

**FAA Safety Emphasis Item (SEI) List for Import of European State of Design
Transport Airplane Products and Approvals (14 CFR parts 25 and 26)**

Revision Log

Rev. 0	Dated March 22, 2018	Initial Issue
Rev. 1	Dated June 13, 2018	Removed “Instructions for Continued Airworthiness” from subpart G list.
Rev. 2	Dated July 23, 2018	Removed “Composite Structure” and “Proof of Strength” from subpart C list. Added “Limit of Validity” and “Extended Limit of Validity” entries to a new part 26 section. Added “New, novel, or unusual materials or manufacturing processes” to the subpart C section.
Rev. 3	Dated June 4, 2019	Multiple changes, in the following categories: <ul style="list-style-type: none"> • Improved description precision to clarify SEI applicability. • SEI description harmonization with EASA SEI. • Elimination of SEI that are redundant to other non-Basic criteria. • Elimination of SEI that do not meet the SEI definition.
Rev. 4	Dated April 6, 2022 - Corrected May 24, 2022	Added the following SEI: <ul style="list-style-type: none"> • Use of Dissimilarity in Critical System Implementations - Corrected position paper reference (May 24, 2022) • Human Factors

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Rev. 5	Dated October 4, 2023	<p>Reorganized list by primary technical area for ease of use.</p> <p>Removed the following SEI:</p> <ul style="list-style-type: none"> • Small Compartments¹ • Pilot compartment view; Enhanced Vision Systems (EVS), Enhanced Flight Vision Systems (EFVS), Synthetic Vision Systems (SVS) displayed on a head-up display (HUD) • High Elevation Airport Operation² • Cargo Container with Self-Contained Temperature Control System, a.k.a. Active Unit Load Device (AULD) • Smart Unit Load Devices • Use of Ground-Based Augmentation System (GBAS) in CAT II/III operations <p>Combined the SEI for icing conditions for 25.21(g)(3), 25.21(g)(4) and 25.1420 into one SEI for “Supercooled large drop icing conditions”</p> <p>Added the following SEI to “SEI Part 1”:</p> <ul style="list-style-type: none"> • Anthropomorphic Test Dummy (ATD) Weight • Glass in the Cabin • Photoluminescent Exit Signs • Cabin Temperature-Humidity Limits • Main Deck Class E Cargo Compartment - Protection of Critical Systems <p>Created “SEI Part 2” in a separate table for visibility and ease of use.</p> <p>- Moved the following SEI to SEI Part 2:</p> <ul style="list-style-type: none"> • 15 knot Tailwind Approval for Takeoff and Landing • Certification of Structural Elements in Flight Control Systems • Seat adapter plates • Fuel tank vents • Fire Extinguishing Plumbing and Wiring Connections • Touch Screen Interface and Control Device in Flight Deck • Oxygen equipment and supply <p>- Added the following SEI to SEI Part 2:</p> <ul style="list-style-type: none"> • Sizing Criteria for Stored Energy Systems Used for Emergency Braking • Automatic Dependent Surveillance - Broadcast (ADS-B Out) • Runway Excursion Hazard Classification Policy <p>Various edits as marked in the text.</p>
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¹ See Decompression Criteria for Interior Compartments Final Rule (Amdt. No. 25-149), 88 FR 38377.

² See High Elevation Airport Operations Final Rule (Amdt. No. 25-151), 88 FR 44032 (correction) and 88 FR 39152.

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Rev. 6	Dated May 9, 2025	<p>Removed the following SEI from “SEI Part 1”:</p> <ul style="list-style-type: none"> • Flight Control in All Attitudes³ • Command Signal Integrity³ • Interaction of Systems and Structures³ • Flight Control System Failure Criteria³ • Anthropomorphic Test Dummy (ATD) Weight • Vertical Required Navigation Performance (RNP) <p>Added the following SEI to “SEI Part 1”:</p> <ul style="list-style-type: none"> • Additive Manufacturing – Flammability of Parts • Wheelchair Securement Installation • System Safety Assessments³ • Use of Ground-Based Augmentation System (GBAS) in CAT II/III Operations • Global Navigation Satellite System (GNSS)-Aided Inertial Reference Systems (IRS) or Altitude Heading Reference Systems (AHRS) • Required Navigation Performance (RNP) with Authorization Required (AR) Operations <p>Added the following SEI to “SEI Part 2”:</p> <ul style="list-style-type: none"> • Use of Type II, III, and IV Deicing/Anti-Icing Fluids <p>Added footnotes to identify SEI affected by rulemaking. Note: An SEI that has been removed from the SEI list due to rulemaking may still be applicable for an amendment level of the certification basis that is earlier than the amendment level of the respective final rule. Edits are marked using bold text for new items and <u>underline</u> / strikethrough for updates.</p>
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Supporting Information

- This SEI List includes qualifying Significant Standards Differences (SSD).
- Complete FAA SSD lists are located at:
https://www.faa.gov/aircraft/air_cert/design_approvals/transport/transport_intl/sd_list/ssd_nonssd_list/
- The applicable SSD list is determined from the amendment level of the certification basis.

³ See System Safety Assessments Final Rule (Amdt. No. 25-152), 89 FR 68706.

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FAA/EASA Technical Implementation Procedures (TIP) SEI Criteria (TIP paragraph 3.5.10.4(b))

- (1) New VA standards or certain SSDs where the VA or CA has limited past experience with the application to a product, they have an important impact on the whole product or a critical feature, and engineering judgment is required to establish compliance.
- (2) Airworthiness standards where the VA's and CA's interpretive, advisory, MOC, or guidance materials differ or are insufficient, to an extent that those differences impact the level of safety required by the VA system and could result in VA required changes to the type design or approved manuals. [As experience is gained, the VA may choose to reduce the application of this criterion to minimize non-Basic applications. When interpretive, advisory, MOC, or guidance materials are well understood by both authorities, full confidence should be given to the CA for determining compliance to those VA SEIs.]
- (3) Items identified for special emphasis by the VA in a data-driven risk assessment analysis for the product class.
- (4) Subjects linked to known safety conditions that the VA has identified, and for which the VA either has taken, or is in the process of taking, airworthiness action.

SEI Part 1

Projects with the following affected areas will be classified as non-Basic. (ref. TIP paragraph 3.5.3.2)

Subject	Standard	Description	Reference
Airplane Performance and Environment; Flight Controls			
Supercooled large drop icing conditions	25.21(g)(3), 25.21(g)(4), 25.1420	Application of Appendix O supercooled large drop icing conditions. SEI applicable Amdt. 25-140 and on. Limited experience with new standard.	
Active side stick controllers	25.143(d), 25.143(i)(2), 25.145(b), 25.173(c), 25.175(b), 25.175(d), 25.671, 25.1309	For active Side Stick controller applications, a means of compliance issue paper may be required to address the associated risks. There is insufficient guidance and all associated issues may not be harmonized.	MOC issue paper, Special conditions
Control System Gust Locks - Limit Operation of Aircraft	25.679(a)(2)	FAA requires an ELOS to 25.679(a)(2) if a physical device of some kind (e.g. Throttle interlock) is not used to limit operation of the airplane (e.g. taking off with gust limitation device engaged).	ELOS

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Subject	Standard	Description	Reference
Electronic Flight Control Systems (EFCS)	<u>Multiple</u>	Mature standards and guidance are unavailable for <u>Current regulations and guidance do not adequately ensure that</u> airplanes with electronic flight control systems <u>have a level of safety equivalent to that of existing standards.</u> The subject also covers <u>general limiting requirements,</u> side stick controllers, electronic flight control system failures, and mode annunciation. Special conditions may be needed. <u>Relevant standards and guidance include 25.671, 25.672, AC 25.671-1; 25.143, 25.145, 25.171, 25.173, 25.175, 25.177, 25.201, 25.203, 25.207, 25.397, AC 25-7; 25.685, 25.771, 25.777, 25.779, 25.781, 25.1301, 25.1302, 25.1309, 25.1322, 25.1329 & 25.1523, AC 25.1322-1, AC 25-1523-1.</u>	Special Conditions
Aeroelastic Stability (Flutter)	25.629	To establish the means of compliance with aeroelastic stability requirements for (i) airplanes equipped with feedback control systems that can affect the aeroelastic stability of the airplane, (ii) definition of failure conditions to be considered and (iii) addressing Limit Cycle Oscillation (LCO) and free-play, (iv) determining significance of a modification and extent of testing and analysis required, (v) hydraulic compensator design requirements. Multiple issues, complex and evolving. Recent policy and ELOS have <u>has</u> been applied and more rule and policy changes expected.	ELOS
Automatic takeoff thrust control system (ATTCS)	25.904, Appendix I	A special condition may be needed for approach climb performance credit for ATTCS during Go-Around, and an equivalent level of safety may be needed if there is no means provided for the flight crew to deactivate the automatic function of the ATTCS system.	Special conditions, ELOS
Steep approach landing (SAL)	25.125	There are no CFR airworthiness requirements that correspond to CS 25 Appendix Q. The FAA addresses SAL in AC 25-7D, which is more restrictive than CS 25 Appendix Q.	AC 25-7D
Structures			
Electronic Pressure Control Systems	25.365	SEI applies to 25.365 compliance for electronic pressure control systems: FAA has issued an ELOS, while EASA relies on CS 25.302.	ELOS
Ditching Loads	25.561, 25.563, 25.801	Water impact conditions are not fully defined in the subject requirements. There is insufficient guidance and this has led to different interpretations by the applicants in the past. A means of compliance issue paper may be necessary to establish the appropriate load conditions on the airplane model.	

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Subject	Standard	Description	Reference
New, novel or unusual materials or manufacturing processes	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 material 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 will automatically lead to non-basic classification. Additive Manufacturing (AM) is a relatively new manufacturing process. If the use of AM is proposed, the FAA will apply the AM Applicant Specific Guidance Memorandum. An Issue Paper may be required based on the applicant's response to the memorandum. Applicants can request the memorandum from their certification or validation branch.	
Fatigue and Damage Tolerance	25.571, 25.1529, Appendix H	SEI Applicable only to new TC and changes classified as significant under 14 CFR 21.101. 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 TCs, amended TCs (derivative airplane/model) or significant STCs (such as passenger to freighter conversions). This includes compliance approaches to address new inspection methods (e.g., structural health monitoring systems, such as comparative vacuum monitoring), establish inspection programs based on an initial flaw, and develop full-scale fatigue test evidence. Given the importance of the subject for the overall safety level of the airplane, the means of compliance needs to be understood.	AC 25.571-1D, AC 20-128, and FAA policy statement PS-ANM100-1993-00041
Flight Control System – Operation Tests	25.683	Compliance with 25.683(a) for electronic flight control systems (EFCS): CS/FAR 25.683(a) was originally intended for mechanical control systems, and methodology for EFCS is evolving. Sections 25.683(b) and (c) were added to the CFR at Amendment 25-139 to harmonize with CS 25.683(b) and (c). The FAA has limited experience with application of these safety-critical standards. This SEI is applicable only to projects with Amendment 25-139 in the certification basis.	CATA Worklist Item FAA-005

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Subject	Standard	Description	Reference
Limit of validity	26.21	SEI applies only to changes classified as significant under 14 CFR 21.101 for airplanes affected by § 26.21. Includes WFD maintenance actions determination (inspection start point and structural modification point), LOV and binding schedule. Changes to approved binding schedules must be processed as exemptions under 14 CFR part 11. For airplanes not affected by § 26.21 (transport category airplanes for which TC application was made after January 14, 2011) sections 25.571, 25.1529, and Appendix H apply.	AC 120-104
Extended limit of validity	26.23	SEI applicable only to the first LOV extension for a model. Includes WFD maintenance actions determination (inspection start point and structural modification point) and extended LOV.	AC 120-104
Cabin Safety			
Mini -Suites	<u>25.813(e)</u>	Installation of mini -suites, i.e., single occupant seat installations surrounded by 4 walls. Direct view, egress and potential ramifications on security are all areas that may require specific methods of compliance, or in some cases an exemption or equivalent level of safety finding. <u>An exemption from § 25.813(e) may be required if the suites incorporate doors or features that function as doors. Suites with high walls, i.e., walls high enough to prohibit suite occupants from viewing the emergency exits and diminish their overall situational awareness, may also require special conditions to address additional alerting, oxygen and fire protection provisions.</u>	Special conditions, ELOS, Exemption
Use of Magnesium in the Cabin and Flightdeck (excludes seats designs)		Magnesium is a flammable metal that has historically not been used in the cabin and has been limited in the flightdeck. Flammable metals are not addressed by the current fire safety regulations.	Special conditions

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Subject	Standard	Description	Reference
Airplane security (physical security measures)	25.795(a)(4) 25.795(d)	Any project involving any airplane (design) security measure. Including, but not limited to, the following specific issues: <ul style="list-style-type: none"> • Inflight passenger access to checked cargo. • Secondary flight deck door: Doors installed between the flight deck door and the passenger cabin. The regulations⁴ most applicable to the secondary door are §§ 25.795(a)(4), 121.313(l) and 121.584(a)(3). Additional requirements include, but are not limited to, regulations relating to rapid decompression, emergency access to the flight deck, emergency evacuation, structural strength, and markings and placards. Airlines may install such a door in order to gain approval to modify procedures currently in place addressing § 121.587(b). • Chemical oxygen generator: CS/14 CFR 25.795(d) requires chemical oxygen generators be secure from deliberate manipulation. This is a new requirement for which no one has yet demonstrated compliance. 	MOC issue paper
Emergency evacuation demonstration	25.803 25.810	Applicable to projects requiring a new compliance determination to 14 CFR 25.803 or 25.810. This includes changes to the emergency evacuation escape slides or any changes requiring emergency evacuation substantiation. Escape slide projects are rare, there is not extensive published guidance and certification is a complex process. Emergency evacuation demonstration is also rare, and typically involves a combination of test and analysis, through a complex process with high visibility.	
Glass in the Cabin	25.603	The FAA is not fully harmonized with EASA on large glass installations in the passenger cabin. EASA has published an MOC to CS 25.603 and the FAA addresses this issue via Issue Paper followed by Special Conditions. The EASA MOC accepts expulsion of glass particles (glass throw) resulting from necessary impact testing and the FAA does not allow any glass throw. This is a SSD.	Special Condition

⁴ See Installation and Operation of Flightdeck Installed Physical Secondary Barriers on Transport Category Airplanes in Part 121 Service Final Rule (Amdt. Nos. 25-150 and 121-389), 88 FR 41295.

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Subject	Standard	Description	Reference
Photoluminescent Exit Signs	25.812(b)	Photoluminescent exit signs require an external light source to charge the device. The FAA is unable to certify photoluminescent exit signs under current regulations. FAA's interpretation of the term "self illuminated" in 25.812(b) is that the energy source for illumination must be contained entirely within the device (an example would be tritium signs). EASA has allowed photoluminescent exit signage under an Equivalent Level of Safety for the "self illuminated" exit signs.	
Additive Manufacturing – Flammability of Parts	25.853 25.855	Additive Manufacturing (also known as 3D printing) may allow for variability in the production process that, while still producing the same part in accordance with the drawings, might not control flammability characteristics. You may need a method of compliance issue paper for additive manufactured parts that must meet part 25 flammability requirements. FAA involvement and an issue paper is not needed for parts that must only meet a Bunsen burner test(s) and either are constructed with Ultem 9085 or produce a Fire Growth Capacity (FGC) less than 70 J/gk in a microscale combustion calorimeter test conducted per ASTM D7309-21.	MOC issue paper
Wheelchair Securement Installation		Guidance needs to be established for wheelchair securement installations, which include a wheelchair tie-down system and occupant restraint. A method of compliance with §§ 25.561, 25.562 and other regulations, or a special condition, may be needed.	
Aircraft Systems			
Acceptable Low Temperature Physiological Environment During Failure Conditions	25.831(a)	A method of compliance issue paper may be needed to define acceptable low temperature physiological limits for occupants following an airplane system failure that could cause a drop in the environmental temperature. Insufficient guidance exists and all associated issues are not harmonized.	MOC issue paper
Cabin Temperature-Humidity Limits	25.831(g)	An equivalent safety finding may be needed for any airplane that exceeds the limits of §25.831(g) at Amdt 25-87.	ELOS

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Subject	Standard	Description	Reference
Fire Extinguishing/ Suppression Agent (Halon Replacement)	25.851	Halon is being phased out of airplane applications per ICAO deadlines. The use of non-Halon fire extinguishing/suppression agents for use in lavatory trash receptacle bottles, handheld fire extinguishers, engine/APU fire extinguishing and cargo compartment fire suppression should be documented by a means of compliance issue paper. There is insufficient guidance available for new fire extinguishing agents used in lieu of halon	MOC issue paper
Main Deck Class C Cargo Compartment Halon Fire Extinguishing Agent Penetration into Occupied Cabin Areas	25.851, 25.855, 25.857	An issue paper may be needed to ensure an adequate design means is included and appropriate flight test compliance shown to ensure fire extinguishing agent penetration into occupied areas of the airplane does not occur or occurs at an acceptable level. There is insufficient guidance available and all issues are not fully harmonized.	MOC issue paper
Main Deck Class E Cargo Compartment - Protection of Critical Systems	25.855	An issue paper may be needed to ensure an adequate design means is included to protect critical systems located in, or in the vicinity of, the main deck cargo compartment from the effects of a main deck cargo fire.	MOC Issue Paper or EASA confirmation that applicant's design successfully addresses FAA Transport Airplane Position Paper TAPP- 25.855-1.
Stowage/Baggage Compartment Fire Protection in Remote Areas		A special condition may be needed for fire protection measures in certain remote areas that contain combustibles and ignition sources.	Special conditions
Medical and Therapeutic Oxygen Distribution Systems	25.1445(a)	Special conditions are required for oxygen distribution systems in addition to those addressed by part 25 for passengers and crew members (e.g., medical oxygen, therapeutic oxygen). The intent of the special conditions would be to extend the requirements of § 25.1445(a) to this oxygen distribution system to ensure that the minimum supply required by the passengers is reserved.	Special conditions

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Subject	Standard	Description	Reference
Protection against Wheel and Tire Failures, and Small Debris from Engine/APU.	Multiple	Applicable to projects requiring a compliance determination to 25.729(f). Different requirements and guidance, and different tire failure and engine debris models.	
Lithium Batteries – Non-Rechargeable	25.1353	Special conditions are needed for non-rechargeable lithium battery installations. Draft AC 20-192, published for public comment on 10/12/2018, provides a means of compliance with the proposed special conditions. RTCA DO-227A is the accepted means of compliance to comply with the special conditions 1 and 2.	Special conditions
Lithium Batteries - Rechargeable	25.1353	Special conditions are needed for rechargeable lithium battery installations. Draft AC 20-184A, published for public comment on 10/12/2018, provides a means of compliance with the proposed special conditions. RTCA DO-311A is the accepted means of compliance to comply with the special conditions 1 and 2.	Special conditions
LED Landing and Taxi Light Night Performance	25.1383	Compliance with 14 CFR 25.1383(a)(2) and (3) is required to address unique aspects of LED landing and taxi light installation. ICAs and night landing/taxi performance evaluation is needed.	
Propulsion			
Reduced (Flexible) Takeoff Thrust Operations and Throttle Motion	25.779(b)(1)	An ELOS to § 25.779(b)(1) may be needed if there is a flight condition where there is an increasing thrust command given when the throttles are reduced (or vice versa). This can be an issue on non-moving throttles. Policy is not harmonized between FAA and EASA.	ELOS

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Powerplant Installation	25.901(c)	Applicable to projects requiring a 25.901(c) compliance determination. <u>Amendment 25-40 to 25-152:</u> <u>The FAA requires the fail-safe concept - no failure(s) will jeopardize the safe operation of the airplane. CS 25.901(c) requires compliance with CS 25.1309. 14 CFR 25.901(c) includes the "fail-safe" requirements as part of the rule in 14 CFR 25.901(c). Fail-safe is applied by guidance in AMC 25.1309 and is therefore not mandatory by CS 25.1309. FAA has no formal guidance to address some specifics of how to address latent plus one failures and requires subjectivity to find compliance in many cases.</u>	
Uncontrollable High Thrust (UHT)	25.901(c)	A draft advisory circular provides a means of compliance with § 25.901(c) as it relates to failures that prevent the flightcrew from controlling thrust through the normal means when actual thrust is higher than commanded (a.k.a., uncontrollable high thrust). Applicants may use the draft advisory circular by referring to it in their project specific certification plan. When the applicant has done everything practical within the scope of the project to assure a compliant design, but still cannot demonstrate full compliance, granting an exemption may be in the public interest.	Exemption
Uncontained Engine and Tire Failure - Debris Penetration of Fuel Tank Composite Structure	25.903(d)	Special Conditions may be needed to ensure that impacts to fuel tank composite structure from uncontained engine or tire failures 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. FAA and EASA policy is not harmonized.	Special conditions
Reverse Thrust and Propeller Pitch Settings Below the Flight Regime	25.901(c), 25.933, 25.1155, 25.1309	The provisions of the current § 25.1155 have proven inadequate. Until that requirement is harmonized with the current EASA CS 25.1155, an ELOS may be needed to apply CS 25.1155 standards for compliance to 14 CFR 25.1155.	ELOS
Inflight All-Engine Restart	25.903(e)	Policy between the FAA and EASA is not fully harmonized to address engine restart following loss of all engine power. This issue applies to all airplanes powered by high bypass engines, engines with free power turbines, or with limited restart capability.	CATA Worklist Item TCCA-002

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Subject	Standard	Description	Reference
Potential Engine Damage from Airframe Ice Outside of Icing Conditions	21.21(b)(2), 25.1093(b)	Policy between the FAA and EASA is not fully harmonized to address potential ingestion of wing ice that may form during non-icing conditions (e.g., cold-soaked fuel in wing tanks), shed and cause an all engine failure. This issue is applicable to all aft fuselage mounted engine installations.	
Fuel System/Cockpit Interface Safety Analysis	Multiple	Published policy is not available for FAA or EASA for certification projects of airplanes with two crew cockpits, to address considerations for safety analysis of the fuel system in relation to cockpit interface issues in compliance with §§ 25.901, 25.903, 25.955, 25.1305, 25.1337, 25.1501, 25.1523.	
Composite Wing and Fuel Tank Structure Post Crash Fire Survivability	25.867 25.963	A special condition may be needed to address §§ 25.867 and 25.963 because of fuel tank ignition sources related to composites in a post-crash fire. Composite material may not be as fire resistant as aluminum and may result in hot spots that cause ignition sources in fuel tanks. Composite structure may not match the existing level of safety that aluminum structure exhibits during a post-crash fire.	Special conditions
Fuel Tank Expansion Space for Composite Wing	25.969	Published policy is not available for FAA or EASA to address § 25.969. Composite material thermal expansion characteristics may result in less tank volume increase with temperature increase than traditional aluminum fuel tanks. Additional fuel tank expansion space may be needed to provide equivalent margin from fuel spillage provided by conventional aluminum fuel tanks.	
Lightning Protection of Fuel Tank Structure and Systems	25.981(a)(3)	Special conditions, exemptions, or exceptions under 14 CFR 21.101 may be needed to address fuel tank ignition sources from structural lightning, because compliance with current regulatory standards applicable to fuel tank lightning protection can be impractical. Refer to FAA Policy Statement PS-ANM-25.981-02.	Special conditions or exemptions. FAA Policy Statement PS-ANM-25.981-02, dated June 24, 2014.

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Subject	Standard	Description	Reference
Electrostatic Charge During Airplane Fueling of Composite Fuel Tanks	25.981	Mature guidance is not available from either authority to address fuel tank ignition prevention from electrostatic charge in compliance with § 25.981. During airplane fueling operations, the low electrical conductivity of composite materials could result in isolated parts that can collect electrostatic charge, or may result in longer electrostatic charge relaxation time of the fuel. Additional means may be needed to keep the accumulated charge on the fuel surface at a safe level to prevent an ignition source in the fuel tank.	
Fuel Tank Ignition Prevention and Electrical System Changes	25.981	Published policy is not available to determine the applicability of § 25.981 at Amendment 25-102 or later because electrical system changes can create fuel tank ignition sources.	
Fuel Pump Circuit Protection	Multiple	Mature guidance is not available to address §§ 25.901, 25.981, 25.951, 25.952, 25.955, 25.961, 25.1301, 25.1309, 25.1316, 25.1351, 25.1353, 25.1357, 25.1363, 25.1581, 25.1529, 25.1585 because installation of ground fault interrupters or other devices to protect fuel pumps may be needed to address fuel tank ignition sources.	
Secondary Fuel Vapor Barrier for Composite Structure	25.967(e)	Section 25.967(e) requires fuel tanks to be isolated from the personnel compartments by a fume proof and fuel proof enclosure. There is no published policy by FAA or EASA to ensure secondary fuel barrier coatings used on traditional aluminum tank construction are compatible for use with fuel tanks made of composites.	

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Induction system icing protection	25.1093(b)	<p>There are significant standards differences with 25.1093(b) at several amendment levels that may require development of means of compliance since the published guidance in AC 20-147A is not sufficient. The following aspects may require FAA involvement:</p> <ul style="list-style-type: none"> (1) Establishing the means of compliance to clarify 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. (2) Prior to CS 25 amendment 16; means of compliance to address falling and blowing snow. (3) At CS 25 amendment 16 and later, a means of compliance to describe that flight testing may be needed to sufficiently validate an analytical compliance demonstration to in-flight evaluating mixed phase and ice crystal icing (ICI) conditions. Means of compliance for ICI conditions is evolving and engineering judgement is required to determine if an applicant has sufficiently validated their analytical methods. 	FAA policy memorandum dated August 3, 1992 and AC 20-147A
Flammable Fluid Fire Protection	Multiple	Published policy is not yet available for the FAA or EASA, and is not yet fully harmonized for flammable fluid fire protection regulations §§25.863, 25.1187 and other relevant regulations.	draft FAA AC 25.863-1
APU Certification Requirements	Multiple	An ELOS to multiple regulations in subpart E, F and G may be needed if the applicant proposes to meet alternative certification standards for the APU. EASA APU standards in CS-25 subpart J cannot be adopted by ELOS without changes since there are significant differences with stricter FAA requirements. If an applicant chooses to use these APU certification requirements, ELOS findings for §§ 25.1103(e), 25.1105 and 25.1305 would not be separately needed since an ELOS standard for these regulations is incorporated into the draft APU installation requirements of this issue paper.	ELOS

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Subject	Standard	Description	Reference
APU Inlet Fire Protection	25.1103(e)	In lieu of showing that an APU inlet duct is fireproof for a sufficient distance upstream of the APU compartment as required by § 25.1103(e), an APU control system that detects hot gas reverse flow and automatically shuts down the APU before the hot gases can create a hazard may provide an equivalent level of safety. A separate issue paper for this ELOS finding would not be necessary if the applicant chooses to comply with draft APU installation requirements dated April 2001 in lieu of existing part 25 requirements since an equivalent level of safety standard for APU inlet fire protection is incorporated into those draft APU installation requirements.	ELOS
APU Instruments	25.1305	An equivalent level of safety (ELOS) finding may be needed to allow certification of an APU installation without certain flight deck instruments required by § 25.1305. A separate issue paper for this ELOS finding would not be necessary if the applicant chooses to comply with draft APU installation requirements dated April 2001 in lieu of existing part 25 requirements since an equivalent level of safety standard for required APU instruments is incorporated into those draft APU installation requirements.	ELOS
Auxiliary Fuel Tank Installations		AC 25-8 primarily addresses auxiliary fuel tank installations in cargo compartments. FAA and EASA policy is not harmonized for fuel system and crashworthiness requirements for auxiliary fuel tanks installed in other locations, such as a passenger compartment. Additionally, a method of compliance may need to be established for fuel tank installations in the horizontal stabilizer, to address fuel leaks or spills caused by maneuvers, malfunctions or structural damage.	AC 25-8
AVM (Airborne Vibration Monitoring) Indication and Qualifications		Published guidance is not available on this topic for either authority, to address installation of a different engine on an existing airplane and §25.1305(d)(3) at Amendment 25-35 was not part of the airplane's pre-modified certification basis. Additionally, a means of compliance may be needed for AVM indicators, including qualification requirements.	
Backing Using Reverse Thrust (Powerback)	25.901(c), 25.939, 25.1041, 25.1091	Published guidance does not adequately cover this subject if an applicant requests type design approval to use reverse power or thrust from the airplanes engines to move the airplane backwards in lieu of using a tug.	

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Subject	Standard	Description	Reference
Digital Display of Engine Parameters	25.1305, 25.1549	Published guidance does not adequately cover this subject. A means of compliance may be needed if any required engine parameter, such as those specified in § 25.1305, is nominally displayed in a digital-only format. If the marking requirements of § 25.1549 are applicable to that engine parameter, an equivalent level of safety finding will likely be needed.	ELOS
Fuel Shutoff Valves position indication	25.1141(f)	An equivalent level of safety finding may be needed if the position of the fuel shutoff valve is not adequately indicated in compliance with § 25.1141.	ELOS
Engine and APU Fire Protection	25.1193(e)	Direct compliance is possible under the CS but an ELOS is required for the same design for 14 CFR to address nacelle skins that do not meet the fireproof requirement of § 25.1193(e)(3) based on compliance with § 25.1193(e)(1) which requires that burn through of nacelle skins not create any additional hazard to the airplane.	ELOS
Fuel Temperature Indication	25.1521(c)(2)	Published policy is not available for FAA or EASA to address § 25.1521(c)(2) if fuel temperature indication is not provided.	
ETOPS approval	25.1535	14 CFR 25.1535 refers to ETOPs airworthiness requirements of Appendix K. 14 CFR Appendix K does not have a corresponding CS, however 14 CFR K25.1.1 and K25.1.2 are covered in CS 25.1535. Neither FAA nor EASA define specific atmospheric icing conditions that must be considered to develop critical ice shapes for ETOPS diversions in accordance with 14 CFR 25.1535 and Appendix K.25.1.3.	MOC issue paper
System Safety			
System Safety Assessments	25.4, 25.302, 25.629, 25.671, 25.901, 25.933, 25.1301, 25.1309, H25.4(a)(6)	There is limited experience with the FAA's new and revised regulations for system safety assessments in amendment 25-152. The FAA needs technical involvement for oversight of the application of these regulations and the new guidance material associated with these regulations.	AC 25.629-1C, AC 25.671-1, AC 25.901-1, AC 25.933-1, AC 25.1309-1B, AC 25-19A

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Subject	Standard	Description	Reference
Use of Dissimilarity in Critical System Implementations	25.1309, SAE ARP4754B, <u>ARP4761A</u>	This SEI applies to new TCs and significant product changes for which critical systems are an affected area. Certification Position Paper CPP-25.1309-1 provides a means of compliance to address the use of dissimilarity when showing compliance to 25.1309(b) for complex and critical systems. It summarizes the safety risk and consequent certification considerations when relying on dissimilar architecture solutions to protect against common mode failures or errors. CPP-25.1309-1 replaces and is identical in content to TAPP-25.1309-2. CPP-25.1309-1 should be used unless a previously approved certification plan already references TAPP-25.1309-2.	Certification Position Paper CPP-25.1309-1
Thrust Reverser Removal	25.1309	SEI applicable to projects in which thrust reversers are removed from, or deactivated on, products originally certified with thrust reversers. Removal/deactivation of thrust reversers introduces system safety considerations for which mature compliance methods are not available. This may include revised operational factor considerations for wet or slippery runways.	
Human Factors			
Human Factors	25.1302, 25.1309, 25.1322, 25.1329, 25.1523	The FAA has identified safety-related concerns with traditionally-accepted assumptions related to human factors. In addition, the FAA has identified differences in application of section 25.1302 and AC/AMC 25.1302-1, as well as 25.1322. The FAA is required to review and validate any underlying assumptions related to human factors used in system safety assessments [Ref. Aircraft Certification, Safety, and Accountability Act, Sec. 106]. The FAA will use an issue paper to document agreement on acceptable methods of compliance. This SEI is only applicable for new TCs, derivatives and significant changes for which § 25.1302 and/or human factors aspects of 25.1309, 25.1322, 25.1329 or 25.1523 are affected.	MOC Issue Paper
Avionics & Electrical Systems			
Artificial Intelligence and Machine Learning	25.1301, 25.1309	The use of artificial intelligence/machine learning requires specific guidance that is not available in current material	
MBD for hardware development	25.1301, 25.1309	The use of Model Based Development (MBD) within the development process of custom devices requires guidance that is not available in current material.	

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Subject	Standard	Description	Reference
Aircraft Electronic System Security Isolation or Protection from Internal Access		Special conditions may be needed to ensure isolation or protection if internal systems are allowed to transmit or write to previously isolated data networks connected to systems that perform functions required for the safe operation of the airplane.	Special conditions
Aircraft Electronic System Security Protection from Unauthorized External Access		Special conditions may be needed if external sources are allowed to transmit or write to aircraft systems, databuses or servers connected to systems that perform functions required for the safe operation of the airplane.	Special conditions
Automatic Dependent Surveillance - Broadcast (ADS-B In)		For ADS-B In. Evolving technology and compliance methods.	AC 20-172B
Integration of other GNSS Constellations with GPS or GPS/SBAS	25.1301, 25.1309	Emerging Technology/Issue. New means of compliance may be needed for GNSS equipment to use other GNSS constellations (i.e. GLONASS, GALILEO, BeiDou).	
Use of Ground-Based Augmentation System (GBAS) in CAT II/III operations	25.1301, 25.1309	The standards for GBAS to support CAT II/III levels of services are in ICAO Annex 10 and the applicable airborne standards are in TSO-C161b and TSO-C162b. Draft AC 20-191 provides guidance information for low visibility takeoff, final approach, landing, and rollout in Category II and Category III weather minima using GBAS.	Draft AC 20-191
Using Autopilot/Auto Throttles/Flight Director During Traffic Alert and Collision Avoidance System (TCAS) Resolution Advisory	25.1301, 25.1309, 25.1329	Mature guidance is not yet available for using the Autopilot/Auto Throttles/Flight Director during a TCAS Resolution Advisory maneuver such that the behavior is predictable and unambiguous to the flightcrew.	MOC Issue Paper
Global Navigation Satellite System (GNSS)-Aided Inertial Reference Systems (IRS) or Altitude Heading Reference Systems (AHRS)	25.1301, 25.1309	A means of compliance issue paper may be needed for GNSS-aided IRS or AHRS used to provide navigation coasting capability in the absence of GNSS or to provide enhanced heading, velocity or attitude information. An issue paper is not necessary for loosely coupled GNSS-IRS integrations with an inertial navigation component compliant with 14 CFR 121, appendix G.	MOC Issue Paper

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Subject	Standard	Description	Reference
Required Navigation Performance (RNP) with Authorization Required (AR) Operations	25.1301, 25.1309, 25.1322	This SEI relates to certification of RNP AR capability of the aircraft and includes RNP AR Approach (RNP AR APCH) and RNP AR Departure Procedures (RNP AR DP). The definition of the roles of the Airworthiness and Operational offices vary across the authorities. To avoid delays in processing RNP AR aircraft qualification airworthiness applications, coordination should occur during TC/STC to ensure RNP AR requirements are met and documented in a manner supporting applicants' RNP AR operational authorization requests in the U.S..	
Time of Arrival Control (TOAC) - Also Known as Required Time of Arrival (RTA)	25.1301, 25.1309, 25.1322, 25.1329	Mature guidance is not yet available for navigation systems intended to provide time of arrival control.	MOC Issue Paper
Flight Crew Electronic Voice Checklist	Multiple	Mature guidance is not yet available for flight crew electronic voice checklists, for designs not previously approved, or for any design intended for non-normal checklists.	MOC Issue Paper
Display of <u>Data Driven</u> Aeronautical Charts	25.1301, 25.1302, 25.1309, 25.1322, etc.	Mature guidance is not yet available for approval of the display of <u>data driven</u> aeronautical charts on any of the installed displays (e.g., display of departure, arrival, and approach procedures). Data Driven Charts is an area of evolving technology.	MOC Issue Paper
Use of Portable Electronic Devices (PEDs) <u>Interfacing</u> to Control Installed Airplane Systems in the Cabin	25.1301, 25.1309	Mature methods of compliance are not available for use of PEDs <u>interfacing</u> to control certain aircraft systems.	MOC Issue Paper
Use of Portable Electronic Devices (PEDs) <u>Interfacing</u> to Control Installed Airplane Systems in the Flight Deck	25.773, 25.1301, 25.1309,	Mature methods of compliance are not available for use of PEDs <u>interfacing</u> to control certain aircraft systems. Applicable when applicants propose to interface PEDs to installed airplane systems in the flight deck. Does not apply to receive-only portable electronic flight bag (EFB) installations that do not transmit to installed equipment on the airplane. Mature methods of compliance are not available for use of PEDs <u>interfacing</u> to control certain aircraft systems.	MOC Issue Paper

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SEI Part 2

Projects with the following affected areas may be classified as Basic if no other SEI or other non-Basic criteria are applicable, and if the applicant applies the methods of compliance identified in the “Acceptable Method of Compliance” column. When the listed acceptable MOC is used by the applicant, the FAA gives full confidence to EASA for determining compliance. Deviations from the listed acceptable MOC result in a non-Basic classification by the certifying authority. (ref. TIP paragraph 3.5.10.4(b)(ii))

Subject	Standard(s)	Description	Acceptable Method of Compliance
15 knot Tailwind Approval for Takeoff and Landing	25.21(f)	Harmonized compliance methods are not available for 15 knot Tailwind Approval for Takeoff and Landing.	Draft AC 25-7D Change 1
Use of Type II, III, and IV Deicing/Anti-Icing Fluids	25.143, 25.251, 25.1529, 25.1581, 25.1585, 25.1587, H25.3	If the applicant is including the use of Type II, III, or IV deicing/anti-icing fluids as part of their type design, then they must assess the impact of these fluids before operational use of such fluids is authorized. Policy Statement, PS-ANM-25-10, provides an FAA accepted means of compliance (MOC) for using Type II, III, or IV deicing/anti-icing fluids.	FAA policy statement PS-ANM-25-10
Certification of Structural Elements in Flight Control Systems	25.571, 25.671, 25.1309	SEI applies only to structural elements in flight control systems. FAA issued Policy Statement PS-ANM-25-12 in 2015. Not fully harmonized with EASA.	FAA policy statement PS-ANM-25-12
Seat adapter plates	25.561, 25.562	SEI applies to installations of multiple single-place seats onto adapter plates, with the adapter plate installed into the airplane seat track (or other structure).	FAA policy statements PS-ANM100-2000-00123 and -00129.
Fuel Tank Vents	25.975(a)(7)	There is limited experience applying the new standard.	AC 25.975-1
Fire Extinguishing Plumbing and Wiring Connections	21.21(b)(2)	Applicants must reduce the likelihood of electrical and plumbing cross-connections in fire detection, suppression and extinguishing systems. Current practice is not harmonized.	FAA policy statement PS-AIR-20-1902
Touch Screen Interface and Control Device in Flight Deck	25.777, 25.1302	Relates to installing touch screens in the flight deck in lieu of physical controls (e.g., knobs, buttons, levers) to 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.	(1) Refer to AC 25.1302-1 and AC 20-175 when 25.1302 is in the certification basis. OR (2) Refer to Transport Airplane Position Paper No. TAPP-25.777-1 when 25.1302 is not in the certification basis.

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Subject	Standard(s)	Description	Acceptable Method of Compliance
Oxygen equipment and supply	25.1441(d)	Means of compliance is affected by decompression requirements of Amdt. 25-87. There is insufficient certification guidance for oxygen systems used at cabin pressure altitude above 40,000 feet.	FAA draft policy statement PS-AIR-25.1441.03
Sizing Criteria for Stored Energy Systems Used for Emergency Braking	25.735, 25.671, 25.1309	The regulatory requirement for 25.735(h) is for six brake applications and bringing the airplane to a complete stop when an antiskid system is operating, under all runway surface conditions if certain single failure conditions exist. The airplane must be capable of stopping for after more than one failure to meet the requirements of 25.671(d) and 25.1309(b). Applicants that follow the guidance in SAE ARP6952 will not need FAA technical involvement.	SAE ARP6952
Automatic Dependent Surveillance - Broadcast (ADS-B Out)		The FAA and EASA are not harmonized on requirements regarding ADS-B Out. If the applicant follows AC 20-165B, or CS-ACNS Subpart D Section 4 including Appendix J, which identifies the significant differences between the EASA CS-ACNS and AC 20-165B, then the project can be classified as Basic.	AC 20-165B
Runway Excursion Hazard Classification Policy	25.1309	Relates to classification of systems failure conditions leading to runway excursions. The FAA has significant differences with EASA concerning runway excursion hazards. FAA policy is provided in PS-ANM-25-11. <u>CATA Worklist Item FAA-004 presents a harmonized practice that includes additional criteria for § 25.1309 compliance related to runway excursion hazard identification.</u>	FAA policy statement PS-ANM-25-11, <u>CATA Worklist Item FAA-004</u>

End