



SESAR Solution Regulatory Overview

Optimised route network using advanced required navigation performance (RNP)

Document information

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Abstract

This document contains an overview of the SESAR Solution “Optimised route network using advanced required navigation performance (RNP)” documented recommendations from regulatory, standardisation, oversight and certification perspectives resulting from the cooperation between the SESAR Joint Undertaking and the EASA and National Authorities.

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1 of 9

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Table of Contents

1	INTRODUCTION.....	4
2	GENERAL RECOMMENDATIONS.....	5
3	SPECIFIC RECOMMENDATIONS	6
3.1	ON THE REGULATORY FRAMEWORK	6
3.2	ON THE STANDARDISATION FRAMEWORK.....	6
3.3	ON THE REGULATORY OVERSIGHT AND CERTIFICATION ACTIVITIES	7

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1 Introduction

The purpose of this document is to provide an overview of the SESAR Solution “Optimised route network using advanced required navigation performance (RNP)” documented recommendations from regulatory, standardisation, oversight and certification perspectives resulting from the cooperation between the SESAR Joint Undertaking and the EASA and National Authorities.

The document presents the recommendations issued by the National Authorities and EASA, for an acceptable deployment of the concepts contained in the SESAR Solution. These recommendations must be taken into consideration by the entities in charge of deployment of the correspondent SESAR Solution.

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2 General recommendations

In general terms, it must be underlined that:

- 1) When deploying a SESAR Solution, the compliance with all applicable regulatory requirements must be ensured by the different concerned entities;
- 2) In particular, it must be ensured that the appropriate safety argument for the concerned change to the ATM functional system is performed in accordance with Commission Implementing Regulation (EU) 2016/1377 of 4 August 2016 laying down common requirements for service providers and the oversight in air traffic management/air navigation services and other air traffic management network functions, repealing Regulation (EC) No 482/2008, Implementing Regulations (EU) No 1034/2011 and (EU) No 1035/2011 and amending Regulation (EU) No 677/2011 confirming validity of assumptions of the SESAR solution, addressing local specific risks and mitigation providing evidence that residual risks are acceptable.
- 3) The present SESAR Solution does not constitute in itself an acceptable Means of Compliance with the previously mentioned regulatory requirements. Means of Compliance are subject to their acceptance by the Authorities involved in each concrete local implementation.
- 4) A verification of the existing standardisation and regulatory frameworks has to be done before the date of local deployment to identify possible major changes to the ones applicable for the SESAR Solution.

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3 Specific recommendations

3.1 On the Regulatory Framework

EASA is encouraged to develop appropriate certification and operational approval documentation for both Advanced Required Navigation Performance (A-RNP) and Fixed Radius Transition (FRT) functionality as soon as possible. This should ensure the aircraft and flight crews are appropriately trained and ready for the prescribed operations.

At the regional level, EASA should provide:

- Certification and operational approval for RNP1
- Clarification on how operators who already have RNAV1 certification can migrate to RNP1
- Certification and operational approval for RF
- Clarify if and how aircraft without AP/FD could qualify for operations requiring RF
- Certification and operational approval for A-RNP
- Certification and operational approval for FRT

Taking this in mind EASA will publish for public consultation NPA that will introduce the NAV section to CS-ACNS. This section will provide airworthiness certification criteria for all commonly applied PBN Navigation Specifications, including A-RNP with the RF and FRT functionality. On the operational side, A-RNP is covered in the new OPS rules and associated AMC and GM material that has been recently been published. So there we already facilitate the application of A-RNP.

3.2 On the Standardisation Framework

At the global level ICAO should:

- Reintroduce into Annex 11, Appendix 1 the ATS route designator(s) for FRT
- The IFPP should provide clear FRT design criteria and guidance material on FRT use
- PANS OPS and PANS ATM provide guidance material to the airspace users and the controllers on the different types of waypoint transitions. With the FRT and RF, this guidance material should explain how the controller and pilot can facilitate their execution.
- PANS ATM should be amended to provide new ICAO flight plan codes for A-RNP, FRT and RF plus amendments to current codes.
- IFPP should provide guidance on how the ANSP will validate newly designed FRTs.

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- ICAO should review its RTF phraseology in PANS ATM and provide new phraseology to cover FRT/RF capabilities

3.3 On the Regulatory Oversight and Certification Activities

The several issues that should be taken into consideration as follows:

At State level:

- Qualified designers design the ATS routes to match the flows of traffic and to strategically de-conflict laterally wherever possible. Where not, de-conflict with as much vertical separation as is possible to minimise controller workload.
- Undertake PBN implementation as a team exercise and follow the recommended practices promoted in the Manual on the Use of Performance-based Navigation (PBN) in Airspace Design (ICAO Doc 9992) and EUROCONTROL's European Airspace Concept Handbook for PBN Implementation Edition 3.
- Establish necessary working agreement with appropriate service provider with the ESSP for LPV operations (provided the State is within the Service Area of the APV; this is defined in the Service Definition Document (SDD), latest edition published September 2015.
- Ensure all ATS routes are correctly designated and are published within the AIP.
- Train controllers and pilots in all applicable operations and requirements.
- Provide oversight on non-nominal events, record, analyse and communicated.

When proceeding with the local implementation of this solution, and following Commission Implementing Regulation (EU) 2016/1377, changes in the ATM functional system derived from the deployment of this solution are subject to the elaboration of a safety argument considering local specific risks and mitigation measures to those risks.

ATM/ANS.OR.C.005 Safety support assessment and assurance of changes to the functional system

- (a) For any change notified in accordance with ATM/ANS.OR.A.045(a)(1), the service provider other than the air traffic services provider shall:
- (1) ensure that a safety support assessment is carried out covering the scope of the change which is:
 - (i) the equipment, procedural and human elements being changed;
 - (ii) interfaces and interactions between the elements being changed and the remainder of the functional system;

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7 of 9

- (iii) interfaces and interactions between the elements being changed and the context in which it is intended to operate;
 - (iv) the life cycle of the change from definition to operations including transition into service; and
 - (v) planned degraded modes; and
- (2) provide assurance, with sufficient confidence, via a complete, documented and valid argument that the service will behave and will continue to behave only as specified in the specified context.

(b) A service provider other than an air traffic services provider shall ensure that the safety support assessment referred to in point (a) comprises:

(1) verification that:

- (i) the assessment corresponds to the scope of the change as defined in point (a)(1);
- (ii) the service behaves only as specified in the specified context; and
- (iii) the way the service behaves complies with and does not contradict any applicable requirements of this Regulation placed on the services provided by the changed functional system; and

(2) specification of the monitoring criteria necessary to demonstrate that the service delivered by the changed functional system will continue to behave only as specified in the specified context.

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