EASA Significant Standards Differences

For pair: CS-25 Amendment 18 vs 14 CFR Part 25 Amendment 143

General Comments and Assumptions:

This following list of SSD regulations that require direct EASA compliance is based on the CS-25/14 CFR Part25 Amendment pair noted in the header.

1. This SSD list includes only regulations where compliance with the FAR minimum standard would not be accepted by EASA. (NOTE: The SSD list is identified as "EASA-SSD" list to clarify that it is only intended for EASA validations of FAA products).

2. Only regulations that have a regulatory difference will be included in the SSD list. Identical regulations that have differences in guidance/interpretive material will be addressed, if required, as separate Safety Emphasis Items (SEI).

3. The SSD definition is taken from the Technical Implementation Procedures (TIP) Revision 6, Section 3.5.13.2.:

   An SSD must be identified in order to meet the minimum standard of the VA relative to that of the CA, the difference requires type design changes, approved manual changes, additional or different demonstrations of compliance, or the imposition of operational limitations.

   (a) This impact determination is accomplished by the VA for each VA standard, by comparison to the corresponding CA standards.

   (b) Multiple CA standards, taken together may satisfy the objective of a single VA standard; in such cases, an SSD need not be identified.

4. CS 25 does not provide standards for reciprocating-powered airplanes, skiplanes, amphibians, flying boats, or airplanes with standby rocket engines. Differences concerning standards for those airplanes are not reflected in this list.

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CS 25 Paragraph	Sub-Para	Requirement Title	Comments
SUBPART B – FLIGHT			
25.20		Scope	
	25.20(b)	require operational evaluation	No equivalent requirement in 14 CFR Part 25.
25.21		Proof of compliance	
	25.21(g)(2)	Proof of compliance	FAR 25(g) (1) limits applicability of this paragraph to aircraft with Maximum take-off gross weight less than 60,000 lbs, or equipped with reversible flight controls.
	25.21(g)(3)	Proof of compliance	FAR 25(g) (1) limits applicability of this paragraph to aircraft with Maximum take-off gross weight less than 60,000 lbs, or equipped with reversible flight controls.
25.143		General	
	25.143(k)	Side stick controllers	No equivalent requirement in 14 CFR Part 25.
	25.143(l)	Electronic flight control systems	No equivalent requirement in 14 CFR Part 25.
SUBPART C – STRUCTURE			
25.302		Interaction of systems and structures	
	25.302	Interaction of systems and structures	No equivalent requirement in 14 CFR Part 25.
25.335		Design airspeeds	
	25.335(b)(1)(ii)	Design airspeeds	No equivalent requirement in 14 CFR Part 25.
25.349		Rolling conditions	
	25.349(a)	Rolling conditions	14 CFR 25.349(a) is identical to CS 25.349(a) except for airplanes in which pilot input is not proportional to roll control surface deflections.
	25.349(a)(1)	Rolling conditions	CS 25.349(a)(1) requires investigation of angular acceleration conditions for airplanes in which pilot input is not proportional to roll control surface deflections.
	25.349(a)(5)	Rolling conditions	No equivalent requirement in 14 CFR Part 25.
25.397		Control system loads	
	25.397(d)	Control system loads	No equivalent requirement in 14 CFR Part 25.

CS 25 Paragraph	Sub-Para	Requirement Title	Comments
SUBPART D – DESIGN AND CONSTRUCTION			
25.629		Aeroelastic stability requirements	
	25.629(b)	Aeroelastic stability envelopes	25.629(b)(2)(iii) & (b)(3) have no 14 CFR Part 25 equivalent. CS-25 states that for failure conditions in those systems covered by CS 25.302, the margins defined in Appendix K apply. Note: 14 CFR Part 25 addresses failure condition in those systems under 14 CFR 25.629(b)(2). Depending on the probability of the failure condition, the CS-25 required flutter margin may be higher.
25.631		Bird strike damage	
	25.631	Bird strike damage	Although it is EASA understanding that compliance with the bird strike requirement could be equivalent when considering all related requirements including 14 CFR 25.631, 25. 571, 25.1309 and in particular the associated advisory material, this item is retained as an SSD based on the differences at the requirements' level only.
25.683			
	25.683(b)	Under limit manoeuvre loads	The FAA requirement is now the same as CS 25.683(b) / book 1. However, the FAA considers that high lift systems do not need to be considered under §25.683(b) (see Docket No.: FAA-2013-0109 Amdt. No. 25-139) which is not in line with the EASA interpretation. The requirement therefore remains an EASA SSD.
	25.683(c)	No hazard from interference	The FAA requirement is now the same as CS 25.683(b) / book 1. However, the FAA considers that high lift systems do not need to be considered under §25.683(b) (see Docket No.: FAA-2013-0109 Amdt. No. 25-139) which is not in line with the EASA interpretation. The requirement therefore remains an EASA SSD.
25.703		Take-off warning system	
	25.703(a)	Aural configuration warning	CS-25 is more stringent than the 14 CFR 25. CS-25 requires the parking brake unreleased to be part of the Take-off warning configuration, where the FAA has no equivalent.
	25.703(b)	Aural warning to continue until	CS-25 provides additional requirements regarding TO warning silencing.

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CS 25 Paragraph	Sub-Para	Requirement Title	Comments
25.734		Protection against wheel and tyre failures	
	25.734	Protection against wheel and tyre failures	Not included in FAR 25.
25.735		Brakes and braking systems	
	25.735(l)	Brakes and braking systems	This requirement is only partially addressed by 14 CFR 25.729(f)(3).
25.745		Nose-wheel steering	
	25.745 all	Nose-wheel steering	No equivalent requirement in 14 CFR Part 25.
25.777		Cockpit controls	
	25.777(i)	Cockpit controls	No equivalent requirement in 14 CFR Part 25.
25.783		Fuselage Doors	
	25.783(d)(8)	Fuselage doors, Latching and Locking	No equivalent requirement in 14 CFR Part 25.
25.811		Emergency exit marking	
	25.811(e)(2)	Emergency exit marking	FAA does not include Type II, III & IV exits in this rule.
25.813		Emergency exit access and ease of operation	
	25.813(a)	Passageways	CS 25.813(a)(2) is more stringent. Type C door for cross aisle requirement is not required by the 14 CFR Part 25.

CS 25 Paragraph	Sub-Para	Requirement Title	Comments
	25.813(c)	Access to Type III or Type IV exits	EASA has more stringent requirements for the access and ease of operation of Type III and Type IV emergency exits: the passageway minimum width requirements starts at 20 pax (60 for the FAA); the minimum required width of the passageway is 33 cm (13 inches) for interior arrangements in which the adjacent seat rows on the exit side of the aisle contain three seats; the access route bounded by features other than a traditional seats is to be 20"; the placard requirements are also for Type IV exits; there are additional evacuation considerations for seats and stowage provisions; for aeroplanes with a passenger seating configuration of 41 or more, each Type III exit must be designed such that the hatch/door is automatically disposed in the fully open position.
25.853		Compartment interiors	
	25.853(g)	Ashtrays in lavatories	CS requires ashtrays on both sides while 14 CFR Part 25 only outside.
25.855		Cargo and baggage compartments	
	25.855(c)(2)	Protection of systems or equipment	No equivalent requirement in 14 CFR Part 25. No SSD if FAA raised an equivalent issue paper “Protection of Critical Systems from the Effects of a Cargo Fire”.
SUBPART E – POWERPLANT			
25.929		Propeller de-icing	
	25.929(a)	Propeller de-icing	CS 25 requires Appendix O to be fully assessed whereas FAR 25 requires propeller assessment in the portions of Appendix O for which the airplane is approved for flight.
25.933		Reversing systems	
	25.933(a)	Turbojet reversing systems	CS-25 requests the applicant to demonstrate thrust reverser inadvertent deployment is extremely improbable, or that the aircraft is fully controllable with a deployed thrust reverser, under conditions defined in AMC 25.933(a)(1).
25.963		Fuel tanks: general	
	25.963(e)	Fuel tank, hazardous fuel leak	CS 25.963(e)(1) addresses fuel tanks, FAR 25.963(e)(1) addresses only fuel tank access covers. Additionally the impact scenarios to be considered are different.
25.981		Fuel tank ignition prevention	

CS 25 Paragraph	Sub-Para	Requirement Title	Comments
	25.981(b)	Fuel tank flammability	In addition to average flammability exposure limitation, CS 25.981(b)(1) features a limit on temperature increase.
25.1093		Powerplant icing	
	25.1093(b)	Powerplant icing	CS 25 refers to Appendix P and FAR 25 refers to Part 33 Appendix D, but those 2 appendices are equivalent, therefore not an SSD from that aspect. In addition, CS 25 table 1 condition (ii) indicates TAT band between -9°C to -1°C whereas FAR 25 table 1 condition 2 indicates TAT band between -7°C to -1°C. Furthermore, FAR 25 allows airplanes with a maximum take-off weight equal to or greater than 60,000 pounds not to comply with Appendix O and condition 3 specified in table 1.
25.1155		Reverse thrust and propeller pitch settings below the flight regime	
	25.1155 all	Reverse thrust and propeller pitch settings below the flight regime	CS-25 requirement addresses inadvertent/unintentional reverse selection or activation in flight, which is not yet addressed by 14 CFR Part 25.
SUBPART F – EQUIPMENT			
25.1303		Flight and navigation instruments	
	25.1303(b)	At each pilot station	CS 25.1303(b)(4): The specification “Which is powered from a source independent of the electrical generating system and continues reliable operation for a minimum of 30 minutes after total failure of the electrical generating system” is not included in 14 CFR Part 25.
	25.1303(c)	Speed limitation	CS-25 is more stringent.
25.1305		Powerplant instruments	
	25.1305(a)	Powerplant Instruments	CS 25.1305(a)(2) is more stringent. At Amdt. 12, CS-25 introduces a new requirement for fuel system alerts, which has no 14 CFR Part 25 equivalent.
25.1309		Equipment, systems and installations	
	25.1309(b)	Failure conditions	CS 25.1309(b) is more stringent since 14 CFR 25.1309(b) requirement does not include a "no single failure" criterion for the Catastrophic Failure Conditions.

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CS 25 Paragraph	Sub-Para	Requirement Title	Comments
25.1315		Negative acceleration	
	25.1315	Negative acceleration	No equivalent requirements in 14 CFR Part 25 (25.943 is limited to the engine and powerplant associated systems & components).
25.1324		Flight instrument external probes	
	25.1324 all	Flight instrument external probes	FAR 25 limits the applicability of this paragraph to angle of attack system whereas CS 25.1324 includes all Flight instrument external probes. Additionally AMC 25.1324 defines for probe assessment higher ice crystal concentrations than the ones proposed in Appendix P.
25.1325		Static pressure systems	
	25.1325(b)	Static pressure systems	CS 25.1325(b)(2) refers to CS 25.1324, therefore compliance with Appendix P is required for CS 25, but not required for FAR 25.
25.1326		Flight instrument external probes heating systems alert	
	25.1326(b)(2)	Flight instrument external probes heating systems alert	CS 25 requirement address all Flight Instrument external probes whereas FAR reduces applicability only to Pitot heat indication system. In addition CS 25.1326(b) (2) is requesting that an alert shall be provided if any probe heating system is switched 'on' and is not functioning normally.
25.1327		Direction Indicator	
	25.1327(c)	Adequate accuracy	No equivalent requirements in 14 CFR Part 25.
25.1329		Flight Guidance System	
	25.1329(g)	Unacceptable loads / Flight path deviations	CS is more stringent – specifies load requirements.
25.1331		Instruments using a power supply	
	25.1331(a)	Warnings	CS is more stringent – provides additional requirement on the failure of one power source.
25.1351		Electrical systems and equipment	
	25.1351(c)	External power	CS requirement is more specific and stringent than the FAA one.

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CS 25 Paragraph	Sub-Para	Requirement Title	Comments
	25.1351(d)	Loss of normal power	The CS requirement is more stringent. CS requires operational without normal electrical power to complete the flight. FAA requires not less than 5 minutes.
25.1420		Supercooled large drop icing conditions	
	25.1420 all	Supercooled large drop icing conditions	FAR 25 applicability limited to models with MTOW ≤ 60k lbs. or reversible flight controls. This generates differences (EASA more restrictive) for requirements 25.101, 25.103, 25.105, 25.111, 25.117, 25.119, 25.121, 25.123, 25.125, 25.143, 25.147, 25.161, 25.171, 25.173, 25.175, 25.177, 25.177, 25.181, 25.201, 25.203, 25.207, 25.235, 25.237, 25.251, 25.253, 25.255. EASA does not provide the allowances provided by Part 25.21(g)(1) for a/c over 60,000 lbs or not equipped with reversible flight controls. Therefore, the EASA regulation is more stringent and may drive some SSDs where some aircrafts will be required to show compliance to Appendix O conditions not required by FAA.
25.1436		Pneumatic systems – high pressure	
	25.1436 all	Pneumatic systems – high pressure	No equivalent requirement in 14 CFR Part 25 for pneumatic systems high-pressure.
25.1438		Pressurisation and low pressure pneumatic systems	
	25.1438	Pressurisation and low pressure pneumatic systems	CS-25 and 14 CFR Part 25 requirements are different. 14 CFR Part 25 provides specific testing target values compared with CS 25. There are also other significant differences.
25.1447		Equipment standards for oxygen dispensing units	
	25.1447(c)(3)	Equipment standards for oxygen dispensing units	CS-25 requires at least two oxygen outlets and dispensing units in all work areas.
25.1453		Protection of oxygen equipment from rupture	
	25.1453(a)	Sufficient strength	CS-25 is more stringent and has detailed specifications on system design not provided by 14 CFR Part 25.
	25.1453(c)	Number of parts	No equivalent requirement in 14 CFR Part 25.

CS 25 Paragraph	Sub-Para	Requirement Title	Comments
	25.1453(d)	Protective devices	No equivalent requirement in 14 CFR Part 25.
	25.1453(e)	Pressure limiting devices	No equivalent requirement in 14 CFR Part 25.
	25.1453(f)	Discharge of devices	No equivalent requirement in 14 CFR Part 25.
SUBPART G – OPERATING LIMITATIONS AND INFORMATION			
25.1533		Additional operating limitations	
	25.1533(c)	Additional operating limitations	Different scope of applicability of Appendix O.
25.1535		ETOPS Design Approval	
	25.1535 all	ETOPS Design Approval	CS and CFR ETOPS requirement are different.
25.1583		Operating limitations	
	25.1583(k)	Runway contaminants	CS-25 is more stringent. CS-25 requires a contaminant depth AFM limitation.
25.1591		Performance Information for Operations with Contaminated Runway Surface Conditions	
	25.1591 all	Performance Information for Operations with Contaminated Runway Surface Conditions	No equivalent requirement in 14 CFR Part 25 regarding performance information for operations with contaminated runway.
25.1593		Exposure to volcanic cloud hazards	
	25.1593 all	Exposure to volcanic cloud hazards	FAR has no rule for exposure to volcanic ash threat.
25.1703		Function and installation: EWIS	
	25.1703(e)	Same standard as original design	No equivalent requirement in 14 CFR Part 25.
SUBPART J – AUXILIARY POWER UNIT INSTALLATIONS			

CS 25 Paragraph	Sub-Para	Requirement Title	Comments
25sJ1093		Air intake system icing protection	
	25J1093(b)	Air intake system icing protection	Subpart J is in general an SSD because Subpart J has no equivalent in FAR: FAR Subpart E requirements are made applicable despite not explicitly identified. As per previous comments on icing rule modifications, FAR 25 allows airplanes with a maximum take-off weight equal to or greater than 60,000 pounds not to comply with Appendix O and condition 3 specified in table 1. Therefore, it is an SSD.
APPENDIX Q – Additional airworthiness requirements for approval of a Steep Approach Landing (SAL) capability			
	App Q	Additional airworthiness requirements for approval of a Steep Approach Landing (SAL) capability	No equivalent requirement in 14 CFR Part 25.