

DES HE REG AI MET

Applications

Deliverable ID:	D3.3
Project Acronym:	KAIROS
Grant:	101114701
Call:	HORIZON-SESAR-2022-DES-IR-01
Topic:	HORIZON-SESAR-2022-DES-IR-01-WA5-1
Consortium Coordinator:	APPLIED INNOVATIVE METHODS
Edition date:	31 August 2023
Edition:	00.01
Status:	Draft
Classification:	SEN

Abstract

This document serves as a guide for the regulatory needs to implement KAIROS Solution 2 AI MET Applications. The document will cover a brief introduction of the AI MET Applications technology and provide an overview of the regulatory landscape related to AI and aviation. The document will examine various aspects of the technology when determining the regulatory needs. These technology characteristics include certification, data, aviation safety, human-machine interactions, and liability and risk management. The goal of this document is to identify the current relevant regulations impacting the AI Convection Forecast solution and suggest amendments or new regulations that must be considered to successfully deploy the solution. Analysis of the regulatory needs will be done in collaboration with the relevant regulatory bodies to the greatest extent possible. This document will be updated regularly during the project execution.

Authoring & Approval

Author(s) of the document

Organisation name	Date
APPLIED INNOVATIVE METHODS	25/07/2023

Reviewed by

Organisation name	Date
AI METHODS	14/09/2023
BIRA-IASB	14/09/2023
DSNA	14/09/2023
ENAIRE	14/09/2023
CRIDA	14/09/2023
EUROCONTROL	01/09/2023
FMI	13/9/2023
IGA	14/09/2023
METEOMATICS	14/09/2023
METSAFE	14/09/2023
UNISPHERE	14/09/2023
UC3M	14/09/2023

Approved for submission to the SESAR 3 JU by¹

Organisation name	Date
AI METHODS	14/09/2023
BIRA - IASB	14/09/2023
DSNA	14/09/2023
ENAIRE	14/09/2023
CRIDA	14/09/2023
EUROCONTROL	14/09/2023
FMI	14/09/2023
IGA	14/09/2023

¹ Representatives of all the beneficiaries involved in the project.

METEOMATICS	14/09/2023
METSAFE	14/09/2023
UNISPHERE	14/09/2023
UC3M	14/09/2023

Rejected by²

Organisation name	Date

Document History

Edition	Date	Status	Company Author	Justification
00.01	July 25 th , 2023	Draft	AI METHODS	Document creation
00.02	September 14 th , 2023		AI METHODS	Incorporate comments

² Representatives of the beneficiaries involved in the project.

Copyright Statement

© 2023 – AI METHODS, BIRA-IASB, DSNA, ENAIRE, CRIDA, EUROCONTROL, FMI, IGA, METEOMATICS, METSAFE, UNISPHERE, and UC3M. All rights reserved. Licensed to SESAR 3 Joint Undertaking under conditions.

KAIROS

UNLOCKING THE POTENTIAL OF AI-BASED WEATHER FORECASTS FOR
OPERATIONAL BENEFITS

KAIROS

This document is part of a project that has received funding from the SESAR 3 Joint Undertaking under grant agreement No 101114701 under European Union's Horizon Europe research and innovation programme.



Table of Contents

Abstract.....	1
1 Executive summary	6
2 Introduction	7
2.1 Purpose of the document	7
2.2 Intended readership.....	7
2.3 Background	7
2.4 Structure of the document	8
Glossary of terms.....	8
2.5 List of acronyms	9
3 Regulation needs capture	10
3.1 Need for a new or amended rule(s)	11
3.2 Objectives to be achieved.....	12
3.3 Expected benefits.....	12
3.4 Identify new or amended regulatory material	12
3.5 Standard development support.....	12
4 References	13
4.1 Applicable documents	13
4.2 Reference documents.....	13
Appendix A EASA regulations	15
Appendix B Acceptable means of compliance (AMC) and guidance material (GM)	17

List of Tables

Table 1: Glossary of terms.....	9
Table 2: List of acronyms.....	9

List of Figures

No table of figures entries found.

1 Executive summary

This document is the regulatory deliverable for KAIROS Solution 2, AI MET Applications. This solution will extend the approach from KAIROS Solution 1 and use artificial intelligence to provide improved forecast capability for a variety of aviation hazards including turbulence, low visibility, high altitude ice crystals, SO₂ and dust. Forecast for these events will be provided in a variety of formats, i.e., TAF, in order to meet the needs of specific aviation stakeholders.

Comentado [JF1]: added i.e. TAF, to underline the need for Terminal area forecast data in this format for our tools

In this initial version of the regulatory deliverable, a plan is presented for the consideration of regulatory needs of the AI MET Applications technology and acceptable means of compliance. This document will provide a brief overview of the proposed technology as well as an overview of the regulatory landscape providing perspectives from both the realm of AI and aviation specific regulations that may impact the AI Convection Forecast technology.

An assessment will of the identified regulations will be performed to suggest potential mean of compliance for the AI Convection Forecast. The document will also suggest amendments to existing regulations or propose new regulations that would facilitate the transition of the AI MET Applications technology.

The aim of this document is to identify regulations impacting the AI MET Applications technology and suggesting acceptable means of compliance. The document will consider multiple aspects of the technology that will require regulatory compliance. Areas to consider include:

- Certification
- Data
- Aviation Safety
- Human-machine interactions
- Liability and risk management

The process of identifying the regulatory considerations of the technology will be performed in collaboration the regulatory bodies and authoritative agencies to the greatest extent possible. This activity will also leverage other ongoing efforts, particularly around artificial intelligence, to increase the quality of regulatory material regarding the technology. Lastly, the work presented here will be supported by parallel efforts considering the standardisation needs of the technology, captured within deliverable D2.3.

Progress of activities relating to the regulatory compliance of the technology will be presented in future versions of this document. The regulatory considerations for both KAIROS solutions will continuously be assessed during project meeting and technical assessments. The next version of this document is expected to be submitted in August 2024.

2 Introduction

2.1 Purpose of the document

The purpose of this document is to identify existing regulations as well as propose acceptable means of compliance for the implementation of an artificial intelligence-based weather prediction systems to be utilized by aviation. This document will provide a complete look at the multiple regulations that need to be considered when transitioning the technology to an operational use.

Comentado [JG2]: is not met applications

2.2 Intended readership

Intended readership of this document includes the European Union Aviation Safety Agency, and other aviation and weather stakeholders, such as ANSPs and Nation MET Agencies, that may be interested in the implementation of the AI Convection Forecast technology.

2.3 Background

The KAIROS project aims at transforming the way weather information is created and shared with aviation stakeholders. The project will leverage artificial intelligence technology to improve the quality of forecast. This technology will also help to automate the creation of forecasts and digitalize the dissemination of the information for end users. This document focuses on KAIROS Solution 2, AI MET Applications.

The AI MET Applications technology will train ML algorithms to predict several types of weather phenomena impacting aviation including turbulence, low visibility, high altitude ice crystals, SO₂, and dust. Algorithms will be trained with historical forecast and several types of weather observation data, including satellite observations, weather reports, and sensor data from aircraft and ground weather stations. Like solution 1, solution 2 will also ingest live weather data in an online learning architecture for continuous improvement of its weather forecasts.

This document will also provide an overview of the regulatory landscape of aviation and AI systems. Creating regulations around artificial intelligence is a challenge for society at large as the technology begins to seep into a wide range of services and industries. The European Union is making massive investments in AI and data to ensure the technology is developed in a way that is human-centric, trustworthy, and safe. The European Commission has already proposed AI regulations such as the EU AI Act and the EU AI Liability Directive. Similarly, at the aviation level, the European Aviation Safety Agency (EASA) is committed to ensuring that the aviation industry benefits from the potential of AI while maintaining the highest levels of safety, security, and environmental protection. EASA has published multiple AI concept papers and AI Roadmaps to support the approval and deployment of aviation AI systems. During the KAIROS project, the need for regulations of the KAIROS solutions will be examined, with the goal of laying out a pathway of the necessary measures that need to be in place to transition the technology to operational use. Additionally, the project will monitor other ongoing efforts relating to AI regulation to see how their findings can inform the regulatory process and provide benefit to the KAIROS project.

Apart from the AI perspective, the KAIROS solutions must also comply with existing regulations relating to the use of weather in aviation. This information is well documented and available in publications such as ICAO's Annex 3 Meteorological Service for International Air Navigation [3] or EASA's Annex V to ED Decision 2017/001/R covering Specific requirements for providers of meteorological services [2].

2.4 Structure of the document

This document will start by first surveying the regulatory landscape of AI technology as well as identifying the current regulations in use today for aviation weather products. Analyses of the current regulations will be done to see how these currently meet or can be adapted to meet the needs of the AI forecasting for convection.

The aim of this document is to provide a comprehensive view of the regulatory implications to implementing the AI Convection Forecast solution. This document is organized into four sections.

Section 1 of the document is the Executive Summary, this section will provide a general overview of the document, highlighting the major advancements regarding the identification of regulatory material since the previous submission.

Section 2 of the document will provide the introduction and background of the technology and current regulatory landscape of AI and aviation technology. A brief overview of the AI MET Applications technology is provided as well as information regarding to ongoing effort by the EU Commission and EASA to regulate the use of AI within the aviation sector. Section 2 will also contain a glossary of terms and list of acronyms utilized throughout the document.

Section 3 will provide the technical details the document. The section will identify several characteristics of the technology that will need to be addressed with regulations. For each aspect, the applicable regulations will be identified as well as proposed means of compliance. References to deliverable D3.3 and supporting material relating the development of standards the technology will also be provided in this section.

Lastly, Section 4 of the document will provide a list of related documents referenced within the document.

Glossary of terms

This section identifies terms and their definition and shall include the reference to the source of the definition. The table can also include terms that are not available in any referenced documents, and a proposed definition. However, new definitions shall not be proposed for terms already defined elsewhere.

Term	Definition	Source of the definition
Regulation	It covers soft and hard laws (i.e. IA (implementing acts), DA (delegated acts), CS (certification specification) AMC (acceptable means of compliance)/GM (guidance	EASA

	<i>material)) that can be needed to enable implementation and are within the scope of EASA.</i>	
<i>Regulatory material</i>		

Table 1: Glossary of terms

2.5 List of acronyms

To be completed / updated.

Acronym	Definition
AI	Artificial Intelligence
ATM	Air Traffic Management
EASA	European Aviation Safety Agency
FTI&U	Fast Track Innovation and Uptake
ICAO	International Civil Aviation Organization
ML	Machine Learning
SPR-INTEROP/OSED	Safety Performance Requirement and Interoperability Requirements/Operational Service Environment Description
REG	Regulatory deliverable
SESAR 3 JU	SESAR 3 Joint Undertaking
TAF	Terminal Aerodrome Forecast
TS/IRS	Technical Specification/Interface Requirement Specification
WMO	World Meteorological Organization

Table 2: List of acronyms

3 Regulation needs capture

KAIROS Solution 2: AI MET Applications will create AI-based forecast for multiple aviation weather hazards. AI MET Application will use artificial intelligence to improve the forecast of turbulence, low visibility, high altitude ice crystals, SO₂, and dust. The technology will develop forecast at various spatial and temporal resolutions and formats to meet the needs of multiple aviation end users. KAIROS solution 2 will be matured to TRL 6.

The following regulatory aspects of the technology have been identified:

1. Certification

Certification of the technology is an important aspect that is yet to be answered. Most of the existing EASA regulations defer to the “competent authority” as having the final say when it comes to weather related products. The national MET provider for each state is understood as the “competent authority” and they play a critical role in certifying the technology for use by aviation end users.

2. Data

There are various characteristics of the data that must be examined to ensure it is compliant with AI regulations. These include data privacy and data protection, as well non-discriminatory and ethical implications. Given the technology does not require personal data, it is anticipated that many regulations will not apply, however regulations dealing with the quality and accuracy of the data will need to be considered.

3. Aviation Safety

Maintaining the proper levels safety is perhaps the most important objective of applying the regulations. EASA has outlined strategies for ensuring safety and trustworthiness of AI applications.

4. Human-machine interactions

EASA is committed to a human-centric approach to AI in aviation. Understanding how the technology will interact with the human will be a key aspect of the regulatory process. EASA has defined various three levels to classify the complexity of the interaction; Level 1 AI: Assistance to humans, Level 2: human-AI teams, and Level 3: advanced automation. Initial assessment of the technology points to Level 1 classification of the KAIROS solutions, however a more detailed assessment is still required.

5. Liability and risk management

Addressing the risk of AI technology, a main theme in the European Commission and EASA guidelines that have been published so far. The EU AI Act distinguishes AI systems into three categories according to the level of risk they pose: (i) unacceptable risk, (ii) high risk, and (iii) low or minimal risk. EASA has also defined the AI safety risk mitigation building block strategy to deal with the inherent uncertainties of AI.

3.1 Need for a new or amended rule(s)

The five regulatory aspects of the technology mentioned in the previous section will help to identify the current regulations that apply to the AI MET Applications solution. For each aspect, the existing regulations will be identified, as well as suggested approached for finding an acceptable means of compliance.

Certification

Existing regulations:

TBD

Acceptable Means of Compliance:

TBD

Data

Existing regulations:

TBD

Acceptable Means of Compliance:

TBD

Aviation Safety

Existing regulations:

TBD

Acceptable Means of Compliance:

TBD

Human-machine interactions

Existing regulations:

TBD

Acceptable Means of Compliance:

TBD

Liability and risk management

Existing regulations:

TBD

Acceptable Means of Compliance:

TBD

3.2 Objectives to be achieved

KAIROS Solution 2, AI MET Applications aims leverage artificial intelligence, and the developments under KAIROS Solution 1, to create forecasts for various aviation weather hazards. The technology will provide a improve weather predictions at various temporal and spatial resolutions to meet the specific need of aviation end users. The technology will also be able to have a live feed of forecast and observation data to create forecast, validate predictions and regularly update the algorithm. The technology must also provide the forecast in the adequate format and make it widely accessible to stakeholders.

Comentado [JF3]: This yellow text is a "place holder"(c&p) from the SOL1 document !?. It shall refer to SOL2 etc..

3.3 Expected benefits

Expected benefits from the technology are timely, precise, and digital forecast of convective weather. This improved weather information will allow aviation stakeholders such as ANSPs, airports and aircraft operator take better informed operation decisions.

3.4 Identify new or amended regulatory material

Identification of new and amended regulatory material is still ongoing.

Considering the scope of the SESAR solution, provide a list of EASA framework rules (see section 4.1) you consider that may need to be amended. If amendments are considered not suitable, define the scope of a new regulation.

For FTI&U SESAR solutions, provide a description of the regulatory activities to secure the demonstration and as necessary (and where possible) any annexes with the documents developed and agreed to support the approach.

3.5 Standard development support

Standardisation activities for the AI MET Applications solution will be carried out in parallel to the regulatory activities. The standardisation activities will focus on data quality, model development and validation, performance metrics, data interoperability and data security. Results from these activities will be collected in the Standards deliverable, D3.3.

4 References

Reference to main documentation.

This section identifies the documents (name, reference, source project) the REG deliverable has to comply to or to be used as additional inputs.

Note: before the deliverable is submitted to the SESAR 3 JU, please make sure that you list the latest applicable version of the relevant references as in the programme library.

4.1 Applicable documents

SESAR solution pack

[1]

EASA regulations

[2] (EU) 2017/373 Annex V Specific Requirements for Providers of Meteorological Services (Part – MET)

ICAO documents

[3] ICAO Annex 3 Meteorological Service for International Air Navigation

Other documents

[4] EU Commission, 'EU Commission — Proposal for a Regulation of the European Parliament and of the Council laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) and amending certain Union legislative acts, COM/2021/206final', 2021

[5] EU Commission, 'EU Commission — Proposal for a Directive of the European Parliament and of the Council on adapting non-contractual civil liability rules to artificial intelligence (AI Liability Directive)', 2022

[6] EASA, 'Concept Paper: Guidance for Level 1 & 2 machine learning applications — Proposed Issue 02', European Union Aviation Safety Agency (EASA), Cologne, 2023.

[7] EASA, 'EASA Artificial Intelligence Roadmap 2.0', European Union Aviation Safety Agency (EASA), Cologne, 2023.

[8] 101114701 - KAIROS Grant Agreement, 26/05/2023

[9] SESAR 3 execution framework

4.2 Reference documents



The following documents were used to provide input / guidance / further information / other:

ED-78A GUIDELINES FOR APPROVAL OF THE PROVISION AND USE OF AIR TRAFFIC SERVICES SUPPORTED BY DATA COMMUNICATIONS.





Appendix A EASA regulations

*The following table lists existing EASA regulations at the date of creation of the template and is provided as an initial reference.
Please consider the latest up-to-date information available via <https://www.easa.europa.eu/regulations>.*

EASA
European Union Aviation Safety Agency

Latest information is available via <https://www.easa.europa.eu/regulations> (including Acceptable Means of Compliance, Guidance Material (AMC/GM) and Certification Specifications (CS))
View our FAQ's via <https://www.easa.europa.eu/the-agency/faq>

IR/ Implementing Regulation DR/ Delegated Regulation	Annexes
Basic Regulation (EU) 2018/1139	
Initial Airworthiness	IR: (EU) No 748/2012 Annex I: Part 21 Annex II: Repealed Regulation – list of amendments Annex III: Correlation table
Additional airworthiness specifications for operations	IR: (EU) 2015/640 Annex I: Part 26
Continuing airworthiness	IR: (EU) No 1321/2014 Annex I: Part M Annex II: Part 145 Annex III: Part 66 Annex IV: Part 147 Annex Va: Part-T Annex Vb: Part-ML Annex Vc: Part-CAMO Annex Vd: Part-CAO
Aircraft	IR: (EU) No 1178/2011 Annex I: Part-FCL Annex II: Conversion of non-EU licences Annex III: Licences of non-EU states Annex IV: Part-MED Annex V: Part-CC Annex VI: Part-ARA Annex VII: Part-ORA Annex VIII: Part-DTO
Air operations	IR: (EU) No 965/2012 Annex I: Definitions Annex II: Part-ARO Annex III: Part-ORD Annex IV: Part-CAT Annex V: Part-SPA Annex VI: Part-NCC Annex VII: Part-NCO Annex VIII: Part-SPO
Balloons - Air Operations	IR: (EU) 2018/395 Annex I: Part-DEF Annex II: Part-BOP Annex III: Part-BFCL
Third country operators	IR: (EU) No 452/2014 Annex I: Part-TCO Annex II: Part-ART
ATM/ANS	IR: (EU) 2017/373 Annex I: Definitions Annex II: Part-ATM/ANS.AR Annex III: Part-ATM/ANS.OR Annex IV: Part-ATS Annex V: Part-MET Annex VI: Part-AIS Annex VII: Part-DAT Annex VIII: Part-CMS Annex IX: Part-ATM Annex X: Part-ASM

Last updated: 23.4.2021

An agency of the European Union

EASA
European Union Aviation Safety Agency

Latest information is available via <https://www.easa.europa.eu/regulations> (including Acceptable Means of Compliance, Guidance Material (AMC/GM) and Certification Specifications (CS))
View our FAQ's via <https://www.easa.europa.eu/the-agency/faq>

		Annex X: Part-ASD Annex XII: Part-NM Annex XIII: Part-PERS
ATCO	IR: (EU) 2015/340	Annex I: Part ATCO Annex II: Part ATCO.AR Annex III: Part ATCO.OR Annex IV: Part ATCO.MED
Airspace usage requirements (ACAS II)	IR: (EU) No 1332/2011	Annex: ACAS
Airspace usage requirements (PBN)	IR: (EU) 2018/1048	Annex: Subpart PBN
SERA	IR: (EU) No 923/2012	Annex: Standardised European rules of the air
Aerodromes	IR: (EU) No 139/2014	Annex I: Definitions Annex II: Part-ADR.AR Annex III: Part-ADR.OR Annex IV: Part-ADR.DPS
SKPI - Safety Key Performance Indicators	IR: (EU) 2019/317	
Sailplanes - Air Operations	IR: (EU) 2018/1976	Annex I: Part-DEF Annex II: Part-SAO Annex III: Part-SFCL
Unmanned Aircraft Systems (UAS) (Rules and procedures for the operation of unmanned aircraft)	IR: (EU) 2019/947	Annex: UAS ops in the 'Open' and 'Specific' categories
Unmanned Aircraft Systems (UAS) (Unmanned aircraft systems and third-country operators of unmanned aircraft systems)	DR: (EU) 2019/945	Annex: Annex
Occurrence Reporting		
Board of Appeal		
Fees and Charges		
Fines and Penalties		
Standardisation Inspections		
Other	Regulation (EU) No 996/2010 Commission Regulation (EC) No 768/2006 Directive 2006/23/EC Directive 2004/36/CE Council Regulation (EEC) No 3922/91 Council Directive 91/670/EEC	

Last updated: 23.4.2021

An agency of the European Union

Appendix B Acceptable means of compliance (AMC) and guidance material (GM)

The following table lists the existing AMC and GM at the date of creation of the template and is provided as an initial reference.

Please consider the latest up to date view available via the EASA website: <https://www.easa.europa.eu/document-library/acceptable-means-of-compliance-and-guidance-materials>

<p>ADR - Aerodromes</p> <ul style="list-style-type: none"> ADR - Aerodromes Remote tower operations 	<p>Air Operations</p> <ul style="list-style-type: none"> EDF - Substitutes GM to the Cover Regulation Part ARO - Authority Requirements for Air Operations Part CAT - Commercial Air Transport Operations Part NCC - Non-commercial operations with complex motor-powered aircraft Part NCO - Non-commercial operations with other than complex motor-powered aircraft Part GRC - Organisation Requirements for Air Operations Part SPA - Operations requiring specific Approvals Part SPD - Specialised Operations 	<p>Aircrew</p> <ul style="list-style-type: none"> AMC & GM to Regulation (EU) No 1176/2011 Part-ABR - Authority Requirements for Aircrew Part-CC - Cabin Crew Part-DTD - Declared Training Organisation Part-PLC - Pilot/ Crew Licensing Part-MED - Medical Requirements for Aircrew Part-ORA - Organisation Requirements for Aircrew
<p>ATCO - Air Traffic Controllers</p> <ul style="list-style-type: none"> AMC/GM to the Cover Regulation (EU) 2015/940 Part-ATCO - Air Traffic Controllers Part-ATCOJAR Part-ATCOJDR Part-ATCOJMD 	<p>ATM/ANS Interoperability - Air Traffic Management/Air Navigation Services</p> <ul style="list-style-type: none"> AMC & GM to Commission Implementing Regulation (EU) No 1207/2011 	<p>ATM/ANS provision of services - Air Traffic Management/Air Navigation Services</p> <ul style="list-style-type: none"> AMC/GM to Regulation (EU) 2017/073 Definitions of terms used in Annexes 4 to 8 to 88 to Commission Implementing Regulation (EU) 2017/073 Part-AG Part-ADM Part-ATNA Part-ATM/ANSLAR Part-ATM/ANSLOR Part-ATS Part-CNS Part-DAT Part-PFD Part-MET Part-MSM Part-PBES Remote tower operations
<p>AUR - Airspace Usage Requirements (ACAS II)</p> <ul style="list-style-type: none"> AMC & GM to AUR 	<p>AUR - Airspace Usage Requirements (FBN)</p> <ul style="list-style-type: none"> AMC & GM to AUR 	<p>Balloons</p> <ul style="list-style-type: none"> AMC and GM to Articles of Commission Regulation (EU) 2019/995 Part-BDCL Part-BDOP
<p>Continuing Airworthiness</p> <ul style="list-style-type: none"> AMC & GM to Regulation (EU) No 1321/2014 Part 145 - Maintenance organisation approvals Part 147 - Organisation training Part 66 license applicants Part 66 - Maintenance certifying staff Part-CAMD Part-CAD Part-M - Continuing airworthiness requirements Part-MAL Part-T - Aircraft registered in a third country 	<p>Initial Airworthiness</p> <ul style="list-style-type: none"> Part 21 - Airworthiness and Environmental Certification 	<p>Sailplanes</p> <ul style="list-style-type: none"> GM to Article 3 of Commission Implementing Regulation (EU) 2016/1076 Part-SAD Part-SGL
<p>SERA - Standardised European Rules of the Air</p> <ul style="list-style-type: none"> Remote tower operations Rules of the air 	<p>SKPI - Safety Key Performance Indicators</p> <ul style="list-style-type: none"> SKPI Safety Key Performance Indicators 	<p>TCO - Third Country Operators</p> <ul style="list-style-type: none"> Part-TCO - Third Country Operators
<p>UAS - Unmanned Aircraft Systems</p> <ul style="list-style-type: none"> AMC & GM implementing Regulation (EU) 2019/947 AMC & GM to Part-UAS 		

Certification specifications (CSs)

The following table lists the existing CSs at the date of creation of the template and is provided as an initial reference; Please consider the latest up to date view available via EASA website: <https://www.easa.europa.eu/document-library/certification-specifications>



<p>Additional Airworthiness Specifications</p> <ul style="list-style-type: none"> CS-26 Additional airworthiness specifications for operations 	<p>ADR - Aerodromes</p> <ul style="list-style-type: none"> CS-ADR-DSN Aerodromes Design CS-HPT-DSN Heliports Design 	<p>Air Operations</p> <ul style="list-style-type: none"> CS-FSTD(A) Aeroplane Flight Simulation Training Devices CS-FSTD(H) Helicopter Flight Simulation Training Devices CS-FTL.1 Commercial Air Transport by Aeroplane - Scheduled and Charter Operations
<p>Aircrew</p> <ul style="list-style-type: none"> CS-FSTD(A) Aeroplane Flight Simulation Training Devices CS-FSTD(H) Helicopter Flight Simulation Training Devices 	<p>ATM/ANS Interoperability - Air Traffic Management/Air Navigation Services</p> <ul style="list-style-type: none"> CS-ACNS Airborne Communications, Navigation and Surveillance 	<p>Initial Airworthiness</p> <ul style="list-style-type: none"> AMC-20 General Acceptable Means of Compliance for Airworthiness of Products, Parts and Appliances CS-22 Sailplanes and Powered Sailplanes CS-23 Normal, Utility, Aerobatic and Commuter Aeroplanes CS-25 Large Aeroplanes CS-26 Additional airworthiness specifications for operations CS-27 Small Rotorcraft CS-29 Large Rotorcraft CS-31GB Gas Balloons CS-31HB Hot Air Balloons CS-31TG Tethered Gas Balloons CS-34 Aircraft Engine Emissions and Fuel Venting CS-36 Aircraft Noise CS-APU Auxiliary Power Units CS-AWO All Weather Operations CS-CCD Cabin Crew Data CS-CCO Certification Specifications, Acceptable Means of Compliance and Guidance Material for Aeroplane CO₂ Emissions (CS-CCO) CS-Definitions on Definitions and Abbreviations CS-E Engines CS-ETSO European Technical Standard Orders CS-FCO Flight Crew Data CS-GEN MMEL Generic Master Minimum Equipment List CS-LSA Light Sport Aeroplanes CS-MCSD Certification Specifications for Maintenance Certifying Staff Data CS-MMEL Master Minimum Equipment List CS-P Propellers CS-SIMD Simulator Data CS-STAN Standard Changes and Standard Repairs CS-VLA Very Light Aeroplanes CS-VLR Very Light Rotorcraft