

# SESAR Solution PJ04-W2- 28.1 SPR-INTEROP/OSED for V3 - Part III - Environment Assessment Report

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# PJ.04-W2 Solution 28.1

[CONNECTED REGIONAL AIRPORTS]

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## Abstract

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This document is the Environment assessment report for the Solution PJ.04-W2-28.1 Regional Network Integrated Airports (RNIA). It provides a synthesis of essential information (qualitative and quantitative) related to the assessment of the impact on the environment that Solution PJ.04-W2-28.1 could have when implemented. This information comes mainly from the preliminary environment assessment conducted during development of this SPR-INTEROP/OSED.



## Table of Contents

Abstract .....	4
<b>1 Executive Summary.....</b>	<b>6</b>
<b>2 Introduction.....</b>	<b>7</b>
2.1 Purpose of the document.....	7
2.2 Intended readership .....	7
2.3 Scope of the document.....	7
2.4 Environment work schedule within the Solution.....	7
2.5 Structure of the document.....	7
2.6 Terminology .....	8
2.7 Acronyms .....	10
<b>3 The Environment Assessment Process: Objective and Approach.....</b>	<b>11</b>
<b>4 Environment Performance Assessment.....</b>	<b>13</b>
4.1 Assessment Sources and Summary of Validation Exercise Performance Results.....	13
4.2 Conditions / Assumptions for Applicability.....	13
4.3 Environment: Fuel Efficiency / CO2 emissions.....	13
4.4 Environment: Noise, Local Air Quality, and non-CO2 Emissions.....	13
4.5 Overall conclusion on the environmental impact of the Solution.....	13
<b>5 References.....</b>	<b>15</b>

## List of Tables

Table 1: Terminology.....	9
Table 2: Acronyms.....	10
Table 4: SESAR2020 Validation Exercises.....	13

## List of Figures

Figure 1: SESAR environmental impact assessment process.....	11
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# 1 Executive Summary

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This document is the Environment assessment report for the Solution PJ.04-W2-28.1 Regional Network Integrated Airports (RNIA).

Solution 28.1 seeks to integrate the regional airports into the network through a turnaround process monitoring and including specifically the notion of automated milestone generation in an A-CDM context. It could provide sufficient motivation for regional airports to enhance overall network predictability, reducing substantially the workload and obtaining the benefits of the A-CDM (such as greater predictability and network integration inputs).

The present document provides a synthesis of essential information (qualitative and quantitative) related to the assessment of the impact on the environment that Solution PJ.04-W2-28.1 could have when implemented.

The results of preliminary environmental assessment were that Solution PJ.04-W2-28.1 will have no impact on environment. Partners working on the project later reviewed this result. The review confirmed the results.

## 2 Introduction

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### 2.1 Purpose of the document

This document describes the results of the activities carried out, normally in accordance with the SESAR Environment Assessment Process [3], in order to assess the environmental impact that PJ.04-W2-28.1 could have when implemented. This information mainly comes from the environment assessment plans (which are an integral part of the Validation Plan Reports), the results of the environment activities (which are an integral part of the Validation Reports), and the Performance Assessment Report related to this solution. Although, in this report, it is synthesised and is the most relevant for understanding the environmental impact of this solution.

### 2.2 Intended readership

The intended readership of this document are, inter alia:

- ATM stakeholders (e.g. airspace users, ANSPs, airports, airspace industry),
- S3JU with environmental performance data for the envisaged solution,
- General public.

### 2.3 Scope of the document

This document provides an overview of the environmental performance of the SESAR PJ.04-W2-28.1 solution at the local level but also, when possible, extrapolated to the ECAC region. It covers the following environmental aspects:

- Fuel used and CO<sub>2</sub> generated (at local and ECAC level)
- Non-CO<sub>2</sub> emissions generated (at local and ECAC level)
- Noise at local level

### 2.4 Environment work schedule within the Solution

Solution PJ.04-W2-28.1 initial environmental assessment was conducted parallel to the development of the part I of this SPR-INTEROP/OSED.

### 2.5 Structure of the document

This document is composed of the following sections:

- Section 1 is the Executive summary of this document presenting synthesis of all the results
- Section 2 (present section) includes the introductory material
- Section 3 briefly describes the SESAR EIA Process
- Section 4 includes the results of SESAR EIA application to SESAR Solution PJ.04-W2-28.1

## 2.6 Terminology

Term	Description
Benefit and Impact Mechanism	A cause-effect description of the impacts of the solution proposed by a project. It describes the positive and the negative impacts that the project solution is expected to provide or demonstrate.
Benefit Diagram	A Benefit and Impact Mechanism is usually shown in a diagram giving an overview of the links between the (new) features that the project is bringing to the world of ATM and indicators (aspects which can be measured or calculated from other metrics), Positive or Negative Impacts for each performance area, and Key Performance Areas (KPAs) or Key Performance Indicators (KPIs). This diagram is supplemented by textual descriptions of the feature, the numbered links and impacts.
Business Case	<p>A Business Case is a tool for decision-makers; it aims to provide them with the information they need to make a fully informed decision on whether funding should be provided and/or whether an investment should proceed.</p> <p>A Business Case is much more than just a financial analysis as it also includes quantitative and qualitative arguments on performance and transversal activities that are key elements to determining the value of the project.</p>
Deployment Scenario	Deployment Scenario consists of a set of SESAR Solutions selected to satisfy the specific performance needs of operating environments in the European ATM System and based upon the timescales in which their performance contribution is needed in the respective operating environments
Environment	<p>Surroundings in which humans interact with the air, water, landscape, natural resources, flora and fauna.</p> <p>In terms of ATM, 'the environment' will be the surroundings in which Air Traffic Management activities are planned or conducted, including research through to development, deployment, and operations.</p>
Environmental Impact	<p>Any modification of the environment that has or could have an effect on the ecosystem.</p> <p>In this document the main environmental impacts of concern are:</p> <ul style="list-style-type: none"> <li>• Aircraft noise in the vicinity of an airport,</li> <li>• Airport Local Air Quality (mainly CO, NO<sub>x</sub> and Particulate Matter),</li> <li>• Global emissions (mainly CO<sub>2</sub>)</li> </ul>



	Fuel burnt is also of concern for the environment because of the direct relationship between fuel burnt and CO <sub>2</sub> .
Environmental Impact Assessment (EIA)	<p>The process of identifying and evaluating the environmental impacts of projects as well as proposing mitigations to reduce these impacts on the environment.</p> <p>The assessment scope, as it relates to ATM, considers impacts on the environment that can be affected by aircraft operations or that can affect aircraft operations, e.g. through mitigation rules.</p> <p>The main impacts on the environment related to aircraft movements are caused by emissions resulting from fuel burn and noise produced by the engines and airframe.</p>
EIA plan	The Environmental Impact Assessment plan describes the hypothesis to test, metrics to assess, the tools to use, the required input variables for the tools and methodology used for analysing the results.
EUROCONTROL	European Organisation for the Safety of Air Navigation
S3JU Work Programme	The programme which addresses all activities of the SESAR3 Joint Undertaking Agency.
SESAR Programme	The programme that defines the Research and Development activities and Projects for the S3JU.

**Table 1: Terminology**

## 2.7 Acronyms

Term	Description
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
IMPACT	EUROCONTROL web portal for the analysis of aircraft noise and emissions
JU	Joint Undertaking
KPA	Key Performance Area
KPI	Key Performance Indicator
LAQ	Local Air Quality
NO <sub>x</sub>	Oxides of Nitrogen, including nitrogen dioxide (NO <sub>2</sub> ) and nitrogen oxide (NO).
PM	Particulate Matter
SEL	Sound Exposure Level
S3JU	SESAR3 Joint Undertaking (Agency of the European Commission)
SO <sub>x</sub>	Oxides of Sulphur
SPR	Safety and Performance Requirements
VOC	Volatile organic compounds

**Table 2: Acronyms**

### 3 The Environment Assessment Process: Objective and Approach

The SESAR Environment Assessment Process [3] was derived from the ICAO Guidance document (Doc 10031) [4] “Guidance on Environmental Assessment of Proposed Air Traffic Management Operational Changes” and adapted to the SESAR validation framework.

As can be seen in on the Figure below, which shows the correspondence between the ICAO assessment process (right-hand side) and the one adopted for SESAR (left-hand side), the resulting process is quite generic and straightforward. Results from the environmental impact assessments can also be used to refine the ATM change, making the process cyclic and compatible with the classic Plan-Do-Check-Act approach to validation.

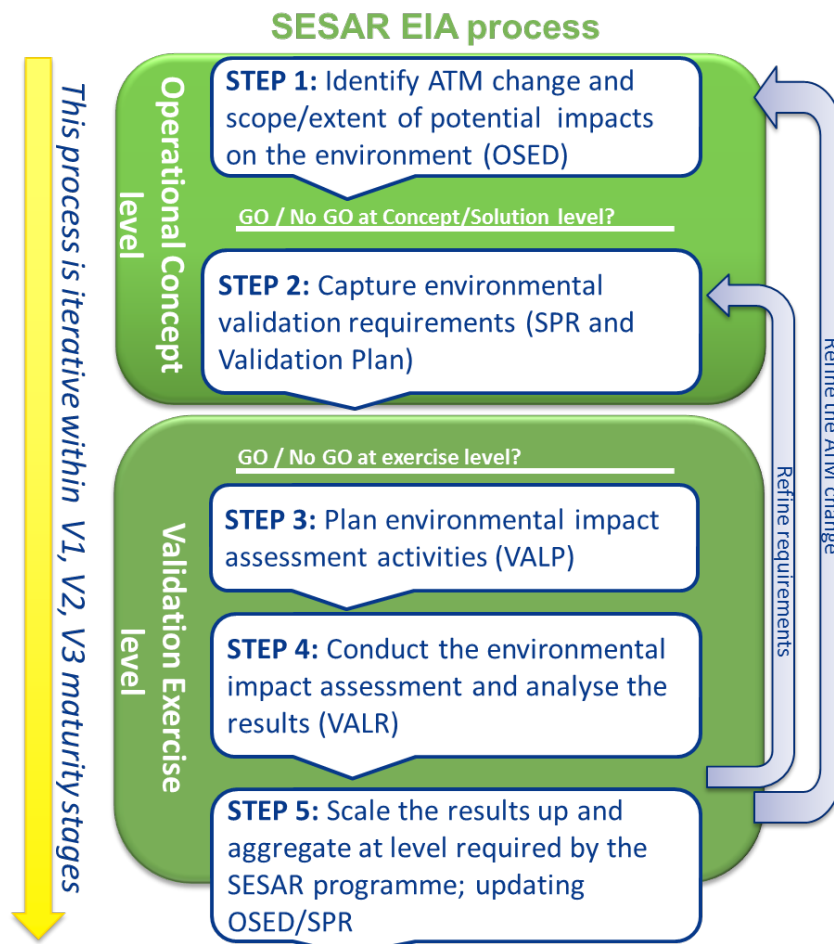


Figure 1: SESAR environmental impact assessment process.

This process should enable environmental impact assessment activities to be easily carried out as part of the overall validation process where necessary.

The SESAR EIA process consists of 5 main steps:

- EIA Step 1: Identify ATM change and the scope of potential impacts on the environment;
- EIA Step 2: Define environmental validation requirements;
- EIA Step 3: Plan environmental impact assessment activities;
- EIA Step 4: Conduct the environmental impact assessment exercise;
- EIA Step 5: Scale the results up and aggregate.

The SESAR EIA process encompasses two "Go-No-Go" decisions about carrying out further environmental impact assessments. The first one occurs after EIA Step 1 in order to identify very early on in the process whether it is worth undertaking an environmental impact assessment or whether or not more assessments are required later on in the process. The second one occurs at the Exercise level and allows the decision on conducting a detailed environmental impact assessment to be taken before the writing of the validation plan for that exercise. This decision will be based on criteria determined by the validation exercise management. In any case, every "Go-No-Go" decision should be included in the validation plan.

## 4 Environment Performance Assessment

### 4.1 Assessment Sources and Summary of Validation Exercise Performance Results

No elements of Solution PJ.04-W2-28.1 were validated before the start of SESAR 2020 Programme.

SESAR Validation Exercises of this Solution (completed ones and planned ones) are listed below [5].

Exercise ID	Exercise Title	Release	Maturity	Status
EXE-04-W2-28.1-VALP-2811	Regional Airport integration into the ATM Network	-	V3	Completed

**Table 3: SESAR2020 Validation Exercises**

There is no previous work on the environmental field in the datapack of the solution that preceded this one (PJ.04-01) . This solution assessment is that it has no impact on the environmental KPIs that are at the centre of interest of the present document.

On the high level the operational concept of Solution PJ.04-W2-28.1 does not modify the gate-to-gate aircraft trajectories - 2D tracks and-or vertical profiles - or other flight parameters such as engine power settings. As a result, according to SESAR Environment Assessment Process [3] no further environmental assessment should be conducted.

### 4.2 Conditions / Assumptions for Applicability

Due to lack of environmental impact of the SESAR Solution under the consideration, this section will not be elaborated.

### 4.3 Environment: Fuel Efficiency / CO2 emissions

Does the Solution impact this KPA? No

Solution PJ.04-W2-28.1 operational concept does not modify the aircraft trajectories: 2D tracks, vertical profile or engine settings

### 4.4 Environment: Noise, Local Air Quality, and non-CO2 Emissions

Does the Solution impact this KPA? No

Solution PJ.04-W2-28.1 operational concept does not modify the aircraft trajectories: 2D tracks, vertical profile or engine settings. .

### 4.5 Overall conclusion on the environmental impact of the Solution

As a result of application of first steps of the SESAR Environment Assessment Process [3], the environmental assessment was not conducted for Solution PJ.04-W2-28.1 beyond very initial stages.



The Solution has no significant environmental impact according to SESAR methodology.

## 5 References

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- [5] SESAR Solution PJ04-W2-28.1: Validation Plan (VALP) Template for V3 - Part I (Ed. 00.00.02)



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