

# EASA Large Aeroplanes Safety Emphasis Items list

## Revision 7

### Revision Log:

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| Revision 0 | Dated 22 <sup>nd</sup> of March 2018     | Initial Issue  |
| Revision 1 | Dated 4 <sup>th</sup> of July 2018       | Items Removed: <ul style="list-style-type: none"> <li>- Proof of strength (significant changes)</li> <li>- Composite structure (significant changes)</li> <li>- Management of Open Problem Reports</li> </ul>  |
| Revision 2 | Dated 21 <sup>st</sup> of December 2018  | Items modified: <ul style="list-style-type: none"> <li>- Runway Overrun Protection System (ROPS) and Runway Alerting and Awareness System (RAAS)</li> <li>- ADS-B Out</li> </ul>   |
| Revision 3 | Dated 20 <sup>th</sup> of September 2019 | General modification of the list with the following objectives: <ul style="list-style-type: none"> <li>- To modify the descriptions in order to make the SEIs as specific as possible</li> <li>- To remove SEIs redundant with other non-Basic criteria</li> <li>- SEI for Air Medical Services added</li> </ul>   |
| Revision 4 | Dated 5 <sup>th</sup> of November 2019   | Correction of Typos.   |
| Revision 5 | Dated 20 <sup>th</sup> of September 2021 | Items modified: <ul style="list-style-type: none"> <li>- Panel 6 Security Protection of Aircraft System and Networks SEI updated</li> <li>- Panel 6 Flight Recorders and Data Link Recorders SEI updated</li> <li>- Panel 6 LPV SEIs updated</li> <li>- Panel 8 Air Intake de-icing and Freezing Fog SEI title changed to Powerplant Icing and APU Icing</li> <li>- Panel 8 requirement for Wing surface Contamination corrected</li> <li>- Panel 12 SEI title for system safety assessment changed to certification maintenance requirements</li> <li>- Panel 12 SEI for development assurance moved to panel 10</li> </ul> New SEIs: <ul style="list-style-type: none"> <li>- Panel 4 672 for Stability Augmentation and Automatic Power-Operated Systems</li> <li>- Panel 4 Fuselage Doors SEIs added</li> <li>- Panel 12 Specific risk considerations for significant latent failures</li> </ul> SEIs removed: <ul style="list-style-type: none"> <li>- Panel 8 Final take off ice shapes in App. C removed</li> </ul> |
| Revision 6 | Dated 21 <sup>st</sup> of June 2024      | Items modified: <ul style="list-style-type: none"> <li>- Panel 4 SEI for Operation Tests Applicability to High Lift System: Modified to reference CWI FAA-005</li> <li>- Panel 7 SEI for ETOPS: New wording introduced and divided between part 1 and part 2</li> </ul>  |
| Revision 7 | Dated 15 of December 2025                | Items modified: <ul style="list-style-type: none"> <li>- Panel 10 SEIs Use of COTS IPs and Use of complex COTS devices removed.</li> <li>- Panel 10 SEI Use of Multicore Processors added.</li> <li>- Panel 10 all other Panel 10 SEIs updated.</li> <li>- Panel 12 SEI for System Safety Requirement and related Guidance added.</li> </ul>   |

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|  | - Panel 12 SEI for Runway Excursion Hazard Classification added. |
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This includes the EASA Large Transport Aeroplanes Safety Emphasis Items applicable to FAA Projects to be validated by EASA under the Technical Implementation Procedures (TIP) Revision 7 for airworthiness and environmental certification.

This list will be further updated to take into the account the feedback of both certification and validation projects, technological developments, in-service experience, and to correct any errors, omissions and mistakes.

## SEI Part 1

Projects for which the following SEIs are impacted will be classified as non-Basic (ref. TIP paragraph 3.5.3.2(b)(1)).

| Subject  | Standard or AMC                      | Description  | CRI Category |
|--|--------------------------------------|--|--------------|
| <b><u>Panel 1 Flight</u></b>   |                                      |  |              |
| <b>Reverse Thrust Credit when Operating on Contaminated Runways</b>    | 25.109(f)                            | Credit may be sought for all-engines operating reverse thrust for accelerate-stop and landing distances on contaminated runways. CS 25 contains provision for reverse thrust credit, provided certain criteria are satisfied. You may need additional interpretative material clarifying the EASA policy for reverse thrust credit. AMC guidelines has deeper water depth compared with FAA AC.  | MoC/IM       |
| <b>Landing in Abnormal Configurations</b>                              | 25.125, 25.1309, 25.1585(a), 25.1587 | Interpretative material may be needed to provide guidance with respect to the scheduling of data for landing in abnormal configurations or following the loss of normal services.  | MoC/IM       |
| <b>Go-Around Performance</b>   | 25.101(g), 25.101(h), 25.121(d)      | CS 25.101(g) requires that the procedures for the execution of missed approaches associated with the conditions prescribed in CS 25.121(d) must be established. Whilst an aircraft may be able to demonstrate the required climb gradient capability associated with the conditions prescribed in CS 25.121(d), it may not be able to achieve it quickly enough or avoid striking the ground particularly when operating using decision heights below 200ft. Interpretative material giving compliance methods to ensure that any proposed go-around procedure remains safe might be required. | MoC/IM       |
| <b>Landing Distances on Wet Porous Friction Course/Grooved Runways</b> | 25.125, 25.1587                      | An Applicant may wish to schedule landing distances to include consideration of a wet porous friction course (PFC) and/or grooved runway in addition to a conventional smooth surface. Porous friction course and grooved runway surfaces are designed to provide, when wet, a higher friction coefficient than conventional runways. CS 25.109 allows reduced Accelerate-Stop Distances when operating on wet PFC/Grooved runways. In principle, performance credit may also be granted when landing on wet PFC/Grooved runways and in this regard interpretative material may be required.   | MoC/IM       |
| <b>Narrow Runway Operations</b>  | 25.101(f), 25.143(a), 25.149(e)      | Applicant may seek to demonstrate the compatibility of aircraft operation on runway widths narrower than those recommended by ICAO Annex 14 within the frame of the certification exercise. Interpretative material to support such an exercise with EASA may be needed.   | MoC/IM       |

| Subject  | Standard or AMC                            | Description   | CRI Category |
|--|--|---|--------------|
| <b>Reduced and Derated Take-off thrust (Power) Procedures</b>                                  | AMC 25-13                                  | CS 25 AMC 25-13 entitled “Reduced And Derated Take-Off Thrust (Power) Procedures” provides acceptable means of compliance (AMC) for the certification and use of reduced thrust (power) for take-off and derated take-off thrust (power) on turbine powered transport category aeroplanes. Additional interpretative material may be needed if an applicant wishes to pursue the use of reduced thrust settings below the 75% of MTO thrust available.  | MoC/IM       |
| <b>Autoland Distances</b>  | CS AWO 131(c),                             | To establish the means of compliance with the autoland structural requirements (sink rate, bank angle and lateral velocity) of CS-AWO 131(c).   | MoC/IM       |
|  | CS AWO 142                                 | CS-AWO 142 entitled “Landing distance” states that the landing distance required must be established and scheduled in the flight manual if it exceeds the distance scheduled for manual landing. You may need interpretative material to provide a means of determining the autoland distances.   | MoC/IM       |
| <b>Runway Overrun Protection System (ROPS) and Runway Alerting and Awareness System (RAAS)</b> | 25.125, 25.1301, 25.1302, 25.1309, 25.1322 | Performance aspects of runway overrun prevention system: The ROPS, ROAAS, RAAS, SMS and similar systems aims at protecting the aircraft against a runway-end overrun.<br>The EASA SEI is considered impacted by new RAAS projects and any change of the RAAS validated projects Master Data List that affects:<br>- Control & Indication (Human Machine Interface in the cockpit)<br>- Interference Analysis<br>- AFM supplement (it is considered a basic change to the validated STC when creating a new AFMS document for a new Reloadable Customer Database so long as the RCD settings are within EASA-approved ranges per the RCD Approved Settings STC Document)<br>For any non-basic change presented to EASA, the applicant will be required to confirm whether or not the CRI compliance agreed per initial approval is impacted. | MoC/IM       |
| <b>Human Factors</b>   | 25.1302                                    | Some significant differences are observed in the way demonstration to CS/FAR 25.1302 is processed. Most of the time a CRI and/or a CAI need to be issued.<br>This SEI is only applicable for new TCs, derivatives and significant changes. For other changes this SEI will not be applicable as far as the plan for compliance with 1302 accepted by EASA in the initial project is applied.  | MoC/IM       |
| <b>Touch Screen Interface and Control Device in Flight Deck</b>                                | 25.1301, 25.1302, 25.1309,                 | A CRI may be needed to determine an acceptable means of compliance for installing touch screens in the flight deck in lieu of physical controls (e.g., knobs, buttons, and levers). The CRI would address the effect of touch screen controls on pilot workload, the demand for pilot attention, and the potential for crew error or inadvertent control inputs.  | MoC/IM       |
| <b><u>Panel 3 structures</u></b>   |  |   |              |
| <b>Interaction of Systems and Structures</b>   | 25.302, 25.629(b), 25.1329(g), Appendix K  | To evaluate the interaction of systems and structures for aircraft equipped with systems (such as electronic/automatic flight control systems, autopilots, stability augmentation systems, load alleviation systems, flutter control systems, and fuel management systems) that affect structural performance, either directly or as a result of a failure or malfunction.  | MoC/IM       |

| Subject   | Standard or AMC        | Description  | CRI Category |
|---|------------------------|--|--------------|
| <b>Unusual landing operations</b>                                 | 25.235 / Appendix Q    | Steep approach operations can lead to higher (static and dynamic) loads, for example due to higher descent velocities/load factors and/or re-definition of the landing configuration. In lieu of a more rational investigation, EASA applies flight test data measured at London City airport, which may be different from what the FAA is accepting. For operation on unpaved runways, CRIs have been raised in the past, but these have not been harmonized with the FAA.  | MoC/IM       |
| <b>Fatigue &amp; damage tolerance (Significant Changes)</b>       | 25.571, 25.1529        | The showing of compliance with fatigue and damage tolerance requirements is a complex task, with many issues to be considered, and with various possible compliance approaches, in particular for new TC's, amended TC's (derivative aircraft / model) or significant STC's (such as passenger to freighter conversions). Given the importance of the subject for the overall safety level of the aircraft, the means of compliance needs to be understood by the Agency. (Note: under discussion in the ARAC MCSHWG).   | MoC/IM       |
| <b>New, novel or unusual materials or manufacturing processes</b> | 25.603, 25.605, 25.613 | For relatively new, novel or unusual materials and manufacturing process, such as additive manufacturing, welding (thermoplastic composites, laser beam, friction stir welding), the use of ceramic materials or magnesium alloys, where limited experience has been gathered so far, it needs to be understood how the applicant is complying with the applicable requirements. Note: completely new, novel or unusual materials and processes would automatically lead to non-basic classification.  | MoC/IM       |
| <b>Aeroelastic Stability Requirements</b>                         | 25.629                 | To establish the means of compliance with aeroelastic stability requirements for (i) aeroplanes equipped with feedback control systems that can affect the aeroelastic stability of the aeroplane, (ii) definition of failure conditions to be considered and (iii) addressing Limit Cycle Oscillation (LCO) and free-play.  | MoC/IM       |
| <b>Ditching structural condition</b>                              | 25.563, 25.801         | For planned ditching, the conditions at initial water impact are not fully defined in the subject requirements, and this has led to different interpretations by applicants in the past. EASA has developed a Generic CRI on this subject, which is not available in the FAA system.   | MoC/IM       |
| <b>Seat adapter plates</b>  | 25.561, 25.562         | When the seat tracks/rails installed on the aircraft are not compatible with the desired seat layout, applicants often install adapter plates between the seat and airframe structure. It needs to be ensured that this adapter plate installation does not degrade the level of safety compared to the original (rail/track mounted) installation. EASA applies a Generic CRI on this subject, which is different than the current FAA policy.  | MoC/IM       |
| <b>Decompression</b>  | 25.365(e)(f)(g)        | Any structure, component or part, inside or outside a pressurised compartment, the failure of which could interfere with continued safe flight and landing, must be designed to withstand the effects of a sudden release of pressure through an opening in any compartment at any operating altitude.<br>This SEI only is applicable for compliance with decompression requirements for the following two cases: loss of windshields and small compartments, both of which are generally more demanding than the corresponding FAA policies and interpretations. For each of these specific topics EASA has developed Generic CRIs. | MoC/IM       |
| <b>Failure of structural elements in systems</b>                  | 25.671(c)(1), 25.1309  | To provide for acceptable means of compliance for single failure of structural elements in systems critical according to 25.671, 25.783 or 25.1309.<br>Single mechanical (structural) failures of components within systems need to be considered. FAA PS-ANM-25-12 contains guidance on this subject, but this is not fully harmonized with EASA. Also, the PS does not address all related   | MoC/IM       |

| Subject  | Standard or AMC   | Description   | CRI Category |
|--|---|---|--------------|
|  |   | compliance issues (for example, definition of a single failure, and the required residual load carrying capability), and therefore the means of compliance needs to be understood by the EASA.  |              |
| <b>Rudder control reversal conditions</b>  | 25.351, 25.671(a)   | To provide for structural requirements addressing multiple rudder inputs by the pilot(s).<br>The FCHWG developed some recommendations to address the risk of multiple rudder inputs. Based on this material EASA has developed a Generic CRI included in CS-25 Amdt 22. The corresponding FAA IP is currently less demanding than the EASA CRI.   | SC           |
| <b><u>Panel 4 Hydromechanics</u></b>   |   |   |              |
| <b>Side Stick Motion and Effect of Cockpit Controls and Pilot Forces for Side Stick Controls</b> | 25.397(d), 25.671, 25.672, 25.685, 25.771, 25.777, 25.779, 25.1301, 25.1309, 25.1322, 25.1523 | The introduction of side stick controllers notably associated with electronic flight control systems has required the consistent application of additional requirements to CS 25. You may need a special condition to accommodate such features. To provide limit pilot forces and torques when a side stick controller is used on the flight deck. This may be based on the relevant regulatory material adopted in CS-25 Amdt. 13.<br>For active Side Stick a specific CRI might be needed to address the associated risks.   | SC           |
| <b>Electronic Flight Control Systems</b>   | 25.173, 25.175, 25.177  | A special condition & interpretative material might be needed to address electronic flight control systems which provide neutral stability in the directional, lateral & longitudinal axes. Additional mitigation relating to low energy awareness may also need to be considered.  | SC&IM        |
|  | 25.143, 25.333  | CS 25.143 requirements assume that a conventional non fly-by-wire aeroplane can generate sufficient aerodynamic lift to provide sufficient manoeuvrability with regards to the normal load factor envelope defined by CS 25.333. This capability ensures adequate manoeuvrability to effect sudden changes to the flight path which may be required to avoid obstacles, terrain or the capture of level-off altitudes following climb or descent. For structural or other reasons certain electronic flight control system designs embody a normal load factor limiting system intended to restrict the achievable load factor envelope within that which would have been available taking full credit for the aerodynamic performance of the aeroplane. You may need an additional special condition to ensure that a sufficient manoeuvre capability remains. | SC           |
|  | 25.255(a)   | A CRI might be needed for Out-of-Trim Characteristics, Design Manoeuvre Requirements for Electronic Flight Control Systems Electronic Flight Control Systems (EFCS) / Fly-By-Wire.  | MoC/IM       |
|  | 25.143, 25.671(a), 25.1301  | EASA may issue a generic CRI on Formalization of Compliance Demonstration for EFCTL.<br>On fly-by-wire aeroplanes the flight controls are implemented according to complex control laws and logics. The handling qualities certification tests usually performed on conventional aircraft to demonstrate compliance with CS 25 SUBPART B – FLIGHT are not considered sufficient to cover the flight control laws behaviour in all foreseeable situations that may be encountered in service.<br>To standardize handling qualities tests, the EASA believes that means of compliance with CS 25.143, 25.671, 25.1301 and 25.1309 addressing flight control law characteristics need to be explicitly proposed and formalized within certification documents to ensure and record adequate coverage and testing of control laws, logics and characteristics.      | SC/IM        |

| Subject   | Standard or AMC                      | Description   | CRI Category |
|---|--------------------------------------|---|--------------|
|   |                                      | Consequently, you may need interpretative material requested to improve the level of formalization of the compliance demonstrations.  |              |
|   | 25.671(a)                            | EASA may issue a generic CRI to address continued functionality of flight control systems in conditions of unusual attitudes.<br>Special Condition results from the ARAC FCHWG recommendation (2002) addressing specific Flight Control System features.  | SC           |
|   | 25.671(c), 25.1309                   | EASA Generic CRI provides specific guidance how to consider common mode failures in electronic flight controls.<br>There is no similar FAA Issue Paper.<br>This is assessed for TCs and new derivatives and major changes and STCs including deviations from what is approved in the initial certification.   | MoC/IM       |
|   | 25.671(c), 672, 677, 697, 1301, 1309 | EASA Generic CRI on Control Signal Integrity.<br>FAA has a similar Issue Paper but not equivalent in content.   | MoC/IM       |
|   | 25.671(e)(f)                         | EASA may issue a generic CRI to address control surface position awareness and multiple modes of operations   | SC           |
|   | 25.672                               | Stability augmentation, automatic or power-operated systems<br>CS 25.672 applies to all stability augmentation, power-operated and/or automatic systems necessary to show compliance with the flight characteristics requirements of CS-25 (i.e. Subpart B).<br>An EASA CRI may be needed to record and agree the functions to which CS 25.672 applies.   | MoC          |
| <b>Flight Control Jams</b>                                | 25.671(c)                            | EASA Generic CRI requires Flight Control Jams during the landing/flare phase to be considered in the assessment for Continued Safe Flight and Landing. The method of compliance differs from the FAA for this particular phase of flight.   | MoC/IM       |
| <b>Flight Control System Failure Criteria</b>             | 25.671(c)                            | Generic CRI needed to establish an equivalent safety finding (ESF) with CS 25.671(c)(2) to use the Aviation Rulemaking Advisory Committee's (ARAC) proposed means of compliance.  | ESF          |
| <b>Aeroplane Control Following Failure of All Engines</b> | 25.671(d)                            | Generic CRI required to address the flare to a landing and stopping phases should a suitable runway be available.<br>Special Condition required to cover missed phases in the ARAC FCHWG proposal from 2002, i.e. to also consider the flare phase, and the stopping phase (should a suitable runway be available). This could lead to additional flight crew procedures for flying and landing with all engines inoperative that need to be covered in an AFM-supplement for EASA. There is no equivalent requirement in 14 CFR Part 25 or IP. | SC           |
| <b>Operation Tests Applicability to High Lift System</b>  | 25.683(b)(c)                         | The FAA requirements are the same as CS 25.683(b) since Amdt. 25-139. However, the FAA considers that high lift systems do not need to be considered under §25.683(b)(c) (see Docket No.: FAA-2013-0109 Amdt. No. 25-139) which is not in line with the EASA interpretation. The EASA interpretation is clarified in a Generic CRI on 25.683(b).<br>Before Amdt.25-139 there is no FAA equivalent for CS 25.683(b).<br>This SEI is not applicable when the methodology defined in the CATA Worklist Item FAA-005 is followed.                   | MoC/IM       |
| <b>Lift &amp; Drag device indicator</b>                   | 25.699(a)                            | A CRI may be needed to provide the EASA interpretation and means of compliance for Lift and Drag device indications.<br>The FAA requirement is the same as CS 25.699(a), following an accident investigation, turned out that the FAA accepts the Lift/Drag Lever position in the flight deck as means of compliance. This interpretation differs to the EASA   | MoC/IM       |

| Subject   | Standard or AMC | Description  | CRI Category |
|---|-----------------|--|--------------|
|   |                 | interpretation, where receiving the actual device position feedback is required to meet the requirement. Only observing the control/selector position providing the position command is judged not to be acceptable.   |              |
| <b>Landing Gear position indicator and warning device</b> | 25.729(e)       | A CRI may be needed to establish a means of compliance with CS 25.729(e). The absence of direct and positive monitoring of the uplocked condition leaves the potential for dormant failures of the uplock hook.  | MoC/IM       |
| <b>Protection against wheel and tyre failures</b>         | 25.729(f)       | Generic CRI to apply the JAA TGM Wheel and Tyre failure model used pre CS-25 Amdt.14. There is no equivalent model in 14 CFR Part 25.  | MoC/IM       |
|   | 25.734          | There is no equivalent requirement in 14 CFR Part 25. Compliance showing may require installation changes, equipment relocations, shielding of essential systems / structure and particular attention for fuel tank safety.  | MoC/IM       |
| <b>Tyre Speed Rating</b>                                  | 25.733(c)       | A CRI may be needed to establish an approach if the tyre speed rating could be exceeded in service. EASA systematically request that the tyres installed to an aircraft are providing overspeed capabilities if overspeed has not been considered within the speed rating.   | MoC/IM       |
| <b>High Brake Temperatures</b>                            | 25.735(a)       | Generic CRI on Respecting Brake Energy Qualification Limits.<br>CS25 Amdt 18 onward covers content of the Generic CRI.<br>Generic CRI and CS25 Amdt.18 AMC will lead to AFM limitation for maximum brake temperatures before dispatch. FAA differs from EASA opinion that a brake should have a maximum temperature limit before dispatch although it has been qualified with a specific max brake temperature from pre-heating. | MoC/IM       |
|   | 25.735(I)       | Wheel Brake Temperature effects in the wheel well. High brake temperature effect on systems and structure in the landing gear bay needs to be considered. This requirement is only partially addressed by 14 CFR 25.729(f)(3), hence it is an SSD.   | MoC/IM       |
| <b>Electric brake</b>                                     | 25.735          | Due to the novelty, a means of compliance CRI may be needed to address electric brakes. Novel design feature requiring lot of engineering judgement for accepting a particular design. Showing compliance may lead to design changes when not initially considered.  | MoC/IM       |
| <b>Nose-wheel steering</b>                                | 25.745          | Specific requirements on Nose Wheel Steering and towbar/towbarless towing operations. There is no equivalent requirement in 14 CFR Part 25.  |              |
| <b>Fuselage Doors</b>                                     | 25.783          | Due to observed interpretation differences on recent projects, EASA involvement is required to address the compliance with CS 25.783. A CRI may be needed.   |              |
|   | 25.783(d)       | CS 25.783(d)(8) has not equivalent in 14CFR Part 25. It requests a means to avoid initiating of the latching when the door is not in the closed position.  |              |
| <b>Ram Air Turbine Particular Risk Assessment</b>         | 25.1309         | Generic CRI requires to consider RAT Blade releases as a particular risk for avoidance of catastrophic consequences. FAA does not have an equivalent request.  | MoC/IM       |
| <b><u>Panel 5 Electrical Systems</u></b>                  |                 |  |              |

| Subject   | Standard or AMC  | Description   | CRI Category |
|---|--|---|--------------|
| <b>Lithium Batteries-Rechargeable and Non-Rechargeable</b>  | 25.601, 25.863, 25.869, 25.1301, 25.1309, 25.1353(c), 25.1529, 25.1360 (b)               | Special Conditions for Lithium Batteries–Rechargeable and Non-Rechargeable are needed to deal with the particular risks associated with this technology, which are not addressed in CS-25 requirements. This SEI is not applicable to button/coin cell batteries with less than or equal to 2 watt-hours of energy that are not required for safe operation of the airplane and meet UL 1642, UL2054 (rechargeable batteries only) and IEC 62133 (rechargeable batteries only).   | SC/MoC       |
| <b>Operation without Normal Electrical Power</b>  | 25.1351(d)   | A MoC CRI will be issued to deal with battery endurance during operation without normal electrical power. FAA requirement in Part 25 differs from CS 25.1351(d), FAA is raising systematically an IP to align the requirements, but the MoC differs from the one in AMC 25.1351(d).   | MoC/IM       |
| <b>ESN - Electrical Structural Network</b>  | 25.581, 25.899, 25.1309, 25.1310, 25.1316, 25.1353, 25.1360, 25.1363, 25.1529, Subpart H | Composite structure does not distribute electrical currents as a metallic structure does, therefore aircraft with composite fuselage may need a specific network to ensure the electrical continuity and the classical electrical functions provided by the structure, notably return path for functional electrical currents and fault currents. This design is unconventional and deserves a new certification approach. A MoC CRI may be needed.   | MoC/IM       |
| <b>Electrical generation-High voltage AC sources (&gt;230Vac), High voltage DC Sources (270Vdc)</b> | 25.899, 25.1351, 25.1353, 25.1360, 25.1431, Subpart H                                    | A MoC CRI may need to be issued to cope with the new risks associated to these high voltages.   | MoC/IM       |
| <b><u>Panel 6 Avionics</u></b>  |  |   |              |
| <b>Data Link Services</b>   | CS ACNS Subpart B Section 2, 25.1301, 25.1309, 25.1322                                   | Installation of ATN B1 data link aircraft system. There is a specific EU Mandate. Interoperability is key element for the efficiency and safety of EU airspace. Data Link services will be used in the Single European Sky for ATC communications. With the introduction of Data Link technology, much of the information which was previously transmitted by voice communications may be replaced by Data Link messages. To maintain adequate safety levels, there is also a need to ensure appropriate interoperability of aircraft installed systems with ground communications facilities.<br>CS ACNS subpart dedicated to datalink is a new regulatory material.<br>ACARS Data Link is not affected by this SEI. | SC/MoC       |
| <b>ADS-B Out</b>  | CS ACNS Subpart D Section 4  | Installation of 1090 MHz Extended Squitter (ES) ADS-B Out system.<br>There are possible differences between CS ACNS and AC 20-165B interpretation. FAA authorised installation with remote GPS sensors (other the ones that are used for navigation) whereas CS ACNS.D.ADSB.090(a) require indirectly same GPS sensor.<br>This SEI is only applicable to ADS-B out projects that use GPS sensors different than those used for navigation. For same GPS source projects the SEI is not applicable.  | MoC/IM       |



| Subject   | Standard or AMC  | Description   | CRI Category |
|---|--|---|--------------|
| <b>Reduced Vertical Separation Minima</b>   | CS ACNS Subpart E Section 1<br>25.1333                             | RVSM Initial Approval (AC 91-85A is new and deviate from CS-ACNS on some items) or any change that could have a potential impact on RVSM, which is not reviewed by the owner of RVSM approval (for example: modification of probes, modification of nose cone, modification of autopilot, installation of winglets, installation of radomes, ...).  | ESF          |
| <b>Head-Up Display and Synthetic Vision Systems (SVS) on Head Up Display</b>  | 25.773, 25.1301, 25.1302, 25.1309, 25.1329<br>AMC 25-11<br>HUD 903 | New or unusual symbology in the HUD.<br>HUD is a PFD and the possibilities of customisation is high. EASA experience is that HUD is usually a mean to introduce new flight parameter symbology. AMC 25-11 and AC 25-11B (EASA and FAA harmonized material) do not necessarily cover those new items.<br>The SVS system provides the pilot with a synthetic view of the external scene. When SVS is displayed on a head-down PFD it is typically accepted “for situational awareness” only. However, SVS displayed on the Head-Up Display requires a special condition regarding pilot’s compartment view (CS 25.773). A CRI also proposes acceptable means of compliance for the airworthiness approval of this system. | SC<br>MoC    |
| <b>Take Off and Landing Data as primary source</b>  | 25.1301, 25.1309   | Implementation of TOLD (Take-Off and Landing Data) function: intended to provide take-off and landing data such as take-off and landing speeds, take-off and landing distances and thrust setting which can be sent directly to the Primary Flight Displays. The information computed by the TOLD function is intended to be the primary source of information, and the computed information would not need any kind of crosscheck with AFM information before being used on the flight deck.   | MoC/IM       |
| <b>Customization of Electronic Check Lists</b>  | 25.1301, 25.1302, 25.1309  | Most manufacturers allow operators to freely customize contents and structure of electronic check list. EASA considers ECL to be part of the type design, at least concerning abnormal and emergency material. A CRI is used for that purpose.<br>EASA has to be involved to ensure that the conditions of customisation are adapted to European environment.   | MoC/IM       |
| <b>Display of Electronic chart (including display of Airport Map Displays (AMD))</b>                                | 25.1301, 25.1302, 25.1309  | Installation of a functionality to display electronic charts with display of own ship position. This includes also Airport Map Displays (AMD).  | MoC/IM       |
| <b>Sharing of avionics resources or A/C capability with noncertified Electronic Flight Bag systems or functions</b> | 25.1301, 25.1302, 25.1309<br>AMC 20-25                             | EFB with capability to share resources with certified avionics (display, Cursor control ...).<br>This is typically one novelty where EASA may have a different approach than FAA.<br>Typical examples would be architectures allowing the display of EFB (i.e. non-certified) data on avionics displays units, or control of the EFB applications from certified control devices (e.g. KCCU or certified touchscreens).   | MoC/IM       |
| <b>Enhanced Flight Vision System/Combined Vision System for ops credit</b>  | 25.773, 25.1301, 25.1302, 25.1309, CS AWO                          | Installation of EFVS system for operational credits.<br>A Special condition is needed for display of video from infrared or other sensor-based vision systems on head-up displays to provide a level of safety equivalent to § 25.773.<br>A CRI proposes some general requirements and acceptable means of compliance for the airworthiness approval of this system. Specific operational minima may be established in accordance with operational regulations.<br>The operational credit is considered by EASA at airworthiness level. The FAA conducts this part at operational approval level, which is not compatible with EU system.   | SC<br>MoC    |

| Subject  | Standard or AMC  | Description  | CRI Category |
|--|--|--|--------------|
| <b>Synthetic Vision Systems (SVS) on head down display for operational credit</b>  | 25.773, 25.1301, 25.1302, 25.1309, CS AWO              | Installation of SVS system for operational credit (e.g. SVGS). The operational credit is considered by EASA at airworthiness level and requires a CRI. The FAA conducts this part at operational approval level, which is not compatible with EU system.   | SC/MoC       |
| <b>Integrated Modular Avionics</b>   | 25.1301, 25.1309                                       | Complete installation of a new IMA system or extensive/architecture change of an IMA system.   | MoC/IM       |
| <b>Using Autopilot/Auto Throttles/Flight Director During Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisory</b> | 25.1301, 25.1302, 25.1309, 25.1329 AMC 20-15           | AP FD/TCAS (autopilot/autothrottle mode to automatically follow TCAS guidance in case of RA). Regulation and standards do not address specifically this autopilot mode. Past projects have shown that the EASA position is different from FAA on this topic: FAA allows by procedure pilots to ignore Resolution Advisories on some airports with parallel approaches and therefore requests an inhibition switch. EASA position regarding this switch is still to be developed.<br>A CRI may be needed to establish an acceptable means of compliance for using the Autopilot/Auto Throttles/Flight Director during a TCAS Resolution Advisory manoeuvre such that the behaviour is predictable and unambiguous to the flight crew.   | MoC/IM       |
| <b>ADS-B In</b>  | 25.1301, 25.1302, 25.1309, 25.1322                     | Installation of system with ADSB-IN functions (e.g. ATSA). Numerous applications using ADS-B in technology are being developed. FAA uses IP that rely on AC 20-172B material and TSO C195b. EASA experience is limited on this topic.<br>As an example, ATSA is a new application using ADS-B IN technology to present the flight crew with improved situational awareness with regard to surrounding airborne traffic. The improved awareness has allowed for the development of new procedures, which are likely to improve the efficiency of flight operations. The implementation of the ATSA functions affects flight deck display systems, warnings and cautions, TCAS and cockpit controls. Changes of, and additions to operational procedures and standards will be required and crew workload may be affected. | MoC/IM       |
| <b>RNP AR Approaches</b>   | 25.1301, 25.1302, 25.1309, 25.1322, 25.1329, AMC 20-26 | Installation of system capable of RNP-AR approaches.<br>Specific operational approval is required for AR Approaches, but EASA applies airworthiness criteria (AMC 20-26). FAA balance between airworthiness and operational approvals is different from EASA. It results in major differences in safety objectives (EASA is more stringent on the list of failures to consider). Here are the areas where EASA is more stringent:<br>1) Demonstration of performance under failure condition (AMC 20-26, Item 6.1.3).<br>2) TAWS is not accepted as a means to mitigate inadequate design assurance of the FMS for RNP AR.   | MoC/IM       |
| <b>Security Protection of Aircraft Systems and Networks</b>  | 25.1301, 25.1309, 25.1319, AMC 20-42                   | When the installation of a system, an equipment or a digital network on a new or modified product creates the possibility for intentional unauthorised electronic interaction (IUEI) that may result in adverse effects on safety.   | SC           |

| Subject  | Standard or AMC  | Description   | CRI Category |
|--|--|---|--------------|
| <b>Management of Erroneous Air Data Parameters, by Aircraft Systems, and their Effects at Aircraft Level</b> | 25.1301, 25.1302, 25.1309, 25.1322, 25.1329, 25.1323, 25.1325  | Applicable only for new TC or installation of new avionics suite.   | MoC/IM       |
| <b>Flight Recorders and Data Link Recording</b>  | 25.1457, 25.1459   | Installation of ATN B1 data link aircraft system.<br>CS-25 amendment 26 introduced the requirement for DLS-equipped aircraft to record these messages. FAR 25 (25.1457 (a) (6)) is aligned but the FAA apply it through operational rule §91.609 while EASA applies 25.1460 during the certification project through a Special Condition.<br>The resulting requirements for recording capability under either rule are not different, but the applicability is not the same.  | SC/MoC       |
| <b>Introduction of a display mode that alters and/or automates the visibility of the Standby Indicator</b>   | 25.1301, 25.1302, 25.1309, 25.1322, 25.1333<br>AMC 25-11   | Stand by indicator not permanently visible.<br>CRI and IP related to that functionality differ between FAA and EASA.  | MoC          |
| <b>Using Autopilot to conduct Emergency Descent Manoeuvre</b>  | 25.1301, 25.1302, 25.1309, 25.1322, 25.1329  | Implementation of EDM did not require so far the need of either a CRI or IP. New EDM implementation with higher authority (less mean to disconnect AP) may need to require guidance material to comply with 1309.   | MoC/IM       |
| <b>Flight Crew Alerting</b>  | 25.1322  | Projects applying CS 25.1322 amendment 11 or later.<br>CS 25.1322 addresses various aspects of flight crew alerting such as warning, caution, and advisory messages, lights, and other alerting methods that are installed in the flight deck. Early amendments of CS 25.1322 addressed only the visual component of annunciation displays typically installed in the flight deck. While the CS requirements are fully harmonised with the FAR at amendment 11, interpretation of several aspects may have to be co-ordinated (e.g., 25.1322(d)(2)). Avionics suites compliant with previous 25.1322 may require design change to comply with new one.<br>This SEI is applicable in the following cases:<br><ul style="list-style-type: none"> <li>- It is the first time an applicant elects to comply to 25.1322 amdt 11.</li> <li>- The change includes an ESF or deviation from CS-25.1322.</li> <li>- The change does not comply with the EASA agreed means to comply with 25.1322.</li> </ul> | MoC/IM       |
| <b>LPV</b>   | 25.1301, 25.1302, 25.1309, 25.1322, 25.1329, AMC 20-28<br>EASA Decision 2016/018/R<br>CS-ACNS Subpart C, Section 1 | Installation of system with LPV capability.<br>When installing LPV capability EASA request to have an alert for excessive downward deviation from the glide path (AMC 20-28 Section 7.1 Item 7). The FAA has just a recommendation.<br>In case the alert is installed the SEI is not applicable.  |              |

| Subject  | Standard or AMC                               | Description   | CRI Category |
|--|---|---|--------------|
| <b><u>Panel 7 Powerplant</u></b>   |   |   |              |
| <b>Fire protection of flight controls, engine mounts, and other flight structure</b> | 25.865  | CS and FAR rules are identical, however difference in FAR/CS definitions and interpretations have been identified. A CRI might be required to establish an Acceptable Means of Compliance (AMC) with CS 25.865 (Fire protection of flight controls, engine mounts, and other flight structure) for structure composed of materials such as titanium or non-metallic materials, to identify load conditions and recognized fireproof material.<br>You may need a CRI to establish an Equivalent Level Of Safety (ESF) for compliance other than based on material (i.e. installation level, redundancy, alternate path). | ESF<br>MoC   |
| <b>Fire protection: other components</b>   | 25.867  | Both rules considered equivalent even if FAR is normally more stringent (as it explicitly requires fire resistant surfaces, whereas CS refers to equivalency to aluminium), however interpretations of the rule differs.<br>A CRI might be required to establish the EASA interpretation (IM) and an Acceptable Means of Compliance (AMC) with CS 25.867 to define the 2D nacelle zone, affected surfaces, and the acceptable mean of compliance. CRI differs from FAA IP on consideration on seals, gaps.  | MoC/IM       |
| <b>Fire withstanding Capability of CFRP Wing Fuel Tanks</b>                          | 25.867  | A Special Condition is needed to set the criteria for composite wing (5min or aluminium equivalency with considerations of fuel loading, environmental conditions, external airflow).   | SC           |
| <b>Thrust Control Malfunction</b>  | 25.901, 25.1309                               | Single failure of thrust control malfunction accommodation requires an EASA special condition.  | SC           |
| <b>In-Flight Engine Restart</b>  | 25.903(e)                                     | A CRI IM might be required to detail the flight cases to demonstrate the in-flight restart capability. The FAA IP and associated materials (AC 25-7C, PS ANM 100-2001-116, PS ANM 25-02) does not allow Restart after Suction Feed Flameout to consider a 10Kft in opposition to EASA CRI that offers this threshold for fuel with volatility > Jet A.  | MoC/IM       |
| <b>Propeller debris</b>  | 25.905(d)                                     | Both rules identical however, the AMC does mention release of a complete blade which is not normally addressed under the usual FAR interpretation.  |              |
| <b>Reversing system</b>  | 25.933(a)(1)                                  | AMC has not equivalent published AC material.   |              |
| <b>Negative g</b>  | 25.943<br>25.1315<br>CS 25J943<br>AMC 25.1315 | 25.943 refers to 25.1315; corresponding AMC conditions are different from the FAA practices. Applies also to APU installation (CS 25J943 and AMC 25.1315).  | MoC/IM       |
|  |   |   | MoC/IM       |
| <b>Uncontained Engine Debris Penetration of Fuel Tank</b>                            | 25.903(d)(1),<br>25.963(e)                    | To ensure that impacts to fuel tank structure (metallic and CFRP), including fuel tank access covers, from uncontained engine do not penetrate or otherwise induce fuel tank deformation, rupture (for example, through propagation of pressure waves), or cracking sufficient to allow leakage of hazardous quantities of fuel. This may be based on the relevant regulatory material adopted in CS-25 Am. 14. This includes debris definition consideration.  |              |
| <b>Fuel Tank Safety ICA for Fuel Tank safety</b>                                     | 25.981  | For fuel systems, AMCs differ from corresponding ACs in several aspects including acceptable figures for energy, current, temperature increase (unique to EASA), etc.<br>A MoC CRI may be needed because installation of ground fault interrupters or other devices to protect fuel pumps may be needed to address fuel tank ignition sources.  | SC<br>MoC    |

| Subject   | Standard or AMC    | Description   | CRI Category |
|---|--------------------|---|--------------|
|   |                    | An Interpretative Material CRI is raised for ignition risk due to lightning strike on structure. Considerations for lightning and fuel tank flammability probability are given, as well as particular considerations for composite fuel tank. For ICA, Specific FRM ICA requirements are introduced in CS-25 Amdt 6.  |              |
| <b>Reverser Controls</b>  | 25.1155            | AMC has not equivalent published AC material.   |              |
| <b>Engine cowling</b>   | 25.1193            | Regarding fire resistance, the rules are identical, however EASA has implemented a systematic approach on the ground and flight conditions (in CS25 Amdt 13: new rule + new AMC). As a result of adverse in service experience, EASA has issued a generic special condition for fan cowl latch.   | SC           |
| <b>Powerplant Fire Testing</b>  | 25.1181            | You may need a CRI to ensure use of representative environmental conditions, and burner representative of a fuel fed fire for fire testing compliance demonstration for powerplant fire testing.  | MoC/IM       |
| <b>Fire, Extinguishing and Suppression Agent Halon Replacement Halon Simulation</b> | 25.1195<br>25.1197 | Halon is being phased out of airplane applications per ICAO deadlines / EU 744/2010. Halon use being restricted, instead of performing halon concentration test, alternative agent HFC125 might be used as simulant of Halon. You may need a CRI to detail the acceptable mean of compliance.   | MoC/IM       |
| <b>ETOPS (Part 1)</b>   | 25.1535            | <p>In the following lines are identified the specific cases in which the ETOPS SEI is applicable and will trigger the non-basic classification:</p> <ul style="list-style-type: none"> <li>- An IM CRI may be issued to show compliance to CS 25.1535 to document the icing environment, icing exposure and resulting ice shapes used to demonstrate safe performance and handling during an ETOPS mission diversion (AMC 20-6B, Chapter II, Section 7(13)). FAA is accepting a different methodology. Definition of the ice shapes is critical and there is no published guidance from the FAA that allows applicants show EASA equivalence to the same level of safety as provided by the EASA compliance methodology. This is only affecting new type designs and modification requiring changes to the icing environment, icing exposure and resulting ice shapes documentation.</li> <li>- Early ETOPS Propulsion system validation test: EASA requires a representative aircraft/engine interface (pylon) (AMC 20-6B Appendix 1 paragraph 2.b.(2)). FAA is not requesting a representative pylon installation. This may lead to missing effects during testing (either onto the pylon installation and/or from the pylon installation onto the nacelle/engine and has a safety impact onto product ETOPS robustness. This applies only to changes to the aircraft/engine interface (pylon) linked to Early ETOPS method and Combined ETOPS method.</li> <li>- AMC 20-6B, Chapter II, Section 7(10) and 7(11) is deemed equivalent to Appendix K25.1.4(a), K25.1.4(a)(3), except that these latest can be relieved by 14 CFR 25.3 that has no CS equivalence. FAA relief for a) fuel system pressure and flow, b) low fuel alerting/monitoring and c) oil tank design may lead to an appreciable effect in safety. To be noticed that this part of the SEI would be applied in case the exception offered by 14 CFR 25.3 is in effect for which few occurrences happened. This will apply to any fuel and engine/APU oil tank system modification and associated alerts when affected by the exemption included as part of the 14 CFR 25.3.</li> </ul> | MoC/IM       |

| Subject   | Standard or AMC  | Description  | CRI Category |
|---|--|--|--------------|
| <b>APU installation and Electronic control of Essential APU</b>           | CS Subpart J   | FAR does not feature a dedicated APU installation subpart J – equivalent requirements can be however introduced in the FAA certification basis through an IP (ESF).  |              |
|   | AMC 20-2   | An interpretative material CRI may be needed for APU ECU qualification.  | MoC/IM       |
| <b>Volcanic Ash</b>   | 25.1593  | Introduced into CS-25 Amdt 13. A CRI might be needed for applicant electing to comply with CS 25.1593 (CS-25 Amdt13) whereas the engine is not at CS-E Amdt 4.   |              |
| <b><u>Panel 8 Environmental Control System and Icing</u></b>              |  |  |              |
| <b>Pilot compartment view</b>   | 25.773(b)(1)(ii); App.O  | There is no difference between FAR25.773 and CS25.773. Nevertheless, as both refer to the appendix O (from CS-25 Amdt 16), the compliance demonstration will differ as the FAR 25 only considers the appendix O Applicability limited to models with MTOW ≤ 60k lbs. or reversible flight controls according to FAR 25.1420. Additionally, the Means of Compliance are not harmonized for Appendix O.  | MoC/IM       |
| <b>Propeller de-icing</b>   | 25.929(a); App.O   | CS 25 requires Appendix O (from CS-25 Amdt 16) to be fully assessed whereas FAR 25 requires propeller assessment in the portions of Appendix O for which the airplane is approved for flight. Additionally, the Means of Compliance are not harmonized for Appendix O.   | MoC/IM       |
| <b>Powerplant Icing and APU Icing</b>                                     | 25.1091<br>25.1093<br>25.J1093                                     | <p>For certification basis before CS 25, Amdt.16:</p> <ul style="list-style-type: none"> <li>- An IM CRI may be needed to show compliance to § 25.1093(b). This CRI clarifies the need for protection of the engine during icing conditions at all engine power settings, including in-flight idle conditions, and the regulatory need for consideration of the airframe as part of the engine inlet.</li> <li>- An IM CRI may be issued to clarify EASA policy for operation in Freezing Fog conditions regarding temperature and time duration.</li> </ul> <p>For certification basis after CS 25, Amdt.16:</p> <ul style="list-style-type: none"> <li>- CS 25 refers to Appendix P and FAR 25 refers to Part33 Appendix D, but those 2 appendices are equivalent, therefore this is not an SSD from that aspect. However, CS 25 table 1 condition (ii) indicates TAT band between -9°C to -1°C whereas FAR 25 table 1 condition 2 indicates TAT band between -7°C to -1°C. Furthermore FAR 25 allows airplanes with a maximum take-off weight equal to or greater than 60,000 pounds not to comply with Appendix O and condition 3 specified in table 1.</li> </ul> <p>Subpart J is in general an SSD because Subpart J has no equivalent in FAR: FAR Subpart E requirements are made applicable despite not explicitly identified. As per previous comments on icing rule modifications, FAR 25 allows airplanes with a maximum take-off weight equal to or greater than 60,000 pounds not to comply with Appendix O and condition 3 specified in table 1.</p> <p>Additionally, the Means of Compliance are not harmonized for Appendix O.</p> | MoC/IM       |
| <b>Flight instrument external probes and probes heating systems alert</b> | 25.1309; 25.1323;<br>25.1324; 25.1325;<br>25.1326; App.O;<br>App.P | <p>For certification basis before CS 25 Amdt.16: A SC CRI may be issued to clarify EASA policy regarding icing conditions (liquid and ice crystals) for external probes certification for new or modified probes installation.</p> <p>For certification basis after CS 25 Amdt.16, FAR 25 limits the applicability of this paragraph to angle of attack system whereas CS 25.1324 includes all Flight instrument external probes. Additionally, AMC 25.1324 defines for probe</p>  | SC           |

| Subject  | Standard or AMC                                 | Description   | CRI Category |
|--|---|---|--------------|
|  |   | assessment higher ice crystal concentrations than the ones proposed in Appendix P.<br>For 1326 CS 25 requirement address all Flight Instrument external probes, whereas FAR reduces applicability only to Pitot heat indication system. In addition, CS 25.1326(b) (2) is requesting that an alert shall be provided if any probe heating system is switched 'on' and is not functioning normally.<br>CS 25 requirement address all Flight Instrument external probes, whereas FAR applicability covers Pitot heat indication system. In addition, CS 25.1326(b) (2) is requesting that an alert shall be provided if any probe heating system is switched 'on' and is not functioning normally.  |              |
| <b>Supercooled large drop icing conditions</b>                         | 25.1309; 25.1419; 25.1420; App.O                | For certification basis before CS 25 Amdt 16:<br>EASA may issue a Special condition CRI for any wing ice protection system modification on aircraft typically equipped with pneumatic boots and unpowered roll control, to clarify EASA policy regarding the icing environment, icing exposure and resulting ice shapes used to demonstrate safe performance and handling.<br>For certification basis after CS 25 Amdt.16:<br>FAR 25 applicability limited to models with MTOW ≤ 60k lbs. or reversible flight controls. This generates differences (EASA more restrictive) for requirements 25.101, 25.103, 25.105, 25.111, 25.117, 25.119, 25.121, 25.123, 25.125, 25.143, 25.147, 25.161, 25.171, 25.173, 25.175, 25.177, 25.177, 25.181, 25.201, 25.203, 25.207, 25.235, 25.237, 25.251, 25.253, 25.255. EASA does not provide the allowances provided by Part 25.21(g) (1) for a/c over 60,000 lbs or not equipped with reversible flight controls. Therefore, the EASA regulation is more stringent and also may drive some SSDs where some aircrafts will be required to show compliance to Appendix O conditions not required by FAA. An IM CRI may be issued to clarify EASA policy regarding the icing environment, icing exposure and resulting ice shapes used to demonstrate safe performance and handling | SC/MoC       |
| <b>Primary In flight Ice detection system</b>                          | 25.1419; App.C; App.O                           | For certification basis before CS 25 Amdt.16<br>An IM CRI may be issued to clarify EASA policy regarding certification approach for Primary Ice detection systems. This IM CRI is not harmonized with FAA and may impact the design and approved manuals.<br>For certification basis after CS 25 Amdt.16 an IM CRI may be issued to clarify the detection in App.O.   | MoC/IM       |
| <b>Airframe and Nacelle IPS Performance above 30.000ft</b>             | 25.1419; App.C                                  | A CRI SC may be issued to clarify EASA policy regarding the IPS performance to be demonstrated when flying above App.C maximum altitudes.   | SC           |
| <b>Wing Surface Contamination caused by Cold Soaked Surfaces (CSS)</b> | 25.105, 25.143, 25.1091(e), 25.1581(a), 25.1583 | An IM CRI may be issued (new TCs and Significant Changes) to clarify EASA policy with regard to the issues related to wing surface contamination caused by cold soaked surface accretion/contamination.<br>This IM CRI is not harmonized with FAA and may impact the design and approved manuals.   | MoC/IM       |
| <b>Oxygen Equipment Qualification above 40.000ft</b>                   | 25.1441d  | An IM CRI will be issued to clarify EASA policy regarding Oxygen Equipment Qualification above 40.000ft cabin altitude. This IM CRI is not harmonized with FAA and may impact the design and approved manuals.  | MoC/IM       |
| <b>Oxygen Fire Hazard in Gaseous Oxygen Systems</b>                    | 25.1441b  | Before CS-25 Amdt 21 an IM / MoC CRI may be issued to clarify EASA policy regarding CS 25.869(c) and CS 25.1453 with respect to Oxygen Fire Hazard in Gaseous Oxygen Systems, centralised, decentralised or portable (for portable this SEI is applicable only for new equipment not validated before by EASA).   | MoC/IM       |

| Subject  | Standard or AMC           | Description   | CRI Category |
|--|---------------------------|---|--------------|
| <b>Oxygen Distribution System (25.1445a)</b>   | 25.1445                   | An ESF may be required for installation of a common supplemental oxygen system for flight crew and supernumeraries without means to reserve flight crew oxygen.   | ESF          |
| <b>Pneumatic Systems – Harmonised 25.1438</b>  | 25.1309; 25.1436, 25.1438 | An ESF CRI may be issued to propose a new Pneumatic and Pressurisation rule harmonised to satisfy both the EASA and the FAA; from recent certification exercise a new IM CRI is in preparation to clarify the approach for proof and burst levels.<br>High pressure equipment (e.g. high pressure nitrogen bottles in Emergency Door Actuators) will have specific qualification / test requirements.   | ESF MoC      |
| <b>Conditioning Systems Acceptable Low Temperature Physiological Environment During Failure Conditions</b> | 25.831; 25.1309           | For new TCs and Derivatives an IM / MoC CRI may be issued to define acceptable low temperature physiological limits for occupants following an airplane system failure that could cause a drop in the environmental temperature.  | MoC/IM       |
| <b><u>Panel 10 System, Software and Airborne Electronic Hardware Development Assurance</u></b>             |                           |   |              |
| <b>Software Development Assurance Guidance</b>   | AMC to 25.1309(a)&(b)     | A means of compliance CRI may be needed for new or modified airborne systems / equipment containing Software, when insufficient Software development assurance guidance has been applied to a project.<br>Note: SEI not applicable:<br>- when AC 20-115D has been applied<br>- or when DO-178C has been applied and, when applicable, the DO-178C supplements (ED-216/DO-333 (FM), ED-217/DO-332 (OOT), and ED-218/DO-331 (MBD))<br>- 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, CM/PDI, Pseudocode)<br>- or when DO-178B has been applied without use of specific Software techniques (MBD, OOT, FM, CM/PDI, Pseudocode).<br><br>Applicable references for EASA:<br>AMC 20-115D | MoC/IM       |
| <b>Hardware Development Assurance Guidance</b>   | AMC to 25.1309(a)&(b)     | A means of compliance CRI may be needed for new or modified airborne systems / equipment implementing custom devices (PLD, FPGA, ASIC), COTS IP, or complex COTS devices.<br><br>Note: SEI does not apply when:<br><ul style="list-style-type: none"> <li>• AC 20-152A is used and (COTS IPs are either not used or only embedded in custom devices with iDAL lower than B)</li> <li>• Guidance previously accepted is used to modify existing AEH.</li> </ul> Applicable references for EASA:<br>AMC 20-152A   | MoC/IM       |



| Subject   | Standard or AMC                                      | Description  | CRI Category |
|---|--|--|--------------|
| <b>Artificial Intelligence and Machine Learning</b> | AMC to 25.1309(a)&(b)                                | The use of Artificial Intelligence/Machine Learning creates certification challenges and Development Assurance considerations. These types of systems, considering their data-driven and stochastic nature, may not be fully specified or even be non-deterministic, and thus, require an adaptation of the development assurance process methods and standards. Indeed, traditional Development Assurance methodologies are not adapted to the challenges raised by the data and learning management aspects, by the verification of the performance, stability, robustness and generalisation properties of machine learning models, as well as of the adaptive learning aspects of this new technology.<br>To date guidance is under development through the EASA AI Concept Papers effort and the work of the joint working group EUROCAE/SAE WG-114/G34.  | MoC/IM       |
| <b>MBD for Hardware Development</b>                 | AMC to 25.1309(a)&(b)                                | 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.<br>To date, guidance does not exist..  | MoC/IM       |
| <b>Development Assurance Process</b>                | AMC to 25.1309(a)&(b)& EUROCAE ED-79B / SAE ARP4754B | Legacy methods of demonstrating compliance to CS 25.1309 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. Therefore, the Agency requests additional methods to reduce and mitigate requirement errors in the aircraft/system development process in line with the objectives defined in CM-DASA-002.<br><br>A means of compliance CRI may be needed to define the scope of application of development assurance activities in line with the applicability and objectives defined in CM-DASA-002.<br><br>This SEI is not applicable to changes if the development assurance process accepted by EASA in the initial project is applied and no major changes are introduced.<br>It is then applicable as a minimum for: <ul style="list-style-type: none"> <li>• new TCs</li> <li>• Derivatives</li> <li>• Changes (including significant and major ones) for which development assurance is being applied for the first time.</li> </ul> | MoC/IM       |
| <b>Use of Multicore Processors</b>                  | AMC to 25.1309 (a) & (b)                             | Multi-Core processors include features that may impact the behaviour, and therefore the safety, of a system if not well managed.<br>A means of compliance CRI may be needed for new or modified airborne systems containing Multicore Processors devices, hosting Software components on different cores, when AC 20-193 / AMC 20-193 is not applied or the guidance offered by AC/AMC is insufficient (e.g. dynamic allocation).<br><br>Note: SEI is applicable: <ul style="list-style-type: none"> <li>• When AC 20-193, or equivalent guidance, is not applied</li> <li>• or when the type of MCP usage is not covered by the AMC 20-193.</li> </ul> Applicable references for EASA: AMC 20-193   | MoC/IM       |

| Subject  | Standard or AMC   | Description   | CRI Category |
|--|---|---|--------------|
| <b><u>Panel 11 Cabin Safety</u></b>  |   |   |              |
| <b>Overhead passenger sleeping compartment</b>   | 25.831, 25.812, 25.853, 25.858  | This is a topic without harmonized requirements and means of compliance. In many cases EASA issues a Special condition to support the installation of overhead passenger sleeping compartments.   | SC, MoC      |
| <b>Halon replacement hand fire extinguishers</b>   | 25.851(a)(2)  | Based on EU legislation, for new installations of hand fire extinguishers for which the certification application is submitted after 31 December 2014, Halon 1211, 1301 and Halon 2402 are unacceptable extinguishing agents.   | MoC/IM       |
| <b>Halon replacement built in fire extinguishers for Cargo Compartments</b>  | 25.851(b)   | Halon 1301 is no longer an acceptable extinguishing agent, based on EU Legislation, for cargo compartment fire extinction systems to be installed on aircraft types, for which type certification is requested after 31 December 2018.  | MoC/IM       |
| <b>Angled Seats</b>  | CS 25.785(d)  | Generic ESF related to seat installations that are angled more than 18° with a limitation to a maximum angle of 30°.  | ESF          |
| <b>Air Medical Services (Medical Evacuation, Ambulance conversion, Patient Transport Unit, Temporary Stretcher installation)</b> | 25.831, 25.365, CM-21.A-E-001 (AML STC) CAT.OP.MPA.155 (Special Category of Passengers) | EASA has published guidance for Air Medical Services and associated design features (e.g. Stretcher, Oxygen). There is no FAA equivalent.   | SC/MoC/IM    |
| <b><u>Panel 12 Safety Assessment</u></b>   |   |   |              |
| <b>Certification maintenance requirements</b>  | 25.1309(e)  | CS 25.1309(e) is an SSD introduced at CS-25 Amendment 20 with the intent to ensure a better harmonisation of the CMR development process among applicants, and to reduce the risk of inadequate task identification and follow-up. The CA and VA have limited experience with the application of this requirement and the associated revised AMC 25-19. Confidence building is required to ensure consistent application of the associated guidance. This SEI is applicable for new TCs, Derivatives and Significant Changes. For other changes this SEI will not be applicable as far as the CMR development process accepted by EASA in the initial project is applied. |              |
| <b>Specific risk considerations for significant latent failures</b>  | 25.1309(b)  | CS 25.1309(b)(4) and CS 25.1309(b)(5) are SSDs introduced at CS-25 Amendment 24 in order to address specific risk considerations when demonstrating compliance with CS 25.1309(b). The CA and VA have limited experience with the application of these requirements and the associated revised AMC 25.1309. Confidence building is required to ensure consistent application of the associated guidance. This SEI is applicable for new TCs, Derivatives and Significant Changes. For other changes, this SEI will not be applicable as far as the safety assessment process accepted by EASA in the initial project is applied.  |              |
| <b>System Safety requirement and related guidance</b>  | 25.1309(b) AMC25.1309   | Part 25.1309 amendment 25-152 and AC 25.1309-1B have some relevant differences with EASA requirements and guidance.<br><br>When Part 25.1309 amendment 25-152 is applicable or AC 25.1309-1B is used, EASA needs technical involvement to determine if system safety assessments are compliant with CS25.1309.  |              |

| Subject                                       | Standard or AMC | Description  | CRI Category               |
|---|-----------------|--|----------------------------|
| <b>Runway Excursion Hazard Classification</b> | 25.1309         | The EASA has significant differences with FAA concerning runway excursion hazards, in particular with the criteria used to classify systems failure conditions leading to runway excursions. CATA Worklist Item FAA-004 presents a harmonized practice that includes additional criteria for § 25.1309 compliance related to runway excursion hazard identification. When CATA Worklist Item FAA-004 is not applied EASA needs technical involvement to determine compliance with CS25.1309. | CATA Worklist Item FAA-004 |

## SEI Part 2

Projects for which any or several paragraph of the following ETOPS Part 2 SEI are considered impacted may be classified as Basic if no other SEI or other non-Basic criteria are applicable (ref. TIP paragraph 3.5.3.2)

| Subject               | Standard or AMC | Description  | CRI Category |
|-----------------------|-----------------|--|--------------|
| <b>ETOPS (Part 2)</b> | 25.1535         | <p>In the following lines are identified the specific cases in which the ETOPS SEI is applicable but will not trigger the non-basic classification:</p> <ul style="list-style-type: none"> <li>- ETOPS Flight Test compliance demonstration should consider full maximum power supply loading (Electrical, Hydraulic, Bleed) evaluation in a diversion flight with actual system interfacing and operational ETOPS procedure. FAA does not systematically require flight evaluation of the maximum loading conditions but nominal conditions.<br/>This SEI applies only to new type designs and changes increasing the diversion time and when electrical/hydraulic/bleed systems loadings are changed.</li> <li>- Consideration of Major events (CS 25.1309), for failures or combination of failure that affects the aeroplane or the engine and that would result in a need for diversion. The probability of such event should be compatible with the safety objective (numerical assessment). (AMC 20-6B, Chapter II, Section (7) and 7(1)). FAA does not automatically require upgrading Failure Conditions from MIN to MAJ when leading to a diversion. This non-systematic classification may leave some Failure Conditions (FC) at MIN level. FAA guidance under AC 25.1309-1A does not require a numerical assessment for MAJ Failure Conditions.<br/>This is applicable to new type designs and any modification requiring to reassess the failure conditions.</li> <li>- In addition to the CS-25 Subpart J (SSD), a 95% APU in-flight restart reliability should be demonstrated (AMC 20-6B, Chapter II, Section 7(4)). While FAA has also an APU reliability requirement and in practice is relying on same APU restart ability performance, FAA does not mention what is the adequate reliability rate (K25.1.4 (b)(1)). Both FAA/EASA have the same intent, however the difference in reliability targets may have an impact onto the overall ETOPS safety, should the actual APU restart ability objectives prove to be different.<br/>This SEI applies in case of any APU modification or modification affecting the APU in-flight restart performance.</li> <li>- EASA periodically requires a systematic update of the CMP document with any update of configuration, operating and maintenance requirements, hardware life limits, MMEL constraints necessary for ETOPS type design approval and ETOPS operations. The FAA only updates the CMP document as part of type design change initiated by an applicant or as part of an airworthiness action to address an unsafe condition. Since the operational rules are rendering mandatory the usage of the CMP, it may create a safety impact due to the possible usage of obsolete CMP (where FAA would impose only a CMP revision for a modification considered as a corrective action to an Unsafe Condition whereas EASA would have a CMP revision for any modifications).<br/>This SEI is applicable for any ETOPS change where CMP is affected.</li> </ul> | MoC/IM       |