Certification Directorate
General Aviation & VTOL Department

EU/US BASA Safety Emphasis Items (SEI) List for CS-23

Revision 2.0

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Revision 0	22.03.2018	Initial Issue
Revision 1.0	01.05.2024	Adjustment to TIP Rev. 7
Revision 2.0	10.06.2024	Reformatted and revised SEI list with SEI Part 1 and SEI Part 2.

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1 Executive summary

This report supports the implementation of TIP Revision 6 of the EU/US Bilateral for products certified under the JAR/CS23 or FAR 23 Airworthiness codes.

The report provides the list of Safety Emphasis Items (SEI List) required by the BASA TIP Rev 7.

2 TIP Rev 7 Non-Basic Criteria

Below is an extract from TIP Rev 7 (Section 3.5.3.2 from the TIP revision 7)

3.5.3.2 Non-Basic Classification Criteria:

a) Type Certificate's

Application for validation of a TC shall be classified as Non-Basic, except for:

Applications for validation of reciprocating engine and propeller new TCs, and all changes to those TCs, including STCs, will be classified as Basic, unless the CA or VA certification basis includes or is anticipated to include a new or amended (i.e. not previously applied):

(i) FAA Exemption or EASA Deviation;

(ii) Special Condition; or

(iii) Equivalent level of Safety (ELOS/ESF);

(b) Major Design Changes, including STCs

Application for validation will be classified as Non-Basic when any of the following criteria are impacted:

(1) Any item in the VA Safety Emphasis Item (SEI) list as defined in paragraph 3.5.10.4;

(2) The CA or VA certification basis includes a new or amended:

(1) FAA exemption or EASA deviation;

(2) Special condition; or

(3) Equivalent level of Safety (ELOS/ESF);

Note: New or amended is considered in the context of the project, relative to the baseline certification basis of the product or STC being changed.

(3) A classification of "significant" has been made by the CA in accordance with FAA 14 CFR section 21.101(b) or EASA 21A101(b);

(4) An AD is affected that was issued unilaterally by the VA; *Technical Implementation Procedures* September 22, 2017 or an AD is affected that was issued by the VA, and where the VA is the Authority for the SoD for the TC;

(5) Changes involving the use of a new or different applicable method of compliance from that previously agreed by the CA and the VA;

Note: A method of compliance (MOC) would not be considered "new" or "different" if it had been applied previously in a similar context by both the CA and the VA.

(6) New technology exists;

Note: New technology is technology that is new to the VA as a whole, not just new to the VA team members. For example, if technology used by the applicant were new to the VA team but not the VA itself, it would not be considered new. It is the VA management's responsibility to make sure the VA team members are properly informed of the earlier use of the technology, VA standards and MOC.

(7) Novel applications of existing technology exist;

Note: Novel application of technology is where a particular technology is being used in a manner that causes the precepts of the technology to be questioned. However, it does not mean that existing technology being applied for the first time to a particular product line is automatically novel. Additionally, novel applies to the VA as a whole, not just to a project being assessed by the specific VA team members.

(8) Changes that impact environmental protection per paragraph 3.5.3.2(e).

(9) Changes that have an appreciable effect on any one of the Operational Suitability Data (OSD) constituents (refer to EASA Guidance Material GM 21.A.91 to determine an appreciable effect); and

(10) Any other design change designated as Non-Basic by the CA.

Note: The addition of models to TC and STCs are considered basic if none of the 10 criteria is triggered.

(c) PMA Parts

Application for PMA parts on critical components that have not been produced under a licensing agreement from the TC or STC holder according to 14 CFR section 21.303 shall be classified as Non-Basic.

(d) Alterations

Application for alteration on critical components shall be classified as Non-Basic.

(e) Environmental Protection

(1) Noise Level substantiations have been affected by (see list of noise basic/non-basic examples in Appendix H):

- testing (except for Part 23/ CS-23 propeller-driven aircraft); or
- a change in the Noise Certification Basis; or
- equivalencies (for FAA) or alternative means of compliance (for EASA); or
- procedures, methodologies, or noise processing software that differ from to those accepted by both CA and VA in previous projects of the same applicant; or
- different test organization or staff that performs the procedures or operates the equipment and software.

(2) Emission Level substantiations have been affected by (see list of emissions basic/non-basic examples in Appendix H):

- engine emissions testing (except for unchanged design, or small design changes); or
- a change in the Emissions Certification Basis; or
- procedures, equivalencies, methodologies, deviations that differ from those accepted by both CA and VA in previous projects of the same applicant.

Note: Projects involving an airplane CO_2 emissions change are considered non-basic by default.

3 Safety Emphasis Items

As required by TIP 7 paragraph 3.5.3.2(b)(1) the following items have been listed by EASA as Safety Emphasis Items(SEIs) for aeroplanes with a Certification Basis established under 14 CFR Part 23.

Assumptions:

- SSD Lists for 14 CFR Part 23 to CS 23 amendment pairings are published at https://www.easa.europa.eu/en/document-library/bilateral-agreements/eu-usa/easa-significant-standards-differences-ssd-between-cs-codes-and-faa-14-cfr-codes
- If any pre-amendment CS-23 Amdt. 4 and prior, requirements in the certification basis of a project are not adequate or appropriate to address a novel design change, then the CS-23 Amdt. 6 requirement must be used along with an EASA accepted means of compliance. New special conditions will not be issued unless it is determined that CS-23 Amdt. 6 is not adequate.

Notes:

(1) New VA standards or certain SSDs where the VA or CA has limited past experience with the application to a product, they have an important impact on the whole product or a critical feature, and engineering judgment is required to establish compliance.

(2) Airworthiness standards where the VA's and CA's interpretive, advisory, MOC, or guidance materials differ or are insufficient, to an extent that those differences impact the level of safety required by the VA system and could result in VA required changes to the type design or approved manuals.
SEI List Part 2: Items identified as per TIP 3.5.10.4(b)(ii). If the applicant follows the interpretative, advisory, MOC, or guidance materials indicated by the SEI item, full confidence is given to FAA for determining compliance to those EASA SEIs.

(3) Items identified for special emphasis by the VA in a data-driven risk assessment analysis for the product class.

(4) Subjects linked to known safety conditions that the VA has identified, and for which the VA either has taken, or is in the process of taking, airworthiness action.

	CS	Subject	Description (Describe the difference including any policy or guidance material that applies.)	Safety Emphasis Items (SEI) (1)	(2)	(2) List Part 2	(3)	(4)
1.	23.1301, 1309, 1441(b), 1445, 1451, 1453 at Amdt. 4 and prior. 23.2320, 2325, 2500, 2510, 2605 at Amdt. 5 and after.	Aeromedical installation of gaseous oxygen systems	Both pre- and post CS 23 Amdt. 5 do not adequately address safety concerns due to supplementary medical oxygen installation for use on board. ASTM standards are still to be developed covering EASA CRI material / not published yet		Y			
2.	23.1301 and 23.1309 at Amdt. 4 and prior. 23.2500 and 23.2510 at Amdt. 5 and after	Development assurance for complex systems	Development Assurance to be applied to all complex systems of CS 23 assessment level 4, unless it is agreed that for some systems other standard and systematic methodology used for certification reduces the likelihood of development errors to an acceptable level. How to manage changes for already certified products is described in EASA Proposed CM-DASA-002 Issue 01.	Y				Y

	CS	Subject	Description (Describe the difference including any policy or guidance material that applies.)	Safety Emphasis Items (SEI) (1)	(2)	(2) List Part 2	(3)	(4)
3.	23.1301 and 23.1309 at Amdt. 4 and prior. 23.2500 and 23.2510 at Amdt. 5 and after	System Level Verification	Use of system level verification is usually not acceptable, and it should be discussed with EASA.	Y	Y			
4.	23.1301, 1309, 1311, 1321, 1322, 1367, 1381, 1523, 1555 at Amdt. 4 and prior. 23.2340, 2500, 2510, 2530, 2600, 2605, 2610, 2615 at Amdt. 5 and after.	Upgrades to highly integrated glass cockpits on commuter or Level 4 aeroplane	The Methodology used in implementing Human Factor evaluations differs from FAA. Means of compliance: FAA AC 23-23, AC 23-26, AC 23.1311-1C, GAMA 10, GAMA 12 AMC 25.1302, JAA INT/POL/25/14, FAA PS-ACE100-2001-004	Y			Y	
5.	23.1308, 1309, 1431 at Amdt. 4 and prior	Upgrades from Mechanical to glass cockpits	HIRF Compliance to be demonstrated: CS 23 1308, 1309 at Amdt. 4 and AMC 20-158 RTCA DO-160G & EUROCAE ED-14G Note: SSD as of Amdt. 5 and after.			Y		
6.	23.867, 954, 1309 at Amdt. 4 and prior.	Upgrades from Mechanical to glass cockpits	Indirect Effects of Lightning Means of Compliance EUROCAE ED-81			Y		

	CS	Subject	Description (Describe the difference including any policy or guidance material that applies.)	Safety Emphasis Items (SEI) (1)	(2)	(2) List Part 2	(3)	(4)
	23.2335, 2430, 2515 at Amdt. 5		EUROCAE ED-84 EUROCAE ED-91 Note: SSD as of Amdt. 6 and after.					
7.		Contaminated Runway Data	No FAA published requirements		Y			
8.	23.1301, 1309, 1311, 1321, 1322, 1431 at Amdt. 4 and prior. 23.2605, 2500, 2510, 2610, 2615, at Amdt. 5 and after.	User customisable electronic checklists	Means of compliance: Conflict or confusion with certified information			Y		
9.	23.1329 23.143 at Amdt. 4 and prior. 23.2135, 2510 at Amdt. 5 and after	Auto throttle	Means of Compliance to be established per project		Y			
10.	23.1309 at Amdt. 4 and prior 23.2500 at Amdt 5 and after. CS ACNS subpart C	Performance Based Navigation approvals (RNP, LPV, RNP AR, ...)	EU requirements are set up in CS ACNS. Applies to aircraft whose AFM permit PBN operations per AC 20-138 prior to version D.			Y		

	CS	Subject	Description (Describe the difference including any policy or guidance material that applies.)	Safety Emphasis Items (SEI) (1)	(2)	(2) List Part 2	(3)	(4)
11.	23.851(c) at Amdt. 4 and prior 23.2325 at Amdt. 5 and after.	Fire extinguishers (Halon) replacement	EU Regulation No 744/2010 on dates for Halon extinguishant replacement. Currently no TSO/ETSO for Halon replacement therefore qualification has to be at the aircraft level. EASA raises an MoC CRI that is not necessary if FAA raised its IP that refers to some EU standards (example IP S1 on HA-420)		Y	Y		
12.	23.1419	Primary in-flight ice detectors	EASA requirements are more demanding		Y			
13.	23.1301, 1306, 1308, 1309, 1311 at Amdt. 4 and prior. 23.2010, 2500, 2505 at Amdt. 5 and after.	Non-(E)TSO Electronic Flight Instrument Systems and Avionics	If the applicant is seeking to install non-(E)TSO avionics, then they may need to verify the level of EASA involvement in their project. Many avionics manufacturers have developed lower cost integrated display systems specifically for the Experimental and Amateur-built airplane markets. Although these systems have many or all of the same functions, they generally do not follow the design assurance processes specified in the (E)TSOs. The (E)TSOs only specify a minimum performance, and they often outline the design assurance requirements as well as environmental standards in addition to general operating requirements. (E)TSO authorization indicates that the article manufacturer has provided a statement of compliance with the (E)TSO requirements and the equipment is produced by an approved production organisation. For non-(E)TSO equipment, the installer bears responsibility for supplier control of the type design and the production of the article.	Y	Y			

	CS	Subject	Description (Describe the difference including any policy or guidance material that applies.)	Safety Emphasis Items (SEI) (1)	(2)	(2) List Part 2	(3)	(4)
			EASA will determine its involvement for any EFIS that has not been certificated before.					
14.	23.1309 at Amdt. 4 and prior 23.2500 at Amdt. 5 and after.	Cybersecurity	Cybersecurity needs to be addressed in showing compliance to CS 23.1309 Applies to any aeroplane of commuter category or Level 3 and 4 respectively. Means of Compliance: AMC 20-42	Y				
15.	AMC 20-170	Integrated Modular Avionics (IMA)	AMC 20-170 and use of TSO-C153/FTSO-C214 is novel. There is a perceived difference in FAA and EASA involvement in the review of the (E)TSO articles. Furthermore, development assurance aspects (ED-79A) are not covered by the (E)TSO. The SEI applies to all aircraft installing IMA components hosting functions with major safety impact or more.	Y				
16.	23.571, 572 at Amdt. 4 and prior	Fatigue strength of landing gear	EASA AMC to 22.572 explicitly includes the need to evaluate the fatigue strength of the landing gear, whereas the FAA AC excludes the landing gear.			Y		
17.	23.1309 at Amdt. 4 and prior 2510 at Amdt 5 and after	Single Pilot unpressurised above 10.000ft	Consideration of failures in the complete oxygen system.		Y			

	CS	Subject	Description (Describe the difference including any policy or guidance material that applies.)	Safety Emphasis Items (SEI) (1)	(2)	(2) List Part 2	(3)	(4)
18.	23.1301, 1309, 1441(b), 1453 at Amdt. 4 and prior. 23.2510, 2320 at Amdt. 5 and after	Oxygen fire hazard in oxygen systems - Installation of or modifications to existing gaseous oxygen systems	Limited to changes that will impact the failure mechanisms in plumbed oxygen systems that are not physically removable from the aircraft. Both pre- and post CS 23 Amdt. 5 do not adequately address safety concerns due to supplementary oxygen permanent installations for use on board. ASTM standards are still to be developed covering EASA CRI material / not published yet		Y			Y
19.	23.207, 672, 691 ,1301, 1309, 1322, 1329, 1335, 1541 at Amdt. 4 and prior. 23.2010, 2150, 2250, 2300, 2500, 2505, 2510, 2600, 2605, 2610, 2510, at Amdt. 5 and after.	Envelope Protection and Emergency Descent Mode	If the applicant is proposing to install new control functions within the autopilot on a new or existing avionics system which provides automatic stability augmentation and envelope protection or the addition of an emergency descent mode, then they must obtain an EASA accepted means of compliance (MOC).	Y	Y			
20.	CS-23 at Amdt. 4 and prior.	High Performance Aeroplanes	For already certified non-high performance types, modification of those types into the high performance category (M_{mo} greater than 0,6 and/or a maximum operating altitude above 25 000 ft). FAA does not define High Performance Aeroplane (HPA). For HPA additional Special Conditions, Equivalent Safety Finding (ESFs), deviations, and MOCs are to be added to the certification basis.			Y		

CS	Subject	Description (Describe the difference including any policy or guidance material that applies.)	Safety Emphasis Items (SEI) (1)	(2)	(2) List Part 2	(3)	(4)
		If the applicant is using AMC1 to CS-23 Amdt. 5 and later, the SEI does not apply.					