

Small Airplane Standards Branch (SASB)
Non-Basic Classification Criteria
And
Safety Emphasis Items (SEI)
List

Applicable to:
Implementation Procedures
Revision 2
Between the
Federal Aviation Administration of the United States of America
and the
The Government of the Federative Republic of Brazil

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General

This list is per ANAC Implementation Procedure Rev 2. Later revisions will be reviewed for impact to the criteria given in this list. This non-basic list is for the case where the United States is acting as the validating authority for ANAC and includes all Non-Basic categories listed in section 3.5.3.2.

This list is applicable to airplanes weighing 19,000 pounds or less with passenger configurations of 19 seats or less certificated (or seeking certification) in 14 CFR part 23. This list also applies to manned free balloons (14 CFR Part 31), gliders, airships, very light airplanes, and some other special class products (14 CFR 21.17b).

Common terms on this list:

FCAA – means any foreign certification aviation authority (ANAC in this case) that is the certifying authority (CA) {state of design (SOD)} on the incoming (import) products where the FAA is the validating authority VA {state of registry (SOR)}.

SASB – Small Airplane Standards Branch

ANAC – National Agency for Civil Aviation in Brazil

MOC – Means of Compliance

Note - FAA exemptions, equivalent level of safety findings (ELOS), special conditions (SC), advisory circulars (AC), policy statements (PS) and other relevant guidance mentioned in this list are publically available at <https://rql.faa.gov/>

3.5.10.4 VA Safety Emphasis Item (SEI) List

1000 V1.0 ANAC Additional Issues Covered by FCARs

When additional ANAC issues covered by FCARs are beyond the certification basis definition and are part of an incoming validation project, the SASB will evaluate each FCAR to determine if it provides a level of safety equivalent to FAA standards as required by 14 CFR 21.29.

Regulatory Reference: 14 CFR 23 at amendment 23-63 and prior.
14 CFR 23.2010 at amendment 23-64 and after.

1200 V1.0 Airplane Flight Manual (AFM) and Pilot Operational Handbook (POH)

The FAA must review every AFM or POH and AFM Supplements (AFMS) for operational acceptability. After the FAA's acceptance of the AFM, including direct approval of the limitation sections, the FAA will request ANAC to sign the manual on behalf of the FAA. This also includes corresponding changes to these manuals. However, changes deemed minor per the ANAC part 21 procedures, to sections other than the limitations sections, can be deemed FAA accepted and will not require FAA review.

Operational regulations are not harmonized with other Foreign Civil Aviation Authorities. It is imperative that the FAA Aircraft Certification Office and Airplane Evaluation Group (AEG) evaluate products seeking U.S. validation to ensure the AFM, AFMS, and corresponding changes to them meet the requirements of the U.S. operational regulations.

Regulatory Reference: 14 CFR 23.1581, 23.1583, 23.1585, 23.1587, 23.1589 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2620 at amendment 23-64 and after.

1240 V1.0 Instructions for Continued Airworthiness (ICA) & ICA Limitations

The FAA retains the acceptance of the complete Instructions for Continued Airworthiness (ICAs), including the Airworthiness Limitation Section (ALS). After the FAA's acceptance of the ICAs, including direct approval of the ALS, the FAA will request ANAC to sign the manuals on behalf of the FAA. This also includes corresponding changes to these ICA manuals. However, changes deemed minor per the ANAC part 21 procedures, to sections other than the ALS, can be deemed FAA accepted and will not require FAA review. The maintenance regulations are not harmonized with other Foreign Civil Aviation Authorities (FCAAs).

Regulatory Reference: 14 CFR 21.31, 21.50, and 23.1529 (both pre and post amendment 23-64).

1280 V1.0 Validation Flight Testing (Evaluation Flights)

For all new Type Certificates (TCs), the FAA will conduct validation flights (evaluation flight program).

In addition, the FAA will evaluate and determine the need to conduct validation flight(s) for any of the following type design changes including STCs that:

- Significantly change the general aircraft configuration that affects flying characteristics;
- Change operational usage;
- Affect human factors of the flight deck or flight characteristics, including—
 - New FAA ELOS, Special Condition or Exemption; or
 - Means of compliance (MOC) that have not been previously accepted by the FAA;
 - New touchscreen with multi-function controls
 - Affects areas that are non-basic or were previously identified as FAA validation items

These projects are non-basic.

Regulatory Reference: 14 CFR 21.17(b) and 21.29

1320 V1.0 FAA Specialized Flight Training - Flight Standardization Board (FSB) Involvement or Affects Existing FAA FSB

Applicants seeking to create special or specific flight-training programs, or authorization requirements to operate per 14 CFR 61.31, the FAA requires a Flight Standardization Board to determine if there is a need for a type rating, additional or special training, or a need for authorization requirements. The SASB will coordinate with the Airplane Evaluation Group for the FSB.

If there is a change to a product that has an existing FAA type rating, or special or specific flight training, the SASB and AEG will determine their involvement.

Regulatory Reference: 14 CFR 61.31

1420 V1.1 Flight Into Known Icing (FIKI)

Applicants must coordinate with the SASB if they are:

- Seeking FIKI approvals, or
- Proposing changes that affect or could affect an existing FIKI approval, or
- Proposing to modify an aircraft that has icing related airworthiness directives (AD), or
- Proposing to make autopilot modifications on an airplane certificated for icing prior to Amendment 23-43 to ensure the airplane has adequate low airspeed awareness.

Regulatory Reference: 14 CFR 23.929, 23.1416, 23.1419 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2165, 23.2415, 23.2540 at amendment 23-64 and after.

1480 V1.0 Engine Operation in Ice Crystal Conditions

If the applicant is using Electronic Engine Control (EEC) logic to determine if the airplane is operating in ice crystal conditions, then the SASB will be involved in the project. For example, blockage of the Tt0 probe by ice crystals has resulted in engine thrust rollbacks in ice crystal environments.

Regulatory Reference: 14 CFR 23.903(a)(2) at amendment 23-63 and prior.
14 CFR 23.2010, 23.2400 at amendment 23-64 and after.

3.5.3.2 Non-Basic Classification Items

3.5.3.2(a) New Type Certificates

4180 V1.0 New Type Certificates (TC) or Derivative Models not yet added to the U.S. TC

Applications for validation of a new 21.29 TC for airplanes weighing 19,000 pounds or less with passenger configurations of 19 seats or less seeking certification in 14 CFR part 23 shall be classified as non-basic. In addition, manned free balloons (14 CFR Part 31), gliders, airships, very light airplanes, and some other special class products (14 CFR 21.17b) shall be classified as non-basic.

All applications for validation of derivative model(s) to an existing FAA 21.29 TC are also considered non-basic for 14 CFR part 21.17(b) (UAS, Gliders, Airships), part 23 (Small Airplanes), or part 31 (Balloons).

Regulatory Reference: 14 CFR 21.29

3.5.3.2(b) Major Design Changes, including STCs

4160 V1.0 New or Amended Exemption

If the certifying authority (CA) has applied a regulatory exemption (or deviation) to their requirements, the FAA SASB will review the exemption/deviation to determine the most appropriate course of FAA action.

Regulatory Reference: 14 CFR 11.15 and 11.63

4240 V1.0 New or Amended Special Conditions added by the Certifying Authority (CA)

Special Conditions (14 CFR part 21.16) added by the Certifying Authority (CA) will be reviewed by the FAA SASB to determine the appropriate FAA action(s).

Special conditions are added to the FAA certification basis for a product when the FAA finds that the airworthiness standards for the product are inadequate because of a novel or unusual design feature.

CAs should be aware that Gliders and Airships in the United States are certificated under 14 CFR 21.17(b) special class. As such, any special conditions added by the CA would not receive a reciprocal FAA special condition but rather such additional airworthiness criteria are processed as airworthiness criteria and publically noticed for comment under 21.17(b) before they are added to the certification basis.

Regulatory Reference: 14 CFR 11.19 and 11.38

1780 V1.1 Autothrust System: New or Amended Special Condition

If the applicant is seeking to install an autothrust (autothrottle) system, then they may be required to apply special conditions to establish adequate requirements at amendment 23-63 or earlier based on the requirements of 14 CFR 25.1329.

At amendment 23-64 and after, applicants should coordinate with the SASB and incorporate the requirements of the special conditions into their certification planning for 14 CFR 23.2500, 23.2505, 23.2510, 23.2605 as FAA accepted means of compliance (MOC) in lieu of a special condition.

Regulatory Reference: No rule at 14 CFR part 23 amendment 23-63 and prior.
Reference 23.143 (amendment 23-50), and 23.1309 (amendment 23-62), and 14 CFR 25.1329 (amendment 25-119) via special condition at amendment 23-63 and prior.
14 CFR 23.2010, 23.2500, 23.2505, 23.2510, 23.2605 at amendment 23-64 and after.

1820 V1.1 Engine Control System: New or Amended Special Condition

If the applicant is seeking to install a full authority or supervisory engine control system (EEC/FADEC), then they may be required to apply special conditions to establish adequate requirements at amendment 23-63 or earlier.

At amendment 23-64 and after, applicants should incorporate the requirements of the special condition into their certification planning as FAA accepted means of compliance (MOC) in lieu of a special condition.

Regulatory Reference: No rule at 14 CFR part 23 amendment 23-63 and prior.
14 CFR 23.2010 at amendment 23-64 and after.

4140 V1.0 New or Amended Equivalent Level of Safety (ELOS) or Equivalent Safety Finding (ESF)

Equivalent Level of Safety (ELOS) or Equivalent Safety Findings (ESF) added by the Certifying Authority will be reviewed by the FAA to determine the most appropriate course of action.

ELOS findings are covered under 14 CFR 21.21(b)(1) and processed by the FAA in accordance with FAA order 8110.112. ELOS findings are made when literal compliance with an airworthiness standard cannot be shown and compensating factors exist that can be shown to provide an ELOS.

Regulatory Reference: 14 CFR 21.21(b)(1)

1140 V1.0 Amendment 23-62 Errors: New or Amended Equivalent level of Safety (ELOS)

If an applicant is using part 23, amendment 23-62, for new products or product changes including STCs, then the Small Airplane Standards Branch must determine whether an equivalent level of safety (ELOS) finding is necessary due to 14 CFR part 23, amendment 23-62 containing various errors.

The FAA develops/issues ELOS findings per 14 CFR 21.21(b). However, the FAA will likely

delegate the compliance finding to the Foreign Civil Aviation Authority for the part 23, amendment 23-62, errors ELOS finding memorandum. A copy of these errors and their corrections is available upon request.

Applicants using part 23 amendment 23-62 as the Means of Compliance (MOC) to Amdt 23-64 must also address these errors.

ACOs and applicants should review the Project Specific Policy Memo for the most accurate list of regulations with errors.

As of 3/13/18, the known errors exist in the following regulations:

- 23.45, amendment 23-62 General (Performance)
- 23.51, amendment 23-62 Takeoff speeds
- 23.63, amendment 23-62 Climb:General
- 23.67, amendment 23-62 Climb:One engine inoperative
- 23.73, amendment 23-62 Reference landing approach speed
- 23.77, amendment 23-62 Balked landing
- 23.161, amendment 23-50 Trim
- 23.181, amendment 23-62 Dynamic Stability
- 23.221, amendment 23-50 Spinning
- 23.251, amendment 23-62 Vibration and buffeting
- 23.253, amendment 23-62 High speed characteristics
- 23.571, amendment 23-62 Metallic pressurized cabin structures
- 23.785, amendment 23-49 Seats, berths, litters, safety belts, and shoulder harnesses
- 23.831, amendment 23-62 Ventilation
- 23.1195, amendment 23-62 Fire extinguishing systems
- 23.1197, amendment 23-62 Fire extinguishing agents
- 23.1199, amendment 23-62 Fire extinguishing characteristics
- 23.1201, amendment 23-62 Fire extinguishing materials
- 23.1445, amendment 23-62 Oxygen distribution system
- 23.1527, amendment 23-45 Maximum Operating Altitude
- 23.1545, amendment 23-62 Airspeed indicator
- 23.1583, amendment 23-62 Operating limitations

Regulatory Reference: 14 CFR 21.21(b), 14 CFR part 23, at amendment 23-62.

4220 V1.0 Significant Change - Changed Product Rule 21.101

Validation projects where the significant change determination deviates from the processes used and intended in the internationally harmonized guidance or deviate from the predetermined examples given in the latest version of the harmonized guidance (FAA Advisory Circular AC21.101) require review by the SASB to determine the appropriate course of FAA action.

The SASB does not require significant changes, as determined under the Changed Product Rule (CPR) per 14 CFR 21.101, to be treated as non-basic projects for import validation solely because they are deemed significant changes.

The FAA, in conjunction with EASA (European Union), TCCA (Canada) and ANAC (Brazil) have worked for many years to harmonize actions and determinations for the CPR. Project classification determinations as significant or not significant changes are an inherent part of harmonized processes between EASA/ANAC/TCCA/FAA.

Regulatory Reference:14 CFR 21.101

- 1340** V1.0 Change Affects an Existing Airworthiness Directive (AD) (either the FCAA's or FAA's)
At the time of application for validation, the Foreign Civil Aviation Authority (FCAA) must document existing airworthiness directives (ADs) issued by the FCAA and if known, by the FAA, in the affected areas of change or applicable to new models for derivative products.

The SASB must also identify any corresponding or other ADs issued for the product and determine the effects of the AD(s) to the validation project as well as to the existing U.S. fleet. The SASB will also determine if a new FAA AD is needed, the existing FAA AD(s) need revised, whether an alternate means of compliance is required, or any other FAA State of Registry actions are needed.

Regulatory Reference: 14 CFR part 39

3.5.3.2(b)(5) New or Different Method of Compliance

- 1080** V1.0 Special Class Products

Airships, Gliders (Sailplanes), and Very Light Airplanes are certificated by the FAA under 14 CFR 21.17(b) as "special class" products. These special class products use airworthiness design criteria as their certification basis rather than the airworthiness standards under Title 14, Code of Federal Regulations (14 CFR), part 23 etc.

The FAA has published accepted means of compliance (MOC) that establish the airworthiness criteria for Gliders (Sailplanes), Very Light Airplanes, and Airships. The FAA published Advisory Circulars (AC) are:

AC 21.17-2A, Type Certification-Fixed Wing Gliders (Sailplanes) establishes Joint Airworthiness Requirements (JAR-22)/EASA CS-22 sailplane regulations as acceptable airworthiness criteria,

AC 21.17-3, Type Certification of Very Light Airplanes under FAR 21.17(b), establishes and JAR-VLA/EASA CS-Very Light Airplanes (CS-VLA) regulations as acceptable airworthiness criteria,

AC 21.17-1A, Type Certification—Airships, and FAA-P-8110-2, Airship Design Criteria and additional policy memos.

The FAA must provide a public notice and respond to public comments when changes to airworthiness criteria are proposed or when newly established airworthiness criteria are proposed to be applied to a new product.

Any new products proposed to be certificated under 14 CFR 21.17 (b) special class and any changes to existing special class products that modify the established airworthiness criteria or deviate from the FAA accepted MOC will require SASB involvement.

Regulatory Reference: 14 CFR 21.17(b)
FAA Advisory Circulars 21.17-1A, 21.17-2A, and 21.17-3

- 1160** V1.0 Using FAA 14 CFR part 23 at Amendment 64 or later - 23.2010

If an applicant is using a means of compliance (MOC) not previously accepted by the FAA Administrator when complying with 14 CFR part 23 at amendment 23-64 or higher, this project will be considered Non-Basic. See below link for the MOC accepted by the FAA Administrator for part 23, amendment 23-64 or later.

Note 1: Amendment 23-63 provides acceptable MOC to part 23, amendment 23-64 with some exceptions. See link below.

FAA accepted MOC are located at:

https://www.faa.gov/aircraft/air_cert/design_approvals/small_airplanes/small_airplanes_reqs/

Regulatory Reference: 14 CFR 23.2010 amendment 23-64 and after.

1460 V1.0 Use of Type II, III, and IV Deicing/Anti-Icing Fluids

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-ACE-23-05, provides an FAA accepted means of compliance (MOC) for using Type II, III, or IV deicing/anti-icing fluids.

Regulatory Reference: 14 CFR 23.143, 23.251, 23.1529, 23.1581, 23.1585, 23.1587 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2135, 23.2160, 23.2620 at amendment 23-64 and after.

1600 V1.1 Fire Protection of Flight Controls, Engine Mounts, and Other Flight Structure

If the applicant proposes to use materials not previously accepted as fire proof, such as composite materials, then they may need to obtain an FAA accepted means of compliance(MOC) to 14 CFR 23.865 at amendment 23-63 and prior.

Testing is usually required to validate the performance of these materials.

At amendment 23-64 and after, the applicant should incorporate FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.865 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2330 at amendment 23-64 and after.

1640 V1.1 Composite or Nonmetallic Firewall

If the applicant proposes a firewall constructed with composite materials, then they must obtain and incorporate FAA accepted means of compliance (MOC) to 14 CFR 23.601, 23.603, 23.605, 23.859, 23.863, 23.903, 23.1013, 23.1091, 23.1121, 23.1123, 23.1141, 23.1182, 23.1183, 23.1189, 23.1191, 23.1192, and 23.1193 at amendment 23-63 and prior to ensure their proposed test and evaluation will be adequate.

While FAA Advisory Circular AC20-135 is an FAA accepted MOC that contains general guidance about the use of composite firewall materials, specific guidance is necessary to ensure a compliant design. Firewalls constructed with composite materials require consideration of unique fire threats, safety concerns and acceptance criteria that differs from those used to address firewalls constructed from traditional metallic materials.

Applicants seeking to ensure that proposed test and evaluation will be adequate to show compliance with fire protection requirements for any firewall constructed with composite material should contact the SASB for additional guidance.

At amendment 23-64 and after, applicants should incorporate FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.601, 23.603, 23.605, 23.859, 23.863, 23.903, 23.1013, 23.1091, 23.1121, 23.1123, 23.1141, 23.1182, 23.1183, 23.1189, 23.1191, 23.1192, and 23.1193 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2440, 23.2250, 23.2260 at amendment 23-64 and after.

1880 V1.1 Fire Protection - Turbine Engine Oil Systems Without a Shutoff Valve

If the applicant is seeking to install a turbine-engine-oil system and all parts of the system are not shown to be fireproof when a shutoff valve is not incorporated into the system, then they may need to obtain an FAA accepted means of compliance (MOC) to 14 CFR 23.1013(e) and 23.1189(b) at amendment 23-62 and prior.

Demonstration of compliance to the requirements of 14 CFR 23.1013(e) and 23.1189(b) has proven problematic in the past.

At all amendment levels, applicants should incorporate FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.1013(e) and 23.1189(b) at amendment 23-63 and prior.
14 CFR 23.2010, 23.2400(c) and 23.2440(d) at amendment 23-64 and after.

1960 V1.1 Turbine Engines Shutdown

If the applicants turbine engine control system only includes a single means to shutdown the engine, then the applicant may require an FAA accepted means of compliance (MOC) to 14 CFR 23.1141(e) at amendment 23-63 and prior.

The installation requirements of § 23.1141(e) require that no single failure of a turbine-engine control system causes failure of any powerplant function necessary for safety.

Most engine control systems provide a redundant means for engine shutdown. For example, if the installed engine control system only provides a single means for shutting off fuel to the engine, then redundant means for engine shutdown must be provided to ensure a simple, quick, and safe shutdown if the primary means of shutdown fails.

At amendment 23-64 and after, applicants should coordinate 23.2410(a) with the SASB to incorporate an FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.1141(e) at amendment 23-63 and prior.
14 CFR 23.2010 and 23.2410(a) at amendment 23-64 and after.

2000 V1.1 Powerplant Indications - Use of Digital Only Indications

If the applicant is seeking to install digital only display(s) in lieu of analog displays for powerplant instruments when complying with 14 CFR 23.1305 (where the term “indicator” is included in the regulation) and § 23.1549, since digital only indicators do not provide for arc, line, or radial markings, then they may require an Equivalent Level of Safety (ELOS) finding for §23.1301,

23.1305, 23.1311, 23.1321 and 23.1549 at amendment 23-63 or earlier.

At amendment 23-64 and after, applicants should coordinate 23.2500, 23.2505, 23.2606, 23.2615, 23.2610 with the SASB to incorporate FAA accepted means of compliance (MOC) into their certification planning in lieu of an ELOS finding.

Regulatory Reference: 14 CFR 23.1305 and 23.1549 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2500, 23.2505, 23.2606, 23.2615, 23.2610 at amendment 23-64 and after.

2040 V1.0 Engine Cooling - Climb Speeds

If the applicant is proposing compliance with 14 CFR 23.1047, amendment 23-51, "Cooling test procedures for reciprocating engine powered airplanes", using an airspeed greater than the best rate of climb speed (Vy) or balked landing climb (VREF) speeds, then they may need to obtain an FAA accepted means of compliance (MOC).

Section 23.63(a)(2), amendment 23-62, requires §§ 23.65 Climb: All engines operating; and 23.77, Balked landing, to use speeds not less than the speed used to demonstrate compliance with the powerplant cooling requirements (§§ 23.1041, amendment 23-51, through 23.1047). Applicants proposing to use an airspeed greater than those used to show compliance to §§ 23.65 or 23.77 to demonstrate compliance with § 23.1047 should propose a method of compliance that will ensure adequate engine cooling during all expected operating conditions.

Applicants should coordinate with the SASB to determine an appropriate MOC and incorporate the FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.1047 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2400(c), (e) at amendment 23-64 and after.

2080 V1.1 Engine Cooling - Coolant Tank Capacity Requirements

If the applicant is seeking to install liquid cooled reciprocating engines, then an Equivalent Level of Safety (ELOS) finding to 14 CFR 23.1061(b) may be required at any amendment up to and including amendment 23-63.

Some 14 CFR part 33 approved reciprocating engines include a self-contained cooling system that may not meet the installation coolant tank capacity and expansion space requirements of 14 CFR 23.1061(b).

At amendment 23-64 and after, applicants should incorporate FAA accepted means of compliance (MOC) into their certification planning in lieu of an ELOS finding.

Regulatory Reference: 14 CFR 23.1061(b) at amendment 23-63 and prior.
14 CFR 23.2010, 23.2400(c) at amendment 23-64 and after.

2120 V1.1 Fuel System - Pressure Defueling

If the applicant is seeking to install a pressure defueling system in accordance with 14 CFR 25.979(e), then they may require special conditions at amendment 23-63 and earlier to establish adequate requirements.

At amendment 23-64 and after, applicants should coordinate 23.2400(c) and 23.2430(c) with the SASB to incorporate the requirements of the special condition into their certification planning as FAA accepted means of compliance (MOC) in lieu of a special condition.

Regulatory Reference: No rule at amendment 23-63 and prior.

2130 V1.0 Fuel System - Lightning Protection and Hot Weather Operation

If the applicant does not use the below means of compliance (MOC), the FAA will need to be involved.

Acceptable methods of compliance for fuel system lightning protection and fuel system hot weather operations have been problematic in the past and need to be coordinated with the SASB.

For compliance with the fuel system hot weather requirements, if methods other than FAA Advisory Circular (AC) 23-16A, Powerplant Guide for Certification of Part 23 Airplanes and Airships, are used/proposed, the SASB involvement is required.

For compliance with the fuel system lightning protection requirements, if any method of compliance other than FAA AC 20-53B, Protection of Aircraft Fuel Systems Against Fuel Vapor Ignition Caused by Lightning, is used/proposed, FAA involvement will be required.

Regulatory Reference: 14 CFR 23.954, 23.961 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2430 at amendment 23-64 and after.

2140 V1.1 Fuel System - Temperature

If the applicant is seeking to establish the minimum level of safety expected for the effect of elevated fuel system temperatures on the airplane, then they may require special conditions at amendment 23-63 and earlier.

Fuel systems configured to reject engine heat through the airplane fuel tanks by use of an engine oil/fuel heat exchanger or other means may result in fuel tank temperatures above the critical temperature test requirements of 14CFR 23.961 and 23.965(d).

At amendment 23-64 and after, applicants should coordinate 23.2430(a)(3) and (b)(1) with the SASB to incorporate the requirements of the special condition into their certification planning as FAA accepted means of compliance (MOC) in lieu of a special condition.

Regulatory Reference: 14 CFR 23.961 and 23.965(d) at amendment 23-63 and prior.
14 CFR 23.2010 and 23.2430(a)(3) and (b)(1) at amendment 23-64 and after.

2160 V1.0 Damage Tolerance and Fatigue Evaluation of Structure

Foreign Civil Aviation Authorities (FCAA) have varying approaches to the application of fatigue requirements to derivative model airplanes when the original model did not have fatigue requirements at initial certification. The SASB may be involved with these projects.

Fatigue management programs are addressed in FAA advisory circular AC 91-82.

In addition, the FAA does not typically allow use of an inspection program in lieu of the safe life design limits already established. Reference AC 21.101-1B, Appendix Table A-2, Example 23, "Conversion from a safe-life design to a damage tolerance-based design".

Regulatory Reference: 14 CFR 23.573 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2240 at amendment 23-64 and after.

2200 V1.0 Metallic Damage Tolerance (DTA) and Fatigue Evaluation of Commuter Category or (Level 4 at Amendment 23-64 or Higher) Airplanes

Some FCAA differ in the application of damage tolerance for 14 CFR part 23 airframes and vary from the FAA's accepted means of compliance (MOC). The SASB may be involved to assist the applicant in developing a means of compliance that is acceptable to the FAA Administrator.

Regulatory Reference: 14 CFR 23.574 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2240 at amendment 23-64 and after.

2240 V1.1 Fatigue Management Programs

If the applicant is proposing to incorporate a Fatigue Management Program (FMP) into an existing product, then the FAA may need to be consulted to determine the certification basis and the accepted means of compliance (MOC).

FMPs cannot be mandated on existing products in the U.S. except through an Airworthiness Directive.

FAA Advisory Circular AC 91-82 is considered an accepted MOC.

There are varying approaches to the application of fatigue requirements to derivative model airplanes when the original model did not have fatigue requirements at initial certification. The SASB may be involved with these projects.

In addition, the FAA does not typically allow use of an inspection program in lieu of the safe life design limits already established. Reference AC 21.101-1B, Appendix Table A-2, Example 23, "Conversion from a safe-life design to a damage tolerance-based design".

Regulatory Reference: 14 CFR 23 at any amendment.

2260 V1.1 Vinyl Covering Shrink Wraps on Exterior of Part 23 Airplanes, Gliders, and Airships

Applicants should be aware that the FAA has issued a memo stating there are safety issues with the installation of vinyl covering shrink wraps on the exterior of airplanes, gliders, and airships that are not present with other exteriors such as paint and deicing boots. These issues include hazards that are major to catastrophic, so the installation by FAA Field Approval is not acceptable. Only Federal Aviation Administration (FAA) Type Certificate (TC), Amended Type Certificate (ATC), and Supplemental Type Certificate (STC) are acceptable for this installation. This memorandum is not applicable to vinyl decals or logos that are placed on limited areas of the fuselage or empennage.

The following are safety concerns with the installation of vinyl shrink wrap coverings that must be evaluated by the applicant for any TC/ ATC/STC application:

1. Without proper engineering evaluation and/or tests, vinyl shrink wrap cannot be placed on any control surface or control surface tab:
 - a. without consideration of the effect on the flutter characteristics (whether the surface is mass balanced or not) and
 - b. where that installation would change the existing clearance between adjacent surfaces with and without loading.
2. Scoring the skin of aircraft when cutting the vinyl sheets to fit, which can start cracks, particularly in pressurized aircraft.
3. Blocking of fuel vents, static ports, hinges, drain holes etc., making them inoperative or changing the airflow over static ports.
4. Use of an open flame from a blowtorch to apply the material. This is a concern around fuel

- tanks and vents, sensitive antennas, and especially on composite parts, which have cure temperatures well below the temperature of a blowtorch.
5. Covering required exterior aircraft markings and emergency exits.
 6. Vinyl sheets losing adhesion on the surface or on rotating parts and jamming control surfaces or compromising engines.
 7. Static build-up causing electrical discharges in or around fuel tanks and causing radio/navigation interference.
 8. Tinting of windows and windshields with transparent vinyl, which compromises the view of pilots.
 9. The impact on removal of ice build-up on critical surfaces.
 10. Flammability of the material, including lightning strikes, and especially near engine exhausts and around engine nacelles. Flammability test specimens should be built-up from the cowling/nacelle with the vinyl shrink wrap applied.
 11. Peeling of the wrap from rain or hail.
 12. Masking of cracks and corrosion in structure and skin.
 13. Lifetime of a vinyl shrink w/Tap installation. How long before mandatory removal.
 14. Effects of de-ice fluids on the film. 23.1323, 23.1325, and 23.1529 at amendment 23-63 and prior.

The policy memo is available upon request.

Regulatory Reference: 14 CFR 23.629, 23.659, 23.773, 23.775, 23.805, 23.807, 23.811, 23.865, 23.867, 23.975, 23.1301, 23.1309, 23.1323, 23.1325, and 23.1529 at amendment 23-63 and prior.

14 CFR 23.2010, 23.1529, 23.2215, 23.2245, 23.2250, 23.2315, 23.2320, 23.2330, 23.2335, 23.2400, 23.2415, 23.2430, 23.2500, 23.2505, 23.2510, 23.2540, 23.2600, 23.2605, 23.2615 at amendment 23-64 and after.

FAA Airship Design Criteria

EASA JAR 22/CS 22

2280 V1.0 Emergency Exits - Unobstructed Path

If the applicant is seeking to comply with 14 CFR part 23.807(b) at amendment 23-63 and prior, then they may require an Equivalent Level of Safety (ELOS) Finding.

The FAA has allowed exemptions or ELOS where a seatback could be pushed out of the path without any additional actions, while other foreign airworthiness certification authorities have permitted additional actions on seatbacks and climbing over seats with lowered seatbacks based on an evacuation test.

Applicants complying with 14 CFR part 23.807(b) at amendment 23-63 and prior must maintain an unobstructed path to emergency exits.

At amendment 23-64 and after, applicants should incorporate FAA accepted means of compliance (MOC) into their certification planning in lieu of an ELOS finding.

Regulatory Reference: 14 CFR part 23.807(b) at amendment 23-63 and prior.
14 CFR part 23.2010 and 23.2315 at amendment 23-64 and after.

2300 V1.1 Composite Floats

If the applicant is seeking to install composite floats, then they may need to obtain an FAA

accepted means of compliance (MOC) to address fatigue and durability requirements per 14 CFR 23.573. The addition of floats is deemed a significant change per §21.101 and therefore requires applicants to apply §23.573 (pre amendment 23-64) requirements unless they can show that compliance with a later requirement does not materially improve the level of safety or is impractical. (See FAA AC 21.101-1B).

NOTE: TSO-C27 and National Aircraft Standards (NAS) 807 provide minimum test requirements to obtain a TSO for floats but the TSO is deemed inadequate for installation approval of composite floats with respect to fatigue and durability.

The FAA is recommending that the applicant does not need to comply with §23.573 for the composite floats themselves as long as they comply with §23.603 using the guidance of AC 23-19A sections 201 through 207. The applicant should also comply with §23.613 for their composite float design. In order to substantiate the certification approach in the guidance of the AC, the FAA will likely require material testing or other testing.

The guidance in AC-23-19A closely approximates requirements per §23.573. If the applicant's design dictates that using §23.573 for the composite floats would be more expedient or address any short falls not adequately addressed by the above regulations, then the applicant may be required to apply special conditions to establish adequate requirements at amendment 23-63 and earlier based on the requirements of §23.573.

At amendment 23-64 and after, if a special condition is required, then the applicant should coordinate with the Small Airplane Standards Branch and incorporate the requirements of the special condition into their certification planning as FAA accepted MOC in lieu of a special condition.

Regulatory Reference: 14 CFR 23.573, 23.603, 23.609, 23.613 at amendment 23-63 and prior
14 CFR 23.2010, 23.2240 at amendment 23-64 and after.

2360 V1.0 Replacement of Vacuum Driven Attitude Indicators

If the applicant proposes to replace vacuum-driven attitude instruments with electronically-driven indicators in CAR 3 and Part 23 airplanes, then they must use FAA accepted means of compliance (MOC).

Policy Statement, PS-ACE-23-08-R1, is an FAA accepted MOC.

Electronically-driven attitude indicators include indicators that use electrical power in place of vacuum to (1) excite an internal gyro, or (2) replace the operation of the gyro with microelectronics. Electronically-driven attitude indicators may replace the existing attitude indicators in airplanes including those approved for IFR operations.

Regulatory Reference: 14 CFR 23.1311 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2500, 23.2615 at amendment 23-64 and after.

2420 V1.2 HIRF and Lightning

If the applicant is proposing alternate methods of compliance for HIRF/lightning test levels and compliance, then they must incorporate FAA accepted means of compliance (MOC) (PS-ACE-23-10). PS-ACE-23-10 describes acceptable compliance methods to 14 CFR 23.1306 and 23.1308 (§§ 23.2515 and 23.2520) for level A systems in Class I, II and III airplanes (certification levels 1,2, and 3) as determined from Advisory Circular (AC) 23.1309-1E.

PS-ACE-23-10, is an FAA accepted MOC that may be used in lieu of the MOC described in AC 20-136B, Aircraft Electrical and Electronic System Lightning Protection, and AC 20-158A, The Certification of Aircraft Electrical and Electronic Systems for Operation in the High-intensity

Radiate Fields (HIRF) Environment, to show compliance to 14 CFR 23.1306 and 23.1308 (§§ 23.2515 and 23.2520) for level A systems. The intent of PS-ACE-23-10 is to define an alternate means of demonstrating compliance with level A systems for HIRF and the indirect effects of lightning requirements for small airplanes without the need to perform full airplane test.

At all amendment levels, applicants should incorporate FAA accepted MOC into their certification planning and coordinate with the SASB when incorporating alternate FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.1306, 23.1308 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2515, 23.2520 at amendment 23-64 and after.

2460 V1.2 System Level Verification

If the applicant is proposing alternative means of compliance (MOC) for software (RTCA/DO-178) and/or aircraft electronic hardware (RTCA/DO-254) for level 1 and 2 (class I and II) part 23 airplanes, then they may incorporate FAA accepted means of compliance PS-AIR-23-09 in lieu of design development or request an alternative MOC. This policy allows system level verification for design and installation approval of equipment by showing compliance to the function/perform as intended aspects of 14 CFR 23.1301 and 23.1309 at amendment 23-63 and prior and 23.2500, 23.2505, 23.2510 at amendment 23-64 and after.

Applicants should incorporate FAA accepted MOC into their certification planning and coordinate with the SASB when incorporating alternate FAA accepted MOC into their certification planning.

NOTE: Project applications after October 11, 2018 who apply this policy, are restricted to class I and II airplanes. Previously, on some projects the FAA, during the developmental policy phases, allowed some approvals using this policy for class III airplanes. This PS-AIR-23-09 policy statement must be used in lieu of project specific policy memos for new applications dated October 11, 2018 and after.

Regulatory Reference: 14 CFR 23.1301 and 23.1309 at amendment 23-63 and prior.
14 CFR Part 23.2010, 23.2500, 23.2505, 23.2510 at amendment 23-64 and after.

2520 V1.1 Electronic Flight Instrument Systems

If the applicant is proposing to install an electronic flight instrument system (EFIS) that has not been previously evaluated by the SASB, then the FAA may require a multi-pilot usability and human factors evaluation.

This evaluation (on past EFIS) have resulted in the need for Equivalent Level of Safety (ELOS) finding(s) or additional FAA accepted means of compliance (MOC) to 14 CFR 23.1309(d), 23.1311, 23.1321 and 23.1322 at amendment 23-63 and prior.

At amendment 23-64 and after, applicants should incorporate FAA accepted MOC into their certification planning in lieu of an ELOS finding.

Regulatory Reference: 14 CFR 23.1309(d), 23.1311, 23.1321, 23.1322 at any amendment 23-63 and prior.
14 CFR 23.2010, 23.2500, 23.2605, 23.2610, 23.2615 at amendment 23-64 and after.

2640 V1.0 Touch Screens

If the applicant is seeking to install touch screens (multi-function controls), then they should follow the FAA accepted means of compliance (MOC) contained in the applicable chapters of

FAA Advisory Circular AC 20-175, "Controls for Flight Deck Systems."

If the touchscreen has not previously evaluated by the FAA, then the FAA will evaluate their level of involvement in the project.

Regulatory Reference: 14 CFR 23.671, 23.771, 23.777, 23.1301, 23.1311, 23.1309, 23.1322, 23.1381, 23.1523 and 23.1555 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2250(a), 23.2300, 23.2320, 23.2500(a), 23.2500, 23.2505, 23.2510, 23.2600, 23.2605, 23.2610, 23.2615 at amendment 23-64 and after.

2680 V1.0 Vision Systems - Synthetic and Enhanced

If the applicant is seeking to install Synthetic Vision Systems (SVS) or Enhanced Vision Systems (EVS), then they must incorporate FAA accepted means of compliance (MOC).

FAA Advisory Circulars AC 20-167A, "Airworthiness Approval of Enhanced Vision System, Synthetic Vision System, Combined Vision System, and Enhanced Flight Vision System Equipment", and AC 20-138D, "Airworthiness Approval of Positioning and Navigation Systems", are FAA accepted MOCs.

SVS typically uses terrain data from a database to display "synthetic vision" information to the pilot.

EVS is an electronic means to provide a display of the forward external scene topography through the use of imaging sensors, such as forward looking infrared (FLIR), millimeter wave (MMW) radiometry, MMW radar, and/or low-light-level image intensifying.

At amendment 23-64 and after, applicants should incorporate FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.773, 23.1301, 23.1309, 23.1311 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2600 at amendment 23-64 and after.

2760 V1.2 Vision Systems - Night Vision Imaging Systems

If the applicant is seeking to install night vision compatible lighting systems into part 23 airplanes, then they must obtain an FAA accepted means of compliance (MOC) at all amendment levels.

The FAA accepted NVIS MOC is currently available as a Project Specific Policy Memo that may be obtained from the SASB. This MOC defines an acceptable MOC for aided flight operations and aided takeoff and landing operations. This MOC does not address operational authorization.

Regulatory Reference: 14 CFR 23.561, 23.771, 23.773, 23.777, 23.807, 23.1301, 23.1311, 23.1321, 23.1322, 23.1351, 23.1381, 23.1383, 23.1401, 23.1501, 23.1523, 23.1525, 23.1543, 23.1581, 23.1583, 23.1585 and any amendment 23-63 and prior.
14 CFR 23.2010, 23.2250, 23.2270, 23.2315, 23.2320, 23.2325, 23.2500, 23.2505, 23.2510, 23.2525, 23.2530, 23.2540, 23.2600, 23.2605, 23.2610, 23.2615, 23.2620 at amendment 23-64 and after.

2800 V1.1 NEXTGEN: ADS-B Out System

If the applicant proposes to use ADS-B Out System and the ADS-B Out pairing is not already on

the list of approved sources, then they may need to obtain an FAA accepted means of compliance (MOC) for initial airworthiness approval.

This link below has the list of previously approved sources:

<https://www.faa.gov/nextgen/equipadsb/installation/equipment/>

FAA Advisory Circular 20-165B is an FAA accepted MOC.

At amendment 23-64 and after, applicants should incorporate FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.1301 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2505, 23.2510 at amendment 23-64 and after.
14 CFR 91.227, amendment 91-314
14 CFR part 91.225

2840 V1.1 Airspeed Indicator Markings

If the applicant is installing digital avionics (glass cockpit), then they may require an Equivalent Level Of Safety (ELOS) finding when complying with 14 CFR 23.1545 Airspeed Indicator at amendment 23-63 and prior.

At amendment 23-64 and after, applicants should incorporate FAA accepted means of compliance (MOC) into their certification planning in lieu of an ELOS finding.

Regulatory Reference: 14 CFR 23.1545 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2610 at amendment 23-64 and after.

2860 V1.1 Data Link System supporting Air Traffic Services (ATS) Communications (NEXTGEN)

If the applicant is seeking to install aircraft data communication systems used for air traffic services (ATS), then they must incorporate FAA accepted means of compliance (MOC).

Advisory Circular AC 20-140C, "Guidelines for Design Approval of Aircraft Data Link Communication Systems Supporting Air Traffic Services (ATS)", covers different types of data link systems and interoperability criteria, respectively, is an FAA accepted MOC.

Additionally, policy memorandum, AIR-6B0-17-6B0-DM281, AC 20-140C General Memo, dated December 08, 2017, provides clarification on FANS 1/A+, associated viable sub-networks, and use of operating limitations in the Airplane Flight Manual. Examples of ATS data communication systems are controller pilot data link communications, Automatic Dependent Surveillance-Contract, and Aircraft Communications Addressing and Reporting System. AC 20-140C covers different types of data link systems and interoperability criteria respectively.

Applicants should incorporate FAA accepted MOC into their certification planning and coordinate with the SASB of their intent to propose an alternative FAA accepted MOC in accordance with AC 23.2010-1, FAA Accepted MOC Process for 14 CFR Part 23, that can be incorporated into their certification planning.

Regulatory Reference: 14 CFR 23.1301(a) at amendment 23-63 and prior.
14 CFR 23.2010, 23.2505 at amendment 23-64 and after.

2900 V1.1 Wireless Local Area Network

If the applicant is incorporating wireless local area network (LAN) in their design, then they must

incorporate FAA accepted means of compliance (MOC).

Policy Statement, PS-ACE-23-2, is an FAA accepted MOC.

Applicants should coordinate with the SASB in order to obtain the latest guidance.

NOTE:

1. Use AC 20-164A, in lieu of AC 20-164, an advisory material cited in PS-ACE-23-2.

AC 20-164A, "Designing and Demonstrating Aircraft Tolerance to Portable Electronic Devices", provides guidance for aircraft certification applicants to demonstrate that their airplane are tolerant to potential electromagnetic effects from Portable Electronic Device (PEDs).

This AC refers to Radio Technical Commission for Aeronautics (RTCA), Inc. Document No. (RTCA/DO)-307A. This document specifies standard procedures that demonstrate an airplane is tolerant to potential electromagnetic effects from PEDs, including portable wireless RF devices.

2. The FAA is currently coordinating an additional policy statement PS-AIR-25-13-R1, this policy is in draft format. This additional policy statement provides additional policy on demonstrating electromagnetic compatibility (EMC) for wireless radio frequency (RF) systems that are installed on transport category airplanes.

At amendment 23-64 and after, applicants should incorporate FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.831, 23.1301, 23.1309, 23.1351, 23.1353, 23.1357, 23.1359, 23.1431, 23.1529, 23.1581 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2505, 23.2510 at amendment 23-64 and after.

2960 V1.1 Security Considerations (Cybersecurity)

If the applicant proposes to use wireless connectivity for data transfers to onboard avionics, then they may need to obtain an FAA accepted means of compliance (MOC).

At amendment 23-64 and after, applicants should incorporate FAA accepted means of compliance (MOC) into their certification planning.

Policy Statement PS-AIR-21.16-02 Rev 2 is an FAA accepted MOC.

Regulatory Reference: 14 CFR 23.1309 at amendment 23-63 and prior.
14 CFR 23.2500, 23.2505 and 23.2510 at amendment 23-64 and after.

2980 V1.1 Battery - Rechargeable Lithium/Battery Systems

If the applicant is installing rechargeable lithium batteries and/or battery systems, then the FAA may be required to apply special conditions to establish the minimum level of safety for any amendment up to and including amendment 23-63.

At amendment 23-64 and after, applicants should incorporate the requirements of the most recent special condition language into their certification planning as an FAA accepted means of compliance (MOC) in lieu of a special condition.

This includes both mainship and non mainship batteries.

Regulatory Reference: No Rule at 14 CFR 23 at amendment 23-63 and prior.
14 CFR 23.2010 at amendment 23-64 and after.

3040 V1.1 Battery - Storage Battery

If the applicant proposes to use an aircraft electrical system design that has the storage battery being used as starter power and emergency power, then they may require an Equivalent Level of Safety (ELOS) finding at amendment 23-63 or earlier to comply with 14 CFR 23.1353(h).

Per this design, the aircraft must use the same battery that is used for engine starting as well as to meet the 30 emergency minute requirement.

At amendment 23-64 and after, applicants should incorporate FAA accepted means of compliance (MOC) into certification planning in lieu of an ELOS finding.

Regulatory Reference: 14 CFR 23.1353(h) at amendment 23-63 and prior.
14 CFR 23.2010, 23.2525 at amendment 23-64 and after.

3060 V1.0 Multi-Core Processors

If the applicant proposes to use software-based aircraft systems that utilize multi-core microprocessors (i.e., without disabling unused cores, etc.), then they must use or obtain an FAA accepted means of compliance (MOC).

Regulatory Reference: 14 CFR 23.1301, 23.1309 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2510 at amendment 23-64 and after.

3320 V1.0 Basic Med Operations

If the applicant is seeking to allow 14 CFR part 68 basic med operations in some 14 CFR part 23 airplanes, then they may need to apply for type certificate action either through an amended type certificate or supplemental type certificate (STC) if their airplane is certificated above 6000 pounds maximum take-off weight and/or has seat counts greater than 6.

The FAA has issued a policy memo that addresses these expectations more clearly and that memo is available upon request.

Regulatory Reference: 14 CFR part 68, 14 CFR 91.107(a)(3)

3360 V1.1 Laser Installation

If the applicant is seeking to install laser technology in an aircraft, then they may require an FAA accepted means of compliance (MOC) if the technology they propose to install is not addressed in FAA AC 20-183, "Laser Airworthiness Installation Guidance".

Local, State, and Federal law enforcement agencies use forward looking infrared (FLIR) equipment with laser illuminators, pointers, and range finders for nighttime, covert surveillance.

A LIDAR uses a laser to perform ranging by measuring the reflected return of a projected laser beam. LIDAR devices can be used in mapping terrain elevation, obstacles, and vegetation; or atmospheric measuring (for example, particulate tracking or turbulence monitoring).

At amendment 23-64 and after, applicants should incorporate FAA MOC into their certification planning.

Regulatory Reference: 14 CFR 23.1301, 23.1309, 23.1529, 23.1581 at amendment 23-63 and prior.

3420 V1.1 Fire Extinguishing/Suppression Agent

If the applicant proposes the use of non-Halon fire extinguishing/suppression agents for use in lavatory trash receptacle bottles, handheld fire extinguishers, engine/APU fire extinguishing, cargo compartment fire suppression, etc., then they may need to obtain an FAA accepted means of compliance (MOC) to 14 CFR 23.851, 23.855, 23.863, 23.1195, 23.1197, 23.1201, at amendment 23-63 and prior.

Halon is being phased out of airplane applications per ICAO deadlines.

At amendment 23-64 and after, applicants should incorporate FAA accepted MOC into their certification planning.

Regulatory Reference: 14 CFR 23.851, 23.855, 23.863, 23.1195, 23.1197, 23.1201, at amendment 23-63 and prior.
14 CFR 23.2010, 23.2325, 23.2440 at amendment 23-64 and after.

3460 V1.0 Nonconformal Heads up Display

If the applicant is seeking to install a nonconformal heads up display, then they must obtain an accepted means of compliance (MOC).

Nonconformal heads-up displays do not take into account external reference information. They act as a repeater to the electrical flight instrument system. They are not considered required equipment but have safety enhancing capability.

Regulatory Reference: 14 CFR 23.773 at amendment 23-63 and prior.
14 CFR 23.2600(a) at amendment 23-64 and after.

3580 V1.1 Material Design Values

If the applicant proposes to use material that does not meet 14 CFR 23.613 at amendment 23-63 or prior, then they may require an Equivalent Level of Safety (ELOS) finding.

The use of S-Basis design values (material allowables) do not comply with probability requirements of 14 CFR 23.613(a), (b), and (e), amendment 23-45. This requires that material strength properties be based on a sufficient number of tests to establish a statistical basis for the design values. For single load path structure, 14 CFR 23.613 further requires the design values must be established with a 99 % probability and 95 % confidence ("A"basis) value. For multiple load path structure, the design values must be established with a 90 % probability and a 95 % confidence ("B" basis) value. However, S-Basis design values have an unknown statistical assurance.

Currently, there is no alternate allowed for structure to use statistically determined minimum design values other than "A" or "B" basis. In addition, there is no option to utilize a procurement specification value as a design value verified with receiving inspection test sampling processes.

At amendment 23-64 and after, applicants should incorporate FAA accepted means of compliance (MOC) into their certification planning in lieu of an ELOS finding.

Regulatory Reference: 14 CFR 23.613 at amendment 23-63 and prior.
14 CFR 23.2010 at amendment 23-64 and after.

3780 V1.1 Seats - Side Facing

If the applicant is seeking approval and implementation of single-place side facing seats at amendment 23-63 or earlier based on the requirements of 14 CR 25.562 and §25.785, then they must coordinate with the SASB to apply special conditions to establish adequate requirements.

If the applicant is seeking approval and implementation of multiple place side facing seats at amendment 23-63 or earlier based on the requirements of 14 CFR 25.562 and §25.785, then they must coordinate with the Small Airplane Standards Branch to request an exemption.

In addition, if the seat installations mentioned above require airbags to meet the requirements of §25.562 and §25.785 a special condition is required for this as well.

The FAA has developed a policy statement, PS-ANM-25-03-R1 that identifies areas of regulatory compliance.

At amendment 23-64 and after, applicants should coordinate with the SASB to incorporate the requirements of the special conditions into their certification planning as FAA accepted means of compliance (MOC) in lieu of a special condition.

Regulatory Reference: No rule at 14 CFR Part 23 Amendment 23-63 and prior.

Reference 14 CFR Part 25 Sections 25.562 (amendment 25-64) and 25.785(amendment 25-64) as referenced in PS-ANM-25-03-R1.

14 CFR 23.2010 at amendment 23-64 and after.

3920 V1.0 Airbags

If the applicant is seeking to install airbags on the airframe, then they may need to obtain an FAA accepted means of compliance (MOC) or may be required to apply a special condition.

Applicants should contact the SASB for any updated information or guidance.

Regulatory Reference: No rule at 14 CFR 23 at amendment 23-63 and prior.
14 CFR part 23.2010 at amendment 23-64 and after.

3970 V1.1 Compliance to Stability Regulations

If the applicant is seeking to show compliance to stability regulations for unlimited acrobatic airplanes, then they may need a special condition for amendment 23-63 or earlier.

At amendment 23-64 and after, applicants should incorporate the requirements of the special condition into their certification planning as an FAA accepted means of compliance (MOC) in lieu of a special condition.

Regulatory Reference: 14 CFR 23.171, 23.173, 23.175, 23.177 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2145 at amendment 23-64 and after.

4000 V1.1 Envelope Protection and Emergency Descent Mode

If the applicant is proposing to install new control functions within the autopilot on a new or existing avionics system which provides automatic stability augmentation and envelope protection or the addition of an emergency descent mode, then they must obtain an FAA accepted means of compliance (MOC).

At amendment 23-64 and after, applicants should incorporate FAA accepted MOC into their

certification planning.

Regulatory Reference: 14 CFR 21.17(b), 21.21(b)(3)

14 CFR §23.207, 23.672, 23.691, 23.1301, 23.1309, 23.1322, 23.1329, 23.1335 and 23.1541 at amendment 23-63 and prior.

14 CFR 23.2010, 23.2150, 23.2250, 23.2300, 23.2500, 23.2505, 23.2510, 23.2600, 23.2605, 23.2610, 23.2510, at amendment 23-64 and after.

3.5.3.2(b)(6) New Technology

1360 V1.0 Additive Manufacturing

If the applicant is proposing to use Additive Manufacturing (AM), then they must coordinate their proposals with the SASB to determine the level of involvement the FAA requires with respect to policy or guidance.

AM is a relatively new manufacturing process and describes the process of joining materials to make objects from three dimensional (3D) model data using layer upon layer technique/method, as opposed to subtractive manufacturing methodologies. This manufacturing technique is sometimes referred to as 3D printing. AM is a generic term that spans a diverse range of techniques using a wide range of machines and technologies, such as Laser Powder Bed Fusion (LPBF), Electron Beam Powder Bed Fusion (EBPBF), and Directed Energy Deposition (DED) just to name a few. Some of these sub-categories of AM may even employ technologies that differ and have their own unique considerations for certification.

The FAA is actively working on draft policy and guidance for the use of this new and novel technology.

Regulatory Reference: No rule at 14 CFR 23 at amendment 23-63 and prior.
14 CFR 23.2010 at amendment 23-64 and after.

1580 V1.0 Electric or Hybrid Electric Propulsion Systems

If the applicant is proposing to install electric or hybrid-electric propulsion systems, then they may require equivalent level of safety (ELOS) findings, special conditions (SC), or additional design criteria to address features not envisioned.

The need for SC, ELOS, design criteria and corresponding means of compliance (MOC) must be determined on a case-by-case basis for each installation. Specific policy does not exist at this time. Projects with electric propulsion or hybrid electric will require SASB involvement.

Regulatory Reference: No rule at 14 CFR part 23 amendment 23-63 and prior.
14 CFR 23.2010, 23.2400 at amendment 23-64 and after.

1980 V1.0 Fuel - Approval of New Fuel

If the applicant is seeking approval to use a new fuel type, then they must coordinate their proposal with the Small Airplane Standards Branch (and AIR 20 Alternative Fuels Program Office) to determine the level of FAA involvement with respect to policy or guidance.

There is considerable activity across the aviation industry; therefore, energy behind the introduction of new aviation fuels is high. These efforts are highly visible and potentially controversial.

NOTE: This is intended for fuels new to aviation where there is no existing FAA accepted standard for that fuel, not the approval of an existing aviation fuel for use on a specific model.

Regulatory Reference: 14 CFR 21.17(b), 14 CFR 23 at any amendment.

2250 V1.1 Load Relief/Alleviation Systems

If the applicant proposes to use load relief or load alleviation systems for aircraft structure, then they may require a special condition at amendment 23-63 or earlier to address the effect of such systems on aircraft structure. In addition, current regulations do not take into account the effects of system failures on aircraft loads.

At amendment 23-64 and after, applicants should coordinate with the SASB to incorporate the requirements of the special conditions into their certification planning as FAA accepted means of compliance (MOC) in lieu of a special condition.

Regulatory Reference: No rule at amendment 23-63 and prior.
14 CFR 23.2010 at amendment 23-34 and after.

2500 V1.0 Artificial Intelligence Software

If the applicant is proposing to use artificial intelligence (AI) software, then this will require FAA involvement.

References: FAA Advisory Circular (AC) 20-115D, DO-178C.

Applicants should contact the SASB for additional guidance.

Regulatory Reference: 14 CFR part 23.1301, 23.1309 at amendment 23-63 and prior.
14 CFR part 23.2010, 23.2505, 23.2510 at amendment 23-54 and after.

2600 V1.1 Speech Recognition or Voice Activated Technology

If the applicant proposes to install speech recognition or voice activated technology for avionics data entry, then they may need to obtain an FAA accepted means of compliance (MOC) to 14 CFR 23.1301 and 23.1309 at amendment 23-63 and prior.

At amendment 23-64 and after, applicants should incorporate FAA accepted MOC in their certification planning.

Regulatory Reference: 14 CFR 23.1301 and 23.1309 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2500, 23.2505, and 23.2510 at any amendment 23-64 and after.

3220 V1.0 Energy/Thrust Management Systems/Displays for Electronic Propulsion

If the applicant proposes to use Energy and/or Thrust Management Systems, then they must coordinate their proposals with the SASB to determine the level of FAA involvement with respect to policy or guidance.

Aircraft designed to incorporate electric propulsion systems, distributed propulsion systems, or operate in different flight modes (vertical, transitory, forward flight) may be required to utilize energy and/or thrust management systems which are new to the Part 23 fleet.

Considerations include the monitoring of battery states, individual thrust vectors (magnitude and direction) as well as malfunction annunciations.

The FAA is actively working on draft policy and guidance for the use of this new and novel technology.

Regulatory Reference: 14 CFR 23.1321, 23.1353, 23.1581 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2500, 23.2525, 23.2610, 23.2620 at amendment 23-64 and after.

3280 V1.0 Aircraft with Different Flight Modes (Vertical, Transition, Forward Flight) [eVTOL]

If the applicant proposes to design an aircraft to operate in different flight modes (vertical, transitory, and forward flight), then they must coordinate their proposals with the Small Airplanes Standards Branch to determine the level of FAA involvement with respect to policy or guidance.

Aircraft like the new class of Vertical Takeoff and Landing (VTOL) vehicles are capable of flying in different modes of flight (vertical, transitory, and forward) and are new to the Part 23 fleet. There are many considerations not currently addressed in our requirements including new pilot vehicle interfaces, new displays for energy and thrust management, handling qualities, and unique malfunction scenarios.

The FAA is actively working on draft policy and guidance for the use of this new and novel technology. The FAA is currently deciding if these vehicles will be 14 CFR 21.17(b) (special class) or 14 CFR 23 with special conditions.

Regulatory Reference: 14 CFR 21.17(b), 14 CFR 23 Amendment 23-64

3400 V1.0 Distributed Propulsion Systems

If the applicant proposes to use distributed propulsion systems, then they must coordinate their proposals with the SASB to determine the level of FAA involvement with respect to policy or guidance.

Highly-augmented, distributed propulsion systems are new to the Part 23 fleet. They are typically defined as a highly-augmented propulsion system consisting of a single throttle controlling a multi-motor system.

The FAA is actively working on draft policy and guidance for the use of this new and novel technology.

Regulatory Reference: 14 CFR 23.777 23.1141, 23.1143 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2400, 23.2410, 23.2440, 23.2500, 23.2600, 23.2610, 23.2615 at amendment 23-64 and after.

3480 V1.0 Highly Augmented Flight Path Control Systems/Fly By Wire (FBW)

If the applicant proposes to use Highly Augmented Flight Path Control Systems/Fly By Wire (FBW), then they may require special conditions, Equivalent Level of Safety (ELOS) findings, or may need to obtain FAA accepted means of compliance (MOC) at any part 23 amendment.

FBW control systems are new to the Part 23 fleet and has only been certified to date under Parts 25& 29 with the use of Special Conditions and Equivalent Levels of Safety.

FBW systems are highly integrated flight controls and propulsion systems that may require new display symbology, and may require new performance and handling quality testing requirements.

The FAA is actively working on draft policy and guidance for the use of this new and novel

technology.

Regulatory Reference: 14 CFR 23.161, 23.171, 23.173, 23.175, 23.177, 23.181, 23.671, 23.672, 23.691, 23.777, 23.779, 23.1321, 23.1329, 23.1335 at Amendment 23-63 and prior.
14 CFR 23.2010, 23.2140, 23.2145, 23.2245, 23.2250, 23.2300, 23.2500, 23.2505, 23.2510, 23.2515, 23.2600, 23.2605, 23.2610 at amendment 23-64 and after.

3940 V1.0 Active Stick Technology

If the applicant proposes to use Active Stick Technology, then they must coordinate their proposals with the SASB to determine the level of FAA involvement with respect to policy or guidance.

Active stick technology is typically associated with Fly By Wire (FBW) control systems are new to the Part 23 fleet. Active stick systems are not covered at Amendment 23-63 and earlier and may require new means of compliance (MOCs) at Amendment 23-64 and later. They may require new inceptor feel characteristics, human qualities, and performance & handling quality testing requirements.

The FAA is actively working on draft policy and guidance for the use of this new and novel technology.

Regulatory Reference: 14 CFR 23.143, 23.155 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2135 at Amendment 23-64 and after.

3960 V1.0 Propulsion as a Flight Control Effector

If the applicant is proposing to use propulsion as a flight control effector, then they must coordinate their proposals with the SASB to determine the level of FAA involvement with respect to policy and guidance.

The use of propulsion as a flight control effector is new to the Part 23 fleet. Examples of this unique type of controller may be found in a distributed propulsion system or with an aircraft designed to operate in multiple flight modes.

The FAA is actively working on draft policy and guidance for the use of this new and novel technology.

Regulatory Reference: 14 CFR 23.671, 23.672, 23.777, 23.779, 23.1141, 23.1143 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2245, 23.2300, 23.2510, 23.2515, 23.2600, 23.2610 at amendment 23-64 and after.

4020 V1.0 Run Time Assurance/Health Monitoring Executive Systems

If the applicant proposes to use Run-Time Assurance/Health Monitoring Executive Systems, then they must coordinate their proposals with the SASB to determine the level of FAA involvement with respect to policy and guidance.

Run-Time Assurance/Health Monitoring Executive Systems are high-level monitoring and protection systems and are new to the Part 23 fleet.

The FAA is actively working on draft policy and guidance for the use of this new and novel

technology.

Regulatory Reference: No Rule at any part 23 amendment
14 CFR 23.2010 at amendment 23-64 and after.

4040 V1.0 Real Time Parameter Identification Systems

If the applicant proposes to use Real-Time Parameter Identification Systems, then they must coordinate their proposals with the SASB to determine the level of FAA involvement with respect to policy and guidance.

Real-Time Parameter Identification Systems are non-deterministic systems used to mathematically model something in real-time and are new to the Part 23 fleet.

The FAA is actively working on draft policy and guidance for the use of this new and novel technology.

Regulatory Reference: No Rule 14 CFR 23 at amendment 23-63 and prior.
14 CFR 23.2010 at amendment 23-64 and after.

4060 V1.0 Adaptive Controllers/Autopilots

If the applicant proposes to use Adaptive Controllers/Autopilots, then they must coordinate their proposals with the SASB to determine the level of FAA involvement with respect to policy or guidance.

Adaptive controllers/autopilots are non-deterministic systems and are new to the Part 23 fleet.

The FAA is actively working on draft policy and guidance for the use of this new and novel technology.

Regulatory Reference: No Rule 14 CFR 23 at amendment 23-63 and prior.
14 CFR 23.2010 at amendment 23-64 and after.

4080 V1.1 Autoland Systems

If the applicant is proposing the installation of systems that provide automatic landing capability in a piloted airplane, then they must coordinate with the SASB. Applicants may be required to apply special conditions to establish adequate requirements at 14 CFR part 23 amendment 23-63 or earlier based on the requirements found in 14 CFR 25.1329 (amendment 25-119), or may need to obtain FAA accepted means of compliance(MOC).

AC 25.1329-1C may provide an accepted means of compliance for piloted airplanes. This issue will likely be in combination with, or installed after an autothrust system.

Autoland capability is also assumed an inherent function installed in UAS and pilotless aircraft, which already have involvement by the Standards Branch staff. Operator certification (pilot training and maintenance program) is generally required to utilize the autoland function once the type design is approved.

At amendment 23-64 and after, applicants should incorporate the requirements of the special condition into their certification planning as FAA accepted MOC in lieu of a special condition.

Regulatory Reference: 14 CFR 23.1309 at amendment 23-63 and prior.

Reference 14 CFR Part 25 section 25.1329 (amendment 25-119) via special condition.

14 CFR 23.2010, 23.2500, 23.2505, 23.2510, 23.2605, 23.2610, 23.2615 at amendment 23-64 and after.

4120 V1.0 Emergency Use Only Autoland Systems

If the applicant proposes to add emergency use only functionality that provides for automatic landing of the airplane, then the SASB will be involved in the project.

Note: This functionality is not to be confused with "normal" autoland capability. This functionality provides for autonomous control and landing of the airplane to a system-determined suitable airport. The need for equivalent level of safety (ELOS) findings and corresponding means of compliance (MOC) must be determined on a case-by-case basis for each installation. The FAA has developed draft policy.

The applicant should define the specific intended functions for § 23.1301 compliance, and provide a definition of appropriate failure conditions and classifications for § 23.1309 compliance. The FAA has developed an issue paper template (S-1) to address MOC for these two regulations, up to and including amendment 23-63.

Certain aspects of the emergency use autoland may not be able to be shown to comply with existing pilot-centric 14 CFR part 23 regulations. The applicant should identify the affected regulations and the compensating features that provide for an equivalent level of safety intended by the regulations and request an ELOS finding by the FAA for those aspects. The FAA has developed an issue paper template (S-2) to address the potential regulatory requirements that may need an ELOS.

At amendment 23-64 and after, applicants should incorporate FAA accepted MOC into their certification planning in lieu of an ELOS finding.

Regulatory Reference: 14 CFR 23. 697, 23.729, 23.777, 23.779, 23.991, 23.1141, 23.1155, 23.1189, 23.1301, 23.1303, 23.1305, 23.1309, 23.1311, 23.1321, 23.1322, 23.1337, 23.1555 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2405, 23.2410, 23.2500, 23.2505, 23.2510, 23.2600, 23.2605, 23.2610, 23.2615 at amendment 23-64 and after.

3.5.3.2(b)(7) Novel Applications of Existing Technology

Note: Novel application of technology is where a particular technology is being used in a manner that causes the precepts of the technology to be questioned. However, it does not mean that existing technology being applied for the first time to a particular product line is automatically novel.

Additionally, novel applies to the VA as a whole, not just to a project being assessed by the specific VA team members.

1740 V1.1 Diesel Engine Evaluation

If the applicant is proposing installation of a diesel engine, then they may require special conditions or may require an Equivalent Level of Safety (ELOS) finding. All part 23 diesel engine installations must be evaluated per FAA Policy PS-ACE100-2002-004, Diesel Engine Installation. This policy statement identifies areas of regulatory compliance. The need for any specific ELOS findings or SCs must be determined on a case-by-case basis for each installation.

Installations being certificated to amendment 23-64 and after must include the evaluations contained in FAA Policy PS-ACE100-2002-004.

At amendment 23-64 and after, applicants should incorporate the requirements of the special condition into their certification planning as FAA accepted MOC in lieu of a special condition or incorporate FAA accepted MOC into their certification planning in lieu of an ELOS finding.

Regulatory Reference: No rule at 14 CFR 23 amendment 23-63 and prior.
14 CFR 23.2010 at amendment 23-64 and after.

2400 V1.0 Non-TSO Electronic Flight Instrument Systems and Avionics

If the applicant is seeking to install non-TSO avionics, then they may need to verify the level of FAA involvement in their project.

Many avionics manufacturers have developed lower cost integrated display systems specifically for the Experimental and Amateur-built airplane markets. Although these systems have many or all of the same functions, they generally do not follow the design assurance processes specified in the TSOs. The TSOs only specify a minimum performance, and they often outline the design assurance requirements as well as environmental standards in addition to general operating requirements.

TSO authorization indicates that the article manufacturer has provided a statement of compliance with the TSO requirements and the article is produced under an FAA approved quality system. For non-TSO equipment, the installer bears responsibility for supplier control of the type design and the production of the article.

The FAA has issued several project-by-project policies that support the integration of such EFIS into part 23 airplanes. The FAA will determine their involvement for any EFIS that has not been certificated before.

Regulatory Reference: 14 CFR 23.1301, 23.1306, 23.1308, 23.1309, 23.1311 at amendment 23-63 and prior.
14 CFR 23.2010, 23.2500, 23.2505 at amendment 23-64 and after.

3.5.3.2(b)(8) Acoustic and Emission Changes

The applicant has proposed to the CA non-simple substantiations of acoustic or emissions changes, whereas a simple substantiation is when the compliance demonstration with the CA has involved standard means of compliance and procedures which were already regularly agreed by the VA and CA in previous projects of the same applicant (using the same test organization).