

EASA SSD/SEI combined list for Part 27 and 29 Rotorcraft Products

Revision Log:

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| Rev. 0 | dated 22 March 2018 | Initial Issue |
| Rev. 1 | dated 23 April 2018 | Revised to include SSD/SEI items # 06-01 to # 06-09 / # 08-01 to # 08-07 and # 08a-01 to # 08a-02, which were “reserved” in the initial issue. |

Assumptions.

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

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|---------------|-----|-----------------|
| CS 27 Amdt. 4 | vs. | FAR 27 Amdt. 49 |
| CS 29 Amdt. 4 | vs. | FAR 29 Amdt. 56 |

When SSDs do not qualify as SEI, they don't trigger a non-basic classification and compliance findings with the VA Certification Baseline are delegated to the CA.

Notes:

- (1) 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
- (2) 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;
- (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

Clarifications on the published list can be sought at rotorcraft@easa.europa.eu

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
Flight Test and Human Factors											
# 01-01	External loads	Y	N	§ 27.865(c)(6)	External Loads Attaching Means: OEI hovering capability for Human External Cargo (HEC).	Compliance with CS 27.865(c)(6) is required for HEC approvals. FAR 27 does not have the same paragraph. FAA has different operating rules under 133.45 requiring a Transport category aircraft with CAT A certification for Class D external loads.	Y	N	N	N	N
# 01-02	Engine Installation	Y	Y	§ 27/29.1585	Engine restart capability demonstration for single engine helicopters.	It is EASA policy that engine restart procedures included in the RFM are validated in flight.	N	Y	N	N	N
# 01-03	Non-required equipment or capabilities affecting the Primary Field of View (POV)	Y	Y	§ 27/29.1301	The intended function of non-required equipment or capabilities (e.g. LPV capability on VFR rotorcraft) is to be stated in the RFM and compliance demonstration has to be shown accordingly.	EASA 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 has to be shown accordingly. No credit will be given to any of these equipment or capabilities not tested to be shown functioning as expected. For what is concerning the Flight Test and Human Factor discipline, only LPV capability demonstration is retained as SEI.	N	Y	N	N	N
# 01-04	H-V diagram	Y	Y	§ 27.79 and § 29.87	H-V diagram demonstration.	The H-V diagram is a critical area where the rotorcraft limits are approached and therefore a sound judgment of the "normal piloting skill" is required. This item qualifies as SEI only for new single engine helicopters or for changed products, when the H-V diagram is significantly modified.	N	Y	N	N	N
# 01-05	Controllability	Y	Y	§ 27/29.143	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. This is particularly true: <ul style="list-style-type: none"> in high altitude conditions, where the control power is reduced and the engine operating characteristics may become a limiting factor, or with external loads. This item qualifies as SEI only for new helicopter types or for changed products, when the controllability of the helicopter is significantly affected.	N	Y	N	N	N

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								(1)	(2)	(3)	(4)
# 01-06	Category A	Y	Y	Various Subpart B paragraphs	Category A Take Off and Landing Procedures definition.	<p>Non-compliances in defining Category A limitations and procedures may result in unsafe conditions. Although CS and FAR 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).</p> <p>Therefore, the definition of the associated performance and the evaluation of the crew workload are essential elements for Category A approval.</p> <p>This item qualifies as SEI only for new helicopter types or for changed products, when new Category A procedures are introduced in the RFM or are significantly affected.</p>	N	Y	N	N	N
# 01-07	LPV with Steep Approaches	Y	Y	Various	Steep approaches surface criticalities in defining minimum and maximum speeds, rate of descent, cross and tail wind, intercept angle, ...	<p>Steep approaches surface criticalities in terms of definition of a safe flight envelope. In addition, if steep approaches are flown with the autopilot (coupled or uncoupled) the limits of the autopilot performance are usually approached.</p> <p>As of today, harmonization has not been reached on the minimum performance standards applicable to steep angles, low speed approaches.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Generic CRI on Steep Approaches. 	N	Y	N	N	N
# 01-08	Night Vision Imaging System (NVIS)	Y	Y	Various	Full NVIS approval of a helicopter model.	<p>EASA has developed its own policies and procedures that are captured in the Certification Memorandum on NVIS approval. The EASA Certification Memorandum clarifies the differences with respect to the current MG-16.</p> <p>This item qualifies as SEI only for new TCs, new STCs or product major changes aimed at achieving full NVIS certification.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> CM-FT-001 	N	Y	N	N	N
# 01-09	Attitude indication.	Y	Y	§ 27/29.1309	Non harmonized FHA for misleading attitude indication at night VFR.	<p>EASA has different FHA classifications for certain operationally required equipment.</p> <p>Some failure conditions classifications currently included in AC 27/29 MG-21 are not fully harmonized among authorities, in particular for misleading attitude information at night.</p> <p>This item qualifies as SEI only when the applicant proposes a classification of this failure condition (i.e. misleading attitude) not in line with AC 27/29 MG-21 Change 7.</p>	N	Y	N	N	N

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# 01-10	Pilot Visibility in falling / blowing snow for non-turbine rotorcraft	Y	N	§ 27.773	Pilot Visibility in falling / blowing snow for non-turbine rotorcraft.	While not being an issue for a non-turbine rotorcraft from a powerplant perspective, flight in falling / blowing snow conditions can be an issue in terms of pilot visibility and needs to be assessed in flight. An EASA special condition for ensuring pilot visibility has been established and applied since then. The FAA has not issued any equivalent SC addressing this subject. Applicable references for EASA: <ul style="list-style-type: none"> Special Condition 	N	Y	N	N	N
# 01-11	Inlet Barrier Filter (IBF)	Y	Y	§ 27/29.45 and other paragraphs	IBF installation with regard to limitations and performance determination.	IBFs may have a major impact on helicopter performance, being them subjected to environmental contamination. Experience has shown that the certification approach is not yet fully harmonized and advisory material is still insufficient.	N	Y	N	N	N
# 01-12	Human External Cargo	Y	Y	Various	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. EASA position is that compliance is not always straight forward for what is concerning human-machine interface evaluation of the load release mechanism.	N	Y	N	N	N
# 01-13	Human Machine Interface and minimum crew determination	Y	Y	§ 27/29.1523 and other paragraphs	Human Machine Interface and minimum crew determination in case of a cockpit design characterized by high level of integration.	Human Machine Interface and minimum crew determination in case of a cockpit design characterized by high level of integration may be very challenging and is not fully captured by the current rules and guidance material. Past certification and validation activities revealed that differences in operational rules and requirements influence how authorities treat certification and mitigations for crew workload issues. As a matter of fact, EASA has started a rulemaking task to develop a dedicated rule for human factors evaluation of CS 27/29 rotorcraft (similar to 25.1302) and has applied means of compliance Human Factor CRIs to the latest European TC projects. This item qualifies as SEI only for new TCs or product changes significantly affecting cockpit installations.	N	Y	N	N	N
# 01-14	Special Operations	Y	Y	Various	Installations designed for special operations, like agricultural installations, firefighting, power line survey....	Some of these installations showed to be problematic when they had to be validated by EASA as they were developed taking into account the US national operating rules (e.g. FAR 133) and possibly moving the modified aircraft into the Restricted Categories, which do not have any equivalence in Europe.	Y (Part 21)	N	Y	N	N
# 01-15	Open Problem Reports.	Y	Y	MoC to §27/29.1309	Open Problem Reports that result in RFM Limitations or affect emergency procedures as compensating means.	Open Problem Reports that result in <ul style="list-style-type: none"> RFM Limitations, or Emergency dedicated procedures (i.e. specific, unusual), or Extensive change of the standard Emergency procedures as compensating means qualifies as SEI. 	N	Y	N	N	N

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# 01-16	Icing	Y	Y	§ 27/29.1419	Full Icing approval	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. A very limited number of rotorcraft products has been approved for flight in known icing conditions during the past decades and the available advisory material (see AC 29.1419), that was developed many years ago, does not always provide the status of the art of guidance for compliance demonstration.	N	Y	N	N	N
# 01-17	Flight Controls - Handling qualities demonstration for fly-by-wire helicopters	Y	Y	§ 27/29 Subpart B Handling Qualities requirements and Appendix B	Existing standards and guidance are not adequate to address the design of Advanced Flight Controls (AdFC) and require additional guidance to be provided through CRIs.	Fly-by-wire advisory material proposed by FAA in the MG 17 was not fully harmonized and it is currently not endorsed by EASA. Given the importance of the subject for the overall safety level of rotorcraft, the requirements and the related means of compliance need to be agreed with EASA.	N	Y	N	N	N
# 01-18	AFCS	Y	Y	N/A	SAR AFCS modes.	FAA and EASA have both a Special Condition on this subject that is not fully harmonized. Applicable references for EASA: <ul style="list-style-type: none"> Special Condition 	N	Y	N	N	N
# 01-19	AFCS	Y	Y	N/A	Offshore operations	There is no consolidated and harmonized interpretative material providing guidance on how to implement off-shore approaches. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.	N	Y	N	N	N
# 01-20	TCAS II	Y	Y	Various	TCAS II 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 installation, ...) Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. Applicable references for EASA: <ul style="list-style-type: none"> Generic CRI on TCAS II. 	N	Y	N	N	N
# 01-21	Pilot Compartment View	Y	Y	§ 27/29.773	Vision systems with transparent displays (e.g. head up-display, head mounted display, ...)	14 CFR 27.773 was changed at Amdt. 27-48, 3/2017 and 29.773 was changed at Amdt. 29-56 3/2017 to add rule provisions to cover future HMDs. CS 27/29.773 do not have equivalent provisions. Given the importance of the subject for the overall safety level of rotorcraft, the requirements and the related means of compliance need to be agreed with EASA.	Y	Y	Y	N	N

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Structures											
# 03-01	Yawing conditions	Y	Y	§ 27/29.351 (a)	Determination of design load conditions for yaw manoeuvres.	<p>Differences may arise between certificating authorities and applicants in the selection of the design criteria for components (and their supporting structure) that are principally subjected in flight to significant aerodynamic loads (e.g. vertical empennage, fins, cowlings and doors).</p> <p>For these components and their supporting structure, suitable design criteria should be developed by the applicant and agreed with EASA (see AMC 27/29.351(a)).</p> <p>This is a major difference with the current FAA AC 27-1B and 29-2C material that may not necessarily be adequate for EASA.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance needs to be agreed with EASA</p> <p>This item qualifies as SEI for new TCs, derivative models and changes significantly affecting the design loads assumed for certification.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> • AMC 27/29.351. 	N	Y	N	N	N
# 03-02	Control loads	Y	Y	§ 27/29.395 (b)(2)&(3)	§ 27/29.395 is considered only applicable from the pilot controls to the output shaft of the main and tail servo actuators.	<p>Experience has shown that differences may arise between certificating authorities (and applicants) in the selection of the design conditions (nominal and failure conditions, including jamming) for flight control segments located between the servo-actuators and the blades.</p> <p>In lack of detailed guidance and given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with the CA and the VA.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> • Generic CRI on power-operated actuator control system loads 	N	Y	N	N	N
# 03-03	Seat adapter plate	Y	Y	§ 27/29.562 (a)	Additional guidance is needed on seats installed on adapter plates (pallets or plinths) for rotorcraft that include § 27/29.562 in their certification basis.	<p>In lack of detailed guidance, the means of compliance for seats installed on adapter plates (pallets or plinths) for rotorcraft, that include § 27/29.562 in their certification basis, should be agreed with EASA.</p> <p>EASA has developed a Generic CRI on this topic, related to the use of adapter plates or plinths for the fitment of seats to the aircraft and the need to test the adapter plate / plinth as part of the seat test. The objective is to clarify and complement the existing FAA policies (FAA AC 25.562-1B and FAA PS-ANM100-000129).</p> <p>This subject qualifies as SEI until further harmonized policy will bridge the gap between the information contained in the EASA CRI and the FAA Guidance and Policy Statement.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> • Generic CRI on Seat Adapter Plates 	N	Y	N	N	N

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# 03-04	Ditching	Y	Y	§ 27/29.563 § 27/29.801 (e)	The rule prescribes that structural strength for ditching shall meet the requirements of 27/29.563 and 27/29.801 (e). However no guidance indicate to which static load level ditching justification is expected.	Experience has shown that differences may arise between certifying authorities (and applicants) in the selection of Limit vs Ultimate loads conditions used to substantiate rotorcraft structures in case of ditching. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance needs to be agreed with EASA. Applicable references for EASA: <ul style="list-style-type: none">Generic CRI on ditching loads	N	Y	N	N	N
# 03-05	Fatigue and damage tolerance on metallic structure	N	Y	§ 29.571	The showing of compliance with this new fatigue and damage tolerance requirement for metallic structures is a complex task and experience has shown that the interpretation of the applicable guidance is not fully harmonized.	Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. EASA retains verification of compliance demonstration with this requirement for new type certifications or derivative models when compliance with this requirement is adopted for the first time. Recent service experience has shown the need to address new drive-system damaging conditions (e.g spalling) in the flaw tolerance assessment. For this reason, EASA also retains verification of compliance for major changes affecting the flaw tolerance demonstration of drive system.	N	Y	N	N	Y
# 03-06	Composite structures	Y	Y	§ 27/29.573	The showing of compliance with this requirement for composite structures is a complex task and experience has shown that the interpretation of the applicable guidance is not fully harmonized.	Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. EASA retains verification of compliance demonstration with this requirement for new type certifications or derivative models when compliance with this requirement is adopted for the first time. EASA has developed CRI's and published Certification Memoranda to compensate for the lack of guidance on composite applications. It is important to ensure that authorities apply the rule in the same way for initial and subsequent applications. Applicable references for EASA: <ul style="list-style-type: none">CM-S-010 Composite materials - The Safe Design and Use of Monocoque Sandwich StructuresCM-S-005 Bonded Repair Size LimitsCM-S-004 Acceptance of Composite Specifications and Design Values Developed using the NCAMP Process.	N	Y	N	N	Y
# 03-07	Fuel tank crashworthiness - Compliance with external equipment/external loads	Y	Y	§ 27/29.952(a)(4) § 27/29.865	External installations (including but not limited to external loads attachment means certified under 27/29.865) could be part of the surrounding structure and their impacts against § 27/29.952 (a)(4) need to be evaluated .	As of today, harmonization among authorities on this approach has not been reached. Therefore, the means of compliance need to be agreed with EASA. EASA retains verification of compliance demonstration with this requirement for new type certifications or derivative models when compliance with this requirement is adopted for the first time and changes invalidating the certification assumptions for fuel system crashworthiness. A verification of compliance with the fuel system crashworthiness requirements when equipment are installed at the vicinity of the fuel tanks is also required by EASA. Applicable references for EASA: <ul style="list-style-type: none">Generic CRI	N	Y	N	N	N

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# 03-08	Standard fasteners	Y	Y	§ 27/29.601 § 27/29.602 § 27/29.603 § 27/29.605 § 27/29.607	Use of standard fasteners in critical installations.	<p>Experience has shown that standard parts are used in critical installations and may compromise the intended level of safety.</p> <p>Given the importance of the subject for the overall safety level of the rotorcraft, applicant shall consider to minimise the use of standard fasteners in critical installation.</p> <p>EASA has issued a certification memorandum providing guidance on this subject and the means of compliance need to be agreed with the Agency.</p> <p>EASA retains verification of compliance demonstration with these requirements for new type certifications, derivative models and changes invalidating the certification assumptions on use of standard fasteners in critical installations.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> CM-S-003 Standard fasteners 	N	Y	N	N	Y
Hydromechanical Systems											
#04-01	External loads	Y	Y	§ 27/29.865	<p>Significant differences on the acceptable MoC for external loads were introduced in the recently published AC Change 7, which has not been recognized by EASA.</p> <p>In addition, several ADs addressing safety concerns on hoist overload protection were published by EASA for all helicopter types and they were not endorsed by the FAA.</p>	<p>EASA has not recognized AC 27/29.865 Change 7 and has developed AMC guidance, which does not have equivalent acceptable MoC.</p> <p>Additionally, EASA has also issued the CM-HS-004.</p> <p>FAA AC 27-1B / 29-2C Change 7 may not necessarily be adequate for EASA for the design of rotorcraft external loads (e.g. definition of what is catastrophic, position of the attachment of the hoist operator harness, distinction between simple and complex PCDS).</p> <p>Given the importance of the subject for the overall safety level of rotorcraft performing external loads operations, the means of compliance need to be agreed by EASA.</p> <p>Therefore, this item is retained as SEI for major changes affecting 27/29.865.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> EASA ADs: 2013-0077-E, 2013-0275, 2014-0201, 2014-0254, 2015-0069, 2015-0160 and 2015-0226. CM-HS-004 on External Loads AMC 27.865. 	N	Y	N	N	Y
#04-02	Hydraulic systems	Y	Y	§ 27/29.1435(a) § 27/29.1435(b)	§ 27/29.1435 does not specify any minimum design factor for the ultimate pressure (burst pressure).	<p>Given the importance of the subject for the overall safety level of rotorcraft, the ultimate (burst) pressure design factors need to be acceptable to EASA.</p> <p>This subject qualifies as SEI only when the applicant decides not to follow SAE AS 5440A for Design Ultimate Pressure Factor(s) (DUPF) determination. In that case, MoC need to be agreed with the Agency.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Generic CRI 	N	Y	N	N	N

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#04-03	Electrically Actuated Extension / Retraction System	Y	Y	§ 27/29.729	The design of electrically-powered actuators for Landing Gears requires specific guidance that is not available in the current material.	Given the importance of the subject for the overall safety level of rotorcraft, EASA has developed a CRI addressing Electrically Actuated Extension / Retraction System expectations for compliance with the applicable regulations. Means of compliance need to be agreed with EASA. Applicable references for EASA: <ul style="list-style-type: none">Generic CRI	N	Y	N	N	N
#04-04	Electrically-Powered Wheel Brake Assemblies	Y	Y	§ 27/29.731(a) § 27/29.735	The design of an Electrically-Powered Wheel Brake Assembly requires specific guidance that is not available in the current material.	As of today, there is no issued (E)TSO for electric brake approval on rotorcraft. Given the importance of the subject for the overall safety level of rotorcraft, EASA has developed a CRI addressing the minimum performance standards for Electrically Powered Wheel Brake assemblies. Means of compliance need to be agreed with EASA. Applicable references for EASA: <ul style="list-style-type: none">Generic CRI	N	Y	N	N	N
Advanced Flight Controls											
#04a-01	Flight Controls - Control Signal Integrity, MoC	N	Y	§ 29.671, 29.672, 29.674, 29.1301, 29.1309(a)(b)(c)(d), 29.1329, 29.1353(a) and 29.1431	Existing standards and guidance are not adequate to address the design of Advanced Flight Controls (AdFC) and require additional guidance to be provided through IPs or CRIs.	Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. Applicable references for EASA: <ul style="list-style-type: none">Generic CRI	N	Y	N	N	N
#04a-02	Flight Controls - Interaction of Systems and Structure, SC	N	Y	§ 25.302 introduced by SC	Existing standard and guidance are not adequate to address the design of Advanced Flight Controls (AdFC) and require additional requirements through SC.	Given the importance of the subject for the overall safety level of rotorcraft, a Special Condition has already been published. Applicable references for EASA: <ul style="list-style-type: none">Special Condition	N	Y	N	N	N
#04a-03	Flight Controls - Flight Crew Awareness of Mode of Operation Annunciation, SC	N	Y	§ 29.671 § 29.672	Existing standards and guidance are not adequate to address the design of Advanced Flight Controls (AdFC) and require additional requirements through SC.	Given the importance of the subject for the overall safety level of rotorcraft, a Special Condition needs to be developed.	N	Y	N	N	N
#04a-04	Flight Controls - Flight Control and Critical Displays in All Attitudes, SC	N	Y	§ 29.671, 29.672, 29.1301 and 29.1309	Existing standards and guidance are not adequate to address the design of Advanced Flight Controls (AdFC) and require additional requirements through SC.	Given the importance of the subject for the overall safety level of rotorcraft, a Special Condition needs to be developed.	N	Y	N	N	N

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#04a-05	Flight Controls - Control Margin Awareness, SC + MoC	N	Y	§ 29.143 and 29.771(a)	Existing standards and guidance are not adequate to address the design of Advanced Flight Controls (AdFC) and require additional requirements through SC and guidance to be provided through IPs or CRIs.	Given the importance of the subject for the overall safety level of rotorcraft, a Special Condition needs to be developed and the means of compliance need to be agreed with EASA. Applicable references for EASA: • Generic CRI	N	Y	N	N	N
#04a-06	Flight Controls - Flight Envelope Protection, SC	N	Y	§ 29.143 , 29.671, 29.672, 29.779(a), 29.1309, 29.1329	Existing standards and guidance are not adequate to address the design of Advanced Flight Controls (AdFC) and require additional requirements through SC.	Given the importance of the subject for the overall safety level of rotorcraft, a Special Condition needs to be developed.	N	Y	N	N	N
#04a-07	Flight Controls - Formalization of Compliance Demonstration to CS 29.143, 29.671, 29.672, 29.1301, 29.1309 for Flight Control Laws, MoC	N	Y	§ 29.143, 671, 672, 1301, 1309	Existing standards and guidance are not adequate to address the design of Advanced Flight Controls (AdFC) and require additional guidance to be provided through CRIs.	Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. Applicable references for EASA: • Generic CRI	N	Y	N	N	N
#04a-08	Flight Controls - Consideration of Common Mode Failures and Errors in Flight Control Functions, MoC	N	Y	§ 29.601, 671, 672, 1309(b), 1585	Existing standards and guidance are not adequate to address the design of Advanced Flight Controls (AdFC) and require additional guidance to be provided through CRIs.	Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. Applicable references for EASA: • Generic CRI	N	Y	N	N	N
#04a-09	Flight Controls - MG 17 and AdFC Flight Control Policy (PS-ASW-27,29-09)	Y	Y	Various	This guidance was published to provide a policy on AdFC. Full harmonization was not achieved prior to release and publication of this policy and guidance.	EASA has not recognized guidance given by MG-17 and AdFC Policy Statement and therefore the means of compliance need to be agreed with EASA.	N	Y	N	N	N
#04a-10	AFCS	Y	Y	§ 27/29.672, 1309, 1322, 1329	The use of Advanced AFCS functions may need guidance to be provided for compliance with the applicable regulations.	Given the importance of the subject for the overall safety level of rotorcraft, requirements or guidance need to be developed and agreed with EASA. Advanced AFCS Functions typically provide enhanced stabilization or envelope protections, e.g.: • Limit Cueing on Attitude / VNE • LVL (Level Mode) • Low speed protection • Over speed protection • Ground position stabilization in hover • Retains ground position when conditions are met • Heading hold in roll ATT mode	N	Y	N	N	N

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Electrical Systems / HIRF / Lightning /EMC											
# 05 -01	High Intensity Radiated Field (HIRF)	Y	Y	EASA SC HIRF FAA IP SC HIRF § 27/29.1317	Standards for HIRF certification.	<p>Full harmonization between EASA and FAA has not been reached on this subject during the years, i.e.:</p> <ul style="list-style-type: none"> Before 2006: FAA IP SC and EASA SC did not address the same requirements. This qualifies as SEI. Between 2006 and 2016: FAA introduced FAR 27/29.1317, while EASA continued to raise SC without recognizing FAR 27/29.1317 (d). This qualifies as SSD and SEI. After 2016: EASA introduced CS 27/29.1317 without addressing subparagraph (d). FAR 27/29.1317 (d) still qualifies as SSD and SEI. <p>This SEI is only retained for Part 27 Level A systems.</p> <p>Compliance verification with EASA SC or CS 27/29.1317 for Part 27 Level B and C systems and Part 29 (all Levels) is delegated to the FAA.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Special Condition when CS 27/29.1317 is not adopted. 	Y	N	Y	N	N
# 05-02	Electrical Wiring System	Y	Y	§ 27/29.1309, 1353, 1359	Guidance on Electrical Wiring Installation.	<p>EASA relies on TGM 21/7, while there are no dedicated ACs or FAA policies on this subject.</p> <p>This item qualifies as SEI only for new TCs or derivative models.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Generic CRI endorsing TGM 21/7 	N	Y	N	N	N
# 05-03	Solid State Power Contactor (SSPC) - Circuit Protective Devices Accessibility	Y	Y	§ 27/29.1357	Existing guidance on SSPC is not harmonized.	<p>EASA and the FAA have both developed guidance on SSPC. However, the interpretative material is not fully harmonized and design recommendations are not fully shared.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Generic CRI 	N	Y	N	N	N
# 05-04	WLAN	Y	Y	§ 27/29.1301 § 27/29.1309. § 29.1353 § 29.1431	WLAN applications.	<p>EASA IM addresses recommendations specific to WLAN technology, while the FAA AC addresses general recommendations to non-essential Cabin systems.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Generic CRI 	N	Y	N	N	N

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
# 05-05	Electrical Structural Network (ESN)	Y	Y	Various	The Electrical Structural Network provides electrical continuity in case of composite material structure (Earth, bonding, EMC protection...)	EASA has developed guidance on ESN for rotorcraft adapted from large airplane applications, while FAA has no equivalent material for rotorcraft for the time being. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.	N	Y	N	N	N
Avionics											
# 06-01	Autopilot	Y	Y	§ 27/29.1301, § 27/29.1309, § 27/29.1322, § 27/29.1581, § 27/29.1585	Autopilot-TCAS coupling.	There is no harmonized interpretative material providing guidance on how to show compliance. It may differ in the colour of mode depiction and / or aircraft performance in relation to rate of climb vs threat aircraft minimum separation altitude. There is the need to establish acceptable means of compliance for using the Autopilot / Auto Throttles / Flight Director during a TCAS Resolution Advisory maneuver.	N	Y	N	N	N
# 06-02	Voice Control / Input	Y	Y	§ 27/29.1301	Voice Control / Input.	It is necessary to establish guidance as well as concept demonstration. Different European Accents are to be considered in the scope of the demonstration.	N	Y	N	N	N
# 06-03	Voice Control / Output	Y	Y	§ 27/29.1301	The type of information being subject to dynamic voice output (not pre-composed strings / messages) may differ.	New guidance may be necessary to be developed to address which systems –and- why could transmit voice messages, e.g. Checklists, emergency procedures etc. This item does not qualify as SEI for pre-composed strings / messages as aural warnings.	N	Y	N	N	N
# 06-04	Touchscreens.	Y	Y	§ 27/29.771, § 27/29.773, § 27/29.777, § 27/29.1301, § 27/29.1309, § 27/29.1322, § 27/29.1381, § 27/29.1523, § 27/29.1529, § 27/29.1555	Touch Screen Interface and Control Devices in Flight Deck.	Touchscreens are very flexible interfaces that can blend different functions and systems at the interface level. Guidance may be necessary to maintain prioritisation of functions and to address human machine interface issues. This item does not qualify as SEI for COMM/NAV/FMS systems with a screen size which can be operated from a fix reference point. Screen sizes requiring large hand movements potentially create human machine issues. It is why they are retained by EASA for verification, as well as all the other touchscreen applications.	N	Y	N	N	N
# 06-05	EVS (Enhanced Vision Systems)	Y	Y	Various	Enhanced Vision Systems certification.	EASA anticipates that special requirements and guidance might be needed, as well as agreement on the acceptable means of compliance.	N	Y	N	N	N

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								(1)	(2)	(3)	(4)
# 06-06	SVS (Synthetic Vision Systems)	Y	Y	§ 27/29.1301, § 27/29.1303, § 27/29.1309, § 27/29.1321, § 27/29.1322, § 27/29.1329, § 27/29.1331, § 27/29.1333, § 27/29.1335, § 27/29.1431, § 27/29.1501, § 27/29.1524, § 27/29.1529, § 27/29.1581 § 27/29.,1585	Synthetic Vision Systems (SVS) 1) on Head Up Display or 2) on Head Down Display.	Given the importance of the subject for the overall safety level of rotorcraft, the certification requirements and the related means of compliance need to be agreed with EASA. This item qualifies as SEI: <ul style="list-style-type: none"> for Head Down display, only when operational credit is sought, or for Head Up display, in any case. 	N	Y	N	N	N
# 06-07	EASA specific Certification Specifications	Y	Y	CS ACNS and various AMC 20	Compliance with EASA specific standards for operational capabilities.	When an applicant elects to comply with these standards for operational credit, EASA will not retain this as SEI. Compliance verification is delegated to the FAA provided that no deviations / exemptions and equivalences to the standards are granted by the FAA without EASA involvement.	Y	N	N	N	N
# 06-08	Active Lasers	Y	Y	§ 27/29.1301 § 27/29.1309 § 27/29.1529 § 27/29.1581	Active lasers approval is not based on the same regulatory systems.	Given the differences in the regulatory systems, approval for active lasers is retained as SEI. Applicable references in EASA: <ul style="list-style-type: none"> CM-AS-006 on high energy lasers 	N	Y	N	N	N
Powerplant											
# 07-01	Fuel Tank Drop-test	Y	Y	§ 27/29.952	Impact of surrounding structures on fuel tank and use of simulation tool.	Hypotheses for surrounding structures, test condition of external components and use of simulation tool are not harmonized. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.	N	Y	N	N	Y
# 07-02	Fuel Gauging Architecture	Y	Y	§ 27/29.1305	Fuel quantity function and fuel low level function level of independency.	Design concepts with physical dependencies have been accepted provided that compensating features are clearly identified and their robustness adequately demonstrated. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.	N	Y	N	N	Y
# 07-03	Flammable fluid risk in unpressurized areas/non cabin areas	Y	Y	§ 27/29.863 § 27/29.1309	Flammable fluid fire protection for areas of the rotorcraft subject to leakage of any flammable fluid.	EASA has developed Interpretive Material addressing "Flammable Fluid Risk in unpressurized areas" to provide supplementary guidance to the FAA AC and minimize past inconsistencies. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new TCs, derivative models and changes significantly affecting the design assumptions for initial certification.	N	Y	N	N	N

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
# 07-04	Water / Ice in fuel	Y	Y	§ 27/29.951(c)	Water / Ice in fuel.	<p>Interpretation is not harmonized.</p> <p>Acceptable means of compliance require system level testing rather than component level and are reviewed by EASA as part of test plan acceptability.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.</p> <p>This item qualifies as SEI for new TCs, derivative models and changes significantly affecting the initial design (including STC such as installation of auxiliary tanks).</p>	N	Y	N	N	Y
# 07-05	Oil pressure indicator and warning	N	Y	§ 29.1305 (b)(1)	Engine oil pressure warning requirement for CAT A	<p>As no dedicated guidance is available, EASA has developed and published the Certification Memorandum CM-PIFS-004 providing guidance for compliance demonstration.</p> <p>This item qualifies as SEI for new TCs, derivative models and changes significantly affecting the initial design architecture.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> CM-PIFS-004 on Oil Low Pressure Warning 	N	Y	N	N	N
# 07-06	Small Fragment Containment	N	Y	§ 29.903(d)(1)	Clarify what credit can be given to containment demonstrated during engine or APU certification / qualification.	<p>Containment capability at engine level does not cover all cases and minimization activities at helicopter level remain necessary.</p> <p>"Small Fragment Containment" requires additional consideration, and supplementary Interpretive Material has been developed by EASA.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Generic CRI 	N	Y	N	N	N
# 07-07	Unusable fuel	Y	Y	§ 27/29.959	Ground testing capability of simulating the flight testing environment (pressure, venting, vibrations, acceleration / deceleration, ...)	<p>Experience has shown that interpretation of acceptable means of compliance is not harmonized.</p> <p>EASA has developed additional Interpretive Material "Unusable Fuel" which provides guidance when using ground or laboratory testing for compliance demonstration.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.</p>	N	Y	N	N	N

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								(1)	(2)	(3)	(4)
# 07-08	Fuel tank safety	N	Y	§ 29.954 § 29.963(d)	Fuel tank explosion risk.	Accidents involving different categories of products (helicopters and fixed wing aircraft) have prompted concerns, leading EASA to consider that the ignition risk within the fuel system must be systematically assessed. EASA has developed additional interpretative material related to "Fuel Tank Safety". Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new TCs, derivative models, changes significantly affecting the initial design architecture and introducing threats on the overall risk of fuel tank explosion. Applicable references for EASA: <ul style="list-style-type: none">Generic CRI	N	Y	N	N	Y
# 07-09	Fuel Specification	Y	Y	§ 27/29.901(b)(1) § 27/29.1521(d) § 27/29.1557(c) § 27/29.1583(b)(1)	The list of fuel and fuel additive specifications is an airworthiness limitation that needs to be recorded accordingly.	Adverse in-service experience on large aircraft initially prompted the release of Certification Memorandum (CM) No. EASA CM-PIFS-009 on Fuel Specification Changes. In-service occurrences associated with fuel and fuel additives use have been also reported on helicopters. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item is qualified SEI for new fuel types and/or additives approval. Applicable references for EASA: <ul style="list-style-type: none">CM-PIFS-009 on Fuel Specification Changes	N	Y	N	N	Y
# 07-10	APU Mode	N	Y	§ 29.361 § 29.571 § 29.601	Engine performing APU Mode function on ground.	No guidance material is currently available for engine performing APU function on ground. EASA has developed additional Interpretive Material "APU Mode" for use of engine in APU mode. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. Applicable references for EASA: <ul style="list-style-type: none">Generic CRI	N	Y	N	N	N
# 07-11	Interfaces between engine and rotorcraft	Y	Y	§ 27/29.901 § 27/29.1309	Engine Electronic Control system integration	EASA has published the acceptable means of compliance AMC20-1 "Interfaces between engine and rotorcraft" to address the lack of advisory material addressing the interfaces between engine and airframe certifications. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new engine type/model installation or changes affecting the aircraft hosted functions (e.g. changes affecting OEI ratings, changes affecting cockpit indications, inhibition logics, time limited dispatch, etc.). Applicable references for EASA: <ul style="list-style-type: none">AMC 20-1 on Interfaces between engine and rotorcraftGeneric CRI	N	Y	N	N	N

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
# 07-12	Material Fireproofness	Y	Y	§ 27/29.859, § 27/29.861, § 27/29.863, § 27/29.903, § 27/29.1013, § 27/29.1025, § 27/29.1103, § 27/29.1121, § 27/29.1165, § 27/29.1181, § 27/29.1183, § 27/29.1185, § 27/29.1189, § 27/29.1191, § 27/29.1193, § 27/29.1194, § 27/29.1201, § 27/29.1203, § 27/29.1359, § 27/29.1433, § 27/29.1435	Material Fireproofness / Fire Resistance Compliance Demonstration (load levels, fire assumptions, ...)	EASA has developed additional Interpretative Material regarding "Material Fireproofness / Fire Resistance Compliance Demonstration" addressing evaluation of material properties when demonstrating fireproofness / fire resistance for structural parts. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new TCs, derivative models, changes significantly affecting the surrounding structure or part of the designated fire zone. Applicable references for EASA: <ul style="list-style-type: none"> Generic CRI 	N	Y	N	N	N
# 07-13	Inlet Barrier Filter	Y	Y	§ 27/29.901 § 27/29.1301	Certification of IBF installations on rotorcraft.	No guidance is currently available in AC27 and AC29. EASA has developed interpretative material. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new IBF installations, changes significantly affecting the IBF design or surrounding changes which might affect the engine air supply. Applicable references for EASA: <ul style="list-style-type: none"> Generic CRI 	N	Y	N	N	N
# 07-14	Fuel Gauging System Susceptibility	Y	Y	§ 27/29.901 § 27/29.951(c) § 27/29.955(a)(6) § 27/29.959 § 27/29.997 § 27/29.1301 § 27/29.1305(a)(3),(4), (18) § 27/29.1337(b) § 27/29.1309	Fuel Gauging System Susceptibility to water contaminated fuel.	EASA recently became aware of Fuel Quantity Indication issues due to fine water droplet contamination within fuel tanks and inside fuel gauges. Consequently, EASA has produced additional guidance material aimed at establishing the "Fuel Gauging System Susceptibility to Water Contaminated Fuel". Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new TCs, derivative models, changes significantly affecting the fuel system design and which might affect the water presence in the fuel tanks.	N	Y	N	N	Y

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
Snow and Icing											
# 08-01	Turbine Engine induction system icing.	Y	Y	§ 27/29.1093(b)(1)(i)	<p>Performance based requirement to demonstrate that there is no engine operation penalty, if the engine is operated with its installation in:</p> <ul style="list-style-type: none"> Icing conditions as defined in CS 29 <p>The paragraph is to be complied with either when rotorcraft is to be cleared for flying in known icing conditions or inadvertent icing encounter only.</p>	<p>Concerning compliance with 27/29.1093(b)(1)(i), EASA considers the FAA AC as an acceptable means of compliance. However, the level of details provided by AC material is in many parts insufficient to clearly determine compliance methodology.</p> <p>The following items are examples of aspects not sufficiently addressed in the AC and requiring agreement by EASA:</p> <ul style="list-style-type: none"> Critical points analysis of the icing conditions in combination with the engine power. Engine Power requested for testing and ice shedding demonstration. Criteria for steady state determination and test termination in case of "full icing approval" is not established. <p>Screened air intake configurations as passive protection also deserve specific analysis, since experience has shown that they may be ineffective around the freezing point.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Generic CRI addressing the specificity of the screened air intake configurations. Special Condition for Essential APU induction system In case of IBF installation, a Generic CRI (IM/AMC) is systematically raised in order to assess performance under icing conditions. 	N	Y	N	N	N
# 08-02	Turbine Engine induction system under freezing fog.	Y	Y	§ 27/29.1093(b)(2)	<p>Performance based requirement to demonstrate that there is no engine operation penalty, if the engine is operated with its installation in:</p> <ul style="list-style-type: none"> Freezing fog conditions as defined in the regulation text. <p>The paragraph is to be complied with either when rotorcraft is to be cleared for flying in known icing conditions or inadvertent icing encounter only.</p>	<p>Freezing fog conditions as tested according to the rule might not anticipate all possible operating conditions in terms of temperature and exposure time.</p> <p>For such a reason, EASA expects applicant to state in the RFM Limitation Section, the lowest temperature and the max exposure time tested in these conditions.</p> <p>IBF on engine induction systems and Essential APU are also expected to comply with this requirement and the related limitations to be published in the RFM.</p> <p>Unusual operations of the engine on ground, e.g "APU mode", are currently not addressed by the rule, but they are not exempted from this requirement.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Special Condition for Essential APU induction system In case of IBF installation, a Generic CRI (IM/AMC) is systematically raised in order to assess performance under icing conditions. 	N	Y	N	N	N

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
# 08-03	Turbine Engine induction system under snow.	Y	Y	§ 27/29.1093(b)(1)(ii)	<p>Performance based requirement to demonstrate that there is no engine operation penalty, if the engine is operated with its installation</p> <ul style="list-style-type: none"> Under snow conditions. <p>Flight clearance under snow conditions may be optional.</p> <p>RFM shall include specific limitation to prevent operation in snow conditions when not demonstrated.</p>	<p>According to FAA AC material, the approval of helicopter operations under falling and blowing snow requests flight test in the snow environment, whose acceptability is strictly based on visibility criteria (affected by snowfall only), which in turns correlates to a snow concentration target.</p> <p>This is an activity which normally deserves engineering judgement since the criteria are based on subjective parameters.</p> <p>Based on recent experience, EASA would foster and consider in a positive way the proposal from applicant to use more objective means to determine snow concentration during flight test activities.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Special Condition for Essential APU induction system In case of IBF installation, a Generic CRI (IM/AMC) is systematically raised in order to assess performance under snow if such approval is requested. 	N	Y	N	N	N
# 08-04	Icing qualification of external probes for airspeed indicating system Part 27 rotorcraft	Y	N	§ 27 Appendix B (IFR operation) – Section (b) - Miscellaneous requirements § 27.1301 § 27.1309(a)	<p>Need to address minimum icing qualification level for a heated pitot tube.</p> <p>Although Part 27 does not have a requirement similar to 29.1323(f), when operated under IFR, Part 27 rotorcraft have similar obligations through Part 27 Appendix B.</p>	<p>FAA AC 27.1323 states that “..pitot tube qualified to this TSO (i.e. the TSO C16 – Airspeed tube (Heated)) normally allow for a satisfactory aircraft installation”.</p> <p>However, Part 27 is not that clear in establishing when a heated pitot tube is needed, when not flying under IFR.</p> <p>For rotorcraft with IFR / known icing conditions approval, EASA expectation is that the installed Pitot tubes are qualified according to ETSO/TSO C16 (or later release or other similar standards).</p> <p>For other kind of operations (e.g. VFR only, night, snow clearance,...) requiring the installation of heated pitot tubes, the icing qualification could be commensurate to the intended kind of operation.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.</p> <p>This item qualifies as SEI for new TCs, derivative models or changes significantly affecting the external probe icing qualification (e.g. from unheated to heated pitot).</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> If not already documented by the CA, a means of compliance CRI will be raised to clarify the applicable icing qualification level when the applicant proposes deviations from the acceptable standards (e.g. ETSO/TSO C16 or similar). 	N	Y	N	N	N

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
# 08-05	Icing qualification of external probes for airspeed indicating system Part 29 rotorcraft	N	Y	§ 29.1323(f)	Performance based requirement, which prescribes that the indicated speed is not affected by icing. This airworthiness requirement applies to Part 29 rotorcraft whatever is the sought approval (VFR, IFR, flight into know icing conditions).	FAA AC 29.1323 states that “.pitot tube qualified to this TSO (i.e. the TSO C16 – Airspeed tube (Heated)) normally allow for a satisfactory aircraft installation”. EASA considers that, if the pitot tubes are qualified according to ETSO/TSO C16 or later release, pitot heaters are adequately qualified and no further involvement is deemed necessary. Any deviation from the methodology described in the acceptable standard shall warrant EASA involvement. Certifying Authority shall notify EASA about any deviation from ETSO/TSO C16 qualification level and provide the referenced papers (IP, CAI,...) Therefore, this item qualifies as SEI only if current guidance is not followed.	N	Y	N	N	N
# 08-06	Icing qualification of external probes for static pressure systems.	Y	Y	§ 27.1325(b) and § 29.1325(c)	Performance based requirements, which prescribe that the static pressure is not affected by icing. An alternate static pressure source not affected by icing is an alternative to the main pressure port ice protection.	The applicant may comply with these requirements by providing an effective alternate static pressure source unaffected by icing. Otherwise, these requirements impose anti-icing means whatever approval is sought (even for VFR day/night). The verification of the adequacy of static port ice protection is subject to different interpretations. FAA AC 27/29.1325 material permits some flexibility in showing compliance with these requirements even if, in case of heated ports, ETSO/TSO C16 qualification standard (including icing) is recommended. EASA would consider adequate to the rule having a combined pitot-static probe (normally used for Part 29 rotorcraft category) meeting the qualification standards of ETSO/TSO C16 or later release. In such case no further investigation is deemed necessary. FAA AC material also mentions the case of unheated static ports, where alternative to testing might be acceptable. At the same time, it is not clarified when and at which extent these compliance methodologies are acceptable. Considering the lack of detailed guidance, the possibility of different design solutions and given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. Therefore, this item qualifies as SEI for new TCs, derivative models or changes significantly affecting the external probe design.	N	Y	N	N	N

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
# 08-07	Ice Protection	Y	Y	§ 27/29.1419	Performance based requirements to demonstrate that the rotorcraft may safely fly in known icing conditions as identified in Part 29 Appendix C within its flight envelope.	EASA recognises FAA AC as applicable to CS 27/29. However, the guidance material in FAA AC 27/29.1419 is dated and currently under revision. Considering the lack of detailed and updated guidance and given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. Whether the applicant wishes to achieve the so-called "limited icing" approval, being it unique to EASA certification, it shall, of course, deserve adequate and extensive discussion with EASA. Applicable references for EASA: <ul style="list-style-type: none"> Special Condition for "Limited icing" concept approval. 	N	Y	N	N	N
Air Bleed Systems / Oxygen Systems											
# 08a-01	Air bleed duct leakage assessment.	Y	Y	§ 27/29.1301(a)-(d), § 27/29.1309(a), § 27/29.863	EASA requests that the air bleed leakage is detected and mitigation measures are in place in order not to create hazards to the surrounding structure / systems.	It is EASA expectation that the leakage of bleed ducts shall be assessed independently on the failure probability resulting from the design safety assessment. A detection system, which promptly detects leakage and permits to isolate it in order to minimize the hazard to exposed surrounding structure and systems, is deemed an adequate means to make the air bleed system compliant with the listed ancillary requirements. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new TCs, derivative models or changes significantly affecting the air bleed system.	N	Y	N	N	N

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
# 08a-02	Fire hazard assessment for oxygen system installation.	Y	Y	§ 27/29.863 and § 27/29.1309 (No specific oxygen-related requirements in Part 27/29).	Fire hazard assessment for oxygen system installation requires additional guidance not available in the current AC material.	<p>Although FAA AC 27/29 MG 6 is applicable, the way this guidance material addresses the fire risk originating from oxygen system installation is still deemed insufficient by EASA.</p> <p>Stemming from experience logged on large airplanes, EASA has developed a generic CRI tailored to rotorcraft EMS cabin configurations, providing additional guidance.</p> <p>In particular, the generic CRI requests a specific Oxygen Hazard Analysis in order to check the compatibility of the used materials with oxygen itself under normal and failure conditions.</p> <p>Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.</p> <p>This item qualifies as SEI only for major EMS cabin configurations featured with a medical oxygen system or changes significantly affecting the fire hazard assessment (e.g. new pressure regulator ...).</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Generic CRI for oxygen system installed in emergency medical service cabin configuration. Also, a CM on acceptable oxygen cylinders to be installed on board aircraft is about to be published. The CM indicates the acceptable standards for the metallic and composite cylinders to be installed on-board or as portable equipment. 	N	Y	N	N	N
Software and Airborne Electronic Hardware (AEH)											
#10-01	Management of Open Problem Reports	Y	Y	MoC to § 27/29.1309	<p>Open Problem Report management guidance is needed if an applicant or any of their suppliers intends to defer the resolution and correction of AEH or Software problems post the date of certification.</p> <p>This subject qualifies as SEI when insufficient guidance is applied to a project.</p> <p>Note: this SEI addresses only the process aspects of OPR management aspect and does not imply a specific involvement in the review of OPRs for specific systems of the product.</p>	<p>A means of compliance CRI is needed when guidance is insufficient.</p> <p>Note: SEI not applicable for validation of FAA approved products when an equivalent OPR management FAA IP or DO-178C DP#9 has been applied to the project.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> CM-SWCEH-001, and CM-SWCEH-002 section 16. 	N	Y	N	N	N

ID	Subject	Part 27	Part 29	Affected paragraphs	Description	EASA position	SSD	Safety Emphasis Item (SEI)			
								(1)	(2)	(3)	(4)
#10-02	Use of Multicore Processors	Y	Y	MoC to § 27/29.1309	<p>Additional guidance on use of Multi-Core Processors is needed for new or modified airborne systems containing Multicore Processors devices, hosting Software components on different cores.</p> <p>This subject qualifies as SEI when insufficient guidance is applied to a project.</p>	<p>Multi-Core processors include features that may impact the behaviour, and therefore the safety, of a system if not well managed.</p> <p>A means of compliance CRI is needed for new or modified airborne systems containing Multicore Processors devices, hosting Software components on different cores, when guidance is insufficient.</p> <p>Note: SEI is applicable:</p> <ul style="list-style-type: none"> when FAA Generic MCP IP rev 11 (or later) has not been applied or when the type of MCP usage is not covered by the FAA IP (e.g. dynamic allocation). <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> Generic MCP CRI Issue 3.0 or later. 	N	Y	N	N	N
#10-03	Software Guidance	Y	Y	MoC to § 27/29.1309	<p>Additional guidance is needed for the development of new or modified airborne systems / equipment containing Software, when harmonized FAA / EASA guidance has not been applied.</p> <p>This subject qualifies as SEI when insufficient guidance is applied to a project.</p>	<p>A means of compliance CRI is needed for new or modified airborne systems / equipment containing Software, when insufficient Software development assurance guidance has been applied to a project.</p> <p>Note: SEI not applicable:</p> <ul style="list-style-type: none"> when AC 20-115D has been applied, or when DO-178C has been applied, or when DO-178B has been applied with use of Software techniques for which specific guidance has been raised by the CA (MBD, OOT, FM, CF/PDI, Pseudocode) or when DO-178B has been applied without use of specific Software techniques (MBD, OOT, FM, CF/PDI, Pseudocode). <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> the means of compliance CRI will cover, as applicable, guidance extracted from some Software CM-SWCEH-002 sections that are related to the applicable Software techniques. 	N	Y	N	N	N
#10-04	Hardware Guidance for custom devices	Y	Y	MoC to § 27/29.1309	<p>Guidance is needed for the development of new or modified airborne systems / equipment containing custom devices.</p> <p>This subject qualifies as SEI when insufficient guidance is applied to a project.</p>	<p>Without following a structured development process, it cannot be guaranteed that the system / equipment will perform as intended with an acceptable level of confidence.</p> <p>A means of compliance CRI is needed for new or modified airborne systems / equipment containing custom devices (PLD, FPGA, ASIC), when no AEH development assurance guidance has been applied to a project.</p> <p>Note: SEI not applicable when DO-254/ED-80 associated with the FAA Order 8110.105 has been applied.</p> <p>Applicable references for EASA:</p> <ul style="list-style-type: none"> CM-SWCEH-001 section 8 	N	Y	N	N	N

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								(1)	(2)	(3)	(4)
#10-05	Use of COTS IPs	Y	Y	MoC to § 27/29.1309	The use of COTS IPs requires specific guidance that is not available in current material.	FAA order 8110.105 and EASA CM-SWCEH-001 do not cover COTS IP with adequate guidance, considering the nowadays complexity and usage of COTS IPs in projects. Given the impact of use of COTS IP on the overall safety level of an aircraft, a means of compliance CRI is needed for new or modified airborne systems / equipment using COTS IP in custom devices. Note: SEI only applicable for DAL A, B, C hardware.	N	Y	N	N	N
#10-06	Use of complex COTS devices	Y	Y	MoC to § 27/29.1309	Development assurance is needed for the usage of complex COTS devices.	Given the impact of use of COTS devices on the overall safety level of an aircraft, a means of compliance CRI is needed for new or modified airborne systems / equipment using COTS in custom devices. Note: <ul style="list-style-type: none"> SEI only applies for complex COTS SEI not applicable for COTS processor devices when FAA IP on COTS processors has been raised. Applicable references for EASA: <ul style="list-style-type: none"> COTS guidance is available in CM-SWCEH-001 section 9. However, a MoC CRI would be raised with new objective oriented wording. 	N	Y	N	N	N
#10-07	Artificial Intelligence and Machine Learning	Y	Y	MoC to § 27/29.1309	The use of Artificial Intelligence / Machine Learning requires specific guidance that is not available in current material.	The use of Machine Learning creates certification challenges and Development Assurance considerations. These types of systems may not be fully specified or even be non-deterministic, and thus, may not be able to satisfy all development assurance process objectives. Traditional Development Assurance methodologies are not adapted to the challenges raised by the verification of adaptive / intelligent systems and by the learning aspects of this new technology. To date, guidance does not exist.	N	Y	N	N	N
#10-08	MBD for Hardware Development	Y	Y	MoC to § 27/29.1309	The use of Model Based Development (MBD) within the development process of custom devices requires specific guidance that is not available in current material.	MBD for hardware is a new development technique with limited experience in the Hardware industry. The requirements capture and the development of the model, associated with the usage of tools to generate detailed design, have a potential impact on the overall safety of the aircraft. To date, guidance does not exist.	N	Y	N	N	N

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								(1)	(2)	(3)	(4)
Cabin Safety and Cabin Crew											
#11-01	Cargo / baggage compartment fire protection.	N	Y	§ 29.855(a)(2),(c) and (d)	The intent of 29.855 (a)(2), (c) and (d) is open to several interpretations. Available guidance is insufficient to address all of them.	Concepts for accessible compartments, e.g. the interpretation of "accessible" and "easily accessible", the bounds of acceptability for crew to directly detect smoke at their station vs the need to keep smoke away from occupants, and the substantiation of RFM procedures intended to achieve "... contain compartment fires until a landing and safe evacuation can be made" have led to extensive discussions with applicants. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.	N	Y	N	N	N
#11-02	Helicopter resting on its side	N	Y	§ 29.807 (c)	The rule gives the possibility to claim that rollover is "extremely remote". However, no guidance is given for substantiating such a claim.	Considering the lack of guidance and given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA should the "extremely remote" route be chosen.	N	Y	N	N	N
Development Assurance and Safety Assessment											
#12-01	Development Assurance Process based on Eurocae ED-79A / SAE ARP4754A objectives	N	Y	§ 29.1309 (a),(b) and (d)	Legacy methods of demonstrating compliance to EASA CS 29.1309 using development assurance techniques at the software and airborne electronic hardware levels do not adequately support the complexity of system integration, nor do they adequately address potential errors in the development of requirements for standalone systems that may incorporate software and complex electronic hardware. For this reason, additional methods to reduce and mitigate requirement errors in the aircraft / system development process in line with the objectives of Eurocae ED-79A / SAE ARP4754A, "Guidelines for Development of Civil Aircraft and Systems" have been developed.	Due to the complexity of the new guidelines, experience has shown that differences may arise between certificating authorities (and applicants) in the interpretation and implementation of Eurocae ED-79A / SAE ARP4754A, possibly resulting in non-consistent approaches when assessing the applicant's development assurance processes. This may have an important impact on the whole product safety and on critical systems development. EASA retains verification of compliance demonstration with this requirement for new type certifications, derivative models or major significant changes, when compliance with CS 29.1309 Amdt. 4 or above is adopted for the first time; the scope of EASA investigation will be limited to systems developed using Eurocae ED-79A / SAE ARP4754A in support to 29.1309 compliance demonstration. A CRI IM may be needed to define the scope of application of development assurance activities in line with guidelines contained in Eurocae ED-79A / SAE ARP4754A, as a means of compliance with CS-29.1309.	N	Y	N	N	N
#12-02	Aircraft and System Safety Assessment - Safety Objectives	Y	N	§ 27.1309 (a),(b) and (c)	Safety Continuum Policy Statement PS-ASW-27-15 "Part 27 Normal Category Rotorcraft Systems and Equipment". This Policy Statement lays out the regulatory basis for the installation and approval of systems and equipment on normal category rotorcraft and defines classes for rotorcraft.	This Policy differs from the Advisory Circular (AC) 27-1B recognised by EASA to an extent that those differences impact the level of safety. EASA has not recognized this Policy Statement and does not have equivalent policies or guidance in place granting the same alleviations.	N	Y	N	N	N

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#12-03	Aircraft and System Safety Assessment - Safety Objectives	Y	Y	§ 27.1309 (a),(b) and (c) § 29.1309 (a),(b) and (d)	Policy Statement PS-ASW-27,29-10 Concerning Non-Required Safety Enhancing Equipment (NORSEE) in Rotorcraft This policy provides certification guidance for applications to install Non-required safety enhancing equipment into rotorcraft.	EASA has not recognized this Policy Statement and does not have equivalent policies or guidance in place granting the same alleviations.	N	Y	N	N	N
#12-04	Aircraft and System Safety Assessment - Safety Objectives	Y	Y	§ 27.1309 (a),(b) and (c) § 29.1309 (a),(b) and (d)	Policy Statement PS-AIR-21.8-1602 Concerning Non-Required Safety Enhancing Equipment (NORSEE) in Rotorcraft This policy provides certification guidance for applications to install Non-required safety enhancing equipment into rotorcraft.	EASA has not recognized this Policy Statement and does not have equivalent policies or guidance in place granting the same alleviations.	N	Y	N	N	N
Drive System											
#13-01	Bearing assessment and qualification	N	Y	§ 29.917(b), § 29.927(a) , § 29.602	Definition of some specific aspects of gearbox bearing design, which are expected to be assessed during the certification process and are not currently adequately covered by AC 29.571 and 29.917.	Current AC does not adequately address gearbox internal bearing certification. Additional Guidance Material has been developed by EASA. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new gearbox design and gearbox bearing changes, for which the failure has been classified Catastrophic.	N	Y	N	N	Y
#13-02	Representativeness of endurance tests	Y	Y	§ 27/29.923 and § 27/29.927	Rotor drive system and control mechanism test. To cover intended uses of the rotor drive system not addressed by the current requirements and guidance material.	Current CSs / ACs do not address all intended uses and their potential effects on rotor drive system and rotating controls (e.g. TOP duration beyond 5 minutes, variable NR, operation in APU mode, etc). A Special condition has been developed and published by EASA. Applicable references for EASA: <ul style="list-style-type: none">Special Condition	N	Y	N	N	N
#13-03	Performance of monitoring means	Y	Y	§ 29.917, § 27/29.1337	The intent is to address the performance and reliability of monitoring means used as compensating provisions in the design assessment, example being Chip detectors.	There is no guidance material addressing performance and efficiency of monitoring means in drive system. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new gearbox design and gearbox monitoring device changes, which could degrade the efficiency and performance of the monitoring system.	N	Y	N	N	Y

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								(1)	(2)	(3)	(4)
#13-04	Design assessment	N	Y	§ 29.547(b) and § 29.917(b)	This requirement requires to identify all compensating provisions considered necessary to minimise the likelihood of failures that can prevent continued safe flight and safe landing.	EASA has developed additional interpretative material clarifying the use of VHM system within a design assessment. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new TCs.	N	Y	N	N	N
#13-05	Loss of Lubrication	Y	Y	§ 27/29.901, § 27/29.917, § 27/29.927(c), § 27/29.1309 (b) (c) (d), § 27/29.1521	Special Condition addressing loss of lubrication requirements.	EASA has developed and published a Special Condition addressing loss of lubrication requirements in order to ensure that the design assessment required by 29.917(b) includes the lubrication system as part of the rotor drive system. The Special Condition also identifies testing necessary to establish confidence in continued operation following loss of oil for a period of at least 30 minutes. This item qualifies as SEI for new gearbox design and gearbox changes, which might affect the loss of lubrication capabilities. Applicable references for EASA: <ul style="list-style-type: none"> Special Condition NPA-2017-07 	N	Y	N	N	Y
#13-06	TBOs.	Y	Y	§ 27/29.571, § 27/29.602, § 27/29.901, § 27/29.917(b), § 27/29.923 (b), § 27/29.1529	Provide guidance for development of Time Between Overhaul (TBO) periods for rotorcraft gearboxes.	Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new gearbox design and gearbox changes which significantly affect gearbox reliability. Applicable references for EASA: <ul style="list-style-type: none"> CM-RTS-002 on Gearbox TBO development. 	N	Y	N	N	N
#13-07	Processes & Continued airworthiness	Y	Y	§ 27/29.602	Post Certification actions to verify the continued integrity of safety critical parts.	EASA has developed a Certification Memorandum detailing the need for post certification actions to verify the continued integrity of Critical Parts. These actions should ensure that critical parts are controlled throughout their service life in order to maintain the critical characteristics on which certification is based. In addition, it should be assessed the effectiveness of any associated design, maintenance and monitoring provisions, which either help to ensure the continued integrity or provide advanced indications of impending failures of critical parts. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA. This item qualifies as SEI for new TCs, derivative models and STCs affecting critical parts (including PMA). Applicable references for EASA: <ul style="list-style-type: none"> CM-S-007 on Post Certification actions. 	N	Y	N	Y	Y

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								(1)	(2)	(3)	(4)
#13-08	Vehicle Health Monitoring (VHM) System	N	Y	§ 29.1465	EASA requirement providing means for certifying VHM system	This item qualifies as SEI for new TCs or when an applicant elects to comply with CS29.1465 for VHM system.	Y	N	Y	N	N
Miscellaneous											
#14-01	Emergency flotation system	Y	Y	MG 10	The choice of appropriate means of compliance with MG10 is prone to different interpretations.	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. Given the importance of the subject for the overall safety level of rotorcraft, the means of compliance need to be agreed with EASA.	N	Y	N	N	Y

Acronyms:

AC	Advisory Circular	MCP	MultiCore Processor
ACNS	Airborne Communications, Navigation and Surveillance	MG	Miscellaneous Guidance
AD	Airworthiness Directive	MoC	Means of Compliance
AdFC	Advanced Flight Controls	N/A	Not Applicable
AEH	Airborne Electronic Hardware	NAV	Navigation
AFCS	Automatic Flight Control System	NORSEE	Non-Required Safety Enhancing Equipment
AMC	Acceptable Means of Compliance	NPA	Notice of Proposed Amendment
APU	Auxiliary Power Unit	NVIS	Night Vision Imaging System
ATT	Attitude (mode)	OOT	Object Oriented Techniques
CA	Certificating Authority	OPR	Open Problem Reports
CM	Certification Memorandum	PCDS	Personnel Carrying Device Systems
CF/PDI	Configuration Files / Parameter Data Item	PMA	Parts Manufacturer Approval
COMM	Communications	POV	Primary Field of View
COTS	Commercial Off-The-Shelf	PS	Policy Statement
CRI	Certification Review Item	RA	Resolution Advisory
CS	Certification Specifications	RFM	Rotorcraft Flight Manual
DAL	Development Assurance Level	SAR	Search And Rescue
DUPF	Design Ultimate Pressure Factor(s)	SC	Special Condition
EMC	Electromagnetic Compatibility	SEI	Safety Emphasis Item
EMS	Emergency Medical Service	SSD	Significant Standard Difference
ESN	Electrical Structural Network	SSPC	Solid State Power Contactor
ETSO	European Technical Standard Order	STC	Supplemental Type Certificate
EVS	Enhanced Vision System	SVS	Synthetic Vision Systems
FAR	Federal Aviation Regulations	TBO	Time Between Overhaul
FHA	Functional Hazard Assessment	TCAS	Traffic Collision Avoidance System
FM	Formal Methods	TC	Type Certificate
FMS	Flight Management System	TOP	Take Off Power
FPGA	Field Programmable Gate Array	TSO	Technical Standard Order
HEC	Human External Cargo	VA	Validating Authority
HIRF	High Intensity Radiated Field	VFR	Visual Flight Rules
HMD	Head Mounted Display	VHM	Vehicle Health Monitoring
HMI	Human Interface Machine	VNE	Velocity to Never Exceed
H/V	Height / Velocity	WLAN	Wireless Local Area Network
IBF	Inlet Barrier Filter		
IFR	Instrument Flight Rules		
IM	Interpretative Material		
IP	Issue Paper		
LPV	Localizer Performance with Vertical guidance		
LVL	Level (mode)		
MBD	Model Based Development		