

FAA VALIDATION OF EASA COUNTRY SMALL AIRPLANES Significant Standard Differences (SSD)

14 CFR Part 23 AMENDMENT 64 *compared to* CS-23, AMENDMENT 5
June 25, 2019

SSD Item	Title	14 CFR Part 23 Section	Remarks
1.	Cockpit voice recorders.	§ 23.1457*	§ 23.1457 is more prescriptive than CS 23.2555. For example, it specifies six systems used by the crew that the CVR must record and the channels the recordings must be on.
2.	Flight data recorders.	§ 23.1459*	§ 23.1459 is more prescriptive than CS 23.2555. For example, it requires vertical acceleration sensors to be rigidly attached, and located longitudinally either within the approved center of gravity limits of the airplane, or at a distance forward or aft of these limits that does not exceed 25 percent of the airplane's mean aerodynamic chord.
3.	Instructions for continued airworthiness.	§ 23.1529	§ 23.1529 states the ICAs must be acceptable to the (FAA) Administrator. EASA's requirement in CS 23.2625 does not. Additionally, FAA Order 8110.54 prescribes how the FAA accepts or approves the ICAs using AEG/Aircraft Certification. EASA does not have a similar Order.
4.	Certification of normal category airplanes.	§ 23.2005(c)(1)*	§ 23.2005(c)(1) criteria for low speed airplane performance is slightly different from CS 23.2005(c)(1). An airplane with $V_{NO} > 250$ KCAS and $M_{MO} < 0.6$ would be classified as low speed for CS 23.2005(c)(1) and High speed for CS 23.2005(c)(2) but would only be classified as high speed for § 23.2005(c)(2).
5.	Accepted means of compliance.	§ 23.2010(a)	<p>§ 23.2010(a) requires applicants to comply with part 23 using means of compliance, which may include consensus standards, accepted by the FAA. Some means of compliance accepted by the FAA are listed on the Small Airplane website</p> <p>https://www.faa.gov/aircraft/air_cert/design_approvals/small_airplanes/small_airplanes_regs/</p> <p>Means of compliance accepted by the EASA for CS 23.2010 may not be accepted by the FAA for § 23.2010 in every case, and FAA acceptance must be verified.</p>
5.1	Accepted means of compliance.	§ 23.2010(b)*	§ 23.2010(b) requires means of compliance to be provided in a form and manner acceptable to the Administrator. The form and manner acceptable to EASA may not be acceptable to the FAA in every case and FAA acceptance must be verified.
6.	Stall speed.	§ 23.2110*	§ 23.2110 specifies the power settings for stall speed or minimum steady flight speed determinations.

7.	Climb information.	§ 23.2125(a)*	§ 23.2125(a) requires climb performance to be determined at each weight, altitude, and ambient temperature within the operating limitations.
8.	Climb information.	§ 23.2125(b)*	§ 23.2125(b) requires the glide performance for single-engine airplanes to be determined after a complete loss of thrust.
9.	Landing.	§ 23.2130(b)*	Stall speed safety margin and minimum control speeds must be accounted for in § 23.2130(b).
10.	Stability.	§ 23.2145(a)(3)*	§ 23.2145(a)(3) requires stable control <u>force</u> feedback throughout the operating envelope.
11.	Stall characteristics, stall warning, and spins.	§ 23.2150(b), (c)	CS 23.2150(b) and (c) require that certain airplanes must not have a tendency to <u>hazardously</u> depart controlled flight inadvertently. § 23.2150(b) and (c) require that airplanes must not have a tendency to inadvertently depart controlled flight.
12.	Stall characteristics, stall warning, and spins.	§ 23.2150(e)	§ 23.2150(e) requires airplanes certified for spins to be able to recover with typical use of the flight or engine power controls, and without pilot disorientation or incapacitation.
13.	Performance and flight characteristics requirements for flight in icing conditions.	§ 23.2165(a)	The FAA requires airplanes certified for icing to show compliance to the icing conditions of part 25, Appendix C as a minimum. CS 23.2165(a) does not specify part 25, Appendix C icing conditions.
14.	Structural design envelope.	§ 23.2200*	§ 23.2200 requires parameters to be accounted for in the structural design envelope not specifically listed in CS 23.2200.
15.	Component loading conditions.	§ 23.2225*	§ 23.2225 specifies loads that are not specifically listed in CS 23.2225.
16.	Materials and processes.	§ 23.2260(g)*	§ 23.2260(g) allows other material design values if approved by the FAA. Unique material design values approved by EASA for CS 23.2260(g) may not be approved by the FAA in every case, and FAA approval must be verified.
17.	Emergency conditions.	§ 23.2270(e)(3)*	§ 23.2270(e)(3) requires controls, wiring, lines, equipment, or accessories whose damage or failure would affect safe operations to be protected.
18.	Flight control systems.	§ 23.2300(b)(2)*	If trim systems are installed, § 23.2300(b)(2) requires means to indicate: (i) The direction of trim control movement relative to airplane motion; (ii) The trim position with respect to the trim range; (iii) The neutral position for lateral and directional trim; and (iv) The range for takeoff for all applicant requested center of gravity ranges and configurations.
19.	Means of egress and emergency exits.	§ 23.2315(a)(2)*	§ 23.2315(a)(2) requires emergency exit opening means to be marked inside and outside the airplane.

20.	Occupant physical environment.	§ 23.2320(a)(2)*	§ 23.2320(a)(2) requires the pilot and flight controls to be protected from propellers.
21.	Fire protection.	§ 23.2325*	§ 23.2325 contains requirements for flammable materials, thermal/acoustic materials, cargo compartments, fire extinguishers, flammable fluids, and combustion heaters that are not specifically listed in CS 23.2325.
22.	Fire protection in designated fire zones and adjacent areas.	§ 23.2330(b)*	§ 23.2330(b) requires engines in a designated fire zone to remain attached to the airplane in the event of a fire.
23.	Powerplant installation.	§ 23.2400(b)	§ 23.2400(b) requires engines and propellers installed on level 1 high speed and all level 2, 3 and 4 airplanes to be type certificated. CS 23.2400(b) permits those engines and propellers to meet accepted specifications or be type certificated.
24.	Powerplant ice protection.	§ 23.2415(a)*	§ 23.2415(a) includes “the induction and inlet system” to ensure the requirement covers carburetor ice protection on reciprocating engine installations.
25.	Reversing systems.	§ 23.2420*	§ 23.2420 provides specific requirements for thrust reverser systems intended only for aircraft deceleration. EASA covers thrust reverser and propeller reversing systems under CS 23.2405. CS 23.2405 does not cover malfunctions of the reversing system.
26.	Fuel systems.	§ 23.2430(b)(2)*	§ 23.2430(b)(2) is more prescriptive than CS 23.2430(b)(2) and specifically includes fuel storage temperature excursions as a likely hazard to be addressed.
27.	Powerplant induction and exhaust systems.	§ 23.2435*	<p>§ 23.2435 is only applicable to induction and exhaust systems and is more prescriptive than CS 23.2435 as follows:</p> <p>§ 23.2435(a) requires the air induction system for each powerplant or auxiliary power unit and their accessories to supply the required air under likely operating conditions, prevent likely hazards in the event of fire or backfire, minimize ingestion of foreign matter as opposed to only prevent hazardous ingestions, and provide an alternate intake if blockage of the primary intake is likely.</p> <p>§ 23.2435(b) requires the exhaust systems and exhaust heat exchangers to safely discharge potential harmful material and be designed to prevent likely hazards from heat, corrosion, or blockage. Note: CS 23.2435 covers any powerplant installation support system where § 23.2435 only covers induction and exhaust systems. In part 23, support systems, other than induction and exhaust systems, are primarily covered by § 23.2400 and § 23.2410.</p>

28.	Powerplant fire protection.	§ 23.2440*	<p>§ 23.2440 is more prescriptive than CS 23.2440 as follows:</p> <p>§ 23.2440(a) requires a powerplant, auxiliary power unit or combustion heater to be installed in a fire zone.</p> <p>§ 23.2440(c) requires certain components in a fire zone to be either fire resistant or fireproof.</p> <p>§ 23.2440(d) requires a means to prevent hazardous quantities of flammable fluids from flowing into or through a fire zone. Means to accomplish this must not restrict flow to the remaining powerplant or auxiliary power unit, must prevent inadvertent operation, and must be located outside the fire zone unless an equivalent degree of safety is provided with a means inside the fire zone.</p> <p>§ 23.2440 (e) requires a means to ensure prompt detection of fire in each designated fire zone on a multiengine airplane where detection will mitigate likely hazards to the airplane or that contain a fire extinguisher.</p> <p>§ 23.2440 (f) requires a means to extinguish fire within a fire zone, except a combustion heater fire zone, for any fire zone located outside the pilot's view, any fire zone embedded within the fuselage, which must also include a redundant means to extinguish fire, and any fire zone on a level 4 airplane.</p>
29.	Airplane level systems requirements.	§ 23.2500(a)*	<p>§ 23.2500(a) requires equipment and systems required for an airplane to operate safely in the kinds of operations for which certification is requested (Day VFR, Night VFR, IFR) to be designed and installed to—</p> <p>(1) Meet the level of safety applicable to the certification and performance level of the airplane; and</p> <p>(2) Perform their intended function throughout the operating and environmental limits for which the airplane is certificated.</p>
30.	Airplane level systems requirements.	§ 23.2500(b)*	§ 23.2500(b) requires the systems and equipment not covered by paragraph (a), considered separately and in relation to other systems, to be designed and installed so their operation does not have an adverse effect on the airplane or its occupants.
31.	Function and installation.	§ 23.2505*	§ 23.2505 requires each item of equipment to function as intended when installed.
32.	Equipment, systems, and installations.	§ 23.2510*	§ 23.2510 requires any airplane system or equipment whose failure or abnormal operation has not been specifically addressed by another requirement in this part to be designed such that there is a logical and acceptable inverse relationship between the average probability and the severity of failure conditions.
33.	System power generation, storage, and distribution.	§ 23.2525(b)*	§ 23.2525(b) requires power generation, storage and distribution of any system to be designed and installed to ensure no single failure or malfunction of any one power supply, distribution system, or other utilization system will prevent the system from supplying the essential loads required for continued safe flight and landing.

34.	Flight in icing conditions.	§ 23.2540	The FAA requires airplanes certified for icing to show compliance to the icing conditions of part 25, Appendix C as a minimum. CS 23.2540 does not specify part 25, Appendix C icing conditions.
35.	Airplane Flight Manual	§ 23.2620(b)	The FAA requires certain sections of the AFM to be FAA approved. CS 23.2620 does not contain an equivalent requirement.

*Per § 21.29, the compliance finding for the additional FAA requirements identified in the SSD is delegated to EASA if all of the following conditions are met:

- The project used means of compliance accepted by the FAA for this rule for § 23.2010. Refer to https://www.faa.gov/aircraft/air_cert/design_approvals/small_airplanes/small_airplanes_regs/ for means of compliance accepted by the FAA.
- The applicant has shown compliance with the additional FAA requirements as identified in the SSD.
- There are no items on the Safety Emphasis Item (SEI) list that would prevent delegation of the finding.

Revision History	
June 25, 2019	Clarified the remarks for SSD Item 3. Changed SSD Item 5 from § 23.2010 to § 23.2010(a). Added SSD Item 5.1 for § 23.2010(b). Added SSD Item 35 for § 23.2620(b).