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Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Community Specification for a deployed non-cooperative sensor including its interfaces; Sub-part 2: Specific requirements for a deployed Surface Movement Radar sensor

Reference

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Foreword

This European Standard (EN) has been produced by ETSI Technical Committee Electromagnetic compatibility and Radio spectrum Matters (ERM).

The presumption of conformity which is linked to the full application of ETSI EN 303 213 (parts 1 to 4, 7 , 8) can only be claimed after ETSI EN 303 213 (parts 1 to 4, 7, 8) 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.6] are given in the normative annexes 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 4, sub-part 2 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";

Sub-part 1: "Generic requirements for non-cooperative sensor";

Sub-part 2: "Specific requirements for a deployed Surface Movement Radar sensor";

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".

National transposition dates	
Date of adoption of this EN:	9 September 2020
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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 deployed non-cooperative SMR sensor as a constituent of an Advanced Surface Movement Guidance and Control System (A-SMGCS).

NOTE 1: Generic requirements for a non-cooperative sensor are defined in ETSI EN 303 213-4-1 [1].

The present document provides a European Standard for manufacturers, Air Navigation Service Providers and/or Airport Operators, who have to demonstrate and declare compliance of their systems and constituents to the Essential Requirements (ERs) of Annex VIII of Regulation EU 2018/1139 [i.6].

NOTE 2: The ERs in Annex VIII of Regulation EU 2018/1139 [i.6] covered by the present document are outlined in Table A.1.

NOTE 3: Although the ERs of the SES Interoperability Regulation [i.1] have been repealed with effect from 11 September 2018 [i.6], a mapping of the requirements for the A-SMGCS Surveillance Service to this same regulation [i.1] is provided in Annex B.

Any software elements related to the software assurance level of an A-SMGCS are out of scope of the present document. As such the ERs of Regulation EU 2018/1139 [i.6] 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 4: For these ERs, the Air Navigation Service Provider will need to provide supplementary compliance within their Interoperability Technical Files.

The present document does not give presumption of conformity to any current interoperability Implementing Rules (IRs).

NOTE 5: Currently there are no relevant Implementing Rules for A-SMGCS.

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 if they are unambiguously referred to from the present document.

The reference to particular requirements is done either by citing the unambiguous requirement number or range of numbers (e.g. "[REQ 30.] to [REQ 35.]") or, if no requirement numbers are available, by indicating the paragraph and clause of the reference material where the requirement can be found.

NOTE 6: Other requirements and other EU Regulations and/or Directives may be applicable to the product(s) falling within the scope of the present document.

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.

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

[1] ETSI EN 303 213-4-1: "Advanced Surface Movement Guidance and Control System (A-SMGCS); Part 4: Community Specification for a deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor".

[2] EUROCAE ED-116 (January 2004): "Minimum Operational Performance Specification for Surface Movement Radar Sensor Systems for Use in A-SMGCS".

NOTE: Available at https://eshop.eurocae.net/eurocae-documents-and-reports/ed-116/.

[3] EUROCAE ED-87 revision D (June 2019): "Minimum Aviation System Performance Specification for Advanced Surface Movement Guidance and Control Systems (A-SMGCS)".

NOTE: Available at https://eshop.eurocae.net/eurocae-documents-and-reports/ed-87d/.

2.2 Informative references

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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] 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 (interoperability Regulation), OJ L 96, 31.03.2004 as amended by Regulation (EC) No 1070/2009.

[i.2] Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky (the framework Regulation), OJ L 96, 31.03.2004 as amended by Regulation (EC) No 1070/2009.

[i.3] Void.

[i.4] ICAO Document 9830, AN/452: "Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual", First Edition, 2004.

[i.5] Regulation (EC) No 1070/2009 of the European Parliament and of the Council of 21 October 2009 amending Regulations (EC) No 549/2004, (EC) No 550/2004, (EC) No 551/2004 and (EC) No 552/2004 in order to improve the performance and sustainability of the European aviation system, OJ L 300, 14.11.2009.

[i.6] Regulation (EU) No 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.

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in EUROCAE ED-87D [3] and the following apply:

Advanced Surface Movement Guidance and Control System (A-SMGCS): 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-87D [3].

aerodrome: defined area on land or water (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.4].

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

NOTE: This definition is derived from the ICAO Document 9830 [i.4].

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-87D [3].

classification: function which groups targets into various types (e.g. large, medium, small)

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.4].

movement area: part of an aerodrome to be used for take-off, landing and taxiing of aircraft, consisting of the manoeuvring area and apron(s)

NOTE: This definition is derived from the ICAO Document 9830 [i.4].

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

target: aircraft, vehicle or other obstacle, whose image is displayed on a surveillance display

NOTE: This definition is derived from EUROCAE ED-87D [3].

update: renewal of Target Reports relating to all Targets under Surveillance

NOTE: This definition is derived from EUROCAE ED-87D [3].

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
ANS	Air Navigation Service
ATM	Air Traffic Management
ATS	Air Traffic Service
EATMN	European Air Traffic Management Network
EC	European Communities
EN	European Norm - (standard)
ER	Essential Requirement
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
SES	Single European Sky
SMR	Surface Movement Radar
TMA	Terminal Manoeuvring Area

4 Requirements for implementing Surface Movement Radar (SMR) sensor for A-SMGCS Systems

4.0 General

Clause 4 defines the minimum requirements for an SMR sensor of A-SMGCS System.

4.1 Design Requirements for SMR sensor for A-SMGCS Systems

4.1.1 General Requirements

The SMR sensor shall comply with the requirements as defined in ETSI EN 303 213-4-1 [1].

4.1.2 Coverage

The constituent shall have the minimum coverage as defined in EUROCAE ED-116 [2], clause 2.8.

4.1.3 Safety interlocks

The constituent shall comply with the requirements as defined in EUROCAE ED-116 [2], clause 2.14.

4.2 Built requirements for SMR sensors for A-SMGCS Systems

4.2.1 Basic conformity tests

The basic conformity tests shall comply with the requirements as defined in EUROCAE ED-116 [2], clause 5.3.

4.2.2 Performance tests

The performance tests shall comply with the requirements as defined in EUROCAE ED-116 [2], clause 5.4.

4.3 Requirements for site testing procedures for SMR sensor for A-SMGCS Systems

4.3.1 Site testing procedures

The on-site testing procedures shall be performed as defined in EUROCAE ED-116 [2], clause 6.4.

4.4 Maintenance Requirements for SMR sensors for A-SMGCS Systems

The constituent shall comply with the maintenance requirements as defined in EUROCAE ED-116 [2], clause 2.21.