EUROCONTROL Guidelines

**EUROCONTROL Guidelines for
the implementation of the Single EUROPEAN
Sky legislation by the military**

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EUROPEAN ORGANISATION
FOR THE SAFETY OF AIR NAVIGATION

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EUROCONTROL Guidelines for the implementation of the Single European Sky legislation by the Military

DOCUMENT IDENTIFIER: EUROCONTROL - GUID - 0131

Edition Number	:	1.0
Edition Date	:	14/07/2009
Status	:	Released Issue
Intended for	:	General Public
Category	:	EUROCONTROL Guidelines

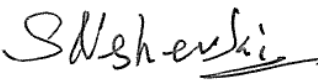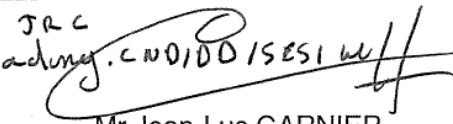# DOCUMENT IDENTIFICATION SHEET

DOCUMENT DESCRIPTION	
Document Title	
EUROCONTROL Guidelines for the Implementation of the Single European Sky legislation by the Military	

Document Identifier	**Edition Number :** 1.0
EUROCONTROL-GUID-0131	**Edition Date :** 14/07/2009

Abstract

This document provides details of the procedures and requirements applicable for the implementation of SES legislation by the national military administrations.

Keywords			
SES	Regulations	Military	Certification
Contact Person: Sasho NESHEVSKI	**Tel:** +32 2 729 3962	**Unit:**	DCMAC/CMF

DOCUMENT STATUS AND TYPE		
Status	**Intended for**	**Category**
Working Draft ☐	General Public ☑	EUROCONTROL Rule ☐
Draft ☐	Restricted ☐	EUROCONTROL Specification ☐
Proposed Issue ☐	EUROCONTROL ☐	EUROCONTROL Guidelines ☑
Released Issue ☑		

ELECTRONIC SOURCE		
Path :		
Host System	**Software**	**Size**
Microsoft Windows XP	Microsoft Word 2002	**Kb**

DOCUMENT APPROVAL

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

AUTHORITY		NAME AND SIGNATURE	DATE
DCMAC/CMF	Editor	Mr Sasho NESHEVSKI	16/07/09
Deputy Director SES Implementation (SESI)		Mr Jean-Luc GARNIER	16/07/09
On behalf of the Director General by special delegation, Deputy Director CND & Director CMAC and SESI		Mr Jean-Robert CAZARRÉ	16/07/09

DOCUMENT CHANGE RECORD

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

Edition Number	Edition Date	Reason for Change	Pages Affected
0.01	26/11/2008	Creation of the document	All
0.1	16/12/2008	Changes following SESIM TF review	All
0.2	19/01/2009	Changes following second SESIM TF review	All
0.3	20/03/2009	Changes following third SESIM TF review	All
0.4	08/05/2009	Changes following fourth SESIM TF review	All
0.5	20/05/2009	Changes following internal DCMAC review	All
0.6	24/06/2009	Changes following external stakeholder consultation	Multiple pages
1.0	14/07/2009	Released Issue	Multiple pages

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EXECUTIVE SUMMARY

Single European Sky (SES) legislation applies specifically to GAT and does not cover military operations or training but, where military authorities provide services primarily to GAT, its rules and regulations may be applied. Whilst military authorities are not obliged to comply with or implement SES legislation, several States have found benefits in doing so. This guideline document includes an overview of the SES legislation that is relevant to military stakeholders, identifying the potential benefits of implementation and offering generic guidance on implementation, together with an estimate of the likely effort required. It is acknowledged that any decision to implement SES by military authorities remains a State decision and, in accordance with the EUROCONTROL Regulatory and Advisory Framework (ERAF), these guidelines are voluntary and are not binding on States, but are developed *"as contributing to the establishment and operation of safe and efficient systems and services related to ATM in the EUROCONTROL Member States".*

In the Statement on military issues related to SES, Member States affirmed "the necessity to put into practice the legislative framework for the single European sky in a coherent and consistent way", and declared that they would "enhance civil military cooperation and facilitate cooperation between their armed forces in all matters of ATM". Taking into account the safeguards available to military authorities, it is considered beneficial to implement SES regulations where appropriate, if they do not have negative implications for military capability. Through greater commonality in air navigation service provision to GAT, civil-military cooperation will be enhanced, which will have a positive impact on both safety and efficiency.

These Guidelines focus on the original four SES regulations (framework, service provision, airspace and interoperability), together with the Common Requirements Regulation, the Safety Oversight in ATM Regulation and Air Traffic Controller (ATCO) Licence Directive. The impact for military authorities is different for each regulation. Key topics of the Framework Regulation are the separation of regulation from service provision and the relationship between the military authority and the National Supervisory Authority (NSA). The Service Provision Regulation focuses on certification where, notably in France, such certification has been undertaken with no apparent detriment to military capability. States whose military organisations have implemented EUROCONTROL Safety Regulatory Requirements (ESARRs) should also be well placed to implement this regulation. Implementing the Airspace Regulation has more of an impact in some States than in others, illustrating the danger of blanket implementation, but the judicious use of safeguards provides reassurance. The Interoperability Regulation has potentially the greatest financial impact for military authorities, but significant work has already been completed to minimise its impact on the defence budget. The Common Requirements Regulation aims to better harmonise ATS provision across the EU, where the control of GAT by uncertified military controllers may be an issue. The ATCO Licence Directive offers benefits including greater commonality of standards and achieving high levels of safety.

Potential risks that have been identified if military authorities implement SES include the impact on military preparedness for operations, concern over additional costs and a perceived loss of influence. If military authorities do not implement SES, risks identified include the legal implications if military services are implicated in air accidents, particularly if GAT is involved. It will also prove increasingly difficult to continue to provide exemptions for military authorities on safety and capacity grounds and to maintain equivalence in training regimes. The benefits identified if military authorities implement SES include demonstrable and quantifiable equivalence with civil counterparts, a stronger position in law and enhanced public perception. Greater civil-military harmonisation will make a positive contribution to safety and utilising joint infrastructure could potentially reduce costs. Greater military-military harmonisation and interoperability (including on operations) could also produce benefits in terms of enabling cross-border operations and facilitating the establishment of Functional Airspace Blocks (FABs).

Annex A to the document provides practical advice on implementation including examples of how to establish a supervisory authority for military ATM and compliance with the common requirements, possibly leading to certification of military ANSPs. It details how military ATCOs might be licensed, especially where they control GAT, and includes measures to address the interoperability Regulation. Further annexes detail the various approaches taken by military authorities in France, Italy and the UK. In France, military authorities have implemented the legislation directly, whereas in Italy parallel organisations and processes have been developed to mirror civil arrangements and in the UK equivalence is demonstrated through existing arrangements.

Whilst recognising that it will always be a decision for individual States, the implementation of SES legislation by military authorities can improve safety and enhance the overall efficiency of the European ATM system. Highlighting the safeguards in the SES legislation that protect military operations and training, the guidelines provide advice to military authorities who wish to implement SES and describe its potential benefits. In its capacity to provide support to States and encourage the application of best practice, EUROCONTROL DCMAC is available to offer further advice and assistance to the military authorities of any State wishing to implement SES legislation.

1 INTRODUCTION

1.1. Purpose

The purpose of this guideline document is to identify the potential benefits of implementing the Single European Sky (SES) legislation by military stakeholders. Generic guidelines are proposed for military administrations who would like to implement SES legislation, either fully or in part, together with an estimate of the likely effort required. The military authorities in several States are already very familiar with SES legislation, whilst others may not have such detailed knowledge. Therefore, these Guidelines include an overview of the SES legislation and its potential impact in addition to specific advice on implementation.

1.2. Scope

1.2.1 The European Organisation for the Safety of Air Navigation (EUROCONTROL) Guidelines for the implementation of the Single European Sky legislation by the Military (SESIM), fully respecting national prerogatives related to the subject matter, have been produced to support States' civil and military bodies and authorities in the decisions they take regarding the implementation of SES legislation.

1.2.2 The scope of the Guidelines covers the following regulations and Directive:

- Regulation (EC) No 549/2004 of the European Parliament and of the Council laying down the framework for the creation of the single European sky (the Framework Regulation)

- Regulation (EC) No 550/2004 of the European Parliament and of the Council on the provision of air navigation services in the single European sky (the Service Provision Regulation)

- Regulation (EC) No 551/2004 of the European Parliament and of the Council on the organisation and use of the airspace in the single European sky (the Airspace Regulation)

- Regulation (EC) No 552/2004 of the European Parliament and of the Council on the interoperability of the European Air Traffic Management network (the Interoperability Regulation)

- Directive 2006/23/EC of the European Parliament and of the Council on a Community Air Traffic Controller licence

- Regulation (EC) No 2096/2005 laying down common requirements for the provision of air navigation services

- Regulation (EC) No 1315/2007 (Safety Oversight in ATM – amending 2096/2005)

1.2.3 The Guidelines encompass SES I legislation. Further work should be done once SES II legislation is in place.

1.3. Applicability

1.3.1 By definition and in accordance with the EUROCONTROL Regulatory and Advisory Framework (ERAF), EUROCONTROL Guidelines are not binding for States, but are developed *"as contributing to the establishment and operation of safe and efficient systems and services related to ATM in the EUROCONTROL Member States".*

The application by States of all requirements/recommendations expressed in this document is therefore intended to be on a voluntary basis.

1.3.2 EUROCONTROL Guidelines may be used, inter alia, to support implementation and operation of ATM systems and services, and notably to:

a) complement ICAO Recommended Practices and Procedures;

b) complement EC legislation;

c) indicate harmonisation targets for ATM procedures;

d) encourage the application of best practice;

e) provide detailed procedural information.

1.3.3 While acknowledging the exclusive sovereignty of States in ATM matters relating to military operations and training, the need for harmonisation and support to States has been recognised. The document may be applied by military administrations and organisations involved in or responsible for military ATM regulation or the provision of air navigation services in EUROCONTROL Member States which are EU Member States and others which consider their application at national level beneficial.

1.4. Drafting Conventions

The following drafting conventions are used within the implementation guidelines contained in Annex A of this document:

a) **"Should"** – indicates those guidelines considered as fundamental for the implementation of SES legislation. National sovereignty and the consequent States' decision-making powers in relation to these guidelines are fully recognised.

b) **"May"** – indicates an optional requirement.

1.5. Document Management

This Guideline document has been drawn up by the Directorate of Civil-Military ATM Coordination (DCMAC) of EUROCONTROL. Stakeholder involvement and consultation has been ensured through the SESIM Task Force, composed of national experts. The document will be reviewed and updated as required.

1.6. Document Structure

This document is organised as follows:

- Section 1 outlines the purpose, scope, applicability, conventions used, document management and document structure;

- Section 2 discusses the overall applicability of the SES legislation and in particular applicability with respect to the military stakeholders;

- Section 3 focuses on the implementation of the SES legislation, giving an overview of each regulation and outlining the benefits of implementation by military authorities as well as the required effort. The concrete guidelines for implementation can be found at Annex A;

- The annexes contain more detailed information intended to support and facilitate implementation of the SES legislation by providing examples of best practices.

2 APPLICABILITY OF THE SINGLE EUROPEAN SKY LEGISLATION

2.1. Overall applicability

2.1.1.1 The SES legislation is applicable only to Member States of the European Union (EU) and those States that have signed an agreement with the EU which commits them to the application of the aviation *acquis communautaire*[1].

2.1.1.2 The SES legislation and regulatory framework is applicable only to General Air Traffic (GAT) and is mainly directed to civil Air Traffic Management (ATM), Communication/Navigation/Surveillance (CNS), Aeronautical Information Service (AIS), Meteorological (MET) and Airport service provisions.

2.2. Single European Sky legislation and the military

2.2.1.1 SES regulations do not cover military operations and training[2].

2.2.1.2 In the Statement by the Member States on military issues related to the Single European Sky first package, all Member States affirmed "the necessity to put into practice the legislative framework for the single European sky in a coherent and consistent way, taking full account of the needs related to national defence and security policy and international agreements.", and declared that they would "enhance civil military cooperation and, if and to the extent deemed necessary by all Member States concerned, facilitate cooperation between their armed forces in all matters of air traffic management, so as to make it possible to address relevant needs in the implementation of the regulatory framework for the single European sky"[3].

2.2.1.3 This should require concrete action from national military authorities, including military regulators and service providers, in order to achieve compliance with the requirements of the SES regulations. Since the European Community has no legislative power over national military services, a State has the freedom to decide whether or not it wishes to implement SES legislation by its military authorities. Notwithstanding the power of Member States to adopt provisions in relation to the organisation of their armed forces, whilst remaining cognisant of the safeguards available to the military, it is considered beneficial to implement SES regulations where appropriate, if they do not have negative implications for military capability. Through greater commonality, civil-military cooperation will be enhanced, which will have a positive impact on both safety and efficiency.

2.2.1.4 It should always be remembered that there is a fundamental difference between the requirements of the air transport system and associated air transport services and those of the armed forces of a State, which nevertheless share the same airspace. By acknowledging, understanding and accepting these differences it is however feasible to accommodate both requirements.

2.2.1.5 Fundamentally, national military ANSPs are not subject to certification if they are not primarily offering their services to GAT. In such a case the Member State shall inform the Commission and the other Member States of its decision and of the measures taken to ensure maximum compliance with the common requirements[4]. More

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[1] ECAA Agreement
[2] Framework Regulation, Article 1 (2)
[3] OJ L 96/1 EN, 31.3.04, p.9
[4] Service Provision Regulation, Article 7(5)

specifically, regarding service provision, this means that once a State has decided not to implement SES and has informed the EC accordingly, the services provided for OAT and made available to civil users by courtesy will be used under the discretion of the civil user. However, the SES regulations do not focus sufficiently on the potential impacts resulting from this arrangement. In this context the State nevertheless has an obligation to ensure the necessary level of safety of the services provided to GAT as well as to perform adequate safety oversight.

2.2.1.6 In addition to the obvious aspect of direct military Air Traffic Service (ATS) provision to civil aircraft or the civil co-use of military airfields, there is a wide variety of less obvious military service provision to GAT, such as CNS infrastructure, MET and AIS which in some States are of significant magnitude.

2.2.1.7 Whilst military authorities are not obligated to comply with or implement SES legislation, several States have found benefits in doing so. If military authorities do not at least analyse the legislation in detail, they may fail to identify or thereafter to capitalise on such potential benefits.

3 IMPLEMENTING THE SINGLE EUROPEAN SKY LEGISLATION

3.1. Overview

3.1.1.1 The impact of the implementation of SES legislation by military authorities is different for each regulation. The key area for discussion as regards the framework Regulation is the relationship between the military authority and the National Supervisory Authority (NSA). The service provision Regulation offers many opportunities for military authorities, should they wish to implement SES. In some Member States, notably France, certification has been undertaken without any apparent detriment to military capability. Those States whose military organisations have implemented EUROCONTROL Safety Regulatory Requirements (ESARRs), which have been transposed into EC law, should also be well placed to implement this Regulation. Implementation of the Airspace Regulation could have greater implications for some Member States than for others, illustrating the danger of blanket implementation, but once again the judicious use of safeguards should provide reassurance. The interoperability Regulation has potentially the greatest financial impact for military authorities, but significant work has already been completed, for example on 8.33 kHz Voice Channel Spacing, to minimise this impact on the defence budget. The common requirements Regulation aims to better harmonise ATS provision across the EU and control of GAT by uncertified military controllers causes some concern. However, where military authorities have implemented the ESARRs, there is already significant commonality between civil and military ATS provision. Lastly, as regards the Air Traffic Control Officer (ATCO) Licence Directive, if the ATCO 'market' is opened up, there is a degree of apprehension over the retention of military staff.

3.1.1.2 In addition to the impact of individual regulations, when one considers the SES legislative package and the ATM environment as a whole, significant benefits could accrue if military authorities implement SES. ATM could become safer through greater commonality both within Europe and in military operations outside Europe; enhanced interoperability could lead to better utilisation of existing infrastructure and potentially of joint operations, and financial assistance may be made available to military authorities to ease the burden of implementation.

3.1.1.3 At State level, significant political and economic benefits could be achieved through enhancing civil-military coordination and cooperation based on transparency, trust, political credibility and recognition of the capability of military ANSPs to provide safe, efficient and cost-effective services to GAT, for example at military aerodromes.

3.1.1.4 Potential risks that have been identified if military authorities implement SES include the impact on military preparedness for operations, concern over additional costs and a perceived loss of influence or 'control'. If military authorities do not implement SES, risks identified include the legal implications in cases in which military services would be implicated in air accidents, particularly if GAT is involved. It will also prove increasingly difficult to continue to provide exemptions for military authorities on safety and capacity grounds and to maintain equivalence in training regimes. However, the benefits identified if military authorities implement SES include demonstrable and quantifiable equivalence with civil counterparts, a stronger position in law and enhanced public perception. Greater civil-military harmonisation will make a positive contribution to safety and utilising joint infrastructure could potentially reduce costs. There is also potential for recovery of funds and financial assistance from civil stakeholders. Greater military-military harmonisation and interoperability between Member States (including on operations) could also produce benefits in terms of enabling cross-border operations and facilitation of the establishment of Functional Airspace Blocks (FABs).

3.2. Regulation (EC) No 549/2004 (the Framework Regulation)

3.2.1 Overview

3.2.1.1 The Framework Regulation underpins all SES legislation. Key to this Regulation from a military perspective is Recital 5, which states, "Decisions relating to the content, scope or carrying out of military operations and training do not fall within the sphere of competence of the Community".

3.2.1.2 Although military operations and training do not fall within the sphere of competence of the Community, the Member States' statement on military issues relating to SES[5] seeks to enhance civil-military cooperation and to facilitate cooperation between their armed forces in all ATM matters. Such enhancement could be achieved by military authorities within a Member State deciding to implement SES regulations. Indeed, some States have chosen to do exactly that. While this may be perceived as losing 'control', as long as the military safeguard clause (Article 13) is retained and enforced as appropriate, the principle should not cause disquiet amongst military stakeholders. Article 1 of the Regulation explicitly states that it is without prejudice to Member States' sovereignty over their airspace and their requirements relating to public order, public security and defence matters.

3.2.1.3 The Framework Regulation requires that an NSA is established to verify compliance and that it should be independent of service providers, i.e., there should be adequate separation of regulation and service provision at functional level. There are many different structures and arrangements for the organisation of military authorities across Europe and their relationship with NSAs. Military authorities within some Member States have already achieved a degree of separation between regulation and service provision and lessons learned and best practice can be shared with other States that have yet to embark upon the process. Some States have set up their own Military Supervisory Authority (MSA), whilst others have embedded military staff within the existing NSA to provide separation between the regulator and service provider. It should be recognised that there are no one-size-fits-all solutions.

3.2.1.4 Whilst Member States have restructured, and to varying degrees increased, the autonomy of their civil ANSPs, there has been less of a move towards the separation of regulation and service provision by military authorities and there is a risk that military authorities may not see the benefit of such separation. Where military authorities are convinced of the safety and efficiency benefits, having previously acknowledged their equivalence in the level of safety and quality of services provided to GAT, they should already have the necessary technical experience to ensure compliance and demonstrate the same uniform and high safety standards as their civil counterparts, if they were to implement the regulations.

3.2.1.5 Central to the Framework Regulation is the view that the Community should develop close cooperation with EUROCONTROL to ensure regulatory synergies and consistent approaches, and avoid duplication[6]. As EUROCONTROL is the only formally recognised organisation with a civil-military remit, it is ideally placed to encourage the implementation of SES regulations by national military authorities for mutual benefit, and military authorities have been able to participate fully in the development of SES Implementing Rules (IRs) through EUROCONTROL processes.

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[5] OJ L 96/1 EN, 31.3.2004, p.9
[6] Framework Regulation, Recital (14)

3.2.2   Benefits of implementation by the military

3.2.2.1   The objective of SES is to enhance current safety standards and overall efficiency for GAT in Europe, to optimise capacity, meeting the requirements of all airspace users, and to minimise delays. This is to be achieved by the establishment of a harmonised regulatory framework. Whilst acknowledging the military safeguard clause, the establishment of a harmonised regulatory framework for ATM brings **direct benefits through ensuring that high levels of safety in Air Navigation Services (ANS) are both achieved and maintained as well as through enhancing European ATM system efficiency.** This applies to the civil community as well as to its military counterpart.

3.2.2.2   For authorities that intend to certify their military ANSP and/or to license military ATCOs in accordance with the SES legislation, it is a pre-requisite that an NSA should have responsibility extending to military ATM. There are different ways to do this, e.g. by embedding suitably qualified military personnel within the existing NSA and extending the competence of the existing NSA or by setting up a new organisation that meets the same criteria. If States do not intend to certify their military ANSP or license military ATCOs, the benefits of separation of regulation from service provision can still be achieved by the establishment of a 'military' supervisory body to act as the military ATM regulator, i.e. to perform the NSA functions for military ATM.

3.2.2.3   An MSA could be nominated or established by the appropriate legal means, e.g. through acts, regulations, directives, protocols, etc. Where an MSA is established, the 'boundaries' relating to liability, financial arrangements and sanctions should be agreed between the military and civil authorities.

3.2.2.4   The Framework Regulation establishes a Single Sky Committee (SSC) composed of two representatives of each Member State and chaired by a representative of the Commission. By design, the Committee ensures appropriate consideration of the interests of all categories of users. The EC addressed States requesting that two Members per State be nominated. In their letter (early 2004) they advise States to have one military representative. In the Statement by the Member States on military issues related to the Single European Sky, the Member States declare that they will ''ensure that the interests of Member States' military users of airspace will, where relevant, be represented in the whole development, decision-making process and implementation of the single European sky, including the SSC set up under Article 5 of Regulation (EC) No 549/2004 (framework Regulation)''[7]. **Military participation in the SSC has proved beneficial in terms of giving balanced consideration to the benefits for all stakeholder groups.**

3.2.2.5   The safeguards in Article 13 of the Framework Regulation appropriately cover those circumstances that impact on essential security or defence policy interests. Therefore, taking those safeguards into account, it should still be possible for national military authorities **to implement the SES regulations for the overall benefit of both the European ATM system and to enhance safety and efficiency for all stakeholders – civil as well as military.**

3.2.2.6   A potential risk which may discourage national military authorities from implementing SES regulations will be the requirement to submit to effective, proportional and dissuasive sanctions, which may be imposed by the NSA. However, if a form of MSA is established, how such sanctions are dealt with would also have to be negotiated and agreed. Similarly, Member States have to submit annual reports to the

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[7] Statement by the Member States on military issues related to the Single European Sky, OJ, L EN 96/9, 31.3.04

Commission on progress on the implementation of the Framework Regulation. Since the Commission does not have competence for defence, Member States would need to agree before implementation what information on military participation should be shared with the Commission.

3.2.2.7 The Framework Regulation sets out the definitions to be used in the harmonised regulatory framework for the creation of the Single European Sky. As a first step towards compliance with and implementation of SES regulations, **it will be beneficial if national military authorities use the same definitions as those that appear in the Regulation.**

3.2.3 Required effort

3.2.3.1 Experience gained by France in ANSP certification has made it possible to determine the associated effort. In this case the long process started with ESARR 3 transposition in 2004 and finished with the issuing of a Single Sky certificate in 2007. The following description provides an indication of the actual effort deployed to achieve certification of military ANSPs.

- The MSA was established in September 2005; the staff appointed numbered six officers and one secretary.

- Annual operating costs for the MSA could amount to approximately €100 000.

- Initial training of personnel had to be provided. Due to the turnover of staff, training courses at IANS need to be provided to two persons per year.

- 'Blank' audits (to establish the initial situation) against ESARR 3 transposition started in December 2005. In total 29 audits were conducted before initial certification. Certification was granted to the main providers in June 2007. Workload ranged from 0.29 to 2.25 Full Time Equivalent (FTE) oversight staff for each provider certified.

- The Air Force provider has 22 units. For certification one blank audit of the HQ was conducted and 10 units and the HQ were audited for the issuing of the certificate.

- In the Army and Navy, one blank audit of the HQ was conducted; 2 Army and 4 Navy units plus the HQs were audited for the issuing of the certificate.

- For the AIS provider, one blank audit of the unit was conducted; the unit was audited again for the issuing of the certificate.

3.3. Regulation (EC) No 550/2004 (the Service Provision Regulation)

3.3.1 Overview

3.3.1.1 The Service Provision Regulation concerns the provision of ANS in the single European sky. Its objective is to establish common requirements for the safe and efficient provision of ANS in the Community and applies to service provision to GAT in accordance with and within the scope of the Framework Regulation. The Regulation establishes rules for the provision of ANS as well as the common requirements against which ANSPs are certified.

3.3.2 Benefits of implementation by the military

3.3.2.1 The Service Provision Regulation states that the 'establishment of a harmonised organisation for the provision of air navigation services' is important to regulate air

traffic safely and efficiently[8]. If military service provision is better integrated and harmonised with civil service provision, both safety and efficiency can be improved.

3.3.2.2   Furthermore, the introduction, regulation and supervision of FABs could prove more straightforward if separation of military regulation and service provision were achieved.

3.3.2.3   Recital 13 of the Regulation recommends that CNS and AIS provision should be 'organised under market conditions'. Where CNS provision is currently provided by military authorities, there may be potential to generate income from such service provision. Where military authorities provide services to civil aircraft, if they have implemented SES regulations then they **may stand more chance of recovering their costs for the provision of CNS services or indeed generating income under the principle of 'user pays'.** If military authorities within States were subject to the SES regulations (e.g. certification), they **could potentially benefit from financial aid** for measures to increase ATM capacity granted under programmes by the European Commission.

3.3.2.4   ANSPs are also advised to establish and maintain close cooperation with military authorities responsible for activities that may affect GAT[9]. The more closely military authorities are aligned with their civil counterparts, the easier it will be to maintain such close cooperation. Hence, if military authorities were to comply with SES regulations, then there would be less chance of discord between them.

3.3.2.5   For GAT, relevant operational data is exchanged in real-time between all ANSPs, airspace users and airports, to facilitate their operational needs. Although the exchange of operational data between military authorities and their civil counterparts is well established in some Member States, in others this may not be the case and there may be some sensitivity and therefore risk to implementation. Similarly, under Article 18, which deals with confidentiality, if national military authorities were to implement SES regulations, they would have to be completely satisfied that any information of a classified nature disclosed to the NSA (for example of equipment performance or military operations) would not be divulged.

3.3.2.6   At the time of issue of this document only France has certified its military ANSPs in accordance with SES legislation. Italy, on the other hand, has developed comparable structures and processes to replicate SES and although some States have yet to decide, military authorities in other States appear content to achieve equivalence through their own regulatory processes.

3.3.2.7   While a Member State may allow the provision of air navigation services without certification in cases where the provider of such services offers them primarily to aircraft movements other than GAT, the Member State shall still inform the Commission and the other Member States of its decision and of the measures taken to ensure maximum compliance with the common requirements[10]. This being the case, it could be argued that rather than having a separate measure of compliance, **it would be easier for those service providers to comply with the Regulation from the outset.** Compliance monitoring would require careful consideration and, as mentioned earlier, because implementation by military authorities will in most cases be voluntary, additional safeguards would need to be agreed to deal with any censure by the NSA or revocation of a certificate held by a military service provider.

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[8] Service Provision Regulation, Recital (4)
[9] Service Provision Regulation, Recital (16)
[10] Service Provision Regulation, Article 7(5)

3.3.3   Required effort

The implementation of the Regulation requires effort on the part of the military ANSPs to comply with the common requirements. For more details on the effort required, see paragraph 3.6.3 below as well as Annexes F and G.

3.4.   Regulation (EC) No 551/2004 (the Airspace Regulation)

3.4.1   Overview

3.4.1.1   The Airspace Regulation has evolved from the conclusions of the High Level Group (HLG)[11] 2000, which included several senior military representatives, and which considered that airspace should be designed, regulated and strategically managed on a European basis.

3.4.1.2   The creation of the Single European Sky requires a harmonised approach to the regulation of the organisation and use of airspace through the progressively more integrated management of airspace and the development of new air traffic management concepts and procedures.

3.4.1.3   Article 1 of the 1944 Chicago Convention on Civil Aviation states that "every State has complete and exclusive sovereignty over the airspace above its territory"; at the same time, the airspace is a common resource for all categories of users and it needs to be used flexibly by all of them[12].

3.4.1.4   The Airspace Regulation provides for progressively more integrated operating airspace within the context of the common transport policy and establishment of common procedures for design, planning and management, which will ensure the efficient and safe performance of air traffic management.

3.4.1.5   The Airspace Regulation requires uniform application within the Single European Sky of the concept of the Flexible Use of Airspace (FUA) taking into account the organisation of military aspects under the responsibility of Member States. This requirement is reinforced by Regulation (EC) No 2150/2005 of 23 December 2005 laying down common rules for FUA and is supported by the EUROCONTROL Specification for the Application of FUA of 1 July 2008.

3.4.2   Benefits of implementation by the military

3.4.2.1   The use of airspace has to be arranged in a fair and transparent way. As each individual Member State is an integral element of the European Air Traffic Management Network (EATMN), this can only be fully achieved if all Member States apply common principles and criteria.

3.4.2.2   As recital (6) of the Airspace Regulation takes into account the "security and defence needs of Member States and their commitments within international organisations" and recital (17), "Military operations and training should be safeguarded whenever the application of common principles and criteria is detrimental to their safe and efficient performance", provides for an adequate safeguard of military requirements regarding operations and training - the implementation of the Airspace Regulation does not bear significant risks for military authorities.

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[11] Single European sky – Report of the high-level group, European Commission, November 2000
[12] For more information see DCMAC Study ''Sovereignty in Aviation'', Edition 1.0, edition date 6.2.09

3.4.2.3   Future benefits of the development and introduction of FABs include the opportunity to establish more Cross Border Areas (CBAs), enabling more Cross-Border Operations (CBOs). Specific benefits include:

- better access to airspace to satisfy the requirements of new military platforms;

- reduced cost of training;

- saving in transit time;

- increased operational time;

- increased efficiency;

- better exchange and sharing of information between civil and military ATM in support of ATM and airspace security requirements.

3.4.2.4   Benefits from the optimal use of airspace include better accommodation of operational requirements in terms of volume and occupation time of reserved airspace.

3.4.2.5   Benefits from the use of common principles, standards, practices and procedures include:

- higher levels of safety;

- facilitation of the development and implementation of Europe-wide OAT transit service;

- better military-military ATM coordination;

- increased trust between civil and military service providers and users;

- greater commonality in ATM.

3.4.2.6   The PRC report on the 'Evaluation of Functional Airspace Block (FAB) initiatives and their contribution to Performance Improvement', released in October 2008, identified the fact that "most significant progress has taken place where there was a proper involvement of all key stakeholders (States, staff, military and airspace users) as well as cooperation between NSAs". Therefore, Recommendation 5 of the Report suggests that ''all stakeholders, including the military, airspace users and staff representatives should be adequately involved in FAB initiatives. In particular it is necessary … to address military issues and civil-military coordination."[13]

3.4.3   Required effort

3.4.3.1   The effort needed to implement the Regulation is mainly related to the need to properly implement FUA, as well as to move towards a more harmonised approach to the regulation of the organisation and use of airspace. The introduction of a more integrated airspace management of airspace and the development of new concepts and procedures in ATM will require significant changes, which will entail considerable coordination effort. Appropriate joint civil-military bodies will have to be established to deal with issues related to collaborative decision-making in the FAB context.

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[13] ''Evaluation of Functional Airspace Block (FAB) initiatives and their contribution to Performance Improvement'', Report, produced by the EUROCONTROL Performance Review Commission upon the invitation of the European Commission DG-TREN, October 2008,

3.5. Regulation (EC) No 552/2004 (the Interoperability Regulation)

3.5.1 Overview

3.5.1.1 The objective of the Regulation is to achieve interoperability between the various systems, constituents and associated procedures of the EATMN, taking due account of other relevant international legislation and protocols. The Regulation aims to ensure the coordinated and rapid introduction of new agreed and validated concepts of operations and technology in ATM. It specifies applicable systems, their constituents, associated procedures and the essential requirements that they are required to meet, including civil-military coordination.

3.5.1.2 The Regulation states that the EATMN, its systems and their constituents shall support the progressive implementation of civil/military coordination to the extent necessary for effective airspace and air traffic flow management, and the safe and efficient use of airspace by all users, through the application of the concept of FUA. It specifies that to achieve these objectives, the EATMN shall support the timely sharing of correct and consistent information covering all phases of flight between civil and military parties, taking into account national security requirements where appropriate[14].

3.5.1.3 The Interoperability Regulation is the most complex of all of the regulations and has potential to have major cost implications for military authorities, all of whom face significant and continuing budgetary pressures. It is normally the case that military planning and procurement processes focus on the 'war fighting' capability of particular equipment and not its interaction and compatibility with civilian ATM processes, procedures and infrastructure. However, if procedures can be put in place for timely interaction with organisations responsible for military planning and procurement to ensure the greater harmonisation of ATM infrastructure, there could be real economic benefits for all stakeholders. This could be achieved if the ATM dimension is taken into account appropriately when requirements for military systems are first identified.

3.5.1.4 For military planning and procurement organisations to undertake to implement the Interoperability Regulation, senior military managers with the authority to allocate funds have to be convinced that this is an appropriate course of action by a thorough and compelling cost-benefit analysis. Whilst subject matter experts who interface directly with ATM at European level will have an understanding of the Regulation and its implications, they may not be connected directly with their counterparts in the military planning and procurement process. Even then, the timescales involved in the procurement process would mean that this could not be achieved for several years. It is envisaged that as SESAR develops, arrangements will improve, but expectations should nevertheless be managed accordingly.

3.5.2 Benefits of implementation by the military

3.5.2.1 As military aircraft operate in the same continuum of airspace as that to which SES applies, it is inevitable that some elements of the Interoperability Regulation will impact on military airspace users and ANSPs. Senior military decision makers need to be constantly reminded of the potential impact of SES, to be prepared to make timely decisions to minimise any potentially negative impacts. If requirements for meeting SES are included early enough in the planning and procurement cycle, **then costs may be minimised**. Whilst some SES-related issues such as the introduction of 8.33 kHz channel spacing are already regulated, the difficulties and effort that resulted for military authorities should help to convince stakeholders of the benefits of early action.

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[14] Interoperability Regulation, Annex II, Part A (4)

3.5.2.2   Often, States' military authorities require high-priority access to airspace. **Using interoperable systems is a key requirement for achieving and maintaining safety when operating in the same volume of airspace in a mixed-mode environment.** In this context a common civil-military performance-based approach for the development of aviation standards should be pursued. Such an approach should ensure civil-military system interoperability and should lead to the maximum re-use of military systems offering an equivalent level of performance, thus **providing benefits for the military by minimising the impact of ATM costs on military budgets**. This performance-based approach should also support equivalent verification of compliance and/or equivalent certification of military systems supporting ATM functions. Where national military authorities elect to implement the Interoperability Regulation, the demarcation of responsibility with the NSA is of fundamental importance. This is particularly valid for the requirement set out in Article 8 regarding the assessment of conformity.

3.5.2.3   Some States appear to be well-advanced with regard to ATM/CNS infrastructure conformity in accordance with SES. ATM system procurement appears to be moving closer to commercial off-the-shelf (COTS) solutions, which are likely to already be SES compliant. Additional military-specific requirements inevitably equate to additional costs. It should be easy to convince military decision makers that only absolutely essential military-specific ATM/CNS requirements should be considered. **In this context, an approach to military equipment to be "as civil as possible and as military as required" is already being applied and is proving to be a very appropriate and efficient solution.**

3.5.2.4   At the same time civil ATM requirements not intended to generate particular benefits for the military should be supported **by appropriate funding/incentive mechanisms minimising the financial burden on MOD budgets.**

3.5.2.5   Some States have already taken steps to identify a 'notified body' within the Defence Ministry. Specific plans to involve the armament directorates at MOD level with a view to better integrating ATM equipment acquisition through formal recognition of the requirements of the Interoperability Regulation and the associated Implementing Rule (IR) and Community Specifications (CS) **should result in benefits through synergies and optimisation of resources needed and lower system procurement and maintenance costs.**

3.5.2.6   With regard to Annex II (Essential Requirements) Part B, work is needed to take account of the specific requirements of the Interoperability Regulation and their implications for military or joint military-civil systems. In this context, the military authorities should establish close coordination with the NSA to address regulation of joint-use systems.

3.5.2.7   Looking at regulation rather than procurement, in some States the management of the aeronautical spectrum is already conducted by joint civil-military organisations for the mutual benefit of all stakeholders. Similarly, several States already have integrated civil-military systems (e.g. for flight data processing (FDP)) and there may already be high levels of interoperability within a State between military infrastructure and the EATMN, making partial implementation of the Regulation straightforward for some military authorities.

3.5.2.8   It should be pointed out that implementation of the Interoperability Regulation in practice means complying with the essential requirements and the IRs for interoperability developed whenever necessary to achieve in a coherent way the objectives of the Regulation. A number of such IRs have been issued; others are in the process of development (see Annex E for details). National military authorities

already have the opportunity to comment on the draft IRs for the SES legislation, developed by EUROCONTROL at the EC's request, through the mechanisms of the EUROCONTROL Notice of Proposed Rule-Making (ENPRM) process and associated national procedures. Consultation activities, which are part of the ENPRM mechanisms, are essential to ensure that draft IRs are wholly appropriate and do not set precedents that could in future mean either that military operations are prejudiced, or that military authorities are faced with high implementation costs. The drafting of the Air-Ground Voice Channel Spacing (VCS) IR is a good example of where concerted efforts by military and State subject-matter experts were required to ensure that military operations were not prejudiced.

3.5.2.9 Attention should also be paid to CSs which constitute the appropriate means of defining the technical and operational conditions necessary to meet the essential requirements and relevant IRs for interoperability. Compliance with published CS, which remains voluntary, creates a presumption of conformity with the essential requirements and the relevant IRs on interoperability. CS might contain technical details with a military impact.

3.5.2.10 Many of the arrangements for joint-use of equipment pre-date SES and do not therefore take it into account. As a result of the requirement for existing systems to become SES compliant by 2011, arrangements will have to be updated through re-negotiation of the existing agreements and all further developments should be closely monitored.

3.5.3 Required effort

3.5.3.1 The Regulation could potentially have major cost implications for military authorities and could place significant pressure on MOD budgets. Dedicated effort is needed on the part of national military authorities in order to ensure their involvement in the development of IRs on interoperability.

3.5.3.2 To minimise cost implications, considerable effort needs to be dedicated to the coordination of civil and military ATM CNS requirements well in advance in order to effectively take account of the ATM requirements in the military procurement processes.

3.6. Regulation (EC) No 2096/2005 (Common Requirements)

3.6.1 Overview

3.6.1.1 Pursuant to the Service Provision Regulation, the Common Requirements Regulation lays down common requirements for the provision of ANS in the European Community. The provision of ANS within the Community should be subject to certification by Member States. Those ANSPs which may operate without a certificate (including by default military ANSPs) should endeavour to ensure maximum compliance with the common requirements as far as their legal status allows.

3.6.1.2 The preamble to this Regulation reinforces the military safeguard stating that, 'the common requirements should not cover military operations and training within the scope of Article 1(2) of Regulation (EC) No 549/2004'. Member States, if they so wish, may take the decision to implement the Regulation at national level.

3.6.1.3 The Common Requirements Regulation identifies and adopts the mandatory provisions of ESARRs, which are of the highest importance for the safe provision of ATS. Pursuant to the Service Provision Regulation, this Regulation identifies and adopts the relevant provisions of ESARR 2 on the reporting and assessment of safety

occurrences in ATM, ESARR 3 on the use of Safety Management Systems (SMS) by ATM service providers, ESARR 4 on risk assessment and mitigation in ATM, ESARR 5 on ATM services' personnel, and ESARR 6 on software in ATM systems. The provisions of ESARR 5 on ATCOs are covered by EC Directive 2006/23 (Community Air Traffic Controller Licensing) and are outside the scope of this Regulation.

3.6.1.4 Provision of ANS may be allowed without certification if the services are not primarily offered to GAT. In such a case the Member State still has to ensure maximum compliance with the common requirements and equivalent level of safety[15].

3.6.2 Benefits of implementation by the military

3.6.2.1 National military authorities wishing to implement the Service Provision Regulation should comply with the provisions of the Common Requirements Regulation in order to certify their military ANSPs.

3.6.2.2 The application of common requirements to ANSPs should be 'proportionate to the risks linked with the specific features of each service such as the number and/or the nature and characteristics of processed movements.'[16]. The principle of proportionality supports the voluntary application of the Common Requirements Regulation by national military authorities. Based on it, national military authorities may consider that it is proportionate to apply certain specific common requirements of the Regulation wherever this might be seen to improve or enhance safety. In such cases the Regulation requires that conditions attached to the certificate should reflect the nature and the scope of the derogation.

3.6.2.3 Compliance with and implementation of ESARRs by military authorities should already have been undertaken, and military authorities which have implemented ESARRs should be well placed to implement this Regulation.

3.6.2.4 The establishment of a well organised safety management function 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.

3.6.2.5 Military authorities who intend to implement this Regulation and already have safety management arrangements in place can demonstrate equivalent performance as the means of compliance with the provision of ESARR 3.

3.6.2.6 The competence of ATM personnel and, where appropriate, their meeting of medical requirements, are fundamental elements of safety achievement and management in the provision of ATM service. The requirements for engineering and technical personnel who undertake operational safety-related tasks apply to military authorities and their personnel providing services to ATM equipment approved for operational use in a mixed civil-military environment, unless an equivalent military engineering regulatory framework already exists.

3.6.2.7 In those States where military authorities have implemented ESARRs, there is already significant commonality. The greater the commonality that exists, either military to military or military to civil, the easier it will become for ANSPs - military or civil - to participate in cross-border operations. This will harmonise the minimum safety levels of provision of service and consequently will provide better access to airspace for military users as SES becomes more mature.

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[15] the Service Provision Regulation, Article 7(5)
[16] Regulation (EC) No 2096/2005 (Common Requirements), Recital (5)

3.6.2.8   For some military authorities wishing to certify their military ANSPs, it may be appropriate to seek derogation. However, if cross-border operations are planned or already undertaken, then derogation would not be appropriate, due to the commitments already undertaken by the participating States.

3.6.2.9   In the long term it may prove more efficient and less costly to have regulatory structures and processes in place that mirror those of civil counterparts. Nevertheless, it is also recognised that implementing such change could have a short-term impact on already stretched military staff resources.

3.6.2.10 For those States considering implementation, the completion of a gap analysis to identify the differences between existing military arrangements and the common requirements will give an indication of the likely workload and effort required to comply.

3.6.3   Required effort

3.6.3.1   The significant effort required by MSAs and military ANSPs should not be underestimated. In France a period of one-and-a-half years was necessary to achieve compliance with minimum requirements, including Safety and Quality Management System (SQMS), organisational structure, safety assessment and mitigation processes annual reporting and security management. The specific ANSP's effort is given in the table below.

Processes	Major ANSP	Other ANSP
Staffing for SMS	HQ: 4 FTEs (2 officers and 2 NCOs) Units: 1 FTE/Unit	HQ: 1 to 2 FTEs Units: 1 FTE/Unit
Audits	Use of the 4 FTEs + audit qualified officer from units. For the period 2007-2008, between 8 and 18 audits were carried out by military ANSPs to verify that their units complied with their management system.	Use of the 1 to 2 FTEs + audit qualified officer from units
Incident investigation	Around 800 incidents to be investigated at local or national level.	Around 100 incidents to be investigated at local or national level.

3.6.3.2   If States make the effort to prove that military ANSPs providing ANS to GAT have achieved maximum compliance with common requirements, then the additional effort necessary to fully certify the military ANSPs would not be significantly higher.

3.7. Directive 2006/23/EC (Community Air Traffic Controller Licence)

3.7.1 Overview

3.7.1.1 The objective of the Directive is to increase safety standards and to improve the operation of the Community air traffic control system through the issuing of a Community air traffic controller licence.

3.7.1.2 The Directive applies to student air traffic controllers and air traffic controllers exercising their functions under the responsibility of ANSPs which offer their services primarily to GAT[17]. Member States shall ensure that air traffic controllers are sufficiently trained in safety, security and crisis management.

3.7.1.3 The Directive specifies that the provision of training to ATCOs, including related assessment procedures, shall be subject to certification by the NSA[18]. The requirements to be met by training providers in order to be certified are detailed in Annex IV, paragraph 1 of the Directive. They include *inter alia* the requirements related to the content, organisation and duration of the training courses, the qualifications of the trainers and the necessary facilities and equipment, including that needed for simulation training.

3.7.1.4 Where Member States take action to ensure compliance with Community requirements, the authorities performing supervision and verification of compliance should be sufficiently independent of ANSPs and training providers. The NSA nominated or established under the Directive may be the same body or bodies nominated or established in accordance with Article 4 of the Framework Regulation.

3.7.1.5 The introduction of a Community licence is a means of recognising the specific role which ATCOs play in the safe provision of ATC. The establishment of Community competence standards will also reduce fragmentation in this field, making for more efficient organisation of work in the framework of growing regional collaboration between air navigation service providers. This Directive is therefore an essential complement to SES legislation.

3.7.1.6 Pending the entry into force of SES II legislation, there are likely to be changes in the ATCO licensing and certification of training providers, including additional competencies of EASA in that field. Once SES II legislation is in place, an analysis needs to be conducted in order to assess the possible implications for military authorities.

3.7.2 Benefits of implementation by the military

3.7.2.1 The primary responsibility of the armed forces of a State is to defend that State and its interests. When defending those interests in coalition and cooperation with the armed forces of other States on deployed operations, or executing CBOs and multinational military exercises, it benefits all stakeholders if this can be achieved with less risk, greater safety and efficiency and in better military-military cooperation.

3.7.2.2 Implementation of the ATCO Licensing Directive would engender greater commonality and standardisation of military controllers, which would be beneficial not only when executing CBOs, NATO-led operations and multinational military exercises, but also where military ANSPs provide regular ATS to GAT.

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[17] Directive 2006/23/EC, Article 1(2)
[18] Directive 2006/23/EC, Article 13

3.7.2.3 Military ATCOs licensed under the Directive would clearly demonstrate that the level of safety of ATS provided by them is at least equivalent to civil ATCOs. This increases the credibility of military ATCOs when providing services to GAT. Furthermore it will support the implementation of a Europe-wide OAT transit service and will enhance cooperation between the civil and military controllers as regards either the co-location or integration of regional ATC structures, ensuring safer use of shared airspace and mixed operations.

3.7.2.4 **There would be a legal benefit for the State in either applying the civil ATCO licensing scheme to military ATCOs or at least aligning the military licensing scheme with the civil licensing scheme in cases where military ATCOs provide ATS to GAT**.

3.7.2.5 Pursuant to Article 1.2 of the ATCO Licensing Directive, the Directive applies to ATCOs working for ANSPs providing their services primarily to GAT.

3.7.2.6 However, Article 1.3 of the Directive states that in cases where ATC services are provided to GAT by ANSPs providing their services primarily to non-GAT (e.g. military ANSPs providing services to OAT): "the [EC] Member States shall ensure that the level of safety and quality of the services to GAT is at least equivalent to the level resulting from the application for the provision of this [ATCO] Directive".

3.7.2.7 States should therefore consider
- either the application of the civil scheme (i.e. conforming with the Directive's licensing scheme for military ATCOs providing services to GAT)
- or, with the objective of 'ensuring the equivalent level of safety and quality of services', align the military licensing scheme with the civil licensing scheme.

3.7.2.8 It should be noted that if ever insufficient training of a military ATCO were to be established as one of the causes of an incident, non-compliance with Article 1 may be used by the court to the detriment of the State.

3.7.2.9 Where Member States have to ensure that the level of safety of ATS provided by military ATCOs is at least equivalent to the Directive, it may prove quite straightforward to amend processes to implement the Directive, rather than establish mirrored processes and procedures to demonstrate equivalence. Where military authorities have implemented ESARR 5 fully, there should already be a high level of equivalence.

3.7.2.10 There is a possible risk that the implementation of the Directive would exacerbate the problem of staff retention. However, the application of the Community licence is not thought to be the main driver of or the most decisive factor for staff migration. This issue can be effectively regulated at State or organisational level.

3.7.2.11 Implementation of SES legislation requires the establishment of more detailed legislation, in particular concerning the licensing of air traffic controllers, in order to ensure the highest standards of responsibility and competence, to improve the availability of air traffic controllers and to promote the mutual recognition of licences, while pursuing the objective of an overall improvement in air traffic safety and competence of personnel.

3.7.3 Required effort

3.7.3.1 The effort to implement the Directive is mainly generated by the requirement to certify the training providers, including training programmes, trainers and training facilities. Effort is needed by the MSA, military ANSPs and training providers. English-language

proficiency requirements may demand significant effort by ATCOs to reach the required standards.

3.7.3.2   The requirements relating to simulation training may pose particular difficulties and require significant effort by training providers.

3.8.   Regulation (EC) No 1315/2007 (Safety Oversight in ATM – amending 2096/2005)

3.8.1   Overview

3.8.1.1   This Regulation establishes a safety oversight function for ANS, air traffic flow management (ATFM) and airspace management (ASM) for GAT by identifying and adopting the relevant mandatory provisions of ESARR 1 on safety oversight in ATM. This Regulation shall apply to the activities of NSAs and recognised organisations acting on their behalf regarding the safety oversight of air navigation services, ATFM and ASM.

3.8.1.2   Although Recital 3 safeguards military operations and training, it does not prevent national military authorities from implementing the Regulation for their military ATM. If national military authorities choose to implement the Regulation they should take into account the provisions regarding the conduct of safety regulatory audits and reviews.

3.8.1.3   While responsibility for the safe provision of service lies with the provider, the Member States have to ensure effective supervision through the NSAs.

3.8.1.4   The Regulation requires that all safety-related changes introduced to the functional systems used for provision of ANS, as well as ATFM and ASM, should be subject to a safety oversight. As ASM is a common civil-military process and military ANS provision is a part of the overall ANS, the safety oversight should be conducted by the military. All safety-related changes to national military ATM functional systems should be based on procedures accepted by NSAs and shall be subject to safety oversight. Procedures to be applied for the providers of ATS and communication, navigation and surveillance are set out in the framework of the Common Requirements Regulation (Regulation 2096).

3.8.2   Benefits of implementation by the military

3.8.2.1   In support of the implementation of SES, Member States applying this Regulation will enable the implementation of joint civil-military initiatives with regard to ATM safety oversight in accordance with the regulatory framework. Actions undertaken by MSAs to oversee safety within the framework of the certification and ongoing supervision of military ANSPs will be harmonised.

3.8.2.2   By applying this Regulation, military authorities would accept that they must provide the national/military NSA with information on actions taken pursuant to the Regulation regarding the annual safety oversight report. In doing so, they would contribute to the transparency and accountability of the safety oversight process and increase confidence in both civil and military ATS authorities, not only at national level but also in the context of regional cooperation.

3.8.3   Required effort

3.8.3.1   Military authorities who decide to establish an MSA should ensure that its personnel have the necessary capability to ensure the safety oversight of organisations under their supervision. This means that appropriate safety oversight capabilities and

competence need to be developed. In this regard, the MSA will have to define and document the education, training, technical and operational knowledge, experience and qualifications requirements relevant to the duties of each position involved in safety oversight activities.

3.8.3.2 To meet these requirements, military authorities would need to allocate additional resources, both in terms of manpower and budget. Dedicated efforts shall be foreseen for the MSA to keep and maintain access to the appropriate records relating to their safety oversight activities.

3.8.3.3 For more details regarding the necessary effort by the MSA and the military ANSPs, please refer to Annexes F and G, where examples are given based on the French and Italian experience.

3.9. Conclusions

3.9.1.1 In conclusion, whilst recognising that it will always be a decision for individual States, the implementation of SES legislation by military authorities can improve safety and enhance the overall efficiency of the European ATM system. Highlighting the safeguards in the SES legislation that protect military operations and training, the Guidelines provide advice to military authorities wishing to implement SES and describe its potential benefits.

3.9.1.2 The key elements of implementation are:

- The establishment of a supervisory authority for military ATM, which can take several forms;
- Compliance with the common requirements, leading to certification (in whatever form) of military ANSPs;
- Licensing military ATCOs, especially where they control GAT;
- Harmonising military ATM equipment and the associated processes within the EATMN through cognisance of the Interoperability Regulation.

3.9.1.3 The military authorities in France and Italy have already committed significant effort to implementing SES and have begun to reap the benefits of enhanced safety processes in ATM, whilst several other States are currently planning similar activities. In France, the military authorities have implemented the legislation directly, whereas in Italy parallel organisations and processes have been developed to demonstrate equivalence. The Guidelines describe both approaches in detail and illustrate the benefits, the effort required and lessons learned through implementation.

3.9.1.4 In its capacity of providing support to States and encouraging the application of best practice, DCMAC EUROCONTROL is available to offer further advice and assistance to the military authorities of any State wishing to implement SES.

ANNEX A: GUIDELINES FOR IMPLEMENTATION

1. ESTABLISHMENT OF A MILITARY SUPERVISORY AUTHORITY (MSA[19])

1.1 Separation of regulation from service provision

1.1.1 To separate ATM regulation from service provision, States should establish a Military Supervisory Authority (MSA), based on Article 4 of the Framework Regulation.

1.1.2 The MSA should be independent from the service provider(s) it supervises and this independence should be achieved, as a minimum, through separation at functional level.

1.1.3 To demonstrate its independence, an MSA should document the policy, procedures and organisational structure ensuring its separation from the service provider. This is **particularly valuable where a supervisory authority is only functionally separated from the service provider**, whilst remaining part of the same overall organisation. An MSA should ensure that its personnel are free from any pressures which may affect the performance of their regulatory duties.

> *Recital (10)   of Regulation (EC) 549/2004 (Framework Regulation)*
>
> *Air navigation services, in particular air traffic services which are comparable to public authorities, require functional or structural separation and are organised according to very different legal forms in the various Member States.*
>
> *Article 4 (National Supervisory Authorities)*
>
> *2.   The national supervisory authorities shall be independent of air navigation service providers. This independence shall be achieved through adequate separation, at the functional level at least, between the national supervisory authorities and such providers. Member States shall ensure that national supervisory authorities exercise their powers impartially and transparently.*

1.1.4 There are several different models that can be applied to achieve separation of regulation from service provision:

   a) Functional separation within existing military organisations;

   b) Reorganisation of existing military bodies to form a new organisation, either by:

   - creating an MSA that could be entrusted with the performance of supervisory functions for the military service providers providing services to GAT on behalf of the civil NSA, or

   - setting up a mirror MOD organisation that remains separate from the civil NSA;

   c) Embedded military staff in the civil NSA; in such cases, it is critical to negotiate and agree the nature and scope of the responsibilities of the embedded military staff;

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[19] Throughout this Annex, irrespective of which model for the establishment of a military ATM supervisory authority is adopted, the term MSA is employed.

d) Establishment of a single civil-military NSA, staffed with both civil and military personnel with responsibilities encompassing both civil and military supervisory activities.

1.1.5 **It is recommended** that in deciding how to separate ATM regulation from service provision, military authorities should study closely the Framework, Service Provision and Common Requirements Regulations. In addition, they **should analyse the French and Italian models** in relation to the arrangements existing in their State, with regard to both their military ATM organisations and their relationship with the civil NSA.

1.2 Legal Basis of an MSA

1.2.1 An MSA should be nominated or established by individual States.

1.2.2 States can nominate an existing body as their MSA or create a new entity to fulfil its functions.

1.2.3 The legal status and institutional nature of the MSA should be clear and its responsibilities and obligations clearly defined. This will require the involvement of the military's legal services, who should be fully acquainted with SES legislation.

1.2.4 **State legislation may need to be amended to establish an MSA.**

1.3 Tasks of the Military Supervisory Authority

1.3.1 The prime responsibility of the MSA should be to ensure that the safety of the ATM services provided is not compromised. To carry out its responsibilities effectively, the MSA should perform the following tasks:

- designation of Ministry of Defence auditors;
- identification, certification and ongoing supervision of the Ministry of Defence service providers providing services to GAT, with a view to the audits conducted by Ministry of Defence auditors;

- verification of compliance with safety regulatory requirements concerning risk assessment and mitigation for any changes made to the air traffic management system by Ministry of Defence service providers providing services to GAT;

- acceptance of the implementation of major changes made to the air traffic management system by Ministry of Defence service providers providing services to GAT;

- examination of applications and granting of exemptions as provided for in the instruments in force to Ministry of Defence service providers providing services to air traffic services;

- drafting of instructions for Ministry of Defence service providers providing air traffic services to GAT to ensure that the latter take the corrective action required to guarantee their compliance with the regulations applicable to them;

- approval and supervision of the Ministry of Defence body or bodies entrusted with the training of air navigation staff, and of the training given by such bodies;

- issuing, monitoring, suspension and withdrawal of the certificates of controllers falling under the responsibility of the Ministry of Defence who provide services to GAT.

1.4 The relationship between the MSA and the civil NSA

1.4.1 It is recommended that **military authorities liaise closely with the civil NSA** in their

State to establish which form of separation would best suit the existing legal and institutional arrangements of their respective organisations.

1.4.2 Cooperation between civil and military supervisory authorities is vital, in particular where services are provided in FABs, cross-border operations and in cases of delegation of service provision across national borders. In such cases, **military authorities should ensure that they have in place written agreements** detailing responsibilities for the supervision of service providers.

1.4.3 When considering the scope and responsibilities of the MSA and its relationship with the civil NSA, the verification or certification processes to be undertaken by each body should be clearly defined, based on the common requirements as set out in the Service Provision Regulation. The same processes for both NSA and MSA should be used as far as possible.

1.4.4 As military ATM is part of an existing Department of State, in most cases it would be inappropriate for the civil NSA to have regulatory responsibility for the **financial strength, liability or insurance** cover of military ATM, as these are a State responsibility. **The demarcation of responsibility between civil and military organisations should therefore be negotiated and agreed**.

1.4.5 Further close study of the SES legislation will identify all the elements that should be taken into consideration when deciding how to separate regulation from service provision in military ATM and the relationship between military and civil supervisory authorities.

1.5 Organisational structure of the MSA

1.5.1 An MSA should develop an organisational structure suitable for the performance of its supervisory functions, detailing the level of responsibility and oversight of its executives and managers and demonstrating its responsibilities and accountabilities to other (more senior) bodies.

1.5.2 In addition to developing its organisational structure, the rules of procedures governing decision making within the MSA should be clearly defined.

1.6 Manning and training of MSA Staff

1.6.1 Military authorities which establish an MSA should ensure that it is adequately manned to allow it to undertake the full range of tasks for which it is responsible.

1.6.2 **Appropriate safety oversight capabilities and competence need to be developed**. In this regard, the MSA should define and document the education, training, technical and operational knowledge, experience and qualifications required for each of the posts responsible for safety oversight activities.

1.6.3 An MSA will require its staff to receive specific training; its audit staff should possess technical experience and knowledge in all ANS domains. This could be achieved by developing links with the civil NSA, or by seeking assistance from the EUROCONTROL Institute of Air Navigation Services (IANS), which offers a range of training courses designed to assist NSAs with preparing their staff for safety oversight functions. At the request of the Safety Regulation Commission, (SRC), an expanded training programme designed specifically for NSAs, known as the **NSA Training Initiative**, covering all the core skills and knowledge necessary to perform regulatory supervision in an effective manner, is currently under development and will be offered from 2009 onwards. The NSA Training Initiative is seen as a way of helping to meet the obligations of NSA staff

training by providing a basic knowledge of the regulations that an NSA must supervise and covering the fundamental activities of an NSA. (see *http://www.eurocontrol.int/ians/public/subsite_homepage/homepage.html* for the training catalogue and dates)

1.6.4 MSA staff should develop expertise in supervisory processes, whilst maintaining sufficient depth and scope of knowledge as regards both the common requirements and the activities of ANSPs.

1.6.5 MSA staff must have sufficient experience of infrastructure requirements, and a detailed knowledge of international plans, including EUROCONTROL developments and regional agreements.

1.7 Effort

1.7.1 **The resources required to achieve separation of regulation from service provision will vary** depending upon:

- Existing arrangements;
- The model of separation decided upon;
- The size of the organisation;
- The complexity of the aviation environment;
- The existing relationship between civil and military ATM regulatory authorities.

1.7.2 Experience to date shows that reorganising supervisory structures is a **lengthy process** and, in the short term at least, achieving separation will incur **additional workload**.

1.7.3 For more details regarding the resources and effort required, see Annexes F and G.

Establishment of a MSA

Nominate or establish a MSA

Need to modify State legislation? 1.2

Yes → State modifies legislation 1.2

No

Define tasks of MSA 1.3.1

Includes definition of relationship with civil NSA 1.4

Set up organisational structure 1.5

Provide adequate manning 1.6

Train MSA staff 1.6

Establishment completed

Figure 1: Establishment of a Military Supervisory Authority (MSA)

2.   CERTIFICATION OF MILITARY ANSPs

2.1   Certification and designation overview

2.1.1   Certification is the formal confirmation that the holder of the certificate meets all the requirements of its NSA in terms of the services it provides. Certification, designation and supervision of military service provision to GAT are a State responsibility.

Article 2   *of Regulation (EC) 549/2004 Framework Regulation*

Definitions

15. 'certificate' means a document issued by a Member State in any form complying with national law, which confirms that an air navigation service provider meets the requirements for providing a specific service;

2.1.2   To obtain a certificate, the military ANSP shall comply with the Common Requirements.

2.1.3   A certificate for the provision of ANS shall be recognised across the Community. The certificate may contain specific conditions.

2.1.4   An Air Traffic Service Provider (ATSP) or Meteo Services Provider – (METSP) with such a certificate may be designated by any Member State to provide the specified services in its airspace.

2.1.5   Designation

To date, there are no examples of the designation of a military ANSP. However, as designation is detailed inter alia in the Service Provision Regulations, military authorities currently providing services to GAT should take into account the possible designation of military ANSPs at a future date.

2.1.6   ANS may be provided without certification in accordance with the following provision:

Article 7   of Regulation (EC) 550/2004 Service Provision

Certification of air navigation service providers

5. Notwithstanding paragraph 1, Member States may allow the provision of air navigation services in all or part of the airspace under their responsibility without certification in cases where the provider of such services offers them primarily to aircraft movements other than general air traffic. In those cases, the Member State concerned shall inform the Commission and the other Member States of its decision and of the measures taken to ensure maximum compliance with the common requirements.

2.2   Decision to certify

2.2.1   Where State authorities have established an MSA, they **should decide whether to certify their military ANSPs**. Depending on the high-level structure established, military authorities may choose between two options:

- To certify their ANSPs wholly in accordance with the Service Provision Regulation by explicitly following the requirements of the Regulation;

- To develop an alternative approach whereby they can demonstrate equivalence with SES.

2.2.2 Having decided to certify, **those military ANSPs to be certified should be identified** in accordance with the requirements of the Service Provision Regulation. It is recommended that these are prioritised according to the following criteria:

- the level of GAT handled by the ANSP;
- whether an aerodrome is open to GAT;
- whether commercial airlines operate from an aerodrome.

2.3 Certification process

2.3.1 At the highest level, the Service Provision Regulation specifies the following common requirements for the provision of air navigation services:

Article 6   *of Regulation (EC) 550/2004 Service Provision*

Common requirements

— *technical and operational competence and suitability,*
— *systems and processes for safety and quality management,*
— *reporting systems,*
— *quality of services,*
— *financial strength,*
— *liability and insurance cover,*
— *ownership and organisational structure, including the prevention of conflicts of interest,*
— *human resources, including adequate staffing plans,*
— *security.*

2.3.2 Military ANSP(s) identified for certification, depending on the regulatory framework established, should apply to either the MSA or the civil NSA for certification.

2.3.3 As a first step, a pre-audit or 'blank audit' of those ANSPs to be certified should be performed. Each military ANSP should be scrutinised and a gap analysis conducted to establish the extent to which it meets the Common Requirements. This initial assessment should include any requirement to modify organisational structures, processes, procedures and documentation. Should there already be an established and mature military ATM regulatory system, existing structures, systems and processes should be utilised to the maximum extent possible. **It is recommended that the gap analysis include, as a minimum, the following topics:**

a) Organisational structure and management, documented to ensure that it supports the safe, efficient and continuous provision of services;

b) Definition of authorities, duties, responsibilities, inter-departmental relationships and reporting lines, identifying how the level and quality of the service provided is assessed;

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c) Safety and quality management, including arrangements for managing safety and ensuring that potential sources of risk are identified, understood and controlled;

d) Quality assurance programme to verify that all operations are being conducted in accordance with applicable requirements, standards and procedures;

e) Documentary evidence of the quality system, including manuals and monitoring documents;

f) Operations manuals containing instructions and information necessary for personnel to perform their duties.

2.3.4   As a result of the pre-audit, the MSA should issue a report containing recommendations for remedial actions to be undertaken by the military ANSP.

2.3.5   Once these remedial actions have been completed, depending on the size of the ANSP and the number of units under its responsibility, a set of certification audits should be carried out to verify compliance against all the requirements. Following a successful audit, a certificate should be issued to the military ANSP.

2.3.6   It is recommended that the form of the certificate be the same as that used by the civil NSA.

2.3.7   When undertaking the certification process, military authorities should use the same definitions as those listed in the Framework Regulation.

2.3.8   The EUROCONTROL SES Implementation Support (SESIS) Guidance Material is made available to EUROCONTROL and ECAC Member States to provide guidance and support in advising their NSAs and ANSPs on the preparation of the certification process in compliance with Commission Regulation (EC) No 2096/2005 laying down common requirements for the provision of ANS. The information assembled in the Guidance Material reflects the SES legislation in force on the date of publication in the Official Journal of the Common Requirements and includes tables for assessment of compliance with the Common Requirements.

2.3.9   The SESIS Guidance Material and the associated tables are publicly available on http://www.eurocontrol.int/ses/public/subsite_homepage/homepage.html

2.3.10 The certification process requires **dedicated resources and effort** by the MSA and the ANSPs. For more details see Annexes F and G.

Certification of Military ANSP(s)

Military ANSP certification steps

Decision to certify?
2.2.1

— No → Develop alternative process (see Annex G)

Yes

Identify military ANSP(s) to be certified
2.2.2

Identified military ANSP(s) apply for certification
2.3.2

Conduct preaudit of military ANSP(s)
2.3.3

Contains recommendations and remedial actions

Report
2.3.4

Military ANSPs implement remedial actions
2.3.4

Conduct a set of certification audits
2.3.5

Military ANSP(s) compliant?
2.3.5

— No

Yes

Issue Certificate
2.3.5

Issue Conformity Declaration

Figure 2: Certification of military ANSP(s)

2.4 Safety aspects of the certification process

2.4.1 Technical and operational competence and capability

2.4.1.1 In preparation for an anticipated certification request to the NSA, existing military competencies should be reviewed and if necessary amended to comply with SES requirements. The primary objective of such a review should be to assess the effectiveness of the implementation of the military authorities' safety oversight system and capabilities, and address the following areas:

- Legislative and institutional arrangements in place to discharge international commitments with respect to SES and EUROCONTROL;

- Safety regulatory framework for ATM, related arrangements and capacity (policy and principles, procedures for rulemaking and safety oversight, resources and staff competency);

- ATM safety regulations in existence and the level of compliance with European safety standards, including the EUROCONTROL Safety Regulatory Requirements (ESARRs).

2.4.1.2 It is imperative that military authorities, in the early stages of formally EU law and European safety standards into their national military safety regulatory framework, obtain a status report on (non-) compliance with the applicable regulatory requirements prior to their certification regarding the provision of ANS to civil aviation.

2.4.1.3 As the review would only cover service provision to GAT, it is left to the States' discretion to cover additionally any aspects of service provision to OAT.

2.4.2 Development of ATM safety regulatory oversight

2.4.2.1 The principal activities concerning the development of ATM safety regulation across the ECAC area have centred on the measurement of safety regulation implementation through the ESARR Implementation Monitoring and Support (ESIMS) Audit Programme and the ATM Safety Framework Maturity Survey methodology.

2.4.2.2 Being a formal audit programme, ESIMS provides a detailed analysis of the level of compliance with all safety oversight mandatory provisions applicable in the Member States. It also enables the development of Corrective Action Plans to address the deficiencies identified. ESIMS is operated in coordination with the ICAO Universal Safety Oversight Audit Programme (USOAP).

2.4.2.3 The ATM Safety Framework Maturity Survey complements this picture with information from a self-assessment conducted against a benchmark of best practices beyond the strict application of mandatory provisions.

2.4.3 Military aspects of ESIMS audits

2.4.3.1 The ESIMS Programme was adopted on the basis of Article 6.1 of the EUROCONTROL amended Convention. As its object is the auditing of the States' safety oversight capabilities, it does not limit its membership or scope to civil authorities. It explicitly includes the requirements of all civil and military users, and provides that the Organisation shall act in cooperation with the national and military authorities.

2.4.3.2 ESIMS audits address the implementation of ESARRs, giving full consideration to the States' commitments under EC law and the EUROCONTROL Convention. Even if there

are differences in the practical application to the military of the EU and EUROCONTROL sets of regulations, both are intended to cover ANSPs (civil or military) when providing services to GAT.

2.4.3.3 It is the States' responsibility to ensure that the decisions of the EUROCONTROL Permanent Commission are fully implemented, and respected by all entities (be they civil or military) concerned. Also, the ESARRs contain mandatory provisions regarding their applicability to the military service providers providing services to GAT or the military organisations conducting the safety oversight of military providers providing ATM services to GAT. Hence, throughout the ESIMS Programme the (voluntary) cooperation of military authorities is sought to implement these principles.

2.4.3.4 Due to varying levels of involvement of the military in the provision of services to GAT, the depth of the audit activities differs, ranging from instances where no audit activities take place due to the military not being involved in GAT to cases such as the UK and France, where the military actively cooperates in a comprehensive survey of its safety oversight arrangements as part of the ESIMS audit of the State.

2.4.3.5 In July 2008 the Air Component of the Belgian Armed Forces (COMOPSAIR) was subject to an ESIMS audit. The primary objective was to assess the effectiveness of the implementation of its ATM safety oversight system, prior to a certification request to the Belgian NSA. Indeed, an increasing number of military authorities recognise the requirement for adherence to internationally accepted standards and the related conditions for certification, the verification of the applicability (or otherwise) of SES legislation and ESARRs and/or their enforcement within the military ATM organisation.

2.4.3.6 The COMOPSAIR audit did not cover any aspects of service provision to OAT; even so, operational oversight and supervision were found to be ensured via a comprehensive scheme of local, national and NATO exercises, inspections and evaluations.

2.4.3.7 Although the audit was not part of the regular ESIMS Programme schedule, it represented a firm step forward in cooperation with States' military authorities.

2.4.4 ICAO SARPS

2.4.4.1 European Community law published in the form of regulations is directly applicable in the EU Member States. These States are also bound to implement national rules to comply with, inter alia, relevant ICAO standards. States have a certain amount of discretion as regards meeting ICAO obligations and can notify ICAO of departures from such obligations.

2.4.4.2 Under Article 28 of the Chicago Convention, States have a responsibility to ensure the safe provision of ANS and to exercise due diligence with regard to the safety oversight of ANS provision.

2.4.4.3 An ANSP shall manage the safety of all its services in a systematic and structured way. In so doing, it shall establish formal interfaces with all stakeholders which may directly influence the safety of its services.

2.4.5 Safety of services

2.4.5.1 EUROCONTROL, through the SRC, is developing a harmonised framework for the safety regulation of ATM, for implementation by States. The core of the framework is represented by ESARRs.

2.4.5.2 However, the advent of the EU's SES regulations, in particular those intended to transpose the ESARRs into EC law, raised the issue of "double regulation". Under the aegis of the Double Regulation Ad-Hoc Group (DRAHG), recommendations were agreed by the EUROCONTROL Provisional Council (PC) and the SSC to achieve full alignment with the text of the regulations transposing the ESARRs.

2.4.5.3 The DRAHG recommendations have the benefit of removing potential double regulation issues with regard to safety oversight in EUROCONTROL Member States where EC regulations are directly applicable. The proposed amendments provide a platform to take advantage of the synergies between the EC and EUROCONTROL regulatory frameworks and support the implementation of SES across the ECAC region. In particular, Commission Regulation (EC) No 1315/2007 sets out the pan-European requirements applicable to the safety oversight function exercised by NSAs, whereas the equivalent ESARR 1 provides the means to ensure the implementation of an appropriate ATM safety oversight function[20] in EUROCONTROL Member States which are not members of the EU, as well as military ATM organisations.

2.4.5.4 ESARR 1 is designed inter alia to support the implementation of the SES initiative by allowing the development of ATM safety oversight within the functions of the NSAs and the regulatory framework defined in the SES regulations. The NSA function denotes an existing regulatory task that applies to the relevant authorities of any State which has accepted responsibility for regulating and providing ANS functions over its territory and associated areas.

2.4.5.5 Additionally, ESARR 1 includes provisions intended to harmonise the capabilities of the safety oversight function, notably those related to the levels of resources available and the qualification of safety oversight personnel. Moreover, specific processes are required to address the resolution of safety issues and the implementation of means to ensure the transparency of all safety oversight processes and ease the auditing of safety oversight frameworks operated in the ECAC region.

2.4.5.6 The publication of Commission Regulation (EC) No 482/2008 transposing ESARR 6 (Software in ATM Systems) into EC law has opened the door to the implementation of a similar course of action to apply the recommendations of DRAHG to ESARR 6.

2.4.5.7 Actions are also planned as regards ESARRs 2, 3, 4 and 5. In this case, the process for achieving a single text for ESARRs 2, 3, 4 and 5 with their corresponding EC rules is to be initiated by means of the introduction of measures by the EC to address the DRAHG recommendations related to those rules. The associated proposals for amendment of the ESARRs will be submitted to the EUROCONTROL PC in due course.

2.4.5.8 To facilitate ESARR implementation, ESARR Advisory Material (EAM) has been developed for each ESARR. In addition, SRC documents present a wide range of supporting and background material, and form part of the basis for further progress in ATM safety regulation.

2.4.5.9 The ESARRs and their relevant guidance material are publicly available on http://www.eurocontrol.int/src/public/subsite_homepage/homepage.html, while the associated EC regulations can be downloaded from http://eur-lex.europa.eu/en/legis/20090501/chap074030.htm.

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[20] The provisions of both Commission Regulation (EC) No 1315/2007 and ESARR 1 support a process approach to the safety oversight of ATM service providers and define the minimum elements that must exist in the safety oversight processes operated by NSAs.

2.4.6   Safety management system

2.4.6.1 A formal and systematic approach to safety management should be established to maximise safety benefits in a visible and traceable way.

2.4.6.2 Article 6 of the Service Provision Regulation requires that common requirements for ANS provision shall be established in accordance with the procedure referred to in Article 5(3) of the Framework Regulation. These common requirements must include, *inter alia*, systems and processes for safety and quality management. In accordance with the said Article, the EC identified and adopted the relevant provisions of ESARR 3 on the use of SMS by ATM service providers via Commission Regulation (EC) No 2096/2005.

2.4.6.3 Under a certification scheme, military authorities should implement the Common Requirements relating to standard SMS and the reporting of safety performance, to support and enhance the safety of aviation in Europe.

2.4.6.4 Also, irrespective of the derogations allowed in Article 4 of the Common Requirements, ICAO Annex 11 Section 2.26 and – by extension – ESARR 3 require the implementation of an SMS by all ATS providers without making any differentiation based on the size of the service provider. If a State deviates from these relevant ICAO standards, it should notify ICAO of such deviations.

2.4.6.5 Whereas responsibility for the safe provision of services lies with the providers, the Member States should ensure effective supervision through their NSAs in accordance with the ATM Safety Oversight Regulation. Hence, military authorities should conduct safety regulatory audits and reviews as part of the inspections and surveys required by the Service Provision Regulation. Military authorities should also consider using the safety oversight approach in other areas of oversight as appropriate in order to develop efficient and coherent supervision.

2.4.7   Safety requirements for risk assessment and mitigation

2.4.7.1 The results, associated rationales and evidence of risk assessment and mitigation processes, including hazard identification, are to be collated and documented in a manner which ensures that complete arguments are established to demonstrate that:

- Constituent parts are and will remain tolerably safe, meeting allocated safety objectives and requirements;

- All safety requirements related to the implementation of a change are traceable to the intended operations/functions.

2.4.7.2 ESARR 4 concerns the use of a quantitative risk-based approach in ATM when introducing and/or planning changes to the ATM functional system. In this requirement, risk assessment and mitigation are addressed using a total aviation system approach.

2.4.7.3 As was the case with ESARR 3, the DRAHG reviewed ESARR 4 against the Common Requirements, the fundamental conclusion being that all the findings on scope aspects (in particular as regards ATFM and ASM) and the issue of derogations mentioned in relation to ESARR 3 apply also to ESARR 4.

2.4.7.4 In addition, since the Risk Classification Scheme (RCS) established in ESARR 4 had not been transposed in the Common Requirements[21], the EC mandated EUROCONTROL to develop regulatory material to support the establishment of an RCS for the design of ATM and development of quantified safety targets for incidents not contained in ESARR 4. The draft Implementing Rule (IR), submitted to the European Commission in February 2009, addresses all areas of the ATM system capable of generating risk (including ASM, ATFM, AIS and MET) and is substantiated with Advisory Material.

2.4.7.5 ESARR 4 applies to all providers of ATM services in respect of those parts of the ATM functional system for which they have managerial control. It covers the procedural and equipment (hardware, software) elements of the ATM system and, in particular, of its constituent parts as well as its operational environment. It also addresses the human element, with the exception of assessments with a view to introducing and/or planning organisational or management changes to ATM service provision.

2.4.8   Safety requirements for engineering and technical staff

2.4.8.1 In accordance with Regulation (EC) No 550/2004, the European Commission identified and adopted through Commission Regulation (EC) No 2096/2005 the relevant provisions of ESARR 5, Ed. 2.0, Section 5.3 on ATM engineering and technical personnel undertaking operational safety-related tasks.

2.4.8.2 Both the Common Requirements and ESARR 5, Section 5.3, apply to any organisation falling within the jurisdiction of a national ATM safety regulatory body and responsible for the provision of engineering and technical services supporting ATM services.

2.4.8.3 In accordance with these rules, the Designated Authority for regulating engineering and technical personnel is required to:

- Issue appropriate safety regulations for ATM engineering and technical personnel, and ensure adequate and appropriate safety regulatory oversight of such personnel;

- Take appropriate regulatory action when the provisions of the Common Requirements and/or ESARR 5, Ed. 2.0 are not met, and verify that appropriate methods are in place to ensure that third-party individuals also meet the applicable provisions.

2.4.8.4 In its review of ESARR 5 against Commission Regulation (EC) No 2096/2005, the DRAHG proposed amendments to ESARR 5, Section 5.3.3 on requirements establishing obligations for individuals and the identification of additional categories of personnel conducting safety-related tasks.

2.4.8.5 Also, EUROCONTROL developed a (EUROCONTROL) Specification for Air Traffic Safety Electronics Personnel (ATSEP) Common Core Content (CCC) Initial Training as a result of a request for support from the European Commission to update and upgrade (to a Specification) two existing EUROCONTROL ATSEP Training Guidelines. Both Guideline documents have been in existence since 1996 and 2003 respectively, and are entitled as follows:

- Guidelines for a Common Basic Level of Technical Training for Air Traffic Safety Electronics Personnel, Ed. 3.0;

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[21] Recital 16 of Commission Regulation (EC) No 2096/2005 states that, while ESARR 4 defines a maximum tolerable probability for ATM directly contributing to accidents in the ECAC Region, maximum tolerable probabilities for all severity classes had not yet been established. The Member States and the Commission, acting together with EUROCONTROL, were invited to complete and update these probabilities and develop mechanisms to apply them in various circumstances.

- Guidelines for a Common Qualification Level of Technical Training for Air Traffic Safety Electronics Personnel, Ed. 2.0.

2.4.8.6 The resulting draft Specification document has combined the two guidelines (whilst still respecting the division between the basic and qualification phases of training) to produce a single combined Initial Training document.

2.4.8.7 It is expected that as a result of a future amendment to the Common Requirements, the objectives contained within this Specification will become referenced as the minimum training requirement to be applied to student ATSEPs undertaking initial training.

2.4.9 Systems and processes for quality management

2.4.9.1 Quality management systems contribute to the technical and operational competence and suitability of ANSPs. Quality management systems and procedures may be integrated to varying degrees by different ANSPs.

2.4.9.2 An ANSP shall introduce a quality management system which covers all the ANS it provides.

2.4.9.3 An EN ISO 9001 certificate, issued by an appropriately accredited organisation, covering the ANS of the provider shall be considered to constitute sufficient means of compliance.

2.4.10 Quality of services

2.4.10.1 ANSPs shall provide their services in an open and transparent manner. They shall publish the conditions of access to their services, and establish a formal consultation process with the users of their services on a regular basis, either individually or collectively, and at least once a year.

2.4.10.2 At the latest one year after certification, ANSPs shall have in place contingency plans for all the services they provide.

2.4.11 Reporting systems

2.4.11.1 Reporting systems help demonstrate the technical and operational competence and suitability of ANSPs. They shall be able to provide an annual report of their activities to the MSA. This report shall cover their operational performance and any other significant activities and developments, in particular in the area of safety.

2.4.11.2 The Safety Analysis Function EUROCONTROL and associated Repository – SAFER – system is the principal tool used by EUROCONTROL for its safety data analysis work, and consists of a European ATM Safety Data Repository, fed by a system of regulatory and voluntary data flows. Integrated analysis forms the basis for safety improvement measures and initiatives. SAFER is designed to provide the ATM component of the EC's aviation-wide reporting system, based on ECCAIRS. The output of these activities plays a key role in safety improvement (both in safety regulation and safety management).

2.4.11.3 Progress in implementing the requirements of ESARR 2 is indicated by the reports submitted to EUROCONTROL by States, notably in 2008. In a number of Member States the progress achieved is a result of combined efforts on the development, introduction and implementation of national regulations relating to ESARR 2 and Directive 2003/42/EC.

2.4.11.4 The increased level of reporting is most likely supported by the introduction of new regulations establishing a "Just Culture" environment in those States reporting an increased number of ATM-related incidents. Furthermore, the implementation of these new provisions by the ANSPs drives the level of reporting up, thus significantly improving the visibility of safety issues in those States.

2.4.11.5 For these reasons, it is crucial that States and EUROCONTROL maintain their focus on the implementation of, inter alia, Directive 2003/42/EC and the related ESARR 2 provisions, as well as the establishment of a "Just Culture" environment.

2.4.11.6 **It is recommended** that investigation of ATM incidents involving civil and military aircraft is conducted by a joint civil-military committee.

2.5 Demonstration and Monitoring of Compliance

2.5.1 **The MSA should monitor compliance** with the common requirements and with the conditions attaching to any certificate issued. **It should also agree how details of such monitoring, particularly where it concerns GAT, are reported to the NSA.**

Article 5   *of 2096/2005 common requirements*

Demonstration of compliance

1. The air navigation service provider shall provide all the relevant evidence to demonstrate compliance with the applicable common requirements at the request of the national supervisory authority. The air navigation service provider may make full use of existing data.

2. A certified air navigation service provider shall notify the national supervisory authority of planned changes to its provision of services which may affect its compliance with the applicable common requirements or with the conditions attached to the certificate.

3. A certified provider of air traffic services shall notify the national supervisory authority of planned safety related changes to the provision of air traffic services.

2.5.2 The ANSP shall provide all relevant evidence to demonstrate compliance with the applicable Common Requirements at the request of the MSA.

2.5.3 The Service Provision Regulation limits the NSA's responsibilities to ensuring that the service provider initially complies with the common requirements and maintains that compliance over time. Thus, to ensure the effective application of the common requirements, a system of regular supervision and inspection of compliance and of the conditions specified in the certificate is required.

2.5.4 To this end, the MSA should establish and annually update an inspection programme covering all the providers it has certified, based on an assessment of the risks associated with the various operations constituting the services. The programme shall indicate the envisaged interval between the inspections of the various sites. The MSA should consult the ANSPs concerned before establishing such a programme.

2.6 Continuous nature of supervision

2.6.1 The MSA has to be able to evaluate the individual parts of an ANSP and assess the integration of these parts when carrying out its supervisory function.

2.6.2 The elements of the Common Requirements are such that the certification process is a combination of desk-based work and on-site investigation or surveys by the supervisory authority, which will include systematic surveys and inspection of facilities and interviews with relevant service provider personnel.

2.6.3 The ANSP shall facilitate inspections and surveys by the MSA, including site visits and visits without prior notice. Such inspections and surveys shall be carried out in compliance with the legal provisions of the Member State in which they are to be undertaken. Authorised persons are empowered to examine the relevant records, data, procedures and any other material relevant to the provision of ANS, to take copies of or extracts from such records, data, procedures and other material and to ask for an oral explanation on site.

2.6.4 A certified ANSP shall notify the MSA within an agreed timescale of planned changes to the provision of its services, which may affect its compliance with the applicable Common Requirements or with the conditions attached to the certificate.

2.6.5 If a certified ANSP no longer complies with the Common Requirements or with the conditions attached to the certificate, the MSA shall require the ANSP to take corrective action.

2.6.6 The MSA should verify if the corrective actions have been implemented properly.

2.6.7 If corrective actions have been implemented properly, the MSA should confirm compliance and if not, it should take appropriate enforcement measures while ensuring continuity of service. These measures may include revocation of the certificate in accordance with Article 7(7) of the Service Provision Regulation.
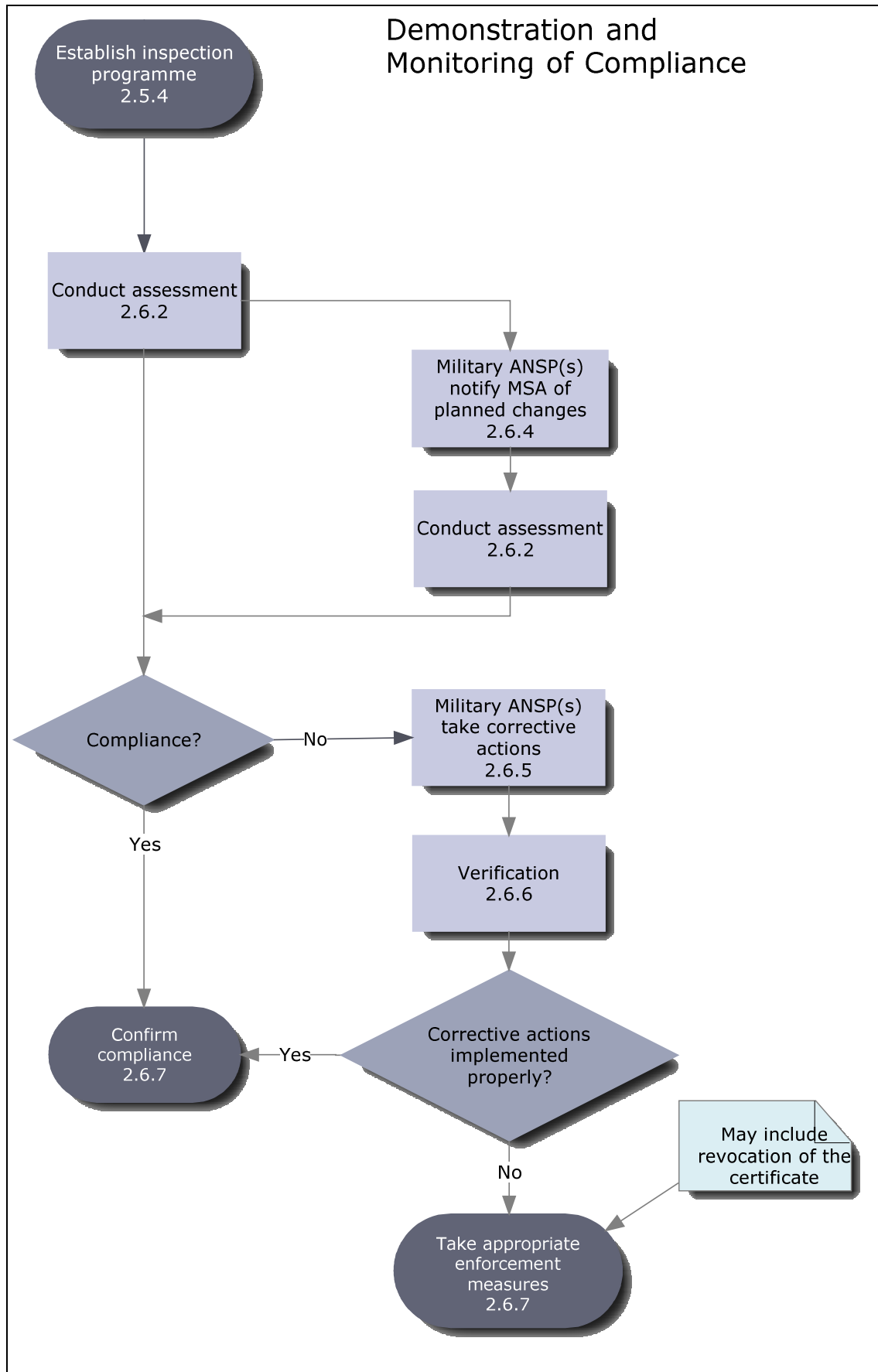
Figure 3: Demonstration and monitoring of compliance

2.7   Peer reviews

2.7.1   As the supervisory regime matures, the MSA may wish to participate in peer reviews as detailed in Article 9 of the Common Requirements Regulation.

2.8   Effort and resources required

2.8.1   The effort and resources required to achieve certification for military ANSPs are significant and should not be underestimated. Whilst each case will be different, the effort required will in part depend on the structures and processes already in place within the military ATM organisation and how closely they already reflect ESARRs and SES in the round.

2.8.2   Subsequent annexes provide specific details of the effort expended by military authorities which have already implemented SES, and both confirm that the exercise has been beneficial.

3.   LICENSING OF PERSONNEL

3.1   The ATCO Licence Directive

3.1.1   The objective of the ATCO Licence Directive is to increase safety standards and to improve the operation of the Community air traffic control system by issuing a Community air traffic controller licence. Unlike much SES legislation, the Directive mentions specifically that it may be applied to ATCOs employed by ANSPs not offering their services to GAT, which by default includes military ATCOs.

> *Preamble   to Directive (EC) 2006/23 on a Community ATCO licence*
>
> *(4) This Directive should build on existing international standards…. (and) transposes the requirements laid down in Eurocontrol Safety Regulatory Requirement No 5 (ESARR 5) relevant to air traffic controllers.*
>
> *(5) The particular characteristics of Community air traffic call for the introduction and effective application of Community competence standards for ATCOs employed by ANSPs primarily involved in GAT. Member States may also apply the national provisions taken pursuant to this Directive to student air traffic controllers and air traffic controllers exercising their functions under the responsibility of ANSPs offering their services primarily to aircraft movements other than GAT.*

3.1.2   Military authorities should already be familiar with the provisions of ESARR 5. **It is recommended that a formal dialogue be established between the civil NSA and the MSA** to identify and adopt lessons learned from the implementation process, especially where civil counterparts have already implemented the Directive.

3.2   Possible options for licensing military personnel

3.2.1   Military authorities **should consider one of the following three options**:

      a. **Licensing all military ATCOs** wholly in accordance with the Directive, explicitly following its requirements;

b. Licensing **military ATCOs who provide services to GAT** wholly in accordance with the Directive, explicitly following its requirements;

c. Developing an alternative approach through which they can **demonstrate equivalence with SES** and 'ensure an equivalent level of safety and quality of services'.

3.2.2 If military authorities develop a licensing system that is complementary to the Directive, rather than following its provisions explicitly, **the following provision should be taken into account.**

> *Article 1   of Directive (EC) 2006/23 on a Community ATCO licence*
>
> ***Objective and scope***
>
> *3. Subject to Articles 1(2) and 13 of Regulation (EC) No 549/2004, in cases where regular and planned air traffic control services are provided to general air traffic under the responsibility of air navigation service providers which offer their services primarily to aircraft movements other than general air traffic, Member States shall ensure that the level of safety and quality of the services to general air traffic **is at least equivalent** to the level resulting from the application of the provisions of this Directive.*

3.2.3 In the same way that the MSA prepares for certification (or its equivalent), **it is recommended that implementation of the Directive begins by ensuring that all personnel involved in the licensing of ATCOs are appropriately trained and qualified.**

3.3   The ATCO licensing process

3.3.1 **An audit should be undertaken** to compare existing arrangements for the training and regulation of ATCOs against the requirements of the Directive. This should cover the following five areas:

- Initial training, providing basic and rating training, leading to the granting of a student licence;

- Unit training, including transitional training prior to on-the-job training, and on-the-job training, leading to the granting of an air traffic control licence;

- Continuation training, keeping the endorsements of the licence valid;

- Training of on-the-job training instructors, leading to the granting of the instructor endorsement;

- Training of examiners and/or assessors.

3.3.2 Another important topic for consideration is the language proficiency requirement specified in Article 8 and Annex III to the Directive.

> *Article 8   to Directive (EC) 2006/23 on a Community ATCO licence*
>
> ***Language endorsements***
>
> *1. Member States shall ensure that air traffic controllers can demonstrate the ability to speak and understand English to a satisfactory standard. Their proficiency shall be determined in accordance with the language proficiency rating scale set out in Annex*

> *III.*
>
> *2. Member States may impose local language requirements when deemed necessary for reasons of safety.*
>
> *3. The level required in application of paragraphs 1 and 2 shall be level 4 of the language proficiency rating scale set out in Annex III.*

3.3.3   Where language proficiency is not currently at level 4, but an MSA wishes to implement the Directive, then **transitional arrangements to achieve the required level should be made.**

3.3.4   Where a mature regulatory system is already in place, **it is recommended that existing structures, systems and processes be utilised wherever possible**.

3.3.5   Where the existing system does not meet the requirements of the Directive, a detailed implementation plan should be developed to address the identified shortcoming. **It is recommended that the framework developed by an MSA should address the following regulatory tasks:**

> *Article 14   of Directive (EC) 2006/23 on a Community ATCO licence*
>
> ***Guarantee of compliance with competence standards***
>
> *1. In order to ensure the levels of competence indispensable for air traffic controllers in order for them to perform their work to high safety standards, the Member States shall ensure that national supervisory authorities supervise and monitor their training.*
>
> *Their tasks shall include:*
>
> *(a) the issuing and revocation of licences, ratings and endorsements for which the relevant training and assessment was completed under the area of responsibility of the national supervisory authority;*
>
> *(b) the maintenance and suspension of ratings and endorsements, the privileges of which are exercised under the responsibility of the national supervisory authority;*
>
> *(c) the certification of training providers;*
>
> *(d) the approval of training courses, unit training plans and unit competence schemes;*
>
> *(e) the approval of competence examiners or competence assessors;*
>
> *(f) the monitoring and auditing of training systems;*
>
> *(g) the establishment of appropriate appeal and notification mechanisms.*
>
> *1.   (omitted)*
>
> *3. The national supervisory authorities shall ensure that a data base is maintained listing the competencies of all licence holders under their responsibility and the validity dates of their endorsements. To this end, operational units within air navigation service providers shall keep records of the hours effectively worked in the sectors, group of sectors or in the*

working positions for every licence holder working in the unit and shall provide this data to the national supervisory authorities on request.

4. The national supervisory authorities shall approve the licence holders who are entitled to act as competence examiners or competence assessors for unit and continuation training. Approval shall be valid for a renewable period of three years.

5. The national supervisory authorities shall audit the training providers on a regular basis with a view to guaranteeing effective compliance with the standards laid down in this Directive.

In addition to the regular audit, the national supervisory authorities may make on-the-spot visits to check the effective implementation of this Directive and compliance with the standards contained therein.

3.3.6   The MSA should certify the **training providers** for military ATCOs against the requirements listed in Annex IV, paragraph 1. The training providers shall take appropriate actions to ensure that they meet the requirements and then submit an application for certification to the MSA. When the MSA confirms that the training provider meets the requirements, it should issue a certificate. Following the issuing of the certificate the MSA should monitor compliance with the requirements and conditions attached to the certificate and where these are no longer satisfied, it should take appropriate measures, which may include withdrawal of the certificate.

3.3.7   When the MSA is satisfied that an appropriate regulatory framework is in place, **it can begin to grant certificates/licences** to training establishments, their instructing staff, to student and operational ATCOs (including qualification and endorsement) in accordance with the principles detailed in the Directive:

Preamble   to Directive (EC) 2006/23 on a Community ATCO licence

(7) The provision of ANS requires highly skilled personnel whose competence can be demonstrated by several means. For ATC the appropriate means is the introduction of a Community licence, to be seen as a kind of diploma, for each individual ATCO. The rating on a licence indicates the type of ATS an ATCO is competent to provide. At the same time, the endorsements included on the licence reflect both the specific skills of the controller and the authorisation of the supervisory authorities to provide services for a particular sector or group of sectors. That is why the authorities must be in a position to evaluate the competence of ATCOs when issuing licences or extending the validity of the endorsements. The authorities must also be in a position to suspend a licence, ratings or endorsements when competence is in doubt. In an effort to promote the reporting of incidents (just culture), this Directive should not establish an automatic link between an incident and the suspension of a licence, rating or endorsement. Revocation of a licence should be considered as the last resort for extreme cases.

3.4   Effort and resources required

3.4.1   As with the implementation of all SES legislation, the effort and resources required by military authorities should not be underestimated. However, it is hoped that military authorities should already be familiar with the detail of the Directive because of its close

relationship to ESARR 5. Where work on the implementation of ESARR 5 is already underway, it is anticipated that the effort required to meet the requirements of the Directive will be proportionately reduced.

4. INTEROPERABILITY

4.1   The Interoperability Regulation is designed to achieve interoperability between the various systems, constituents and associated procedures of the European Air Traffic Management Network (EATMN).

> *Article 2   of Regulation (EC) 549/2004 Framework Regulation*
>
> ***Definitions***
>
> ***Interoperability*** *means a set of functional, technical and operational properties required of the systems and constituents of the EATMN and of the procedures for its operation, in order to enable its safe, seamless and efficient operation. Interoperability is achieved by making the systems and constituents compliant with the essential requirements.*
>
> ***Constituent*** *means tangible objects such as hardware and intangible objects such as software upon which the interoperability of the EATMN depends.*
>
> ***System*** *means the aggregation of airborne and ground-based constituents, as well as space-based equipment that provides support for air navigation services for all phases of flight.*

4.2   A three-layered approach has been adopted to address interoperability:

a. A first layer of high-level Essential Requirements;

b. a second layer of binding Implementing Rules for systems, constituents and associated procedures whenever necessary to complement or further refine the essential requirements; and also to facilitate the coordinated introduction of new, agreed and validated concepts of operation or technologies;

c. supported by a third layer of voluntary standards, denoted as Community Specifications, which may be

   i European standards for systems or constituents, together with the relevant procedures, drawn up by the European standardisation bodies in cooperation with EUROCAE, on a mandate from the European Commission; or

   ii specifications drawn up by EUROCONTROL on matters of operational coordination between air navigation service providers, in response to a request from the European Commission.

4.3   Although effective on 20 April 2004, the Essential Requirements in the Interoperability Regulation are subject to transitional arrangements. These arrangements are:

a. Starting from **20 October 2005**, the essential requirements shall apply to **the putting into service of systems and constituents** of the EATMN, if not otherwise specified by the relevant IRs for interoperability;

b. Compliance with the essential requirements shall be required for **all systems and constituents** of the EATMN currently in operation by **20 April 2011**, if not otherwise specified by the relevant IRs for interoperability;

c. Where systems of the EATMN have been ordered, or binding contracts to that effect were signed **before 20 April 2004** or where appropriate **before the date of entry into force of one or more relevant IRs for interoperability** so that compliance with the essential requirements and/or the relevant IR for interoperability cannot be guaranteed within the time limit mentioned in paragraph a., the Member State concerned shall communicate to the European Commission detailed information on the essential requirements and/or implementing rules for interoperability where uncertainty of compliance has been identified.

4.4 The Interoperability Regulation requires also that systems shall be subject to an EC verification by the ANSP in accordance with the relevant IRs for interoperability. Before a system is put into service, the relevant ANSP shall establish an EC declaration of verification, confirming compliance, and shall submit it to the NSA together with a technical file.

4.5 To complement the above-mentioned provisions and to avoid divergent approaches by ANSPs and NSAs, two lines of action supporting the implementation of conformity assessment of EATMN systems have been developed and adopted by the Conformity Assessment Task Force (CATF). These are:

- The development of "Initial guidelines for the conformity assessment of EATMN systems", and
- The organisation of pilot trials.

Detailed information about the Conformity Assessment Task Force (CATF) can be found on the following website:

http://www.eurocontrol.int/ru/public/standard_page/catf_obj_composition.html

4.6 The Interoperability Regulation has already had an impact on military equipment and military stakeholders have already made a significant contribution to the development of Interoperability IRs. **It is recommended that such robust participation, through national and intergovernmental fora such as EUROCONTROL, continues**. Much focus to date has been on air-ground communications, highlighted in the list below, which impacts on a much broader military audience than just ATM, and has focused the attention of those concerned with both military capability plans and procurement.

ANNEX I   of Regulation (EC) 552/2004 Interoperability

LIST OF SYSTEMS FOR AIR NAVIGATION SERVICES

For the purpose of this Regulation the EATMN is subdivided into eight systems.

1. Systems and procedures for airspace management.

2. Systems and procedures for air traffic flow management.

3. Systems and procedures for air traffic services, in particular flight data processing systems,

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> *surveillance data processing systems and human-machine interface systems.*
>
> *4. **Communications systems and procedures for ground-to-ground, air-to-ground and air-to-air communications***.
>
> *5. Navigation systems and procedures.*
>
> *6. Surveillance systems and procedures.*
>
> *7. Systems and procedures for aeronautical information services.*
>
> *8. Systems and procedures for the use of meteorological information.*

4.7   It is normally the case that military planning and procurement processes focus on the 'war fighting' capability of particular equipment and not its interaction and compatibility with ATM processes, procedures and equipment as listed above. **It is therefore recommended that in the first instance, both senior military decision makers and military procurement organisations be made aware of the potential impact on military equipment of the Regulation.**

4.8   Military ATM specialists do not normally hold responsibility for either finance or system planning and procurement. Therefore, to implement the Interoperability Regulation, **it is essential for those responsible for planning and procurement to be made aware of and take account of SES legislation in order to better integrate ATM equipment acquisition through the formal recognition of the requirements of SES.**

4.9   The Regulation already specifies Essential Requirements for civil-military coordination:

> *ANNEX II   of Regulation (EC) 552/2004 Interoperability*
>
> ***ESSENTIAL REQUIREMENTS***
>
> ***Part A: General requirements***
>
> *4. Civil-military coordination*
>
> *The EATMN, its systems and their constituents shall support the progressive implementation of civil/military coordination, to the extent necessary for effective airspace and air traffic flow management, and the safe and efficient use of airspace by all users, through the application of the concept of the flexible use of airspace. To achieve these objectives, the EATMN, its systems and their constituents shall support the timely sharing of correct and consistent information covering all phases of flight, between civil and military parties. Account should be taken of national security requirements.*

4.10   To implement the Regulation, **it is further recommended that these stakeholders be made aware of the potential financial and operational benefits of extending the scope of military participation** in order to align military ATM equipment requirements with European SES standards, for example through the procurement of more cost-effective COTS equipment.

4.11   **It is also recommended that measures be taken to develop procedures and arrangements so that the agency responsible for military ATM/CNS planning and**

procurement takes on the role of a notified body, as described in Annex V to the Regulation. It is recognised that the constitution and interdependencies of this body will depend on the arrangements made for the establishment of the military supervisory body and its relationship with the NSA. This function could be achieved either through:

a. the nomination of specific personnel within existing MOD organisations to undertake this task, or

b. the embedding of suitable qualified MOD personnel in the nominated civil body.

ANNEX V   *of Regulation (EC) 552/2004 Interoperability*

NOTIFIED BODIES

1. The body, its Director and the staff responsible for carrying out the checks may not become involved, either directly or as authorised representatives, in the design, manufacture, marketing or maintenance of the constituents or systems or in their use. This does not exclude the possibility of an exchange of technical information between the manufacturer or constructor and that body.

2. The body and the staff responsible for the checks must carry out the checks with the greatest possible professional integrity and the greatest possible technical competence and must be free of any pressure and incentive, in particular of a financial type, which could affect their judgment or the results of their inspection, in particular from persons or groups of persons affected by the results of the checks.

3. The body must employ staff and possess the means required to perform adequately the technical and administrative tasks linked with the checks; it should also have access to the equipment needed for exceptional checks.

4. The staff responsible for inspection must have:

— sound technical and vocational training,

— satisfactory knowledge of the requirements of the inspections they carry out and adequate experience of such operations,

— the ability required to draw up the declarations, records and reports to demonstrate that the inspections have been carried out.

5. The impartiality of the inspection staff must be guaranteed. Their remuneration must not depend on the number of inspections carried out or on the results of such inspections.

6. The body must take out liability insurance unless its liability is assumed by the Member State in accordance with national law, or the Member State itself is directly responsible for the inspections.

7. The staff of the body must observe professional secrecy with regard to all information acquired in carrying out their tasks under this Regulation.

4.12 It is difficult to predict the effort and resources required to implement the Interoperability Regulation, as to date there is little evidence available of attempts by military authorities to implement. As described, in many States military staff is already heavily involved in the development of interoperability IRs, but few military authorities have embraced the

Regulation. **The major task is likely to be convincing decision makers to take account of SES and thereafter to encourage planning and procurement agencies to adopt the role of a 'notified body'.**

ANNEX B: GLOSSARY OF SES TERMS AND DEFINITIONS[22]

1. 'air traffic control (ATC) service' means a service provided for the purpose of:

(a) preventing collisions:

— between aircraft, and

— in the manoeuvring area between aircraft and obstructions; and

(b) expediting and maintaining an orderly flow of air traffic;

2. 'aerodrome control service' means an ATC service for aerodrome traffic;

3. 'aeronautical information service' means a service established within the defined area of coverage responsible for the provision of aeronautical information and data necessary for the safety, regularity, and efficiency of air navigation;

4. 'air navigation services' means air traffic services; communication, navigation and surveillance services; meteorological services for air navigation; and aeronautical information services;

5. 'air navigation service providers' means any public or private entity providing air navigation services for general air traffic;

6. 'airspace block' means an airspace of defined dimensions, in space and time, within which air navigation services are provided;

7. 'airspace management' means a planning function with the primary objective of maximising the utilisation of available airspace by dynamic time-sharing and, at times, the segregation of airspace among various categories of airspace users on the basis of short-term needs;

8. 'airspace users' means all aircraft operated as general air traffic;

9. 'air traffic flow management' means a function established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilised to the maximum extent possible, and that the traffic volume is compatible with the capacities declared by the appropriate air traffic service providers;

10. 'air traffic management' means the aggregation of the airborne and ground-based functions (air traffic services, airspace management and air traffic flow management) required to ensure the safe and efficient movement of aircraft during all phases of operations;

11. 'air traffic services' means the various flight information services, alerting services, air traffic advisory services and ATC services (area, approach and aerodrome control services);

12. 'area control service' means an ATC service for controlled flights in a block of airspace;

13. 'approach control service' means an ATC service for arriving or departing controlled flights;

14. 'bundle of services' means two or more air navigation services;

15. 'certificate' means a document issued by a Member State in any form complying with national law, which confirms that an air navigation service provider meets the requirements for providing a specific service;

16. 'communication services' means aeronautical fixed and mobile services to enable ground-to-ground, air-to ground and air-to-air communications for ATC purposes;

17. 'European air traffic management network' (EATMN) means the collection of systems listed in Annex I to Regulation (EC) No 552/2004 of the European Parliament and of the Council of 10

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[22] As set out in the Framework Regulation

March 2004 on the interoperability of the European air traffic management network (the interoperability Regulation) (1) enabling air navigation services in the Community to be provided, including the interfaces at boundaries with third countries;

18. 'concept of operation' means the criteria for the operational use of the EATMN or of part thereof;

19. 'constituents' means tangible objects such as hardware and intangible objects such as software upon which the interoperability of the EATMN depends;

20. 'Eurocontrol' is the European Organisation for the Safety of Air Navigation set up by the International Convention of 13 December 1960 relating to Co-operation for the Safety of Air Navigation (1)

21. 'Eurocontrol's principles for establishing the cost-base for route facility charges and the calculation of unit rates' means the principles as specified in document No 99.60.01/01 of 1 August 1999, issued by Eurocontrol;

22. 'flexible use of airspace' means an airspace management concept applied in the European Civil Aviation Conference area, as specified in the first edition of 5 February 1996 of the 'Airspace Management Handbook for the application of the Concept of the Flexible Use of Airspace' issued by Eurocontrol;

23. 'flight information region' means an airspace of defined dimensions within which flight information services and alerting services are provided;

24. 'flight level' means a surface of constant atmospheric pressure which is related to the specific pressure datum of 1 013,2 hectopascals and is separated from other such surfaces by specific pressure intervals;

25. 'functional airspace block' means an airspace block based on operational requirements, reflecting the need to ensure more integrated management of the airspace regardless of existing boundaries;

26. 'general air traffic' means all movements of civil aircraft, as well as all movements of State aircraft (including military, customs and police aircraft) when these movements are carried out in conformity with the procedures of the ICAO;

27. 'ICAO' means the International Civil Aviation Organisation, as established by the 1944 Chicago Convention on International Civil Aviation;

28. 'interoperability' means a set of functional, technical and operational properties required of the systems and constituents of the EATMN and of the procedures for its operation, in order to enable its safe, seamless and efficient operation. Interoperability is achieved by making the systems and constituents compliant with the essential requirements;

29. 'meteorological services' means those facilities and services that provide aircraft with meteorological forecasts, briefs and observations as well as any other meteorological information and data provided by States for aeronautical use;

30. 'navigation services' means those facilities and services that provide aircraft with positioning and timing information;

31. 'operational data' means information concerning all phases of flight that are required to take operational decisions by air navigation service providers, airspace users, airport operators and other actors involved;

32. 'procedure', as used in the context of the interoperability Regulation, means a standard method for either the technical or the operational use of systems, in the context of agreed and validated concepts of operation requiring uniform implementation throughout the EATMN;

33. 'putting into service' means the first operational use after the initial installation or an upgrade of a system;

34. 'route network' means a network of specified routes for channelling the flow of general air traffic as necessary for the provision of ATC services;

35. 'routing' means the chosen itinerary to be followed by an aircraft during its operation;

36. 'seamless operation' means the operation of the EATMN in such a manner that from the user's perspective it functions as if it were a single entity;

37. 'sector' means part of a control area and/or a flight information region/upper region;

38. 'surveillance services' means those facilities and services used to determine the respective positions of aircraft to allow safe separation;

39. 'system' means the aggregation of airborne and ground-based constituents, as well as space-based equipment, that provides support for air navigation services for all phases of flight;

40. 'upgrade' means any modification that changes the operational characteristics of a system.

Annex C: REFERENCE MATERIAL

The following documentation is considered to be reference material for the EUROCONTROL SESIM Guidelines:

1. European Union - Single European Sky Legislation

    - Regulation (EC) No 549/2004 of the European Parliament and of the Council laying down the framework for the creation of the single European sky (the framework Regulation)

    - Regulation (EC) No 550/2004 of the European Parliament and of the Council on the provision of air navigation services in the single European sky (the service provision Regulation)

    - Regulation (EC) No 551/2004 of the European Parliament and of the Council on the organisation and use of the airspace in the single European sky (the airspace Regulation)

    - Regulation (EC) No 552/2004 of the European Parliament and of the Council on the interoperability of the European Air Traffic Management network (the interoperability Regulation)

    - Directive 2006/23/EC of the European Parliament and of the Council on a Community Air Traffic Controller licence

    - Commission Regulation (EC) No 2096/2005 laying down common requirements for the provision of air navigation services

    - Commission Regulation (EC) No 1315/2007 on safety oversight in air traffic management and amending Regulation (EC) No 2096/2005.

2. French legislation regarding the designation of a Military Supervisory Authority and Regulator

3. DCMAC Study on the opportunities, challenges and risks regarding the implementation of Single European Sky (SES) regulations by National Military Authorities

4. DCMAC Study ''Analysis of Questionnaire – how military authorities within Member States have reacted to SES legislation''

5. DCMAC Study ''Sovereignty in Aviation'', Edition 1.0, edition date 06.02.2009

Annex D: ABBREVIATIONS

AIS	Air navigation Information Service
ANS	Air Navigation Service
ANSP	Air Navigation Service Provider
ASM	Airspace Management
ATC	Air Traffic Control
ATCO	Air Traffic Controller
ATSEP	Air Traffic Safety Electronics Personnel
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATS	Air Traffic Service
CBA	Cross-Border Area
CBO	Cross-Border Operation
CCC	Common Core Content
CNS	Communications, Navigation and Surveillance
COMOPSAIR	Air Component of the Belgian Armed Forces
COTS	Commercial Off-The-Shelf
DCMAC	Directorate Civil-Military Air Traffic Management Coordination
DCS	direction du contrôle de la sécurité (French NSA)
DirCAM	direction de la circulation aérienne militaire (Military ATM Directorate)
DRAG	Double Regulation (Working Group)
EAM	ESARR Advisory Material
EATMN	European Air Traffic Management Network
EC	European Commission
EUROCONTROL	European Organisation for the Safety of Air Navigation
ENPRM	EUROCONTROL Notice of Proposed Rule-Making
ERAF	EUROCONTROL Regulatory and Advisory Framework

ESARR	EUROCONTROL Safety Regulatory Requirements
ESIMS	ESARR Implementation Monitoring and Support
EU	European Union
FAB	Functional Airspace Block
FDP	Flight Data Processing
FTE	Full-Time Equivalent
FUA	Flexible Use of Airspace
GAT	General Air Traffic
HLG	High-Level Group
HQ	Headquarters
ICAO	International Civil Aviation Organization
ISO	International Organization for Standardization
LOA	Letter of Agreement
MET	Meteorological Services
MOD	Ministry of Defence
MOT	Ministry of Transport
NATO	North Atlantic Treaty Organization
NSA	National Supervisory Authority
OJ	Official Journal
OAT	Operational Air Traffic
PC	Provisional Council
PRC	Performance Review Commission
RCS	Risk Classification Scheme
RETEX	Return of Experience
SAFER	Safety Analysis Function EUROCONTROL and associated Repository
SES	Single European Sky
SESIM	Single European Sky Implementation by Military
SMS	Safety Management System

SOFA PfP	Status of Forces Agreement Partnership for Peace
SQMS	Safety and Quality Management System
SRC	Safety Regulation Commission
SSC	Single Sky Committee
TF	Task Force
TOKAI	Tool Kit for ATM Occurrence Investigation
UN	United Nations

Annex E: Briefing Material for Senior Military Decision Makers on the Impact of the SES Interoperability Regulation

EC Single European Sky initiative

The EC Single European Sky initiative's aims are to encourage the safe, efficient and dynamic use of European airspace. To that end, a legislative package including an Interoperability Regulation has been put in place. This Interoperability Regulation (No 552) addresses the measures to be adopted in relation to constituents, systems and associated procedures with the objective of ensuring the interoperability of the EATMN, in terms of Essential Requirements applicable to the EATMN.

The Essential Requirements are:

1. Seamless operation

2. Support for new concepts of operation

3. Safety

4. Civil-military coordination

5. Environmental constraints

6. Principles governing the logical architecture of systems

7. Principles governing the construction of systems

The Interoperability Regulation also specifies that Implementing Rules (IRs) for interoperability should be drawn up for systems, whenever necessary to complement or further refine the essential requirements. The IRs should also be drawn up where necessary to facilitate the coordinated introduction of new, agreed and validated concepts of operations or technologies.

Impact assessment

An integral part of the development of IRs is the **assessment of the impact on the stakeholders, including military authorities, airspace users and service providers**. Where IRs apply to all aircraft flying IFR/GAT, this will include State aircraft flying IFR/GAT. **Therefore, to ensure unrestricted access to airspace, State aircraft have to be interoperable with the civil systems providing service for that airspace. Other alternatives for accommodating State aircraft, such as exemptions and derogations, will be progressively discontinued.**

It is acknowledged that State aircraft operators have strong constraints with regard to the equipage of their fleets. These constraints are mainly related to the very high numbers of aircraft, multiple types and variants, limited budgets, lengthy procurement and technical difficulties in fitting additional equipment in already very complex aircraft. In consequence, **IRs seek to minimise the impact on State aircraft** by refining the requirements relating to civil-military coordination and addressing applicability, associated exemptions and transitional arrangements. For example, additional equipage may be mandated only on transport-type State aircraft that fly more frequently as IFR/GAT.

Recognising the need for civil-military interoperability, but at the same time recognising the abovementioned procurement, budget and technical constraints, the IRs in many instances **contain transitional arrangements** to enable forward fitting and/or retrofitting in a timely manner. Furthermore, in specific, identified cases non-compliance with the carriage requirements is still allowed. Where this is the case, civil ANSPs are obliged to accommodate non-equipped State aircraft within the safety limits of their systems.

Part of the impact assessment is the economic impact, including equipage costs. In many instances **military equipage costs are considerably higher** than those of commercial aircraft, but the exact figures are in most cases not widely available and may vary with each platform considered.

Civil-military coordination: information exchange

A solid information exchange process between civil and military ATM units is essential in order to achieve safety of operations. Therefore, interoperability between supporting systems for the exchange of information is a necessary condition for effective civil-military coordination.

A number of IRs address procedures for coordination and transfer, as well as communication infrastructure and applicable protocols for data exchange in order to ensure mutual traffic awareness. These IRs, as well as supporting Community Specifications (CS), impact on military users.

Implementing rules of particular interest to the military

The following interoperability IRs may have a significant impact on military stakeholders:

1. Air-Ground Voice Channel Spacing (Commission Regulation (EC) No 1265/2007)

2. Data link services (Commission Regulation (EC) No 29/2009)

3. Mode S Interrogator code allocation (Commission Regulation (EC) No xx/yyyy)

4. Surveillance performance and interoperability requirements (under development)

5. Coordination and Transfer (Commission Regulation (EC) No 1032/2006 and Commission Regulation (EC) No 30/2009)

6. Flight message transfer protocol (Commission Regulation (EC) No 633/2007)

7. Initial Flight Plan (Commission Regulation (EC) No 1033/2006)

Further detailed information on the abovementioned IRs can be found on the SES page of the European Commission - Transport website at:

http://ec.europa.eu/transport/air/single_european_sky/single_european_sky_en.htm

Community specifications (CSs)

Implementing Rules are in many cases supported by non-binding Community Specifications containing technical details, which may also impact on the technology options for civil-military interoperability.

Annex F: Example of implementation of SES legislation by the military authorities in France

1. National military ATM context

Regulatory background

In France there are seven military ANS providers:
- four ATS providers, three armies and one flight and acceptance service;
- one AIS provider, which is already ISO certified for ICAO compliance;
- two CNS providers, whose certification is in progress (1 communication only and 1 full CNS).

GAT services are provided by military controllers on behalf of the Ministry of Transport. OAT services could be provided by civil controllers on behalf of the Ministry of Defence.

Military AIS is provided only to military organisations.

Safety regulation is based on the ESARRs and the SES legislation.

ANS provision by military ANSPs to GAT has always raised the question of liability. Numerous risks have been identified arising in the following context:
- Service provision within national airspace and around airports;
- Service provision under bilateral State agreements, for cross-border operations;
- State cooperation agreements (e.g. Djibouti and Ivory Coast);
- Service provision abroad, in the case of military operations either covered or not covered by UN resolutions;
- Service provision in former warzones while restoring peace (e.g. Mostar - Sarajevo).

To mitigate liability risks, various measures have been put in place, such as:
- legal instruments from ICAO (for GAT only);
- SOFA PfP: NATO Status Of Forces Agreement, partnership for peace - DAYTON Agreement;
- UN Resolution dedicated to a specific operational theatre.

A more comprehensive approach to the mitigation of liability risks was considered by the French MOD, which included:
- Establishing a military NSA, a joint civil-military NSA, or another form of participation between military authorities;
- Ensuring that, in the existing or planned regulatory framework:
  - State agreements take into account all aspects of liability for the provision of services;
  - specific items in agreements between ANSPs and their external services for service provision exist;
- Certify military ANSPs against the SES requirements;
- License military ATCOs in accordance with the ATCO Licence Directive.

Rationale for military ANSP certification and licensing of military ATCOs

The decision to certify military ANSPs and license military ATCOs was taken in order to ensure:

- Recognition of the military ANS providers' ability and capacity to provide services to GAT in accordance with recognised standards;

- A legal basis for providing GAT services in former warzones while restoring peace;
- Legitimacy for military ATCOs when providing services to GAT, in France and in operational theatres. This does not cover criminal liability, which always remains with the individual.

2. Establishment of a military NSA
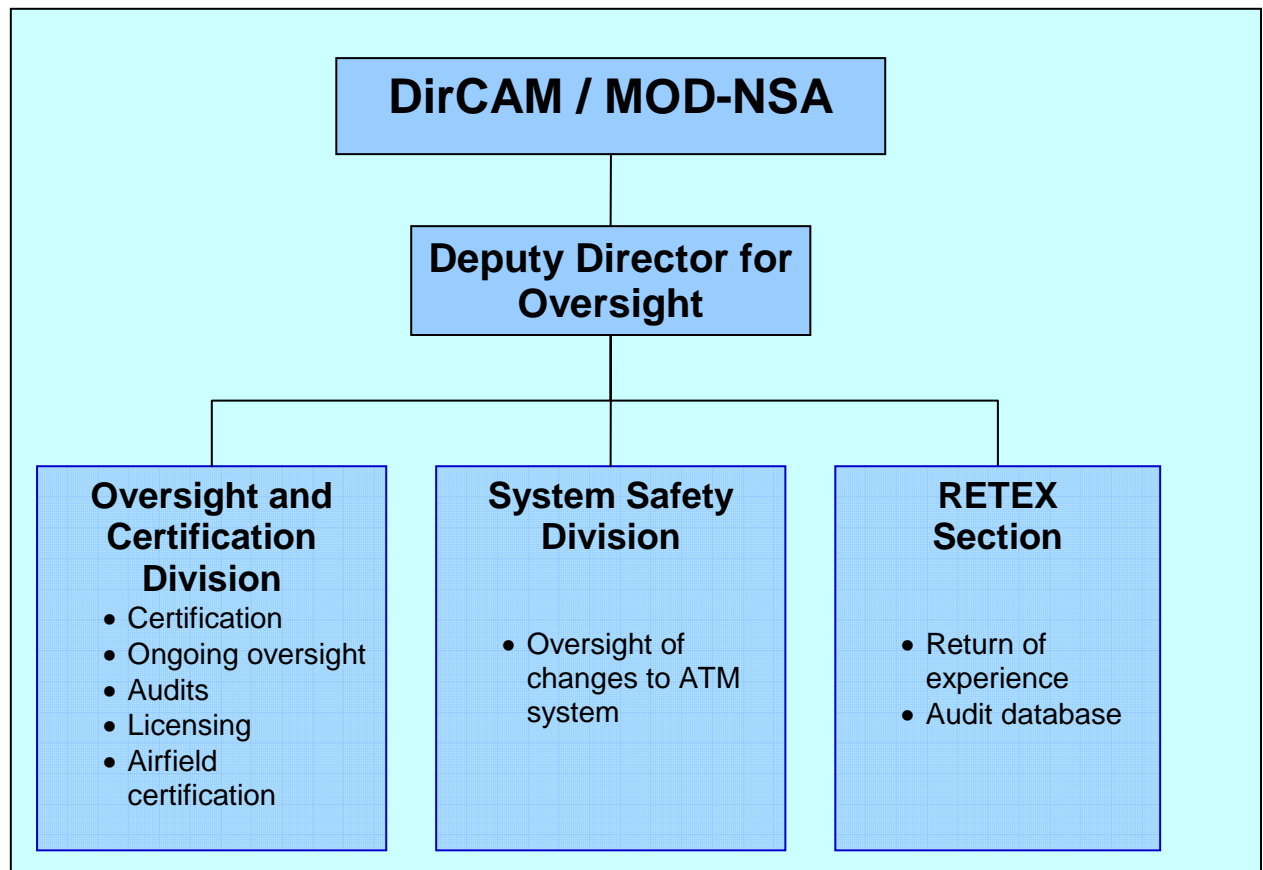
Amendment of State legislation

The French Ministry of Defence decided to enforce the SES, although not mandatory for the military, except for the French Navy, which provides ATS mainly to GAT. Following this decision the civil aviation code was modified by a decree to establishing an NSA within the CAA, including the designating the Military ATM Director (DirCAM) to exercise the functions of the NSA on behalf of the *direction du contrôle de la sécurité* (DCS) within the Ministry of Defence. Based on this decree, DirCAM acts as MOD NSA, subordinate to the State NSA. In practice, DirCAM is considered part of the French NSA. Following the decree, a joint ministerial order was issued which details the supervisory functions exercised by the Military ATM Director. A Letter of Agreement (LOA) between DCS and DirCAM sets out the coordination procedures between the two bodies, including type of required documents, bilateral meetings, annual reporting to the EC, etc.

Appendix 1 below contains translations of the decree establishing an NSA and designating DirCAM to exercise the functions of national supervisory authority on behalf of DCS within the Ministry of Defence, and the joint ministerial order which details the supervisory functions exercised by the Director of Military Air Traffic.

Benefits

The main benefits derive from the fact that the MOD NSA is able to act as an interface between the civil NSA and military service providers. At the same time the military-to-military dialogue is easier than if military ANSPs had to deal directly with the (civil) NSA. Furthermore, recognition of military competence by civil counterparts is enhanced.

Organisational structure of the military supervisory body

Figure 4: French Defence (MOD) NSA organisation

3. Certification of military ANSPs

Common Requirements Implementation

MOD first identified those military ANSPs to which SES regulation would apply and then analysed what would be required to achieve certification. Priority for certification and auditing is based on the percentage of GAT service provision of the total operations, whether or not the airfield is open to GAT, and the presence of commercial airlines at a given military airfield. A specimen application form was sent to ANSPs, which forwarded completed applications to DirCAM. Since DirCAM acts as agent for the NSA, all processes are the same as for the civil ANSPs.

When a military ANSP has been identified as providing a service to GAT, it applies to the Defence NSA for certification, in the same manner as a civil ANSP would to the civil NSA. Defence ANSPs are issued a certificate for ATS or AIS by DirCAM, the Defence NSA. The certificate is the same as that which the civil NSA delivers to civil ANSPs.

Military ANSPs report OAT and GAT movements to DirCAM annually. DirCAM provides the necessary documentation to the NSA and conducts audits of both HQs and units. In order to meet the annual reporting requirements, each military ANSP reports to a joint civil-military commission (in charge of incident investigation). This commission issues an annual report to the MOD and MOT. This report is analysed by the NSA (civil + mil). The French NSA reports to the EC.

SMS bodies have been created; SQMS (safety and quality management system) structures and processes have been introduced. Operational manuals have been revised to take account of SES legislation.

With regard to economic and financial capacity, liability and insurance, these are equivalent to the State's economic and financial capacity, liability and insurance. It has therefore been agreed with the NSA that these requirements are non-applicable for the military ANSPs as part of the French State.

In the field of peer review, DIRCAM would take part as "auditee" where France would be reviewed, as well as military expert in a "review team".

Specific requirements analysis from CRs (Regulation 2096)

In France, open and transparent provision of services is ensured through the AIP, ATS orders and existing user consultation processes.

Security (personnel, facilities and data) is a primary concern of a military organisation and requirements of relevance (CRs) can easily be met.

Most of the procedures and/or organisational structures exist in military ANSPs, in some cases only formalisation could be needed.

Regarding CNS providers, the NSA verifies that a procedure to ensure conformity with ICAO Annex 10 requirements is issued and implemented by the provider.

MSA effort

The audit body consists of nine people: one colonel, two lieutenant-colonels, four majors, and two NCOs (see Figure 4 above). Three new posts were established and others re-allocated. Despite the decision to implement SES legislation, due to the existing workload there have been difficulties in re-allocating existing posts and establishing new posts.

The long process started with transposition of ESARR3 (in 2004) and finished with the issuing of a Single Sky certificate in 2007.

Blank audits (to establish the initial situation) against ESARR 3 transposition started in December 2005. 29 audits were conducted before initial certification (all ANSPs). Certification was granted to the main providers in June 2007. Workload ranged from 0.29 to 2.25 FTEs of oversight staff for each provider certified.

The Air Force provider has 22 units. For certification, 1 blank audit of the HQ was conducted and 10 units and the HQ were audited for the issuing of the certificate.

In the Army and Navy, 1 blank audit of the HQ was conducted; 2 Army and 4 Navy units plus the HQs were audited for the issuing of the certificate.

For the AIS provider, 1 blank audit of the unit was conducted; the unit was audited again for the issuing of the certificate.

Effort at ANSP level

Processes	Major ANSPs	Other ANSPs
Staffing for SMS	HQ: 4 FTEs (2 officers and 2 NCOs)	HQ: 1 to 2 FTEs

	Units: 1 FTE/Unit	Units: 1 FTE/Unit
Audits	Use of the 4 FTEs + audit qualified officer from units. For the period 2007-2008 between 8 and 18 audits were carried out by military ANSPs to verify that their units complied with their management system.	Use of the 1 to 2 FTEs + audit qualified officer from units
Incident investigation	Around 800 incidents to be investigated at local or national level.	Around 100 incidents to be investigated at local or national level.

4. Licensing of military ATCOs

Work is underway to modify civil decrees and orders to make them applicable to military ATCOs. Based on the modified legislation, licences should be issued to military ATCOs by 2009. Whilst this work is underway, the French NSA has taken the decision to recognise military ATCOs' ability to continue to provide services to GAT.

The legal protection that would be afforded to military ATCOs providing ATS to GAT is seen as a major benefit of applying common licensing standards compliant with the EC ATCO Directive. This is especially useful where military ATCOs are deployed in operations either within Europe or with coalition forces from other States deployed outside Europe.

Staff retention is not a problem - all civil ATCOs are civil servants and staff flow between ministries is controlled.

The level of English required for military ATCOs is lower than that required for civil ATCOs. However, each military ANSP has introduced tests to evaluate the level of English of their personnel and training has been put in place to improve that proficiency. Plans have been made to have military ATCOs at ICAO level 4-proficiency in English by 17 May 2010, in accordance with Article 20 of the Directive

Work is underway to adapt existing initial and unit training to comply with the Directive and the certification of ATC training establishments began in May 2008.
The plan is to accomplish conformity by June 2009, for unit training. For initial training, AMCs (acceptable means of compliance) are being identified by the NSA for MIL ATCO school certification, until new simulators are in place in 2010 to comply with the full extent of the CCC (common core content).

Benefits

Closer, more formalised arrangements between civil and military authorities have been achieved.

Despite the hard work required, recognition of military ANSPs' ability and capacity to provide ATS to GAT to legally recognised standards through certification, including in military operational environments was extremely worthwhile.

- Despite their lack of maturity, operational and technical staff starting to implement safety assessment procedures have become convinced of their benefits, e.g. because of the possibility of achieving exhaustive identification of mitigation measures;

- Better assessment and follow-up process of ATM incidents is achieved;
- Safety aspects are taken into account from the start of equipment design;
- Working relations between ANSPs and their external services have been improved and institutionalised;
- Safety awareness of all personnel involved in ATM services has been enhanced;
- Military ATCO training is harmonised with civil training;
- The strong formalisation requested resulted in the updating of all the non-formalised work procedures:
  - Facilitation of personnel rotation by providing a description of staff responsibilities, jobs and procedures;
  - Harmonisation of organisational structures at unit level and working procedures.

Difficulties

For Defence ANSPs

- SMS requires new competencies, as well as introduction of risk assessment and mitigation processes
  - *EUROCONTROL courses need a knowledge of English, number of available places is low*
  - *National courses do not always exactly meet the aim (e.g. safety case)*
- Most of the time, the work can be done without increasing staff numbers

For the civil NSA

- Increased number of organisations to certify and for ongoing surveillance (assessment of human resources needed)
- To define the relationship to be established with military authorities (who, where, how?)

Regulation consistency (ESARR vs. SES) and completeness are not yet sufficient, and many gaps still have to be bridged. At European level the following topics have been addressed through the work of the Risk Classification Scheme (RCS) double regulation (DRAHG) working groups. France's choice, in the event of inconsistencies between SES and ESARR, was to apply the SES regulations.

Safety assessment and mitigation is only at a very early phase, although each ANSP has developed its own procedures which were agreed by the NSA.

The Regulation has been designed for civil ANSPs, which the French Defence is definitely not. Military ANSPs do not have all the required tools:

- Human resources are managed by the relevant armed forces (recruitment, allocation of personnel);
- Equipment financing is not at ANSP level, nor is the procurement process.

The approach applied is to ensure that assessment in these domains is carried out and that requests to Headquarters are made if necessary.

If resources are not put in place, verification that mitigation measures have been taken is needed (e.g. where there is a lack of personnel).

5. Lessons learned

The significant effort required by the NSA and ANSPs should not be underestimated. A period of one-and-a-half years was necessary to achieve compliance with minimum requirements,

including the SQMS, organisational structure, safety assessment and mitigation processes annual reporting and security management.

However, the French military authorities are convinced that the harmonisation of structures and working procedures has been worthwhile.

- Staffing of SMS structures requires sufficient staff with adequate qualifications (SMS knowledge, audit techniques, ATM environment) :
  - o Could encompass ATCOs, ATSEPs, quality experts, engineers, pilots
- Reporting has been initiated earlier
  - o control units report correctly;
  - o Next step is for ANSPs to exploit these reports for lessons learned and to take corrective action if needed;
- Communication with base level and senior officers was not sufficient. Six months after certification, awareness still has to be improved. Long-term communication action is needed, both at NSA and ANSP levels;
- ISO 9001 certification of the AIS provider was very helpful for SES certification;
- French Defence procurement system and safety assessment requirements will have to be adapted to one another for major changes;
- Involvement of industry manufacturers needed, communications with them to be well developed

6. Interoperability

Measures have been taken to identify a 'notified body' within the Defence Ministry. France plans to involve the "Délégation générale pour l'armement" to better integrate ATM equipment acquisition through the formal recognition of SES requirements. The military authorities are in discussions with the NSA about the regulation of joint-use systems
With regard to Annex II (Essential Requirements) Part B, work is in progress to take account of the specific requirements of the Interoperability Regulation and their implications for military or joint military-civil systems. Any COTS systems should meet those requirements by default. France plans to involve the "Délégation générale pour l'armement" to assess the conformity of the systems.

Appendix 1 to Annex F: French legislation regarding designation of Military Supervisory Authority and Regulator

Summary:

The French Decree No. 2005-1349 of 31 October 2005 amending Articles D. 131-1 to D. 131-10 of the Civil Aviation Code is an example of how the military regulator and the military supervisory authority are identified in France. In Paragraph 1 this decree deals with Airspace management, definition of the types of air traffic and of the air traffic rules. Paragraph 2 deals with the power and supervision of the air traffic bodies. Article D. 131-10 defines the "direction du contrôle de la sécurité" of the Directorate General of Civil Aviation as French NSA within the meaning of Article 4 of Regulation (EC) No. 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky. The Director of Military Air Traffic is designated to exercise the functions of national supervisory authority on behalf of the "direction du contrôle de la sécurité" within the Ministry of Defence.
Order of 4 July 2006 is related to the supervisory functions exercised by the Director of Military Air Traffic.

Translation of the French Decree:

1 November 2005   OFFICIAL JOURNAL OF THE FRENCH REPUBLIC   Text 11 of 93

Decrees, orders and circulars

GENERAL TEXTS

MINISTRY OF TRANSPORT, INFRASTRUCTURE, TOURISM AND THE SEA

Decree No. 2005-1349 of 31 October 2005 amending Articles D. 131-1 to D. 131-10 of the Civil Aviation Code

NOR: *EQUA0500940*D

The Prime Minister,

on the basis of a report by the Minister for Defence and the Minister for Transport, Infrastructure, Tourism and the Sea,

having regard to the Convention on International Civil Aviation of 7 December 1944 and all amending protocols thereto, in particular the protocol of 30 September 1977 concerning the authentic quadrilingual text of the said Convention;

having regard to the Civil Aviation Code;

having regard to Decree No. 75-930 of 10 October 1975, as amended, relating to air defence, and in particular Article 7 thereof;

having regard to Decree No. 96-577 of 27 June 1996 as amended concerning the powers of the Director of Military Air Traffic;

having regard to Decree No. 2005-471 of 16 May 2005 determining the organisation of the central administration of the Ministry of Infrastructure, Transport, Regional Planning, Tourism and the Sea;

having regard to the Order of 22 January 1987 determining the powers of the General in command of Air Defence as regards air traffic, and in particular Article 4 thereof;

         hereby issues the following Order:

Art. 1. – Section 1 of Chapter 1 of Title III of Book I of the Civil Aviation Code (Decrees) shall hereby be amended as follows:

"Paragraph 1

Airspace management,
definition of the types of air traffic and of the air traffic rules

"D. 131-1. – The Minister for Defence and the minister responsible for civil aviation shall jointly organise French airspace and the airspace placed under French jurisdiction, and shall issue regulations governing the use of such airspace.

D. 131-1-1. – A *directoire de l'espace aérien* [Directorate of Airspace Policy] shall be set up, the roles and powers of which shall be determined by joint order of the Minister for Defence and the minister responsible for civil aviation . The *directoire de l'espace aérien* shall ensure the coordination of State activities as regards the organisation and use of airspace. It shall be made up of the Director of Strategic and Technical Affairs and the Director of Military Aviation.

D. 131-1-2. – The regional airspace management committees, whose geographical jurisdiction, composition and powers shall be determined by order of the minister responsible for civil aviation and the Minister for Defence, shall report to the *directoire de l'espace aérien.*

D. 131-2. – Air traffic shall comprise:

– general air traffic, which falls within the competence of the minister responsible for civil aviation, and

– military air traffic, which falls within the competence of the armed forces.

D. 131-3. – General air traffic shall comprise all movements of aircraft subject to the regulations governing this type of traffic.

D. 131-4. – Military air traffic shall comprise all movements of aircraft which, for technical or military reasons, are covered by the regulations governing this type of traffic.

Military air traffic shall include test and acceptance traffic, which shall comprise all test, acceptance or technical flights subject, for technical reasons and with the agreement of the director of the test-flight centre, to the regulations governing this type of traffic.

D. 131-5. – The rules applicable to each of these types of air traffic must be compatible with those governing the other type of air traffic. The Minister for Defence and the minister responsible for civil aviation shall, by joint order, lay down rules intended to ensure such compatibility.

D. 131-6. – Within the framework determined by Article D. 131-5, the minister responsible for civil aviation and the Minister for Defence shall establish the rules governing the air traffic for which they are responsible.

D. 131-7. – The rules of the air, as laid down by order of the minister responsible for civil aviation and adopted following the agreement of the *directoire de l'espace aérien*, shall apply in the airspace in which air traffic services are provided under the responsibility of the French authorities to:

– pilots of aircraft flying as general air traffic, and

– air navigation service providers, i.e. any entity or body providing services to general air traffic.

They shall apply outside such airspace to aircraft bearing French registration and nationality markings insofar as they are compatible with the rules laid down by the State or the international body which has jurisdiction over the airspace in which such aircraft are located.

D. 131-8. – The rules for military air traffic, as laid down by order of the Minister for Defence and adopted following the agreement of the *directoire de l'espace aérien*, shall be established in accordance with the rules of the air insofar as they are adapted to missions by the armed forces and the test-flight centre.

Paragraph 2

Powers and supervision of the air traffic bodies

D. 131-9. – The services which the bodies responsible for general air traffic provide to such traffic shall be as determined by order of the minister responsible for civil aviation, adopted following the agreement of the *directoire de l'espace aérien*.

The services which such bodies provide to military air traffic shall be as determined by order of the Minister for Defence, adopted following the agreement of the *directoire de l'espace aérien*.

In accordance with the arrangements as determined by joint orders of the minister responsible for civil aviation and the Minister for Defence, certain military air traffic bodies may provide general air traffic with services defined by order as referred to in the first paragraph of the present Article, and certain general air traffic bodies may reciprocally provide military air traffic with services defined by order as referred to in the second paragraph of the present Article, provided that the latter services are compatible with the customary conditions for the exercise of general air traffic control.

As regards general air traffic, these services shall be provided, on behalf of the minister responsible for civil aviation, pursuant to Article D. 131-3 of the present Section, and as regards military air traffic, they shall be provided, on behalf of the Minister for Defence, pursuant to Article D. 131-4 of the present Section.

D. 131-10. – In accordance with the provisions of III of Article 10 of Decree No. 2005-471 of 16 May 2005 determining the organisation of the central administration of the Ministry of Infrastructure, Transport, Regional Planning, Tourism and the Sea, the *direction du contrôle de la sécurité* of the Directorate General of Civil Aviation shall be the national supervisory authority within the meaning of Article 4 of Regulation (EC) No. 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky.

Within the Ministry of Defence, the functions of national supervisory authority shall be exercised on behalf of the *direction du contrôle de la sécurité* by the Director of Military Air Traffic. A joint order of the Minister for Defence and the minister responsible for civil aviation shall specify the conditions for the exercise of these powers."

Art. 2. – On a transitional basis, and until the entry into force of the orders referred to in Articles D. 131-7, D. 131-8 and D. 131-9, the annexes provided for in application of the provisions of these Articles in their wording prior to the present Decree shall remain in force.

Art. 3. – The provisions of the present Decree shall be applicable in Mayotte, Wallis and Futuna, French Polynesia, New Caledonia and the French Southern and Antarctic Lands.

For the purposes of the application of Article D. 131-10 in these territories, the terms "within the meaning of Article 4 of Regulation (EC) No. 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky" shall be replaced by the following provisions: "which is responsible for supervising the implementation of the requirements applicable to the provision of air traffic management services to general air traffic".

Art. 4. – The Minister for Defence, the Minister for Transport, Infrastructure, Tourism and the Sea and the Minister for Overseas Territories shall be responsible, each in his/her own field of competence, for the implementation of the present Order, which shall be published in the Official Journal of the French Republic.

Done in Paris on 31 October 2005.

By the Prime Minister: Dominique de Villepin

Dominique Perben

Minister for Transport, Infrastructure, Tourism and the Sea

Michèle Alliot-Marie
Minister for Defence

François Baroin
Minister for Overseas Territories

Translation of the French Order:

Decrees, orders and circulars

GENERAL TEXTS

MINISTRY OF TRANSPORT, INFRASTRUCTURE, TOURISM AND THE SEA

Order of 4 July 2006 relating to the supervisory functions exercised by the Director of Military Air Traffic

NOR: *EQUA0601207*A

The Minister for Defence and the Minister for Transport, Infrastructure, Tourism and the Sea,

having regard to the Convention on International Civil Aviation of 7 December 1944 and all amending protocols thereto, in particular the protocol of 24 September 1968 concerning the authentic trilingual text of the said Convention;

having regard to Regulation (EC) No. 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky, and in particular Article 4 thereof;

having regard to Regulation (EC) No. 550/2004 of the European Parliament and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky;

having regard to Commission Regulation (EC) No 2096/2005 of 20 December 2005 laying down common requirements for the provision of air navigation services;

having regard to Directive 2006/23/EC of the European Parliament and of the Council of 5 April 2006 on a Community air traffic controller licence;

having regard to the Decision of the EUROCONTROL Permanent Commission of 5 November 2004 approving the EUROCONTROL Safety Regulatory Requirement - ESARR 1 - entitled "Safety Oversight in ATM";

having regard to the Civil Aviation Code, in particular articles L. 722-2 and D. 131-1 to D. 131-10 thereof;

having regard to Decree No. 96-577 of 27 June 1996, as amended, concerning the powers of the Director of Military Air Traffic;

having regard to Decree No. 2005-471 of 16 May 2005 determining the organisation of the central administration of the Ministry of Infrastructure, Transport, Regional Planning, Tourism and the Sea, and in particular Article 10-III thereof;

having regard to the Order of 26 March 2004 concerning the reporting and assessment of safety occurrences in air traffic management;

having regard to the Order of 28 October 2004 concerning the use of safety management systems by air traffic management service providers;

hereby issue the following Order:

Art. 1.– For the purposes of application of the present Order, the terms set out below shall be taken to

mean the following:

– "Ministry of Defence auditor": any staff Member designated an "auditor" by the Director of Military Air Traffic;

– "major change": any change made to the air traffic management system and defined as such by the Director of Military Air Traffic in accordance with paragraph 7 of the EUROCONTROL Safety Regulatory Requirement relating to safety oversight in ATM (ESARR 1) of 5 November 2004;

– "air traffic management (ATM)": the aggregation of the airborne and ground-based functions (air traffic services, airspace management and air traffic flow management) required to ensure the safe and efficient movement of aircraft during all phases of operations;

– "Ministry of Defence service provider providing air navigation services for general air traffic": any Ministry of Defence entity providing air navigation services for general air traffic, in accordance with the provisions of the third paragraph of Article D.131-9 of the Civil Aviation Code;

– "certificate": any document, howsoever designated, which is drawn up and issued in accordance with the regulations in force and which certifies that its holder can provide air traffic control services in accordance with the ratings and/or endorsements to which it attests.

Art. 2. – The Director of Military Air Traffic shall, on behalf of the *direction du contrôle de la sécurité* [French national supervisory authority], exercise supervisory functions in accordance with Article D. 131-10 of the Civil Aviation Code.

He shall be entrusted in particular with:

– the designation of Ministry of Defence auditors;

– the identification, certification and on-going supervision of the Ministry of Defence service providers providing general air traffic services, with a view to the audits conducted by Ministry of Defence auditors;

– the verification of compliance with safety regulatory requirements concerning risk assessment and mitigation for any changes made to the air traffic management system by Ministry of Defence service providers providing general air traffic services;

– acceptance of the implementation of major changes made to the air traffic management system by Ministry of Defence service providers providing general air traffic services;

– the examination of applications and granting of exemptions as provided for in the instruments in force to Ministry of Defence service providers providing general air traffic services;

– the drafting of instructions for Ministry of Defence service providers providing general air traffic services to ensure that the latter take the corrective action required to guarantee their compliance with the regulations applicable to them;

– the approval and supervision of the Ministry of Defence body or bodies entrusted with the training of air navigation staff, and of the training given by such bodies;

– the issuing, monitoring, suspension and withdrawal of the certificates of controllers falling under the responsibility of the Ministry of Defence who provide general air traffic services.

The Director of Military Air Traffic shall sign all documents relating to the exercise of the functions defined by the present Order.

Art. 3. – The Director of Military Air Traffic shall apply the *direction du contrôle de la sécurité* procedures defining the arrangements for the exercise of the supervisory functions.

The head of the *direction du contrôle de la sécurité* may publish specific safety instructions applicable to Ministry of Defence service providers providing general air traffic services, after checking with the Director of Military Air Traffic that such instructions are applicable.

The head of the *direction du contrôle de la sécurité* may request the Director of Military Air Traffic to draft instructions for Ministry of Defence service providers providing general air traffic services to ensure that the latter take the corrective action required to guarantee their compliance with the regulations applicable to them.

Art. 4. – The Director of Military Air Traffic shall send the head of the *direction du contrôle de la sécurité* all documents resulting from the exercise of the powers defined in the present Order.

The Director of Military Air Traffic shall send the head of the *direction du contrôle de la sécurité* an

annual report on the supervision of safety within the Ministry of Defence.

The Director of Military Air Traffic and the head of the *direction du contrôle de la sécurité* shall agree on which data contained in the said report are to be communicated to the competent European authorities.

The additional arrangements for the implementation of the present Order shall be as defined in a protocol jointly signed by the head of the *direction du contrôle de la sécurité* and the Director of Military Air Traffic.

Art. 5. – The Director of Military Aviation and the head of the *direction du contrôle de la sécurité* shall be responsible, each in his/her own field of competence, for the implementation of the present Order, which shall be published in the Official Journal of the French Republic.

Done in Paris on 4 July 2006.

The Minister for Transport, Infrastructure, Tourism and the Sea,
For the Minister and by delegation:
P. Schwach
Director of Strategic and Technical Affairs

The Minister for Defence,
For the Minister and by delegation:
J.-R. Cazarré
Director of Military Air Traffic

Annex G: Example of implementation of SES legislation by the military authorities in Italy

1. National military ATM context

Regulatory background

In Italy the Air Force (ITAF) is the only military ANS provider (ATS, AIS, CNS, MET).

ANS to OAT is provided by ITAF within Italian FIRs. ITAF reports to the Ministry of Defence.

ANS are provided by ITAF within the airspace assigned by national law (DPR 484/81).

Military AIS is provided both to military and civil organisations.

In addition, ITAF provides national GAT meteorological services comprising:
- Aeronautical watch via 1°CMR Milano Linate as the Meteorological Watch Office (MWO);
- Europe Region Met Aeronautical Telecommunication via CNMCA Pratica di Mare as the RODEX Centre;
- Volcanic ash observations via the Sigonella Met Office.

Before implementation of SES, ITAF was, *de facto*, the regulatory authority for aeronautical meteorology. Since then, ITAF has worked with the Ente Nazionale per l'Aviazione Civile (ENAC) on regulatory matters.

Safety regulation is based on ESARRs and SES legislation.

The Italian Air Force has adapted its organisational structure in order to generate functional separation between the high-level body "Airspace and Meteorology General Office" (USAM), accountable for the internal supervision of services, and the units responsible for the provision of ANS (major commands).

Internal supervision activities and ANS provision to GAT are performed by the Italian Air Force in compliance with European Community laws and national regulations promulgated by the NSA (ENAC).

As required by Italian law, ENAC carries out its supervision of ANS provided by ITAF to GAT in accordance with a special agreement signed by the two organisations.

Rationale for military ANSP certification and licensing of military ATCOs

ITAF, through its organisation, provides supervision and ensures standards compliance of ANS. ITAF does not submit certification to ENAC (NSA/CAA) in accordance with EC Regulation 550/2004, but conducts its own certification process and delivers to ENAC a "conformity declaration". An internal military process has been implemented to guarantee that military ANSPs and ATCO licences are taken into account in order to ensure:

- Recognition of the military ANSP's ability and capacity to provide GAT services in accordance with EU/ICAO standards
- Legitimacy for military ATCOs when providing GAT services.

2. Establishment of military organisation

Amendment of State legislation

The Italian MOD decided to enforce SES, although not mandatory for military authorities. Stemming from SES Regulation 550/2004, National Regulation 265/04 identifies ENAC as the regulator and the NSA.

In accordance with European Community Regulation 550/2004, Article 7, paragraph 5, ITAF is authorised to provide ATS, CNS and MET services to GAT without certification. ITAF has adapted its organisational structure in order to generate functional separation between the high-level body accountable for the internal supervision of services, USAM, and the units responsible for the provision of ANS.

Benefits

Even though GAT provision by the military was provided previously under international civil/military laws, the main benefit deriving from the implementation of SES legislation is the fact that the MOD Air Staff (USAM) is able to act as an interface between the NSA (ENAC) and the military service provider. This means that any implementation becomes easier to achieve than if the military ANSP had to deal directly with the (civil) NSA.

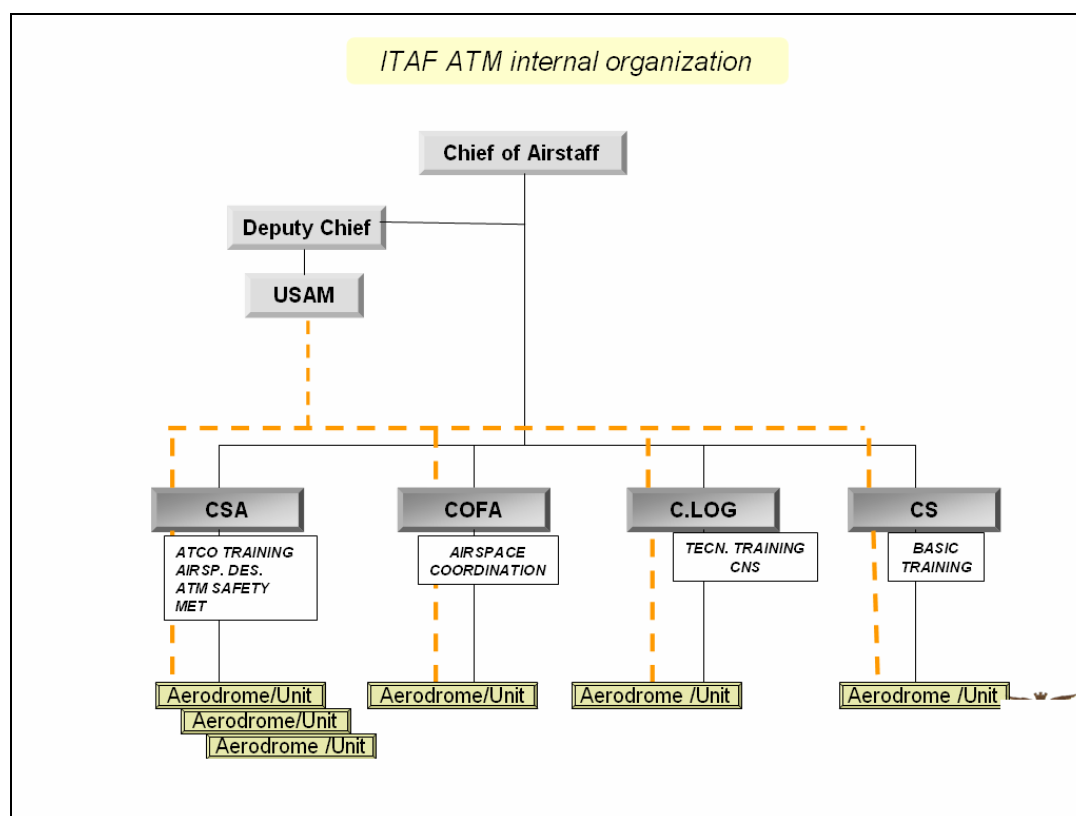### *Organisational structure of the military supervisory body*

Figure 5: MOD Italian Air Staff USAM organisation

3. Equivalent level of compliance of the military ANSP

Common Requirements Implementation

ANS provision in Italy, for both general (GAT) and operational (OAT) traffic, was the responsibility of ITAF until 1981.

In that year, under Presidential Decree DPR 145, the civil ANSP, ENAV (originally called AAAVTAG) was established as a public entity under the supervision of the Ministry of Transport, and its tasks included:

− provision of ANS to GAT, including ATM and radio-navigation, within the airspace delegated to it;

− training and licensing of ATM personnel;

− flight inspection and commissioning of navaids and other infrastructure;

− airport weather services;

− obligation to maintain maximum safety.

Today ANS are provided either by ENAV S.p.A. or ITAF within the airspace assigned to those bodies respectively by national law (DPR 484/81).

Safety Management System (SMS) bodies have been created and structures and processes have been introduced, with directives and manuals revised to take account of SES legislation.
In order to meet the reporting requirements, the adoption of EC Directive 2003/42 has been completed with the promulgation of Decree No. 213, dated 2 May 2006. The voluntary reporting system has already been introduced and is managed by ANSV. In January 2008 ENAC issued a specific advisory circular on mandatory reporting to regulate the procedural side. On this basis ENAV and ITAF transmit to ANSV and ENAC all information relating to occurrence reporting and the analysis of safety occurrences. In accordance with the decision taken by the Commission, acting under the aegis of the Ministry of Transport, where ITAF, ENAV, ENAC and ANSV are represented, a national AST focal point (ENAC) has been set up. Relevant safety data is currently collected and forwarded to this national AST focal point. The Tool Kit for ATM Occurrence Investigation (TOKAI) is used to prepare and send data to EUROCONTROL.
ESARR4 is going to be transposed, e.g. Reg. 2096/2005/CR. ITAF has developed and is going to adopt Safety Assessment Methodologies (SAM) for Functional Hazard Assessment (FHA), Preliminary System Safety Assessment (PSSA) and SSA.
The priority for auditing is based on the percentage of GAT service provision in relation to the total number of air movements.
With regard to economic and financial capacity, liability and insurance, these are equivalent to the economic and financial capacity, liability and insurance of the State, and it has therefore been agreed with the NSA that these requirements are outside the scope of military ANSPs as part of the Italian State. In addition, ITAF has prepared a three-year financial plan for CNS equipment modernisation and maintenance at those airports where ANS are provided mostly to GAT.

Specific requirements analysis from CRs (Regulation 2096)

In Italy, all AIS provision is open and transparent through AIS publications.

Security (personnel, facilities, and data) is a primary concern of a military organisation and requirements of relevance (CRs) can easily be met.

Most of the procedures and/or organisational structures are in place in ITAF; in some cases only formalisation could be needed.

Regarding CNS, ITAF is going to put in place a procedure to ensure conformity with ICAO Annex 10 requirements.

MSA effort

The audit body consists of a dedicated office within the USAM organisation headed by a colonel and organised in four sections with a total of 15 officers and NCOs.

The long process of implementation began in 2004 with the promulgation of Law 265 which specified ENAC as the NSA and stipulated its separation from ENAV (the civil ANSP), and ITAF (the military ANSP) for the provision of ANS to GAT. Subsequently, a letter of agreement was signed between ENAC and ITAF setting out the internal supervision activities performed by ITAF through USAM, set up as a high-level body.

Initial audits to establish the initial situation were conducted as from late 2007. At the same time a training programme for auditors was initiated and in 2008 eight audits were conducted to achieve "conformity status" in December 2008.

In the same period, audits of the ATCO school and AIS department were also conducted.

Effort at ANSP level

Processes	High-level body	ATS units (airports)
Staffing for SMS	SMS function is at ANS provision level through the structure. The ANSP level is at the High Command level (4 high commands). At this level there are four SMS offices providing audits, maintenance, system corrections, etc.) Investigations are carried out by the Air Command (CSA) for all incidents in the Air Force.	In all airports and ATS units SMS is developed through an officer formally appointed by and reporting directly to the commander.
Audits	In 2008, 8 audits were carried out by USAM to verify that the units complied with CRs	
Incident investigation	At national level, 200 investigations were carried out	Around 300 incidents were investigated locally

4. Licensing of military ATCOs

In February 2006, ENAC issued the new ATCO licensing national regulation based on the draft of the corresponding EU Directive, which was enforced in May 2008. Implementation of this regulation has been carried out by ITAF. Existing initial and unit training is compliant with the directives and this was verified during the aforementioned audit at the ATCO school. Therefore all military ATCOs are issued with a civil EU licence provided by ENAC.

All ITAF operative ATCOs fully meet ICAO's class 4 language proficiency requirement. The English language test developed, called "TPT", is compliant with ICAO DOC 9835. All ITAF ATCOs meet the European class 3 medical requirements. All ATCOs undergo an annual medical test regardless of their age.

A specific directive will be issued to meet the general requirements for ATSEP qualification contained within ESARR5. In addition, on a purely national basis, ENAC is considering adoption of a specific regulation for ATSEP licensing by the end of 2009.

Benefits

As far as implementation of EC regulations is concerned, military structures had to change in order to better meet new needs. This change required additional effort and resources, including manpower, specific high-level training, etc. As the process is still immature, to date it has been difficult to identify benefits.

However, the introduction of SMS has spread a "safety culture", which was previously not well developed in some areas.

The new safety reporting system has made possible an easier procedure for reporting and investigation activities; indeed, the number of reports has increased. In this field ITAF has introduced a new directive to simplify the reporting of incidents by ATCOs in all ANS areas. The rationale was to unify all previous means of reporting into one model meeting international and national legal requirements. The model introduced is called MoUSe (acronym stands for Modello Unico di Segnalazione) and it consolidates into three sections all information about the typology of and general data on an ATM incident (by checking boxes), details of the incident in free text and a diagram and a final appendix about any incidents relating to MET, CNS or AIS. This way of reporting tries to incorporate all the information required by ESARR 2 and national laws into one simple model provided to ATCOs for the reporting function. The model has also been produced in an Excel version for sending via mail.

Relationships between the high-level body and operational ATS units have been improved.

Difficulties

The implementation of SMS requires additional resources, which has been challenging because the organisation has been changed without an increase in staff, either at USAM or at operational ATM units.

In the same period GAT has increased at military airports open to commercial flights.

Training for auditors required an additional budget, as did the audits themselves. Currently there are a sufficient number of qualified auditors at USAM and in 2009 another 14 are expected to qualify.

5. Lessons learned

Detailed planning was required at the outset to implement SES legislation by the military authorities in Italy, and to achieve compliance with minimum requirements within 2 years (organisational structure, SMS, licensing, auditing, safety assessment and mitigation process, occurrence reporting, QMS, contingency plan).

More time will be needed for the full implementation of all CRs, and in particular:

− The implementation of SMS activities requires additional personnel with the appropriate competencies;
− The occurrence reporting system helps to spread a "safety culture" providing a better approach to investigation and mitigation processes;
− New directives after the first cycle of audits should be revised to better fit their purpose;
− New developments are probably going to be introduced in the investigation function by moving the office at central level (Air Staff) where a flight safety inspectorate is located. This could bring further improvements regarding ATM recommendations, the dissemination of lessons learned and the promotion of a safety culture.
− New directives are going to be issued in the short term regarding the definition and monitoring of safety objectives.

6. Interoperability

Measures have been taken to insert specific clauses into contracts for ATM equipment acquisition to guarantee the formal recognition of the interoperability requirement for new CNS systems.

Appendix 1 to Annex G: Statement by the Italian Air Force

In accordance with the European Community Regulation 550/2004, article 7, paragraph 5, the Italian Air Force is authorised to provide ATS, CNS, MET Services to General Air Traffic – (GAT) in absence of Certification.

The Italian Air Force has adapted its organisational structure in order to generate functional separation between the high level body accountable for services' internal supervision and the units responsible for the provision of Air Navigation Services.

Internal supervision activities and provision of Air Navigation Services to GAT are ensured in compliance with European Community laws and national regulation promulgated by the National Supervisory Authority, Ente Nazionale per l'Aviazione Civile (ENAC).

''The Italian Air Force provides ATS, CNS and MET services to GAT in absence of certification ensuring full compliance with EU Community requirements and NSA regulations.''

Annex H: How military authorities in the UK have addressed SES Regulations

1. The UK provides a good example of a State whose military authorities have a mature, long-standing and robust safety regulatory framework for aviation, which includes the regulation of ATM. In the UK, the legal basis of this regulatory framework emanates from Letters of Delegation from the Secretary of State for Defence to the Assistant Chief of Air Staff, giving the Royal Air Force the authority to self-regulate[23]. These Letters set the policy and require compliance wherever possible with relevant regulations on civil aviation matters. However, in cases where compliance cannot be ensured, the policy demands the introduction of standards and management arrangements that are, so far as reasonably practicable, equivalent to those required by legislation. This being the case, it is the UK's policy that the SES regulations do not apply directly to the military and instead military authorities demonstrate equivalence with the regulations. The UK Civil Aviation Authority (CAA) is the UK's nominated NSA and, whilst there is permanent military representation in the CAA's Directorate of Airspace Policy (DAP), the CAA has no regulatory oversight powers in respect of military operations or ATM.

2. The most recent demonstration of equivalence can be drawn from the 2007 ESARR Implementation Monitoring and Support (ESIMS) audit, for which UK military authorities completed an exhaustive compliance checklist. Whilst at the strategic level it is policy that SES does not apply to the military, the audit showed that ESARRs, upon which most SES legislation is based, are in an advanced state of implementation within the UK Armed Forces. For example:

    - Most provisions of ESARRs 2 to 5 have been implemented on the basis of the UK Defence Policy Statement through Joint Service Publications, NATO STANAGs, the Military Safety Management Manual and other defence standards' documents;

    - There are bodies responsible for:

        o The development, regulation and audit of aviation safety policy;

        o The preparation of military aviation regulations, policy documents and directives;

    - There is functional separation between service provision and safety regulation, with an NSA-type oversight organisation within HQ Air Command that operates a credible safety regulatory audit programme to verify implementation of, and compliance with all applicable safety regulatory requirements by the military service providers;

    - Military authorities have adopted and apply identical definitions to those of the CAA.

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[23] Similar delegations exist for the Royal Navy and the British Army.

Annex I: Single European Sky Legislation

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY AND TRANSPORT

DIRECTORATE F - Air Transport
Single sky & modernisation of air traffic control

Brussels, 20 January 2009
TREN F2/EMM

SINGLE EUROPEAN SKY LEGISLATION

- **Regulation (EC) N° 549/2004 of the European Parliam ent and of the Council of 10 March 2004 laying down the framework for the creation of the single European sky (the framework Regulation)**

    OJ L 96, 31.3.2004, p. 1.

- **Regulation (EC) N° 550/2004 of the European Parliam ent and of the Council of 10 March 2004 on the provision of air navigation services in the single European sky (the service provision Regulation)**

    OJ L 96, 31.3.2004, p. 10.

- **Regulation (EC) N° 551/2004 of the European Parliam ent and of the Council of 10 March 2004 on the organisation and use of the airspace in the single European sky (the airspace Regulation)**

    OJ L 96, 31.3.2004, p. 20.

- **Regulation (EC) N° 552/2004 of the European Parliam ent and of the Council of 10 March 2004 on the interoperability of the European Air Traffic Management network (the interoperability Regulation)**

    OJ L 96, 31.3.2004, p. 26.

- **Council Decision of 29 April 2004 on the conclusion by the European Community of the Protocol on the accession of the European Community to the European Organisation for the Safety of Air Navigation (2004/636/EC)**

    OJ L 304, 30.9.2004, p. 209.

- **Commission Regulation (EC) N° 2096/2005 of 20 Decem ber 2005 laying down common requirements for the provision of air navigation services**

    OJ L 335, 21.12.2005, p. 13.

- **Commission Regulation (EC) N° 2150/2005 of 23 Decem ber 2005 laying down common rules for the flexible use of airspace**

    OJ L 342, 24.12.2005, p. 20.

- **Directive 2006/23/EC of the European Parliament and of the Council of 5 April 2006 on a Community air traffic controller licence**

    OJ L 114, 27.4.2006, p. 22.

- **Commission Regulation (EC) N° 730/2006 of 11 May 20 06 on airspace classification and access of flights operated under visual flight rules above flight level 195**

    OJ L 128, 16.5.2006, p. 3.

- **Commission Regulation (EC) N° 1032/2006 of 6 July 2 006 laying down requirements for automatic systems for the exchange of flight data for the purpose of notification, coordination and transfer of flights between air traffic control units**

    OJ L 186, 7.7.2006, p. 27.

- **Commission Regulation (EC) N° 1033/2006 of 4 July 2 006 laying down the requirements on procedures for flight plans in the pre-flight phase for the single European sky**

    OJ L 186, 7.7.2006, p. 46.

- **Commission Regulation (EC) N° 1794/2006 of 6 Decemb er 2006 laying down a common charging scheme for air navigation services**

    OJ L 341, 7.12.2006, p. 3.

- **Council Regulation (EC) N° 219/2007 of 27 February 2007 on the establishment of a Joint Undertaking to develop the new generation European air traffic management system (SESAR)**

    OJ L 64, 2.3.2007, p.1.

- **Commission Regulation (EC) N° 633/2007 of 7 June 20 07 laying down requirements for the application of a flight message transfer protocol used for the purpose of notification, coordination and transfer of flights between air traffic control units**

    OJ L 146, 8.6.2007, p.7.

- **Commission Communication concerning the implementation of Article 4 of Regulation (EC) N° 552/2004 of the European Parliam ent and of the Council on the interoperability of the European Air Traffic Management network (2007/C 188/03)**

    OJ C 188, 11.8.2007, p. 3.

- **Commission Regulation (EC) N° 1265/2007 of 26 Octo ber 2007 laying down requirements on air-ground voice channel spacing for the single European sky**

    OJ L 283, 27.10.2007, p. 25.

- **Commission Regulation (EC) N° 1315/2007 of 8 Novemb er 2007 on safety oversight in air traffic management and amending Regulation (EC) N° 2096/2005.**

    OJ L 291, 9.11.2007, p. 16.

- **Commission Communication concerning the implementation of Article 4 of Regulation (EC) N°552/2004 of the European Parliam ent and of the Council on the interoperability of the European Air Traffic Management network (2007/C 290/06)**

    OJ C 290, 4.12.2007, p. 7.

- **Commission Communication concerning the implementation of Article 4 of Regulation (EC) N°552/2004 of the European Parliam ent and of the Council on the interoperability of the European Air Traffic Management network (2008/C 68/03)**

    OJ C 68, 13.3.2008, p. 5.

- **Commission Regulation (EC) N° 482/2008 of 30 May 20 08 establishing a software safety assurance system to be implemented by air navigation service providers and amending Annex II to Regulation (EC) N°2096/20 05.**

    OJ L 141, 31.5.2008, p. 5.

- **Commission Communication concerning the implementation of Article 4 of Regulation (EC) N°552/2004 of the European Parliam ent and of the Council on the interoperability of the European Air Traffic Management network (2008/C 149/06)**

    OJ C 149, 14.6.2008, p. 22.

- **Commission Regulation (EC) N°668/2008 of 15 July 2 008 amending Annexes II to V of Regulation (EC) No 2096/2005 laying down common requirements for the provision of air navigation services, as regards working methods and operating procedures.**

    OJ L 188, 16.7.2008, p. 5.

- **Council Regulation (EC) N° 1361/2008 of 16 December 2008 amending Regulation (EC) N° 219/2007 on the establishment of a joint un dertaking to develop the new generation European air traffic management system (SESAR).**

    OJ L 352, 31.12.2008, p. 12.

- **Commission Regulation (EC) N° 29/2009 of 16 January 2009 laying down requirements on data link services for the single European sky.**

    OJ L 13, 17.1.2009, p. 3.

- **Commission Regulation (EC) N°30/2009 of 16 January 2009 amending Regulation (EC) N° 1032/2006 as far as the requirements for au tomatic systems for the exchange of flight data supporting data link services are concerned.**

    OJ L 13, 17.1.2009, p. 20.