



Guidance Material for SESAR Deployment Programme Implementation

Planning View 2018

Annex B Standardization and Regulation Roadmaps

Proposal for update to European
Commission

July 18th, 2018

Annex B – Standardization and Regulation support to PCP deployment

The **Standardization and Regulation Annex** is a key document, developed with the primary objective of providing an accurate **snapshot** of the current **state of play of Standards and Regulation** mapped with the 48 Families in the Deployment Programme. It also provides information on the on-going work related to supporting material and regulation.

Annex B is intended to be used as a common reference for the implementation of the Deployment Programme and a useful instrument for liaising with organizations and bodies responsible for developing guidance material, specifications, standards (all normally referred to as “standards”), certification documents, acceptable Means of Compliance as well as regulations.

The presentation of information included within Annex B follows the “ATM Concept Lifecycle Model”, where V0-V3 are covered by R&D under responsibility of SESAR Joint Undertaking (SJU). The subsequent V4 (Industrialisation) includes development of material supporting deployment and development of products by manufacturing industry, and Very Large Scale Demonstrations (VLD) are part of V3 but conducted during V4 as support to industrialisation. Deployment starts during or after V4, in V5, and its coordination is under SESAR Deployment Manager (SDM) responsibility.

Different approval methodologies are applied in aviation. For airborne equipment, “certification” is used based on specifications, standards and “technical specification orders”. A certified piece of equipment can be installed and used on board aircraft. Ground system constituents are accompanied by “declaration of conformity or suitability for use” issued by the manufacturers. The service provider presents a “declaration of verification of systems”, a demonstration of compliance with the regulation, to a competent authority i.e. the National Supervisory Authority (NSA) who oversees the service provider to ensure that safety requirements are met. In some cases, the regulation is very prescriptive with precise requirements, but in most cases only guidance is provided.

Guidance material/Specification/Standards can be considered as appropriate and recommended for support to implementation. They can also be referenced in Means of Compliance or Regulation. Means of Compliance listed in tables are non-binding standards adopted by EASA or ESOs to illustrate means to establish compliance with regulations and implementing rules. However, additional/alternative means for compliance can be applied if accepted by the relevant NSA. Regulations listed in the tables are binding instruments considered as relevant for the family implementation.

Early implementations before formal standards and regulatory material is available is possible subject to NSA approval. However, it might be necessary to adjust the implementations once formal standards and regulatory material becomes available at the end of V4.

The content of Annex B is based on:

- the Pilot Common Project itself (Commission Implementing Regulation (EU) No 716/2014, and especially the related indicative Roadmap with respect to standardization and regulation needs);
- the ATM Master Plan references including the Integrated Roadmap Dataset #17b;
- SESAR Solutions, i.e. deliverables from SESAR R&D mapped to ATM Master Plan Level 2 Operational Improvements (OIs);
- related plans or further development according to SESAR 2020 plans; and
- the Rolling Work Plan version 5.0 developed by the European ATM Standardisation Coordination Group (EASCG), summarising on-going activities within bodies involved in development of standards and regulation.

The information reported in the document was elaborated and analysed by SDM in coordination with **EASA, EDA, NM and SJU**, as well as with **EUROCAE, ESOs and EASCG** which contribution and inputs were pivotal towards the finalization of the Annex B. The Annex B is a **living document that will be regularly updated** throughout Deployment Programme’s life time.

In order to limit the volume and increase the readability of Annex B, some high-level reference documents setting up the “legislative” framework are not included in the following tables. It should be noted that these documents are however always applicable and should be taken into account when introducing new and changing existing services. Such high-level reference documents include - amongst others:

- ICAO Annexes to the Chicago Convention;
- ICAO Doc 4444 PANS ATM;
- Single European Sky (SES) legislation, with a specific focus on (EC) n. 552/2004 Interoperability Regulation (the Updated EASA Basic regulation is repealing (EU) 552/2004);
- EASA Basic Regulation (EC) n. 216/2008 (the EASA Basic Regulation will be updated through European Council decision 26th June 2018. The present EASA Basic Regulation will be repealed when the updated one is published in the Official Journal (OJ));
- DM Implementing Regulation (EU) n. 409/2013;
- PCP Implementing Regulation (EU) n. 716/2014;
- [Directive 2013/40/EU of the European Parliament and of the Council of 12 August 2013 on attacks against information systems](#);
- The [Network and Information Security \(NIS\) Directive \(2016/1148\)](#);
- [Commission Implementing Regulation 2017/373 of 1 March 2017 laying down common requirements for providers of air traffic management/air navigation services and other air traffic management network functions and their oversight](#);
- [ITU X.1205 “Overview of Cybersecurity”](#);
- CEN EN 16495 “Information security for organisations supporting civil aviation”;
- ISO 27001 - Information technology — Security techniques — Information security management systems — Requirements;
- ISO 27002 - Information technology — Security techniques — Code of practice for information security management;
- ISO 27003 - Information technology — Security techniques — Information security management system implementation guidance;
- ISO 27004 - Information technology — Security techniques — Information security management — Measurement;
- ISO 27005 - Information technology — Security techniques — Information security risk management;
- ISO 27006 - Information technology — Security techniques — Requirements for bodies providing audit and certification of information security management systems;
- ISO 28000 Specification for security management systems for the supply chain;
- [CANSO Cyber Security and Risk Assessment Guide](#).

The Implementing Regulation (EU) n. 2017/373 is laying down common requirements for providers of air traffic management, air navigation services and other air traffic management network functions and their oversight, repealing Regulation (EC) n. 482/2008, Implementing Regulations (EU) No 1034/2011, Regulation (EU) n. 1035/2011 and Regulation n. (EU) 2016/1377 and amending Regulation (EU) n. 677/2011. The regulation is constructed of a “cover regulation” with thirteen annexes addressing different areas. Some of these annexes are still in the approval phase (ref the EASA Opinion No 02/2018, which the EC is expected to approve at the end of 2018). The Reg. (EU) n. 2017/373 is applicable from 2 January 2020. However, the part related to “data service providers” is applicable from 1 January 2019.

It should also be mentioned that Airlines Electronic Engineering Committee (AEEC) is developing material defining “*form, fit and function*” of airborne equipment published as ARINC documents. Not all of these documents are included in Annex B. The ARINC 660-B “*CNS/ATM Avionics Architectures Supporting NEXTGEN/SESAR Concepts*” provides an overview of the expected impact on airborne equipment when deploying the SESAR solutions.

Furthermore, considering that global interoperability is a paramount for aviation, SESAR deployment is strongly linked to the Global Air Navigation Plan (GANP) defined by ICAO. For each family, the references to the relevant ASBU modules from the ICAO Global Air Navigation Plan are mentioned in the Planning View of the Programme.

The collection of references in Annex B should be assessed by each individual deployment project to ensure that all relevant standards and regulatory material is taken into account.

Furthermore, national standards and regulation might be applicable.

The "SDM View" in the tables below, identifies areas where deployment would benefit from further standards and regulatory material

With regard to the naming of material and references in the V3 part under SESAR JU remit, the following mapping has to be noted:

SESAR Release 1	SESAR Solutions delivered 2011
SESAR Release 2	SESAR Solutions delivered 2012
SESAR Release 3	SESAR Solutions delivered 2013
SESAR Release 4	SESAR Solutions delivered 2014
SESAR Release 5	SESAR Solutions delivered 2015-2016
SESAR Release 7	SESAR Solutions delivered 2017
SESAR Release 8	SESAR Solutions delivered 2018
SESAR Release 9	SESAR Solutions delivered 2019
Second wave	SESAR Solutions delivered 2020 onwards

AF1 - Extended AMAN and PBN in high density TMA

Family 1.1.1 – Basic AMAN

V3 – Development Phase									
SESAR Solution			OIs	V3 End	VLD				
N/A			TS-0102	Available	Release 7	N/A			
					Release 8	N/A			
					Release 9	N/A			
					Second Wave	N/A			
V4 – Industrialization Phase									
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation			
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery	
Arrival Manager - Implementation Guidelines and Lessons Learned; Edition 0.1, 17/12/2010	EUROCONTROL	Published							
V5 – Deployment Phase			Family readiness	SDM view					
Initial Operational Capability	Before 2014			High	AMAN is one component within a local ATM system, therefore not subject to further standardisation activities.				
Full Operational Capability	01/2020								

Family 1.1.2 – AMAN Upgrade to include Extended Horizon function

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
N/A	TS-0305	Available	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A
#05 “Extended Arrival Management (AMAN) horizon”	TS-0305-A	SESAR Release 4	Release 7	PJ.25
			Release 8	PJ.25
			Release 9	PJ.25
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published	Update SPEC-0106 Specification for On-Line Data Interchange (OLDI) to Edition 4.3	EUROCONTROL	Published			
Guidance Manual on Airport Traffic Synchronisation	ICAO	2018	SPEC-0107 EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) Edition 3.2	EUROCONTROL	Published			
AMAN Information Extension to En-Route Sectors - Concept of Operations; Edition 1.0, 5/06/2009	EUROCONTROL	Published						
ED-254 Arrival Sequence Service Performance Specification	EUROCAE	Published						
EUROCONTROL Concept of Operations for Network Manager Support to Advanced Arrival Management Edition 1.0 (24/10/2014)	Network Manager	Published						
OLDI Guidance Material	Network Manager	2018						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2015	High	V3 achieved but VLDs are planned until 2019. Update supporting material needs to be considered.
Full Operational Capability	01/2024		OLDI AMA message supports initial implementations without need for additional standards. Initial deployment is based on bilateral agreements. Further guidance material could be useful for supporting coordination between ATS units (that can be located in different States) and in situations when more than one airport is affected.

Family 1.2.1 – RNP Approaches with vertical guidance

V3 – Development Phase					
SESAR Solution	OIs	V3 End	VLD		
N/A	AOM-0602	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
N/A	AOM-0604	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
#09 “Enhanced terminal operations with automatic RNP transition to ILS/GLS” #51 “Enhanced terminal operations with LPV procedures”	AOM-0605	SESAR Release 5	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 8168 (PANS-OPS Vol. 1 & 2)	ICAO	Published	AMC 20-27 (APV Baro)	EASA	Published	PBN Implementing Rule	European Commission	Approved 2018
Doc 9613, Performance-based Navigation (PBN) Manual Edition 4	ICAO	Published	AMC 20-28 (SBAS)	EASA	Published	Commission Regulation (EU) 2018/401, amending (EU) No 139/2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008	European Commission	Published
Update Doc 9613, Performance-based Navigation (PBN) Manual	ICAO	Ongoing TBD	NPA 2018-02 Provision of airworthiness requirements in support of global PBN operations	EASA RMT.0519	NPA ongoing Decision planned by 2019			
Doc 9992 Manual on the use of PBN in Airspace Design	ICAO	Published						

<i>Manual on Simultaneous Operations on Parallel or Near-Parallel Instrument Runways (SOIR)</i>	ICAO	2018						
<i>EGNOS Safety of Life (SoL) Service Definition Document</i>	European GNSS Agency (GSA)	Published						
<i>ED-76A / DO-200B Standards for Processing of Aeronautical Data</i>	EUROCAE / RTCA	Published						
<i>NOP 2014-2018/2019</i>	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	<i>Before 2014</i>	High	<i>The PBN IR has been approved by the Single Sky Committee (SSC) and is awaiting publication in the Official Journal (OJ). The PCP regulation (EU) No 716/2014 defines more stringent requirements for the 25 busiest airports/TMAs as defined in the geographical scope.</i>
Full Operational Capability	<i>01/2021</i>		<i>EDA, EUROCONTROL and NATO are working together on a performance-equivalence test-case, which could be used as a mitigation measure for this specific case.</i>

Family 1.2.2 – Geographical Database for Procedure Design

V3 – Development Phase					
SESAR Solution	OIs	V3 End	VLD		
N/A	AOM-0602	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
N/A	AOM-0604	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 8168 (PANS-OPS Vol. 1 & 2)	ICAO	Published	Terrain Avoidance and Warning System (ETSO- C151B)	EASA	Published	Opinion 02/2015, Technical requirements and operating procedures for the provision of data to airspace users for the purpose of air navigation	EASA	Published
Doc 9613, Performance-based Navigation (PBN) Manual Edition 4	ICAO	Published	EASA AMC/GM 2014/012R	EASA	Published	Commission Regulation (EU). 73/2010 (ADQ IR) as amended by Commission Implementing Regulation (EU) 1029/2014	European Commission	Published
Update Doc 9613, Performance-based Navigation (PBN) Manual	ICAO	Ongoing TBD				Commission Regulation (EU) 2018/401, amending (EU) No 139/2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008	European Commission	Published
Doc 9888 Noise Abatement Procedures	ICAO	Published				Opinion 02/2018 Specific requirements for providers	EASA	Published

<i>Doc 9906 Quality assurance manual for flight procedure design</i>	ICAO	<i>Published</i>						
<i>Doc 9997 PBN Operational Approval Manual</i>	ICAO	<i>Published</i>						
<i>Doc 9992 Manual on the use of PBN in Airspace Design</i>	ICAO	<i>Published</i>						
<i>ED-76A / DO-200B Standards for Processing of Aeronautical Data</i>	EUROCAE / RTCA	<i>Published</i>						
<i>Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 (ADQ) - EUROCONTROL – GUID - 163</i>	EUROCONTROL	<i>Published</i>						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2014	High	<i>No further supporting material needed other than what is already existing/being developed.</i>
Full Operational Capability	01/2019		

Family 1.2.3 – RNP1 Operations in high density TMAs (ground capabilities)

V3 – Development Phase					
SESAR Solution	OIs	V3 End	VLD		
#62 “P-RNAV in a complex TMA”	AOM-0603	SESAR Release 2	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
#09 “Enhanced terminal operations with automatic RNP transition to ILS/GLS” #51 “Enhanced terminal operations with LPV procedures”	AOM-0605	SESAR Release 5	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
N/A	AOM-0602	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
N/A	AOM-0601	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Update Doc 4444 PANS ATM, PBN Separation Standards	ICAO	2018				PBN Implementing Rule	European Commission	Approved 2018
Doc 8168 (PANS-OPS Vol. 1 & 2)	ICAO	Published						
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published						
Doc 9613, Performance-based Navigation (PBN) Manual Edition 4	ICAO	Published						

Update Doc 9613, Performance-based Navigation (PBN) Manual	ICAO	Ongoing TBD						
Doc 9689 Manual on Airspace Planning Methodology for the Determination of Separation Minima	ICAO	Published						
Doc 9992 Manual on the use of PBN in Airspace Design	ICAO	Published						
Guidance Manual on Airport Traffic Synchronisation	ICAO	2018						
European Airspace Concept Handbook for PBN Implementation; Edition 3.0	EUROCONTROL	Published						
ED-57 MOPS for DME/N and DME/P ground equipment	EUROCAE	Published						
ED-76A / DO-200B Standards for Processing of Aeronautical Data	EUROCAE / RTCA	Published						

V5 – Deployment Phase		Family Readiness	SDM view
Initial Operational Capability	01/2015	High	The PBN IR has been approved by the Single Sky Committee (SSC) and is awaiting publication in the Official Journal (OJ). The PCP regulation (EU) No 716/2014 defines more stringent requirements for the 25 busiest airports/TMAs as defined in the geographical scope.
Full Operational Capability	01/2024		

Family 1.2.4 – RNP1 Operations in high density TMAs (aircraft capabilities)

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#09 “Enhanced terminal operations with automatic RNP transition to ILS/GLS” #51 “Enhanced terminal operations with LPV procedures”	AOM-0605	SESAR Release 5	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A
#62 “P-RNAV in a complex TMA”	AOM-0603	SESAR Release 2	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9613, Performance-based Navigation (PBN) Manual Edition 4	ICAO	Published	NPA 2018-02 Provision of airworthiness requirements in support of global PBN operations	EASA	NPA ongoing Decision planned by 2019	PBN Implementing Rule	European Commission	Approved 2018
Update of Doc 9613, Performance-based Navigation (PBN) Manual	ICAO	Ongoing TBD						
ED-72 MOPS for Airborne GPS Receiving Equipment	EUROCAE	Published						
ED-75D / DO-236D MASPS: Required Navigation Performance for Area Navigation	EUROCAE	Published						
ED-76A / DO-200B Standards for Processing of Aeronautical Data	EUROCAE / RTCA	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2015	High	The PBN IR has been approved by the Single Sky Committee (SSC) and is awaiting publication in the Official Journal (OJ). The PCP regulation (EU) No 716/2014 defines more stringent requirements for the 25 busiest airports/TMAs as defined in the geographical scope. EDA, EUROCONTROL and NATO are working together on a performance-equivalence test-case, which could be used as a mitigation measure for this specific case.
Full Operational Capability	01/2024		

Family 1.2.5 – RNP routes below Free Route Airspace

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#10 Optimised Route Network using Advanced RNP	AOM-0404	SESAR Release 5	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 4444 PANS ATM for RNAV/RNP, BRNAV	ICAO	Published	NPA 2018-02 Provision of airworthiness requirements in support of global PBN operations	EASA	NPA ongoing Decision planned by 2019	PBN Implementing Rule	European Commission	Approved 2018
Update Doc 4444 PANS ATM, PBN Separation Standards	ICAO	2018						
Doc 8168 (PANS-OPS Vol. 1 & 2)	ICAO	Published						
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published						
Doc 9613, Performance-based Navigation (PBN) Manual Edition 4	ICAO	Published						
Update Doc 9613, Performance-based Navigation (PBN) Manual	ICAO	Ongoing TBD						
Doc 9689 Manual on Airspace Planning methodology for the Determination of Separation Minima	ICAO	Published						
Doc 9992 Manual on the use of PBN in Airspace Design	ICAO	Published						
ED-76A / DO-200B Standards for Processing of Aeronautical Data	EUROCAE / RTCA	Published						
Network Strategy Plan (NSP): SO 3/2 and SO 3/3	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2020	Medium	<p>The PBN IR has been approved by the Single Sky Committee (SSC) and is awaiting publication in the Official Journal (OJ). The PCP regulation (EU) No 716/2014 defines more stringent requirements for the 25 busiest airports/TMAs as defined in the geographical scope. RNP outside TMAs is not covered by the present regulation.</p>
Full Operational Capability	01/2024		<p>It is expected that the next version of ICAO PBN Manual will include Advance RNP covering all phases of flight.</p> <p>EDA, EUROCONTROL and NATO are working together on a performance-equivalence test-case, which could be used as a mitigation measure for this specific case.</p>

AF2 - Airport Integration and Throughput

Family 2.1.1 – Initial DMAN

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
N/A	AO-0602	Available	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published	EN 303 212 (V1.1.1) Airport Collaborative Decision Making (A-CDM) Community Specification (Communication 2010/C 168/04)	ETSI	Published			
Doc 9830, Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual	ICAO	2018	Update EN 303 212 Airport Collaborative Decision Making (A-CDM) Community Specification	ETSI	TBD			
Guidance Manual on Airport Traffic Synchronisation	ICAO	2018						
Airport CDM Implementation Manual Version 4	EUROCONTROL	Published						
Update Airport CDM Implementation Manual Version 5	EUROCONTROL	Published						
ED-141 Minimum Technical Specification for the Airport Collaborative Decision Making (Airport-CDM)	EUROCAE	Published						
ED-145 Airport-CDM Interface Specification	EUROCAE	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	<i>Before 2014</i>	High	<i>No further supporting material needed other than already existing/being developed.</i>
Full Operational Capability	<i>01/2021</i>		

Family 2.1.2 – Electronic Flight Strips (EFS)

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
N/A			AO-0201 (only AERODROME-ATC-36 enabler)	Available	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
V5 – Deployment Phase			SDM view					
Initial Operational Capability	Before 2014		Family readiness	No specific supporting material required other than the one listed in this Annex B introductory text.				
Full Operational Capability	01/2021							
			High					

Family 2.1.3 – Basic A-CDM

V3 – Development Phase					
SESAR Solution	OIs	V3 End	VLD		
N/A	AO-0501	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
N/A	AO-0601	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
N/A	AO-0602	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
N/A	AO-0603	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 8896 Manual of Aeronautical Meteorological Practice	ICAO	Published	EN 303 212 (V1.1.1) Airport Collaborative Decision Making (A-CDM) Community Specification (Communication 2010/C 168/04)	ETSI	Published			
Doc 9328 Manual of Runway Visual Range Observing and Reporting Practices	ICAO	Published	Update EN 303 212 Airport Collaborative Decision Making (A-CDM) Community Specification	ETSI	TBD			
Doc 9377 Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services	ICAO	Published						

<i>Doc 9817 Manual on Low-level Wind Shear</i>	ICAO	<i>Published</i>						
<i>Doc 9837 Manual on Automatic Meteorological Observing Systems at Aerodromes</i>	ICAO	<i>Published</i>						
<i>Doc 9971 Manual on Collaborative Air Traffic Flow Management (3rd part Airport CDM)</i>	ICAO	<i>2018</i>						
<i>Doc 10003 Manual on the digital exchange of aeronautical information</i>	ICAO	<i>Published</i>						
<i>Meteorological Information Exchange Model (IWXXM) Version 2.0</i>	ICAO	<i>Published</i>						
<i>Update Meteorological Information Exchange Model (IWXXM) Version 2.0 to Version 2.1</i>	ICAO	<i>2017</i>						
<i>Airport CDM Implementation Manual Version 4</i>	EUROCONTROL	<i>Published</i>						
<i>Update Airport CDM Implementation Manual Version 5</i>	EUROCONTROL	<i>Published</i>						
<i>Aeronautical Information Exchange Model AIXM Version 5.1.1</i>	EUROCONTROL	<i>Published</i>						
<i>Update Aeronautical Information Exchange Model AIXM Version 5.2</i>	EUROCONTROL	<i>2018</i>						
<i>ED-141 Minimum Technical Specification for the Airport Collaborative Decision Making (Airport-CDM)</i>	EUROCAE	<i>Published</i>						
<i>ED-145 Airport CDM Interface Specification</i>	EUROCAE	<i>Published</i>						
<i>ED-146 Guidelines for Test and Validation related to A-CDM interoperability</i>	EUROCAE	<i>Published</i>						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	<i>Before 2014</i>	High	<i>No further supporting material required other than what is already existing/being developed.</i>
Full Operational Capability	<i>01/2021</i>		

Family 2.1.4 – Initial Airport Operational Plan (AOP)

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#21 “Airport Operations Plan and AOP-NOP Seamless Integration”	AO-0801-A (AIRPORT-03)	SESAR Release 5	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 8896 Manual of Aeronautical Meteorological Practice	ICAO	Published	EN 303 212 (V1.1.1) Airport Collaborative Decision Making (A-CDM) Community Specification (Communication 2010/C 168/04)	ETSI	Published			
Doc 9328 Manual of Runway Visual Range Observing and Reporting Practices	ICAO	Published	Update EN 303 212 Airport Collaborative Decision Making (A-CDM) Community Specification	ETSI	TBD			
Doc 9377 Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services	ICAO	Published						
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published						
Doc 9817 Manual on Low-level Wind Shear	ICAO	Published						
Doc 9830, Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual	ICAO	2018						
Doc 9837 Manual on Automatic Meteorological Observing Systems at Aerodromes	ICAO	Published						

<i>Doc 9971 Manual on Collaborative Air Traffic Flow Management (3rd part Airport CDM)</i>	ICAO	2018						
<i>Doc 10003 Manual on the digital exchange of aeronautical information</i>	ICAO	<i>Published</i>						
<i>Guidance Manual on Airport Traffic Synchronisation</i>	ICAO	2018						
<i>Meteorological Information Exchange Model (IWXXM) Version 2.0</i>	ICAO	<i>Published</i>						
<i>Update Meteorological Information Exchange Model (IWXXM) Version 2.0 to Version 2.1</i>	ICAO	2017						
<i>Airport CDM Implementation Manual Version 4</i>	EUROCONTROL	<i>Published</i>						
<i>Update Airport CDM Implementation Manual Version 5</i>	EUROCONTROL	<i>Published</i>						
<i>Aeronautical Information Exchange Model (AIXM) Version 5.1.1</i>	EUROCONTROL	<i>Published</i>						
<i>Update Aeronautical Information Exchange Model AIXM Version 5.2</i>	EUROCONTROL	2018						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	<i>Before 2014</i>	High	<i>V3 completed in 2016. Updates of supporting material need to be considered.</i>
Full Operational Capability	<i>01/2021</i>		

Family 2.2.1 – A-SMGCS Level 1 and 2

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
N/A	AO-0201	Available	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A
N/A	AO-0102	Available	Release 8	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 7030/5 (EUR/NAT) Regional Supplementary Procedures, Section 6.5.6 and 6.5.7	ICAO	Published	EN 303 213-1 (V1.4.1) A-SMGCS Part 1 Community Specification (covering the EUROCAE A-SMGCS MASPS (ED-87 C))	ETSI	Published			
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published	EN 303 213-2 (V1.4.1) A-SMGCS Part 2 Community Specification (covering the EUROCAE A-SMGCS MASPS (ED-87 C))	ETSI	Published			
Doc 9830 A-SMGCS Manual, First Edition	ICAO	Published	EN 303 213-3 (V1.1.1) A-SMGCS; Part 3: Community Specification for a deployed cooperative sensor including its interfaces	ETSI	Published			
Doc 9830, Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual	ICAO	2018	EN 303 213-4-1 (V1.1.1) A-SMGCS Part 4: Community Specification for a deployed non-cooperative sensor including its interfaces; Sub-part 1: Generic requirements for non-cooperative sensor	ETSI	Published			

<i>Doc 9871 Technical Provisions for Mode S Services and Extended Squitter</i>	ICAO	<i>Published</i>	<i>EN 303 213-4-2 (V1.1.1) 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</i>	<i>ETSI</i>	<i>Published</i>			
<i>Doc 9924 Aeronautical Surveillance Manual</i>	ICAO	<i>Published</i>	<i>EN 303 213-5-1 (V1.1.1) A-SMGCS Part 5: Harmonized EN covering the essential requirements of article 3.2 of the Directive 2014/53/EU for multilateration equipment; Sub-part 1: receivers and interrogators</i>	<i>ETSI</i>	<i>2019</i>			
<i>Guidance Manual on Airport Traffic Synchronisation</i>	ICAO	<i>2018</i>	<i>EN 303 213-5-2 (V1.1.1) A-SMGCS Part 5: Harmonized EN covering the essential requirements of article 3.2 of the Directive 2014/53/EU for multilateration equipment; Sub-part 2: reference and vehicle transmitters</i>	<i>ETSI</i>	<i>2019</i>			
<i>SPEC-171 Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services</i>	EUROCONTROL	<i>Published</i>	<i>EN 303 213-6-1 (V1.1.1) A-SMGCS Part 6: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive for deployed surface movement radar sensors; Sub-part 1: X-band sensors using pulsed signals and transmitting power up to 100 kW</i>	<i>ETSI</i>	<i>Published</i>			
<i>European Action Plan for the Prevention of Runway Incursions (EAPPRI)</i>	EUROCONTROL	<i>2018</i>						
<i>ED-87C A-SMGCS MASPS</i>	EUROCAE	<i>Published</i>						

ED-102A / DO-260B MOPS for 1090 MHz Extended Squitter Automatic Dependent Surveillance Broadcast (ADS-B) and Traffic Information Services Broadcast (TIS-B)	EUROCAE / RTCA	Published						
ED-117A MOPS for MLAT	EUROCAE	Published						
ED-116A MOPS for Surface Movement Radar Sensor Systems for Use in A-SMGCS	EUROCAE WG-41	2018						
ED-128A Guidelines for Surveillance Data Fusion in A-SMGCS Levels 1&2	EUROCAE WG-41	2018						
ED-163 Safety, Performance and Interoperability Requirements document for ADS-B Airport Surface surveillance application (ADS-B APT)	EUROCAE	Published						
ED-129B Technical Specification for a 1090 MHz Extended Squitter ADS-B Ground System	EUROCAE	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	No further supporting material required other than what is already existing / being developed.
Full Operational Capability	01/2021		

Family 2.3.1 – Time Based Separation (TBS)

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#64 "Time Based Separation"	AO-0303	SESAR Release 2	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 8896 Manual of Aeronautical Meteorological Practice	ICAO	Published						
Doc 9328 Manual of Runway Visual Range Observing and Reporting Practices	ICAO	Published						
Doc 9377 Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services	ICAO	Published						
Doc 9817 Manual on Low-level Wind Shear	ICAO	Published						
Doc 9837 Manual on Automatic Meteorological Observing Systems at Aerodromes	ICAO	Published						
Doc 10003 Manual on the digital exchange of aeronautical information	ICAO	Published						
Meteorological Information Exchange Model (IWXXM) Version 2.0	ICAO	Published						
Update Meteorological Information Exchange Model (IWXXM) Version 2.0 to Version 2.1	ICAO	2017						
Time Based Operation (TBS) Specification	EUROCONTROL	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2015	High	<i>Need for standards, possibly at ICAO level. Need to develop EASA AMC as soon as possible, to cover the safety-related aspects.</i>
Full Operational Capability	01/2024		<i>Best practices from stakeholders (NATS' operations at London Heathrow) could possibly be taken in consideration for standards and AMC development.</i>

Family 2.4.1 – A-SMGCS Routing and Planning Functions

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#22 “Automated Assistance to Controller for Surface Movement Planning and Routing”	AO-0205	SESAR Release 5	Release 7	PJ.28
			Release 8	PJ.28
			Release 9	PJ.28
			Second Wave	N/A
#106 “DMAN Baseline for integrated AMAN DMAN” #53 “Pre-Departure Sequencing supported by Route Planning”	TS-0202	SESAR Release 4	Release 7	PJ.28
			Release 8	PJ.28
			Release 9	PJ.28
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published	EN 303 213-1 (V1.4.1) A-SMGCS Part 1 Community Specification (covering the EUROCAE A-SMGCS MASPS (ED-87 C))	ETSI	Published			
Doc 9830, Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual	ICAO	2018	Update EN 303 213-1 (V2.1.1) A-SMGCS Part 1 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
Guidance Manual on Airport Traffic Synchronisation	ICAO	2018	EN 303 213-2 (V1.4.1) A-SMGCS Part 2 Community Specification (covering the EUROCAE A-SMGCS MASPS (ED-87 C))	ETSI	Published			
Update Airport CDM Implementation Manual Version 5	EUROCONTROL	Published	Update EN 303 213-2 (V2.1.1) A-SMGCS Part 2 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
SPEC-171 Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services	EUROCONTROL	Published	Update EN 303 213-3 (V2.1.1) A-SMGCS Part 3 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			

<i>European Action Plan for the Prevention of Runway Incursions (EAPPRI)</i>	<i>EUROCONTROL</i>	<i>2018</i>	<i>Update EN 303 213-7 (V1.1.1) A-SMGCS Part 7 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)</i>	<i>ETSI</i>	<i>2019</i>			
<i>Update of ED-87C to include the new functions: routing & planning and additional safety nets (ED-87D)</i>	<i>EUROCAE WG-41</i>	<i>2018</i>	<i>Update EN 303 213-8 (V1.1.1) A-SMGCS Part 8 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 E)</i>	<i>ETSI</i>	<i>2020</i>			
<i>Update ED-87D to include Guidance Services (ED-87E)</i>	<i>EUROCAE WG-41</i>	<i>2018</i>						
<i>ED-99D TS User Requirements for Mapping information</i>	<i>EUROCAE</i>	<i>Published</i>						
<i>ED-119C Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data</i>	<i>EUROCAE</i>	<i>Published</i>						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2016	High	V3 completed in 2016 and VLDs are planned until 2019. Updates of supporting material need to be considered. Initial deployment started. Need to accelerate the delivery of supporting material (EUROCAE), and safety-related material (EASA).
Full Operational Capability	01/2024		

Family 2.5.1 – Airport Safety Nets associated with A-SMGCS (Level 2)

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#02 “Airport Safety Nets for controllers: conformance monitoring alerts and detection of conflicting ATC clearances”			AO-0104-A	SESAR Release 5	Release 7	PJ.28		
					Release 8	PJ.28		
					Release 9	PJ.28		
					Second Wave	N/A		

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 7030/5, (EUR/NAT) Regional Supplementary Procedures, Section 6.5.6 and 6.5.7	ICAO	Published	Update EN 303 213-1 (V2.1.1) A-SMGCS Part 1 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published	Update EN 303 213-2 (V2.1.1) A-SMGCS Part 2 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
Doc 9830 A-SMGCS Manual, First Edition	ICAO	Published	Update EN 303 213-3 (V2.1.1) A-SMGCS Part 3 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
Doc 9830, Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual	ICAO	2018	Update EN 303 213-7 (V1.1.1) A-SMGCS Part 7 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
Doc 9871, Technical Provisions for Mode S Services and Extended Squitter	ICAO	Published	Update EN 303 213-8 (V1.1.1) A-SMGCS Part 8 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 E)	ETSI	2020			
Doc 9924, Aeronautical Surveillance Manual	ICAO	Published						
Guidance Manual on Airport Traffic Synchronisation	ICAO	2018						

<i>SPEC-171 Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services</i>	<i>EUROCONTROL</i>	<i>Published</i>						
<i>European Action Plan for the Prevention of Runway Incursions (EAPPRI)</i>	<i>EUROCONTROL</i>	<i>2018</i>						
<i>Update of ED-87C to include the new functions: routing & planning and additional safety nets (ED-87D)</i>	<i>EUROCAE WG-41</i>	<i>2018</i>						
<i>Update ED-87D to include Guidance Services (ED-87E)</i>	<i>EUROCAE WG-41</i>	<i>2018</i>						
<i>ED-163 Safety, Performance and Interoperability Requirements document for ADS-B Airport Surface surveillance application (ADS-B APT)</i>	<i>EUROCAE</i>	<i>Published</i>						
<i>ED-102A / DO-260B MOPS for 1090 MHz Extended Squitter Automatic Dependent Surveillance Broadcast (ADS-B) and Traffic Information Services Broadcast (TIS-B)</i>	<i>EUROCAE / RTCA</i>	<i>Published</i>						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	<i>Before 2014</i>	High	<i>V3 completed in 2016 and VLDs are planned until 2019. Updates of supporting material need to be considered.</i>
Full Operational Capability	<i>01/2021</i>		<i>Initial deployment started. In view of PCP FOC of 01/2021, the need to accelerate the delivery of supporting material (EUROCAE) and safety-related aspects (EASA), is becoming crucial.</i>

Family 2.5.2 – Vehicle systems (part A) and aircraft systems (part B) contributing to Airport Safety Nets

V3 – Development Phase					
SESAR Solution	OIs	V3 End	VLD		
#04 “Enhanced Traffic Situational Awareness and Airport Safety Nets for the vehicle drivers”	AO-0105	SESAR Release 5	Release 8	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
#04 “Enhanced Traffic Situational Awareness and Airport Safety Nets for the vehicle drivers”	AO-0204	SESAR Release 5	Release 8	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
N/A	AUO-0401	Available	Release 8	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 8168 PANS OPS (SURF IA)	ICAO	Published	Update EN 303 213-1 (V2.1.1) A-SMGCS Part 1 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
Doc 9994 Manual on Airborne Surveillance Applications (Edition 1) (SURF)	ICAO	Published	Update EN 303 213-2 (V2.1.1) A-SMGCS Part 2 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
European Action Plan for the Prevention of Runway Incursions (EAPPRI)	EUROCONTROL	2018						
European Action Plan for the Prevention of Runway Excursions	EUROCONTROL	Published						

Update of ED-87C to include the new functions: routing & planning and additional safety nets (ED-87D)	EUROCAE WG-41	2018	Update EN 303 213-3 (V2.1.1) A-SMGCS Part 3 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
Update ED-87D to include Guidance Services (ED-87E)	EUROCAE WG-41	2018	Update EN 303 213-7 (V1.1.1) A-SMGCS Part 7 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 D)	ETSI	2019			
ED-165 / DO-322 Safety, Performance and Interoperability Requirements Document for ATSA-SURF Application	EUROCAE	Published	Update EN 303 213-8 (V1.1.1) A-SMGCS Part 8 on the basis of the EUROCAE A-SMGCS MASPS (ED-87 E)	ETSI	2020			
ED-179B / DO-315B MASPS for Enhanced Vision Systems, Synthetic Vision Systems, Combined Vision Systems and Enhanced Flight Vision Systems	EUROCAE	Published						
ED-194A / DO-317A, MOPS for Aircraft Surveillance Applications (ASA) System	EUROCAE	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	Updates of supporting material need to be considered.
Full Operational Capability	01/2021		Initial deployment started. In view of PCP FOC of 01/2021, the need to accelerate the delivery of supporting material (EUROCAE) and safety-related aspects (EASA), is becoming crucial.

AF3 - Airspace Management and Free Route

Family 3.1.1 – ASM Tool to support AFUA

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
N/A	AOM-0202	Available	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
SPEC-166 Specification for Airspace Management (ASM) support system requirements supporting the ASM processes at local and FAB level - Part I - Baseline Requirements	EUROCONTROL	Published	Communication 2009/C 2196/05 Community Specifications for the application of the Flexible Use of Airspace (FUA)	EUROCONTROL	Published	Commission Regulation (EC) 2150/2005	European Commission	Published
SPEC-166 Specification for Airspace Management (ASM) support system requirements supporting the ASM processes at local and FAB level - Part I - ASM Systems Interface Requirements	EUROCONTROL	Published				Commission Regulation (EC) 677/2011 as amended by Commission Implementing Regulation (EU) 970/2014	European Commission	Published
Advanced FUA Concept edition 1.0 24/07/2015	EUROCONTROL	Published						
Aeronautical Information Exchange Model AIXM Version 5.1.1	EUROCONTROL	Published						
Update Aeronautical Information Exchange Model AIXM Version 5.2	EUROCONTROL	2018						
Network Strategy Plan (NSP): SO 3/2 and SO 3/3	Network Manager	Published						
ERNIP Part 3 - Handbook for Airspace Management - Guidelines for Airspace Management; November 2017	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	<i>Before 2014</i>	High	<i>At present, supporting material is exhaustive for the family implementation.</i>
Full Operational Capability	<i>01/2019</i>		

Family 3.1.2 – ASM management of real time airspace data

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#31 “Variable profile military reserved areas and enhanced (further automated) civil-military collaboration”			AOM-0206-A	SESAR Release 5	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
#31 “Variable profile military reserved areas and enhanced (further automated) civil-military collaboration”			AOM-0202-A	SESAR Release 5	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
SPEC-166 Specification for Airspace Management (ASM) support system requirements supporting the ASM processes at local and FAB level - Part I - Baseline Requirements	EUROCONTROL	Published	Communication 2009/C 2196/05 Community Specifications for the application of the Flexible Use of Airspace (FUA)	EUROCONTROL	Published	Commission Regulation (EC) 2150/2005	European Commission	Published
SPEC-166 Specification for Airspace Management (ASM) support system requirements supporting the ASM processes at local and FAB level - Part I - ASM Systems Interface Requirements	EUROCONTROL	Published				Commission Regulation (EC) 677/2011 as amended by Commission Implementing Regulation (EU) 970/2014	European Commission	Published
Advanced FUA Concept Edition 1.0 24/07/2015	EUROCONTROL	Published						
Aeronautical Information Exchange Model AIXM Version 5.1.1	EUROCONTROL	Published						
Update Aeronautical Information Exchange Model AIXM Version 5.2	EUROCONTROL	2018						

Network Strategy Plan (NSP): SO 3/2 and SO 3/3	Network Manager	Published						
Directions of work for enhancing the ASM/ATFCM/ATS processing in the short and medium term 2012-2017; Edition 1.0 Edition Date 14/11/11	Network Manager	Published						
ERNIP Part 3 - Handbook for Airspace Management - Guidelines for Airspace Management; November 2017	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2017	High	V3 completed in 2016. Update of supporting material needs to be considered.
Full Operational Capability	01/2022		

Family 3.1.3 – Full rolling ASM/ATFCM process and ASM information sharing

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#31 “Variable profile military reserved areas and enhanced (further automated) civil-military collaboration”			AOM-0202-A	SESAR Release 5	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
SPEC-166 Specification for Airspace Management (ASM) support system requirements supporting the ASM processes at local and FAB level - Part I - Baseline Requirements	EUROCONTROL	Published	Communication 2009/C 2196/05 Community Specifications for the application of the Flexible Use of Airspace (FUA)	EUROCONTROL	Published	Commission Regulation (EC) 2150/2005	European Commission	Published
SPEC-166 Specification for Airspace Management (ASM) support system requirements supporting the ASM processes at local and FAB level - Part I - ASM Systems Interface Requirements	EUROCONTROL	Published				Commission Regulation (EC) 677/2011 as amended by Commission Implementing Regulation (EU) 970/2014	European Commission	Published
Advanced FUA Concept edition 1.0 24/07/2015	EUROCONTROL	Published						
Aeronautical Information Exchange Model AIXM Version 5.1.1	EUROCONTROL	Published						
Update Aeronautical Information Exchange Model AIXM Version 5.2	EUROCONTROL	2018						
Network Strategy Plan (NSP): SO 3/2 and SO 3/3	Network Manager	Published						
ERNIP Part 3 - Handbook for Airspace Management - Guidelines for Airspace Management; November 2017	Network Manager	Published						

<i>NOP User Guide; Edition: 21.5. Date:23 January 2018</i>	<i>Network Manager</i>	<i>Published</i>						
<i>Responsibilities Document for the application of Air Traffic Flow Management (ATFM); Edition 1.0; Date: 25/10/2012</i>	<i>Network Manager</i>	<i>Published</i>						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 completed in 2016. Initial deployment started. Update of supporting material needs to be considered.
Full Operational Capability	01/2022		

Family 3.1.4 – Management of Dynamic Airspace configurations

V3 – Development Phase					
SESAR Solution	OIs	V3 End	VLD		
#66 “Automated Support for Dynamic Sectorisation”	CM-0102-A	SESAR Release 2	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
PJ.08-01 “Management of Dynamic Airspace configurations”	AOM-0805	SESAR 2020 Second Wave	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
PJ.08-01 “Management of Dynamic Airspace configurations”	AOM-0809	SESAR 2020 Second Wave	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
ED-136 VoIP ATM System Operational and Technical Requirements	EUROCAE	Published				Commission Regulation (EC) No 2150/2005	European Commission	Published
ED-137-1revC Vol 1 (Radio) Voice over IP Ground/Ground Communication	EUROCAE	Published						
ED-137-2revC Vol 2 (Telephone) Voice over IP Ground/Ground Communication	EUROCAE WG-67	2018						
ED-137-3revC Vol 3 (European Legacy Telephone Interworking) Voice over IP Ground/Ground Communication	EUROCAE WG-67	2018						
ED-137-4revC Vol 4 (Recording) Voice over IP Ground/Ground Communication	EUROCAE WG-67	2018						

ED-137-5revC (Supervision) Voice over IP Ground/Ground Communication	EUROCAE WG-67	2018						
ED-137 Vol 2 Addendum 1 "Interoperability Standard for VOIP ATM Components – Addendum 1 To Volume 2: MFC R2 and ATS/QSIG Telephone Interworking"	EUROCAE WG-67	2018						
ED-137 Vol 2 Addendum 2 "Interoperability Standard for VOIP ATM Components – Addendum 2 To Volume 2: FAA Legacy Telephone Interworking"	EUROCAE WG-67	2018						
ED-137 Vol 2 Addendum 3 "Interoperability Standard for VOIP ATM Components – Addendum 3 To Volume 2: Instantaneous Access Call"	EUROCAE WG-67	2018						
ED-137 Vol 2 Addendum 4 "Interoperability Standard for VOIP ATM Components – Addendum 4 To Volume 2: Override Call"	EUROCAE WG-67	2018						
ED-137 Vol 2 Addendum 5 "Interoperability Standard for VOIP ATM Components – Addendum 5 To Volume 2: Voice Call"	EUROCAE WG-67	2018						
ED-137 Vol 2 Addendum 6 "Interoperability Standard for VOIP ATM Components – Addendum 6 To Volume 2: Extended Call Forward"	EUROCAE WG-67	2018						
ED-137 Vol 2 Addendum 7 "Interoperability Standard for VOIP ATM Components – Addendum 7 To Volume 2: Extended Position Monitor"	EUROCAE WG-67	2018						
ED-137 Vol 2 Addendum 8 "Interoperability Standard for VOIP ATM Components – Addendum 8 To Volume 2: Radio Intercom Call"	EUROCAE WG-67	2018						

ED-137 Vol 2 Addendum 9 "Interoperability Standard for VOIP ATM Components – Addendum 9 To Volume 2: Hotline Access Call"	EUROCAE WG-67	2018						
ED-137 Vol 2 Addendum 10 "Interoperability Standard for VOIP ATM Components – Addendum 10 To Volume 2: Call/Answer Access Call"	EUROCAE WG-67	2018						
ED-138 Network requirements and Performance for VoIP ATM Systems	EUROCAE	Published						
Advanced FUA Concept Edition 1.0 24/07/2015	EUROCONTROL	Published						
Network Strategy Plan (NSP): SO 3/2 and SO 3/3	Network Manager	Published						
ERNIP Part 3 - Handbook for Airspace Management - Guidelines for Airspace Management; November 2017	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2018	Medium	V3 reached only for CM-0102A. For the other OIs, activities are expected to continue in Second Wave of SESAR 2020. Delivery expected after IOC. Supporting material needs to be considered.
Full Operational Capability	01/2022		

Family 3.2.1 – Upgrade of ATM systems (NM, ANSPs, AUs) to support Direct Routings and Free Routing Airspace

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
N/A			CM-0202	Available	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
N/A			CM-0203	Available	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
#32 “Free Route through the use of Direct Routing for flights both in cruise and vertically evolving in cross ACC/FIR borders and in high complexity environments #65 “User Preferred Routing”			AOM-0500	SESAR Release 5	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
#33 “Free Route through the use of Free Routing for flights both in cruise and vertically evolving in cross ACC/FIR borders and within permanently low to medium complexity environments			AOM-0501	SESAR Release 5	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
PJ.06-01 “Optimized traffic management to enable Free Routing in high and very high complexity environments”			AOM-0505	SESAR Release 9	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
#66 “Automated Support for Dynamic Sectorisation”			CM-0102-A	SESAR Release 2	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published	Update SPEC-0106 Specification for On-Line Data Interchange (OLDI) to Edition 4.3	EUROCONTROL	Published	Commission Regulation (EC)No 2150/2005	European Commission	Published

Guidance Material for SESAR Deployment Programme Implementation Planning View 2018 – Annex B

<i>Doc 4444 PANS ATM, PBN Separation Standards</i>	ICAO	2018	<i>SPEC-0107 EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) Edition 3.2</i>	EUROCONTROL	Published	<i>Commission Regulation (EU) No 1032/2006 - Requirements for automatic systems for the exchange of flight data for the purpose of notification, coordination and transfer of flights between air traffic control units</i>	European Commission	Published
<i>Extended MTCD Specification SPEC-0139</i>	EUROCONTROL	Published				<i>Commission Regulation (EU) No 677/2011, as amended by Commission Implementing Regulation (EU) No 970/2014</i>	European Commission	Published
<i>STCA Guidelines GUID-159</i>	EUROCONTROL	Published						
<i>Monitoring Aids (MONA) Specification SPEC-142</i>	EUROCONTROL	Published						
<i>Trajectory Prediction Specification SPEC-143</i>	EUROCONTROL	Published						
<i>Area Proximity Warning (APW) Guidelines - GUID-161</i>	EUROCONTROL	Published						
<i>Network Strategy Plan (NSP): SO 3/1 SO 4/1</i>	Network Manager	Published						
<i>IFPS USERS MANUAL Edition:22 (08 May 2018)</i>	Network Manager	Published. Continuously maintained						
<i>Minimum Safe Altitude Warning (MSAW) Guidelines – Part I to III – EUROCONTROL – GUID – 160</i>	EUROCONTROL	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 reached for CM-0102A, CM-0202 and CM-0203 (they are ready for deployment) and for AOM-0500 and AOM-0501 in 2016. For the rest of OIs (AOM-0505), V3 will end in 2019. Initial deployment started. Update of supporting material needs to be considered in order to support full Free Route implementation and potentially for cross border operations in FRA.
Full Operational Capability	01/2022		

Family 3.2.3 – Implement Published Direct Routings (DCTs)

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#32 “Free Route through the use of Direct Routing for flights both in cruise and vertically evolving in cross ACC/FIR borders and in high complexity environments” #65 “User Preferred Routing”	AOM-0500	SESAR Release 5	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published				Commission Regulation (EC) 2150/2005	European Commission	Published
Doc 4444 PANS ATM, PBN Separation Standards	ICAO	2018				Commission Regulation (EC) 677/2011 as amended by 970/2014	European Commission	Published
Network Strategy Plan (NSP): SO 3/1	Network Manager	Published						
European Route Network Improvement Plan (ERNIP) Part 1 Edition July 2016	Network Manager	Published						
European Route Network Improvement Plan (ERNIP) Part 2 - European ATS Route Network - Edition July 2017	Network Manager	Published						
European Route Network Improvement Plan (ERNIP) Part 4 - Route Availability Document User's Manual; Edition June 2015	Network Manager	Published						
European Airspace Design Methodology - Guidelines; Edition June 2015	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 completed in 2016. Deployment already started and the family reached the FOC date.
Full Operational Capability	01/2018		

Family 3.2.4 – Implement Free Route Airspace

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#33 “Free Route through the use of Free Routing for flights both in cruise and vertically evolving in cross ACC/FIR borders and within permanently low to medium complexity environments”	AOM-0501	SESAR Release 5	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A
#32 “Free Route through the use of Direct Routing for flights both in cruise and vertically evolving in cross ACC/FIR borders and in high complexity environments” #65 “User Preferred Routing”	AOM-0500	SESAR Release 5	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A
PJ.06-01 “Optimized traffic management to enable Free Routing in high and very high complexity environments”	AOM-0505	SESAR Release 9	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 4444 PANS ATM, PBN Separation Standards	ICAO	2018				Commission Regulation (EC) 2150/2005	European Commission	Published
Doc 9426 Air Traffic Services Planning Manual	ICAO	Published				Commission Regulation (EC) 677/2011 as amended by 970/2014	European Commission	Published
Network Strategy Plan (NSP): SO 3/1	Network Manager	Published						
European Route Network Improvement Plan (ERNIP) Part 1 Edition July 2016	Network Manager	Published						
European Route Network Improvement Plan (ERNIP) Part 2 - European ATS Route Network - Edition July 2017	Network Manager	Published						
European Route Network Improvement Plan (ERNIP) Part 4 - Route Availability Document User's Manual; Edition June 2015	Network Manager	Published						

European Airspace Design Methodology - Guidelines; Edition June 2015	Network Manager	Published						
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V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 ends in 2019. Deployment already started. Update of supporting material needs to be considered, potentially for cross border operations in FRA. Present navigation accuracy specifications refer to route structures. Similar specifications should be defined for FRA.
Full Operational Capability	01/2022		

AF4 - Network Collaborative Management

Family 4.1.1 – STAM Phase 1

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
N/A	DCB-0205	Available	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9971 Manual on Collaborative Air Traffic Flow Management (ATFM part)	ICAO	Published						
Network Strategy Plan (NSP): SO 4/3 SO 5/4	Network Manager	Published						
ATFCM Operations Manual; Edition 22.0 (03 May 2018)	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	No further supporting material required other than what is already existing.
Full Operational Capability	11/2017		

Family 4.1.2 – STAM Phase 2

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#17 “Advanced Short ATFCM Measures (STAM)”			DCB-0308	SESAR Release 5	Release 7		PJ.24	
					Release 8		PJ.24	
					Release 9		PJ.24	
					Second Wave		N/A	
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9971 Manual on Collaborative Air Traffic Flow Management (ATFM part)	ICAO	Published						
STAM Operational Concept (October 2015)	Network Manager	Published						
Network Strategy Plan (NSP): SO 4/3 SO 5/4	Network Manager	Published						
V5 – Deployment Phase			Family readiness	SDM view				
Initial Operational Capability	11/2017	High	V3 completed in 2016 and VLDs are planned until 2019. Update of supporting material needs to be considered.					
Full Operational Capability	01/2022							

Family 4.2.2 – Interactive Rolling NOP

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#20 “Collaborative NOP for Step 1”			DCB-0103-A	SESAR Release 5	Release 7	PJ.24		
					Release 8	PJ.24		
					Release 9	PJ.24		
					Second Wave	N/A		
N/A			DCB-0102	Available	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Collaborative NOP	Network Manager	Published						
Network Strategy Plan (NSP): SO 2/1 SO 2/2 SO 2/3 and SO 2/4	Network Manager	Published						
NOP User Guide; Edition:21.5. Date:23 January 2018	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 completed in 2016 and VLDs are planned until 2019.
Full Operational Capability	01/2022		Deployment already started. Update of supporting material needs to be considered

Family 4.2.3 – Interface ATM systems to NM systems

V3 – Development Phase					
SESAR Solution	OIs	V3 End	VLD		
N/A	IS-0102	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
#37 “Extended Flight Plan”	AUO-0203	SESAR Release 5	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
PJ.07-03 “Mission Trajectory Driven Processes” PJ.18-01 “Mission Trajectories”	AUO-0215	SESAR Release 9	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Network Strategy Plan (NSP): SO 4/2 and SO 5/1	Network Manager	Published	SPEC- 0101 Edition 1.1 Specification for the Initial Flight Plan (IFPL), Community Specification	EUROCONTROL	Published	Commission Regulation (EU) No 1033/2006 - Requirements on procedures for flight plans in the pre-flight phase for the single European sky	European Commission	Published
NM Flight Progress Messages Document – Edition 2.4 (August 2017)	Network Manager	Published	SPEC- 0101 Edition 1.2 Specification for the Initial Flight Plan (IFPL)	EUROCONTROL	Published			
Doc 9965 Manual on Flight and Flow Information for a Collaborative Environment (FF-ICE)	ICAO	Published	SPEC- 0101 Edition 1.3 Specification for the Initial Flight Plan (IFPL)	EUROCONTROL	Published			
IFPS USERS MANUAL Edition:22 (08 May 2018)	Network Manager	Published. Continuously maintained	SPEC-0107 EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) Edition 3.2	EUROCONTROL	Published			

			<i>SPEC-0107 EUROCONTROL Specification for ATS Data Exchange Presentation (ADEXP) Edition 3.2</i>	<i>EUROCONTROL</i>	<i>Published</i>			
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V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 ends in 2019. Deployment already started. Update of supporting material needs to be considered.
Full Operational Capability	01/2022		

Family 4.2.4 – AOP/NOP Information Sharing

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#20 “Collaborative NOP for Step 1”	DCB-0103-A	SESAR Release 5	Release 7	PJ.24
			Release 8	PJ.24
			Release 9	PJ.24
			Second Wave	N/A
#21 “Airport Operations Plan and AOP-NOP Seamless Integration”	AO-0801–A	SESAR Release 5	Release 7	PJ.24
			Release 8	PJ.24
			Release 9	PJ.24
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9971 Manual on Collaborative Air Traffic Flow Management (ATFM part)	ICAO	Published						
AOP/NOP interface specifications and guidance material	Network Manager	Published						
NOP User Guide 21.5 (23 January 2018)	Network Manager	Published						
Network Strategy Plan (NSP): SO 4/3 SO 06/2; and SO 6/4	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 completed in 2016 and VLDs are planned until 2019. Deployment already started.
Full Operational Capability	01/2022		Update of supporting material needs to be considered. Technical Specification for AOP/ NOP exchange of information might need some updates during 2018.

Family 4.3.1 – Target Times for ATFCM purposes

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#18 “CTOT and TTA”			DCB-0208	SESAR Release 5	Release 7		PJ.24	
					Release 8		PJ.24	
					Release 9		PJ.24	
					Second Wave		N/A	
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9971 Manual on Collaborative Air Traffic Flow Management (ATFM part)	ICAO	Published						
ATFCM Operations Manual; Edition 22.0 (03 May 2018)	Network Manager	Published						
Network Strategy Plan (NSP): SO 4/3, SO 5/4	Network Manager	Published						
V5 – Deployment Phase		Family readiness	SDM view					
Initial Operational Capability	01/2017		V3 completed in 2016 and VLDs are planned until 2019. Update of supporting material needs be considered. Target Times must be included. Target times adherence was not validated in the scope of solution #18.					
Full Operational Capability	01/2022							

Family 4.3.2 – Reconciled Target Times for ATFCM and arrival sequencing

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
PJ.09-02 “Integrated Local DCB Processes”			DCB-0213	SESAR 2020 Second Wave	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
#18 “CTOT and TTA”			DCB-0208	SESAR Release 5	Release 7	PJ.24		
					Release 8	PJ.24		
					Release 9	PJ.24		
					Second Wave	N/A		
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Network Strategy Plan (NSP): SO 4/3, SO 5/4, SO 6/5	Network Manager	Published						
V5 – Deployment Phase			Family readiness	SDM view				
Initial Operational Capability	01/2019	Low	V3 ends in SESAR2020 Second wave. Update of supporting material needs to be considered. Standards, guidance material and potentially CS are needed before the start of deployment.					
Full Operational Capability	01/2022							

Family 4.4.2 – Traffic Complexity Tools

V3 – Development Phase					
SESAR Solution	OIs	V3 End	VLD		
#19 “Automated support for Traffic Complexity Detection and Resolution”	CM-0103-A	SESAR Release 5	Release 7	PJ.24	
			Release 8	PJ.24	
			Release 9	PJ.24	
			Second Wave	N/A	
N/A	CM-0101	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	
N/A	IS-0102	Available	Release 7	N/A	
			Release 8	N/A	
			Release 9	N/A	
			Second Wave	N/A	

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
ATFCM Operations Manual; Edition 22.0 (03 May 2018)	Network Manager	Published						
Network Strategy Plan (NSP): SO 4/3 and SO 5/4	Network Manager	Published						
NM Flight Progress Messages Document; Edition 2.4 (August 2017)	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 completed in 2016 and VLDs are planned until 2019. Deployment already started.
Full Operational Capability	01/2022		Update of supporting material needs to be considered.

AF5 - iSWIM

Family 5.1.1 – PENS 1: Pan-European Network Service version 1

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
N/A	CTE-C06a — PENS - Phase 1	Available	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
EN 16495 (Version 2) ATM information security	CEN	2019						
Internet Protocol version 4 and 6 for Unicast and Multicast (RFC)	IETF	Published						
SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published						
SWIM Technical Infrastructure Blue Profile Specification	EUROCONTROL	TBD						
PENS1 documents	PSSG	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	Already deployed. No further supporting material required other than what is already existing/being developed.
Full Operational Capability	12/2019		Possible need for updates when SWIM-TI Blue Profile definitions become available.

Family 5.1.2 – NewPENS: New Pan-European Network Service

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
N/A			CTE-C06b — PENS - Phase 2	SESAR Release 5	Release 7	PJ.24, PJ.25		
					Release 8	PJ.24, PJ.25		
					Release 9	PJ.24, PJ.25		
					Second Wave	N/A		
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
ATM information security EN 16495 (Version 2)	CEN	2019						
Internet Protocol version 4 and 6 for Unicast and Multicast (RFC)	IETF	Published						
SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published						
SWIM Technical Infrastructure Blue Profile Specification	EUROCONTROL	TBD						
NewPENS documents	PENS Executive Board	2018						
V5 – Deployment Phase			SDM view					
Initial Operational Capability	06/2018	High	V3 completed in 2016 and VLDs are planned until 2019.Updates of supporting material need to be considered.					
Full Operational Capability	01/2025		Sufficient material is currently available for implementing NewPENS mid-2018, supporting SWIM communications.					
			Possible need for updates when SWIM-TI Blue Profile definitions become available.					

Family 5.1.3 – Common SWIM Infrastructure Components

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#46 “Initial system-wide information management (SWIM) technology solution”	IS-0901-A	SESAR Release 5	Release 7	PJ.24, PJ.25
			Release 8	PJ.24, PJ.25
			Release 9	PJ.24, PJ.25
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 10039 Manual on System Wide Information Management (SWIM) concept	ICAO	Published						
SARPs on AIRM	ICAO IMP	2018						
ATM information security EN 16495 (Version 2)	CEN	2019						
SPEC-169 SWIM Information Definition	EUROCONTROL	Published						
SPEC-168 SWIM Service Description	EUROCONTROL	Published						
SPEC 170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published						
Supporting material for SWIM foundational specifications	EUROCONTROL	2020						
SWIM Technical Infrastructure Blue Profile Specification	EUROCONTROL	TBD						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	06/2016	High	V3 completed in 2016 and VLDs are planned until 2019. Updates of supporting material need to be considered.
Full Operational Capability	01/2025		The current SWIM outputs of SESAR1 regarding common SWIM components need to be refined and approved within the community to be established as SWIM Governance in order to become common deployment specifications.

Family 5.1.4 – Common SWIM PKI and cyber security

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#46 “Initial system-wide information management (SWIM) technology solution”			IS-0901-A	SESAR Release 5	Release 7	PJ.24, PJ.25		
					Release 8	PJ.24, PJ.25		
					Release 9	PJ.24, PJ.25		
					Second Wave	N/A		
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 10039 Manual on System Wide Information Management (SWIM) concept	ICAO	Published						
ATM information security EN 16495 (Version 2)	CEN	2019						
SPEC-168 SWIM Service Description	EUROCONTROL	Published						
SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published						
SWIM Technical Infrastructure Blue Profile Specification	EUROCONTROL	TBD						
Supporting material for SWIM foundational specifications	EUROCONTROL	2020						
Revision of Aeronautical Information System Security (AISS) Framework Guidance ED-201A	EUROCAE WG-72	2020						
Revision of Aeronautical Information System Security (AISS) Framework Guidance ED-204A	EUROCAE WG-72	2020						
Revision of Aeronautical Information System Security (AISS) Framework Guidance ED-205	EUROCAE WG-72	2018						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	06/2017	Medium	V3 completed in 2016 and VLDs are planned until 2019. Updates of supporting material need to be considered.
Full Operational Capability	01/2025		The current SWIM outputs of SESAR1 regarding common SWIM PKI and cyber security need to be refined and approved within the community to be established SWIM Governance in order to become common deployment specifications.

Family 5.2.1 – Stakeholders Internet Protocol Compliance

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
N/A	CTE-C06	Available	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 10039 Manual on System Wide Information Management (SWIM) concept	ICAO	Published						
ATM information security EN 16495 (Version 2)	CEN	2019						
SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published						
SWIM Technical Infrastructure Blue Profile Specification	EUROCONTROL	TBD						
Internet Protocol version 4 and 6 for Unicast and Multicast (RFC)	IETF	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	IP already deployed. No further supporting material required other than what is already existing.
Full Operational Capability	01/2018		

Family 5.2.2 – Stakeholder SWIM Infrastructure components

V3 – Development Phase									
SESAR Solution			OIs	V3 End	VLD				
#46 “Initial system-wide information management (SWIM) technology solution			IS-0901-A	SESAR Release 5	Release 7	PJ.24, PJ.25			
					Release 8	PJ.24, PJ.25			
					Release 9	PJ.24, PJ.25			
					Second Wave	N/A			
#18-02b: Flight Object Interoperability			CM-0201-A	SESAR 2020	Release 7	N/A			
					Release 8	N/A			
					Release 9	N/A			
					Second Wave	N/A			

V4 – Industrialization Phase									
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation			
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery	
Doc 10039 Manual on System Wide Information Management (SWIM) concept	ICAO	Published							
ATM information security EN 16495 (Version 2)	CEN	2019							
SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published							
SWIM Technical Infrastructure Blue Profile Specification	EUROCONTROL	TBD							

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Yellow Profile: Before 2014 Blue Profile: 01/2021	High	V3 for SWIM-TI Yellow Profile ended in 2016 with the according Eurocontrol specification published in 2018.For SWIM-TI Blue Profile the specification is expected to be published in 2021.
Full Operational Capability	01/2025		VLDs are planned until 2019. Deployment already started. Update of supporting material needs be considered.

Family 5.2.3 – Stakeholders’ SWIM PKI and cyber security

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#46 46 “Initial system-wide information management (SWIM) technology solution”	IS-0901-A	SESAR Release 5	Release 7	PJ.24, PJ.25
			Release 8	PJ.24, PJ.25
			Release 9	PJ.24, PJ.25
			Second Wave	N/A
#18-02b: Flight Object Interoperability	CM-0201-A	SESAR 2020	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 10039 Manual on System Wide Information Management (SWIM) concept	ICAO	Published						
x.509	ITU	Published						
ATM information security EN 16495 (Version 2)	CEN	2019						
SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published						
SWIM Technical Infrastructure Blue Profile Specification	EUROCONTROL	TBD						
Revision of Aeronautical Information System Security (AISS) Framework Guidance ED-201A	EUROCAE WG-72	2020						
Revision of Aeronautical Information System Security (AISS) Framework Guidance ED-204A	EUROCAE WG-72	2020						
Revision of Aeronautical Information System Security (AISS) Framework Guidance ED-205	EUROCAE WG-72	2018						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	Medium	V3 ends in 2019 and VLDs are planned until 2019. Deployment already started.
Full Operational Capability	01/2025		Update of supporting material needs be considered.

Family 5.3.1 – Upgrade/Implement Aeronautical Information Exchange System/Service

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#46 “Initial system-wide information management (SWIM) technology solution”	IS-0901-A	SESAR Release 5	Release 7	PJ.31
			Release 8	PJ.31
			Release 9	PJ.31
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 8126 Aeronautical Information Services Manual	ICAO	2018				Commission Regulation (EU). 73/2010 (ADQ IR) as amended by Commission Implementing Regulation (EU) 1029/2014	European Commission	Published
Doc 10039 Manual on System Wide Information Management (SWIM) concept	ICAO	Published						
PANS AIM	ICAO	TBD						
SARPs on AIRM	ICAO IMP	2018						
ATM information security EN 16495 (Version 2)	CEN	2019						
SPEC-168 SWIM Service Description	EUROCONTROL	Published						
SPEC-169 SWIM Information Definition	EUROCONTROL	Published						
SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published						
Supporting material for SWIM foundational specifications	EUROCONTROL	2020						
Aeronautical Information Exchange Model AIXM Version 5.1.1	EUROCONTROL	Published						
Update Aeronautical Information Exchange Model AIXM Version 5.2	EUROCONTROL	2018						

Electronic e-AIP Specification	EUROCONTROL	Published						
Guidelines for Supporting the Implementation of Commission Regulation (EU) 73/2010 (ADQ) EUROCONTROL – GUID – 163	EUROCONTROL	Published						
Specification for the AIP Data Set Coding (using AIXM 5.1.1)	EUROCONTROL	2020						
Specification for the Obstacle Set Coding (using AIXM 5.1.1)	EUROCONTROL	2020						
Specification for Digital NOTAM (using AIXM 5.1.1)	EUROCONTROL	2020						
Specification for Instrument Flight Procedures Design Data Set (using AIXM 5.1.1)	EUROCONTROL	2020						
ED-76A / DO-200B Standard for processing aeronautical data	EUROCAE / RTCA	Published						
ED-99D TS User Requirements for Mapping information	EUROCAE	Published						
ED-119C Interchange Standards for Terrain, Obstacle, and Aerodrome Mapping Data	EUROCAE	Published						
For interoperability with NM: NM B2B technical documentation	Network Manager	Published						
GML Profile for Aviation Data	OGC Aviation Domain WG	Published						
Web Feature Service (WFS)	OGC/ISO	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 completed in 2016 and VLDs are planned until 2019. Deployment already started.
Full Operational Capability	01/2025		Update of supporting material needs to be considered.

Family 5.4.1 – Upgrade / Implement Meteorological Information Exchange System / Service

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#35 “MET Information Exchange”			MET-0101	SESAR Release 5	Release 7		N/A	
					Release 8		N/A	
					Release 9		N/A	
					Second Wave		N/A	
#46 “Initial system-wide information management (SWIM) technology solution”			IS-0901-A	SESAR Release 5	Release 7		PJ.24, PJ.25	
					Release 8		PJ.24, PJ.25	
					Release 9		PJ.24, PJ.25	
					Second Wave		N/A	

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 8896 Manual of Aeronautical Meteorological Practice	ICAO	Published						
Doc 9328 Manual of Runway Visual Range Observing and Reporting Practices	ICAO	Published						
Doc 9377 Manual on Coordination between Air Traffic Services, Aeronautical Information Services and Aeronautical Meteorological Services	ICAO	Published						
Doc 9691 Manual on Volcanic Ash, Radioactive Material and Toxic Chemical Clouds	ICAO	Published						
Doc 9766 Handbook on the International Airways Volcano Watch (IAVW) Operational Procedures	ICAO	Published						
Doc 9817 Manual on Low-level Wind Shear	ICAO	Published						

<i>Doc 9837 Manual on Automatic Meteorological Observing Systems at Aerodromes</i>	ICAO	<i>Published</i>						
<i>Doc 10003 Manual on the digital exchange of aeronautical information</i>	ICAO	<i>Published</i>						
<i>Doc 10039 Manual on System Wide Information Management (SWIM) concept</i>	ICAO	<i>Published</i>						
<i>SARPs on AIRM</i>	ICAO IMP	<i>2018</i>						
<i>ATM information security EN 16495 (Version 2)</i>	CEN	<i>2019</i>						
<i>Meteorological Information Exchange Model (IWXXM) Version 2.0</i>	ICAO	<i>Published</i>						
<i>Update Meteorological Information Exchange Model (IWXXM) Version 2.0 to Version 2.1</i>	ICAO	<i>2017</i>						
<i>ICAO EUR Doc 033 - Guidelines for the Implementation of OPMET Data Exchange using IWXXM in the EUR Region</i>	ICAO	<i>Published</i>						
<i>N°306 Manual On Codes - Vol I.3 Part D - Representations derived from data models</i>	WMO	<i>Published</i>						
<i>GRIB2: WMO-No. 306, Manual on Codes Volume I.2</i>	WMO	<i>Published</i>						
<i>SPEC-169 SWIM Information Definition</i>	EUROCONTROL	<i>Published</i>						
<i>SPEC-168 SWIM Service Description</i>	EUROCONTROL	<i>Published</i>						
<i>SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification</i>	EUROCONTROL	<i>Published</i>						
<i>Supporting material for SWIM foundational specifications</i>	EUROCONTROL	<i>2020</i>						

<i>MET SWIM Service</i>	<i>EUROCAE</i>	<i>2020</i>						
<i>HDF5</i> https://www.hdfgroup.org/HDF5/doc/H5.format.html	<i>HDF Group</i>	<i>Published</i>						
<i>GML Profile for Aviation Data</i>	<i>OGC Aviation Domain WG</i>	<i>Published</i>						
<i>Web Feature Service (WFS)</i>	<i>OGC/ISO</i>	<i>Published</i>						
<i>Web Coverage Service (WCS)</i>	<i>OGC</i>	<i>Published</i>						
<i>Web Map Service Interface (WMS)</i>	<i>OpenGIS</i>	<i>Published</i>						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2016	High	<i>V3 completed in 2016 and VLDs are planned until 2019. Initial deployment started.</i>
Full Operational Capability	01/2025		<i>Update of supporting material needs to be considered.</i>

Family 5.5.1 – Upgrade/Implement Cooperative Network Information Exchange System/Service

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#46 “Initial system-wide information management (SWIM) technology solution”			IS-0901-A	SESAR Release 5	Release 7	PJ.24, PJ.25		
					Release 8	PJ.24, PJ.25		
					Release 9	PJ.24, PJ.25		
					Second Wave	N/A		
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Global Air Navigation Plan (GANP)	ICAO	Published						
Doc 10039 Manual on System Wide Information Management (SWIM) concept	ICAO	Published						
SARPs on AIRM	ICAO IMP	2018						
ATM information security EN 16495 (Version 2)	CEN	2019						
SPEC-169 SWIM Information Definition	EUROCONTROL	Published						
SPEC-168 SWIM Service Description	EUROCONTROL	Published						
SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published						
Supporting material for SWIM foundational specifications	EUROCONTROL	2020						
NM B2B Reference Manuals	Network Manager	Published						
NM Technical roadmap available in the Network Operations Plan	Network Manager	Published						
Network Strategy Plan (NSP): SO 2/2, SO 2/4, SO 5/2, SO5/4, SO5/5, SO6, SO7/6	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	V3 completed in 2016 and VLDs are planned until 2019. Deployment already started.
Full Operational Capability	01/2025		Update of supporting material needs to be considered. Existing NM and local systems need to be gradually upgraded to comply with the above-mentioned standards.

Family 5.6.1 – Upgrade/Implement Flight Information Exchange System/Service supported by Yellow Profile

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#46 “Initial system-wide information management (SWIM) technology solution”			IS-0901-A	SESAR Release 5	Release 7		PJ.24, PJ.25	
					Release 8		PJ.24, PJ.25	
					Release 9		PJ.24, PJ.25	
					Second Wave		N/A	
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 10039 Manual on System Wide Information Management (SWIM) concept	ICAO	Published	Community specification on FDP IOP	CEN	Not planned			
SARPs on AIRM	ICAO IMP	2018	SPEC- 0101 Edition 1.1 Specification for the Initial Flight Plan (IFPL), Community Specification	EUROCONTROL	Published			
ATM information security EN 16495 (Version 2)	CEN	2019	SPEC- 0101 Edition 1.2 Specification for the Initial Flight Plan (IFPL)	EUROCONTROL	Published			
SPEC-169 SWIM Information Definition	EUROCONTROL	Published	SPEC- 0101 Edition 1.3 Specification for the Initial Flight Plan (IFPL)	EUROCONTROL	Published			
SPEC-168 SWIM Service Description	EUROCONTROL	Published						
SPEC-170 SWIM Technical Infrastructure Yellow Profile Specification	EUROCONTROL	Published						
Supporting material for SWIM foundational specifications	EUROCONTROL	2020						
NM B2B Reference Manuals	Network Manager	Published						
NM Technical roadmap available in the Network Operations Plan	Network Manager	Published						
FIXM Flight Information Exchange Model Version 4	EUROCONTROL	Published						

V5 – Deployment Phase		Family readiness	SDM View
Initial Operational Capability	Before 2014	High	V3 ends in 2019 and VLDs are planned until 2019. Deployment already started.
Full Operational Capability	01/2025		Update of supporting material needs to be considered. Existing NM and local systems need to be gradually upgraded to comply with the above mentioned standards.

Family 5.6.2 – Upgrade/Implement Flight Object Information Exchange System / Service supported by Blue Profile

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
#18-02b: Flight Object Interoperability			CM-0201-A	SESAR 2020	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 10039 Manual on System Wide Information Management (SWIM) concept	ICAO	Published	Community specification on FDP IOP	CEN	Not planned			
SARPs on AIRM	ICAO IMP	2018						
ATM information security EN 16495 (Version 2)	CEN	2019						
Interoperability of Flight Data Processing (FDP) (TS 16071)	CEN	Published						
SPEC-169 SWIM Information Definition	EUROCONTROL	Published						
SPEC-168 SWIM Service Description	EUROCONTROL	Published						
Supporting material for SWIM foundational specifications	EUROCONTROL	2020						
SWIM Technical Infrastructure Blue Profile Specification	EUROCONTROL	TBD						
ED-133: Flight object interoperability specification	EUROCAE	Published						
Update ED-133 and potential future revisions	EUROCAE WG-59	2021						

V5 – Deployment Phase		Family readiness	SDM View
Initial Operational Capability	06/2018	Medium	<p><i>V3 will end in 2019 and VLDs are planned until 2019. Update of supporting material needs to be considered. Work is ongoing on Blue Profile and ED-133 specifications, both of which are essential prerequisites for deploying family 5.6.2. Timely deployment of this family is endangered by the delay in those specifications. Once a date for the release of the specifications is fixed, the timelines for family 5.6.2 will have to be revisited and potentially updated.</i></p>
Full Operational Capability	01/2025		

AF6 - Initial Trajectory Information Sharing

Family 6.1.1 – ATN B1 based services in ATSP domain

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
N/A	AUO-0301	Available	Release 7	N/A
			Release 8	N/A
			Release 9	N/A
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9694 Manual of Air Traffic Services Data Link Applications	ICAO	Published	EASA/CS-ACNS 17 Dec 2013 – Community Specification on DL for aircraft implementations	EASA	Published	Commission Regulation (EC) 1032/2006 amended by (EC) 30/2009	European Commission	Published
Doc 9880, Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols, Part II — Ground-Ground Applications — Air Traffic Services Message Handling Services (ATSMHS)	ICAO	Published	EN 303 214 (Version 1.2.1) Data Link Services (DLS) System; Community Specification; Requirements for ground constituents and system testing	ETSI	Published	Commission Regulation (EC) n. 29/2009 amended by (EC) 2015/310	European Commission	Published
Update Doc 10037 ICAO GOLD to Edition 2	ICAO CP	2018	Update EN 303 214 Data Link Services (DLS) System; Community Specification; Requirements for ground constituents and system testing)	ETSI	2019			
SPEC-0116 Specification on Data Link Services, Edition 2.1	EUROCONTROL	Published	Data Link Services	EASA RMT.0524	Planned 2019			
ATC Data Link Operational Guidance Edition 6.0 17 December 2012	EUROCONTROL	Published	SPEC-0106 Specification for On-Line Data Interchange (OLDI) Ed. 4.2 Community Specification (EC No 1032/2006)	EUROCONTROL	Published			

Link 2000+ Guidance to Ground Implementers edition 2.3 14 Oct 2014	EUROCONTROL	Published	Update SPEC-0106 Specification for On-Line Data Interchange (OLDI) to Edition 4.3	EUROCONTROL	Published			
ED-93, Minimum Aviation System Performance Specification for CNS/ATM message recording systems	EUROCAE	Published						
ED-100A / DO-258A, Interoperability Requirements for ATS Applications using ARINC 622 Data Communications.	EUROCAE	Published						
ED-110B / DO-280B, Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1 (Interop ATN B1).	EUROCAE	Published						
ED-154A / DO-305A, Future Air Navigation System 1/A - Aeronautical Telecommunication Network Interoperability Standard (FANS 1/A – ATN B1 Interop Standard)	EUROCAE	Published						
ED-120 / DO-290, Safety and Performance Requirements Standard for Initial Air Traffic Data Link Services in Continental Airspace (SPR IC)	EUROCAE	Published						
Network Strategy Plan (NSP): SO 8.3	Network Manager	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	Before 2014	High	Ready for deployment.
Full Operational Capability	02/2018		The ELSA Study recommends a number of actions that includes update of existing reference documents. The relevant documents should be identified together with the standards making bodies. One example is the recommended requirement for end-to-end certification.

Family 6.1.2 – ATN B2 based services in ATSP domain

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#115 Extended projected profile (EPP) availability on ground	IS-0303-A (ER APP ATC 149a, ER APP ATC 119)	SESAR Release 5	Release 7	PJ.31
			Release 8	PJ.31
			Release 9	PJ.31
			Second Wave	N/A
#18-06a ATC Planned Trajectory Performance Improvement	IS-0303-A (ER APP ATC 100)	SESAR Release 9	Release 7	PJ.31
			Release 8	PJ.31
			Release 9	PJ.31
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9776 Manual on VDL Mode 2 Technical Specifications	ICAO	Published	Updated CS on DL	ETSI	2020 (not planned)			
Doc 9880 Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols	ICAO	Published	Updated DLS Regulation, the associated certification specifications (CSs) and means of compliance (AMC), as well as other ATM/ANS provisions	EASA RMT0.524	Planned 2019			
Doc 9925 - Manual on the Aeronautical Mobile Satellite (Route) Service Edition 2	ICAO	Published						
Update Doc 10037 ICAO GOLD to Edition 2	ICAO CP	2018						
Update Doc 9869 Manual on Required Communication Performance (RCP) to Edition 3	ICAO CP	2018						
ED-75D / DO-236D MASPS: Required Navigation Performance for Area Navigation	EUROCAE	Published						

<i>ED-133 Flight object interoperability specification</i>	<i>EUROCAE</i>	<i>Published</i>						
<i>Update ED-133 to ED-133 and potential future revisions</i>	<i>EUROCAE</i>	<i>2021</i>						
<i>ED-228A / DO-350A ATN B2 standard</i>	<i>EUROCAE / RTCA</i>	<i>Published</i>						
<i>ED-229A / DO-351A ATN B2 standard</i>	<i>EUROCAE / RTCA</i>	<i>Published</i>						
<i>ED-230A / DO-352A ATN B2 standard</i>	<i>EUROCAE / RTCA</i>	<i>Published</i>						
<i>ED-231A / DO-353A ATN B2 standard</i>	<i>EUROCAE / RTCA</i>	<i>Published</i>						
<i>ED-242 Minimum Aviation System Performance Standard for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP)</i>	<i>EUROCAE</i>	<i>Published</i>						
<i>Network Strategy Plan (NSP): SO 5.1, SO 5.5 and SO 8.3</i>	<i>Network Manager</i>	<i>Published</i>						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2020	Low	<i>V3 ends in 2019 and VLDs are planned until 2019. Updates of supporting material need to be considered. Not mature for deployment.</i>
Full Operational Capability	01/2025		<i>The ELSA Study recommends a number of actions that includes update of existing reference documents.</i> <i>The relevant documents should be identified together with the standards making bodies. One example is the recommended requirement for end-to-end certification.</i>

Family 6.1.3 – A/G and G/G Multi Frequency DL Network in defined European Service Areas

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
N/A			N/A	N/A	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9776 Manual on VDL Mode 2 Technical Specifications	ICAO	Published	EN 301 841-1 VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground-based equipment; Part 1: Physical layer and MAC sub-layer. Version 1.4.1	ETSI	Published	Commission Regulation (EC) n. 29/2009 amended by (EC) 2015/310	European Commission	Published
ED-92B MOPS for an Airborne VDL Mode-2 System Operating in the Frequency Range 118-136.975 MHz	EUROCAE	Published	Update EN 301 841-1 VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground-based equipment; Part 1: Physical layer and MAC sub-layer. Version 1.5.1	ETSI	2019			
Update ED-92B to ED-92C MOPS for an Airborne VDL Mode-2 System Operating in the Frequency Range 118-136.975 MHz	EUROCAE WG-92	2018	EN 301 841-2 VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground-based equipment; Part 2: Upper Layers. Version 1.1.1	ETSI	Published			
ED-XX Follow up DLS recovery plan	EUROCAE WG-92	2018	Update EN 301 841-2 VHF air-ground Digital Link (VDL) Mode 2; Technical characteristics and methods of measurement for ground-based equipment; Part 2: Upper Layers. Version 1.2.1	ETSI	2019			

ARINC Specification 631-6	ARINC	Published	EN 301 841-3 VHF air-ground Digital Link (VDL) Mode 2, Part 3: Harmonized EN covering the essential requirements of the Directive 2014/53/EU. Version 2.1.1	ETSI	Published			
SJU/LC/0109-CFT – D1602 "VDL Mode 2 Measurement, Analysis and Simulation Campaign", Deliverable D11 – Final Report	SJU	Published	Update EN 301 841-3 VHF air-ground Digital Link (VDL) Mode 2, Part 3: Harmonized EN covering the essential requirements of the Directive 2014/53/EU. Version 2.2.1	ETSI	2019			

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2017	High	Ready for deployment.
Full Operational Capability	12/2022		The ELSA Study recommends a number of actions that includes update of existing reference documents. The relevant documents should be identified together with the standards making bodies. One example is the recommended requirement for end-to-end certification.

Family 6.1.4 – ATN B1 capability in Multi Frequency environment in aircraft domain

V3 – Development Phase								
SESAR Solution			OIs	V3 End	VLD			
N/A			AUO-0301	Available	Release 7	N/A		
					Release 8	N/A		
					Release 9	N/A		
					Second Wave	N/A		
V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9694 Manual of Air Traffic Services Data Link Applications	ICAO	Published	CS-ACNS, 17December 2013 - Community Specification on DL for aircraft implementations	EASA	Published	Commission Regulation (EC) n. 1032/2006 amended by (EC) 30/2009	European Commission	Published
Doc 9776 Manual on VDL Mode 2 Technical Specifications	ICAO	Published	Data Link Services	EASA RMT.0524	Planned 2018	Commission Regulation (EC) n. 29/2009 amended by (EC) 2015/310	European Commission	Published
Doc 9880, Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols, Part II — Ground-Ground Applications — Air Traffic Services Message Handling Services (ATSMHS).	ICAO	Published				Commission Regulation (EC) n. 965/2012	European Commission	Published
Update Doc 10037 ICAO GOLD to Edition 2	ICAO CP	2018						
ED-92B MOPS for an Airborne VDL Mode-2 System Operating in the Frequency Range 118-136.975 MHz	EUROCAE	Published						
Update ED-92B to ED-92C MOPS for an Airborne VDL Mode-2 System Operating in the Frequency Range 118-136.975 MHz	EUROCAE WG-92	2018						

ED-XX Follow up DLS recovery plan	EUROCAE WG-92	2018						
ED-93, Minimum Aviation System Performance Specification for CNS/ATM message recording systems	EUROCAE	Published						
ED-100A / DO-258A, Interoperability Requirements for ATS Applications using ARINC 622 Data Communications.	EUROCAE / RTCA	Published						
ED-110B / DO-280B, Interoperability Requirements Standard for Aeronautical Telecommunication Network Baseline 1 (Interop ATN B1).	EUROCAE / RTCA	Published						
ED-154A / DO-305A, Future Air Navigation System 1/A - Aeronautical Telecommunication Network Interoperability Standard (FANS 1/A – ATN B1 Interop Standard).	EUROCAE / RTCA	Published						
ED-120 / DO-290, Safety and Performance Requirements Standard for Initial Air Traffic Data Link Services in Continental Airspace (SPR IC)	EUROCAE / RTCA	Published						
Network Strategy Plan (NSP): SO 8.3	Network Manager	Published						
ARINC Specification 631-6	ARINC	Published						
SJU/LC/0109-CFT – D1602 "VDL Mode 2 Measurement, Analysis and Simulation Campaign", Deliverable D11 – Final Report	SJU	Published						

V5 – Deployment Phase		Family readiness	SDM View
Initial Operational Capability	09/2016	High	Ready for deployment.
Full Operational Capability	02/2020		The ELSA Study recommends a number of actions that includes update of existing reference documents. The relevant documents should be identified together with the standards making bodies. One example is the recommended requirement for end-to-end certification.

Family 6.1.5 – ATN B2 in aircraft domain

V3 – Development Phase				
SESAR Solution	OIs	V3 End	VLD	
#115 Extended projected profile (EPP) availability on ground	IS-0303-A (A/C-37a)	SESAR Release 5	Release 7	PJ.31
			Release 8	PJ.31
			Release 9	PJ.31
			Second Wave	N/A

V4 – Industrialization Phase								
Guidance Material / Specifications / Standards			Means of Compliance and/or Certification			Regulation		
References	Organization	Delivery	References	Organization	Delivery	References	Organization	Delivery
Doc 9925-Manual on the Aeronautical Mobile Satellite (Route) Service Edition 2	ICAO	Published	Update CS on DL	ETSI	2020 (not planned)			
Update Doc 9869 Manual on Required Communication Performance (RCP) to Edition 3	ICAO CP	2018	Updated DLS Regulation, the associated certification specifications (CSs) and means of compliance (AMC), as well as other ATM/ANS provisions	EASA RMT0.524	Planned 2019			
Doc 9880 Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols	ICAO	Published						
Update Doc 10037 ICAO GOLD to Edition 2	ICAO CP	2018						
ED-75D / DO-236D MASPS: Required Navigation Performance for Area Navigation	EUROCAE / RTCA	Published						
ED-228A / DO350 ATN B2 Standard	EUROCAE / RTCA	Published						
ED-229A / DO351 ATN B2 Standard	EUROCAE / RTCA	Published						
ED-230A / DO352 ATN B2 Standard	EUROCAE / RTCA	Published						

ED-231A / DO353 ATN B2 Standard	EUROCAE / RTCA	Published						
ED-242 Minimum Aviation System Performance Standard for AMS(R)S Data and Voice Communications Supporting Required Communications Performance (RCP) and Required Surveillance Performance (RSP)	EUROCAE	Published						
ARINC Specification 631-6	ARINC	Published						

V5 – Deployment Phase		Family readiness	SDM view
Initial Operational Capability	01/2020	Low	V3 completed in 2016 and VLDs are planned until 2019. Updates of supporting material need to be considered.
Full Operational Capability	01/2026		The ELSA Study recommends a number of actions that includes update of existing reference documents. The relevant documents should be identified together with the standards making bodies. One example is the recommended requirement for end-to-end certification.

Notes