EUROCONTROL

OCG Guidance
Safety Plan

PROJECT 1234 – Euroville DIGBY South Airspace Change

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Abstract

This document is a Safety Plan for the airspace changes for the Euroville Centre planned for December 2009. The changes have been assessed as Minor using the criteria set out in ESARR 1 and ESAAR 4.

Keywords

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DOCUMENT APPROVAL

The following table identifies all management authorities who have successively approved the present issue of this document.

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DOCUMENT CHANGE RECORD

The following table records the complete history of the successive editions of the present document.

EDITION NUMBER	EDITION DATE	INFOCENTRE REFERENCE	REASON FOR CHANGE	PAGES AFFECTED

CONTENTS

1. INTRODUCTION

The objective of the Euroville airspace development project is to enhance Euroville Air Traffic Service delivery by increasing capacity, reducing complexity and maintaining or enhancing safety provision in the airspace in DIGBY South sector.

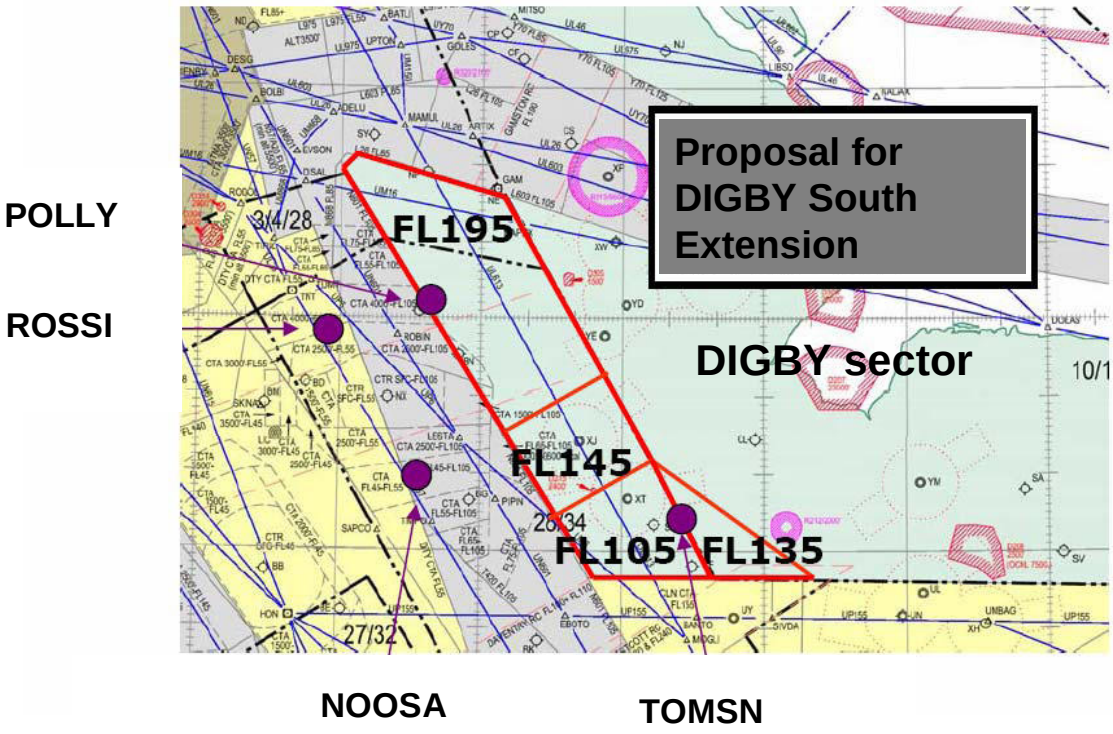
The Euroville development will be introduced through a phased delivery system. DIGBY South will go into service during the March 2010 AIRAC cycle.

The DIGBY South Airspace Extension encompasses:

- A 5nm wide extension to (Route) R-52 between POLLY and R-95 with a base at FL115 to FL195 in the area of NOOSA, stepping up to FL145 to FL195 in the central section and FL195 and above at the northern end. This airspace will utilise Flexible Use of Airspace (FUA) concepts and will become Class C Airspace at specified times before reverting to Class G Airspace outside of these times.

- In addition, permanent Class C Airspace is established above the Flexible Use airspace from FL195 to FL460. This extension will provide additional airspace for tactical vectoring, resulting in a reduction in complexity and therefore workload for DIGBY South.

Figure 1 - DIGBY South Extension



2. PURPOSE

This Safety Plan contains details of the assurance requirements, assurance objectives and the activities which are necessary to provide evidence that the DIGBY South Airspace Extension will be acceptably safe in Euroville ATM operations. It identifies who will undertake these activities; the outputs from the activities; and the tools, techniques, methods or standards to be used. The output of the activities in the safety plan should provide the evidence necessary to complete the safety case.

3. SCOPE

This Plan identifies the safety activities that should be undertaken in the definition, development and deployment of the DIGBY South Airspace Extension. The scope of this document encompasses all phases of a system lifecycle and all system elements (people, procedures and equipment).

4. ROLES AND RESPONSIBILITIES

Four main roles and responsibilities are identified under the acronym **LDCI:**

Role	Responsibility
Lead:	Responsible for ensuring the assurance and evidence is provided
Do:	Responsible for providing assurance and evidence
Consult:	Who should be consulted in the process
Inform:	Who should be informed of the outcome

Table 1: roles and responsibilities

Note: it is accepted that there may not be staff posts with the titles used in the tables presented in section 7 below, but it is assumed that someone will perform the role. ANSPs will need to tailor the roles to their organisation when instantiating this Plan.

5. ASSUMPTIONS

1) It is assumed that the changes to existing engineering systems required by the DIGBY South extension will be within the existing design envelope and appropriately assured.

2) It is assumed that no new functionality of a type not already in existence at the Euroville Centre will be introduced as a result of the DIGBY South Extension.

6. SYSTEM LIFECYCLE PHASES

6.1 Safety Activities during System Lifecycle

The following Figure 2 is used to illustrate the relationship between the safety assessment and safety assurance activities referred to in this Plan and the system lifecycle:

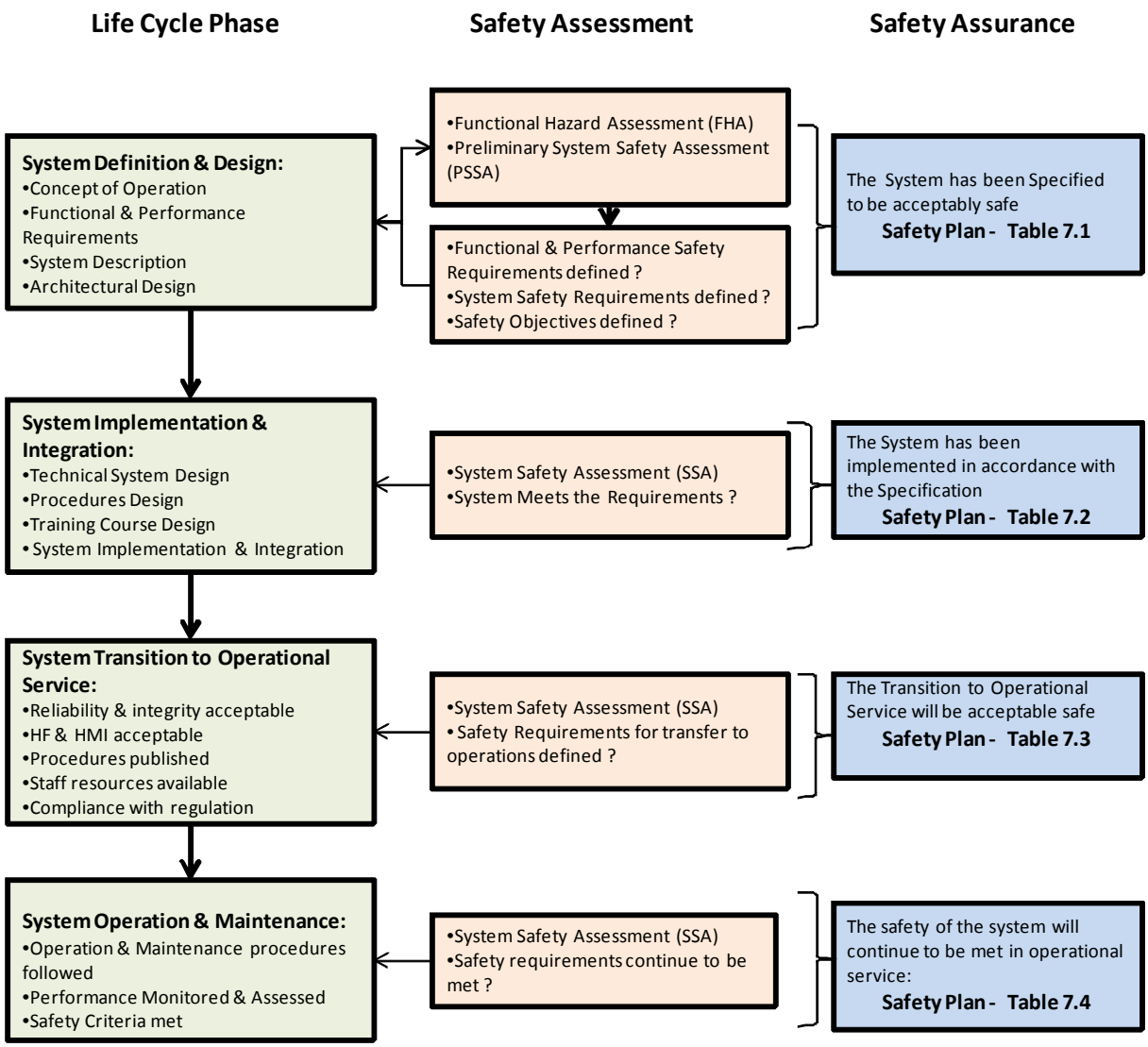


Figure 2: – system lifecycle and safety activities

7. STRATEGY FOR ASSURANCE

The following Tables contain details of the planned assurance, scheduled according to the system lifecycle phases – a separate Table for each.

Each assurance activity is given a unique reference number (Column 1) e.g. [Ref 7.1.1]

The assurance requirements (Column 2) are derived from the safety requirements.

The assurance objectives (Column 3) provide further granularity on the meaning of the safety requirements.

The safety assurance activities considered necessary to meet the assurance objectives are listed in Column 4.

The people and organisations involved in carrying out the assurance activities are listed in Column 5.

Satisfactory completion of the planned assurance activities should result in assurance evidence for inclusion or reference in the safety case, as indicated in Column 6.

Ref:	Assurance Requirement	Assurance Objectives	Safety Assurance Activity	Responsibility	Documented Evidence
7.1.1 Assumptions	STCA parameterisation is feasible.	(1) Show that assumptions have been documented and confirmed by ATC and engineering as appropriate.	Confirm by review and testing that assumptions can be depended on for the planned system.	L: ANSP Management D: ANSP Management C: Operations Managers I: Safety Manager	Assumptions and results from review documented in safety case
7.1.2 Conops	The Concept of Operation (Conops) is safe in itself.	(1) Show that the initial safety issues have been identified and addressed. (2) Show that the minimum functionality has been defined and shown to be compatible with the safety criteria. (3) Show that the differences from existing Conops have been described, in terms of what DIGBY South will do when introduced into the ATM system. (4) Show that the impact of the Conops on the operational environment (including interfaces with adjacent systems / airspace) has been assessed and shown to be compatible with the safety criteria.	Confirm by review and/or analysis that the Conops exists and that it is consistent with the assurance objectives.	L: ANSP Management D: ANSP Management C: NSA I: Safety Manager	Documented Conops in the Safety Documentation. Results & conclusions from review/analysis summarised in safety case.
7.1.3 Design Completeness	The corresponding DIGBY South design is complete.	(1) Show that everything necessary to achieve a safe implementation of the Conops – related to human, procedure, equipment and airspace design - has been specified. (2) Show that the all the requirements on, and assumptions about, external elements of DIGBY South have been captured.	Confirm by review that the specification is complete and correct, and consistent with the assurance objectives.	L: ANSP Management D: ANSP Management C: Operations Managers & HF Expert I: Safety Manager	Written specification & results from review summarised in safety case. Compliance Matrix – traceability to Conops included or referenced in safety case
7.1.4 Safety Assessment	All risks from internal system failures have been mitigated sufficiently (1) All hazards identified correctly and assessed	(1) Show that the all reasonably foreseeable hazards, associated with the DIGBY South system, have been identified (2) Show that the severity of the effects from each hazard has been correctly assessed, taking account of any mitigation that may be available. (3) Show that the Safety Objectives have been set for each hazard such that the corresponding aggregate risk is within the specified Safety Criteria (4) Show that the all reasonably foreseeable causes of each hazard have been identified	Application of the FHA / Hazard Analysis process as defined in EUROCONTROL SAM	L: ANSP Management D: FHA Expert C: ATC & Engineering Staff & HF Expert I: Safety Manager	FHA / PHI / HA Results summarised in safety case with reference to all relevant documentation. Safety Objectives Tabulated in the safety case

Ref:	Assurance Requirement	Assurance Objectives	Safety Assurance Activity	Responsibility	Documented Evidence
	All risks from internal system failures have been mitigated sufficiently	5) Show that the safety requirements have been specified (or Assumptions stated) for the causes of each hazard, taking account of any mitigations that are / could be available internal to the system, such that the Safety Objectives (and/or Safety Criteria) are satisfied (6) Show that the safety requirements have been verified and validated. (7) Show that the all external and internal mitigations have been captured as either safety requirements or assumptions as appropriate.	Application of the PSSA process as defined in EUROCONTROL SAM	L: ANSP Management D: PSSA Expert C: ATC & Engineering Staff & HF Expert I: Safety Manager	Results from PSSA process summarised in safety case.

Table 7.1: System definition and design - safety assurance plan

Ref:	Assurance Requirement	Assurance Objectives	Safety Assurance Activity	Responsibility	Documented Evidence
7.2.1 Airspace design	The Airspace is designed to meet requirements	(1) Confirm that the design requirements interpret the specification completely and correctly. (2) Confirm that the design is documented and under configuration control. (3) Confirm that the design incorporates all the requirements, completely and correctly.	Review of documented design to confirm completeness and correctness	**L**: ANSP Management D: ATC & Engineering C: Developer I: Safety Manager	Documented design, under configuration control. Results of review and high level description of design in safety case. Design documents referenced in safety case
7.2.2 Airspace Implementation	The airspace implemented as designed	(1) Confirm that the system meets the specified functional and performance requirements.	Performance analysis Operating Trials Task Analysis Simulation Trials	L: ANSP Management D: Developer C: ANSP ATC, Eng, HF experts & regulator I: Safety Manager	Following summarised or referenced in the safety case: • Analysis & test results • Trial results • Simulation results.
7.2.3 Procedures	ATC procedures designed and implemented to meet the requirements	(1) Confirm that the all procedures are documented and implemented to plan	Establish by review that procedures have been included in ANSP ATC procedures, Operating and Maintenance Manuals and/or Documentation	L: ANSP Management D: ANSP Operations Managers C: Document Administration I: Safety Manager	ATC procedures manual, Operating and Maintenance Manuals referenced in safety case Results of review summarised in safety case
7.2.4 Training	Briefing for Controllers designed and implemented to meet the requirements	(1) Confirm that the all staff was briefed accordingly	Review of Briefing content and schedule and feedback reports	L: ANSP Management D: ANSP Training Staff C: ATC & Engineering & HF Expert I: Safety Manager	Course Schedule and list of attendees referenced in safety case Results of review summarised in safety case

Table 7.2: System implementation and integration - safety assurance plan

Ref:	Assurance Requirement	Assurance Objectives	Safety Assurance Activity	Responsibility	Documented Evidence
7.3.1	Transition to Operational Service of the DIGBY South airspace extension will be acceptably Safe	1) Confirm that the safety requirements for the transfer to operation have been specified (2) Confirm that the system reliability & integrity are accepted as meeting the F&P safety requirements. (3) Confirm that the HF and HMI are accepted as satisfactory (4) Confirm that the sufficient briefed staff are available to operate and maintain the system. (5) Confirm that the procedures are published and promulgated to all relevant staff. (6) Confirm that the operational validation trials were satisfactory (7) Confirm that the system shortcomings are highlighted and accepted for operation. (8) Confirm that the regulatory approval to operate is obtained.	Confirm by review of the results of system acceptance tests and commissioning process, resources, and regulatory approval.	L: ANSP Operations D: ANSP Operations Manager C: Safety Manager I: ANSP Manager	The following should be summarised in the safety case: • Results of review • Results of acceptance tests • Deployment procedure (reference)

Table 7.3: Transition to operational service - safety assurance plan

Ref:	Assurance Requirement	Assurance Objectives	Safety Assurance Activity	Responsibility	Documented Evidence
7.4.1	The safety of the DIGBY South Airspace Extension will continue to be demonstrated in operational service	1) Confirm that Staff have been assigned with the responsibility for management of DIGBY South (to fulfil the above functions) (2) Confirm that a formal process exists for monitoring DIGBY South performance (3) Show that ATC are advised of any system changes that might affect the safety performance	Confirm by safety survey Qualitative assessment of the complexity	L: ANSP Operations D: ANSP Operations Manager C: Safety Manager I: ANSP Manager	Results of survey summarised in safety case. Update the safety case

Table 7.4: system operation and maintenance - safety assurance plan

8. REFERENCES

1. Euroville Safety Management System, Intranet, Current Version.
2. ESAAR1
3. ESARR4
4. EC1315/2007
5. EC2096/2005

END OF DOCUMENT