EUROPEAN ORGANISATION FOR THE SAFETY OF AIR NAVIGATION

EUROCONTROL

EUROCONTROL SAFETY REGULATORY REQUIREMENT (ESARR)

ESARR 3

USE OF SAFETY MANAGEMENT SYSTEMS BY ATM SERVICE PROVIDERS

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Abstract

This EUROCONTROL Safety Regulatory Requirement has been prepared by the Safety Regulation Commission. This requirement concerns the use of safety management systems (SMSs) by providers of Air Traffic Management (ATM) services.

Within the overall management of their ATM services, ATM service-providers shall have in place a safety management system (SMS) in accordance to this requirement.

Keywords

Safety Management	Safety Achievement	Safety Assurance	Safety Promotion
SMS			

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

AUTHORITY	NAME AND SIGNATURE	DATE
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Chairman Safety Regulation Commission (SRC)	(Arne AXELSSON)	17 July 2000

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

EDITION	DATE	REASON FOR CHANGE	SECTIONS PAGES AFFECTED
0.01	28 Jan. 1999	Creation – Working Draft A produced by SRU with initial RTF (Requirements Task Force) inputs	All
0.02	14 April 1999	Working Draft B, incorporating inputs from RTF.	All
0.03	27 May 1999	Working Draft C submitted to the Safety Regulation Commission for reviewing, incorporating inputs from the RTF.	All
0.04	3 June 1999	Working Draft D, incorporating inputs from SRC and RTF.	All
0.05	19 Aug. 1999	Working Draft E, incorporating inputs from RTF.	All
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0.11	4 Jan. 2000	SRU working-paper version to tackle consistency with ESARR 4. Distributed to RTF. Term 'System Safety Assessment' replaced by 'Risk Assessment and Mitigation'	Sections 5/8
0.12	27 Jan. 2000	SRU working-paper to include a glossary of terms and definitions, consistent with definitions provided in the EUROCONTROL Safety Regulatory Requirements Framework. Distributed to RTF.	Section 8 Appendix A (new)
0.2	20 March 2000	Consolidated Version for SRC review and approval. Incorporates comments from RTF and EUROCONTROL consultation. Appendix B provides schematic representation of provisions	Section 5.4.1 Section 8 Appendix A and B (new)
0.21	24 April 2000	Consolidated Version incorporating SRC comments to Edition 0.2 to go to a second EUROCONTROL Consultation prior to submission to PC as agreed in SRC7.	Section 5.2.6 Section 8 Appendix B (removed)
0.3	9 June 2000	Proposed Issue to the Provisional Council. Incorporates comments from the final EUROCONTROL Consultation. Section 8 modified in accordance to SRC8 decisions.	Section 5 5.1.1; 5.2.4; 5.3.3/4 Section 8 Appendix A
1.0	17 July 2000	Released Issue after approval by Provisional Council and Permanent Commission	Section 3 Section 8

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This document has been prepared by the Safety Regulation Commission.

This EUROCONTROL Safety Regulatory Requirement concerns the use of safety management systems (SMS) by providers of Air Traffic Management (ATM) services.

The requirement shall apply to all providers of ATM services that fall within the jurisdiction of the national ATM safety regulatory body. Within the overall management of their ATM services, ATM service-providers shall have in place a safety management system (SMS) in accordance with this requirement.

The provisions of this requirement are to become effective within three years from the date of adoption by the EUROCONTROL Commission.

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EUROCONTROL SAFETY REGULATORY REQUIREMENT

Use of Safety Management Systems by ATM Service Providers

1. SCOPE

This requirement concerns the use of safety management systems (SMSs) by providers of Air Traffic Management (ATM) services.

2. RATIONALE

The prime responsibility for the safety of an ATM service rests with the service provider. Within the overall management of the service, the service provider has a responsibility to ensure that all relevant safety issues have been satisfactorily dealt with, and to provide assurance that this has been done.

Safety management is that function of service provision, which ensures that all safety risks have been identified, assessed and satisfactorily mitigated. A formal and systematic approach to safety management will maximise safety benefits in a visible and traceable way.

3. APPLICABILITY

This requirement shall apply to all providers of ATM services that fall within the jurisdiction of the national ATM safety regulatory body.

4. SAFETY OBJECTIVE

The overall safety objective is to ensure that all safety issues within the provision of an ATM service have been addressed in a satisfactory manner, and to a satisfactory conclusion.

5. SAFETY REQUIREMENTS

5.1 General Requirement

An ATM service-provider shall, as an integral part of the management of the ATM service, have in place a safety management system (SMS) which :

5.1.1 Safety Management

a) ensures a formalised, explicit and pro-active approach to systematic safety management in meeting its safety responsibilities within the provision of ATM services;

b) operates in respect of all ATM and supporting services which are under its managerial control;

c) includes, as its foundation, a statement of safety policy defining the organisation's fundamental approach to managing safety;

5.1.2 Safety Responsibility

ensures that everyone involved in the safety aspects of ATM service-provision has an individual safety responsibility for their own actions, and that managers are responsible for the safety performance of their own organisations;

5.1.3 Safety Priority

ensures that the achievement of satisfactory safety in ATM shall be afforded the highest priority over commercial, operational, environmental or social pressures;

5.1.4 Safety Objective of the ATM Service

ensures that while providing an ATM service, the principal safety objective is to minimise the ATM contribution to the risk of an aircraft accident as far as reasonably practicable.

5.2 Requirements for Safety Achievement

Within the operation of the SMS, the ATM service-provider:

5.2.1 *Competency*

shall ensure that staff are adequately trained, motivated and competent for the job they are required to do, in addition to being properly licensed if so required;

5.2.2 *Safety Management Responsibility*

a) shall ensure that a safety management function is identified with organisational responsibility for development and maintenance of the safety management system;

b) shall ensure that this point of responsibility is, wherever possible, independent of line management, and accountable directly to the highest organisational level;

c) shall ensure that, in the case of small organisations where combination of responsibilities may prevent sufficient independence in this regard, the arrangements for safety assurance are supplemented by additional independent means;

d) shall ensure that the highest level of the service provider organisation plays a general role in ensuring safety management;

5.2.3 *Quantitative Safety Levels*

shall ensure that, wherever practicable, quantitative safety levels are derived and are maintained for all systems;

5.2.4 *Risk Assessment and Mitigation*

a) shall ensure that risk assessment and mitigation is conducted to an appropriate level to ensure that due consideration is given to all aspects of ATM;

b) shall ensure that changes to the ATM system are assessed for their safety significance, and ATM system functions are classified according to their safety severity;

c) shall ensure appropriate mitigation of risks where assessment has shown this to be necessary due to the safety significance of the change;

5.2.5 *SMS Documentation*

shall ensure that the SMS is systematically documented in a manner, which provides a clear linkage to the organisation's safety policy;

5.2.6   External Services

shall ensure adequate and satisfactory justification of the safety of the externally provided services, having regard to their safety significance within the provision of the ATM service;

5.2.7   Safety Occurrences

shall ensure that ATM operational or technical occurrences which are considered to have significant safety implications are investigated immediately, and any necessary corrective action is taken.

5.3   Requirements for Safety Assurance

Within the operation of the SMS, the ATM service-provider:

5.3.1   Safety Surveys

shall ensure that safety surveys are carried out as a matter of routine, to recommend improvements where needed, to provide assurance to managers of the safety of activities within their areas and to confirm conformance with applicable parts of their Safety Management Systems.

5.3.2   Safety Monitoring

shall ensure that methods are in place to detect changes in systems or operations which may suggest any element is approaching a point at which acceptable standards of safety can no longer be met, and that corrective action is taken.

5.3.3   Safety Records

shall ensure that safety records are maintained throughout the SMS operation as a basis for providing safety assurance to all associated with, responsible for or dependent upon the services provided, and to the safety regulatory authority;

5.3.4   Risk Assessment and Mitigation Documentation

shall ensure that the results and conclusions of the risk assessment and mitigation process of a new or changed safety significant system are specifically documented, and that this documentation is maintained throughout the life of the system.

5.4   Requirements for Safety Promotion

Within the operation of the SMS, the ATM service-provider:

5.4.1   Lesson Dissemination

shall ensure that the lessons arising from safety occurrence investigations and other safety activities are disseminated widely within the organisation at management and operational levels.

5.4.2   Safety Improvement

a) shall ensure that all staff are actively encouraged to propose solutions to identified hazards, and

b) shall ensure that changes are made to improve safety where they appear needed.

6.   IMPLEMENTATION

The provisions of this requirement are effective within three years from the date of adoption by the EUROCONTROL Commission.

7.   EXEMPTIONS

None.

8.   ADDITIONAL MATERIAL

8.1   Acceptable Means of Compliance

Safety management arrangements already in place within military ATM organisations are accepted, subject to assessment of equivalent performance, as means of compliance with the provisions of ESARR 3.

(This section will be further augmented following the identification and formal assessment of other candidate means of compliance.)

8.2   Definitions

Definitions for specific terms used in this requirement document are given in the EUROCONTROL Safety Regulatory Requirements Framework, and are repeated for ease of reference in Appendix A to this document.

8.3   Guidance Material

a) *The Safety Regulation Commission is to produce material to support this requirement and provide guidance on adapting the ATM safety regulatory framework in the light of the implementation and use of safety management systems by ATM service-providers.*

b) The "EATMP Safety Policy" (SAF.ET1.ST01.1000-POL-01-00, Edition 1.1, August 1999) when implemented in accordance with its related "EATMP Safety Policy: Implementation Guidance Material" (SAF.ET1.ST01.1000-GUI-01-00, Edition 1.2, August 1999) are considered as valuable reference documents in implementing SMS. Further, these documents are to be formally assessed to establish whether they may be declared as acceptable means of compliance with the provisions of ESARR 3.

c) *Current proposals for amendments of ICAO Annex 11 and PANS-RAC are expected to include the implementation and use of safety management in ATM.*

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Appendix A

Glossary - Terms and Definitions

Assessment	An evaluation based on engineering, operational judgement and/or analysis methods.
ATM	The aggregation of ground based (comprising variously ATS, ASM, ATFM) and airborne functions required to ensure the safe and efficient movement of aircraft during all appropriate phases of operations
ATM Service	A service for the purpose of ATM
ATM Service-Provider	An organisation responsible and authorised to provide ATM service(s)
CNS	Communication, Navigation and Surveillance
External Services	All material and non-material supplies and services, which are delivered by any organisation not covered by the ATM Service-Provider's Safety Management System.
Hazard	A potentially unsafe condition.
Hazard Identification	The process of determining what can happen, why and how.
Mitigation or Risk Mitigation	Steps taken to control or prevent a hazard from causing harm and reduce risk to a tolerable or acceptable level.
National ATM Safety Regulatory Body	The competent body designated by State authority, responsible for the safety regulation of civil aviation.
Occurrences	Accidents, serious incidents and incidents as well as other defects or malfunctioning of an aircraft, its equipment and any element of the Air Navigation System which is used or intended to be used for the purpose or in connection with the operation of an aircraft or with the provision of an air traffic management service or navigational aid to an aircraft.
Quantitative Safety Levels	Numerical expression to define levels of safety

Risk	The combination of the probability, or frequency of occurrence of a defined hazard and the magnitude of the consequences of the occurrence.
Risk Assessment	Assessment to establish that the achieved or perceived risk is acceptable or tolerable
Risk Mitigation	See mitigation
Safety	Freedom from unacceptable risk of harm.
Safety Achievement	The result of processes and/or methods applied to attain acceptable or tolerable safety
Safety Assurance	All planned and systematic actions necessary to provide adequate confidence that a product, a service, an organisation or a system achieves acceptable or tolerable safety
Safety Management	The management of activities to secure high standards of safety performance which meet, as a minimum, the provisions of safety regulatory requirements.
Safety Management Function	A managerial function with organisational responsibility for development and maintenance of an effective safety management system.
Safety Management System (SMS)	A systematic and explicit approach defining the activities by which safety management is undertaken by an organisation in order to achieve acceptable or tolerable safety
Safety Monitoring	A systematic action conducted to detect changes affecting the ATM System with the specific objective of identifying that acceptable or tolerable safety can be met.
Safety Policy	A statement of the organisation's fundamental approach to achieve acceptable or tolerable safety
Safety Promotion	Specification of the means by which safety issues are communicated to ensure a safety culture of safe working within the organisation.
Safety Records	Information about events or series of events that is maintained as a basis for providing safety assurance and demonstrating the effective operation of the safety management system

Safety Regulatory Requirement   The formal stipulation by the regulator of a safety related specification which, if complied with, will lead to acknowledgement of safety competence in that respect.

Safety Survey   A systematic review, to recommend improvements where needed, to provide assurance of the safety of current activities, and to confirm conformance with applicable parts of the Safety Management System.

SMS Documentation   The set of documents, arising from the organisation's safety policy statements, to develop and document the SMS in order to achieve its safety objectives.

Supporting Services   Systems, services and arrangements, including Communication, Navigation and Surveillance services, which support the provision of an ATM service

System   A combination of physical components, procedures and human resources organised to perform a function.