[040], ASMGCS-[GUID]-[050], ASMGCS-[GUID]-[060], ASMGCS-[GUID]-[070], ASMGCS-[GUID]-[080], ASMGCS-[GUID]-[090], ASMGCS-[GUID]-[100]], ASMGCS-[GUID]-[110]], ASMGCS-[GUID]-[120]], ASMGCS-[GUID]-[130]], ASMGCS-[GUID]-[140]], ASMGCS-[GUID]-[150]], ASMGCS-[GUID]-[160]], ASMGCS-[GUID]-[170]], ASMGCS-[GUID]-[180]], ASMGCS-[GUID]-[190]], ASMGCS-[GUID]-[200]], ASMGCS-[GUID]-[210]], ASMGCS-[GUID]-[220]], ASMGCS-[GUID]-[230]], ASMGCS-[GUID]-[240]], ASMGCS-[GUID]-[250]], ASMGCS-[GUID]-[260]], ASMGCS-[GUID]-[270]], ASMGCS-[GUID]-[280]], ASMGCS-[GUID]-[290]], ASMGCS-[GUID]-[300]], ASMGCS-[GUID]-[310]], ASMGCS-[GUID]-[320]], ASMGCS-[GUID]-[330]], ASMGCS-[GUID]-[340]], ASMGCS-[GUID]-[350]], ASMGCS-[GUID]-[360]

3	ER 3.3 Seamless operation		
	Regulation (EU) 2018/1139 [i.3] requires in Annex VIII, chapter 3.2, second paragraph, that: *"ATM/ANS systems and ATM/ANS constituents shall be designed, built, maintained and operated using the appropriate and validated procedures, in such a way as to ensure the seamless operation of the European air traffic management network (EATMN) at all times and for all phases of flight. Seamless operation can be expressed, in particular, in terms of information-sharing, including the relevant operational status information, common understanding of information, comparable processing performances and the associated procedures enabling common operational performances agreed for the whole or parts of the EATMN."*		
	Keywords	Evidence on constituent level	Evidence on system level
3.5	information sharing	n/a	EUROCAE ED-87E [1]: Chapters 2.1.5 EUROCONTROL Specification for A-SMGCS Services [2]: Chapters 3.5, 5.8, 6.5, 6.5.1, 6.5.2, 6.5.3, 6.5.4, Requirements ASMGCS-[GUID]-[010], ASMGCS-[GUID]-[020], ASMGCS-[GUID]-[030], ASMGCS-[GUID]-[040], ASMGCS-[GUID]-[050], ASMGCS-[GUID]-[060], ASMGCS-[GUID]-[070], ASMGCS-[GUID]-[080], ASMGCS-[GUID]-[090], ASMGCS-[GUID]-[100]], ASMGCS-[GUID]-[110]], ASMGCS-[GUID]-[120]], ASMGCS-[GUID]-[130]], ASMGCS-[GUID]-[140]], ASMGCS-[GUID]-[150]], ASMGCS-[GUID]-[160]], ASMGCS-[GUID]-[170]], ASMGCS-[GUID]-[180]], ASMGCS-[GUID]-[190]], ASMGCS-[GUID]-[200]], ASMGCS-[GUID]-[210]], ASMGCS-[GUID]-[220]], ASMGCS-[GUID]-[230]], ASMGCS-[GUID]-[240]], ASMGCS-[GUID]-[250]], ASMGCS-[GUID]-[260]], ASMGCS-[GUID]-[270]], ASMGCS-[GUID]-[280]], ASMGCS-[GUID]-[290]], ASMGCS-[GUID]-[300]], ASMGCS-[GUID]-[310]], ASMGCS-[GUID]-[320]], ASMGCS-[GUID]-[330]], ASMGCS-[GUID]-[340]], ASMGCS-[GUID]-[350]], ASMGCS-[GUID]-[360]

Table A.6

4	ER 3.4 Support for new concepts of operation		
	Regulation (EU) 2018/1139 [i.3] requires in Annex VIII, chapter 3.2, third paragraph that: *"The EATMN, its systems and their constituents shall support, on a coordinated basis, new agreed and validated concepts of operation that improve the quality, sustainability and effectiveness of air navigation services, in particular in terms of safety and capacity."*		
	Keywords	Evidence on constituent level	Evidence on system level
4.1	Validated concepts of operation - quality	Operation is only applicable at the system level.	EUROCAE ED-87E [1]: Chapters 2.1.5, [REQ 26.] and [REQ 38.] EUROCONTROL Specification for A-SMGCS Services [2]: Chapters 3.5, 5.8, 6.5, 6.5.1, 6.5.2, 6.5.3, 6.5.4, Requirements ASMGCS-[GUID]-[010], ASMGCS-[GUID]-[020], ASMGCS-[GUID]-[030], ASMGCS-[GUID]-[040], ASMGCS-[GUID]-[050], ASMGCS-[GUID]-[060], ASMGCS-[GUID]-[070], ASMGCS-[GUID]-[080], ASMGCS-[GUID]-[090]
4.2	Validated concepts of operation - sustainability	Operation is only applicable at the system level.	The present document does not give presumption of conformity.
4.3	Validated concepts of operation - effectiveness	Operation is only applicable at the system level.	EUROCAE ED-87E [1]: Chapters 2.1.5, [REQ 26.] and [REQ 38.] EUROCONTROL Specification for A-SMGCS Services [2]: Chapters 3.5, 5.8, 6.5, 6.5.1, 6.5.2, 6.5.3, 6.5.4, Requirements ASMGCS-[GUID]-[010], ASMGCS-[GUID]-[020], ASMGCS-[GUID]-[030], ASMGCS-[GUID]-[040], ASMGCS-[GUID]-[050], ASMGCS-[GUID]-[060], ASMGCS-[GUID]-[070], ASMGCS-[GUID]-[080], ASMGCS-[GUID]-[090]
4.4	Validated concepts of operation - safety	Operation is only applicable at the system level.	The present document does not give presumption of conformity.
4	ER 3.4 Support for new concepts of operation		
	Regulation (EU) 2018/1139 [i.3] requires in Annex VIII, chapter 3.2, third paragraph that: *"The EATMN, its systems and their constituents shall support, on a coordinated basis, new agreed and validated concepts of operation that improve the quality, sustainability and effectiveness of air navigation services, in particular in terms of safety and capacity."*		
	Keywords	Evidence on constituent level	Evidence on system level
4.4	Validated concepts of operation - capacity	Operation is only applicable at the system level.	EUROCAE ED-87E [1]: Chapters 2.1.5, [REQ 26.] and [REQ 38.] EUROCONTROL Specification for A-SMGCS Services [2]: Chapters 3.5, 5.8, 6.5, 6.5.1, 6.5.2, 6.5.3, 6.5.4, Requirements ASMGCS-[GUID]-[010], ASMGCS-[GUID]-[020], ASMGCS-[GUID]-[030], ASMGCS-[GUID]-[040], ASMGCS-[GUID]-[050], ASMGCS-[GUID]-[060], ASMGCS-[GUID]-[070], ASMGCS-[GUID]-[080], ASMGCS-[GUID]-[090]

Table A.7

5	ER 3.5 Civil-military coordination		
	Regulation (EU) 2018/1139 [i.3] requires in Annex VIII, chapter 3.2, fourth and fifth paragraph that: *"The EATMN, its systems and their constituents shall support the progressive implementation of civil/military coordination, to the extent necessary for effective airspace and air traffic flow management, and the safe and efficient use of airspace by all users, through the application of the concept of the flexible use of airspace.* *To achieve those objectives, the EATMN, its systems and their constituents shall support the timely sharing of correct and consistent information covering all phases of flight, between civil and military parties, without prejudice to security or defence policy interests, including requirements on confidentiality."*		
	Keywords	Evidence on constituent level	Evidence on system level
5.1	Flexible use of airspace	The present document does not give presumption of conformity.	The present document does not give presumption of conformity.
5.2	Timely sharing	n/a	The present document does not give presumption of conformity.
5.3	No prejudice to security or defence policy interests, including requirements on confidentiality.	n/a	The present document does not give presumption of conformity.

Table A.8

6	ER 3.6 Design requirements Regulation (EU) 2018/1139 [i.3] requires in Annex VIII, chapter 3.3 that: *"Systems and constituents shall be designed to meet applicable safety and security requirements. Systems and constituents, considered collectively, separately and in relation to each other, shall be designed in such a way that an inverse relationship exists between the probability that any failure can result in a total system failure and the severity of its effect on the safety of services. Systems and constituents, considered individually and in combination with each other, shall be designed taking into account limitations related to human capabilities and performance. Systems and constituents shall be designed in a manner that protects them and the data they convey from harmful interactions with internal and external elements. Information needed for production, installation, operation and maintenance of the systems and constituents as well as information concerning unsafe conditions shall be provided to personnel in a clear, consistent and unambiguous manner."*		
	Keywords	Evidence on constituent level	Evidence on system level
6.1	safety and security requirements	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.6
6.2	failure resistance and safety of service	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.6
6.3	usability (take into account limitations related to human capabilities and performance).	n/a	EUROCAE ED-87E [1]: Chapter 3.6, Requirements [REQ 26.] and [REQ 38.]
6.4	robustness (protected from harmful interactions)	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.6
6.5	documented (clear, consistent and unambiguous provision of information)	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.6 and EUROCAE ED-87E [1]: Chapters 2.1.5 EUROCONTROL Specification for A-SMGCS Services [2]: Chapters 3.5, 5.8, 6.5, 6.5.1, 6.5.2, 6.5.3, 6.5.4, Requirements ASMGCS-[GUID]-[010], ASMGCS-[GUID]-[020], ASMGCS-[GUID]-[030], ASMGCS-[GUID]-[040], ASMGCS-[GUID]-[050], ASMGCS-[GUID]-[060], ASMGCS-[GUID]-[070], ASMGCS-[GUID]-[080], ASMGCS-[GUID]-[090], ASMGCS-[GUID]-[100]], ASMGCS-[GUID]-[110]], ASMGCS-[GUID]-[120]], ASMGCS-[GUID]-[130]], ASMGCS-[GUID]-[140]], ASMGCS-[GUID]-[150]], ASMGCS-[GUID]-[160]], ASMGCS-[GUID]-[170]], ASMGCS-[GUID]-[180]], ASMGCS-[GUID]-[190]], ASMGCS-[GUID]-[200]], ASMGCS-[GUID]-[210]], ASMGCS-[GUID]-[220]], ASMGCS-[GUID]-[230]], ASMGCS-[GUID]-[240]], ASMGCS-[GUID]-[250]], ASMGCS-[GUID]-[260]], ASMGCS-[GUID]-[270]], ASMGCS-[GUID]-[280]], ASMGCS-[GUID]-[290]], ASMGCS-[GUID]-[300]], ASMGCS-[GUID]-[310]], ASMGCS-[GUID]-[320]], ASMGCS-[GUID]-[330]], ASMGCS-[GUID]-[340]], ASMGCS-[GUID]-[350]], ASMGCS-[GUID]-[360]

Table A.9

7	ER 3.7 Continuity of service		
	Regulation (EU) 2018/1139 [i.3] requires in Annex VIII, chapter 3.4 that: *"Safety levels of systems and constituents shall be maintained during service and any modifications to service."*		
	Keywords	Evidence on constituent level	Evidence on system level
7	All regulatory text	n/a	Identical evidence as for the A-SMGCS surveillance service, refer to ETSI EN 303 213-1 [3], Table A.7

Annex B (informative): Bibliography

ICAO Annex 14: "Aerodrome Design and Operations, volume 1".

ICAO Annex 10: "Aeronautical communications".

ICAO Document 9476: "Manual of Surface Movements and Guidance Control Systems (SMGCS)".

Council Resolution of 7 May 1985 on a new approach to technical harmonization and standards, OJ C 136, 04.06.1985.

ETSI TR 102 579: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Report providing guidance for the production of Community Specifications for application under the Single European Sky Interoperability Regulation EC 552/2004".

Annex C (informative): Change History

Date	Version	Information about changes
December 2017	V1.1.1	Initial draft produced
1st February 2023	V1.1.1	Final draft produced and presented to TG AERO#25

History

Document history			
V2.0.1	April 2023	EN Approval Procedure	AP 20230713: 2023-04-14 to 2023-07-13