

FAA SSD/SEI Combined list for 14 CFR Part 27 and 29 Rotorcraft Products

Revision Log:

Rev. 0 Dated March 21, 2018 Initial Issue

Assumptions.

This SSD/SEI Combined List is based on the following standards amendments:

14 CFR Part 27 Amdt. 27-48 vs. CS 27 Amdt. 4
14 CFR Part 29 Amdt. 29-56. CS 29 Amdt. 4

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.
- (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.

Standard	Subject	Description (Describe the difference including any policy or guidance material that applies.)	FAA Position (Provide authority position including any policy or guidance material that applies.)	Part 27	Part 29	Significant Standard Difference (SSD)	Safety Emphasis Item (SEI)			
							(1)	(2)	(3)	(4)
27.45(c)/29.45(c)	Inlet Barrier Filter	Lack of harmonized guidance	FAA's published IBF policy documents the current interpretation as it relates to the installation of IBF in rotorcraft.	Y	Y			Y		
27.65/29.65	TCAS II	TCASII performance demonstration and Human Machine Interface	There is no harmonized interpretative material providing guidance on how to show compliance (e.g. helicopter climb performance capability to follow the RA, HMI characteristics of the intallation, ...)	Y	Y			Y		
27.79	H-V Diagram Demonstration	H-V diagram for new helicopters or for changed products, when the H-V is significantly modified.	The H-V diagram is a critical area where the rotorcraft limits are approached and therefore sound judgment of the "normal piloting skill" is required.	Y				Y		
29.87	H-V Diagram Demonstration	H-V diagram for new helicopters or for changed products, when the H-V is significantly modified.	The H-V diagram is a critical area where the rotorcraft limits are approached and therefore sound judgment of the "normal piloting skill" is required.		Y			Y		
27.143/29.143	Controllability	Low Speed Controllability	In low speed regime reduced control margins are typically encountered (below those specified in the AC material) and authority flight test crew direct exposure is essential to confirm their acceptability.	Y	Y			Y		
27.351	Yawing Conditions	Different Interpretations of the regulation.	The FAA considers the guidance in AC 27-1B and 29-2 to be acceptable. It is not a representative flight condition, only a structural design point. No flight test, just analytical condition.	Y	Y			Y		
27.395/ 29.395	Control System	Lack of standards and harmonized guidance for design loads of flight controls segment located between the servo-actuators and the blades.	The FAA considers the guidance in AC 27-1 and 29-2 to be acceptable. EASA uses a memo for power-operated actuator control system loads.	Y	Y			Y		
27.562(a)/ 29.562(a)	Seats installed on adapter plates (pallets or plinths)	Difference in application of the guidance material.	FAA expects compliance with AC27-1	Y	Y			Y		

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27.563/29.563	Structural Strength for Ditching	Interpretation difference of the regulation.	Analysis may be used if based off of existing model test of similar designs, as defined in the rule language.	Y	Y			Y		
29.571	Fatigue Tolerance-Metallic Structure	New Regulation and Policy Material	SEI until common interpretation and application of new guidance material is confirmed.		Y		Y			
27.573/29.573	Damage Tolerance and Fatigue of Composite Structures	New Regulation and Policy Material	SEI until common interpretation and application of new guidance material is confirmed.	Y	Y		Y			
27.773/29.773	Pilot Compartment View	Vision systems with transparent displays (e.g. head up-display, head mounted display, ...)	14 CFR 27.773 changed at Amdt. 27-48, 3/2017 and 29.773 was changed at amdt 29-56 3/2017 to add wording to cover future HWDs.	Y	Y			Y		
27.801/29.801	Floatation Devices	Definition of the floats intended function and associated RFM limitations	Experience has shown that different interpretations have been proposed for showing compliance with MG10, e.g. use of static calculations rather than scale model testing, the appropriate sea state conditions to be tested and associated RFM information / procedures.	Y	Y			Y		
27.801/29.801	Ditching Wind Speeds	Wind speed values accepted have varied between authorities	FAA expects wind speed values to be in accordance with AC27-1 and AC29-2.	Y	Y			Y		
29.809(f)(3)	Assist Rope- Helicopter Resting on Side	Provision of a rope to descend from a rotorcraft on its side, with exit threshold >6ft from the ground has not been universally required.	A rope or slide is required for an aircraft on its side, with an exit threshold higher than 6 feet above ground.		Y			Y		
29.851(b)(1)	Multi-purpose Fire Extinguishing System	Different Interpretations of the regulation.	FAA does not allow the use of an engine bottle to be used for baggage compartment suppression but has allowed the use of an engine bottle to protect the APU.		Y			Y		

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27.861/29.861	Material Fireproofness	Lack of harmonized guidance regarding material strength following and during a fire (exposure to extreme heat).	SEI until common interpretation, harmonization and application of guidance material is confirmed.	Y	Y			Y		
27.863/29.863	Material Fireproofness	Lack of harmonized guidance regarding material strength following and during a fire (exposure to extreme heat).	SEI until common interpretation, harmonization and application of guidance material is confirmed.	Y	Y			Y		
27.865(f)/ 29.865(f)	External Loads- Fatigue Evaluation of personnel carrying system	Difference in interpretation of guidance material. Advisory Material Difference AC27-1B Change 7 EASA CM-CS-005 Issue_01_Helicopter External Loads Personnel Carrying Device System	27.865(f) requires a fatigue evaluation to be performed on the personal carrying device system. AC27-1B Change 7, page D-124, Paragraph AC 27.865B, Section d.(6)(vi))(B) clarifies that "The entire external load system, including the PCDS, should be reviewed on a component-by-component basis to determine which, if any, components are fatigue critical."	Y	Y			Y		
27.865(a)/ 29.865(a)	External Loads	Lack of harmonized guidance	SEI until common interpretation, harmonization and application of guidance material is confirmed.	Y	Y			Y		
CS27.865(c)(6)	External Loads Attaching Means	FAR Part 27 does not have this requirement	FAR 27 does not have the paragraph 27.865 (c) (6). FAA has different operating rules under 133.45 requiring a Transport category aircraft with CAT A certification for Class D external loads.	Y		Y	Y			
27.901(b)(1)/ 29.901(b)(1)	Interfaces between engine and rotorcraft	Limited CAA experience and lack of AC guidance material.	Specific to electronic engine controls and the coordination that must occur between the engine oem and the airframe oem and is beyond the EIM. SEI until common interpretation, harmonization and application of guidance material is confirmed.	Y	Y			Y		
27.901(c)	Interfaces between engine and rotorcraft	Limited CAA experience and lack of AC guidance material.	Specific to electronic engine controls and the coordination that must occur between the engine oem and the airframe oem and is beyond the EIM. SEI until common interpretation, harmonization and application of guidance material is confirmed.	Y				Y		
27.901(c)	Inlet Barrier Filter	Lack of harmonized guidance	FAA's published IBF policy documents the current interpretation as it relates to the installation of IBF in rotorcraft.	Y				Y		

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29.901(b)(2)	Interfaces between engine and rotorcraft	Limited CAA experience and lack of AC guidance material.	Specific to electronic engine controls and the coordination that must occur between the engine oem and the airframe oem and is beyond the EIM. SEI until common interpretation, harmonization and application of guidance material is confirmed.		Y			Y		
29.901(d)	Inlet Barrier Filter	Lack of harmonized guidance	FAA's published IBF policy documents the current interpretation as it relates to the installation of IBF in rotorcraft.		Y			Y		
29.901(d)	Engine APU Mode	Limited CAA experience and lack of AC guidance material.	SEI until common interpretation, harmonization and application of guidance material is confirmed.		Y			Y		
27.939(a)(b)/ 29.939(b)	Inlet Barrier Filter	Lack of harmonized guidance	FAA's published IBF policy documents the current interpretation as it relates to the installation of IBF in rotorcraft.	Y	Y			Y		
27.952(a)/ 29.952(a)	Fuel Tank Drop Test	Difference in interpretation of current AC Guidance.	SEI until common interpretation and application of guidance material is confirmed.	Y	Y			Y		
27.1093(b)(1)(i)/ 29.1093(b)(1)(i)	Turbine Engine Induction System Icing	Difference in interpretation of current AC Guidance. In addition, current guidance does not address APU and IBF installations.	Issue paper required until guidance material is updated and successfully applied.	Y	Y			Y		
27.1093(b)(1)(ii)/ 29.1093(b)(1)(ii)	Turbine Engine Induction System Under Snow	Current FAA AC material adequate for basic inlets, but does not address APU and IBF installations.	Issue paper required until guidance material is updated and successfully applied.	Y	Y			Y		
27.1191/29.1191	Material Fireproofness	Lack of harmonized guidance regarding material strength following and during a fire (exposure to extreme heat).	SEI until common interpretation, harmonization and application of guidance material is confirmed.	Y	Y			Y		
29.1195	Multi-purpose Fire Extinguishing System	Different Interpretations of the regulation.	FAA does not allow the use of an engine bottle to be used for baggage compartment suppression but has allowed the use of an engine bottle to protect the APU.		Y			Y		

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27.1301/29.1301	Non-required Equipment or capabilities affecting the Primary Field of View (POV)	The intended function of non required equipment or capabilities (e.g. LPV capability on VFR rotorcraft) has in some instances not been stated in the RFM and compliance demonstration not shown accordingly.	FAA expects applicants to clearly identify the intended function of non required equipment or capabilities affecting the POV to be stated in the RFM and compliance demonstration to be shown accordingly. No credit will be given to any equipment or capabilities not tested to be shown functioning as expected.	Y	Y			Y		
27.1301/29.1301	TCAS II	Lack of harmonized guidance material for certification of TCAS II.	FAA uses AC 20-151C and the MOPS out of TSO C119 for the airworthiness approval and operational constraints for TCASII systems. This requires certain aircraft climb performance be met in the use of R.A callouts.	Y	Y			Y		
27.1301/29.1301	Touch Screen	Lack of harmonized guidance material for certification of Touch Screens.	Issue paper required until guidance material is updated and successfully applied. FAA Cockpit Evaluation is required.	Y	Y			Y		
27.1301/29.1301	Voice Control	Lack of harmonized guidance material for certification of Voice Control. Voice control effectiveness in and out of new avionics systems is not consistent.	Issue paper required until guidance material is updated and successfully applied. FAA Cockpit Evaluation is required.	Y	Y			Y		
29.1305(b)(1)	Oil Pressure Indicator and Warning	Different Interpretations of the regulation.	FAA would require as much independence in the warning system as feasible for Cat A aircraft. The AC guidance does not fully explain the level of "independence" but it is expected that there should be no common mode failures between the two indications.		Y			Y		
27.1309/29.1309	Attitude Indication	Non harmonized FHA for misleading attitude indication at night VFR.	Currently in AC 27/29 MG-21, effect on aircrew of misleading attitude VFR night "Aircrew workload may increase to a level such that they could not be relied upon to perform tasks accurately or completely" There is no direct statement regarding FHA classification. However, it translates to "Hazardous".	Y	Y			Y		

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27.1309/29.1309	TCAS II	Lack of harmonized guidance material for certification of TCAS II.	FAA uses AC 20-151C and the MOPS out of TSO C119 for the airworthiness approval and operational constrains for TCASII systems. This requires certain aircraft climb performance be met in the use of R.A callouts.	Y	Y			Y		
27.1309/29.1309	Management of Open Problem Reports	Current Software and AEH applicable standards do not include guidance on Open Problem Report management. In addition to above, safety/functional related OPRs have been deferred with RFM mitigations and/or operational limitations which have led to numerous pilot workload issues and in some case non-compliant systems.	<p>Management of Open Problem Reports (OPR): A harmonized means of compliance draft AC/AMC 20-189 is scheduled to be published 2018. Until then, the FAA Order 8110.49 Chg. 1 or FAA generic OPR issue papers.</p> <p>Note: The SEI is not applicable - once harmonized guidance is published, - when there are no safety-related OPRs (OPRs classified as having a functional failure classification of Major, Hazardous, or Catastrophic). - when FAA guidance as specified above has been applied</p> <p>Note: The SEI is applicable when safety-related OPRs are deferred with RFM mitigations and/or limitations. Once determined, one/or more mutli-discipline reviews will be required for approval.</p> <p>SEI will be re-evaluated after the harmonized guidance found in AC/AMC 20-189 has been published and widely used.</p>	Y	Y			Y		

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27.1309/29.1309	Use of Multicore Processors	Multi-Core processors include features that may impact the behaviour, and therefore the safety, of a system if not well managed.	Use of Multicore Processors: For airborne systems hosting Software components on different cores using Multicore Processors, a means of compliance Issue Paper/CRI is needed. Note: The SEI is applicable if the FAA Generic MCP IP rev 11 (or later) or EASA CRI issue 11 has not been applied or when the type of usage is not covered by the generic CRI or IP (e.g. dynamic allocation). Once we have gained experience and lessons learned from the Issue paper/CRI, the CA's will update the AC material to include guidance for use of Multi-Core Processors.	Y	Y			Y		
29.1316(b)	Indirect Effect of Lightning	Difference in interpretation. EASA applies this paragraph only for essential systems used for IFR operation	FAA expects compliance for VFR as well as IFR		Y			Y		
27.1317(d)/ 29.1317(d)	HIRF	EASA does not have a similar requirement	FAA expects compliance with AC27-1 and AC-29-2	Y	Y	Y				
27.1329/29.1329	AFCS	Off-Shore Rig Approaches	There is no consolidated and harmonized interpretative material providing guidance on how to implement off-shore approaches.	Y	Y			Y		
27.1523/29.1523	Human Machine Interface and minimum crew determination	Human Machine Interface and minimum crew determination in case of a cockpit design characterized by high level of integration.	Past certification and validation activities revealed that differences in operations rules and requirements influence how authorities treat certification and mitigations for crew workload issues do to design.	Y	Y			Y		
27.1353/29.1353	Rechargeable LI Battery	New policy is under development. Difference in interpretation of current AC Guidance.	Guidance is being up dated to reflect recent revision of Industry consensus specification to be published by end of 2018 calendar year. Current AC 20-184 is to be used until the revision is released.	Y	Y			Y		
27.1353/29.1353	Non-rechargeable LI Battery	Lack of Guidance Material	Guidance is being developed and expected to be published by end of 2018 calendar year. Issue paper required until guidance material is updated and successfully applied.	Y	Y			Y		

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27.1357/29.1357	Solid State Power Contactor - Circuit Protective Devices Accessibility	Lack of Harmonized Guidance Material	Issue paper required until guidance material is developed and successfully applied.	Y	Y			Y		
27.1419/29.1419	Ice Protection	Advisory Material is dated, Draft revision is in work through SAE Committee but not finalized.	Issue paper required until guidance material is updated and successfully applied. In addition, flight evaluation in known icing conditions is critical for safe rotorcraft operations, in terms of handling qualities, rotorcraft performance degradation and assessment of icing protection system functionalities.	Y	Y			Y		
29.1435	Hydraulic System Burst Pressure	Minimum design factor for ultimate burst pressure is not defined in the regulation. Lack of harmonized guidance material.	Issue paper required until guidance material is updated and successfully applied.		Y			Y		
27/29.771 27/29.773 27/29.1322 27/29.1381 29.812	NVIS	Full NVIS approval of a helicopter model. Lack of Harmonized guidance material.	FAA follows the policies included within the latest version of the MG 16.	Y	Y			Y		
27.143 27 Appendix B 27 Appendix C 29.49 29.53 29.55 29.59 29.60 29.61 29.62 29.65 29.67 29.71 29.79 29.81 29.83 29.85 29.87 29.141	Category A	Category A Take Off and Landing Procedures definition.	Non compliance in defining Category A limitations and procedures may result in unsafe conditions. Although CS 27/29 and FAR 27/29 are the same in terms of Category A requirements, in developing their Category A procedures manufacturers use methodologies that are quite different. In addition, experience has shown that, in order to cope with the wide operational scenarios, Category A can include many different procedures (ranging from clear runway to elevated heliports and off-shore procedures). Therefore, the definition of the associated performance and the evaluation of the crew workload are essential elements for Category A approval.	Y	Y			Y		

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27/29.141 27/29.143 27/29.177 29.181 27/29.1329	LPV with Steep Approaches	Lack of harmonized guidance. Steep approaches requires criticalities in defining minimum and maximum speeds, rate of descent, cross and tail wind, intercept angle, etc.	AC 27/29 MG-1 was amended at Change 7 to incorporate steep angle low speed evaluation guidance.	Y	Y			Y		
Various	Human External Cargo	Human Machine Interface for cockpit controls	Implementation of load release cockpit controls for HEC installations and pilot HMI evaluation are critical in terms of safety as there is a large variety of implementations not consistently supported by the available guidance material.	Y	Y			Y		
27/29.1301 27/29.1309 27/29.1322	HTAWS	Graphical display of terrain	Graphical display of alerted terrain and obstacle to pilot is the issue. Either as a "pop-up" or alerted terrain presented on existing moving map terrain display.	Y	Y			Y		
No Specific FAA Regulation	Fire Hazard Assessment for Oxygen System Installation - EMS	FAA has MG-6 that addresses EMS, EASA has Generic CRI F-01 Issue 4 which differs from MG-6.	FAA expects compliance with MG-6	Y	Y			Y		
No FAA Regulation	Vibration Health Monitoring	EASA has CS29.1465, FAA does not have a Regulation for this.	FAA expects compliance with MG-15		Y	Y	Y			