# Final Project Report

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| **Task contributors** | |
| NATMIG | |

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***Abstract***

The contribution from SESAR project 12.04.01 is a low cost and simple departure data entry panel to be deployed at airfields enabling them to be in electronic communication with CFMU concerning the departure status of aircraft under their control. The universal availability of more accurate departure data will significantly improve the performance of network management improving capacity through the better use of the existing controller staff compliment.

# Authoring & Approval

| Prepared By - *Authors of the document.* | | |
|---|---|---|
| Name & Company | Position & Title | Date |
| [redacted] NATMIG | [redacted] | 30/07/2012 |
| | | |

| Reviewed By - *Reviewers internal to the project.* | | |
|---|---|---|
| Name & Company | Position & Title | Date |
| [redacted] NATS | [redacted] | 30/07/2012 |
| [redacted] Selex Systems Integration Ltd | | 30/07/2012 |

| Approved for submission to the SJU By - *Representatives of the company involved in the project.* | | |
|---|---|---|
| Name & Company | Position & Title | Date |
| [redacted] NATMIG | [redacted] | 30/07/2012 |
| [redacted] NATS | | 30/07/2012 |
| [redacted] Selex Systems Integration Ltd | | 30/07/2012 |

| Rejected By - *Representatives of the company involved in the project.* | | |
|---|---|---|
| Name & Company | Position & Title | Date |
| None | | |

| Rational for rejection |
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| None. |

# Document History

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# Intellectual Property Rights (foreground)

This deliverable consists of SJU foreground.

# Table of Contents

# Acronyms

| Acronym | Definition |
|---|---|
| **ADDEP** | Airport Departure Data Entry Panel |

# 1 Project Overview

One of the principal features of both DMEAN and the SESAR Concept of Operations as defined in the Definition Phase Deliverable D3 is the "Integrated Airport Operations contributing to Capacity Gains". Many airports within Europe are not equipped with advanced Electronic Flight Data Systems (eFDPS) as they lack a suitable business case for such an investment and thus their integration into the ATM network is often limited to the receipt of AFTN messages and the reliance on the confirmation of an aircraft's departure time, as compared to its EOBT, by the ACC's departure monitoring of the flight as it enters radar coverage. Whilst there is a high level of accuracy for the occupancy time within a sector for aircraft that have travelled some distance, the accuracy is far less for those aircraft about to depart from local airfields. This inaccuracy reduces the effectiveness of existing demand capacity balancing techniques used by both CFMU and the Local ACC.

The contribution from SESAR project 12.04.01 is a low cost and simple departure data entry panel to be deployed at airfields enabling them to be in electronic communication with CFMU concerning the departure status of aircraft under their control. The universal availability of more accurate departure data will significantly improve the performance of network management improving capacity through the better use of the existing controller staff compliment.

## 1.1 Progress made toward the ATM Master Plan

The project has assessed the benefits from using a simple Airport Departure Data Entry Panel (ADDEP) at smaller airports and if it would improve the availability and accuracy of departure information provisions for wider stakeholders and result in benefits for network management and traffic load predictions.

Although no OI/ENs were initially indicated as being directly addressing, the most related IO was seen to be:

• DCB-0304 "Airport CDM extended to Regional Airports"

, with the enabler:

• AIRPORT-31 "Airport CDM (levels 1, 2 & 3)".

The work of the project also considered to have made a contribution to DCB-0302 regarding the interface between airports and ATFCM at the tactical level to improve predictability of operations through exchanges of accurate departure times with flight data updates before take-off.

## 1.2 Project Achievements

The project conducted a two-part SESAR trial which took place Southampton Airport in the south of the United Kingdom and ran in shadow-mode. The Airport Departure Data Entry Panel (ADDEP) gives regional airports a low-cost solution to compute and departure data with approach controllers and the CFMU. In the trial, departure data received directly from the airport tower's ADDEP panel was compared with similar data received at the Central Flow Management Unit (CFMU) through normal operations.

## 1.3 Project Deliverables

| Reference | Title | Description |
|---|---|---|
| D03 | Thread 1 – Requirement Specification | Describes the system requirements for the first validation performed at Southampton during Q1 2011. This delivery also covers the updated requirements for |

| | | |
|---|---|---|
| | | the second trial during Q3-Q4 in Southampton (Ex391 & Ex404) |
| D04 | Architecture and interface specification | Architecture for the prototype to be developed, satisfying the need for information exchange. The architecture will as far as possible be based on<br>preliminary results from SESAR architecture studies and other work such as Initial Activities in Enterprise Architecture application to ATM. |
| D06 | Verification Plan | Plan for verification of all verification activities |
| D07 | Verification Report | Report from all verification activities |
| D08 | Validation Plan | This delivery defines the details on technical validation needs (platform/tools/components) for validating the prototype covering SESAR trials EXE391 and EXE404. |
| D09 | Thread 1- Validation Report | This deliverable describes the result of the first validation performed at Southampton during Q1 2011 and from the second trial during Q3-Q4 in Southampton (EXE391 & EXE404). |
| D10 | Concept of Operation | This delivery describes the concept of operation for the developments in 12.04.01 where this is not available elsewhere. This will better describe the operational purpose of the tools and act as a good starting point for coordination. The document is drafted by NATS. |
| D12 | Thread 3 – Requirement Specification | Requirements related to Thread 3 (EXE 189) |

## 1.4 Contribution to standardisation

No efforts have been made towards any specific standardization. It is however possible that the content of the deliverables could be used as input for such a process.

## 1.5 Project Conclusion and Recommendations

The operational and system feasibility were demonstrated, with a significant improvement in traffic predictability and, more specifically: an improvement of Estimated Take-Off Time (ETOT) accuracy at small airports. Only 6% of flights were outside a 10-minute margin of error, compared with 43% without the new SESAR tool

It is hence concluded that the universal availability of more accurate departure data at small airports may significantly improve the performance of network management, improving overall network capacity through the better use of the existing controller staff compliment.

# 2 References

**[1]** SESAR Programme Management Plan, Edition 03.00.01

**[2]** European ATM Master Plan

**[3]** Multilateral Framework Agreement ("MFA") signed between the SJU, EUROCONTROL and its 15 selected members on August 11, 2009, amended on 14 June 2010, 19 October 2010 and 2 July 2012

**[4]** SESAR, Release 1 Results, DOI 10.2829/17816

**[5]** 12.04,01, D03 Thread 1 - Requirement Specification, 26/05/2011

**[6]** 12.04,01, D04 Architecture and interface specification, 26/05/2011

**[7]** 12.04,01, D06 Verification Plan, 26/07/2011

**[8]** 12.04,01, D07 Verification Report, 06/09/2011

**[9]** 12.04,01, D08 Validation Plan, 26/07/2011

**[10]**12.04,01, D09 Thread 1- Validation Report, 12/05/2012

**[11]**12.04,01, D10 Concept of Operation, 17/12/2011

**[12]**12.04,01, D12 Thread 3 - Requirement Specification, 17/12/2011

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