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ASSESSMENT REPORT ON EXISTING SAFETY AND SECURITY CERTIFICATION REQUIREMENTS

D-3.2.1

Impact of Security Measures on Safety

Research conducted by:

UK Civil Aviation Authority International

apave Aeroservices

CASRA

An Agency of the European Union

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Apave's core business is to help companies and government services managing their technical, environmental and human risks in the areas of Oil & Gas / Nuclear / Industry / Transportation. In aviation, Apave is committed to offering a range of civil and military aviation safety services, covering oversight authority tasks, audits, technical control, training and consulting services, through specialised and dedicated entities. Apave's staff in aviation enjoy extensive knowledge of the International and European regulatory framework, with a focus on Airworthiness, Flight Operations and Safety Management Systems In 2022 Apave has strengthened its portfolio through the acquisition of Oppida a cyber-security specialist in many highly regulated domains and safety and security exposed businesses. Apave has organised its civil and military aviation risk management consulting services around a unique value proposition with a dedicated entity: Apave Aeroservices (hereafter referred to as ''Apave") has been designated in 2009 as the Group centre of excellence to provide risk management solutions to the Aviation community, including aviation authorities, Air Operators, Industry, Maintenance Organisations (MROs - Maintenance, Repair & Overhaul) and Training Organisations.

APSS Software & Services Ltd is part of the Centre for Adaptive Security Research and Applications (CASRA), which was founded in 2008. CASRA emerged from the Visual Cognition Research Group of the University of Zurich, which was founded by Adrian Schwaninger in 1999. Today, CASRA APSS has a workforce of around 35 people, comprising of psychologists, economists, computer scientists, imaging specialists, software developers, aviation security experts, and more, most of which have an academic degree. The main objective of CASRA is to increase security and facilitation at airports and other environments involving people and technology. Through their studies and research on human – machine interaction, it was identified that visual abilities and training determine largely screeners' performance. As such CASRA has been working with a number of aviation security authorities and airports on selection, training and competency assessment processes providing advisory and research as well as their solutions globally.

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ABBREVIATIONS

ACRONYM	DESCRIPTION
ACI	Airports Council International
ADR	Aerodrome
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
AltMoC	Alternative Means of Compliance
AM	Aerodrome Manual
AMC	Acceptable Means of Compliance
ANS	Air Navigation Services
AOC	Air Operator Certificate
APEX	Airport Excellence Program
ATC	Air Traffic Control
ATM	Air Traffic Management
CAME	Continuing Airworthiness Management Exposition
CAMO	Continuing Airworthiness Management Organisation
CB	Certification Basis
CDL	Configuration Deviation List
CIR	Commission Implementing Regulation
CofA	Certificate of Airworthiness
CS	Certification Specifications
DAAD	Deviation Acceptance and Action Document
DG	Dangerous Goods
EASA	European Union Aviation Safety Agency
EC	European Commission
ELOS	Equivalent Level of Safety
EU	European Union
GM	Guidance Material
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IOSA	IATA Operational Safety Audit
IR	Implementing Rules
LRBL	Least Risk Bomb Location
MEL	Minimum Equipment List
MMEL	Master Minimum Equipment List
NAA	National Aviation Authority
OB	Organisation and Operations Basis
OM	Operations Manual
PANS	Procedures for Air Navigation Services
SARPs	Standards And Recommended Practices
SC	Special Condition

SMS	Safety Management System
TFEU	Treaty on the Functioning of the European Union

1. Executive summary

Problem area

The general objective of the project *Impact of security measures on safety* is to understand the nature and extent of interdependencies between safety and security. Through the research within this project, an attempt is made to produce the comprehensive knowledge base describing these interdependencies.

Task 3 focuses on the analysis of certification standards with subtask 3.2 assessing the impact of security-related requirements on the safety certification and/or licensing of air operators and aerodromes.

Executive Summary

This report represents deliverable D-3.2.1 of Task 3: "Assessment Report on Existing Safety and Security Certification Requirements." The primary objective of this document is to describe the relationships among the International Civil Aviation Organization (ICAO), the European Union (EU) regulatory framework, and national authorities (Competent Authorities, National Aviation Authorities, and Appropriate Authorities) within the scope of aerodrome and air operator certification. It also examines the interactions in the context of safety and security certification from the perspective of EU regulations.

The report specifically explores the framework and structure of the certification process for aerodromes and air operators, assessing how the global ICAO framework is implemented within the EU through EASA's competencies. It delves into **terminology and competency challenges** and analyses the relationship between standardisation and compliance in the context of safety and security domains. Additionally, the report highlights the interdependencies, similarities, and differences between the understanding of certification in these domains.

The findings of this report confirm that the **certification processes for aerodromes and air operators** (referred to as safety certification) are well-established within the EU, based on a robust regulatory framework supported by extensive guidance material which is equally available to safety and security domain as public documents. These processes are led by EASA and aligned with the implementation of ICAO Standards and Recommended Practices (SARPs). **Security certification**, also established on the basis of ICAO SARPs, is governed by a separate framework outside EASA's competence. It has a much narrower scope compared to the broader safety-focused certification. Security certification is primarily limited to a small group of personnel such as screeners and national auditors.

The research identified that only several security elements are present in the safety certification processes regulated under EASA rules (e.g. isolated parking position in the scope of aerodromes), however, their presence does not always seem reflective of the security outcome or is lacking a broader security context (also in terms of reference to security regulations). Examples include the control of access to the movement area (in the scope of aerodromes' certification requirements) or security search training requirements (in the scope of air operators' certification).

Identified security certification processes appear to operate independently, with little connection to safety certification. Previous tasks in this project identified several interdependencies between safety and security in various areas. However, this research indicates that these connections are minimal when examined specifically through the lens of certification processes. This is because there is no overlap in scope between safety and security certification or there is insufficient cross-referenced guidance available.

Although both ICAO and EASA frameworks acknowledge the **interdependencies between safety and security** and call for coordination, the analysis of the regulatory framework found limited evidence of it. Further analysis will be conducted in subsequent phases of Task 3 to explore whether:

- it can be confirmed that interdependencies are very limited and thus the two domains, safety and security, can co-exist independently, or
- there is actually a significant interdependence that would require improved coordination processes.

Sensitivity around some of the aviation security requirements prevents access to them by the safety domain. In general, the restricted nature of security documentation coupled with insufficient coordination between safety and security cause that the safety domain is somewhat limited in its visibility of security requirements. If processes would be developed to make these requirements more accessible, they could contribute not only to safety certification but also to a more comprehensive assessment of aerodromes and air operators.

The discussions and assessments in this document could help build a more comprehensive understanding of the correlations between safety and security in relation to certification. The content of this report may also foster a holistic analysis of the positive or detrimental impacts that security measures could have on overall safety. Additionally, it could encourage further investigations into specific technical domains, thereby identifying opportunities for improvement.

2. Introduction

This chapter first provides the context and background of the project (Section 2.1) and then objectives of the document are presented (Section 2.2).

2.1. Context and background

The European Union Aviation Safety Agency (hereinafter "EASA") is an agency of the European Union, which has been given specific regulatory and executive tasks in the field of aviation safety. The Agency constitutes a key part of the European Union's strategy to establish and maintain a high uniform standard of safety and environmental protection in civil aviation at European level.

As part of the Horizon Europe Work Programme 2021-2022 on Cluster 5 Climate, Energy and Mobility, the European Commission has entrusted EASA with the management of one specific research action entitled "Impact of security measures on safety".

As a result, EASA has awarded a public contract to a consortium of three companies:

- CAA International
- Apave Aeroservices
- CASRA

The contract details the four main tasks which are specified to achieve the expected outcome, which is to understand the nature and extent of the interdependencies between safety and security in order to assess the impact of security measures on safety. In doing so, the research project should identify which processes and job roles are affected by safety–security interdependencies and which certification requirements and licensing activities are affected. In the medium term, safety risk management techniques that can be applied to security will produce harmonised risk assessment methods and support integrated policy and decision-making processes at national and EU level.

The project aims at developing a comprehensive knowledge base for the evaluation of the potential impact of security measures on the safety performances of aviation systems, personnel and operations, including the leading indicators for measuring such an impact (positive or negative) as well as the main factors playing a role in such safety - security dependencies.

The four main tasks are:

- Task 1: Identify the interdependencies between security and safety
- Task 2: Assessment of the impact of security measures on safety
- Task 3: Analysis of certification standards
- Task 4: Integrated risk management

The intention of this activity is to provide a basis for better understanding of where security threats have safety consequences in a more granular way than is currently understood.

2.2. Objectives of the document

The present report is an output of task 3.

Task 3 covers the analysis of certification standards in the context of safety-security interdependencies and the assessment of the impact of security measures on safety.

Subtask 3.2 focuses on the impact of security-related requirements on the safety certification and/or licensing of air operators and aerodromes.

The present report is the deliverable D-3.2.1 of task 3: "*Assessment report on existing safety and security certification requirements*".

The objective of this document is to:

- Collect and collate information on the following topics:
  - Safety-centred certification of aerodromes
  - Safety- centred certification of air operators
  - Security-centred certification processes
- Combine information in the form of an assessment of safety and security interdependencies in relation to processes listed above

This report investigates the regulatory framework as well as the relationship between safety and security domains in these processes. Discussion and assessment contained in this report could be helpful in building the overall understanding of safety and security correlations in relation to the regulatory processes and authorities' oversight and enforcement of compliance. In this context, this report should be analysed in combination with the deliverable D-1.1 "Report on safety areas affected by security".

This approach will enable a holistic and comprehensive analysis and the identification of opportunities for improvement.

3. Methodology

This chapter outlines the process of work conducted for the creation of this report.

Figure 1 illustrates the process undertaken in order to assess safety and security certification requirements.

The following elements were studied:

- ICAO framework (Annexes to Chicago Convention and related guidance material, GM)
- EU Regulations and EASA Acceptable Means of Compliance (AMCs), Certification specifications (CS) and Guidance Material (GM)
- European Parliament and European Commission regulations on aviation security

The methodology and related analysis in this report have not considered the Information security (Part-IS) framework contained in Regulations (EU) 2023/203[1] and 2022/1645[2]. These regulations outline requirements for the management of information security risks with a potential impact on aviation safety for organisations and competent authorities. While the research acknowledges they are in force and supported by

[1] Commission Implementing Regulation (EU) 2023/203 of 27 October 2022 laying down rules for the application of Regulation (EU) 2018/1139 of the European Parliament and of the Council, as regards requirements for the management of information security risks with a potential impact on aviation safety for organisations covered by Commission Regulations (EU) No 1321/2014, (EU) No 965/2012, (EU) No 1178/2011, (EU) 2015/340, Commission Implementing Regulations (EU) 2017/373 and (EU) 2021/664, and for competent authorities covered by Commission Regulations (EU) No 748/2012, (EU) No 1321/2014, (EU) No 965/2012, (EU) No 1178/2011, (EU) 2015/340 and (EU) No 139/2014, Commission Implementing Regulations (EU) 2017/373 and (EU) 2021/664 and amending Commission Regulations (EU) No 1178/2011, (EU) No 748/2012, (EU) No 965/2012, (EU) No 139/2014, (EU) No 1321/2014, (EU) 2015/340, and Commission Implementing Regulations (EU) 2017/373 and (EU) 2021/664

[2] Commission Delegated Regulation (EU) 2022/1645 of 14 July 2022 laying down rules for the application of Regulation (EU) 2018/1139 of the European Parliament and of the Council, as regards requirements for the management of information security risks with a potential impact on aviation safety for organisations covered by Commission Regulations (EU) No 748/2012 and (EU) No 139/2014 and amending Commission Regulations (EU) No 748/2012 and (EU) No 139/2014

extensive accompanying material, they are not yet applicable, meaning no practical implementation data exist. The research is typically more valuable when it evaluates regulations that can be assessed using observed data or within the context of their interaction with other regulatory framework due to their applicability and interdependencies. Given these circumstances potential to draw reliable conclusions would be limited and so the research did not include them in the scope.

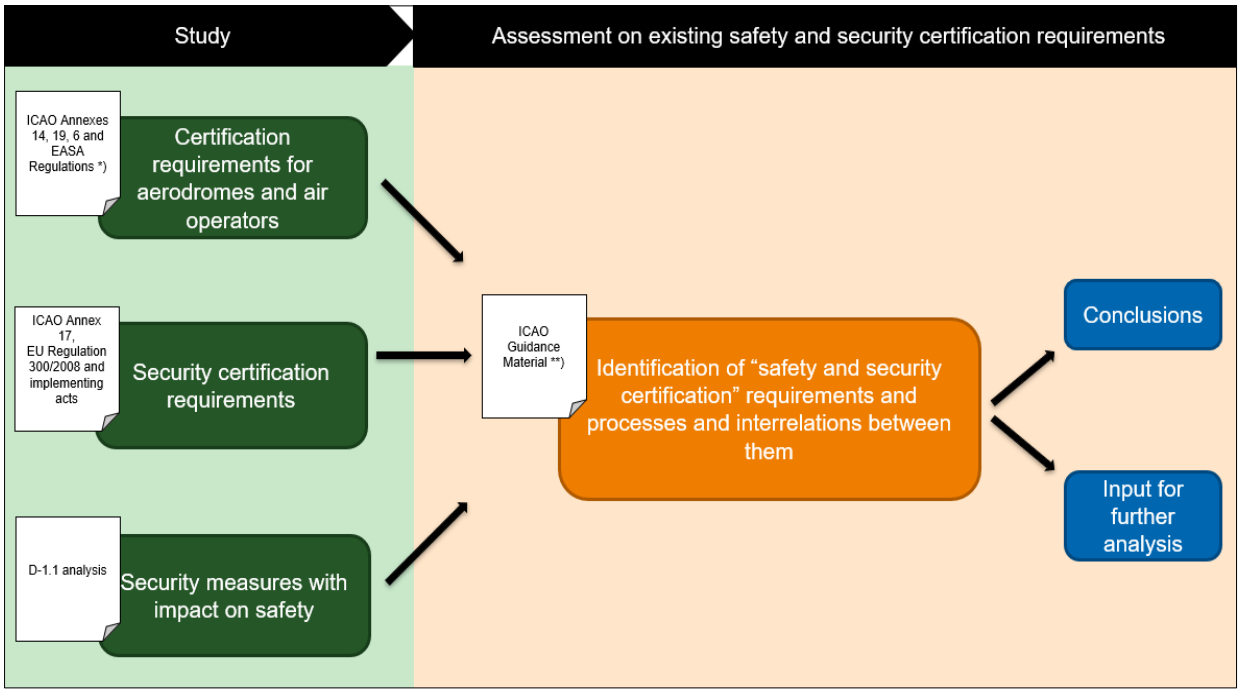

*Figure 1 – Process of work. *) EASA Regulation referred to in this diagram includes: Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018, Commission Regulation (EU) No 139/2014 of 12 February 2014, Commission Regulation (EU) No 965/2012 of 5 October 2012, Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008. **) ICAO Guidance Material includes ICAO Doc 8335, 8973, 9158, 9184, 9974, 9859, 9981.*

Chapter 4 describes terminology considerations as the first step of the research. The ICAO framework is described in Chapter 5 whereas EASA certification rules are described in Chapter 6. Chapter 7 covers security certification and approval processes. Chapter 8 describes industry initiatives in support of compliance and therefore with relevance for maintaining certification or aerodromes and air operators. Finally, Chapter 9 concludes the report.

4. Terminology considerations

This chapter outlines terminology considerations related to the following topics:
- Aerodrome / airport (Section 4.1)
- Air operator (Section 4.2)
- Responsible authority (Section 4.3)
- Licensing (Section 4.4)
- Certification (Section 4.5)
- Approval (Section 0)

At the initial stage of this research, the objective was to align the interpretation of the applicable requirements framework and terminology and to establish the baseline understanding of the topic. As such, terms related to the scope of the research needed to be defined to help in understanding entities (aerodromes and air operators) and the processes (certification, licensing and approval) covered. Additionally, the analysis below

distinguished which terminology originates from safety and which from the security domain. This was done on the basis of the EU regulatory framework with support of ICAO documentation.

4.1. Aerodrome/airport

An aerodrome is described in Annex 14 as a *"defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of the aircraft"*. This definition is only slightly expanded in the *Regulation 2018/1139 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91* (hereinafter called Regulation 2018/1139)[3]. In the security domain the term aerodrome is not defined or used.

Annex 17, as well as aviation security EU Regulations use the term **airport** to regulate standards for them. The initial task of the research was therefore to undertake an analysis to attempt to understand relationships between these two terms.

The basis for this analysis was the comparison of aerodromes' applicable requirements (ICAO Annex 14, ICAO Doc 9774 and 9881) with the applicable security framework regulating airports (ICAO Annex 17, ICAO Doc 8973).

Doc 9774 which serves as a guidance on model regulation for certification of aerodromes provides an example explanation how the terminology relationship between an aerodrome and an airport could be understood: "*an aerodrome is considered to be an **airport** when the aerodrome operator has applied for and has been issued with an aerodrome certificate covering the operation of that airport*". Doc 8973 meanwhile, includes the definition of airport: "*any area in a Member State which is open for commercial aircraft operations"*.

This seems to be confirmed by the analysis of the content of the *Airport Planning Manual* (Doc 9184), in comparison with the *Aerodrome Design Manual* (Doc 9157). The Aerodrome Design Manual covers elements related specifically to ICAO Annex 14 while the Airport Planning Manual expands to areas related to commercial operations, including passenger building (terminal), cargo facilities or even public areas (landside). In other words an airport, in addition to the infrastructure used by the aircraft, has terminal(s), car parks and other facilities, that are not used specifically for aircraft operations more to process passengers and their baggage. While an aerodrome is usually part of an airport, not all areas of an airport would be included in the aerodrome related regulations. These regulations apply only to the infrastructure used by aircraft and hence the reason for the use of the technical term "aerodrome".

Taking this into account, it could be concluded that an **airport would be every certified aerodrome from/to where commercial operations are conducted and which is equipped with facilities enabling processing of passengers, baggage and cargo for purposes of commercial transport**.

This report aims at reviewing applicable certification requirements, which could be equally applicable to aerodromes (broader term in a sense that there are more aerodromes than airports as not every aerodrome is an airport) and airports (more narrow term), hence, these two terms can be used interchangeably for the

[3] Regulation 2018/1139 defines aerodrome as "*a defined area, on land or on water, on a fixed, fixed offshore or floating structure, including any buildings, installations and equipment thereon, intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft*".

purpose of this study. It should be noted however, that the terminology in that scope remains somehow unclear and confusing, especially at the level of EU aviation security regulations.

4.2. Air operator

An operator is defined in ICAO Annex 6 as *"the person, organization or enterprise engaged in or offering to engage in an aircraft operation".* This is almost identically defined and expanded in detail in Regulation 2018/1139[4]. In the security domain, the term used in ICAO Annex 17 is **aircraft operator** (Standard 4.7.3) or **commercial air transport operator** (Standard 3.3.1). *Regulation (EC) No 300/2008 of the European Parliament and of the Council of 11 March 2008 on common rules in the field of civil aviation security and repealing Regulation (EC) No 2320/2002* (herein referred to as Regulation 300/2008) introduces meanwhile three definitions:

- Operator – a person, organisation or enterprise engaged, or offering to engage, in an air transport operation
- Air carrier – an air transport undertaking holding a valid operating licence or equivalent
- Community air carrier – an air carrier holding a valid operating licence granted by a Member State

It appeared also here, that the purpose behind using such definitions is, identically to aerodromes / airports differentiation, linked to the "commercial" nature of operations to be regulated.

4.3. Responsible authority

Another aspect examined in the terminology analysis is the identification of the authority responsible for overseeing safety and security. From the perspective of ICAO in both domains, the ultimate responsibility for ensuring compliance with, and the development of, safety and security regulations lies with the State. It is the State's duty to designate the authority tasked with these responsibilities.

EU States sometimes delegate however some of the competencies and regulatory functions based on the treaty arrangements as mentioned in section 4.5.1.2.

Nevertheless, the analysis highlighted that different terminology is used in the safety and security domains. In the context of safety, the terms **National Aviation Authority** or **Competent Authority** are used, whereas in the security domain, it is the term **Appropriate Authority**. This difference in terminology suggests that the responsible entities for safety and security oversight could either be the same or distinct, depending on the decisions made by each State.

4.4. Licensing

In the next step, the research looked into the term **licensing** which could be defined using the *Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community*. Key points regarding licensing under this regulation stipulate that air carriers must hold a valid operating license issued by a competent licensing authority of a Member State in order to operate air services within the Community.

This Regulation also includes conditions for Granting an Operating License:

- The applicant must have its principal place of business and registered office within a Member State

[4] Aircraft operator' means "*any legal or natural person operating or proposing to operate one or more aircraft*".

- The applicant must meet the financial fitness criteria, demonstrating that it can meet its actual and potential obligations for a period of 24 months
- The applicant must demonstrate sufficient insurance to cover liability in case of accidents, particularly in relation to passengers, baggage, cargo, and third parties
- The applicant must meet safety standards set by relevant authorities, demonstrated through possession of a valid Air Operator Certificate (AOC)
- The majority ownership and effective control of the applicant must be vested in Member States and/or nationals of Member States

Because AOC is listed as one of the prerequisites for issuing the license, the focus of the research remained on processes relevant for obtaining it. Given the scope of licensing process as such, the research considered it not necessary to further investigate this process.

4.5. Certification

The initial task of this research was also to identify what should be understood as "safety certification". **This is because neither "safety certification" nor "aerodromes / air operator certification" is defined** in ICAO Annexes applicable to the subject of this research (*Definitions* section review of ICAO Annexes 6, 14, 17 or 19).

First, the very apparent link between certification and safety needs to be confirmed. In terms of aerodromes and their certification, the provision of Annex 14 (1.4.1) requires States to arrange the certification of aerodromes "*in accordance with the specifications*" described in Annex 14 as well as "*other relevant ICAO specifications*". Equally, for (air) operators, the Standard of Annex 6 (4.2.1.8) requires the certification in accordance with Appendix 5 to Annex 6 and Appendix 1 to Annex 19 *"to ensure the required standards of operations established in 4.2 (of Annex 6) are maintained"*. The early conclusion formulated on this basis is that certification aims at confirming that aerodromes and air operators operate in accordance with the respective **specifications of applicable Annexes**. Specifications would encompass both, Standards and Recommended Practices.

Next, the connection between Standards and Recommended Practices and "safety" needs to be confirmed. This is done through the very definition of the ICAO term "Standard" across all Annexes. It states that *"the Standard is any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of* ***which is recognized as necessary for the safety*** *or regularity of international air navigation and to which Contracting States will conform in accordance with the Convention…"*. The term "Recommended Practice" is described as *any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognized as desirable in the interests of safety, regularity or efficiency of international air navigation, and to which Contracting States will endeavour to conform in accordance with the Convention"*.

In addition, both aerodromes and air operator certification require these entities to establish a Safety Management System (SMS) which reinforces the link with safety even further.

The analysis led to the conclusion that the terms **certification** and **safety certification** can be interchangeably used for the process which leads to issuing the certificate for aerodromes and air operators as it is conducted with the ultimate objective of ensuring safety. As such, the certification of aerodromes and aircraft operators, for the purposes of this study, is understood as ***"a formal evaluation and confirmation by or on behalf of the National Aviation Authority that the aerodrome or the air operator meets established criteria to be authorized to conduct air operations in a manner that ensures required level of safety"***.

Next, analysis focused on the term **certification** and how it is understood in safety and security domain from the perspective of EU regulatory framework**.**

Regulation 2018/1139 covers a very broad range of certification, one of them being certification of aerodromes and aircraft operators.[5] In the security domain, on the contrary, ICAO Annex 17 defines the certification limiting it to the rather narrow scope of personnel and describes it as "*a formal evaluation and confirmation by or on behalf of the appropriate authority for aviation security that a person possesses the necessary competencies to perform assigned functions to an acceptable level as defined by the appropriate authority."*

The scope of certification is limited even further through the European Union Regulations in the security domain. Common specifications for the national quality control programme – Annex II to the Regulation 300/2008 states that "*certification means a formal evaluation and confirmation by or on behalf of the appropriate authority that a person possesses the necessary competencies to* ***perform the functions of an auditor*** *to an acceptable level as defined by the appropriate authority"*. This provision is applicable only to auditors performing compliance monitoring functions on behalf of the appropriate authority.

Implementing Regulation 2015/1998 introduces yet another definition of **certification** (changed insignificantly compared to ICAO Annex 17 definition) which is *"a formal evaluation and confirmation by or on behalf of the appropriate authority indicating that the person has successfully completed the relevant training and that the person possesses the necessary competencies to perform assigned functions to an acceptable level*". This definition applies to Chapter 11 of the above-mentioned Regulation only and therefore covers groups of personnel described in Section 7.2.1 of this report.

Therefore, the main differences identified between the safety and security domain regarding defining the term **certification** relates to its:

- Scope – The security domain limits it to personnel, while safety expands it to entities, systems, equipment and devices
- Purpose – The safety domain defines it as a way to ensure and confirm compliance with defined specifications, while security focuses more on competencies, which may include more than compliance

5.1.1 Requirements

The study also considered the different nature or formal status of frameworks under the term "**certification requirements**". As mentioned, various types of requirements' sources were considered, and include: **ICAO Annexes, ICAO Guidance (Docs), EU Regulations, and EASA AMC/CS/GM[6]**. It seemed necessary at this initial stage to understand the specificity of different frameworks and the nature of ICAO compared to EASA.

4.5.1.1. ICAO Annexes and Docs

ICAO Annexes are established based on provisions of the Convention on International Civil Aviation, also called Chicago Convention. According to the article 37 of the Convention, States adopt Standards and Recommended Practices (acting through the ICAO Council). These SARPs are types of international provisions and need be

[5] In accordance with Regulation 2018/1139 "*certification means any form of recognition in accordance with this Regulation, based on an appropriate assessment, that a legal or natural person, product, part, non-installed equipment, equipment to control unmanned aircraft remotely, aerodrome, safety-related aerodrome equipment, ATM/ANS system, ATM/ANS constituent or flight simulation training device complies with the applicable requirements of this Regulation and of the delegated and implementing acts adopted on the basis thereof, through the issuance of a certificate attesting such compliance*".

[6] For the adoption of AMC/CS/GM EASA issues ED Decisions. AMC/CS/GM are published in a consolidated format as the Easy Access Rules

transposed into the national regulatory framework so that States fulfil their obligations under the Chicago Convention. States however, are also allowed to notify differences in accordance with the article 38 of the Chicago Convention. In such case, States are advised by the ICAO Council to select one of the categories, which explains the nature of the difference:

- Category A - This category applies when the national regulation is more demanding than the corresponding SARP, or imposes an obligation within the scope of the Annex which is not covered by a SARP
- Category B – This category applies when the national regulation is different in character from the corresponding ICAO SARP or when the national regulation differs in principle, type or system from the corresponding SARP, without necessarily imposing an additional obligation
- Category C - This category applies when the national regulation is less protective than the corresponding SARP; or when no national regulation has been promulgated to address the corresponding SARP, in whole or in part

ICAO does not certify aerodromes or air operators - it provides a baseline to which a National Aviation Authority (NAA) accedes to. The NAA provides and implements its own regulations developing its own certification processes.

The research noted the fact ICAO as such does not perform certification neither does it impose regulations on entities. The framework of ICAO in the scope of this report intends to be analysed as a baseline reference as it creates the foundation upon which States agreed and pursued.

In addition to SARPs, ICAO also publishes additional Guidance Material which States can use. This material is published as ICAO Docs.

Contrary to the safety domain, access to certain documentation and guidance in the security domain is restricted. This is done to protect sensitive information which, if revealed could lead to increased risk. This is based on Standard 2.1.4 of the ICAO Annex 17 which requires States to ensure "*appropriate protection of sensitive aviation security information*". At the same time Standard 2.1.2. requires States to "*establish an organization and develop and implement regulations, practices and procedures to safeguard civil aviation against acts of unlawful interference* ***taking into account the safety*** *(…) of flights*".

From this perspective it is important to ensure safety and security domains avoid silo-management of their respective areas and hence avoid unawareness of respective requirements. If access to non-public specifications is required ICAO provides the framework for such access, based on Standard 3.5.2, process of background checks.

4.5.1.2. EU Regulations

European Union States are bound by the framework of the Treaty on the Functioning of the European Union (TFEU). This Treaty authorises the legal authority for adopting regulations and other types of EU legislation which is derived from various articles within the TFEU. Article 288 explicitly outlines the different types of EU legal acts, including regulations, directives, decisions, recommendations, and opinions. It states that a regulation "*shall have general application. It shall be binding in its entirety and directly applicable in all Member States"*.

As such, EU Regulations which are applicable for air operators and airport certification are directly applicable and binding provisions.

Also, at the EU level, access restrictions to certain documentation and specifications from the security domain are in place. If States are able to provide for adequate coordination and make arrangements to ensure sensitive

information can be shared with safety domain on a need-to-know, certification of aerodromes and air operators could greatly benefit as it can assist with the integration, cross-referencing and regulatory oversight of safety-security interdependencies which were identified in previous reports of this project.[7]

4.5.1.3. EASA AMC/CS/GM

European Union delegated some authority to EASA in its mission to ensure the highest level of aviation safety. As such, EASA ensures that aviation safety regulations are uniformly applied across all EU member states, fostering a consistent level of safety (i.e. by performing standardisation inspections). Based on this, EASA publishes additional types of documents which aim at helping National Aviation Authorities (or Competent Authorities) and air/aerodrome operators to ensure compliance with regulations. These documents applicable to aerodromes and air operator can be in a form of:

- Certification Specifications (CS)
- Detailed Specifications (DS)
- Acceptable Means of Compliance (AMC)
- Guidance Material (GM)[8]

Additionally, European Commission adopts Implementing Rules (IR) in the form of Regulations[9].

They will be widely used by NAAs in its oversight and to support compliance as well as reflect existing best practices. Altogether, regulations and supporting materials are published by EASA as Easy Access Rules (EAR). EARs are a compilation of European Union aviation regulations, AMCs, CS and GMs. They are organised in a user-friendly and accessible format. These rules are published by EASA to make it easier for stakeholders, such as aviation authorities, operators, manufacturers, and other industry professionals, to access and understand the complexity of legislation but also to help with implementation. It needs to be recognised that only the regulations element is a strictly binding legal provision on the EAR (regardless of whether they are included in the EAR). Equally, AMCs and GMs co-located to the provisions are a very useful reference as they make rule compliance much simpler for both regulators and regulated entities. This is because the principle is that if the AMC is followed then the Rule will be met.[10] Table 1, summarises terms defined within the safety and security domains in the EU regulatory framework related to the certification. This non-exhaustive list covers items particularly relevant for the conduct of this research. Analysis of the terminology revealed there are several differences between the safety and security domain in defining and using essential terms.

[7] *Report on safety areas affected by security* and *Report on aviation job roles with Safety - Security interdependency* - https://www.easa.europa.eu/en/research-projects/impact-security-measures-safety

[8] Rulemaking procedure as defined in the article 76 of the Regulation (EU) 2018/1139 https://www.easa.europa.eu/en/document-library/rulemaking-process-overview/rulemaking-explained

[9] https://www.easa.europa.eu/en/faq/19117

[10] Regulators and regulated entities should consult the regulation when reviewing EAR due to some delays between update of the Regulation and its inclusion in the EAR.

Table 1 – Comparison summary of main definitions

Definition	Safety domain	Security domain	Source of definition *)	Comments
Aerodrome	X		Regulation (EU) 2018/1139	Not used in security domain
Airport	X	X	ICAO Doc 8973	Definitions in Doc 9774 and Doc 8973 are not the same
Operator	X	X	Regulation (EU) 300/2008	Definitions of Annex 6 and Regulation 300/2008 are not the same
Aircraft Operator	X		Regulation (EU) 2018/1139	Not consistently used in security domain
Air Carrier		X	Regulation (EU) 300/2008	Safety domain refers to EU licensed air carrier, meaning operators holding both and AOC in accordance with Regulation (EU) No. 965/2013 and an operating licence in accordance with Regulation (EC) No 1008/2008
Certification	X	X	Regulations (EU) 2018/1139, 300/2008, 2015/1998	Definitions in Regulation 2018/1139 and Regulations 300/2008 and 2015/1998 are not the same

**) ICAO reference to the definition is provided only if there was not definition identified in the EU regulatory framework*

4.6 Approval

Conceptually, approval and certification are related but distinct concepts. As explained in section 4.5 certification is a formal process by which the authority assesses and verifies that a particular entity meets established standards and regulations. Approval meanwhile, is more focus on authorisation of a specific operation, procedure or use of equipment.

Certification and approval processes can overlap. For example, an organisation might need certification to operate in general, but specific operations or equipment might require separate approvals. Certification might also be a prerequisite for obtaining certain approvals.

Both domains, safety and security use approval process extensively. Below are some examples described in EU regulations.

The term approval is very often used in safety and security, but is not defined in a standalone manner within the EU regulation itself. In vast majority of cases approval is clearly distinguished from certification, and there

are only infrequent instances where regulations allow either “certification or approval”, leaving the choice of applicable process to the relevant authority at the national level.[11]

In relation to aerodrome safety certification approval applies to:

- Aerodrome Manual
- Safety Management System (SMS)
- Significant modifications or developments in the infrastructure
- Certain important equipment and systems
- Exemptions or deviations
- Specific changes[12]

In relation to air operators safety certification approval applies to:

- Operations Manual (specific parts)
- Safety Management System (SMS)
- Minimum Equipment List (MEL)
- Crew Training programs
- Operational procedures and specific approvals (e.g. Dangerous Goods transport)

In relation to air operators and airports security approval applies to:

- Airport / Air operator Security Program
- Regulated Agents and Known Consignors
- Regulated Suppliers of in-flight supplies
- Specific security equipment
- Specific groups of personnel (e.g. specific groups of instructors not subject to the certification, or aviation security validators)

In summary, while both terms relate to the regulatory oversight in aviation, as a concept certification is a broader process ensuring compliance with wide-ranging standards, and approval is a more specific authorisation related to particular activities or components within the aviation system.

The research noted some initial inconsistencies in terminology used where e.g. safety-related aerodrome equipment is subject to certification while security equipment is subject to approval. This has been investigated in more details in Section 6.1.1.

[11] For example, point 11.3 of the Annex to the *Commission Implementing Regulation 1998/2015 of 5 November 2015 laying down detailed measures for the implementation of the common basic standards on aviation security* allows certain groups of personnel to be subject to "certification or approval process”.

[12] As described in ADR.OR.B.040 – Easy Access Rules for Aerodromes, Regulation (EU) No 139/2014

5. ICAO framework on certification

This chapter outlines SARPs of ICAO related to the following topics:
- Certification of aerodromes (Section 5.2)
- Certification of air operators (Section 5.3)

5.2 Certification of aerodromes

Although the definition of **certification** does not appear in ICAO Annex 14, it is explained in it, in the note to the section 1.4 *Certification of aerodromes* and elaborated on below.

Certification concept stems from the need to ensure "*compliance with the specifications in this Annex (ICAO Annex 14) can be effectively enforced*". Further, compliance with these specifications is assumed to meet the objective of providing for safe operations. Therefore "*the availability of a separate safety oversight entity and a well-defined safety oversight mechanism*" is considered the most effective and transparent means of ensuring such compliance.[13]

This note also explains that "*When an aerodrome is granted a certificate, it signifies to aircraft operators and other organizations operating on the aerodrome that, at the time of certification, the aerodrome meets the specifications regarding the facility and its operation and that it has, according to the certifying authority, the capability to maintain these specifications for the period of validity of the certificate. The certification process also establishes the baseline for continued monitoring of compliance with the specifications*".

From this note and in line with further ICAO Annex 14 Standards as well as guidance contained in ICAO Doc 9774 Manual on Certification of Aerodromes, the following main elements of the certification system can be identified:

- Regulatory authority
- Certification specifications (regulatory framework)
- Certification process
- Safety oversight mechanism

These are described in the following sections.

5.2.1 Regulatory authority

ICAO does not perform any certification functions but it establishes the framework which States shall follow. As such, the authority (NAA) would be appointed in accordance with Standard 1.4.1 to certify aerodromes. It would be responsible for:

- Providing national standards and practices
- Ensuring compliance and enforcement
- Ensuring aerodromes under its jurisdiction provide for the safe operations environment
- Managing the aerodrome certification process from the stage of expressing an intention
- Performing safety oversight
- Cooperating and coordinating with other relevant entities and authorities (including responsible for security)

[13] ICAO Annex 14 – Aerodromes, Volume I, Aerodrome Design and Operations, Edition 9, July 2022

5.2.2 Certification requirements

As mentioned in Section 4.1, the formal status of ICAO Annexes requires States to transpose ICAO provisions into its own national legal framework to become legally binding provisions. For the purpose of this study, content of ICAO documents can be still used to provide an illustration of the overall system and the concept. Such requirements would be primarily contained in Annex 14 and in supporting GM. Annex 14 contains several essential elements listed. They include:

- Aerodrome data
- Physical characteristics
- Obstacle restriction and removal
- Visual aids for navigation and denoting obstacles
- Electrical systems
- Aerodrome operational services, equipment and installation
- Aerodrome maintenance

Annex 14 recognizes that aviation security is an integral part of aerodrome planning and operations. As such, some limited requirements are included in it. For instance, Standard 1.5.4 requires the integration of architectural and infrastructure-related solutions which would support optimum implementation of aviation security measures. Moreover, the reference is made in ICAO Annex 14 to another set of SARPs – ICAO Annex 17 – Aviation Security and Aviation Security Manual (Doc 8973).

Further details are contained in Doc 9774, in particular Appendix 1 which lists elements of the Aerodrome Manual (AM):

- General
- Information of the aerodrome site
- Information subject to reporting to the AIS
    - General information
    - Aerodrome dimensions and related information
- Information of the aerodrome operating procedures and safety measures
    - Aerodrome reporting
    - Access to the aerodrome movement area
    - Aerodrome emergency plan
    - Rescue and firefighting
    - Inspection of the aerodrome movement area and obstacle limitation surface
    - Visual aids and aerodrome electrical systems
    - Maintenance of the movement area
    - Aerodrome works – safety
    - Apron management
    - Apron safety management
    - Airside vehicle control
    - Wildlife hazard management
    - Obstacle control
    - Removal of disabled aircraft
    - Handling of hazardous materials
    - Low-visibility operations
    - Protection of sites for radar and navigational aids
- Aerodrome administration and Safety Management System

Interestingly, the Doc 9774 clearly excludes the subject of aviation security, stating this is covered by separate regulations. It also excludes "*servicing of passenger and cargo*". This in consequence would mean security requirements are excluded from certification assessment, regardless of the fact many of them have interdependence with safety as identified in previous reports of this project.

5.2.3 Certification process

The certification process shall be established based on Standards 1.4.3 and 1.4.4 of Annex 14. The central element of this process is the development and approval / acceptance of the AM. The entire process is elaborated in *Doc 9981 – PANS Aerodromes* and encompasses:

- Initial expression of interest in being granted the aerodrome certificate
- Proving for certification applicable scope by the authority
- Development and submission of the AM to the authority
- Acceptance or approval of the AM
- Preparation and the conduct of the on-site verification
- Development of corrective action plan (if necessary)
- Granting of the certificate

Figure 2 illustrates this generic process of aerodrome certification. Once the certification process is completed and the Aerodrome certificate issued, the information is next submitted to the aeronautical information service (AIS) for publication.

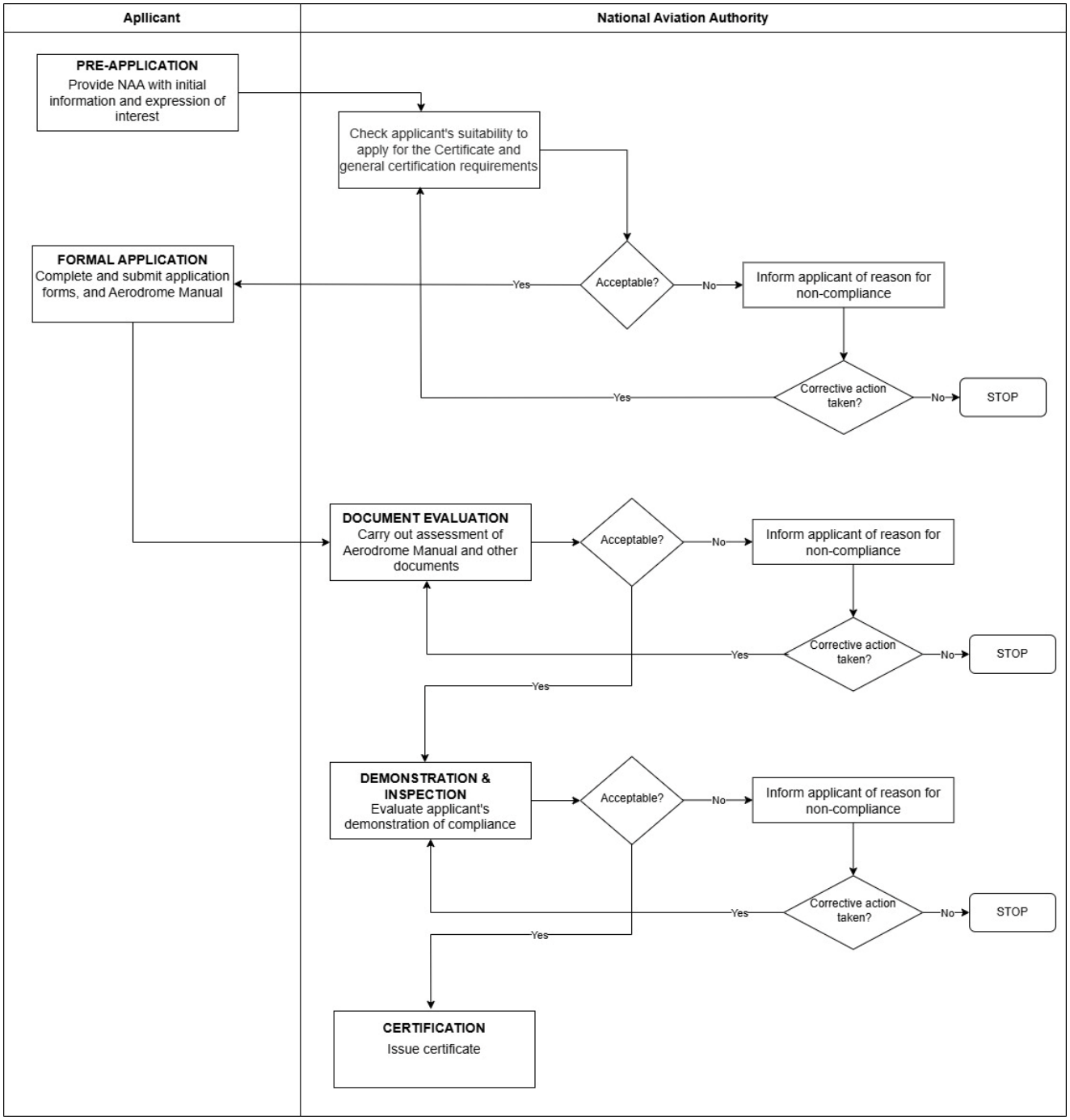

Figure 2 – Generic process of an aerodrome certification

5.2.4 Safety oversight mechanism

The authority which issues the certificate will remain responsible for making sure the aerodrome operates in accordance with specifications that allow the operator to maintain the certificate.

As such, the authority will typically conduct:

- periodic and ad-hoc audits
- inspections of aerodrome facilities, equipment and operating procedures
- review of data in the AIP

Moreover, in line with SMS, as a part of hazards' identification process, aerodrome operators are required to conduct safety assessments. Upon completion of assessments, the aerodrome operator's responsibility is to implement and monitor the effectiveness of mitigation measures.

The State authority performs, in this case, a regulatory oversight of the application of these mitigation measures and related operational procedures.

5.3 Certification of air operators

Certification of air operators is regulated by the Annex 6 Operation of Aircraft. Although the definition of **certification** does not appear in it, the Annex itself provides for a comprehensive explanation of the concept in its Chapter 4.2, Operational Certification and Supervision.

Certification as such is mandatory for air operators to conduct commercial air transport. The certification is an authorisation that allows the operator to engage in transport operations in line with the operations specifications. Compliance with requirements of Annex 6 can be conceptually considered "safety certification" due to the definition of the term Standard in accordance with the ICAO Convention as mentioned in Section 4.1.

Annex 6 states that its purpose is to "*contribute to the safety of international air navigation by providing criteria of safe operating practice*". Several critical elements are listed in Standard 4.2.1.3 which the air operator must fulfil and demonstrate to be issued with the certificate:

- The adequate organisation
- Method of control and supervision of flight operations
- Training programme
- Ground handling and maintenance arrangements consistent with the nature and extent of the operations

Air Operators need to fulfil certification requirements to demonstrate they can safely operate (appendix 5 to Annex 6), thus they need to implement SMS.

5.3.1 Regulatory authority

As ICAO does not perform any certification functions, it establishes the framework for NAA which they shall follow. As such, the State of the Operator shall establish a system to regulate and supervise the air operator through the authority which:

- Will be responsible for certification and continued surveillance to confirm operators are functioning satisfactorily
- Issues requirements to be met for the successful certification
- Approves specific items in the OM (e.g. 13.4.1 of Annex 6)
- Performs safety oversight of the operator

5.3.2 Certification requirements

As mentioned in Section 4.1, the formal status of ICAO Annexes requires States to transpose ICAO provisions into its own national legal framework to become legally binding provisions. For the purpose of this study, the content of ICAO documents can be still used to provide an illustration of the overall system and the concept. In

accordance with 3.5.1.1 of Attachment B to Annex 6, "*States should ensure that the operator will be in compliance with all requirements of Annex 6 Part I, prior to conducting international air transport operations*".

Such requirements would be primarily contained in Annex 6 and in supporting GM. Annex 6 contains several essential elements. They include[14]:

- Configuration deviation list (CDL)
- Master minimum equipment list (MMEL)
- The method for establishing minimum flight altitudes
- The method of determining aerodrome operating minima
- Additional requirements for single pilot operations under the instrument flight rules (IFR) at night
- Fatigue management
- EDTO configuration, maintenance and procedure (CMP) document for aeroplanes with two turbine engines
- Additional requirements for operations of single-engine turbine-powered aeroplanes at night and/or in instrument meteorological conditions (IMC)
- Aircraft specific minimum equipment list (MEL)
- Performance-based navigation operations
- MNPS operations
- Procedures for electronic navigation data management
- Aircraft-specific maintenance programme
- Approved maintenance organization
- Maintenance quality assurance methodology
- Flight crew training programmes
- Training in transport of dangerous goods
- Aerodrome additional safety margin
- Pilot-in-command area, route and aerodrome qualifications
- Use of flight simulation training devices
- Method of control and supervision of flight operations
- Mandatory maintenance tasks and intervals
- Cabin attendant training programmes
- **Security training programmes**

All these above require the approval by the State of the Operator. Attachment B to Annex 6 in 3.4 indicates yet another set of elements which are subject to the "technical evaluation". It is worth noticing this list includes qualifications of instructors (and security instructors are not excluded).

Additionally, Doc 8335 recommends (4.2.1) that the following documentation is included in the AOC application and evaluated by the Authority during this phase[8]:

- draft operations specifications
- statement of compliance
- management personnel résumés providing qualifications and aviation experience
- aircraft flight manuals
- operations manual (individual manuals and items listed below form part of the operations manual):
    - aircraft operating manual
    - minimum equipment list (MEL)

[14] **Security-relevant elements in bold**

    - configuration deviation list (CDL)
    - aircraft performance manual
    - mass and balance control manual
    - aircraft loading and handling manual or ground handling manual
    - training manuals for flight crew, cabin crew, operations personnel and ground personnel
    - route guide
    - dangerous goods manual
    - passenger briefing cards
    - **aircraft search procedure checklist**
    - operational control procedures, dispatch, flight following, etc.
- SMS manual, including a description of the flight safety document system
- **security programme manual**
- maintenance programme including maintenance schedule
- training manual for maintenance personnel
- plan for emergency evacuation demonstration
- plan for ditching demonstration
- plan for demonstration flights

In addition, the same Doc 8335 recommends (3.3.3) the following elements to be included in the OM[15]:

- operations administration and supervision
- safety management
- policy and procedures regarding flight operations and fuel quantities
- minimum flight altitudes
- aerodrome or heliport operating minima
- rules to limit flight time and flight duty periods and for the provision of adequate rest periods for flight
- and cabin crew members, complemented as applicable by fatigue risk management provisions
- aircraft performance
- route guide
- procedures for search and rescue
- instructions for the carriage of dangerous goods and emergency response action in the event of a dangerous goods incident
- navigation instructions
- communications instructions
- initial and recurrent training programmes
- **security procedures and instructions**

5.3.3 Certification process

Certification process shall be established based on Annex 6. The central element of this process is the development and approval / acceptance of the Operations Manual (OM). The entire process is elaborated in the Attachment B to Annex 6 and encompasses:

- Initial expression of interest in being granted the AOC
- Providing for certification requirements by the authority
- Development and submission of mandatory manuals to the authority

[15] **Security-relevant elements in bold**

- Acceptance or approval of the OM and other mandatory manuals
- Preparation and the conduct of evaluation (including air operator demonstration)
- Development of corrective action plan (if necessary)
- Granting of the certificate

Also, air operators shall implement SMS in line with ICAO Annex 19. Figure 3 illustrates a generic process of air operator certification.

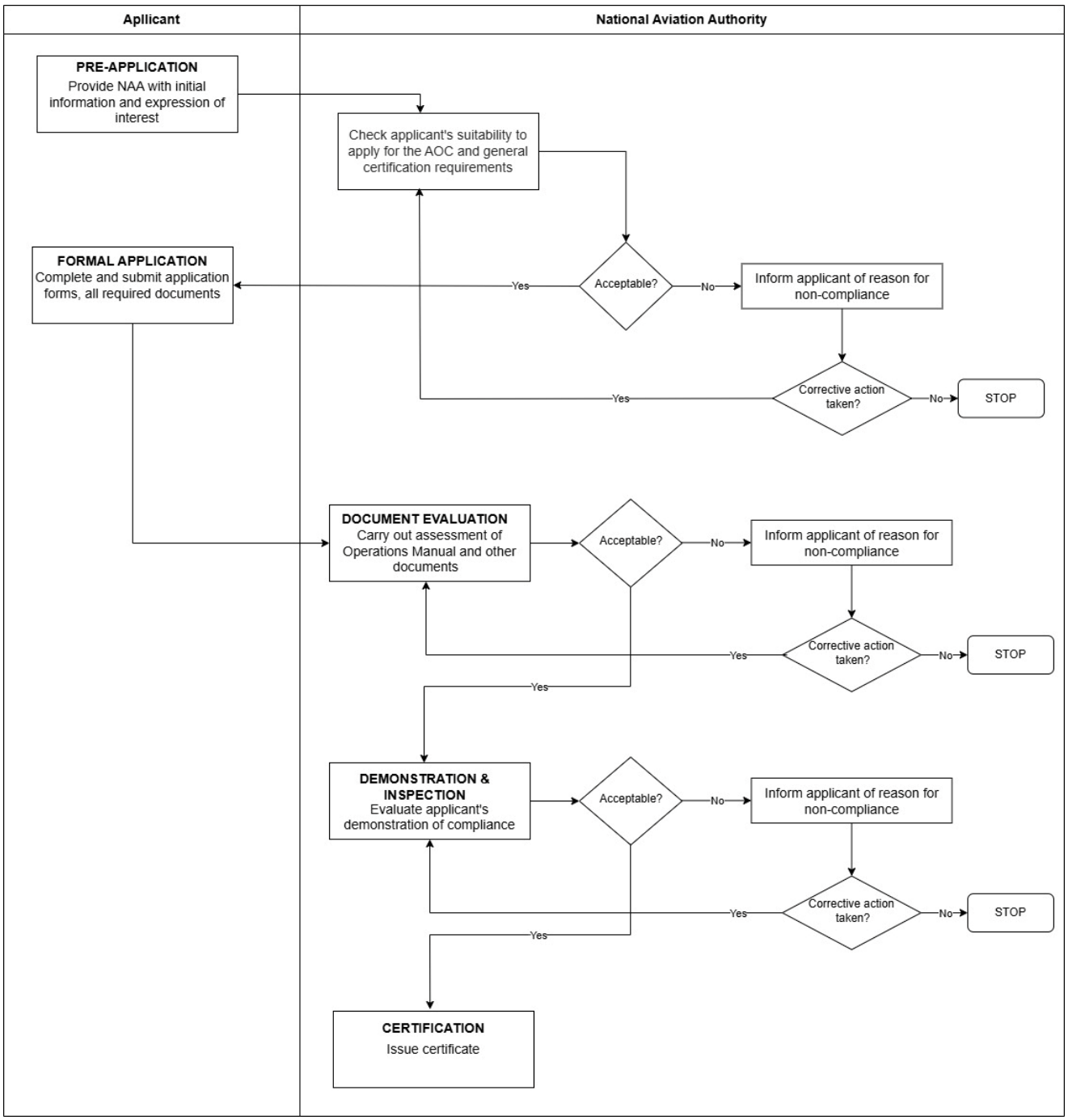

Figure 3 – Generic process of an air operator certification

5.3.4 Safety oversight mechanism

The authority which issues the certificate will remain responsible for making sure the air operator operates in accordance with specifications which allows them to maintain the certificate. Relevant processes are described in Doc 8335.

The areas to be covered in the surveillance activities over a period of time should be similar to those examined during the original certification process. They should include at least a re-evaluation of the operator's organisation, management effectiveness and control, facilities, equipment, aircraft maintenance, operational control and supervision, maintenance of flight and cabin crew standards, passenger and cargo safety procedures, dangerous goods procedures, security procedures, operational and personnel records, training, company manuals, financial viability and record of compliance with the provisions of the AOC, the associated operations specifications and pertinent operating regulations and rules.

As such, the authority will typically conduct:

- periodic and ad-hoc audits
- inspections of operations

Moreover, in line with SMS, as a part of hazards' identification process, aircraft operators are required to conduct safety assessments. Upon completion of assessments the aircraft operator's responsibility is to implement and monitor effectiveness of mitigation measures.

The State authority performs, in this case, a regulatory oversight of the application of these mitigation measures and related operational procedures.

6. EASA certification rules

This chapter outlines EASA requirements related to the:
- certification of aerodromes (Section 6.1)
- certification of air operators (Section 6.2)
- security elements (Section 6.3)

The foundation for the certification system in the EU and for EASA Member States is the Regulation (EU) 2018/1139 (hereinafter referred to also as Basic Regulation).

This legal act contains the definition of the term " certification" which means "*any form of recognition in accordance with this Regulation, based on an appropriate assessment, that a legal or natural person, product, part, non-installed equipment, equipment to control unmanned aircraft remotely, aerodrome, safety-related aerodrome equipment, ATM/ANS system, ATM/ANS constituent or flight simulation training device complies with the applicable requirements of this Regulation and of the delegated and implementing acts adopted on the basis thereof, through the issuance of a certificate attesting such compliance.*"

This Regulation also introduces the term "national competent authority" which is one or more entities designated by a Member State and having the necessary powers and allocated responsibilities for performing the tasks related to certification.

Figure 4 illustrates how EASA ensures that the global framework of ICAO Annex 14 and Annex 6 is transposed to the EU framework.

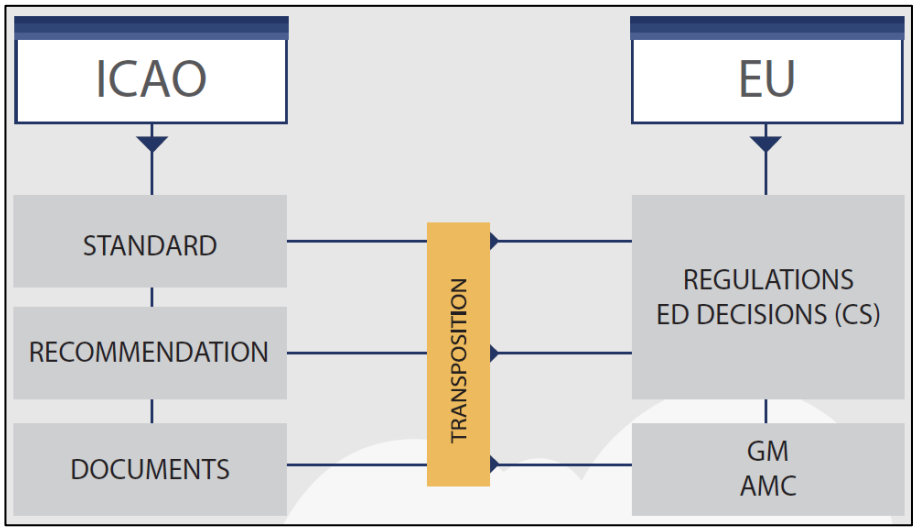

Figure 4 – Transposition of ICAO requirements into EU framework in the scope of certification

6.1 EASA certification of aerodromes

As a general rule article 34 of the Regulation 2018/1139 mandates aerodromes to be issued with a certificate which shall cover the aerodrome. Such certificate is issued by the defined Competent Authority.[16] The applicant for the aerodrome certificate shall demonstrate compliance with regulatory requirements and Certification Basis. The applicant must also demonstrate the aerodrome has "*no feature or characteristic making it unsafe for operation*".

Further specifications for an aerodrome to be granted a certificate can be found in the *Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council*. EU Member States can grant an exemption from applying certain provisions of this Regulation. As there is extensive literature and guidance available regarding the process itself, the research does not intend to extensively repeat this content. Instead, only main components will be highlighted, including provisions or guidance related to security. Specifications below are based on EU regulatory framework.[17] An aerodrome operator must follow the process as described in ADR.OR.B.0015.[18]

[16] Competent Authority means an authority designated within each Member State with the necessary powers and responsibilities for the certification and oversight of aerodromes, as well as personnel and organisations involved therein;

[17] Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council

[18] (a) The application for a certificate shall be made in a form and manner established by the Competent Authority.
(b) The applicant shall provide the Competent Authority with the following:
(1) its official name and business name, address, and mailing address;
(2) information and data regarding:
(i) the location of the aerodrome;
(ii) the type of operations at the aerodrome and the associated airspace; and
(iii) the design and facilities of the aerodrome, in accordance with the applicable certification specifications established by the Agency;

From a certification process, the overarching document is the Aerodrome Manual (AM). The AM shall contain or refer to all necessary information for the safe use, operation and maintenance of the aerodrome, its equipment, as well as its obstacle limitation and protection surfaces and other areas associated with the aerodrome. Annex 1 of this report captures details of the structure of an AM. Leveraging on ICAO processes, the generic process under EASA Regulation would include:

- Preparation and proposal of the Certification Basis (CB) in coordination with the Competent Authority
- Establishing compliance with Regulation (EU) No 139/2014 in accordance with the established CB and Organisation and OB:
    - Adapt Aerodrome Manual structure according "EASA Aerodrome Manual Structure" – Annex 1
    - Adapt organisation, operational processes and infrastructure based on the established CB and Organisation and OB
    - Produce safety evidence documentation for each deviation (or reference to existing documentation).
- Submission of documentation, including:
    - Application Form
    - Declaration of Compliance
    - Aerodrome Manual
    - Certification Basis (CB)
    - Organisation and Operations Basis (OB)
    - Deviation Acceptance and Action Document (DAAD)
    - Equivalent Level of Safety (ELOS)
    - Special Condition (SC)
    - Alternative Means of Compliance (AltMoC) Form
    - for each deviation according to the established CB and Organisation and OB.
- Document evaluation by the Competent Authority
- Certification audit
- Submission of action plan (depending on audit results)
- Issuance of the Certificate for Aerodrome Operator

The EASA aerodrome certification process elements are illustrated in Figure 5.

(3) any proposed deviations from the identified applicable certification specifications established by the Agency;
(4) documentation demonstrating how it will comply with the applicable requirements established in Regulation (EC) No 216/2008 and its Implementing Rules. Such documentation shall include a procedure, contained in the aerodrome manual, describing how changes not requiring prior approval will be managed and notified to the Competent Authority; subsequent changes to this procedure shall require prior approval by the Competent Authority;
(5) evidence of adequacy of resources to operate the aerodrome in accordance with the applicable requirements;
(6) documented evidence showing the relationship of the applicant with the aerodrome owner and/or the land owner;
(7) the name of and relevant information about the accountable manager and the other nominated persons required by ADR.OR.D.015; and
(8) a copy of the aerodrome manual required by ADR.OR.E.005.
(c) If acceptable to the Competent Authority, information under points (7) and (8) may be provided at a later stage determined by the Competent Authority, but prior to the issuance of the certificate.

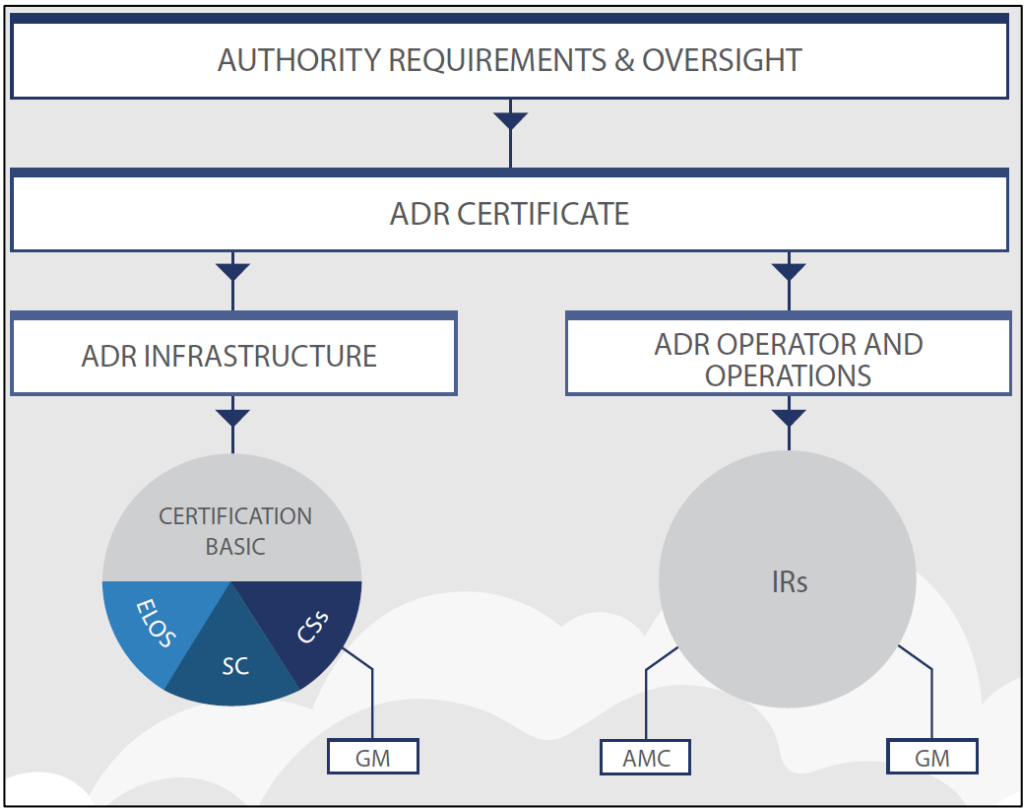

Figure 5 – Illustration of aerodromes certification scope

Once the certificate is issued, in order to maintain it, the aerodrome must comply with the scope and privileges in the terms of the certificate. As such, the certificate will be valid subject to conditions in the ADR.OR.B.035:

> *(1) the aerodrome operator remaining in compliance with the relevant requirements of Regulation (EC) No 216/2008, and its Implementing Rules, and the aerodrome remaining in compliance with the certification basis, taking into account the provisions related to the handling of findings as specified under ADR.OR.C.020;*
>
> *(2) the Competent Authority being granted access to the aerodrome operator's organisation as defined in ADR.OR.C.015 to determine continued compliance with the relevant requirements of Regulation (EC) No 216/2008 and its Implementing Rules; and*
>
> *(3) the certificate not being surrendered or revoked.*

As part of compliance, for example, the aerodrome operator organisation must maintain its Aerodrome Manual, SMS and its Management System. In this regard, GM1 ADR.AR.C.005 states:

> *(b) The Competent Authority should continue to assess the aerodrome operator's or apron management service provider's compliance with the applicable requirements, including the effectiveness of its management system. If their management system is judged to have failed in its effectiveness, then this in itself is a breach of the requirements which may, among others, call into question the validity of the certificate or declaration, if applicable.*

6.1.1 Safety-related equipment

In addition to procedures and infrastructure, safety-related equipment is a crucial part of the aerodrome certification process in accordance with EASA regulations.. During the certification process, the Competent Authority evaluates the aerodrome's infrastructure and equipment to ensure they meet the required standards.

Safety-related aerodrome equipment is defined in Article 3 of the Basic Regulation as "*any instrument, equipment, mechanism, apparatus, appurtenance, software or accessory that is used or intended to be used to contribute to the safe operation of aircraft at an aerodrome*".

The Basic Regulation does not include a detailed list of safety-related aerodrome equipment. To establish such a list, due consideration should be given to the provisions in the Basic Regulation, and equipment that has a direct impact on flight safety should be included.

Annex VII to the Basic Regulation, in point 1.3, contains the essential requirements for safety-related aerodrome equipment, which according to the Basic Regulation includes visual and non-visual aids. A detailed list of safety related aerodrome equipment is not provided, but examples of visual aids are the following:

- Individual lights
- Signs
- Markers
- Wind direction indicators
- Aerodrome beacons
- Precision approach path indicators
- Runway guard lights
- Visual and advanced visual docking guidance systems
- Closed runway lights
- Stop bars
- Approach lighting systems

In accordance with articles 34 - 36 of the Basic Regulation safety related equipment must be accompanied by either a certificate or a declaration (of conformity to detailed specifications). If this equipment is not covered by either, it will need to be included as part of the aerodrome certification process.

The EASA Notice of the Proposed Amendment document 2024-05 which introduces a proposal of a new EU regulatory framework for the voluntary certification / declaration of safety-related aerodrome equipment by the Agency proposes to a more detailed list of safety-related aerodrome equipment, including the examples of visual aids mentioned above and other equipment such as

- Aircraft-arresting systems
- Foreign object debris (FOD) detection systems
- Avian radar systems
- Runway weather information systems (related to global reporting format, GRF)
- Friction measurement devices or equivalent[19]

[19] Notice of Proposed Amendment 2024-05 Conformity assessment — Establishment of a European certification/declaration system for safety-related aerodrome equipment https://www.easa.europa.eu/en/document-library/notices-of-proposed-amendment/npa-2024-05

The NPA proposes that manufacturers of equipment with a direct impact on the safety of the flight or if it replaces / complements the activities of specific aerodrome operations personnel should have the option to have the equipment certified by EASA, while other less safety-critical equipment would fall under the declaration concept. Similar concept regarding the equipment is followed in security domain regarding the security equipment. Main similarities and differences are presented in the Table below.

Table 2– Comparison of safety related equipment certification and security equipment approval regulatory framework

	Safety related equipment	Security equipment	Similarities or differences
Scope	Open catalogue as the definition is provided in the Regulation 2018/1139 but no list of equipment	Closed catalogue as no definition is provided but the specific list of screening equipment	The purpose is similar - to ensure high quality of the equipment used for most essential functions but the basis is not identified according to the same methodology
Documented endorsement to use	Certification of equipment or a manufacturer declaration of compliance	Approval of equipment	The purpose is similar - to ensure high quality of the equipment used but the terminology is different. Additionally in security declaration of compliance concept is not used
Applicant	Organizations involved in the design, production and maintenance or aerodrome	Not defined or specified	The purpose is similar. The application process however is missing details (in security it is not specified and in safety due to lack of implementing rules)
Process	Approval by EASA based on demonstrated compliance with specifications	Approval by the EC based on demonstrated compliance with specifications (verified by test centres)	Equivalent processes handled by separate EU bodies in accordance with assigned safety and security responsibilities. Additionally, due to its sensitive nature security specifications are not publicly available.

6.2 EASA certification of air operators

Article 30 of the Regulation 2018/1139 mandates aircraft operators engaged in the commercial air transport (CAT) to be issued with a certificate (AOC). Such certificates are issued by the defined Competent Authority.[20] Following the ICAO rules, the applicant for the AOC shall demonstrate compliance with regulatory requirements and relevant Certification Specifications.

Following the structure of EU/EASA framework as described in the section 4.1, specifications for an aircraft operator to be granted a certificate can be found in the *Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council.* As there is extensive literature and guidance available regarding the process, the research does not intend to extensively repeat this content. Instead, only main components will be highlighted, including provisions or guidance related to security. Specifications below are referring to an EASA published document[21].

An aircraft operator should follow the process as described in the Regulation 965/2012, specifically, Annex III provision ORO.AOC.100. Additionally, as the operator must ensure safety of operations using airworthy aircraft, all aircraft operated must have a certificate of airworthiness (CofA) in accordance with Regulation (EU) No 748/2012.

For a certification process, the overarching document is the Operations Manual. The operator shall provide all necessary information for the safe operation and use of airworthy aircraft. Annex 2 of this report gives details of the structure of an Operations Manual[22]. Leveraging on the ICAO framework the generic process under EASA Regulation would include:

- Preparation and coordination with the Competent Authority to discuss certification process
- Establishing compliance with requirements of the Regulation 965/2012:
    - Adapt Operations Manual structure according "EASA Operations Manual Structure" – Annex 2
    - Adapt organisation, key personnel, and procedures based on requirements
- Submission of application and forms including:
    - Application Form
    - Operations Manual
    - Continuous Airworthiness Management Exposition Manual
    - Safety Management System documentation
    - Evidence of financial capability
- Document evaluation by the Competent Authority
- Demonstrating compliance during the certification audit
- Submission of action plan (depending on audit results)
- Issuance of AOC by the Competent Authority

[20] Competent Authority means an authority designated within each Member State with the necessary powers and responsibilities for the certification and oversight of aerodromes, as well as personnel and organisations involved therein;

[21] Easy Access Rules for Air Operations (Regulation 965/2012) - https://www.easa.europa.eu/en/document-library/easy-access-rules/easy-access-rules-air-operations-regulation-eu-no-9652012

[22] Subject to revision and amendment of the AMC at the time this report was developed.

6.3 Security elements in EASA Certification of Aerodromes and Air Operators

Regardless of the fact that the certification of aerodromes and air operators is mostly safety-focused, the research identified several security elements in certification requirements. This confirms the initial assumption of the impact that security has on safety.

The previous Deliverable D-1.1 identified several security elements which have impact on safety. Two basic criteria were used to identify them:

- Security nature (specificity) of the measure (in other words – the protective function of the measure)
- The existence of the measure in safety regulation

While Deliverable D-1.1 identified these measures as security measures with an impact on safety, within this report they have been analysed if and to what degree these are security measures which are subject to "safety certification" specifications. Tables 3-6 below, which are an extract from the Task D-1.1, were analysed for this purpose. These tables we reviewed, resulting in the addition of further regulatory references, updates to existing ones, and the removal of those deemed less relevant. These changes were made following in-depth consultations with stakeholders and a thorough review process.[23]

Moreover, several security items are directly referred to in the Annex V of the Basic Regulation with regards to the commercial air transport performed by Air Operators:

- Procedures to handle disruptive passenger behaviour (8.3)
- Aircraft Operator "security programmes" (8.4)
- Risk assessment security measures may have on safety (8.5)

[23] Indicated in *italic* or strikethrough

Table 3 - Identification of safety areas affected by security measures in relation to aircraft safety

Security measure that may have an impact on safety	Security regulation	Relevant safety regulations	Area of safety
#1 Least Risk Bomb Location (LRBL)	• Guidance: Doc 8973, 17.14.7 In-flight aircraft search procedures and • Annex 2 to Appendix 44 Dealing with chemical/biological events during the flight	• ICAO Annex 8, Part III A, Chapter 11.2 • ICAO Annex 8, Part III B, Chapter 10.2 • CS 25.795 Security considerations • AMC 25.795(c)(1) Least risk bomb location • AMC1 ORO.CC.125(c) Aircraft type specific training and operator conversion training • AMC1 ORO.GEN.110(a) Operator responsibilities	• Design and certification • Air carrier emergency procedures and training (analysed in section related to air carrier)
#2 Features of Interior Design	• N/A	• ICAO Annex 8, Part III A, Chapter 11.4 • ICAO Annex 8, Part III B, Chapter 10.4 • CS 25.795 Security considerations • AMC 25.795(c)(3) Interior design to facilitate searches	• Design and certification
#3 Protection of Flight Crew Compartment (relating to aircraft design)	• Guidance: Doc 8973, Aircraft Security	• ICAO Annex 8, Part III A, Chapter 11.3 • ICAO Annex 8, Part III B, Chapter 10.3 • CS 25.795 Security considerations • AMC 25.795(a)(1) Flightdeck intrusion resistance	• Aircraft design and certification
#4 Other security considerations (relating to aircraft design)	• N/A	• CS 25.795 Security considerations	• Aircraft design and certification
#5 Protection of aircraft equipment, systems and networks	• EU2015/1998 1.7	• ICAO Annex 8, Chapter 4, Continuing Airworthiness, 4.2.1.5 and 4.2.1.6 • CS 25.1319 Equipment, systems and network information protection and H25.6 Information system security Instructions for Continued Airworthiness • General AMC for Airworthiness of Products, Parts and Appliances (AMC-20)	• Cyber security, • Information security
#6 Security of parts, equipment and tools	• N/A	• ICAO Annex 8, chapter 6, Maintenance Organisation Approval	• Aircraft maintenance

Table 4 - Identification of safety areas affected by security measures in relation to aerodrome operations

Security measure that may have impact on safety	Security regulation	Relevant safety standards and regulations	Area of safety
#1 Airport planning requirements	• EC300/2008, 1.1 • EU2015/1998 1.1	• ICAO Annex 14 Vol 1, • AMC1 ADR.AR.B.005(c) Management system • *CS-ADR-DSN* • *AMC3 ADR.OR.E.005 (Part B point 2.4 and Part E point 8)*	• Management system
#2 Boundaries	• EC300/2008, 1.1 • EU2015/1998 1.1	• ICAO Annex 14 Vol 1, • EU 2018/1139 Definitions • ADR.OR.B.015 Application for a certificate • GM1 ADR.OR.B.015(b)(2) Application for a certificate • *GM1 ADR.AR.C.015*	• Certification
#3 Access control and security surveillance patrols	• EC300/2008, 1.5 • EU2015/1998 1.5	• ADR.OPS.B.033 Control of pedestrians • AMC1 ADR.OPS.B.033(a) Control of pedestrians • AMC1 ADR.OPS.B.033(b) Control of pedestrians • *ADR.OPS.B.024 and related GM1 ADR.OPS.B.24 (a) Authorisation of vehicle drivers* • *ADR.OPS.B.080 Marking and lighting of vehicles and other mobile objects*	• Operations
#4 Fencing	• EC300/2008, 1.1 • EU2015/1998 1.1 Guidance: Doc 8973, 11.2.2 Airport perimeter protection	• Annex 14 Vol 1, 1.10 • CS ADR-DSN.T.920 Fencing • GM1 ADR-DSN.T.920 Fencing • *CS ADR-DSN.T.900 and related GM (GM1 ADR-DSN.T.900 (b) (3), (7), (8) Emergency access and service roads*	• Certification • *Design*
#5 Identification and protection of critical information, technology, systems and data	• EU2015/1998 1.7	• ADR.OR.D.007 (e) Management of aeronautical data and aeronautical information • GM1 ADR.OR.D.007(b) Management of aeronautical data and aeronautical information • ADR.OR.D.030 • ADR.OR.D.035 • *AMC1 ADR.AR.C.010 Oversight programme point (b)(25)*	• Cyber security
#6 Demarcated areas	• EC300/2008, 2 • EU2016/2096	• N/A	• Design
#7 Management system	• Guidance: Doc 8973 Chapter 9.3 Security Management System	• ICAO Annex 19 and supporting guidance: Doc 9859, • ADR.AR.B.005 Management system	• Management System

Security measure that may have impact on safety	Security regulation	Relevant safety standards and regulations	Area of safety
#8 Aerodrome emergency response plan	• EU2015/1998, 11 • Guidance: Doc 8973 Definitions, Chapter 17	• Annex 14, 9.1 • ADR.OPS.B.005 Aerodrome emergency planning	• Emergency procedures
#9 Training and vetting requirements	• Annex 17 3.4 • EC 300/2008, 11 Staff recruitment and training, • EU 2015/1998, Chapter 11	• ADR.OR.D.017 Training and proficiency check programmes • *ADR.AR.B.005 Management system* • *AMC1 ADR.ARB.05 (a)(2)* • *AMC1 ADR.OR.D.015 (a)*	• Recruitment and Training
#10 Isolated aircraft parking position	• Guidance: Doc 8973, 17.8 Isolated aircraft parking position	• Annex 14, 3.14 • CS ADR-DSN.A.002 Definitions • CS ADR-DSN.F.370 Isolated aircraft parking position • GM3 ADR.OPS.B.005(a) Aerodrome emergency planning	• Design
#11 Other measures implemented under airport operator responsibility	• Annex 17 • EC 300/2008 • EU 2015/1998	• EU139/2014	• Operations

Table 5 - Identification of safety areas affected by security measures in relation to screening

Security measure	Security regulation	Relevant safety regulation	Safety area
#1 Mutual recognition of screeners' certification	• ICAO Annex 17 • EU 2015/1998 11.7.1	• Regulation 1139/*2018~~2021~~* (art 67.1)	• Certification of screeners
#2 Prohibited articles list	• EU 2015/1998 1-A, 4-C and 5-B	• Regulation 965/2012 • Technical Instructions for safe transport of DG by air – ICAO Doc 9284 Part 2 Classification of DGs	• Dangerous Goods, • Training
#3 Prohibited items authorisation for carriage if "in line with safety rules"	• EU 2015/1998 4.4.2 (c), 5.4.2. (b)	• Regulation 965/2012, • Technical Instructions for safe transport of DG by air	• Training
#4 Liquids and gels restrictions	• EU 2015/1998 • 4.1.3	• Regulation 965/2012 • Technical Instructions for safe transport of DG by air – ICAO Doc 9284 Part 2 Classification of DGs – Class 2 and 3 • 2.1.1	• Dangerous Goods
#5 Separate screening of laptops and other large electrical devices	• EU 2015/1998 • 4.1.2.1	• Regulation 965/2012 • Technical Instructions for safe transport of DG by air – ICAO Doc 9284 Table 8.1	• Dangerous Goods
#6 Responsibility for passenger, cabin baggage and hold baggage screening	• EU 300/2008 article 10.1	• Regulation 965/2012 • CAT.GEN.MPA.200 (c)	• Dangerous Goods

Security measure	Security regulation	Relevant safety regulation	Safety area
#7 Screener training	• EU 2015/1998 • 11.4.1	• Regulation 965/2012 • ORO.GEN.110 • ICAO 10147	• Screener training
#8 Refusal to enter CPSRA where an alarm cannot be resolved	• EU 2015/1998 • 4.1.1.2	• Regulation 965/2012 • CAT.GEN.MPA.200 (c)	• • Dangerous Goods
#9 Exemption from screening	• EU 2015/1998, • ICAO Doc 8973 11.3.2	• Regulation 965/2012	• Operations
#10 Unpredictability/ randomisation	• ICAO Annex 17 4.1.2	• N/A	• Operations
#11 Airport equipment approval	• EU 2015/1998 • Chapter 12	• ~~*EU 139/2014 Subpart B – aerodrome operational services, equipment and installations (ADR.OPS.B)*~~ • *Articles 34-36 of the Regulation (EU) 2018/1139*	• Aerodrome *operations*
#12 Airport equipment – new technologies	• EU 2015/1998 • 4.1.2.5 – 4.1.2.12 • 5.1.1 (c)	• N/A	• Dangerous Goods

Table 6 - Identification of safety areas affected by security measures in relation to air operations

Security measure	Applicable security regulation	Relevant safety regulations	Area of safety
#1 Aircraft Security Search	• EC 300/2008 • EU 2015/1998, 3.1 • 272/2009 Part D • C2015/8005	• Annex 6, Part I CAT, 13.3 • 965/2012 – Part CAT • AMC1 ORO.GEN.110(f)(h) Operator responsibilities	• Operating procedures
#2 Aircraft Protection	• EC 300/2008 • EU 2015/1998, 3.2	• N/A	• Operating procedures
#3 Carriage of potentially disruptive passengers	• EC 300/2008 • Article 3, Definitions • EU 2015/1998 • 4.3; 10; 11.2.3.1 (f); • 11.2.3.5 (g); • 11.2.3.11 (k) • ICAO Annex 17, 4.7 • ICAO Annex 9, Chapter 6, E	• Air Operations 965/2012, Annex IV, Part – CAT, Operating Procedures CAT.OP.MPA.155 Carriage of special categories of passengers (SCPs) • AMC3 ORO.MLR.100 Operations manual – general • CAT.GEN.MPA.105 Responsibilities of the commander • AMC2 CAT.OP.MPA.165 Passenger seating • *ORO.CC.255(c)(2)* • *AMC2 CAT.GEN.MPA.140 para (c)(7)* • *GM1 ORO.GEN.110(f) para (c)(9)* • ~~*CAT.GEN.MPA.160*~~	• Operating procedures
#4 Prohibited articles	• EC 300/2008, 10 (point 3 & 4)	• CAT.GEN.MPA.155	• Operating procedures

Security measure	Applicable security regulation	Relevant safety regulations	Area of safety
	• EU 2015/1998 4.4; Attachment 1 – A, 4 -C, 5-B	• GM1 CAT.GEN.MPA.155 • Carriage of weapons and munitions of war • *CAT.GEN.MPA.160*	
#5 Baggage reconciliation	• EC 300/2008 5.3 • EU 2015/1998 5.3	• ~~*Draft regulation*~~ • GH.OPS.110 Baggage tagging • AMC1 GH.OPS.110 Baggage tagging	• Operating procedures
#6 Security of flight crew compartment	• EC 300/2008, 10 • EU 2015/1998, 10	• ICAO Annex 6, Part I CAT, 13.2 • (EU) No 965/2012 SUBPART SEC: SECURITY • ORO.SEC.100 Flight crew compartment security – aeroplanes	• Operating procedures
#7 Security training of Flight Crew and Cabin Crew	• EC 300/2008, 11 • EU 2015/1998, 11	• AMC2 ORO.GEN.110(a) *(ground staff)* • *AMC1 ORO.FC.220 para (c)(2)(v) and (c)(3)(ii)(B)* • *AMC1 ORO.FC.230 para (a)(2)(ii)(F)* • *ORO.CC.125(d)(viii)* • *ORO.CC.140(d)(1)(9)*	• Training
#8 Identification and protection of critical information, technology, systems and data	• EU 2015/1998 1.7	• EU 965/2012, • AMC7 SPA.EFB.100(b)(3)	• Cyber security

Based on the analysis, several security elements were identified as included in certification and summarised in 7. Security requirements which do not fall under certification process, are excluded even if there is an interdependence identified.

*Table 7 - Security elements included in the certification framework of aerodromes and air operators. *) these elements are part of airworthiness, and as such subject to Type Certificate of an aircraft.*

Security component	Aerodrome certification	Air operator certification
Least-Risk Bomb Location		X *)
Reinforced Cockpit doors		X *)
Features of aircraft design		X *)
Protection of aircraft systems		X *)
Access to the flight crew compartment		X
Carriage of weapons		X
Aircraft security search		X
Special categories of passengers		X
Carriage of weapon		X
Alerting ATC to emergencies		X
Training of Flight and Cabin Crew		X
Procedures to handle disruptive passenger behaviour		X
Boundaries	X	
Access control and security surveillance	X	
Fence	X	
Isolated parking position	X	
Training and vetting requirements	X	X
Emergency procedures and planning	X	X
Information and data security management system	X	X

Table 7 indicates the number of security requirements included in the certification processes for aerodromes and air operators is limited.

In the absence of formal security certification of aerodromes and air operators (as explained in Section 7) it is recognised and understood that separate framework based on Regulation 300/2008 ensures security oversight is performed by the Appropriate Authority (for security) and the European Commission to enforce compliance with regulations. However, unlike for safety certification, in case of security domain there is no obligation such assessment takes place before the certificate for the aerodrome or the air operator is issued.

Moreover, regulatory framework in the scope of aerodromes and air operator certification do not contain specific guidance related to security requirements. As mentioned in the section 4.5.1.2 this may be caused by restricted nature of some security documents, however even publicly available Regulations are not referred to.

The research also identified several elements which are only generally defined, making it ambiguous in terms of the expected security output. An example is the description of Chapter 10 of the OM.

All these elements above will be subject to further analysis during the next stage of the project. The research in Task D-3.2.2 will attempt to consult stakeholders to verify how they are assessed during the certification process and which security-related requirements are assessed. Research, at that stage, will also aim at exploring if the following components are included as part of the certification process:

- Head of Security/Security manager
- Background checks
- Security policy
- Security risk assessment
- Security precautions for ground handling instructions for aircraft, passengers and cargo handling

- Security occurrences reporting
- Security training
- Security Management System

7. Security Certification

This chapter security certification related to the following topics:
- ICAO framework (Section 7.1)
- EU framework (Section 7.2)

7.1 ICAO framework

A general framework for aviation security is contained in Annex 17 – Aviation Security. Annex 17 defines **certification** as "*a formal evaluation and confirmation by or on behalf of the appropriate authority for aviation security that a person possesses the necessary competencies to perform assigned functions to an acceptable level as defined by the appropriate authority*".

Standards requiring States to implement certification refer to:

- Instructors (3.4.3)
- Person carrying out screening (3.4.4)

It is important to note the "appropriate authority" defined in Annex 17 is the authority appointed in the State in accordance with Standard 3.1.2 which is responsible for the development, implementation and maintenance of the National Civil Aviation Security Programme (NCASP).

The provisions of Annex 17 are supported by relevant ICAO guidance contained in the Doc 8973.

7.2 EU framework

7.2.1 Certification of individuals

Regulation 300/2008 defines **certification** as "*means a formal evaluation and confirmation by or on behalf of the appropriate authority that a person possesses the necessary competencies to perform the functions of an auditor to an acceptable level as defined by the appropriate authority*".

In 11.1, the Regulation 300/2008 requires "*persons implementing, or responsible for implementing, screening, access control or other security controls shall be recruited, trained and, where appropriate, certified*".

Moreover, the point 15.1 of the Regulation 300/2008 indicates the auditors performing functions of behalf of the appropriate authority shall be certified or subject to equivalent approval by the appropriate authority. Implementing Regulation 1998/2015 defines the certification, again this time as follows: "*a formal evaluation and confirmation by or on behalf of the appropriate authority indicating that the person has successfully completed the relevant training and that the person possesses the necessary competencies to perform assigned functions to an acceptable level*".

Further, point 11.3.1 requires certification (or approval) to apply to persons implementing:

- Screening of persons, cabin baggage, items carried and hold baggage
- Screening of cargo and mail

- Screening of air carrier mail and materials, in-flight supplies and airport supplies
- Vehicle examinations
- Access control at an airport as well as surveillance and patrols

Also, instructors are required to be certified, however, the Regulation 1998/2015 allows this to be limited to instructors providing the training to the groups mentioned above and in certain cases to training provided to supervisors of persons implementing security controls and security managers.

Conversely to EASA, there was no supporting material identified in a form of AMC or GM for States, Appropriate Authorities or stakeholders to use. These would probably need to be sourced directly from ICAO Doc 8973.

7.2.2 Approval of equipment

As mentioned in the section 4.6 security domain uses "approval" processes more extensively compared to "certification". This is illustrated as an example of a mechanism has been introduced by virtue of the Commission Implementing Regulation (EU) 2023/566 amending implementing Regulation (EU) 2015/1998. This Regulation introduced the mechanism of **"EU Stamp"** which formally is not a certification but acts as such.

This mechanism has been created on the basis of Regulation 300/2008 and specifically provision 12 of the Annex I which states "*equipment used for screening, access control and other security controls shall comply with the defined specifications and be capable of performing the security controls concerned*." It limits the deployment of security equipment and software installed after the 1st of October 2020 to such that has been granted the "EU Stamp" marking.

It applies to:

- Walk-through metal detection (WTMD) equipment
- Explosive detection systems (EDS) equipment
- Explosive trace detection (ETD) equipment
- Liquid explosive detection systems (LEDS) equipment
- Metal detection (MD) equipment
- Security scanners
- Shoe scanner equipment
- Explosive vapour detection (EVD) equipment
- Automated prohibited items detections software (APIDS)

According to further provisions of this Regulation "*the Commission may grant an "EU Stamp" marking to security equipment confirmed by the Common Evaluation Process of the European Civil Aviation Conference. Such equipment shall be automatically eligible to the "EU Stamp" marking and shall receive a temporary 'EU Stamp pending' marking status until the final approval*". Security equipment for which the "EU Stamp" marking has been granted shall be entered into the "Union database on supply chain security — security equipment".[24]

On request from Member States or on its own initiative, the Commission can suspend the "EU Stamp" marking and the "EU Stamp pending" marking status of security equipment without prior notice when it receives information indicating that the equipment does not meet the standard for which it has been approved. In doing so, the Commission updates the status in the "Union database on supply chain security — security equipment" accordingly. On request from Member States or on its own initiative, the Commission can withdraw the "EU

[24] This database is available here: https://ksda.ec.europa.eu/public/security-equipments

Stamp“ marking or the “EU Stamp pending“ marking status of security equipment when it is no longer satisfied that the security equipment meets the standard for which it has been approved.

Contrary to EASA, there was no supporting publicly available material identified in a form of AMC or GM for States, Appropriate Authorities or stakeholders to use. This is due to sensitive nature of the specifications and the fact that many details are in the Commission Implementing Decision C(2015) 8005 which is not published. The European Commission however, publishes the list of approved equipment, which can be consulted by stakeholders.[25]

8. Industry safety and security assessment initiatives

This chapter introduces two programs for industry safety and security assessments:
- ACI APEX (Section 8.1)
- IOSA (Section 8.2)

8.1 ACI APEX

Airports Council International (ACI) World's Airport Excellence Program (APEX) is a peer assessment initiative that provides comprehensive onsite airport reviews led by industry peers and experts to optimise airport operations, regulatory compliance, and aviation standards worldwide. APEX is based on ICAO standards, international regulations, and ACI best practices and offers reviews on four priority areas: security, cybersecurity, safety, and environment.

In the scope of safety and security, the APEX program aims to help airports identify and mitigate safety risks, enhance safety management systems, and comply with international standards and best practices. The program emphasises adopting international best practices and complying with standards set by organisations such as ICAO. The program leverages peer reviews, where experts from other airports and the aviation industry assess the host airport’s safety protocols and provide recommendations. Although it is not the certification program, it has been identified as an industry initiative that helps in ensuring compliance with certification requirements.

8.2 IOSA

IATA Operational Safety Audit (IOSA) provides a standardised audit program that helps airlines conform to international safety regulations and best practices. The program emphasises adopting international best practices and complying with standards set by organisations such as ICAO.

The audit covers various aspects of an airline’s operations, including:

- Organisation and management system
- Flight operations
- Operational control and flight dispatch
- Aircraft engineering and maintenance
- Cabin operations
- Ground handling
- Cargo operations

[25] European Union database on supply chain security - https://ksda.ec.europa.eu/public/screen/home

- Security management (including Security Management System)

Airlines that pass the audit are included in the IOSA Registry, which is publicly accessible and demonstrates the airline's commitment to operational safety and security. IOSA is the only initiative which mandates air operators to develop, implement and maintain a Security Management System (SeMS).

Although it is not a certification program, it has been identified as an industry initiative that helps in ensuring compliance with certification requirements. Some of the NAAs are entering into agreement with IATA to consider the IOSA audit process as part of their own oversight programme, and some permit a form of audit 'credit' to the demonstration of high performing IOSA audit results.[26]

9. Conclusions

This chapter presents the conclusions in this report. The primary focus has been on the regulatory frameworks and the understanding of safety and security certification.

Both safety and security domains regulate certification processes, however, differences exist between them:

- **Scope of certification:** Safety certification covers a much broader scope (of which aerodromes and air operators were within, in this report). Security certification is considerably more restricted, typically applying only to specific groups of personnel (e.g. screeners) and does not cover comprehensive evaluation of processes which are predominantly important from security perspective (processing of passengers, baggage and cargo)[27]. This narrow scope limits the overall impact of security certification on the broader aviation safety landscape. The security domain however, includes many approval processes which appear equivalent to the certification in terms of the outcome. Still, they are not defined as a certification (e.g. security equipment approval).
- **Provision of specifications and guidance**: Within the EU, the regulatory framework for safety is supported by extensive and detailed specifications and guidance materials. These resources are designed to support compliance and provide clear instructions for stakeholders on achieving safety objectives. In the security domain meanwhile, the provision of similar guidance is comparatively limited. The disparity between the two domains suggests that stakeholders involved in security certification may not receive the same level of regulatory support as those engaged in safety certification.
- **Integration of safety and security references**: The safety certification framework does not always include sufficient references to security considerations or requirements. While safety-related topics are addressed with precision and clear outcome-oriented guidelines, security elements often lack the same depth of guidance or are not available to safety domain (e.g. due to the restricted nature of aviation security regulations). This separation may result in insufficient support for stakeholders who need to address both safety and security in a cohesive manner. It may also cause reduced awareness of security requirements within the workforce responsible for certification processes in safety domain.
- **Lack of cross-referencing between safety and security**: Similarly, security certification processes rarely incorporate safety-related elements. This lack of integration indicates that the security and safety framework either are not interdependent (due to their scope being separate) or do not sufficiently recognise the potential implications they have on each other. As a result, the overall aviation regulatory framework may miss opportunities to enhance safety by considering security-related factors more thoroughly and vice versa (e.g. recognising SeMS alongside SMS).

[26] https://www.iata.org/en/about/worldwide/europe/blog/safety-first--romanias-caa-and-iata-sign-an-mou/

[27] Instead of certification, multiple approval processes exist supported by robust compliance monitoring framework.

- **Recognition of safety-security interdependencies**: Although the relationship between safety and security is acknowledged within the regulatory frameworks, this recognition often remains declaratory rather than substantive. There is a noticeable absence of comprehensive guidance material that would effectively bridge the two domains, enabling a more integrated approach to certification (including access of safety domain to restricted security guidance). This gap suggests that the current regulatory framework may not fully support a holistic view of aviation safety and security.
- **Terminology alignment**: there are noticeable differences in using terminology which applies to both domains. Clarity and harmonisation would effectively support communication between two domains especially for processes which are equivalent in terms of the process and produced output.

In general, it is recommended to consider more integrated and effective approach to safety and security organisation and regulatory framework. Such approach would not only improve regulatory compliance but also enhance the overall safety and security of aviation operations.

While both domains are critical to the safe and secure operation of the industry, the existing regulatory frameworks could benefit from greater alignment and integration. By harmonising and integrating safety and security considerations, enhancing coordination, and strengthening guidance on interdependencies, the aviation sector can achieve certification process which will produce improved safety and security outcome.

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ICAO Doc 8973 Aviation Security Manual

ICAO Doc 8335 Manual of Procedures for Operations Inspection, Certification and Continued Surveillance

ICAO Doc 9626 Manual on the Regulation of International Air Transport

Regulation (EU) 2018/1139 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91

Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures related to aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council

Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council

Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community

Commission Regulation (EU) No 1321/2014 of 26 November 2014 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks

Regulation (EC) No 300/2008 of the European Parliament and of the Council of 11 March 2008 on common rules in the field of civil aviation security and repealing Regulation (EC) No 2320/2002.

Commission Regulation (EU) No 185/2010 of 4 March 2010 laying down detailed measures for the implementation of the common basic standards on aviation security.

ANNEX 1

This Annex contains EASA required content of the Aerodrome Manual as described in AMC3 ADR.OR.E.005. ***Security related components have been indicated in bold.***

AERODROME MANUAL

(a) The aerodrome manual should have the following structure, and include, at least, the following information; if an item is not applicable, the indication 'Not applicable' or 'Intentionally blank' should be inserted, along with the relevant reason:

A. PART A — GENERAL

0. Administration and control of the aerodrome manual including the following:

0.1. Introduction:

0.1.1 a statement signed by the accountable manager that the aerodrome manual complies with all applicable requirements, and with the terms of the certificate;

0.1.2 a statement signed by the accountable manager that the aerodrome manual contains operational instructions that are to be complied with by the relevant personnel;

0.1.3 a list and brief description of the various parts, their contents, applicability, and use;

0.1.4 explanations, abbreviations, and definitions of terms needed for the use of the manual;

0.2 System of amendment and revision:

0.2.1 details of the person(s) responsible for the issuance and insertion of amendments and revisions;

0.2.2 a record of amendments and revisions with insertion dates, and effective dates;

0.2.3 a statement that handwritten amendments and revisions are not permitted, except in situations requiring immediate amendment, or revision in the interest of safety;

0.2.4 a description of the system for the annotation of pages, or paragraphs and their effective dates;

0.2.5 a list of effective pages or paragraphs;

0.2.6 annotation of changes (in the text and, as far as practicable, on charts and diagrams);

0.2.7 temporary revisions; and

0.2.8 description of the distribution system and a distribution list for the aerodrome manual, its amendments, and revisions.

1. General information

General information including the following:

1.1 purpose and scope of the aerodrome manual;

1.2 legal requirements for an aerodrome certificate and the aerodrome manual as prescribed in Part-ADR.OR;

1.3 conditions for use of the aerodrome by its users;

1.4 the obligations of the aerodrome operator; rights of the Competent Authority and guidance to staff on how to facilitate audits/inspections by Competent Authority personnel.

B. PART B — AERODROME MANAGEMENT SYSTEM, QUALIFICATION AND TRAINING REQUIREMENTS

2. A description of the management system, including the following:

2.1 Aerodrome organisation and responsibilities including the following: a description of the organisational structure, including the general organogram and other departments' organograms. The organogram should depict the relationship between the departments. Subordination and reporting lines of all levels of organisational structure (Departments, Sections, etc.) related to safety should be shown.

Names, authorities, responsibilities, and duties of management and nominated persons; responsibilities and duties of other operational, maintenance personnel, as well of the aerodrome safety committees and the Local Runway Safety Team and their functioning, should also be included.

2.2. A description of the safety management system, including:

2.2.1 scope of the safety management system;

2.2.2 safety policy and objectives;

2.2.3 safety responsibilities of key safety personnel;

2.2.4 documentation control procedures;

2.2.5 safety risk management process, including hazard identification and risk assessment schemes;

2.2.6 monitoring of implementation and effectiveness of safety actions, and risk mitigation measures;

2.2.7 safety performance monitoring;

2.2.8 safety reporting (including hazard reporting) and investigation;

2.2.9 **emergency response planning**;

2.2.10 management of change (including organisational changes with regard to safety responsibilities);

2.2.11 safety promotion; and

2.2.12 safety management system outputs.

2.3 A description of the compliance monitoring and related procedures.

2.4 **A description of the quality management system for aeronautical data and aeronautical information provision activities and related procedures, including those for meeting the relevant safety, and security management objectives**.

2.5 Procedures for reporting to the Competent Authority including handling, notifying and reporting accidents, serious incidents, and occurrences. This section should include, at least, the following:

(a) definition of accident, serious incident and occurrence and of the relevant responsibilities of all persons involved;

(b) illustrations of forms to be used (or copies of the forms themselves), instructions on how they are to be completed, the addresses to which they should be sent and the time allowed for this to be done;

(c) procedures and arrangements for the preservation of evidence, including recordings, following a reportable event;

2.6 Procedures related to the use of alcohol, psychoactive substances and medicines.

2.7 Procedures for:

2.7.1 complying with safety directives;

2.7.2 reaction to safety problems; and

2.7.3 handling of safety recommendations issued by Safety Investigation Authorities.

2.8 A description of the method and procedures for recording aircraft movements, including movement and aircraft type, dates, and number of passengers.

3. Required aerodrome personnel qualifications (see GM1 ADR.OR.D.015(d)). Moreover, procedures related to:

3.1 the training programme, including the following:

3.1.1 responsibilities, frequencies, syllabi, duration of each type of training, method for delivery of training and competency assessment, minimum performance to be achieved by the trainees, and the identified training standards for all personnel involved in the operation, rescue and firefighting maintenance and management of the aerodrome, and those persons operating unescorted on the movement area and other operational areas of the aerodrome.

3.1.2 procedures:

3.1.2.1 for training and competency assessment of the trainees;

3.1.2.2 to be applied in the event that personnel do not achieve the required standards.

3.1.3 description of documentation to be stored and storage periods.

3.2 the proficiency check programme, including responsibilities and frequencies of proficiency checks;

3.2.1 checking methods and procedures.

3.2.2 procedures to be applied in the event that personnel do not achieve the required standards.

3.2.3 the validation process to measure the effectiveness of the programme.

3.2.4 description of documentation to be stored and storage periods.

C. PART C — PARTICULARS OF THE AERODROME SITE

4. A description of the aerodrome site including in particular, the following information:

4.1 a plan showing the distance of the aerodrome from the nearest city, town, or other populous area;

4.2 detailed maps and charts of the aerodrome showing the aerodrome's location (longitude and latitude) and boundaries, major facilities, aerodrome reference point, layout of runways, taxiways and aprons, aerodrome visual and non-visual aids, and wind direction indicators;

4.3 a plan showing the location of any aerodrome facilities and equipment outside the boundaries of the aerodrome;

4.4 description of the physical characteristics of the aerodrome, elevations, visual and non-visual aids, as well as the information regarding the aerodrome reference temperature, strength of pavements, rescue and firefighting level of protection, ground aids and main obstacles;

4.5 description of any cases of exemptions or derogations, equivalent level of safety, special conditions, and operating limitations; and

4.6 description of the types of operations that the aerodrome is approved to conduct.

D. PART D — PARTICULARS OF THE AERODROME REQUIRED TO BE REPORTED TO THE AERONAUTICAL INFORMATION SERVICE

5. The aeronautical information services available and the procedures for the promulgation of general information, including the following:

5.1 the name of the aerodrome;

5.2 the location of the aerodrome;

5.3 the geographical coordinates of the aerodrome reference point determined in terms of the World Geodetic System — 1984 (WGS-84) reference datum;

5.4 the aerodrome elevation and geoid undulation;

5.5 the elevation of each threshold and geoid undulation, the elevation of the runway end, and any significant high and low points along the runway, and the highest elevation of the touchdown zone of a precision approach runway;

5.6 the aerodrome reference temperature;

5.7 details of the aerodrome beacon; and

5.8 the name of the aerodrome operator and contact details (including telephone numbers) of the aerodrome operator at which may be contacted at all times.

6. Aerodrome dimensions and related information, inducing the following:

6.1 runway — true bearing, designation number, length, width, displaced threshold location, slope, surface type, type of runway and, for a precision approach runway, the existence of an obstacle free zone;

6.2 length, width and surface type of strip, runway end safety areas, stopways; length, width and surface type of taxiways; apron surface type and aircraft stands; clearway length and ground profile;

6.3 visual aids for approach procedures, approach lighting type and visual approach slope indicator system; marking and lighting of runways, taxiways, and aprons; other visual guidance and control aids on taxiways and aprons, location and type of visual docking guidance system; availability of standby power for lighting;

6.4 the location and radio frequency of VOR aerodrome checkpoints;

6.5 the location and designation of standard taxi routes;

6.6 the geographical coordinates of each threshold, appropriate taxiway centre line points, and aircraft stands;

6.7 the geographical coordinates, and the top elevation of significant obstacles in the approach and take-off areas, in the circling area and in the surroundings of the aerodrome (in the form of charts);

6.8 pavement surface type and bearing strength using the Aircraft Classification Number — Pavement Classification Number (ACN-PCN) method;

6.9 pre-flight altimeter check locations established and their elevation;

6.10 declared distances;

6.11 contact details (telephone/telex/fax numbers and e-mail address) of the aerodrome coordinator for the removal of disabled aircraft, and information on the capability to remove disabled aircraft, expressed in terms of the largest aircraft type;

6.12 rescue and firefighting level of protection; types and amounts of extinguishing agents normally available at the aerodrome; and

6.13 exemptions or derogations from the applicable requirements, cases of equivalent level of safety, special conditions, and limitations.

E. PART E — PARTICULARS OF OPERATING PROCEDURES OF THE AERODROME, ITS EQUIPMENT, AND SAFETY MEASURES

7. Aerodrome reporting, including:

7.1 arrangements and procedures for reporting changes to the aerodrome information set out in the AIP and requesting the issue of NOTAM, including reporting changes to the Competent Authority and recording of the reporting of changes;

7.2 procedures and frequencies for aeronautical data surveying, including areas to be surveyed.

8. **Procedures for accessing the aerodrome movement area, including:**

8.1 **coordination with the security agencies;**

8.2 **prevention of unauthorised entry into the movement area;**

9. Procedures for the inspection, assessment and reporting of the condition of the aerodrome movement area and other operational areas and facilities, (including runway surface friction characteristics assessments and water-depth measurements), including:

9.1 arrangements and means of communicating with the air traffic services unit during inspections;

9.2 inspection checklists, logbook, and record-keeping; and

9.3 inspection intervals and times; reporting results and follow-up actions.

10. Procedures for the inspection, and routine and emergency maintenance of visual and non-visual aids, as appropriate, and the aerodrome electrical systems, including:

10.1 inspection checklists, logbook, and record keeping; and

10.2 inspection intervals and times; reporting results and follow-up actions.

11. Operating, maintenance and repair instructions, servicing information, troubleshooting and inspection procedures of aerodrome equipment.

12. Procedures for:

12.1 maintenance of the movement area, including paved areas; unpaved runways and taxiways; runways and runway strips and aerodrome drainage;

12.2 overload operations.

13. Procedures for aerodrome works, including:

13.1 coordinating, planning, and carrying out construction and maintenance work; and

13.2 arrangements and means of communicating with air traffic services unit during the progress of such work.

14. Procedures for apron management, including:

14.1 transfer of the aircraft between air traffic services unit, and the apron management unit;

14.2 allocation of aircraft parking positions;

14.3 engine start and aircraft push-back; and

14.4 marshalling and ‘follow-me’ service.

15. Procedures for apron safety management, including:

15.1 protection from jet blasts and downwash;

15.2 enforcement of safety precautions during aircraft refuelling operations;

15.3 FOD prevention, including apron cleaning/sweeping;

15.4 monitoring compliance of personnel on the apron with safety procedures; and

15.5 escorting, controlling and protecting passengers on the apron, from vehicular traffic and operating aircraft, use of predetermined routes, and avoiding interference with stationary aircraft ground servicing activities.

16. Procedures for the control and limitation of the number of vehicles operating on the movement area, issuance of authorisations and temporary permits of vehicles operating on or in the vicinity of the movement area, including driver's obligations, traffic rules, right of way, speed limits, and procedures for issuing driving authorisations and permits, and enforcement procedures. Procedures for escorting vehicles occasionally used in areas where radio and transponder or equivalent is required, as well as for vehicles temporarily permitted to operate on the movement area. Procedures and responsibilities for establishing and monitoring the implementation of the maintenance programme for vehicles operating on the movement area and other operating areas.

17. Procedures for wildlife hazard management, including assessing wildlife hazards and arrangements for implementation of the wildlife control programme, and promulgation of the relevant information to the AIS; wildlife strike form.

18. Procedures for:

18.1 obstacle control and monitoring within and outside of the aerodrome boundaries, and notification to the Competent Authority, of the nature and location of obstacles, and any subsequent addition, or removal of obstacles for action as necessary, including amendment of the AIS publications; and

18.2 monitoring and mitigating hazards related to human activities and land use, on the aerodrome and its surroundings.

Relevant inspection checklists, logbook, and record keeping; inspection intervals and times; reporting results and follow-up actions.

19. A**erodrome emergency plan including:**

19.1 **dealing with emergencies at the aerodrome or in its surroundings;**

19.2 **tests for aerodrome facilities and equipment to be used in emergencies, including their frequency; and**

19.3 **exercises to test emergency plans, including their frequency**.

20. Rescue and firefighting, including description of facilities, equipment, personnel and procedures for meeting the firefighting requirements.

21. Removal plan of disabled aircraft, including relevant arrangements, equipment, and procedures for its implementation.

22. Procedures for ensuring the safe handling and storage of fuel and dangerous goods in the aerodrome, including:

22.1 equipment, storage areas, delivery, dispensing, handling, and safety measures;

22.2 quality and correct specification of aviation fuel; audit and inspection intervals, checklists, sampling and record keeping.

23. Low visibility operations: description of operational procedures, including coordination with air traffic services unit and apron management unit, standard taxiing routes, control of activities, and measurement and reporting of runway visual range.

24. Procedures for winter operations, including snow removal plan and procedures for its implementation as well as description of the available means and relevant arrangements.

25. Procedures for operations in adverse weather conditions.

26. Procedures for night operations.

27. Procedures for the protection of radar and other navigational aids, control of activities, and ground maintenance in the vicinity of these installations.

28. Procedures for the operation of aircraft with higher code letter at the aerodrome, including taxiing routes.

29. Procedures and measures for the prevention of fire at the aerodrome.

30. Communication procedures, including: frequencies; language and phraseology to be used when communicating with the air traffic services; vehicle call signs; communication signals to be used in case of radio communication failure; communication via the air traffic services provider; and dissemination of significant information.

31. Aircraft towing procedures, including: designated routes to be used; lights to be displayed by aircraft; communication procedures; guidance to be provided; measures for ensuring safety of towing operation in adverse weather conditions, including visibility and weather phenomena in which towing is limited or not permitted.

32. Procedures for the handover of activities between aerodrome personnel, including description of the system for the provision of operational information to other organisations operating at the aerodrome.

(b) All procedures contained in the aerodrome manual should include and clearly define the roles, responsibilities, and contact details of responsible aerodrome personnel, other persons or organisations, including the contracted ones, including the Competent Authority and other state agencies involved, as appropriate, and take into account the need for establishing direct communication during non-working hours.

ANNEX 2

This Annex contains EASA required content of the Operations Manual as described in AMC3 ORO.MLR.100 for CAT Operations

Security related components have been indicated in bold.

A GENERAL/BASIC

0 ADMINISTRATION AND CONTROL OF THE OPERATIONS MANUAL

0.1 Introduction:

(a) A statement that the manual complies with all applicable regulations and with the terms and conditions of the applicable AOC.

(b) A statement that the manual contains operational instructions that are to be complied with by the relevant personnel.

(c) A list and brief description of the various parts, their contents, applicability and use.

(d) Explanations and definitions of terms and words needed for the use of the manual.

0.2 System of amendment and revision:

(a) Details of the person(s) responsible for the issuance and insertion of amendments and revisions.

(b) A record of amendments and revisions with insertion dates and effective dates.

(c) A statement that handwritten amendments and revisions are not permitted, except in situations requiring immediate amendment or revision in the interest of safety.

(d) A description of the system for the annotation of pages or paragraphs and their effective dates.

(e) A list of effective pages or paragraphs.

(f) Annotation of changes (in the text and, as far as practicable, on charts and diagrams).

(g) Temporary revisions.

(h) A description of the distribution system for the manuals, amendments and revisions.

1 ORGANISATION AND RESPONSIBILITIES

1.1 Organisational structure. A description of the organisational structure, including the general organogram and operations departments' organograms. The organogram should depict the relationship between the operations departments and the other departments of the operator. In particular, the subordination and reporting lines of all divisions, departments, etc., which pertain to the safety of flight operations, should be shown.

1.2 Nominated persons. The name of each nominated person responsible for flight operations, crew training and ground operations, as prescribed in ORO.AOC.135. A description of their function and responsibilities should be included.

1.3 Responsibilities and duties of operations management personnel. A description of the duties, responsibilities and authority of operations management personnel pertaining to the safety of flight operations and the compliance with the applicable regulations.

1.4 Authority, duties and responsibilities of the pilot-in-command/commander. A statement defining the authority, duties and responsibilities of the pilot-in-command/commander.

1.5 Duties and responsibilities of crew members other than the pilot-in-command/commander.

2 OPERATIONAL CONTROL AND SUPERVISION

2.1 Supervision of the operation by the operator. A description of the system for supervision of the operation by the operator (see ORO.GEN.110(c)). This should show how the safety of flight operations and the qualifications of personnel are supervised. In particular, the procedures related to the following items should be described:

(a) licence and qualification validity,

(b) competence of operations personnel,

(c) control, analysis and storage of the required records.

2.2 System and responsibility for promulgation of additional operational instructions and information. A description of any system for promulgating information which may be of an operational nature, but which is supplementary to that in the OM. The applicability of this information and the responsibilities for its promulgation should be included.

2.3 Operational control. A description of the procedures and responsibilities necessary to exercise operational control with respect to flight safety.

2.4 Powers of the authority. A description of the powers of the competent authority and guidance to staff on how to facilitate inspections by authority personnel.

3 MANAGEMENT SYSTEM

A description of the management system, including at least the following:

(a) safety policy;

(b) the process for identifying safety hazards and for evaluating and managing the associated risks;

(c) compliance monitoring system;

(d) allocation of duties and responsibilities;

(e) documentation of all key management system processes.

4 CREW COMPOSITION

4.1 Crew composition. An explanation of the method for determining crew compositions, taking account of the following:

(a) the type of aircraft being used;

(b) the area and type of operation being undertaken;

(c) the phase of the flight;

(d) the minimum crew requirement and flight duty period planned;

(e) experience (total and on type), recency and qualification of the crew members;

(f) the designation of the pilot-in-command/commander and, if necessitated by the duration of the flight, the procedures for the relief of the pilot-in-command/commander or other members of the flight crew (see ORO.FC.105);

(g) the designation of the senior cabin crew member and, if necessitated by the duration of the flight, the procedures for the relief of the senior cabin crew member and any other member of the cabin crew.

4.2 Designation of the pilot-in-command/commander. The rules applicable to the designation of the pilot-in-command/commander.

4.3 Flight crew incapacitation. Instructions on the succession of command in the event of flight crew incapacitation.

4.4 Operation on more than one type. A statement indicating which aircraft are considered as one type for the purpose of:

(a) flight crew scheduling; and

(b) cabin crew scheduling.

5 QUALIFICATION REQUIREMENTS

5.1 A description of the required licence, rating(s), qualification/competency (e.g. for routes and aerodromes), experience, training, checking and recency for operations personnel to conduct their duties. Consideration should be given to the aircraft type, kind of operation and composition of the crew.

5.2 Flight crew:

(a) pilot-in-command/commander,

(b) pilot relieving the pilot-in-command/commander,

(c) co-pilot,

(d) pilot relieving the co-pilot,

(e) pilot under supervision,

(f) system panel operator,

(g) operation on more than one type or variant.

5.3 Cabin crew:

(a) senior cabin crew member,

(b) cabin crew member:

(i) required cabin crew member,

(ii) additional cabin crew member and cabin crew member during familiarisation flights,

(c) operation on more than one type or variant.

5.4 Training, checking and supervision personnel:

(a) for flight crew; and

(b) for cabin crew.

5.5 Other operations personnel (including technical crew and crew members other than flight, cabin and technical crew).

6 CREW HEALTH PRECAUTIONS

6.1 Crew health precautions. The relevant regulations and guidance to crew members concerning health, including the following:

(a) alcohol and other intoxicating liquids,

(b) narcotics,

(c) drugs,

(d) sleeping tablets,

(e) anti-depressants,

(f) pharmaceutical preparations,

(g) immunisation,

(h) deep-sea diving,

(i) blood/bone marrow donation,

(j) meal precautions prior to and during flight,

(k) sleep and rest,

(l) surgical operations.

7 FLIGHT TIME LIMITATIONS

7.1 Flight and duty time limitations and rest requirements.

7.2 Exceedance of flight and duty time limitations and/or reductions of rest periods. Conditions under which flight and duty time may be exceeded or rest periods may be reduced, and the procedures used to report these modifications.

7.3 A description of the fatigue risk management, including at least the following:

(a) the philosophy and principles;

(b) documentation of processes;

(c) scientific principles and knowledge;

(d) hazard identification and risk assessment processes;

(e) risk mitigation process;

(f) FRM safety assurance processes; and

(g) FRM promotion processes.

8 OPERATING PROCEDURES

8.1 Flight preparation instructions. As applicable to the operation:

8.1.1 Minimum flight altitudes. A description of the method of determination and application of minimum altitudes including:

(a) a procedure to establish the minimum altitudes/flight levels for visual flight rules (VFR) flights; and

(b) a procedure to establish the minimum altitudes/flight levels for instrument flight rules (IFR) flights.

8.1.2 Criteria and responsibilities for determining the adequacy of aerodromes to be used.

8.1.3 Methods and responsibilities for establishing aerodrome operating minima. Reference should be made to procedures for the determination of the visibility and/or runway visual range (RVR) and for the applicability of the actual visibility observed by the pilots, the reported visibility and the reported RVR.

8.1.4 En-route operating minima for VFR flights or VFR portions of a flight and, where single-engined aircraft are used, instructions for route selection with respect to the availability of surfaces that permit a safe forced landing.

8.1.5 Presentation and application of aerodrome and en-route operating minima.

8.1.6 Interpretation of meteorological information. Explanatory material on the decoding of meteorological (MET) forecasts and MET reports relevant to the area of operations, including the interpretation of conditional expressions.

8.1.7 Determination of the quantities of fuel, oil and water methanol carried. The methods by which the quantities of fuel, oil and water methanol to be carried are determined and monitored in-flight. This section should also include instructions on the measurement and distribution of the fluid carried on board. Such instructions should take account of all circumstances likely to be encountered on the flight, including the possibility of in-flight re-planning and of failure of one or more of the aircraft's power plants. The system for maintaining fuel and oil records should also be described.

8.1.8 Mass and centre of gravity. The general principles of mass and centre of gravity including the following:

(a) definitions;

(b) methods, procedures and responsibilities for preparation and acceptance of mass and centre of gravity calculations;

(c) the policy for using standard and/or actual masses;

(d) the method for determining the applicable passenger, baggage and cargo mass;

(e) the applicable passenger and baggage masses for various types of operations and aircraft type;

(f) general instructions and information necessary for verification of the various types of mass and balance documentation in use;

(g) last-minute changes procedures;

(h) specific gravity of fuel, oil and water methanol;

(i) seating policy/procedures;

(j) for helicopter operations, standard load plans.

8.1.9 Air traffic services (ATS) flight plan. Procedures and responsibilities for the preparation and submission of the ATS flight plan. Factors to be considered include the means of submission for both individual and repetitive flight plans.

8.1.10 Operational flight plan. Procedures and responsibilities for the preparation and acceptance of the operational flight plan. The use of the operational flight plan should be described, including samples of the operational flight plan formats in use.

8.1.11 Operator's aircraft technical log. The responsibilities and the use of the operator's aircraft technical log should be described, including samples of the format used.

8.1.12 List of documents, forms and additional information to be carried.

8.1.13 For commercial air transport operations with single-engined turbine aeroplanes in instrument meteorological conditions or at night (CAT SET-IMC) approved in accordance with Subpart L (SET-IMC) of Annex V (Part-SPA) to Regulation (EU) No 965/2012:

(a) the procedure for route selection with respect to the availability of surfaces, which permits a safe forced landing;

(b) the instructions for the assessment of landing sites (elevation, landing direction, and obstacles in the area); and

(c) the instructions for the assessment of the weather conditions at those landing sites.

8.2 Ground handling instructions. As applicable to the operation:

8.2.1 Fuelling procedures. A description of fuelling procedures, including:

(a) safety precautions during refuelling and defuelling including when an aircraft auxiliary power unit is in operation or, for helicopters, when rotors are turning or, for aeroplanes, when an engine is running;

(b) refuelling and defuelling when passengers are embarking, on board or disembarking; and

(c) precautions to be taken to avoid mixing fuels.

8.2.2 Aircraft, passengers and cargo handling procedures related to safety. A description of the handling procedures to be used when allocating seats, embarking and disembarking passengers and when loading and unloading the aircraft. Further procedures, aimed at achieving safety whilst the aircraft is on the ramp, should also be given. Handling procedures should include:

(a) special categories of passengers, including children/infants, persons with reduced mobility**, inadmissible passengers, deportees and persons in custody;**

(b) permissible size and weight of hand baggage;

(c) loading and securing of items in the aircraft;

(d) positioning of ground equipment;

(e) operation of aircraft doors;

(f) safety on the aerodrome/operating site, including fire prevention and safety in blast and suction areas;

(g) start-up, ramp departure and arrival procedures, including, for aeroplanes, push-back and towing operations;

(h) servicing of aircraft;

(i) documents and forms for aircraft handling;

(j) special loads and classification of load compartments; and

(k) multiple occupancy of aircraft seats.

8.2.3 Procedures for the refusal of embarkation. Procedures to ensure that persons who appear to be intoxicated, or who demonstrate by manner or physical indications that they are under the influence of drugs, are refused embarkation. This does not apply to medical patients under proper care.

8.2.4 De-icing and anti-icing on the ground. A description of the de-icing and anti-icing policy and procedures for aircraft on the ground. These should include descriptions of the types and effects of icing and other contaminants on aircraft whilst stationary, during ground movements and during take-off. In addition, a description of the fluid types used should be given, including the following:

(a) proprietary or commercial names,

(b) characteristics,

(c) effects on aircraft performance,

(d) hold-over times,

(e) precautions during usage.

8.3 Flight Procedures:

8.3.1 VFR/IFR Policy. A description of the policy for allowing flights to be made under VFR, or for requiring flights to be made under IFR, or for changing from one to the other.

8.3.2 Navigation Procedures. A description of all navigation procedures, relevant to the type(s) and area(s) of operation. Special consideration should be given to:

(a) standard navigational procedures, including policy for carrying out independent cross-checks of keyboard entries where these affect the flight path to be followed by the aircraft; and

(b) required navigation performance (RNP), minimum navigation performance specification (MNPS) and polar navigation and navigation in other designated areas;

(c) in-flight re-planning;

(d) procedures in the event of system degradation; and

(e) reduced vertical separation minima (RVSM), for aeroplanes.

8.3.3 Altimeter setting procedures, including, where appropriate, use of:

(a) metric altimetry and conversion tables; and

(b) QFE operating procedures.

8.3.4 Altitude alerting system procedures for aeroplanes or audio voice alerting devices for helicopters.

8.3.5 Ground proximity warning system (GPWS)/terrain avoidance warning system (TAWS), for aeroplanes. Procedures and instructions required for the avoidance of controlled flight into terrain, including limitations on high rate of descent near the surface (the related training requirements are covered in OM-D 2.1).

8.3.6 Policy and procedures for the use of traffic collision avoidance system (TCAS)/airborne collision avoidance system (ACAS) for aeroplanes and, when applicable, for helicopters.

8.3.7 Policy and procedures for in-flight fuel management.

8.3.8 Adverse and potentially hazardous atmospheric conditions. Procedures for operating in, and/or avoiding, adverse and potentially hazardous atmospheric conditions, including the following:

(a) thunderstorms,

(b) icing conditions,

(c) turbulence,

(d) windshear,

(e) jet stream,

(f) volcanic ash clouds,

(g) heavy precipitation,

(h) sand storms,

(i) mountain waves,

(j) significant temperature inversions.

8.3.9 Wake turbulence. Wake turbulence separation criteria, taking into account aircraft types, wind conditions and runway/final approach and take-off area (FATO) location. For helicopters, consideration should also be given to rotor downwash.

8.3.10 Crew members at their stations. The requirements for crew members to occupy their assigned stations or seats during the different phases of flight or whenever deemed necessary in the interest of safety and, for aeroplane operations, including procedures for controlled rest in the flight crew compartment.

8.3.11 **Use of restraint devices for crew and passengers. The requirements for crew members and passengers to use safety belts and/or restraint systems during the different phases of flight or whenever deemed necessary in the interest of safety.**

8.3.12 **Admission to flight crew compartment. The conditions for the admission to the flight crew compartment of persons other than the flight crew. The policy regarding the admission of inspectors from an authority should also be included**.

8.3.13 Use of vacant crew seats. The conditions and procedures for the use of vacant crew seats.

8.3.14 Incapacitation of crew members. Procedures to be followed in the event of incapacitation of crew members in-flight. Examples of the types of incapacitation and the means for recognising them should be included.

8.3.15 Cabin safety requirements. Procedures:

(a) covering cabin preparation for flight, in-flight requirements and preparation for landing, including procedures for securing the cabin and galleys;

(b) to ensure that passengers are seated where, in the event that an emergency evacuation is required, they may best assist and not hinder evacuation from the aircraft;

(c) to be followed during passenger embarkation and disembarkation;

(d) when refuelling/defuelling with passengers embarking, on board or disembarking;

(e) covering the carriage of special categories of passengers;

(f) covering smoking on board;

(g) covering the handling of suspected infectious diseases.

8.3.16 Passenger briefing procedures. The contents, means and timing of passenger briefing in accordance with Annex IV (Part-CAT).

8.3.17 Procedures for aircraft operated whenever required cosmic or solar radiation detection equipment is carried.

8.3.18 Policy on the use of autopilot and autothrottle for aircraft fitted with these systems.

8.4 Low visibility operations (LVO). A description of the operational procedures associated with LVO.

8.5 Extended-range operations with twin-engined aeroplanes (ETOPS). A description of the ETOPS operational procedures. (Refer to EASA AMC 20-6)

8.6 Use of the minimum equipment and configuration deviation list(s).

8.7 Non-commercial operations. Information as required by ORO.AOC.125 for each type of non-commercial flight performed by the AOC holder. A description of the differences from CAT operations. Procedures and limitations, for example, for the following:

(a) training flights,

(b) flights at the end of lease or upon transfer of ownership,

(c) delivery flights,

(d) ferry flights,

(e) demonstration flights,

(f) positioning flights,

(g) other non-commercial flights.

8.8 Oxygen requirements:

8.8.1 An explanation of the conditions under which oxygen should be provided and used.

8.8.2 The oxygen requirements specified for the following persons:

(a) flight crew;

(b) cabin crew;

(c) passengers.

8.9 Procedures related to the use of type B EFB applications.

9 DANGEROUS GOODS AND WEAPONS

9.1 Information, instructions and general guidance on the transport of dangerous goods, in accordance with Subpart G of Annex V (SPA.DG), including:

(a) operator's policy on the transport of dangerous goods;

(b) guidance on the requirements for acceptance, labelling, handling, stowage and segregation of dangerous goods;

(c) special notification requirements in the event of an accident or occurrence when dangerous goods are being carried;

(d) procedures for responding to emergency situations involving dangerous goods;

(e) duties of all personnel involved; and

(f) instructions on the carriage of the operator's personnel on cargo aircraft when dangerous goods are being carried.

9.2 The conditions under which weapons, munitions of war and sporting weapons may be carried.

10 SECURITY

Security instructions, guidance, procedures, training and responsibilities, taking into account Regulation (EC) No 300/20081. Some parts of the security instructions and guidance may be kept confidential.

11 HANDLING, NOTIFYING AND REPORTING ACCIDENTS, INCIDENTS AND OCCURRENCES AND USING THE CVR RECORDING

Procedures for handling, notifying and reporting accidents, incidents and occurrences. This section should include the following:

(a) definition of accident, incident and occurrence and of the relevant responsibilities of all persons involved;

(b) illustrations of forms to be used for reporting all types of accident, incident and occurrence (or copies of the forms themselves), instructions on how they are to be completed, the addresses to which they should be sent and the time allowed for this to be done;

(c) in the event of an accident, descriptions of which departments, authorities and other organisations have to be notified, how this will be done and in what sequence;

(d) procedures for verbal notification to air traffic service units of incidents involving ACAS resolution advisories (RAs), bird hazards, dangerous goods and hazardous conditions;

(e) procedures for submitting written reports on air traffic incidents, ACAS RAs, bird strikes, dangerous goods incidents or accidents, and unlawful interference;

(f) reporting procedures. These procedures should include internal safety-related reporting procedures to be followed by crew members, designed to ensure that the pilot-in-command/commander is informed immediately of any incident that has endangered, or may have endangered, safety during the flight, and that the pilot-in-command/commander is provided with all relevant information.

(g) Procedures for the preservation of recordings of the flight recorders following an accident or a serious incident or when so directed by the investigating authority. These procedures should include:

(1) a full quotation of point (a) of CAT.GEN.MPA.195; and

(2) instructions and means to prevent inadvertent reactivation, repair or reinstallation of the flight recorders by personnel of the operator or of third parties, and to ensure that flight recorder recordings are preserved for the needs of the investigating authority.

(h) Procedures required by CAT.GEN.MPA.195 for using the CVR recording or its transcript without prejudice to Regulation (EU) No 996/210, when applicable.

12 RULES OF THE AIR

(a) Visual and instrument flight rules,

(b) Territorial application of the rules of the air,

(c) Communication procedures, including communication-failure procedures,

(d) Information and instructions relating to the interception of civil aircraft,

(e) The circumstances in which a radio listening watch is to be maintained,

(f) Signals,

(g) Time system used in operation,

(h) ATC clearances, adherence to flight plan and position reports,

(i) Visual signals used to warn an unauthorised aircraft flying in or about to enter a restricted, prohibited or danger area,

(j) Procedures for flight crew observing an accident or receiving a distress transmission,

(k) The ground/air visual codes for use by survivors, and description and use of signal aids,

(l) Distress and urgency signals.

13 LEASING/CODE-SHARE

A description of the operational arrangements for leasing and codeshare, associated procedures and management responsibilities.

B AIRCRAFT OPERATING MATTERS — TYPE RELATED

Taking account of the differences between types/classes, and variants of types, under the following headings:

0 GENERAL INFORMATION AND UNITS OF MEASUREMENT

0.1 General information (e.g. aircraft dimensions), including a description of the units of measurement used for the operation of the aircraft type concerned and conversion tables.

1 LIMITATIONS

1.1 A description of the certified limitations and the applicable operational limitations should include the following:

(a) certification status (e.g. EASA (supplemental) type certificate, environmental certification, etc.);

(b) passenger seating configuration for each aircraft type, including a pictorial presentation;

(c) types of operation that are approved (e.g. VFR/IFR, CAT II/III, RNP, flights in known icing conditions, etc.);

(d) crew composition;

(e) mass and centre of gravity;

(f) speed limitations;

(g) flight envelope(s);

(h) wind limits, including operations on contaminated runways;

(i) performance limitations for applicable configurations;

(j) (runway) slope;

(k) for aeroplanes, limitations on wet or contaminated runways;

(l) airframe contamination;

(m) system limitations.

2 NORMAL PROCEDURES

The normal procedures and duties assigned to the crew, the appropriate checklists, the system for their use and a statement covering the necessary coordination procedures between flight and cabin/other crew members. The normal procedures and duties should include the following:

(a) pre-flight,

(b) pre-departure,

(c) altimeter setting and checking,

(d) taxi, take-off and climb,

(e) noise abatement,

(f) cruise and descent,

(g) approach, landing preparation and briefing,

(h) VFR approach,

(i) IFR approach,

(j) visual approach and circling,

(k) missed approach,

(l) normal landing,

(m) post-landing,

(n) for aeroplanes, operations on wet and contaminated runways.

3 ABNORMAL AND/OR EMERGENCY PROCEDURES

The abnormal and/or emergency procedures and duties assigned to the crew, the appropriate checklists, the system for their use and a statement covering the necessary coordination procedures between flight and cabin/other crew members. The abnormal and/or emergency procedures and duties should include the following:

(a) crew incapacitation,

(b) fire and smoke drills,

(c) for aeroplanes, un-pressurised and partially pressurised flight, (d) for aeroplanes, exceeding structural limits such as overweight landing,

(e) lightning strikes,

(f) distress communications and alerting ATC to emergencies,

(g) engine/burner failure,

(h) system failures,

(i) guidance for diversion in case of serious technical failure,

(j) ground proximity warning, including for helicopters audio voice alerting device (AVAD) warning,

(k) ACAS/TCAS warning for aeroplanes/audio voice alerting device (AVAD) warning for helicopters,

(l) windshear,

(m) emergency landing/ditching,

(n) for aeroplanes, departure contingency procedures.

4 PERFORMANCE

4.0 Performance data should be provided in a form that can be used without difficulty.

4.1 Performance data. Performance material that provides the necessary data for compliance with the performance requirements prescribed in Annex IV (Part-CAT). For aeroplanes, this performance data should be included to allow the determination of the following:

(a) take-off climb limits — mass, altitude, temperature;

(b) take-off field length (for dry, wet and contaminated runway conditions);

(c) net flight path data for obstacle clearance calculation or, where applicable, take-off flight path;

(d) the gradient losses for banked climb-outs;

(e) en-route climb limits;

(f) approach climb limits;

(g) landing climb limits;

(h) landing field length (for dry, wet and contaminated runway conditions) including the effects of an in-flight failure of a system or device, if it affects the landing distance;

(i) brake energy limits;

(j) speeds applicable for the various flight stages (also considering dry, wet and contaminated runway conditions).

4.1.1 Supplementary data covering flights in icing conditions. Any certified performance related to an allowable configuration, or configuration deviation, such as anti-skid inoperative.

4.1.2 If performance data, as required for the appropriate performance class, are not available in the AFM, then other data should be included. The OM may contain cross-reference to the data contained in the AFM where such data are not likely to be used often or in an emergency.

4.2 Additional performance data for aeroplanes. Additional performance data, where applicable, including the following:

(a) all engine climb gradients,

(b) drift-down data,

(c) effect of de-icing/anti-icing fluids,

(d) flight with landing gear down,

(e) for aircraft with 3 or more engines, one-engine-inoperative ferry flights,

(f) flights conducted under the provisions of the configuration deviation list (CDL).

5 FLIGHT PLANNING

5.1 Data and instructions necessary for pre-flight and in-flight planning including, for aeroplanes, factors such as speed schedules and power settings. Where applicable, procedures for engine(s)-out operations, ETOPS (particularly the one-engine-inoperative cruise speed and maximum distance to an adequate aerodrome determined in accordance with Annex IV (Part-CAT)) and flights to isolated aerodromes should be included.

5.2 The method for calculating fuel needed for the various stages of flight.

5.3 When applicable, for aeroplanes, performance data for ETOPS critical fuel reserve and area of operation, including sufficient data to support the critical fuel reserve and area of operation calculation based on approved aircraft performance data. The following data should be included:

(a) detailed engine(s)-inoperative performance data, including fuel flow for standard and non-standard atmospheric conditions and as a function of airspeed and power setting, where appropriate, covering:

(i) drift down (includes net performance), where applicable;

(ii) cruise altitude coverage including 10 000 ft;

(iii) holding;

(iv) altitude capability (includes net performance); and

(v) missed approach;

(b) detailed all-engine-operating performance data, including nominal fuel flow data, for standard and non-standard atmospheric conditions and as a function of airspeed and power setting, where appropriate, covering:

(i) cruise (altitude coverage including 10 000 ft); and

(ii) holding;

(c) details of any other conditions relevant to ETOPS operations which can cause significant deterioration of performance, such as ice accumulation on the unprotected surfaces of the aircraft, ram air turbine (RAT) deployment, thrust-reverser deployment, etc.; and

(d) the altitudes, airspeeds, thrust settings, and fuel flow used in establishing the ETOPS area of operations for each airframe-engine combination should be used in showing the corresponding terrain and obstruction clearances in accordance with Annex IV (Part-CAT).

6 MASS AND BALANCE

Instructions and data for the calculation of the mass and balance, including the following:

(a) calculation system (e.g. index system);

(b) information and instructions for completion of mass and balance documentation, including manual and computer generated types;

(c) limiting masses and centre of gravity for the types, variants or individual aircraft used by the operator;

(d) dry operating mass and corresponding centre of gravity or index.

7 LOADING

Procedures and provisions for loading and unloading and securing the load in the aircraft.

8 CONFIGURATION DEVIATION LIST

The CDL(s), if provided by the manufacturer, taking account of the aircraft types and variants operated, including procedures to be followed when an aircraft is being dispatched under the terms of its CDL.

9 MINIMUM EQUIPMENT LIST (MEL)

The MEL for each aircraft type or variant operated and the type(s)/area(s) of operation. The MEL should also include the dispatch conditions associated with operations required for a specific approval (e.g. RNAV, RNP, RVSM, ETOPS). Consideration should be given to using the ATA number system when allocating chapters and numbers.

10 SURVIVAL AND EMERGENCY EQUIPMENT INCLUDING OXYGEN

10.1 A list of the survival equipment to be carried for the routes to be flown and the procedures for checking the serviceability of this equipment prior to take-off. Instructions regarding the location, accessibility and use of survival and emergency equipment and its associated checklist(s) should also be included.

10.2 The procedure for determining the amount of oxygen required and the quantity that is available. The flight profile, number of occupants and possible cabin decompression should be considered.

11 EMERGENCY EVACUATION PROCEDURES

11.1 Instructions for preparation for emergency evacuation, including crew coordination and emergency station assignment.

11.2 Emergency evacuation procedures. A description of the duties of all members of the crew for the rapid evacuation of an aircraft and the handling of the passengers in the event of a forced landing, ditching or other emergency.

12 AIRCRAFT SYSTEMS

A description of the aircraft systems, related controls and indications and operating instructions. Consideration should be given to use the ATA number system when allocating chapters and numbers.

C ROUTE/ROLE/AREA AND AERODROME/OPERATING SITE INSTRUCTIONS AND INFORMATION

1 Instructions and information relating to communications, navigation and aerodromes/operating sites, including minimum flight levels and altitudes for each route to be flown and operating minima for each aerodrome/operating site planned to be used, including the following:

(a) minimum flight level/altitude;

(b) operating minima for departure, destination and alternate aerodromes;

(c) communication facilities and navigation aids;

(d) runway/final approach and take-off area (FATO) data and aerodrome/operating site facilities;

(e) approach, missed approach and departure procedures including noise abatement procedures;

(f) communication-failure procedures;

(g) search and rescue facilities in the area over which the aircraft is to be flown;

(h) a description of the aeronautical charts that should be carried on board in relation to the type of flight and the route to be flown, including the method to check their validity;

(i) availability of aeronautical information and MET services;

(j) en-route communication/navigation procedures;

(k) aerodrome/operating site categorisation for flight crew competence qualification;

(l) special aerodrome/operating site limitations (performance limitations and operating procedures, etc.).

(2) Information related to landing sites available for operations approved in accordance with Subpart L (SET-IMC) of Annex V (Part-SPA) to Regulation (EU) No 965/2012, including:

(a) a description of the landing site (position, surface, slope, elevation, etc.);

(b) the preferred landing direction; and

(c) obstacles in the area.

D TRAINING

1 Description of scope: Training syllabi and checking programmes for all operations personnel assigned to operational duties in connection with the preparation and/or conduct of a flight.

2 Content: Training syllabi and checking programmes should include the following:

2.1 for flight crew, all relevant items prescribed in Annex IV (Part-CAT), Annex V (Part-SPA) and ORO.FC;

2.2 for cabin crew, all relevant items prescribed in Annex IV (Part-CAT), Annex V (Part-CC) of Commission Regulation (EU) 1178/2011 and ORO.CC;

2.3 for technical crew, all relevant items prescribed in Annex IV (Part-CAT), Annex V (Part-SPA) and ORO.TC;

2.4 for operations personnel concerned, including crew members:

(a) all relevant items prescribed in SPA.DG Subpart G of Annex IV (SPA.DG); and

(b) all relevant items prescribed in Annex IV (Part-CAT) and ORO.SEC; and

2.5 for operations personnel other than crew members (e.g. dispatcher, handling personnel, etc.), all other relevant items prescribed in Annex IV (Part-CAT) and in this Annex pertaining to their duties.

3 Procedures:

3.1 Procedures for training and checking.

3.2 Procedures to be applied in the event that personnel do not achieve or maintain the required standards.

3.3 Procedures to ensure that abnormal or emergency situations requiring the application of part or all of the abnormal or emergency procedures, and simulation of instrument meteorological conditions (IMC) by artificial means are not simulated during CAT operations.

4 Description of documentation to be stored and storage periods.

(b) Notwithstanding (a), an OM that is compiled in accordance with JAR-OPS 3 amendment 5 may be considered to be compliant.

(c) If there are sections that, because of the nature of the operation, do not apply, it is recommended that operators maintain the numbering system described in ORO.MLR.101 and above and insert ‘Not applicable’ or ‘Intentionally blank’ where appropriate.

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