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EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level Part I - Baseline Requirements

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EUROPEAN ORGANISATION
FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level

Part I - Baseline Requirements

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Abstract

This Part I document provides a set of commonly agreed Airspace Management (ASM) Support System requirements. Compliance with these requirements, despite the differences in the systems detailed specifications, shall ensure harmonisation of the systems' application, the systems' interoperability and to facilitate development of a standard interface with the corresponding stakeholder systems. Part II of the Specification will cover system interface requirements for ASM Support System supporting the ASM processes at local and FAB level.

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EXECUTIVE SUMMARY

To date, the document which provides technical requirements for an Airspace Management (ASM) Support System at European level is the EUROCONTROL Specification for the application of Flexible Use of Airspace (FUA Specification). The technical requirements in the Specification are focusing on States' compliance with the requirements stemming from the Commission Regulation (EC) No 2150/2005 (FUA Regulation), namely Art.3 (b), Art.5.3, Art.6.1, Art.6.2, and Art.6.3. Additional system requirements are identified as Recommendations to support and automate the FUA processes.

The technical requirements listed in the FUA Specification remain at high level and do not cater for harmonisation of the system functionalities required by different States. Moreover, some of the functionalities required by the Member States to ensure compliance with the provisions of the FUA Regulation related to ASM are not addressed.

The objective of this document is to provide a set of commonly agreed ASM Support System requirements. Compliance with these requirements, despite the differences in the systems detailed specifications, will ensure harmonisation of the system's application, the systems' interoperability and will facilitate the development of a standard system to system interface.

This Specification – Part I - covers the baseline system requirements for ASM Support System supporting the ASM processes at local and FAB level.

Part II of the Specification will cover system interface requirements for ASM Support System supporting the ASM processes at local and FAB level.

This document facilitates compliance with FUA Regulation and other relevant SES Regulations.

1.Introduction

1.1 Context

This document is the EUROCONTROL Specification for Airspace Management (ASM) Support System Requirements supporting the ASM processes at local and FAB level - Part I - Baseline Requirements. It has been developed in collaboration with stakeholders from civil and military air navigation service providers and airspace users.

EUROCONTROL Specifications have voluntary status and are developed to support Members States and stakeholders.

To date, the document which provides technical requirements for an Airspace Management (ASM) Support System at European level is the EUROCONTROL Specification for the application of Flexible Use of Airspace (FUA Specification, EUROCONTROL-SPEC-0112). The technical requirements in the Specification are focusing on States' compliance with the requirements that are stemming from the Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of airspace, namely Art.3 (b), Art.5.3, Art.6.1, Art.6.2, and Art.6.3. Additional system requirements are identified as Recommendations to support and automate the FUA processes.

The technical requirements listed in the FUA Specification remain at high level and do not provide for harmonisation of the system functionalities required by different States. Moreover, some of the functionalities required by the Member States to ensure compliance with the provisions of the FUA Regulation related to ASM are not addressed.

1.2 Purpose

The purpose of this document is to provide a set of commonly agreed ASM Support System requirements. Compliance with these requirements, despite the differences in the systems detailed specifications, will ensure harmonisation of the system's application, the systems' interoperability and will facilitate the development of a standard system to system interface. This Specification complements EUROCONTROL–SPEC-0112 with regard to ASM Support System requirements.

Currently, many activities and projects, like Functional Airspace Block (FAB) initiatives, Free Route Airspace (FRA), deployment of SESAR are in progress. All of them are addressing different aspects of the ASM processes that require supporting ASM System functionality. With that regard, another objective of this document is to identify the technical requirements for ASM System Support facilitating the ASM requirements stemming from the above mentioned activities and projects.

1.3 Scope

This Specification – Part I - covers the baseline system support requirements for ASM Support System supporting the ASM processes at local and FAB level.

Part II of the Specification will cover system interface requirements for ASM Support System supporting the ASM processes at local and FAB level.

The Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan also mandates in its Annex the high-level system requirements for airspace management and Advanced Flexible Use of Airspace related to Article 3 paragraph (c) ATM Functionality "Flexible Airspace Management and Free Route", as follows:

"System Requirements

- The ASM support system shall support the fixed and conditional route networks currently in place, as well as DCTs, FRA and flexible sector configurations; The system shall be able to respond to changing demands for airspace; Enhancements to the Network Operations Plan (NOP) shall be achieved through a cooperative decision-making process between all involved operational stakeholders; The system shall support cross-border activities, resulting in shared use of segregated airspace regardless of national boundaries

- …"

The scope of this Specification is consistent with the above system requirements.

The Specification does not cover hardware requirements and system specifications. It does not aim to determine networks, conceptual and/or physical links.

1.4 Structure of this Document

- Section 1 describes the context and the purpose and scope of the document. It also describes the structure of the document and the applicable maintenance process
- Section 2 defines the conventions used in the document
- Section 3 provides the document references
- Section 4 lists the abbreviation
- Section 5 provides definitions of the terms used
- Sections 6, 7 and 8 provide lists of requirements addressing:
    - Baseline requirements;
    - Requirements stemming from FABs;
    - Requirements for Free Route Airspace.

The requirements in the successive sections shall be considered as additional requirements to the requirements of the previous section unless specified otherwise.

Each section is broken down in specific chapters as follows:

- Determining concept elements
- Actions constituting the relevant processes
- Lists of requirements

Annex A provides traceability to regulatory requirements.

1.5 Maintenance of the Specification

This EUROCONTROL Specification has been developed under the EUROCONTROL Advisory Framework (ERAF) and is maintained by EUROCONTROL in accordance with this framework.

2. Conventions

The following conventions are used in this EUROCONTROL Specification:

a. "**Shall**" – indicates a statement of specification, the compliance with which is mandatory to achieve the implementation of this EUROCONTROL Specification.

b. "**Should**" – indicates a recommendation or best practice, which may or may not be satisfied by all systems claiming conformity to this EUROCONTROL Specification.

c. "**May**" – indicates an optional element.

Numbers within square brackets are used to identify reference documents listed in section 3 e.g. [1] identifies the first reference documents of section 3.

Keywords are highlighted in the requirement text using **bold** as shown above.

Every requirement and recommendation in this EUROCONTROL Specification is followed by a structured identifier, which can be used to uniquely reference the requirement/recommendation from associated documents and traceability tools. Such identifiers have the form:

ASM-[yy]-[Fn]-[nnn],

where:

ASM stands for ASM Support System requirement;

[yy]: Is a sequence of 2-3 characters to identify the environment to which the requirement is referring to (e.g. DB – deployment baseline, FRA – free route airspace, etc.);

[Fn]: Is a sequence of 2-3 characters to identify the level of ASM Support System to which the requirement applies (e.g. CON – conceptual, FUN – functional, OPS – operational, etc.);

[nnn]: Is a numeric identifier, for a sequence of requirement with the same **[Fn]** identifier[1].

[1] Requirement numbers are initially allocated incrementally in tens. This aids the subsequent management of this specification allowing new requirements to be inserted between existing requirements whilst maintaining a logical number sequence.

3. References

[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 (the interoperability Regulation), as amended by 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

[2] Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of the airspace

[3] Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Projects supporting the implementation of the European Air Traffic Management Master Plan (The PCP Regulation)

[4] Commission Regulation (EC) No 482/2008 of 30 May 2008, establishing a software safety assurance system to be implemented by air navigation service providers and amending Annex II to Regulation (EC) No 2096/2005

[5] Commission Regulation (EU) No 677/2011 of 7 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions and amending Regulation (EU) No 691/2010, as amended by Commission Implementing Regulation (EU) No 970/2014 of 12 September 2014

[6] EUROCONTROL Specification for application of the Flexible Use of Airspace (FUA), EUROCONTROL-SPEC-0112, Edition 1.1, dated 10.01.2009

[7] European Route Network Improvement Plan, Part 1, European Airspace Design Methodology – Guidelines, European Network Operations Plan 2013-2015, Edition June 2015

[8] European Route Network Improvement Plan, Part 3, Airspace Management Guidelines - The ASM Handbook – Airspace Management Handbook for the Application of the Concept of the Flexible Use of Airspace

[9] Free Route Airspace (FRA) Application In NMOC – Guidelines, Version 1.0, Edition July 2016

4. Abbreviations and Acronyms

A/C	Aircraft
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Services
ADEP	Aerodrome of Departure
ADES	Aerodrome of Destination
AMC	Airspace Management Cell
ARES	Airspace Reservation
ASM	Airspace Management
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATS	Air Traffic Services
AUP/UUP	Airspace Use Plan / Updated Airspace Use Plan
B2B	Business to Business
CACD	Central Airspace and Capacity Database
CBA	Cross Border Area
CBO	Cross Border Operations
CDM	Collaborative Decision Making
CDR	Conditional Route
COTS	Commercial Of The Shelf
DB	Data Base
DCT	Direct
EATMN	European Air Traffic Management Network
EAUP/EUUP	European Airspace Use Plan / European Updated Airspace Use Plan
ERAF	EUROCONTROL Advisory Framework

EU	European Union
FAB	Functional Airspace Block
FABCE	Functional Airspace Block Central Europe
FABEC	Functional Airspace Block Europe Central
FBZ	FPL Buffer Zone
FPL	Flight Plan
FRA	Free Route Operations Airspace
FUA	Flexible Use of Airspace
HMI	Human Machine Interface
ICAO	International Civil Aviation Organisation
NM	Network Manager
NMOC	Network Manager Operations Centre
NOP	Network Operations Plan
NOTAM	Notice to Airmen
OI	Operational Improvements
PCP	Pilot Common Project
POC	Point of Contact
SESAR	Single European Sky ATM Research

5. Definitions

Term	Definition
Airspace Management	A planning function with the primary objective of maximising the utilisation of available airspace by dynamic time-sharing and, at times, the segregation of airspace among various categories of airspace users on the basis of short-term needs.
Airspace Reservation	A defined volume of airspace temporarily reserved for exclusive or specific use by categories of users.
Airspace Structure	A specific volume of airspace designed to ensure the safe and optimal operation of aircraft.
Air Traffic Control (ATC) Clearance	An authorization for an aircraft to proceed under the conditions specified by an ATC Unit.
ASM Actors	Human or system that participate in the ASM process.
Civil-military co-ordination	The coordination between civil and military parties authorised to make decisions and agree a course of action.
Conditional Route (CDR)	ATS routes that are only available for use and flight planning under specified conditions. A Conditional Route may have more than one category, and those categories may change at specified times: **Category 1 Conditional Route (CDR1)** CDR1 routes are available for flight planning during times published in the relevant National Airspace Aeronautical Information Publication (AIP). European Airspace Use Plan (EAUP) published daily by NM contains the CDR1 closure in List A. **Category 2 Conditional Route (CDR2)** CDR2 routes may not be available for flight planning. Flights can only be planned on a CDR2 in accordance with availability published daily in the EAUP List B. **Category 3 Conditional Route (CDR3)** CDR3 routes are not available for flight planning. Flights cannot be planned on these routes but ATS Units may issue tactical clearances on such route segments.

Term	Definition
Cross Border airspace	An airspace structure extending across national borders and/or the boundaries of flight information regions.
Flexible Use of Airspace	An airspace management concept applied in the European Civil Aviation Conference area, as specified in the first edition of 5 February 1996 of the 'Airspace Management Handbook for the application of the Concept of the Flexible Use of Airspace' issued by EUROCONTROL [8].
Flight Plan	Specified information provided to ATS Units relative to an intended flight or portion of the flight of an aircraft.
Free Route Operations Airspace (FRA)	A specified airspace within which users may freely plan a route between a defined entry point and a defined exit point, with the possibility to route via intermediate (published or unpublished) way points, without reference to the ATS route network, subject to airspace availability. Within this airspace, flights remain subject to air traffic control.
FUA Restriction	The restriction introduced in the CACD database in order to manage the acceptance of FPLs through the related restricted/reserved area. With the activation of the FUA restriction, all the FPL passing through the related restricted/reserved area will be rejected, unless related to any inclusions and exclusions defined in the restriction. The activation of the FUA restriction will be triggered by the allocation of the associated reserved/restricted area through AUP/UUP.
Interoperability	A set of functional, technical and operational properties required of the systems and constituents of the European ATM network and of the procedures for its operation, in order to enable its safe, seamless and efficient operation. Interoperability is achieved by making the systems and constituents compliant with the essential requirements.
Procedures	As used in the context of the interoperability Regulation, means a standard method for either the technical or the operational use of systems, in the context of agreed and validated concepts of operation requiring uniform implementation throughout the European ATM network.
Route Network	A network of specified routes for channelling the flow of general air traffic as necessary for the provision of ATC services.

Term	Definition
Sector	Part of a control area and/or a flight information region/upper region.
System	The 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.
Users	Civil or military aircraft operating in the air as well as any other parties requiring airspace.

6. Baseline requirements

This chapter lists the requirements to which an ASM Support System shall comply with to facilitate current FUA application. The requirements in this chapter are stemming from the relevant regulatory provisions and are based on the existing best practices.

6.1 Baseline concept elements

The commission Regulation (EC) No 2150/2005 of 23 December 2005 lays down common rules for the flexible use of the airspace. It reinforces and harmonises the application, within the Single European Sky, of the concept of the flexible use of airspace in order to facilitate airspace management and air traffic management within the limits of the common transport policy. In particular, this Regulation sets out rules to ensure better cooperation between civil and military entities responsible for air traffic management that operate in the airspace under the responsibility of Member States.

The European Route Network Improvement Plan, Part 3, The Airspace Management (ASM) Handbook [8] specifies the general ASM functions and Air Traffic Management (ATM) procedures needed to apply and fully exploit the Concept of the Flexible Use of Airspace (FUA).

The ASM process addresses different activities:

- collection of long term airspace planning data, also referred to as strategic planning data;
- negotiation and consolidation of the airspace planning/reservation data;
- distribution of the airspace allocation plan for the notification to the users;
- tactical activation and deactivation of the airspace structures.

These activities involve entities and organisations, which vary per country, depending on the way the FUA concept is implemented. The processes and procedures, as well as the timeline, identified for the application of FUA level 2 and 3 vary from state to state. However, the final product as a result of the planning activities and relevant to the aviation community is the daily airspace use plan and the updates thereof (AUP/UUPs).

Today, the AUP/UUPs are the output of a local civil – military airspace coordination process based on local/national procedures, rules and agreements in place. The production and sharing of the AUP/UUPs follow the agreed procedures described in the ASM Handbook [8]. The Network Manager collects the national AUP/UUPs and produces the European EAUP/EUUPs. The EAUP/EUUPs are the common harmonised format to share on network level the planned and consolidated information with regard to airspace allocation.

At FUA Level 3, the tactical activation and de-activation of the airspace structures is performed by the responsible entities and follows the latest airspace allocation plan.

This does not exclude deviations from the plan where they are agreed.

6.2 Deployment Baseline requirements for ASM System Support

6.2.1 Regulatory and Conceptual Requirements

ASM-DB-REG-010 The ASM Support System **shall** comply with the requirements stemming from the Commission Regulation (EC) No 482/2008 of 30 May 2008, establishing a software safety assurance system to be implemented by air navigation service providers, in particular Annex I and II.

ASM-DB-REG-020 The ASM Support System **shall** comply with the essential requirements stemming from the 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), as amended by 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, in particular Annex II.

ASM-DB-REG-030 The ASM Support System **shall** provide the NM system with the required data specified in Commission Regulation (EU) No 677/2011, as amended by Commission Implementing Regulation (EU) No 970/2014 of 12 September 2014, in particular Annex V, §8 and in Commission Regulation (EU) No 255/2010, in particular Article 6, 5 (a) and (h).

ASM-DB-CON-010 The ASM Support System **shall** support the commonly agreed general ASM functions and procedures needed to apply and fully exploit the Concept of the FUA, described in the Airspace Management Handbook for the Application of the Concept of the Flexible Use of Airspace, latest edition [8].

ASM-DB-CON-020 The ASM Support System **shall** be capable of processing and exchanging data in standard data formats and protocols agreed on regional (pan-European) level.

ASM-DB-CON-030 The ASM Support System **shall** be capable of using ASM / static data consistent and up-to-date with relevant regional (pan-European) systems to enable seamless interoperability.

ASM-DB-CON-040 The ASM Support System functionalities **shall** be without prejudice to States' sovereignty over their airspace and to the requirements of the States relating to public order, public security and defence matters.

ASM-DB-CON-050 The ASM Support System **should** make use of COTS (Commercial of the shelf) hardware.

ASM-DB-CON-060 The ASM Support System and its components **shall** be monitored for their operational status.

ASM-DB-CON-070 The ASM Support System **shall** use cryptographic protocols to ensure endpoint authorisation and communication privacy.

ASM-DB-CON-080 The ASM Support System **shall** be developed in line with state–of-the-art human factors and human-machine interface principles.

ASM-DB-CON-090 The ASM Support System **shall** be developed in accordance with state-of-the-art cyber security principles.

6.2.2 Operational Requirements

ASM-DB-OPS-010 The ASM Support System **shall** allow access at any time to all civil and military ASM actors according to their defined roles.

ASM-DB-OPS-020 The ASM Support System **shall** prevent unauthorised access to the system.

ASM-DB-OPS-030 The ASM Support System **shall** be adaptable to changes to the ASM organisation and procedures.

ASM-DB-OPS-040 The ASM Support System **shall** accommodate the local ASM policy agreed on the ASM Level 1.

ASM-DB-OPS-050 The ASM Support System **shall** facilitate seamless application of the ASM/FUA processes at local level.

ASM-DB-OPS-060 The ASM Support System **shall** support (i.e. provides system supports) the FUA / ASM processes at local level. The processes include booking, sharing, negotiation, collaboration at local level, allocation, activation and deactivation of airspace structures and data collection.

ASM-DB-OPS-070 The ASM Support System **shall** manage AMC manageable and NON AMC manageable airspace structures.

ASM-DB-OPS-080 The ASM Support System **shall** include a mechanism and functionalities to negotiate and coordinate the airspace allocation at local level.

ASM-DB-OPS-090 The ASM Support System **shall** record and collect FUA / ASM data at national level for the purpose of performance measurement.

ASM-DB-OPS-100 The ASM Support System **shall** make the collected FUA / ASM data at national level available for retrieval for the purpose of post-operational analyses and performance measurement.

ASM-DB-OPS-110 The ASM Support System **shall** support real-time and online functionalities ensuring common situational awareness at all times.

ASM-DB-OPS-120 The ASM Support System **shall** include a mechanism and functionalities to archive all recorded data.

ASM-DB-OPS-130 The ASM Support System **shall** support standard geodetic reference system for international aviation (ICAO).

ASM-DB-OPS-140 The ASM Support System **shall** support international standards for units of measurement for international aviation (ICAO).

ASM-DB-OPS-150 The ASM Support System **shall** support international standards for the temporal reference system for international aviation (ICAO).

ASM-DB-OPS-160 The ASM Support System **shall** notify the users for system errors and deviations from the set rules.

6.2.3 Functional Requirements

ASM-DB-FUN-010 The ASM Support System **shall** maintain up-to-data ASM static data. The ASM static data **should** be updated through import from the relevant regional DB.

ASM-DB-FUN-020 The ASM Support System **shall** facilitate data integrity check to validate the ASM static data.

ASM-DB-FUN-030 The ASM Support System **shall** provide functionality to insert and configure, including creation and processing of geometric data, ad-hoc

and not AIP published airspace structures and combine it with FUA ASM data.

ASM-DB-FUN-040 The ASM Support System **shall** register and authorize users' read/write access privileges. This includes provision of users' authentication.

ASM-DB-FUN-050 The ASM Support System **should** implement functionalities to define the rules attached to the airspace structures.

ASM-DB-FUN-060 The ASM Support System **shall** comply with the rules attached to the airspace structures during the ASM process.

ASM-DB-FUN-070 The ASM Support System **shall** allow authorized users to override/acknowledge the rules attached to the airspace structures during the ASM process.

ASM-DB-FUN-080 The ASM Support System **shall** support the management of the system configuration to support the FUA ASM approval processes.

ASM-DB-FUN-090 The ASM Support System **should** include functionality to configure the management of airspace reservations in a structured manner to reflect the agreed on FUA Level 1 approval process.

ASM-DB-FUN-095 The ASM Support System **shall** provide functionality to allow authorised users to override steps in the ASM approval process.

ASM-DB-FUN-100 The ASM Support System **shall** display ARES and Event Schedules allowing long, medium and short term planning.

ASM-DB-FUN-110 The ASM Support System **shall** provide functionality to create, edit and cancel events.

ASM-DB-FUN-120 The ASM Support System **shall** ensure that events have as a minimum attributes of location, title, description, start-time, end-time, a list of associated ARES.

ASM-DB-FUN-130 The ASM Support System **shall** provide functionality to create, edit and cancel/delete ARES.

ASM-DB-FUN-140 The ASM Support System **shall** ensure that ARESs can be defined by any flight levels or altitudes blocks within the definition of an airspace

structure.

ASM-DB-FUN-150 The ASM Support System **shall** ensure that ARESs can be defined by any flight levels or altitudes blocks within the definition of a combination of airspace structures.

ASM-DB-FUN-160 ARES **shall** contain the following information:

- Reference number (System generated)
- Airspace ID
- Start date / time
- End date / time
- Status (System generated in line with the ASM process)
- Flight levels (altitude) - lower and upper
- Responsible unit
- Requestor / POC

ASM-DB-FUN-170 ARES **should** contain the following information:

- Number of A/C
- Callsign(s)
- Priority
- Remarks
- Controlling Unit
- Contact data (frequencies, phone numbers, emails)

ASM-DB-FUN-180 ARES **may** contain the following mission information:

- Mission ID
- Mission type
- A/C type
- Aerodrome ADEP
- Aerodrome ADES
- Link to other mission

ASM-DB-FUN-190 The ASM Support System **shall** provide feedback on the evolution of the status of the ARES.

ASM-DB-FUN-200 The ASM Support System **shall** detect conflicts between ARES. A conflict **shall** occur when there is both spatial and temporal overlap between any of the airspace structures in one ARES with any of the airspace structures of another ARES.

ASM-DB-FUN-210 Conflicts between ARES **shall** be displayed on all working positions where the airspace structure is selected to be of interest.

ASM-DB-FUN-215 The ASM Support System **shall** allow users with appropriate privileges to override conflicts.

ASM-DB-FUN-220 The ASM Support System **should** provide functionalities to create, view, accept or reject change proposals to ARES.

ASM-DB-FUN-230 The ASM Support System **should** provide functionality to simulate the airspace allocation in the area of interest within a selected timeframe.

ASM-DB-FUN-240 The ASM Support System **should** allow simulation of airspace allocation in the area of interest taking into consideration changes to ARES attributes; the computation of conflicts **shall** be in the same manner as defined in ASM-DB-FUN-200.

ASM-DB-FUN-250 The simulation of airspace allocation **should** compute the consequences of ARES on the availability of the route network structure in the area of interest.

ASM-DB-FUN-260 The ASM Support System **should** allow generating ARES proposals from the simulated reservation information.

ASM-DB-FUN-270 The ASM Support System **should** provide an electronic conferencing capability accessible to users. This **should** allow multiple users to set up and join conferences, to read and post text to conferences.

ASM-DB-FUN-280 The ASM Support System **should** generate AUP/UUP data. The AUP/UUP data **shall** be in the agreed format as specified in the Airspace Management Handbook for the Application of the Concept of the Flexible Use of Airspace [8].

ASM-DB-FUN-285 The ASM Support System **should** exchange AUP/UUP data via NM B2B services.

ASM-DB-FUN-290 The ASM Support System **shall** support export of AUP/UUP data.

ASM-DB-FUN-300 The ASM Support System **should** generate proposals for publication of NOTAM where ARES or airspace structure allocation requires a NOTAM publication.

ASM-DB-FUN-305 The ASM Support System **should** support export of NOTAM data to AIS systems.

ASM-DB-FUN-310 The ASM Support System **should** reference ARES to the published NOTAM and **may** offer a direct link to the respective NOTAM.

ASM-DB-FUN-320 The ASM Support System **shall** provide functionalities to manage activation and de-activation processes, including users' privileges and responsibilities.

ASM-DB-FUN-330 The ASM Support System **shall** provide functionality to activate and de-activate airspace structures.

ASM-DB-FUN-340 The ASM Support System **shall** indicate and display the following airspace structures status, applying the following definitions:

- FULLY_PENDING – An airspace structure **shall** have the status of fully pending at a configurable time before it is due to go active, providing that all of its flight levels are due to be activated (not applicable for CDR).
- PARTIALLY_PENDING - An airspace structure **should** have the status of partially pending at a configurable time before it is due to go active, providing that only a subset of flight levels are due to be activated (not applicable for CDR).
- FULLY_ACTIVATED – An airspace structure **shall** have the status of fully activated at the scheduled time of activation, providing that all flight levels are activated.
- PARTIALLY_ACTIVATED – An airspace structure **should** have the status of partially activated at the scheduled time of activation, providing that only a subset of flight levels is activated.
- NOT_ACTIVE – An airspace structure **shall** have the status of not active when it does not have any active or pending flight levels
- NO INFO – The status of the airspace structure is unclear; for safety reason the airspace **should** be considered active FULLY_ACTIVATED to the maximum time and volume extend
- NOT_AVAILABLE – if the airspace structure is outside AIP activation time or deactivated by NOTAM the airspace structure **should** have the status of not available.
- RELEASED

ASM-DB-FUN-350 The ASM Support System **may** have additional functionality necessary to satisfy national requirements.

7. Requirements for FABs

This chapter lists the requirements to which an ASM Support System shall comply with to facilitate ASM/FUA application in FABs environment. The requirements in this chapter are stemming from the recommendations and outcomes of FAB initiatives, namely FABEC and FABCE, and are based on the existing best practices.

The requirements in this section shall be considered as additional to the requirements of the deployment baseline section.

7.1 Determining concept elements

In FABs environment the use of ASM Support Systems facilitates the coordination of CBO and CBA. The collaboration between local ASM Support Systems enables the optimisation of airspace allocation within FABs, thus ensuring safety, providing more capacity for civil traffic while maintaining the military mission effectiveness.

Depending on the ASM Support Systems currently in use or planned to be implemented in the countries within a FAB different system architectures are possible, e.g. it could be that one system is used by each of the FAB members or FAB members are using different systems. It is also possible to have a FAB where all members use a single ASM Support System and the airspace management is performed on FAB level.

While the use of a common or a single ASM Support System could ease the exchange of ASM data between FAB members, the use of different systems requires functionalities on the systems that support exchange of ASM data between them. These functionalities use the standard data formats and protocols agreed on regional (pan-European) level for exchange of data.

Within a FAB, the ASM Support System of one state interfacing with the other states' ASM Support Systems presents an overview of the planning and airspace structures status, covering pre-tactical and tactical phases, i.e. the ASM actors of one state, subject to given privileges, are able to follow the ARES and airspace structures status managed by the ASM Support Systems of other FAB members. Moreover, the ASM actors are able to reserve and coordinate via the HMI of their own system, airspace structures that are subject to CBO (e.g. CBA) and managed by the other states' ASM Support Systems.

The functionalities of the ASM support systems interfacing in a FAB environment support a CDM process, involving all parties concerned and allowing transparent and informed decision making. These functionalities include, as minimum, options for exchanging airspace allocation proposals.

The functionalities of ASM support systems are expected to support cross-border ASM processes between states from different FABs.

7.2 FAB requirements for ASM Support System

7.2.1 Conceptual Requirements

ASM-FAB-CON-010 The ASM Support System **shall** include a mechanism and functionalities to negotiate and coordinate the airspace allocation at FAB level.

ASM-FAB-CON-020 The ASM Support System **shall** facilitate seamless application of the ASM/FUA processes at FAB level.

ASM-FAB-CON-030 The ASM Support System **shall** support (i.e. provides system supports) the FUA / ASM processes at FAB level. The processes include booking, sharing, negotiation, collaboration at FAB level, allocation, activation and deactivation of airspace structures and data collection.

7.2.2 Operational Requirements

ASM-FAB-OPS-010 The ASM Support System **shall** interface with another ASM Support System through a mechanism ensuring unambiguous identification of the interfacing systems. (e.g. authenticating certificates and *employing HTTPS if required*)

ASM-FAB-OPS-020 The ASM Support System **shall** support the designation of airspace structures to the ASM System of the Lead AMC. (i.e. a single airspace structure shall be managed by only one ASM authority at a given time).

ASM-FAB-OPS-030 The ASM Support System **shall** support configuration of relationships between the FAB airspace structures.

ASM-FAB-OPS-040 The ASM Support System **shall** support external users' configurations and their access rights.

ASM-FAB-OPS-050 The ASM Support System **shall** identify when the connection with the interfaced system(s) is lost.

ASM-FAB-OPS-060 The ASM Support System **shall** trigger warnings when the connection with the interfaced system(s) is lost.

ASM-FAB-OPS-070 The ASM Support System **should** write the connection status in a protocol file.

7.2.3 Functional Requirements

ASM-FAB-FUN-010 The ASM Support System **shall** exchange a minimum set of ARES data in standard data formats and protocols agreed at FAB level.

ASM-FAB-FUN-020 The ASM Support System **shall** process external users' ARES in the same manner as local ARES, following the hosting system or relevant FAB rules.

ASM-FAB-FUN-030 The ASM Support System **shall** exchange planning ARES data providing feedback on the evolution of the ARES status (i.e. feedback on the ARES approval status).

ASM-FAB-FUN-040 The ASM Support System **shall** exchange airspace structures real time status data.

ASM-FAB-FUN-050 The ASM Support System **shall** be capable of exchanging AUP/UUP data with other systems.

ASM-FAB-FUN-060 The ASM Support System **should** provide an electronic conferencing capability accessible by the interfaced ASM Support Systems

8. Requirements for Free Route Airspace

This chapter lists the requirements related to FRA to which an ASM Support System shall comply with in order to facilitate ASM/FUA application in FRA environment. The requirements in this chapter are stemming from FRA provisions described in the Airspace Management Handbook for the Application of the Concept of the Flexible Use of Airspace [8], Free Route Airspace (FRA) Application in NMOC – Guidelines [9] and ERNIP, Part 1, Chapter 6, Section 6.5 FRA Concept [7].

The requirements in this section shall be considered as additional to the requirements of the deployment baseline section.

8.1 Determining concept elements

In FRA environment the use of ASM Support Systems should facilitate the coordination and allocation of airspace structures without reference to the ATS route network. The produced AUP/UUPs include area or FBZ allocations and the associated FUA/EU restrictions if applicable.

8.2 FRA requirements for ASM Support System

8.2.1 Conceptual Requirements

ASM-FRA-CON-010 The ASM Support System **shall** support both FRA co-existing with ATS route network environment and FRA without ATS route network environment.

ASM-FRA-CON-020 The ASM Support System **shall** manage areas and FBZ.

ASM-FRA-CON-030 The ASM Support System **shall** support management of FUA/EU Restrictions.

8.2.2 Operational Requirements

ASM-FRA-OPS-010 The ASM Support System **shall** support configuration of relationships between Areas and FBZ.

ASM-FRA-OPS-020 The ASM Support System **shall** provide functionalities to activate and de-activate FUA/EU Restrictions.

ASM-FRA-OPS-030 The ASM Support System **shall** use the FUA/EU Restrictions'

correct reference location (ARES or FBZ).

8.2.3 Functional Requirements

ASM-FRA-FUN-010 The ASM Support System **shall** support both FRA environment and route network environment.

ASM-FRA-FUN-020 The ASM Support System **shall** visualize the FUA/EU Restrictions dependent applicability.

ANNEX A - TRACEABILITY TO REGULATORY REQUIREMENTS

This annex provides traceability between relevant European legislation and the requirements in this Specification.

The first column identifies the relevant Articles of the regulation.

The second column identifies regulatory requirements where this specification's implementation can support compliance.

The third column provides a reference to the requirements in the ASM Support System Specification that can support compliance to Regulations.

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), as amended by 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

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
Annex II ESSENTIAL REQUIREMENTS Part A: General requirements	4. *Civil-military coordination* 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 these 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. Account should be taken of national security requirements.	ASM-DB-REG-020

Commission Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for the flexible use of the airspace

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
Annex II ESSENTIAL REQUIREMENTS Part B: Specific requirements 1. Systems and procedures for airspace management 1.1. Seamless operation	Information relating to pre-tactical and tactical aspects of airspace availability shall be provided to all interested parties in a correct and timely way so as to ensure an efficient allocation and use of airspace by all airspace users. This should take into account national security requirements.	
Article 5.3	Member States shall ensure that adequate supporting systems are put in place to enable the airspace management cell to manage airspace allocation and to communicate in good time the airspace availability to all affected users, airspace management cells, air traffic service providers and all relevant partners and organisations.	ASM-DB-REG-020 ASM-DB-REG-030 ASM-DB-CON-010 ASM-DB-CON-020 ASM-DB-CON-030 ASM-DB-CON-040 ASM-DB-CON-050 ASM-DB-CON-060
Article 6.1	Member States shall ensure the establishment of civil-military coordination procedures and communication facilities between appropriate air traffic service units and controlling military units permitting mutual provision of airspace data to allow the real-time activation, deactivation or reallocation of the airspace allocated at pre-tactical level.	
Article 6.2	Member States shall ensure that the relevant controlling military units and air traffic services units exchange any modification of the planned activation of airspace in a timely and effective	

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
	manner and notify to all affected users the current status of the airspace.	ASM-DB-CON-070
Article 6.3	Member States shall ensure the establishment of coordination procedures and the establishment of supporting systems between air traffic service units and controlling military units in order to ensure safety when managing interactions between civil and military flights.	ASM-DB-CON-080 ASM-DB-CON-090 ASM-DB-OPS-010
Article 6.4	Member States shall ensure that coordination procedures are established between civil and military air traffic service units so as to permit direct communication of relevant information to resolve specific traffic situations where civil and military controllers are providing services in the same airspace. This relevant information shall be made available, in particular where it is required for safety reasons, to civil and military controllers and controlling military units through a timely exchange of flight data, including the position and flight intention of the aircraft.	ASM-DB-OPS-020 ASM-DB-OPS-030 ASM-DB-OPS-040 ASM-DB-OPS-050 ASM-DB-OPS-060 ASM-DB-OPS-070 ASM-DB-OPS-080 ASM-DB-OPS-090 ASM-DB-OPS-100 ASM-DB-OPS-110 ASM-DB-OPS-120 ASM-DB-OPS-130

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-DB-OPS-140 ASM-DB-OPS-150 ASM-DB-OPS-160 ASM-DB-FUN-010 ASM-DB-FUN-020 ASM-DB-FUN-030 ASM-DB-FUN-040 ASM-DB-FUN-050 ASM-DB-FUN-060 ASM-DB-FUN-070 ASM-DB-FUN-080 ASM-DB-FUN-090 ASM-DB-FUN-095 ASM-DB-FUN-100 ASM-DB-FUN-110

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-DB-FUN-120 ASM-DB-FUN-130 ASM-DB-FUN-140 ASM-DB-FUN-150 ASM-DB-FUN-160 ASM-DB-FUN-170 ASM-DB-FUN-180 ASM-DB-FUN-190 ASM-DB-FUN-200 ASM-DB-FUN-210 ASM-DB-FUN-215 ASM-DB-FUN-220 ASM-DB-FUN-230 ASM-DB-FUN-240 ASM-DB-FUN-250 ASM-DB-FUN-260

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-DB-FUN-270 ASM-DB-FUN-280 ASM-DB-FUN-285 ASM-DB-FUN-290 ASM-DB-FUN-300 ASM-DB-FUN-305 ASM-DB-FUN-310 ASM-DB-FUN-320 ASM-DB-FUN-330 ASM-DB-FUN-340 ASM-DB-FUN-350 ASM-FRA-CON-010 ASM-FRA-CON-020 ASM-FRA-CON-030 ASM-FRA-OPS-010

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-FRA-OPS-020 ASM-FRA-OPS-030 ASM-FRA-FUN-010 ASM-FRA-FUN-020
Article 6.5	Where cross-border activities take place, Member States shall ensure that a common set of procedures to manage specific traffic situations and to enhance real time airspace management is agreed between civil air traffic services units and military air traffic services units and/or controlling military units which are concerned by those activities.	ASM-FAB-CON-010 ASM-FAB-CON-020 ASM-FAB-CON-030 ASM-FAB-OPS-010 ASM-FAB-OPS-020 ASM-FAB-OPS-030 ASM-FAB-OPS-040 ASM-FAB-OPS-050 ASM-FAB-OPS-060 ASM-FAB-OPS-070 ASM-FAB-FUN-010 ASM-FAB-FUN-020

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-FAB-FUN-030 ASM-FAB-FUN-040 ASM-FAB-FUN-050 ASM-FAB-FUN-060

Commission Implementing Regulation (EU) No 716/2014 of 27 June 2014 on the establishment of the Pilot Common Project supporting the implementation of the European Air Traffic Management Master Plan (the PCP Regulation)

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
Annex, Paragraph 3.1.1 System requirements, 1st bullet point	The ASM support system shall support the fixed and conditional route networks currently in place, as well as DCTs, FRA and flexible sector configurations; The system shall be able to respond to changing demands for airspace; Enhancements to the Network Operations Plan (NOP) shall be achieved through a cooperative decision-making process between all involved operational stakeholders; The system shall support cross-border activities, resulting in shared use of segregated airspace regardless of national boundaries	ASM-DB-OPS-010 ASM-DB-OPS-020 ASM-DB-OPS-030 ASM-DB-OPS-040 ASM-DB-OPS-050 ASM-DB-OPS-060 ASM-DB-OPS-070 ASM-DB-OPS-080 ASM-DB-OPS-110 ASM-DB-FUN-040 ASM-DB-FUN-070 ASM-DB-FUN-080 ASM-DB-FUN-100 ASM-DB-FUN-110

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-DB-FUN-120 ASM-DB-FUN-130 ASM-DB-FUN-140 ASM-DB-FUN-150 ASM-DB-FUN-160 ASM-DB-FUN-170 ASM-DB-FUN-180 ASM-DB-FUN-190 ASM-DB-FUN-200 ASM-DB-FUN-210 ASM-DB-FUN-215 ASM-DB-FUN-220 ASM-DB-FUN-230 ASM-DB-FUN-240 ASM-DB-FUN-250

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-DB-FUN-260 ASM-DB-FUN-270 ASM-DB-FUN-280 ASM-DB-FUN-285 ASM-DB-FUN-290 ASM-DB-FUN-300 ASM-DB-FUN-305 ASM-DB-FUN-310 ASM-DB-FUN-320 ASM-DB-FUN-330 ASM-DB-FUN-340 ASM-DB-FUN-350 ASM-FAB-CON-010 ASM-FAB-CON-020 ASM-FAB-CON-030 ASM-FAB-OPS-010

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-FAB-OPS-020 ASM-FAB-OPS-030 ASM-FAB-OPS-040 ASM-FAB-OPS-050 ASM-FAB-OPS-060 ASM-FAB-OPS-070 ASM-FAB-FUN-010 ASM-FAB-FUN-020 ASM-FAB-FUN-030 ASM-FAB-FUN-040 ASM-FAB-FUN-050 ASM-FAB-FUN-060 ASM-FRA-CON-010 ASM-FRA-CON-020 ASM-FRA-CON-030

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-FRA-OPS-010 ASM-FRA-OPS-020 ASM-FRA-OPS-030 ASM-FRA-FUN-010 ASM-FRA-FUN-020
Annex, Paragraph 3.1.1 System requirements, 7th bullet point	The ASM, ATFCM and ATC systems shall securely interface in a way that allows the provision of air navigation services based on a common understanding of the airspace and traffic environment. The ATC systems shall be modified to enable this functionality to the extent necessary to comply with Regulation (EC) No 552/2004, point 4 of Part A of Annex II.	ASM-DB-CON-030 ASM-DB-CON-040 ASM-DB-CON-050 ASM-DB-OPS-020 ASM-DB-OPS-030 ASM-DB-OPS-040 ASM-DB-OPS-050 ASM-DB-OPS-060 ASM-DB-OPS-070 ASM-DB-OPS-080 ASM-DB-OPS-110

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-DB-FUN-040 ASM-DB-FUN-070 ASM-DB-FUN-080 ASM-DB-FUN-100 ASM-DB-FUN-110 ASM-DB-FUN-120 ASM-DB-FUN-130 ASM-DB-FUN-140 ASM-DB-FUN-150 ASM-DB-FUN-160 ASM-DB-FUN-170 ASM-DB-FUN-180 ASM-DB-FUN-190 ASM-DB-FUN-200 ASM-DB-FUN-210

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-DB-FUN-215 ASM-DB-FUN-220 ASM-DB-FUN-230 ASM-DB-FUN-240 ASM-DB-FUN-250 ASM-DB-FUN-260 ASM-DB-FUN-270 ASM-DB-FUN-280 ASM-DB-FUN-285 ASM-DB-FUN-290 ASM-DB-FUN-300 ASM-DB-FUN-305 ASM-DB-FUN-310 ASM-DB-FUN-320 ASM-DB-FUN-330 ASM-DB-FUN-340

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-DB-FUN-350 ASM-FAB-CON-010 ASM-FAB-CON-020 ASM-FAB-CON-030 ASM-FAB-OPS-010 ASM-FAB-OPS-020 ASM-FAB-OPS-030 ASM-FAB-OPS-040 ASM-FAB-OPS-050 ASM-FAB-OPS-060 ASM-FAB-OPS-070 ASM-FAB-FUN-010 ASM-FAB-FUN-020 ASM-FAB-FUN-030 ASM-FAB-FUN-040

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
		ASM-FAB-FUN-050 ASM-FAB-FUN-060

Commission Regulation (EC) No 482/2008 of 30 May 2008, establishing a software safety assurance system to be implemented by air navigation service providers

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
Article 4, Requirements applying to the software safety assurance system,	Paragraph 2. The organisation shall ensure, as a minimum, that the software safety assurance system: 1. is documented, specifically as part of the overall risk assessment and mitigation documentation; 2. allocates software assurance levels to all operational EATMN software in compliance with the requirements set out in Annex I;	ASM-DB-REG-010 ASM-DB-REG-050
ANNEX I Requirements applying to the software assurance level referred to in Article 4(2)	1. The software assurance level shall relate the rigour of the software assurances to the criticality of EATMN software by using the severity classification scheme set out in Section 4 of point 3.2.4 of Annex II to Regulation (EC) No 2096/2005 combined with the likelihood of the occurrence of a certain adverse effect. A minimum of four software assurance levels shall be identified, with software assurance level 1 indicating the most critical level. 2. An allocated software assurance level shall be commensurate with the most severe effect that software malfunctions or failures may cause, as referred to in Section 4 of point 3.2.4 of Annex II to Regulation (EC) No 2096/2005. This shall, in particular, take into account the risks associated with software malfunctions or failures and the architectural	

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
	and/or procedural defences identified. 3. EATMN software components that cannot be shown to be independent of one another shall be allocated the software assurance level of the most critical of the dependent components.	
Article 4, Requirements applying to the software safety assurance system,	Paragraph 3. includes assurances of: (a) software safety requirements validity in compliance with the requirements set out in Annex II, Part A;	
ANNEX II Part A:	Requirements applying to the software safety requirements validity assurance referred to in Article 4(3)(a) 1. Software safety requirements shall specify the functional behaviour in nominal and downgraded modes, of the EATMN software, timing performances, capacity, accuracy, software resource usage on the target hardware, robustness to abnormal operating conditions and overload tolerance, as appropriate. 2. Software safety requirements shall be complete and correct, and compliant with the system safety requirements.	

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
Article 4, Requirements applying to the software safety assurance system,	Paragraph 3. includes assurances of: (b) software verification in compliance with the requirements set out in Annex II, Part B;	
ANNEX II Part B:	Requirements applying to the software verification assurance referred to in Article 4(3)(b) 1. The functional behaviour of the EATMN software, timing performances, capacity, accuracy, software resource usage on the target hardware, robustness to abnormal operating conditions and overload tolerance, shall comply with the software requirements. 2. The EATMN software shall be adequately verified by analysis and/or testing and/or equivalent means, as agreed with the national supervisory authority. 3. The verification of the EATMN software shall be correct and complete.	
Article 4, Requirements applying to the software safety assurance system,	Paragraph 3. includes assurances of: (c) software configuration management in compliance with the requirements set out in Annex II, Part C;	

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
ANNEX II Part C:	Requirements applying to the software configuration management assurances referred to in Article 4(3)(c) 1. Configuration identification, traceability and status accounting shall exist such that the software life cycle data can be shown to be under configuration control throughout the EATMN software life cycle. 2. Problem reporting, tracking and corrective actions shall exist such that safety related problems associated with the software can be shown to have been mitigated. 3. Retrieval and release procedures shall exist such that the software life cycle data can be regenerated and delivered throughout the EATMN software life cycle.	
Article 4, Requirements applying to the software safety assurance system,	Paragraph 3. includes assurances of: (d) software safety requirements traceability in compliance with the requirements set out in Annex II, Part D;	
ANNEX II Part D:	Requirements applying to the software safety requirements traceability assurances referred to in Article 4(3)(d) 1. Each software safety requirement shall be traced to the same level of design at which its satisfaction is demonstrated. 2. Each software safety requirement, at each level in the design at which its satisfaction is demonstrated, shall be traced to a system safety requirement.	

Commission Regulation (EU) No 677/2011 of 7 July 2011 laying down detailed rules for the implementation of air traffic management (ATM) network functions and amending Regulation (EU) No 691/2010, as amended by Commission Implementing Regulation (EU) No 970/2014 of 12 September 2014.

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
Annex V, Paragraph 8 MILITARY AIRSPACE REQUIREMENTS	8.1. Military ATM service providers responsible for areas of reserved or segregated airspace shall exchange with the Network Manager, through the relevant Airspace Management Cell, the following information according to national rules: — airspace availability: default days/times of availability of reserved airspace, — ad hoc requests for unplanned use of reserved airspace, — release of reserved airspace to civil use whenever not required, giving as much notice as possible.	ASM-DB-REG-030

Commission Regulation (EU) No 255/2010 of 25 March 2010 laying down common rules on air traffic flow management

Regulation Reference	Regulatory Requirements	EUROCONTROL ASM Specification Reference
Article 6, 5 (a)	ATS units shall provide the central unit for ATFM with the following data and subsequent updates, in a timely manner and ensuring its quality: (a) availability of airspace and route structures,	ASM-DB-REG-030
Article 6, 5 (h)	ATS units shall provide the central unit for ATFM with the following data and subsequent updates, in a timely manner and ensuring its quality: (h) airspace availability including availability through application of flexible use of airspace in accordance with Commission Regulation (EC) No 2150/2005,	

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