EUROPEAN ORGANISATION
FOR THE SAFETY OF AIR NAVIGATION

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(EAM/GUI)

EAM 5 / GUI 3

EXPLANATORY MATERIAL ON ESARR 5 REQUIREMENTS FOR ENGINEERS AND TECHNICAL PERSONNEL UNDERTAKING OPERATIONAL SAFETY-RELATED TASKS

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Abstract

This guidance material has been prepared by the Safety Regulation Commission to provide guidance for ATM safety regulators and support the implementation of ESARR 5.

The main purpose of this document is to provide guidance about the provisions established in ESARR 5 and more specifically in its Section 5 'Safety Requirements', sub section 5.3 addressing engineers and technical personnel undertaking operational safety related tasks. Each requirement is illustrated by giving explanatory material that includes a rationale, the most significant implications mainly for Regulator but also sometimes for Provider or Operating Organisation, and information about further development.

This is one element of a series of guidance documents to be developed by SRC to support the implementation of ESARR 5.

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F.3 DOCUMENT APPROVAL

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F.4 DOCUMENT CHANGE RECORD

The following table records the complete history of this document.

EDITION NUMBER	EDITION DATE	REASON FOR CHANGE	PAGES AFFECTED
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0.1	19-Oct-04	SRU quality checks following ASP consultation (RFC No. 0421). Document status amended and sent to SRC for formal consultation and approval.	All
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1.2	15-Nov-05	SRU quality check. Corrections to Document Change Record. Document sent to SRC for consultation and approval.	Section F.4

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F.5 CONTENTS

Section **Title** **Page**

FOREWORD

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F.6 EXECUTIVE SUMMARY

This document has been prepared by the Safety Regulation Commission (SRC) to provide guidance for ATM safety regulators and to support the implementation of ESARR 5.

Within their national legislative arrangements, ATM safety regulators shall have in place ESARR 5-related safety regulatory functions, resources and procedures in order to enforce and verify compliance with ESARR 5.

The main purpose of this document is to provide clarifications on the provisions established in ESARR 5, and more specifically in Section 5 ‘Safety Requirements’, sub section 5.3 addressing engineering and technical personnel undertaking safety-related tasks. Each requirement is illustrated by giving explanatory material which includes a rationale, the most significant implications (mainly for the regulator but also for the service provider or operating organisation) and, when applicable, information about further developments.

This document forms part of a series of guidance documents being developed by the SRC in order to support the implementation of ESARR 5.

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1. INTRODUCTION

A standardised approach to the formatting of EUROCONTROL Safety Regulatory Requirements (ESARRs) is used to reference and clarify the status of information contained in the document.

The requirement template used for ESARR 5, Edition 2.0 includes a number of sections. Some include provisions considered as mandatory and other provisions which are of an advisory nature;

- The mandatory provisions are captured in sections 3, 5, 6 and 7 of the current ESARRs template; and
- Related advisory material is captured in sections 1, 2, 4 and 8 of the current ESARRs template.

Note: Work is on-going to modify the ESARRs template and better separate the mandatory provisions from related advisory material.

Section 5 '*Safety Requirements'* provide a statement of precise actions which are considered necessary to achieve the safety objectives stated in Section 4. Section 5 includes mandatory requirements only (expressed by using the word "shall"), including those relating to implementation.

The main purpose of this document is to illustrate and clarify the provisions of Section 5 *'Safety Requirements',* section 5.3 addressing engineers and technical personnel undertaking operational safety-related tasks established by ESARR 5 and to facilitate its interpretation. ESARR 5 provisions within sections 5.1 and 5.2 addressing air traffic controllers have been dealt with in EAM 5 / GUI 1.

The competence requirement from ESARR 3 (Requirements for Safety Achievement) requires Air Traffic Service (ATS) providers to 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. The terms 'licence' or 'certificate of competence' are not included in ESARR 5, section 5.3.

2. SECTION 5 – SAFETY REQUIREMENTS

2.1 Overview

Requirements within section 5 of ESARR 5 are grouped as follows:

- Section 5.1 – General requirements
- Section 5.2 – Requirements for Air Traffic Controllers
  - Section 5.2.1 – Requirements to be applied by the Designated Authority
  - Section 5.2.2 – Requirements to be applied by the Provider of Air Traffic Services
  - Section 5.2.3 – Requirements to be applied by the Individual Personnel

- Section 5.3 – Requirements for Engineering and Technical Personnel undertaking operational safety related tasks

Guidance material relating to the requirements of ESARR 5, Sections 5.1 and 5.2 is captured within EAM 5 / GUI 1 (Parts A and B). This document deals with the requirements of ESARR 5, section 5.3.

2.2 Section 5.3 – Requirements for Engineering and Technical Personnel Undertaking Operational Safety-Related Tasks

General

Section 5.3 has divided the requirements in three parts:

- Section 5.3.1 – Requirements to be applied by the Designated Authority.
- Section 5.3.2 – Requirements to be applied by the Operating Organisation.
- Section 5.3.3 – Requirements to be applied by the Individual Personnel.

For the purpose of this guidance material, only the requirements to be applied by the Operating Organisation and individual personnel will be detailed. The requirements to be applied by the Designated Authority will be covered in EAM 5 / GUI 4 'ESARR 5 and Related Safety Oversight for Engineering and Technical Personnel Undertaking Operational Safety-Related Tasks'.

Section 5.3.2 sets out the minimum safety requirements which an Operating Organisation must comply with to meet the safety obligations under ESARR 5. Section 5.3.3 sets out the minimum safety requirements that individuals from the Operating Organisation must comply with to meet their obligations under ESARR 5.

Additionally within this section, several terms are used to better describe the situation in the case of the services provided by ATM Personnel such as engineers and technical personnel undertaking operational safety-related tasks.

Engineering and technical personnel undertaking operational safety-related tasks are those who operate and maintain ATM equipment approved for operational use. As mentioned in ESARR 5, such personnel are not intended to cover other equipment-related functions, such as design, testing, commissioning or institutional training.

The equipment-related functions above are governed by the safety regulatory requirements contained within ESARRs 3 and 4.

From the definition used above for engineers and technical personnel undertaking operational safety-related tasks, it is not possible to establish which ESARR 5 requirements will be applicable to each category of personnel. This, together with the categorisation of ATM personnel having safety-related tasks (excluding air traffic controllers), will be further developed upon by additional ESARR Advisory Material.

ATM equipment approved for operational use represent all engineering systems, facilities or devices used, either directly by airspace users (e.g. ground navigation facilities), or in the provision of operational air traffic management services. These are the systems, facilities and devices operated and supervised by the ATM Service Provider/ Operating Organisation for the purpose of air navigation. Such equipment used to fulfil the tasks involved in ATM could be available on the open market or be specifically developed based on ATM requirements.

Air traffic management is seen as the sum of Air Traffic Services (ATS), Air Traffic Flow Management (ATFM) and Airspace Management (ASM), where ATS is formed by Flight Information Service (FIS), Alerting Service (ALRS), Advisory Service and Air Traffic Control Service (ATC). The equipment for operational use shall be seen as the operational equipment used to provide ATS, ATFM and ASM.

An Operating Organisation is any organisation which falls within the jurisdiction of the National ATM Safety Regulator and is responsible for the provision of engineering and technical services supporting ATM services. Therefore, the ATM Service Provider could also be the Operating Organisation in those instances where it provides its own technical support. If engineering and technical support services are contracted to a third party outside of the ATM service provider's organisation, the Operating Organisation is then a separate entity which will have to interact with the ATM service provider's Safety Management System.

Within ESARR 3, the external services requirement is:

> ***"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."***

The SMS scope will define the boundaries of a sort of *"safety universe",* within which the elements covered by the SMS may be assumed as being sufficiently safe.

It should be noted that external inputs could erode safety levels if they are not managed properly. External inputs, whether these are goods or services, should be identified and assessed to ensure appropriate safety levels within the organisation.

Ideally, safety and quality assurance processes used by external suppliers should satisfy internal safety management standards and applicable safety requirements. In some cases, ATM providers can effectively choose between different suppliers. Good procurement procedures may be sufficient to meet the requirement in those situations.

However, situations may exist where there are no options and the input has to be accepted as the only possible one. In these cases, actions have to be defined to identify any possible safety problems and mitigate their risks. This means that external inputs (products, services, information, etc.) have to be assessed in terms of safety in order to identify hazards and implement appropriate mitigation measures (monitoring, redundancy, operational procedures, etc.).

The requirement from ESARR 3 (external services) means that ATM service providers should normally establish processes in respect of external services having a significant influence on safety:

- To assess external services from a safety point of view and define mitigation measures ensuring that inputs from outside do not erode the safety of ATM services;

- Whenever possible, to select suppliers on the basis of their ability to meet safety standards and requirements, evaluate them systematically, and take appropriate action on the basis of periodical evaluations ensuring that the provision of external services is restricted to evaluated suppliers;

- To agree on special arrangements with suppliers to ensure safety whenever possible and necessary;

- To monitor the externally supplied goods and services having a significant influence on safety, providing data for supplier performance assessment.

Regulators should consider these elements, or equivalent ones, as important aspects to be ensured by ATM service providers in accordance to appropriate regulations.

2.2.1 Common / Harmonised Terminology for Engineers and Technical Personnel

The terminology proposed within this document tries to offer a link between the training followed by such personnel and the possible qualifications obtained after the completion of such training. This terminology is derived from the training documentation (basic and qualification training) and from the progression of training documentation. It is a similar process with air traffic controllers where based on the training followed they obtain certain ratings and endorsements that allow them to perform the tasks that are safety related to their job.

2.2.1.1 Progression of Training for ATSEPs

The progression of ATSEP training can be summarised by the following diagram:

The following detailed description in this document supersedes the description found in the document 'EATM Training Progression and Concepts' (EATM, 2004 – T38).

Initial Training

Training preceding type rating. It includes basic and at least one of the four modules of qualification training:

- **Basic training.** Fundamental knowledge and skills appropriate to the discipline to be pursued in the Communication Navigation and Surveillance / Air Traffic Management (CNS/ATM) environment.

- **Qualification training.** Job category related knowledge and skills appropriate to the discipline to be pursued in the CNS/ATM environment. Four disciplines have been identified through the four corresponding qualifications: Communication, Navigation, Surveillance and Data Processing.

  When changing discipline (for instance from NAV to COM) the relevant part of the qualification training needs to be provided to the trainees in a conversion training. For efficiency, the qualification modules may be re-used.

- **System / equipment rating training (formerly *Type Rating)*.** Equipment/system-related knowledge and skills leading to recognised competency. It includes **mentored training** and **On Site Training (OST)**.It is the final stage for the acquisition of competence following basic and qualification training.

- **On Site Training (OST).** "The integration in **practice** of previously acquired job related routines and skills under the supervision of a qualified ATSEP in a working environment".

The ATSEP Rating Training is mainly on-site based, but for safety reasons it is not always possible for the ATSEP to be trained on systems in current operational use.

However:

- ATSEPs, whilst mainly trained on simulators, spare and standby equipment, may receive planned training on operational equipment under the supervision of a suitably qualified ATSEP.

- Training on operational equipment in operational conditions is possible and effective in the case of System Monitoring Control (SMC).

The rating training frequently concludes with a supervised exercise of the job. The trainee performs the required task under the supervision of a qualified ATSEP. The focus is not so much on learning but in the transfer of skills and knowledge in an operational environment.

Mentored Training

During the whole rating training process, and in particular during the OST phases, the ATSEP is under the responsibility of qualified ATSEP (a "mentor" is an experienced training adviser) who can either be an instructor or an experienced colleague in charge of the local training (courses, hands-on, etc.) in an appropriate technical environment and who is in charge of the progressive assessment.

The Rating Training will include the appropriate emergency, unusual situations and systems degraded training modules. For efficiency purposes, these may be the same as the modules used in the continuation training.

Continuation Training

Training given to personnel designed to augment existing knowledge and skills and/or to prepare for new technologies. It includes refresher, emergency and conversion training (refresher and emergency training are sometimes named 'recurrent training').

- **Refresher training.** Refresher training is designed to review, reinforce or upgrade existing knowledge and skills (including team skills training such as TRM).
- **Degraded systems training.** Training including training in unusual situations, in degraded systems and, if suitable, in emergencies. Most of this training will be site-specific or may make use of incidents or accidents analysis:

Emergency

A serious, unexpected and often dangerous situation requiring immediate action.

Unusual Situation

A set of circumstances which are neither habitually nor commonly experienced. The essential difference from an emergency situation is that a volatile situation exists and if an appropriate action is not taken, a major failure or emergency situation will result.

Degraded Systems

Unusual situations that are the result of a system failure or malfunction leading to a loss of system redundancy or service elements.

Conversion Training

Training designed to provide knowledge and skills appropriate to a change in either job category (new discipline or new system/equipment rating), environment (new maintenance or other procedures) or system (system upgrade or change of system, new project).

Developmental Training

Training designed to provide additional knowledge and skills demanded by a change in job profile, e.g. system monitoring and control controller, safety manager, instructor, training manager, or any other career development.

2.2.1.2 Common / Harmonised Terminology for ATSEPs

The table below identifies a terminology to be used within the competence processes for engineers and technical personnel. This terminology provides for the guidelines to be used around the ECAC States that will establish or that have established a competence scheme for ATSEPs. The following terminology is proposed:

- **Qualification** indicates the discipline in which an ATSEP has been trained to provide the service - Communication, Navigation, Surveillance, Data Processing.

- **Equipment/System rating** indicates explicitly the equipment/system on which an ATSEP will perform his safety related tasks. Maintenance is preventive, adaptative or corrective. It deals with both hardware and software issues
- **Level rated tasks** represent the categorisation by complexity, knowledge, skills and operational impact. Three categories will usually suffice but could be further sub-divided for highly complex or diverse systems.
    - **Level A tasks.** Level A maintenance tasks are primarily associated with immediate service restoration or reconfiguration ("frontpanel level"). It is appropriate for staffs that have been trained to understand the elements of equipment or system, their interrelationships and functional purpose, but does not require an in-depth knowledge of these elements.
    - **Level B tasks.** Level B maintenance tasks involves in-depth fault analysis at the system/equipment level ("functional level"). It is usually carried out by staff that have been trained for the more complicated maintenance tasks on the equipment/system.
    - **Level C tasks.** Level C maintenance tasks involves the detailed diagnosis of a software problem, of a faulty LRU (Line Replacement Unit), PCB (Printed Circuit Board) or module ("component level"). It usually requires the use of automated test equipment at a suitable location and is usually carried out by staff that have been trained in detailed fault diagnosis and repair techniques.

Qualification	Equipment/System Rating	Level rated tasks
COMMUNICATION **(COM)**	COM Explicit equipment/system. Identification of the equipment/system is according to the manufacturer and/or other elements	Non-rated Level A Level B Level C
NAVIGATION **(NAV)**	NAV Explicit equipment/system. Identification of the equipment/system is according to the manufacturer and/or other elements	Non-rated Level A Level B Level C
SURVEILLANCE **(SUR)**	SURV Explicit equipment/system. Identification of the equipment/system is according to the manufacturer and/or other elements	Non-rated Level A Level B Level C

Qualification	Equipment/System Rating	Level rated tasks
DATA PROCESSING **(DP)**	DP Explicit equipment/system. Identification of the equipment/system is according to the manufacturer and/or other elements	Non-rated Level A Level B Level C
	(*) SMC Explicit equipment/system.	Level A in CNS&DP + Knowledge of the operational system

(*) The document 'Guidelines for a Common Qualification Level of Technical Training for Air Safety Electronics Personnel' – T32 defines the SMC (System Monitoring Control) training as a developmental training. This is consistent with paragraph 2.3 of the same document which states that "SMC tasks are not usually performed immediately after qualification training but later, when competence has been increased by the acquisition of experience…".

Consequently the SMC competence is obtained after a proper technical and human factors training with special focus on operational impact by an ATSEP who has any of the 4 qualifications (Communication, Navigation, Surveillance or Data Processing) and has acquired professional experience.

2.2.1.3 Practical Benefits

ATM SAFETY REGULATORS (DESIGNATED AUTHORITY)

The following benefits have been identified when using this terminology:

- Enable the use of this terminology within the appropriate safety regulations (req. 5.3.1 a)),
- Ease the methods by which safety regulatory oversight is undertaken (req 5.3.1.b)),
- Provides common understanding of the competence system put in place at the level of operating organisation,
- Ease the record keeping from a regulatory viewpoint when carrying out the safety regulatory oversight for the implementation of the appropriate regulations,
- Ease the identification of all ATSEP by using a structured system of rating, rating endorsements and endorsements,
- Ease the verification of the necessary evidence in the case of qualification schemes, the competence, specialisation and recency of the Operating Organisation's personnel, training plans and the outcome of such plans,

- Ease the verification process of the necessary evidence that Operating Organisation has available sufficient personnel competent assigned to operational safety related tasks.

OPERATING ORGANISATION

- Enable a good safety regulatory oversight,
- Provides common understanding of the competence system,
- Provides a structured scheme that gives the progression of ATSEP personnel from beginning until full qualification,
- Ease the record keeping and provides a logic between training and rating and rating endorsements,
- Ease the development of the following evidence:
  - Qualification schemes,
  - Competence scheme,
  - Specialisation and recency of the Operating Organisation's personnel,
  - Training plans and the outcome of such plans,
  - Availability of sufficient qualified personnel assigned to operational tasks.

2.2.2 Requirements to be Applied by the Operating Organisation

2.2.2.1 Requirement 5.3.2 a)

Content

This requirement states that:

"The Operating Organisation shall ensure that technical and engineering personnel are properly trained and qualified to perform the assigned tasks".

Rationale and Implications

It is the responsibility of the Operating Organisation to ensure, through the application of regulatory principles and processes, that its personnel are trained and qualified to perform the assigned tasks.

Competence within ESARR 5 means the possession of the required level of knowledge, skills, experience and, where required, proficiency in English, to permit the safe and efficient provision of ATM services.

To achieve the necessary levels of competence the Operating Organisation shall put in place a training system which ensures that its personnel obtain the necessary knowledge, skills and experience to perform the tasks assigned within the unit. In other words, the personnel are adequately trained and have been suitably qualified to carry out the assigned tasks within the unit.

2.2.2.2 Requirement 5.3.2 b)

Content

This requirement states that:

"The Operating Organisation shall ensure that technical and engineering personnel:

i) Have and maintain sufficient knowledge to ensure a sound understanding of the ATM service(s) they are supporting, and the actual and potential effects of their work on the safety of those service(s); and

ii) Have and maintain sufficient knowledge of the appropriate working limits to be applied when performing safety related tasks;"

Rationale and Implications

Requirement 5.3.2 a) of ESARR 5 requires engineers and technical personnel to be trained and qualified to perform the assigned tasks. This can be translated into being competent to provide the tasks assigned in supporting the ATM services. In order to be trained and qualified, engineers and technical personnel shall understand, and have knowledge of, the ATM services they are supporting, the working limits when dealing with safety-related tasks and the effects of their work on the equipment regarding the safety of the ATM services provided by ATCOs.

Operating organisations shall ensure that all engineers and technical personnel have sufficient knowledge to ensure a sound understanding of the ATM service(s) they are supporting, the working limits to be applied when performing safety-related tasks and the impact which their work could have on the safety of the ATM services they are supporting. Additionally, engineers and technical personnel shall be able to maintain this level of knowledge on the issues listed above.

2.2.2.3 Requirement 5.3.2 c)

Content

This requirement states that:

"The Operating Organisation shall ensure that, in relation to engineering and technical personnel, evidence exists, is documented by the Operating Organisation, and is available to the Designated Authority on request, of the adequacy of personnel arrangements, and of personnel qualifications to perform their safety related tasks, with particular regard to the:

i) Availability of sufficient personnel competence assigned to operational safety related tasks, and conformance with regulatory provisions invoked by section 5.3.1. para. b above;

ii) Operating Organisation's personnel qualification schemes and policy;

iii) Competence, specialisation and recency of the Operating Organisation's personnel;

iv) Operating Organisation's personnel training policy and plans;

v) Operating Organisation's personnel training records;

vi) Operating Organisation's arrangements for the supervision of non-qualified personnel."

Rationale and Implications

Requirement 5.3.2 a) of ESARR 5 requires engineers and technical personnel to be trained and qualified to perform their assigned tasks. This can be translated into being competent to provide the tasks assigned to support ATM services. In ESARR 5, 'competence' is taken to mean the possession of the required level of knowledge, skills, experience and, where required, proficiency in English, to permit the safe and efficient provision of ATM services.

Experience has shown that recently qualified engineers tend to become more skilful with experience until they reach a level that they maintain. However, there are a number of reasons why a technical person's (engineer or technician) skill level may fall below that which is required to perform the assigned task. These could include factors such as increasing age, social/domestic problems, insufficient practice on the assigned equipment and changes within the unit assignments (e.g. lack of personnel, bad management of human resources, etc.).

Having said this, the Operating Organisation shall have sufficient competent personnel to perform the assigned safety-related tasks. This means that no compromise shall be made when managing the competent resources that undertake safety-related tasks. This should be documented within the qualification schemes that an ATM Service provider/Operating organisation will adopt. Additionally, the policy the ATM Service provider/Operating Organisation will put in place for the qualification of its technical personnel shall stress that staffing levels shall be ensured in such way that safety is not impaired.

In order for personnel to be competent (as per ESARR 5), the Operating Organisation shall establish a training policy and plan. This will provide the Designated Authority with the necessary information about how training is carried out for all categories of engineers and technical personnel in order to reach a certain level of competency. The structure of the training policy and plan shall be sufficiently flexible to allow the incorporation of new developments within the ATM field. In the case of ATCOs, the requirements for Unit Training Plans have to be approved by the Designated Authority. Following the same logic, the qualification schemes and on-going training for technical personnel to maintain competence, shall receive the approval of the Designated Authority. However, this is not required within section 5.3 of ESARR 5, but is considered as 'best practice' which can provide the necessary transparency between the regulator and regulated organisations. Additionally, it will provide sufficient visibility of the safety management system principles applied by the ATM Service Provider/Operating organisation.

The training policy and plans that an ATM Service Provider/Operating Organisation will establish should be supported by the qualification scheme and associated policy which allows for its implementation. The ATM Service Provider/Operating Organisation's qualification scheme shall contain the competency requirements, specialisation and recency criteria the personnel will have to follow. This will describe the career evolution and the mechanisms to ensure that tasks are being performed in a safe way.

Non-qualified personnel (i.e. those with initial training but no on-the-job training) shall be supervised by qualified personnel until they obtain the necessary qualification to allow them to independently undertake the allocated safety-related tasks. Within the on-the-job training, a qualified person(s) shall be designated to supervise and assess the progress made over the period for such training. The name, position and on which equipment they underwent supervision shall be included within the training plans for each individual person undertaking on-the-job training.

In line with the same requirements for ATCOs, the training process for technical personnel shall be documented. This can be done by either using a database to store training records, providing qualifications at the end of each training session, or simply for maintaining current qualifications.

Additionally, this system will ease the work of the Designated Authority in verifying that the ATM Service Provider/Operating Organisation is compliant with national regulations and also with their internal procedures.

2.2.2.4 Requirement 5.3.2 d)

Content

"The Operating Organisation shall ensure that individual technical and engineering personnel must not undertake the assigned operational safety related tasks if the Operating Organisation knows or suspects that the physical or mental condition of the individual renders them unfit to undertake such tasks; "

Rationale and Implications

This requirement refers to the responsibility of the Operating Organisation for not permitting and/or withdrawing individual technical and engineering personnel from the assigned tasks when it is known or suspected that the physical or mental condition of the individual renders him unfit to perform those tasks.

In the area of safety requirements for air traffic controllers, ESARR 5 introduced the requirement that individuals shall hold a valid medical certificate of the appropriate class, together with additional responsibilities. In the area of engineering and technical personnel there are no detailed provisions for individuals to hold a valid medical certificate of an appropriate class. However, Section 5.1 'General Requirements' (also applicable to engineers and technical personnel), requirement 5.1.2 states that:

> *"5.1.2 An air traffic services provider at an ATS unit shall ensure, as part of its overall safety responsibilities, that all ATM services' personnel responsible for tasks in the provision of air traffic services or supporting the provision of air traffic services, which are considered to be related to the safety of air traffic, are competent to carry out those tasks and satisfy applicable medical fitness requirements."*

In line with this principle, the Operating Organisation shall ensure that engineers and technical personnel are competent and satisfy the applicable medical fitness requirements. As mentioned above, the standard for medical fitness for ATCOs was related to the appropriate class of the medical certificate. In the case of engineers and technical personnel, the provisions are less prescriptive. Therefore, the medical requirements for engineers and technical personnel could be less stringent than for ATCOs, but would still have to ensure that personnel are able to carry out the assigned tasks in a manner which does not impair the safe provision of ATM services.

Medical testing regimes for engineers and technical personnel similar to the one described for ATCOs could be established by the Operating Organisation/ATM service provider and approved/agreed by the Designated Authority. This will have to be documented by the Operating Organisation and allow provisions for the different medical situations which may appear over time with such a category of personnel.

Medical conditions other than illness, such as recovery from surgery, accident or pregnancy, will normally result in the withdrawal of the individual's medical fitness and from duty (depending upon the medical requirements to be fulfilled by engineers and technical personnel in order to be declared medically fit for the job).

To achieve this requirement, the Operating Organisation shall put in place a documented procedure that will include the withdrawal from duty of individuals when a physical or mental condition renders them unfit. Withdrawal from duty, particularly if an individual feels unwell, is not a punitive measure, but a safety measure that allows for the ATM system to function properly.

2.2.2.5 Requirement 5.3.2 e)

Content

"The Operating Organisation shall ensure that, from a safety viewpoint, appropriate methods are in place to ensure that individuals assigned with operational safety related tasks meet the applicable provisions of this Requirement Document;"

Rationale and Implications

Within its internal working arrangements the Operating Organisation shall establish processes to verify that engineers and technical personnel assigned to operational safety-related tasks meet the requirements laid down in ESARR 5.

The methods and processes that have to be established by the Operating Organisation could be based on internal auditing techniques. The outcome of the internal audit carried out by the Operating Organisation can be used by the Designated Authority when verifying the implementation of ESARR 5 requirements by the Operating Organisation.

Other methods to verify that engineers and technical personnel meet the requirements laid down in ESARR 5 could be based on regular reports from shift supervisors (or designated personnel, e.g. Safety Manager) on the status of how engineers and technical personnel comply with the provisions laid down in the Operating Organisation's rules.

The suitable methods to be put in place by the Operating Organisation shall also be agreed with the Designated Authority in order to facilitate the processes that the Designated Authority will have to audit.

2.2.2.6 Requirement 5.3.2 f)

Content

"The Operating Organisation shall report to the Designated Authority all safety events involving engineering and technical personnel and air traffic management equipment approved for operational use; the level of reporting detail to be agreed between the Operating Organisation and Designated Authority;"

Rationale and Implications

ESARR 2 states that the implementation of consistently high levels of aviation safety and the management of ATM safety within the ECAC area requires, as a priority, the successful implementation of harmonised occurrence reporting and assessment schemes. Such schemes will lead to a more systematic visibility of safety occurrences and their causes, and will allow the identification of appropriate corrective actions, as well as areas where flight safety could be improved by changes to the ATM system.

The safety events that appear within the technical field can impair the safety of ATM services. For this reason it is necessary, based on ESARR 2 principles, that such types of information are collected, analysed and appropriately stored in order to provide a better understanding of the causes which produced such an occurrence(s) and what remedial actions can be taken to avoid it happening again.

For ATC safety occurrences, there is considerable guidance material available to provide service providers, individuals reporting or investigating such events, and authorities with sufficient information about what is to be reported, the requested level of detail and the way an investigation shall be carried out. To assist everybody within this process, automated tools have been developed to help accident/incident investigators to collect, investigate, analyse and store these types of occurrences. Within the technical field there is less information and for this reason the Designated Authority, together with operating organisation, shall adapt the level of reporting detail and to establish a reporting scheme based on the same principles laid down in ESARR 2.

This will help Operating Organisations establish remedial actions for all safety events involving ATM equipment approved for operational use. The data available from this reporting system can then be used as an input to the performance measurement methodology which will allow the determination of the efficiency of the safety management system.

2.2.2.7 Requirement 5.3.2 g)

Content

"The Operating Organisation shall ensure that evidence exists, and is provided to the Designated Authority as required, of the qualification and competence of engineering and technical personnel to perform their operational safety related"

Rationale and Implications

It is known that, within the implementation of national legislation, the Designated Authority will develop the necessary rules for implementation and will verify how service providers/operating organisations will implement those provisions. In other words, the Designated Authority will conduct specific audit activities to verify compliance with national rules.

For this reason, this requirement calls for a documented process from the Operating Organisation personnel in order to be able to present the necessary evidences to the Designated Authority. This will help within the oversight activities (details on safety oversight activities are presented in EAM 5 / GUI 4). As a minimum, the evidences required by the Designated Authority are the list of qualifications for engineering and technical personnel and how they have to maintain their competence (training provided and assessments/checks performed in order to determine that such personnel are competent).

2.2.3 Requirements to be Applied by Individual Personnel

General

ESARR 5 places requirements and as such responsibilities on:

- Designated Authorities,
- ATM Service Providers/ Operating Organisation; and
- Individuals.

The same structure has been applied for other categories of ATM personnel having safety-related tasks, i.e. ATCOs, engineers and technical personnel undertaking operational safety related tasks.

The requirements in this section relate to individual personnel (engineers and technicians) undertaking operational safety-related tasks who have been declared as competent to perform the assigned tasks.

It should be noted that, for engineers and technical personnel undertaking operational safety-related tasks, the provisions of ESARR 5 do not mention a “licence” or a “certificate of competence” as a final product which will justify the competence of such personnel. This has been left to the discretion of States (Designated Authority and Operating Organisations) to decide what documents will describe the competence process for engineers and technical personnel. The final product of the competence process for engineers and technical personnel undertaking safety-related tasks shall not be related to a document, but to a list of phases that indicate such personnel have been found competent. For consistency and continuity of the licensing process, States could decide to introduce a licence or certificate of competence detailing the same level of information as for ATCOs.

2.2.3.1 Requirement 5.3.3.1

Content

This requirement states that:

“Individuals undertaking operational safety related tasks shall:

a) comply with requirements and schemes of the Operating Organisation to ensure current and ongoing competence;

b) comply with additional conditions that may be applied by the Designated Authority in accordance with section 5.3.1. para b above;

c) not undertake safety related tasks if they know or suspect that their physical or mental condition renders them unfit to undertake such tasks;

d) ensure that they have sufficient knowledge to enable a sound understanding of the:

i) ATM service(s) they are supporting, and the actual and potential effects of their work on the safety of those service(s);

ii) appropriate working limits to be applied when performing operational safety related tasks;

e) systematically and consistently report safety occurrences in accordance with the provisions laid down in ESARR 2 para. 5.1.2 and 5.1.3."

Rationale and Implications

Individuals also have responsibilities which have to be fulfilled, together with the internal procedures arranged by the Operating Organisation.

In order to be able to perform the assigned tasks, individuals have to remain competent during his/her entire job assignment. For this reason, engineers and technical personnel shall follow the competence schemes established by the Operating Organisation in order to maintain current competence and to ensure a process for ongoing competence.

Additionally, the Designated Authority will undertake safety oversight activities of the engineers and technical personnel within an Operating Organisation and could determine or impose supplementary conditions with which individuals would have to comply. In this case, the additional conditions will ensure that safety is preserved until remedial actions have been implemented.

It is firstly the responsibility of an individual not to undertake safety-related tasks when they are aware that their physical or mental condition renders them unfit for such tasks. The second step is to inform his line manager (supervisor) that his/her physical or mental condition does not allow him to undertake safety tasks.

Engineers and technical personnel shall be competent (trained and qualified) to provide the assigned tasks to support ATM services. In order to be trained and qualified, engineers and technical personnel shall understand and know about the ATM services they are supporting, the working limits when dealing with safety-related tasks and the effects of their work on the equipment as regards the safety of ATM services provided by ATCOs.

The Safety Occurrences requirement in ESARR 3 requires the ATM Service Provider/Operating Organisation to ensure that those ATM operational or technical occurrences considered as having significant safety implications are investigated immediately, and any necessary corrective actions taken. This allows the provider to take corrective actions which will ensure that all operations carried by that provider/organisation are still provided in a safe way.

2.2.3.2 Requirement 5.3.3.2

Content

This requirement states that:

"engineering and technical operational personnel shall initiate appropriate remedial measures, if the requirements laid down in ESARR 5 para. 5.3.3.1above, are not met."

Rationale and Implications

The safety management system principles (see ESARR 3) states that everyone involved in the safety aspects of ATM service-provision has an individual safety responsibility for their own actions, and those managers are responsible for the safety performance of their own organisations. Engineers and technical personnel are involved in the safety activities of the ATM Service Provider/Operating Organisation and as such they have the responsibility for their own actions.

Additionally, the safety objective of the safety management system 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.

Having said this, it can be concluded that when the requirements placed on the individuals (engineers and technical personnel) in ESARR 5, para 5.3.3.1 are not met, the individuals will have to take pro-active measures which will have a curative action within the system in place.

(End of Document)