

# Advisory Circular AC21–8

**Revision 3** 

# Design Changes—Supplemental Type Certificate

9 August 2022

#### General

Civil Aviation Authority (CAA) Advisory Circulars (ACs) contain guidance and information about standards, practices, and procedures that the Director has found to be an **acceptable means of compliance** with the associated rules and legislation.

Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable, they will be considered for the appropriate AC.

#### **Purpose**

This AC provides a means acceptable to the Director for showing compliance with Part 21 in order to gain a supplemental type certificate (STC).

The guidelines provided in this AC are general in nature and intended to help applicants and design organisations gain a better understanding of the STC process including their respective roles and responsibilities.

#### **Related Rules**

This AC relates specifically to Civil Aviation Rule Part 21, Subpart E – 'Supplemental Type Certificates'.

#### **Change Notice**

#### Revision 3:

- Updates the Baseline Acceptable means of Compliance (MOC) ASTM F44 standards in the compliance matrix in Appendix B1
- Updates link to Federal Aviation Administration (FAA) document
- Adds a note directing participants using the compliance matrix template not to alter the format of the matrix, and
- Makes minor punctuation and stylistic updates.

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### **Version History**

#### History Log

Revision No.	Effective Date	Summary of Changes
1	16 September 2016	The initial release of this AC. It removed information regarding type certification from AC21-1 and consolidated it in this AC.
2	2 February 2022	Updated section 1.4 to introduce new PSCP templates, Introduced Appendix B Updated compliance matrix in Appendix A, and Made minor grammatical and stylistic updates.
3	9 August 2022	Updates the Baseline Acceptable means of Compliance (MOC) ASTM F44 standards in the compliance matrix in Appendix B1.  Updates link to Federal Aviation Administration (FAA) document.  Adds a note directing participants using the compliance matrix template not to alter the format of the matrix.  Makes minor punctuation and stylistic updates.

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#### Introduction

An STC approves a design change to a type-certificated aircraft, engine, or propeller, when the change is not so extensive as to require a new type certificate (TC). In general, an STC would cover the following.

- A major design change which is not a repair.
- Any other design change where the applicant wishes to obtain an STC for commercial reasons, i.e. for sale to a second party or for acceptance by a foreign regulatory authority.

An STC can be applied to multiple aircraft of the same make and model if the descriptive data is of sufficient detail to allow accurate reproduction.

For the issue or amendment of an STC, the applicant should submit a statement of compliance prepared by an aircraft design organisation certificated in line with Part 146 *Aircraft Design Organisations*. As such, an applicant should seek advice from an aircraft design organisation when first considering a major design change.

The definition of a major design change is subtly different from the definition of a major modification.

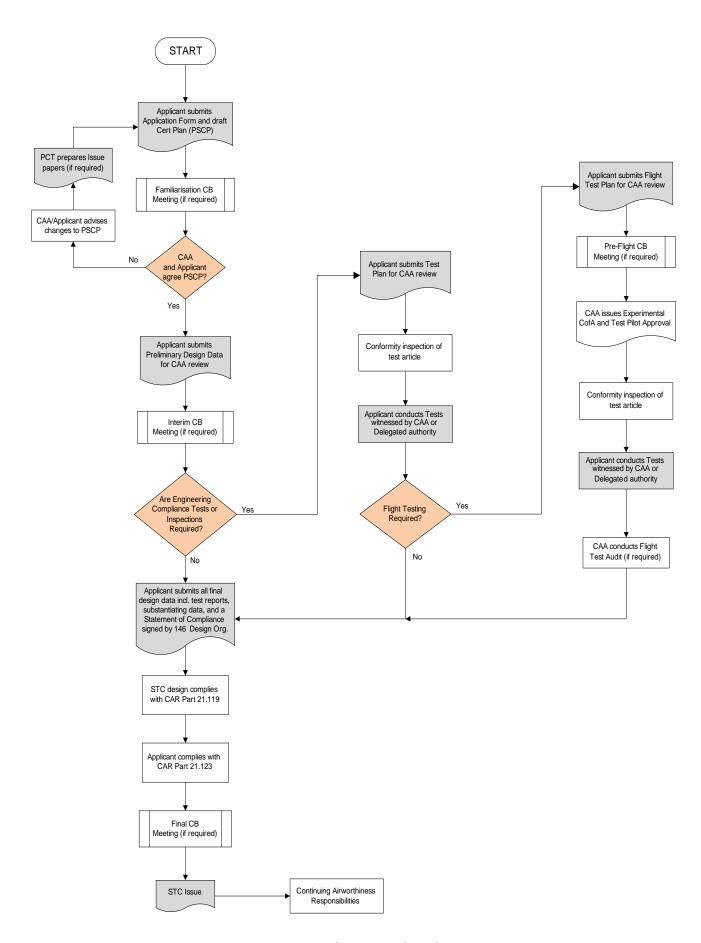
**Major design change** means a change that has any appreciable effect on the weight, balance, structural strength, reliability, operational characteristics, or other characteristics affecting the airworthiness of the product. Further guidance on the definition of a major design change can be found in Schedule One of a design delegation.

**Major modifications** means the embodiment has potential to cause unsafe effects (refer AC43-9, *Modifications, Repairs and the CAA 337*, for further guidance or to Part 1, *Definitions*, for the full definition).

In order to avoid delays and minimise rework it is important that the applicant, the aircraft design organisation and the CAA Product Certification Team (PCT) work together throughout the project. This is particularly important with large projects where an STC must be approved before a prototype aircraft can be certified for release to service in line with Part 43.

Where reference is made to an FAA document, the current revision of the applicable document should be used, unless another revision is specified.

This AC provides links for key CAA forms, correct at the time of publication. As websites do change over time, the forms referred to can also be found by searching on the <a href="Forms">Forms</a> page on the CAA website.



**STC Approval Process Flowchart** 

#### 1. Compliance Planning Phase

#### 1.1 Application

At the earliest opportunity the applicant should notify the Director of a proposed new STC project, or an amendment to an existing STC by contacting the PCT. Early contact with the PCT provides the applicant with an opportunity to develop an understanding of the certification process as it applies to their design.

- New STC Application. For all new designs, or where significant changes are made to an
  existing STC design, the applicant should submit CAA <u>Form 24021/09</u> and tick the "New"
  box. The Director will notify the applicant if it is determined that a new TC would be more
  appropriate because of significant implications to the design, operation, or continued
  airworthiness of the product.
- **STC Amendment.** Where the holder wishes to make changes to the design data of an existing STC, the holder should submit CAA <u>Form 24021/09</u> and tick the "Amendment" box. In this case a new STC certificate will not normally be issued as each STC certificate covers any later amendment of the design data approved by the Director. The Director will notify the applicant if it is determined that a new STC will be required where there are significant changes to the original STC.
- Transfer of Certificate. An STC holder may apply to the Director to transfer an STC to another person or organisation in line with rule 21.121, by writing to the PCT. The Director requires a new STC holder to show that they satisfy the responsibilities of a certificate holder as specified in rule 21.123.

An STC may be applicable to a range of aircraft types and type certificates if it is the type of design change that is not significantly affected by the basic aircraft type. A new STC cannot be issued for a product type that does not have a New Zealand Type Certificate or Type Acceptance Certificate or other applicable certification issued by the CAA.

As a statement of compliance is required for every STC design change, the applicant should make contact with an aircraft design organisation at an early stage to provide design and certification advice.

An STC application should be accompanied by a draft PSCP (refer to paragraph 1.4 below). This is a top-level document which sets out the key aspects of the STC approval process. If the application is a simple revision to an existing STC, a PSCP may not be necessary depending on the scope of the revision.

#### 1.2 STC Holder Responsibilities

Under rule 21.117(3) a new applicant must submit further information to satisfy the Director that they are capable of holding an STC in line with rule 21.123. For existing STC holders, a new STC application may simply involve re-affirmation of their responsibilities under this rule part.

Instructions for continuing airworthiness should be included as part of the technical data of any STC, although the extent of these will be consistent with the type of STC involved. In line with rule 146.61, the applicant is required to have a system of collecting and analysing defects in the design produced by the applicant. Typically, procedures should be established that provide the ability to do the following:

- Collect defect information from STC users.
- Notify users of the STC of any airworthiness issues that arise during the life of the STC.

- Provide service information to users (usually Service Information Letters).
- Provide modification instructions to users (usually a Service Bulletin).

Upon the Director's request the applicant should show evidence of appropriate liaison with the product type certificate holder. This may be necessary where certain aspects of the design or the method of showing compliance rely on OEM data.

In line with rule 21.117(3) an applicant will need to demonstrate that all records will be of a legible and permanent nature and, except if Director permits records to be kept for a lesser period, retained for two years from the date that the last example of the product type is permanently withdrawn from service, as required by rule 21.123(a)(3). Where the applicant does not already have systems in place as the holder of a Part 146 or Part 148 organisation certificate (in line with rule 146.63(b)(6) or rule 148.63(b)(5)), specific procedures will need to be developed and implemented to meet this requirement.

#### 1.3 CAA Project Management

A CAA Project Engineer will be assigned to each STC application to act as the point of contact during a project. Other CAA staff may be involved with the review of technical data, certification tests or inspections as required.

#### 1.4 Project Specific Certification Plan (PSCP)

For the issue or amendment of all STCs the applicant should prepare a PSCP and keep it current throughout the project. The purpose of this document is to provide an overview of the project and to identify key technical aspects such as the certification basis, means of compliance, and testing.

Appendix A to this AC includes a PSCP template for all STC projects with the exception of small airplane STCs with a certification basis of 14 CFR Part 23 Amendment 64 or later.

Appendix B to this AC includes a PSCP template for those STC projects with a certification basis of 14 CFR Part 23 Amendment 64 or later. Appendix B has been created to align with international standards to allow for more streamlined acceptance of New Zealand STCs by international regulators.

An applicant may, however, use any document provided the same basic information is listed. The PSCP should include the following information:

- Identification of the product to which the STC applies, and the original certification basis, including any Issue Papers (FAA) or Certification Review Items (EASA) applicable to the product which are affected by the design change, and a description of the design change including any unusual or unique design features.
- The name and contact details of the applicant and a project manager nominated by the applicant.
- The name and contact details of the contracted aircraft design organisation and the nominated project design engineer.
- The name and contact details of the CAA project engineer.
- The proposed certification basis for the STC including any special conditions. If the applicant wishes to show compliance with airworthiness requirements NOT effective at the date of the application, a justification for doing so should be included. See paragraph 1.7 for more information.

- A compliance checklist listing all the applicable airworthiness requirements, including the amendment status and proposed method of showing compliance with each requirement (ground test, flight test, analysis, similarity etc).
- A request for specific certification board meetings and the proposed date. See paragraphs 1.5, 2.2, 2.5, and 3.2.
- A brief summary of the project schedule, including key milestones. It is important to bear in mind that:
  - The schedule may be subject to change during the project; however minimum notice periods for activities involving CAA staff or the contracted aircraft design organisation apply. Refer to paragraph 1.4.2.
  - The schedule should be realistic. Overly optimistic schedules that may result in undue pressure on those involved in the design, installation or certification of the STC, and so create a safety or compliance risk, will not be accepted by the Director.
- Details of how STC design data changes and/or production deviations during the STC project will be addressed.
- Details of any proposed foreign regulatory technical assistance requirements.
- If computer models are to be used for substantiation, details of the validation of those models should be included.
- Details of any planned compliance tests or compliance inspections. Include a summary of the test plan with information on conformity inspections, test witnesses etc. Applicants or the PCT may request/recommend functions be delegated to organisations and/or individuals.
- Details of proposed flight tests. Include a summary of the test plan with information on test aircraft type and equipment configuration, conformity inspections, minimum flight test personnel qualifications etc.
- An applicant/ PCT sign-off block for each revision of the PSCP.
- Instructions for the amendment and agreement of revisions to the PSCP (if required).

The CAA Project Engineer will notify the applicant of any changes required before the initial PSCP is finalised. Depending on the scope of the proposed STC project, the PCT may request a Familiarisation Certification Board meeting (refer to paragraph 1.5 below). Any significant technical issues which arise at this, or any other, stage of the project will be documented and tracked with an "STC Issue Paper" (refer to paragraph 1.6 below).

The PSCP is to be agreed and signed by the CAA Project Engineer and the applicant prior to commencing certification activities.

**1.4.1 Changes to the PSCP.** It is important to note that the PSCP is a working document and should be kept up-to-date during the STC project. Significant changes to the project such as a change to the certification basis, means of compliance, compliance tests or inspections, or major changes to the STC design or project schedule should be agreed in a formal revision by the Part 146 aircraft design organisation, applicant and CAA.

All parties may agree to changes in certain sections of the PSCP via alternative methods; however, the scope of permissible changes and the process to do so should be detailed in the PSCP.

- **1.4.2 Minimum Notice Periods.** As major project schedules may be subject to change, exact dates for compliance or conformity inspections may be revised during the course of a project. In addition, deviations during embodiment will require compliance to be re-established for the final design configuration. Any such delays will affect the STC issue date. In order to allow sufficient time for the PCT or contracted aircraft design organisation to review data and prepare documentation, the following minimum notice periods apply:
  - For conformity or compliance inspections, the applicant should advise the proposed inspection date to all parties involved at least five working days prior to any inspection.
  - For compliance tests or inspections, the finalised test/inspection plan should be submitted to the PCT at least 10 working days prior to any test/inspection.
  - Final substantiating data, technical data and a signed statement of compliance should be submitted to the PCT no less than 10 working days prior to the issue of an STC.

#### 1.5 Familiarisation CB Meeting

For large STC projects which require significant coordination, CAA may require a certification board (CB) to be formed which will include the CAA Project Engineer and any other CAA staff as required, the applicant's Project Manager, Project Design Engineer and other technical or management staff involved with the STC project.

The purpose of the CB is to familiarise the PCT with the design change, identify potential problems, establish milestones and schedules for the overall accomplishment of the project and ensure all outstanding certification issues are resolved. When a CB is not necessary, the certification team manages the project and performs any functions of the CB to the degree necessary.

A familiarisation CB meeting may also be required where a design change employs new or novel design features or to address technical issues with respect to the certification basis. The PCT or the applicant may request a familiarisation CB meeting, as detailed in the PSCP.

#### 1.6 STC Issue Papers

An issue paper provides a means for identifying and resolving significant technical, regulatory, and administrative issues occurring during the certification process. Issue papers are primarily intended to provide an overview of significant issues, a means of determining the status of issues, and a basis for a post-certification summary statement on how issues were resolved.

Issue papers will be prepared by the PCT and will normally require the inclusion of a written response from the applicant detailing their position or proposed solution.

The FAA issue paper process will be followed as applicable: refer to FAA Order 8110.112A for more information.

#### 1.7 Airworthiness Requirements

**1.7.1 Certification Basis.** During type certification a product is shown to comply with certain airworthiness design requirements which are defined on the product's Type Certificate Data Sheet (TCDS). To find the Type Certificate accepted in New Zealand, refer to the relevant Type Acceptance report or AC21-1 Appendix 2, published on the CAA website. In line with rule 21.117, an applicant is required to show that the changed product continues to comply with these design requirements, however design standards are routinely updated to improve the safety of aircraft.

In line with international standards, the Director encourages applicants to show compliance with the version of airworthiness requirements that are <u>effective</u> at the date of the application. This requirement is commonly referred to by other authorities as the "changed product" rule.

The Director considers FAA AC21.101-1B at the latest revision an acceptable reference when deciding which airworthiness requirements to comply with.

The "changed product" philosophy includes exceptions where it may be acceptable to use the original certification basis listed on the TCDS. These exceptions include situations when:

- CAA finds the change not to be significant. Examples of significant changes can be found in FAA AC21.101-1B.
- It would be impractical to show compliance with the latest version of the applicable airworthiness requirements.
- Compliance with the latest version of the airworthiness requirements would not contribute materially to the level of safety of the changed product.

For example, a new STC installing external fuel tanks on a Boeing 747-400 (type certified to 14CFR 25 at amendment 59), is a significant change and would need to be compliant with the 14CFR 25 requirements at the latest amendment. However, an applicant is only required to show compliance with those areas that are affected by the design change (in the 747 fuel tank example, the applicant would not need to re-establish compliance with "cockpit door" requirements).

- **1.7.2 Noise & Emissions.** The certification basis should include the applicable aircraft noise and/or engine emission standards if the proposed design change will affect compliance with these requirements. Where the applicable airworthiness requirements are the Federal Aviation Regulation issued by the FAA, the Director finds it acceptable to adopt the policy detailed in 14CFR 21.93(b) and (c) for the classification of an "acoustical" or "emissions" change.
- **1.7.3 Part 26 Additional Airworthiness Requirements.** All STCs should demonstrate compliance to the additional airworthiness requirements of Part 26 at the latest amendment. For STCs applicable to 14CFR 25 turbine transport category airplanes the applicant should also demonstrate compliance with 14CFR 26 requirements, for example Subpart E for damage tolerance of fatigue critical structures and Subpart B regarding electrical wiring interconnection systems.
- **1.7.4** Equivalent Level of Safety. When a design change cannot be shown to comply directly with a prescribed airworthiness requirement, the Director may accept compensating factors that provide an equivalent level of safety (ELOS). The applicant should carefully consider the compensating factors and request an ELOS as early as possible, ideally making the request part of the PSCP. The basis and content of ELOS requests are generally developed via the STC Issue Paper process.
- 1.7.5 Special Conditions. Special conditions are rules of particular applicability that are developed for a specific project due to its unique design features or unconventional use. The Director and/or applicant may determine that the airworthiness requirements specified in the STC certification basis are not adequate to provide a sufficient level of safety for the changed product. In this case a special condition may be raised which specifies additional airworthiness or design requirements. Special conditions that are used on one certification project may apply to other projects using the same design feature. The basis and content of special conditions are generally developed via the STC Issue Paper process.

- **1.7.6 Airworthiness Directives.** Applicants must review Airworthiness Directives (AD) issued by the New Zealand CAA, and the authority of the State of Design (SoD) to determine if there are any ADs impacted by the proposed design change. If an applicant is proposing a change to an AD affected area, an Alternative Method of Compliance (AMOC) may be required.
- **1.7.7 Documenting the Certification Basis.** The Certification Basis will be documented and agreed in the PSCP. For large or complex STC projects, an Issue Paper may be used to discuss and document the Certification Basis.

#### 1.8 Operation and Maintenance of a Product Modified by an STC

CAA staff will review how the design change will affect aircraft operation and maintenance. CAA Airworthiness Inspectors and Flight Operations Inspectors will attend CB meetings as required and may advise applicants of applicable operational and maintenance requirements during the certification process. Additional CB meetings may be called with operations and maintenance specialists to review and accept ICA and revised MMEL documents as required.

- **1.8.1** Instructions for Continued Airworthiness (ICA). In line with rule 21.505(a)(4), and the applicable airworthiness requirements, the applicant must submit ICAs as part of the STC substantiating data, to describe the maintenance requirements necessary to maintain product airworthiness. ICAs should be developed in consultation with maintenance personnel to ensure instructions are accurate, can be carried out as documented, and existing OEM or operator maintenance requirements. ICAs should address:
  - Changes to the applicable aircraft maintenance schedule.
  - Maintenance manual revisions (or supplements) that provide a description of the installation, removal / installation instructions, test, adjustment, and troubleshooting instructions.
  - Parts listing in a format that ensures only STC approved parts are used for maintenance.
  - Aircraft specific wiring diagrams.

The ICA must address continued airworthiness of the design change for which the application was made, as well as parts or areas affected by the design change. The Director considers FAA Order 8110.54 at the latest revision an acceptable reference for developing "Instructions for Continued Airworthiness", paying particular note to the ICA checklists in the appendices of this order.

In line with rule 21.123, the STC holder is also responsible for continuing airworthiness support throughout the life of the STC (refer to paragraph 1.2). If any change to the STC design data, including ICAs, is necessary because of an unsafe condition the STC holder will be responsible for making that information available to all parties who have received the design data.

#### The applicant must:

- review the existing aircraft ICA to ensure that the proposed modification will not have a detrimental effect on those ICA, and
- define changes, additions, or modifications to the existing ICA to make the modification compatible.

If an STC applicant does not feel ICAs are needed and/or wishes to leverage the OEM ICAs, this must be substantiated by analysis and/or test data as part of the design development. A statement must be included in the ICA report explaining to installers that no ICA changes are required.

**1.8.2 Weight and Balance Data.** The STC applicant should determine the weight and balance effects of the design change on the aircraft and verify that the aircraft is within the limits defined by the TC holder. The recording of weight and balance data and determining that each aircraft is operating within the approved limits is an operator responsibility. The STC holder is responsible for ensuring that the weight and balance data is provided to all operators of aircraft which have the STC embodied.

During the development of the STC, the aircraft design organisation should calculate the effects of the weight and balance changes due to the design change. The aircraft design organisation should still calculate weight and balance changes even if the aircraft is to be weighed before its next flight (the aircraft re-weigh should be considered as validating the calculated change).

When the STC is for the installation of role equipment (equipment intended for installation and removal without modifying the aircraft), the associated flight manual supplement should identify the weight and balance effects with the role equipment fitted and with it removed.

**1.8.3 Electrical Load Analysis.** The electrical load analysis forms part of the compliance evidence for any STC where the electrical loads have been affected. The STC applicant should determine the changes to the aircraft electrical load. The aircraft Electrical Load Analysis should be updated to reflect the changes and to verify that under all operating conditions, including abnormal and emergency conditions, the electrical system is operating within the limits defined by the TC holder and is compliant with all applicable airworthiness standards and operational regulations.

In line with rule 21.33 the STC holder is responsible for providing the data necessary to allow the determination of the airworthiness of later products of the same type. In line with rule 43.53 it is the responsibility of the person performing maintenance (i.e. embodying an STC design change) to update the electrical load records of individual aircraft.

The STC installation instructions must provide clear instructions to ensure the electrical loads analysis is conducted appropriately, and the results are suitable to ensure compliance. For some simple cases, where electrical loads on affected bus bars are reduced, it may be adequate to provide only 'delta' information in the installation instructions. However, agreement from CAA should be sought before undertaking this approach.

**1.8.4 Operating rules.** Products are certificated under one or more of the airworthiness standards. Operating rules, such as 14 CFR parts 91, 121, or 135, may be affected or influence the design. While it is the operator's responsibility to show compliance with operating rules, consideration at the design stage will ensure smooth evaluation by the operator and applicable CAA flight operations unit. Where equipment approvals such as TSOs are affected, these must be considered. If compliance to the TSO requirements or equipment installation requirements is

affected (e.g. items placed in the head strike zone of a TSO-C127 seat), CAA will require compliance to be included.

#### 2.Implementation Phase

This phase includes the submission of design data to the Director for review and all compliance finding activities including conformity inspections, compliance tests, compliance inspections etc.

#### 2.1 STC Data Requirements

The purpose of technical data is to define the design change and to provide supporting evidence which shows that the changed product continues to comply with the applicable airworthiness requirements.

Refer to AC146-1, Aircraft Design Organisations, Appendix A, for a description of data required to support a design change. FAA AC 21-40, Chapter 5, is another useful reference on design data. Further information applicable to STC projects is included below for the two categories of design data, descriptive data and substantiating data.

All design data should be identified on a master document list which identifies each document, its revision status and date. This will form the top document which will be referenced on the STC certificate. The master document list should list substantiating data separately.

#### 2.1.1 Descriptive Data.

- Multiple installation STC the descriptive data package should completely and accurately
  describe the fabrication, assembly, and installation of all parts of the design change. The
  descriptive data should be adequate for reproduction of parts and/or installation on other
  examples of the same type-certificated product. Where the data package includes a
  number of engineering drawings, a drawing list should be supplied to identify each
  drawing and its revision status.
- Single installation STC if a data package applies to a single installation, a limited
  descriptive data package may be provided including marked-up photographs with a visible
  scale, sketches, written descriptions etc. as the design is not required for reproduction.
  The descriptive data must still be of sufficient quality to define the design and to verify
  conformity with the design. Whilst the level of descriptive data can be less, the same level
  of substantiating data showing compliance to airworthiness standards is required for all
  STCs.
- Check before submitting descriptive data to the Director, all data should be checked by someone other than the person who prepared it. Where an applicant has prepared the data themselves this may be performed by the contracted aircraft design organisation, or in line with company procedures if the aircraft design organisation prepared it.

#### 2.1.2 Substantiating Data.

- In general, substantiating data is evidence intended to show compliance with the applicable regulations. This data may include analyses, test plans and reports etc.
- The top document for presenting substantiating data is the compliance checklist. A draft compliance checklist is to be included in the PSCP which identifies the proposed means of showing compliance. However, this will be updated later, or included in a specific report, to include the specific statement or document which demonstrates compliance.
- If analysis (including computer models) is used for generation of substantiation data, details of the validation of that analysis, models and software should be included in the evidence submitted.

- Statements of compliance, signed by authorised personnel within the contracted aircraft design organisation, are to be submitted with all substantiating data.
- Multiple statements of compliance or a statement of compliance with multiple signatories
  may be submitted as long as they clearly identify the descriptive data and compliance
  requirements that each signatory is signing for.

#### 2.2 Interim CB Meeting

An interim CB meeting may be held at any time during the implementation phase to communicate and address any technical issues, or to discuss and agree changes to the PSCP such as the means of showing compliance etc. The applicant or PCT may request an interim CB meeting as required. Refer to paragraph 1.5 for CB participants.

If the PSCP is amended as a result of an interim CB meeting, an updated copy is to be signed and dated by the CAA Project Engineer and the applicant's Project Manager.

#### 2.3 Conformity Inspections

In line with rules 21.117 and 21.35, an applicant for an STC must perform the necessary inspections, and provide evidence, to ensure the materials, parts, manufacturing processes, assembly and installation conform to those defined in the STC design data. The Director may also choose to conduct inspections as required. Details of required conformity inspections are to be included in the PSCP. Conformity inspections are required for the following reasons.

**2.3.1 Prior to compliance tests or inspections.** These inspections compare physical aspects of the actual design to the descriptive data and should be completed before any official compliance tests or inspections are conducted. If conformity with the descriptive data is not confirmed, the findings of compliance may not be valid.

For all compliance test or compliance inspection articles forming part of a design change, a CAA Form 8130-9 "Statement of Conformity", or an alternative document specified in the PSCP, should be signed by the following authorised person:

- For a design change that is <u>not major</u>, a person authorised to certify the release-to-service of the changed product.
- For a <u>major</u> design change, a person authorised to certify the conformity of a major modification or repair.
- For stand-alone tests, not performed on an aircraft, a person authorised by a Part 148 certificated Manufacturing Organisation to sign a CAA Form One.
- A person specified in the PSCP.

All prototype modification parts forming part of the test or inspection article require a CAA Form One as outlined in AC00-5, *Parts Documentation-CAA Form One*— *Authorised Release Certificate*, or an alternative document specified in the PSCP. Documents issued in line with the requirements of a National Aviation Authority (NAA) (as identified in AC00-1, *Acceptability of Parts*) may be acceptable, as agreed in the PSCP.

For compliance tests, individuals within the aircraft design organisation authorised to make a finding of compliance should verify that the test set-up conforms to the applicable test plan and include a statement to this effect in the test report or CAA <a href="Form 8100-1">Form 8100-1</a> "Conformity Inspection Record", in addition to the CAA <a href="Form 8130-9">Form 8130-9</a> "Statement of Conformity".

Where compliance tests are to be carried out on foreign soil, the Director may request a conformity inspection to be carried out a by representative of the NAA for the state in which the test is to take place. The results will be recorded by the NAA representative on CAA <a href="Form 8100-1">Form 8100-1</a> "Conformity Inspection Record" or similar NAA form.

If deviations are made which do not reflect the STC descriptive data, or subsequent maintenance or modifications are carried out, a statement of conformity cannot be issued for the test article. Once a statement of conformity has been issued, the aircraft configuration should be tightly controlled to ensure that any subsequent changes are documented and accounted for in the finding of compliance in line with rule 21.35(b)(3).

If it is necessary to carry out conformity inspections while an installation is in progress (usually due to lack of access when the installation is complete), the following conditions apply:

- All work to the point that the inspection is carried out is complete and signed off.
- The installation records have been reviewed and all materials records (Form One, Release Notes, etc.) are complete and correct.
- The installation and the associated records are reviewed by a person authorised in the PSCP to ensure that the installation conforms to the STC descriptive data.
- When the partial conformity inspection has been completed, the installation records should be annotated to record that the partial conformity inspection has been completed and that there are no changes permitted to the installation without the direct involvement of the relevant aircraft design organisation.
- The installer has a process in place to ensure that installations that have been inspected for conformity are not changed prior to the completion of the installation.
- **2.3.2 Initial STC installation.** A conformity inspection of the first STC installation may be necessary to verify that manufacturing instructions are accurate, to ensure that maintenance instructions for continuing airworthiness can be carried out, and to ensure the design change can be replicated using the STC descriptive data. A CAA <u>Form 8130-9</u> "Statement of Conformity", or an alternative document specified in the PSCP, may be signed by the following authorised person:
  - For a design change that is not major, a person authorised to certify the release-to-service of the changed product, or as specified in the PSCP.
  - For a major design change, a person authorised to certify the conformity of a major modification or repair, or as specified in the PSCP.

All prototype modification parts installed in the first STC installation must meet the requirements of rule 21.303.

It is important to note that conformity inspections described above are required as part of the STC approval process and *do not* replace or supersede the normal maintenance release-to-service requirements of Part 43.

The results of conformity inspections carried out by the PCT will be recorded on CAA Form 8100-1 "Conformity Inspection Record". The CAA Project Engineer will liaise with the applicant to arrange these inspections if required.

#### 2.4 Compliance Testing

In line with rules 21.117 and 21.35, an applicant for an STC must perform the necessary tests and provide evidence to ensure the changed product complies with the applicable airworthiness requirements. The PCT, on behalf of the Director, may also choose to witness certain tests or have additional tests conducted as specified in the PSCP. Compliance tests may include:

- Component Tests to verify that certain detail parts, components, or subassemblies meet the applicable airworthiness requirements.
- Ground Tests to verify the complete installation or final assembly meets the applicable airworthiness requirements such as electromagnetic interference (EMI), environmental, fuel flow, or structural requirements.
- Flight Tests to verify the effect of the design change on the aircraft's performance, flight characteristics, operation, noise signature and/or overall handling qualities. (Refer to paragraph 2.6 for specific flight test requirements)

The PSCP will include details of all compliance tests planned during the STC project, including the designated test witness. The applicant may conduct research and development tests to provide a level of design confidence without including this test data in the final substantiation.

- **2.4.1 Test Plan.** Before any compliance testing is carried out, a test plan should be submitted to the PCT for review and acceptance. Each test plan should include:
  - A list of the airworthiness requirements for which compliance is to be shown.
  - A description of how compliance is expected to be shown including a step-by-step test procedure.
  - A description of the test article.
  - A list of test equipment and how the equipment is to be calibrated (if required).
  - Details of how the test article and test setup will be conformed to descriptive design data and the test plan.
  - Defined pass/fail criteria and a description of how this will be determined.
- **2.4.2 Conformity Inspections.** Before any compliance testing, a conformity inspection of the test article and test set-up should be completed against the descriptive data, and a statement of conformity issued (refer to paragraph 2.3). If there is a delay between the conformity inspection and the compliance test itself, the nominated person responsible for making the finding of compliance should ensure that the finding of compliance is valid for the design defined in the STC descriptive data.
- **2.4.3 Witnessing Tests.** An authorised witness is required to verify that the test procedures described in the test plan are followed and that any data captured by test instrumentation appears to be valid data for the test in question.
  - The PSCP will detail the person responsible for witnessing each certification test.
  - Where compliance tests are performed on foreign soil, the Director may delegate witness responsibilities to a representative of the NAA for the state in which the test is to take place.

- **2.4.4 Test Report.** A test report is to be submitted as part of the substantiating data for the STC where compliance with sections of the airworthiness requirements have been shown by test. This report is to include:
  - A list of the airworthiness requirements for which compliance was shown.
  - Reference to the approved test plan.
  - A statement of conformity, CAA <u>Form 8130-9</u> or another document acceptable to the
    Director, certifying that the test article and the test set-up was in line with the STC design
    data and the test plan (refer to paragraph 2.3).
  - Confirmation that the test was conducted in line with the test plan, or if it was not, a description of the deviations and a justification for the validity of the results.
  - Results of each test case including details of observations or other relevant information.

Each test report should be checked by the Project Design Engineer or another person authorised to do so in the PSCP.

#### 2.5 Compliance Inspections

An engineering compliance inspection verifies compliance with airworthiness requirements and also ensures that the STC design is compatible with other installations on the product. A compliance inspection should not be confused with a conformity inspection which compares the changed product with the STC design data (refer to paragraph 2.3). Examples of <u>compliance</u> inspections are:

- Interior Inspections e.g. emergency placards, aisle widths, occupant protection.
- Control System Inspections e.g. ease of operation, interference etc.
- Fire Protection Inspections e.g. 25.981, flammable fluid lines etc.
- System Routing Inspections e.g. hydraulic and electrical system routing.

Again, the PSCP will include details of all compliance inspections planned during the STC project, including the designated inspector(s).

- **2.5.1 Compliance Inspection Checklist.** A checklist is used to record the results of each compliance inspection and should be submitted to the Director as part of the substantiating data. The completed compliance inspection checklist should include:
  - A list of the airworthiness requirements for which compliance was shown.
  - A description of the items/aircraft which were inspected.
  - Name(s) of the designated inspector(s).
  - A statement of conformity, CAA <u>Form 8130-9</u> or another document acceptable to the Director, certifying that the inspected article was found to conform with the STC design data (refer to paragraph 2.3).
  - A statement against each airworthiness requirement which confirms compliance or non-compliance, and any other relevant information.

Each compliance inspection checklist should be checked by the Project Design Engineer or another person authorised to do so in the PSCP.

#### 2.6 Flight Testing

In line with rule 21.39, flight tests may be required to show compliance with the applicable airworthiness requirements, or to verify correct and reliable operation of the changed product. Details of any flight testing required during an STC project will be included in the PSCP. The Director may conduct a flight test audit (refer to paragraph 2.6-7) or request additional flight tests to verify the applicant's flight test results or to confirm compliance with airworthiness requirements.

FAA ACs 23-8, 25-7, 27-1, and 29-2 provide guidance for flight tests of aircraft certificated to those standards.

- **2.6.1 Flight Test Plan.** The applicant is required to prepare a flight test plan which should be submitted to the PCT prior to the issue of a *special category experimental* airworthiness certificate (refer to paragraph 2.6.3). The following information should be included:
  - A list of the airworthiness requirements for which compliance is to be shown.
  - A description of how compliance is expected to be shown including step-by-step procedures and defined pass/fail criteria.
  - A description of the aircraft to be tested, the base airfield and the area of operation.
  - Identification of all personnel involved with the test flight(s), and their responsibilities.
     Only personnel necessary for the conduct of the test flight or to ensure safety are to be carried on a test flight. Include details of test pilot approvals (refer to paragraph 2.6.4).
  - An analysis of flight test risks and details of risk management procedures.
  - A list of test equipment and how the equipment is to be calibrated (if required).
  - Details of how the test aircraft will be conformed to descriptive design data.
- **2.6.2 Pre-Flight CB Meeting.** Depending on the scope of the design change a pre-flight CB meeting may be held, at the request of the PCT or the applicant. The requirement for a pre-flight CB meeting should be included in the PSCP. Refer to paragraph 1.5 for CB participants. The purpose of this meeting is to:
  - Discuss and clarify flight test requirements, the flight test plan, and conformity inspections.
  - Confirm flight test risk management procedures.
  - Discuss and plan the CAA flight test audit (if required).
  - Ensure the aircraft has undergone the necessary ground inspections and tests.
  - Review substantiating data to ensure the aircraft is in a safe condition for the intended flight tests.

If the PSCP is amended as a result of an interim CB meeting, an updated copy is to be signed and dated by the CAA Project Engineer and the applicant's Project Manager.

**2.6.3 Issue of Experimental Airworthiness Certificate.** A *special category - experimental* airworthiness certificate must be issued under rule 21.193 if the applicant wishes to conduct any preliminary research and development flight tests or before conducting flight tests to show

compliance. A separate application should be filled out and submitted to the PCT for the issue of a *special category - experimental* airworthiness certificate (CAA Form 24021/06).

- **2.6.4 Flight Test Pilot Approval.** In line with rule 19.405, for the purposes of experimental test flying under a *special category experimental* airworthiness certificate, the nominated flight test pilot must be approved in writing by the Director. The approved flight test plan will identify the name and details of the nominated test pilot. A separate application should be filled out and submitted to the PCT (CAA <u>Form 24019/04</u>) for a test pilot who does not already hold an approval for the specific aircraft and type of testing to be conducted.
- **2.6.5 Flight Test Conformity Inspection.** The ground inspection physically verifies that the aircraft submitted for flight test meets the minimum requirements for quality, conforms to the STC design, and is safe for the intended ground and flight tests. The process defined in paragraph 2.3 is to be followed for all flight test aircraft.
- **2.6.6 Flight Test Report.** The applicant is to provide a flight test report signed by the test pilot and any nominated test witnesses, to document the results of all certification flight tests, and to demonstrate compliance with the applicable airworthiness requirements. The PCT will review the applicant's flight test report in order to determine conformity of the aircraft with the type design, compliance with the applicable airworthiness requirements, and to identify tests that may require re-evaluation by way of a CAA flight test audit in line with rule 21.35(b).
- **2.6.7 CAA Flight Test Audit.** Depending on the scope of the STC application, the Director will determine the need for a flight test audit and the applicant will be advised if required. The purpose of a flight test audit is to verify the flight test data reported by the applicant, confirm compliance with the airworthiness requirements, and the adequacy of operational limitations, procedures, and pilot information. A CAA flight test audit may be conducted in conjunction with the applicant's flight testing or may be completed after the applicant's flight test report has been submitted.

#### 2.7 Compliance by Similarity

Compliance with airworthiness requirements can be shown by comparing the current design with a similar design which has been previously approved. For example, if a certain interior material has been used in an approved STC, that same material may be eligible for a similar STC without the need for further flammability testing, etc.

The applicant would need to provide evidence of the previous approval and ensure:

- The extent and application of the design is exactly the same as that previously approved.
   That is, the certification basis is the same as the previous approval, the design is physically the same, and the interaction with other parts of the aircraft are the same.
- There is access to the technical data being compared to as required, which may require permission from the approval holder.
- Compliance is re-established where there is any difference from the previously approved configuration. Substantiating data may be submitted which demonstrates that the differences do not affect the compliance of the design.

#### 2.8 Compliance by Analysis

Engineering analysis is an integral part of showing compliance. It encompasses the full range of analytical techniques such as textbook formulas, computer algorithms, computer modelling/simulation, or structured assessments. CAA approves the data, not the analytical technique, so CAA holds no list of acceptable analyses, approved computer codes, or standard

formulas. Analysis methods (including computer models) must be applicable and may be used only if the article to be analysed conforms to those for which experience has shown the methods to be reliable. Where analysis is predicated on a set of assumptions, the article analysed must be shown to conform to those assumptions. The use of a well-established analysis technique or software alone is not enough to guarantee the validity of the result. Validation of the data must be included in the compliance report to show the result is accurate, the technique is applicable, and the analysis does not violate the assumptions of the analysis technique.

#### 2.9 Deviations and Changes

It may be necessary to modify or update the design data during an STC project for a number of reasons; a certain tolerance cannot be achieved during manufacture, a material is out of stock, or it is found that a part cannot be fitted in line with the installation instructions.

A production deviation (or concession) may be needed due to factors affecting the installation on one particular aircraft, or the STC design which is then applicable to a series of aircraft.

It is important to remember that if compliance is shown for a particular design, and that design then changes, it will be necessary to re-establish compliance or show that it is unaffected. This is required for changes affecting one installation or the overall STC design. The basis for compliance with the airworthiness requirements is not always obvious and it cannot be assumed that a small change is trivial.

Changes that are made prior to STC approval should be reflected in the final STC design data. The master document list (refer to paragraph 2.1) can be used to identify the status of design data, but the applicant should identify and record all changes from beginning to end:

- Recording the reason for a change.
- Incorporating the change in the descriptive data.
- Establishing that the changed design complies.
- Installing the change.

Details of this procedure or reference to a Part 146 procedure are to be included in the PSCP.

### 3. Completion Phase

The completion phase of an STC project covers a review of any outstanding requirements, submission of all final documentation to the Director, certification activities, and the continuing responsibilities of an STC holder.

#### 3.1 Submission of final data

The applicant and/or aircraft design organisation should submit a consolidated data set including all updated documents to reflect the final design configuration. All design data should be checked and released in line with the design organisations procedures by persons authorised to do so.

The final compliance checklist, statement(s) of compliance and master document list should be submitted with current references to descriptive and substantiating data.

#### 3.2 Final CB Meeting

A final CB meeting may be required for significant STC projects, after the applicant has demonstrated compliance with all applicable airworthiness requirements. This may be needed to review any outstanding design data or technical issues, formalise the decision to issue the STC, and discuss any post certification activities. The applicant or PCT may request a final CB meeting as required. Refer to paragraph 1.5 for CB participants.

#### 3.3 Issue of STC

An applicant is entitled to an STC when the Director is satisfied that the requirements of rule 21.119 have been satisfied. The Director, or authorised CAA staff member, will sign the STC certificate and hardcopies of the STC master document list (MDL), flight manual supplement and airworthiness limitations section of the ICA if limitations are specified.

An applicant may request that individual drawings or documents are signed, even though all data is controlled by reference on the MDL. The STC certificate and one copy of the signed documents will be returned to the applicant, and one copy of all the descriptive and substantiating data will be held on file at CAA.

#### 3.4 Foreign Acceptance/Validation of CAANZ STCs

Current international bilateral agreements determine the acceptance, or process to accept, a CAANZ STC by a foreign airworthiness authority. Copies of all international agreements and arrangements can be found on the CAA website at:

https://www.aviation.govt.nz/about-us/who-we-work-with/international-agreements-and-arrangements/

An applicant should include details in the PSCP if they wish to obtain a foreign STC following certification. For large STC projects this may need involvement of the foreign regulatory authority while compliance finding activities are being conducted.

- **3.4.1** Australia. As a "recognised" country under CASR Part 21, a New Zealand CAA STC is considered equivalent to an STC that could have been issued by the Australian Civil Aviation Safety Authority. As such, a New Zealand CAA STC is approved for embodiment on aircraft registered in Australia with no further review or approval required.
- **3.4.2 United States of America.** An STC holder may apply for the issue of certain US STCs in line with the US-NZ Bilateral Aviation Safety Agreement, Implementation Procedures for Airworthiness (IPA). The full scope of STC approvals which are eligible for the issue of an FAA STC

is listed in the IPA which is posted on the CAA website. In general, STCs meeting the following criteria are eligible for the issue of an FAA STC:

- 14CFR 25 interior and non-complex in-flight entertainment modifications
- 14CFR 23
- 14CFR 27 and 14 CFR 29 non-complex modifications.

The current working arrangement between the European Aviation Safety Authority (EASA) and the New Zealand CAA does not cover the acceptance or validation of STCs.

#### 3.5 Embodiment of STC

In most cases an STC <u>will</u> be a major modification and must be certified for conformity with the design data in line with Part 43 Subpart E.

In some cases, an STC may approve a modification that is not major, where for example, the applicant wishes to sell the design package. In this case no conformity inspection will be required for embodiment of the STC design.

The descriptive data of each STC can recommend to the installer whether the installation can be considered a major modification or not.

The STC holder should be notified immediately if any issues or difficulties are encountered during installation or embodiment of an STC design. It is important to remember that if compliance is shown for a particular design, compliance may be invalid if that design changes during installation. It cannot be assumed that a small change is trivial.

As the embodiment of an STC will probably include a revision to operating or maintenance documentation, particular attention should be paid to the incorporation of <u>all</u> design data. Instructions for Continued Airworthiness (ICA) should be included in the aircraft maintenance programme and any approved flight manual supplement (FMS) must be included with the documents to be carried in line with rule 91.111(2).

#### 3.6 Continued Airworthiness

As described in paragraph 1.2, the STC holder is responsible for continuing airworthiness support throughout the life of the STC. Since it may be necessary to contact owners of aircraft with the STC embodied, the STC holder should keep records of those aircraft and organisations that the STC was sold to.

In the event of defects being reported, it is the STC holder's responsibility to investigate and the STC holder may wish to contract a Part 146 design organisation to carry out the failure investigation. The STC holder should also consider their responsibilities to report the defects to CAA under Part 12.

#### 3.7 Changes to approved STC data

Rule 21.125 states that the holder of an STC intending to make a significant change must apply for an amendment on CAA <a href="Form 24021/09">Form 24021/09</a> or apply for a new STC. In reality, all changes to STC technical data need to be approved by CAA, because the STC certificate requires the master document list to be at a 'CAA approved revision' and a Part 146 delegation holder does not have the delegation to approve STCs.

Note that this doesn't preclude the ability of a Delegate to approve a minor modification applicable to an STC in the same way that they can approve a minor modification applicable to a TC. The modification would need separate, clearly differentiated technical data.

# Appendix A: PSCP Template: For use on all projects except those with a certification basis of 14 CFR 23 Amendment 64 or later amendment

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#### **Project Specific Certification Plan (PSCP)**

#### Title....

#### CAA Reference X/21E/X

#### A1. Scope

- A1.0 The purpose of this PSCP is to define and document a certification programme between the Civil Aviation Authority of New Zealand (CAA) and applicant to expedite the issue of a Supplemental Type Certificate (STC) in line with Part 21 Subpart E.
- A1.1 This PSCP must become effective upon endorsement by CAA and the applicant's Project Manager in section A9. It will continue in effect throughout all phases of the project unless it is superseded, revised, or terminated. This PSCP may be amended by mutual agreement in line with agreed procedures.
- A1.2 CAA work request covering the STC project is X/21E/X.

#### A2. Design Change Description

- A2.1 **Model effectivity.** Include the product type and models that the design change is to be installed on. For one-off modifications, include the applicable registration or serial number.
- A2.2 **Description of the design change**. Identify the product to be changed (with reference to the TC), the affected structure/systems and include relevant photographs, drawings, and schematics to fully describe the change
- A2.3 Description of any novel or unusual design features.
- A2.4 Intended regulatory operating environment (Parts 91, 121, 137 etc). This should include the kinds of operation (day/night, VFR/IFR, restricted category) and any likely limitations on the type design operation. It should highlight any changes to the operation or maintenance from the aircraft's intended purpose.

#### A3. Project Stakeholders

A3.0.	The applicant for the STC is:
	Applicant's name
	Applicant's address
	(CAA Client No)
	Phone:
A3.1.	The design organisation is:
	Design organisation's name
	Design organisation's address
	(CAA Client No)
	Phone:

A3.2.	The applicant's designated Project Manager is	The Project Manager
	is the applicant's point of contact for all administrative matters co	ncerning the STC.
	Technical issues may be dealt with directly with Project Design Eng	gineer

- A3.4. Changes to the above project personnel must be notified to all parties, and a replacement nominated and agreed upon within 5 working days.
- A3.5. The applicant must be responsible for:
  - (a) Proposing the means of compliance with the nominated airworthiness design standards.
  - (b) Demonstrating that the supplemental type design complies with the airworthiness design standards.
  - (c) Notifying the CAA Project Engineer as soon as practicable of the dates and locations of all compliance tests, including flight tests, with at least 5 days notice.
  - (d) Supplying CAA all necessary data, including the compliance checklist and all the documentation referenced in section 7.

#### A4. Certification Schedule

- A4.0. **The STC assessment process** will follow, as closely as practicable, AC21-8 and FAA Order 8110.4, as appropriate for a STC application.
- A4.1. **Certification Board (CB) Meetings**. Depending on the scope of the STC project, CAA or the applicant may convene a CB meeting at significant stages of the project. Refer to the main body of AC21 for a full description of CB requirements. Required CB meetings are detailed in the STC project schedule below.

# A4.2. The applicant and Director have agreed the following proposed schedule for the STC project.

Action	Required		<u>Date</u>
		<u>No</u>	
STC Application / Draft PSCP Submitted to the Director			
Familiarisation CB Meeting			
PSCP Finalised			
Preliminary Data Submitted to the Director with an MDL			
Interim CB Meeting			
Request for conformity submitted to CAA			
Conformity Inspections			
Test plans submitted to CAA			
Certification Tests			
Compliance Inspections			
Pre-flight CB Meeting			
Flight Tests (including Conformity Inspections)			
Statement of Compliance and final descriptive and substantiating data submitted to the Director			
Final CB Meeting			
STC Issue			

A5.0.	Type Certificate lists the affected type's certification basis and applicable
	asincluding amendments through and applicable special conditions
	equivalent level of safety and exemptions as
A5.1.	In line with the FAA AC21.101-1B Changed Product Rule, the design change is classified as

- A5.2. The agreed certification basis for this STC is ...... including
- amendments ...... through ......
- A5.3. The applicant has identified the following unique or unusual design characteristics which may require the application of special conditions to this STC application: ......
- A5.4. The applicant has applied for the following equivalent level of safety findings with respect to the certification basis of this STC: ......
- A5.6 The applicant has reviewed the state of design (STATE) Airworthiness Directives applicable to the aircraft being modified and determined.......

A6.	Method	of	Com	pliance
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- A6.0. Include a description of how compliance will be shown against each applicable airworthiness requirements. This section may refer to the method of compliance detailed in the attached Compliance Checklist (include reference and revision if not part of this PSCP).
- A6.1. **Certification Tests.** For all proposed certification tests a Test Plan detailing the proposed test method, the test requirements (i.e. loads, test cases), conformity inspections, and the criteria by which the test article will pass or fail should be supplied to the CAA Project Engineer in line with the certification schedule (at least ten working days prior to the test). Refer to the main body of AC21-8 for a full description of certification test requirements. The following tests are planned to show compliance with the applicable airworthiness requirements.

Test Description (including Test Plan ref)*	Witness	Date of Test

<sup>\*</sup> If specific details of proposed tests are not available, provide a summary of the test plan(s) with information on proposed test aircraft type/model, equipment configuration, and minimum flight test personnel qualifications etc.

A6.2. **Conformity Inspections.** Inspections are required to confirm test articles conform to descriptive data; compliance inspection articles conform to descriptive data; and the design change can be replicated. The CAA Project Engineer should be notified 5 **working days** before the scheduled inspection date.

Requirement for Conformity Inspection	Signatory	Date of Insp.

A CAA <u>Form 8130-9</u> Statement of Conformity must be provided for all test articles, signed by an authorised person (refer to AC21-8).

A6.3. **Compliance Inspections.** An engineering compliance inspection should be done for any aspect of product design and installation where compliance with the certification requirements cannot be determined through the review of drawings or reports. The following compliance inspections are planned to show compliance with the applicable airworthiness requirements.

Details of Compliance Inspection	Signatory	Date of Insp.

#### A7. Certification Documentation

A7.0. A separate master document list is required as part of the STC data package to define all documents, and their issue status, to embody, maintain and substantiate the design change. The master document list should clearly identify between descriptive data (manufacturing drawings, maintenance & operating documentation etc.) and substantiating data (technical assessments, test reports etc.). Detailed information on Substantiating Data requirements are included in AC21-8.

The following list includes the documents to be approved by the CAA (master document list, flight manual supplement and Instructions for Continued Airworthiness).

Document ref	Revision	Date

#### A8. Continuing Airworthiness Responsibility

Cartificate No

Part

- A8.0. The applicant shall be responsible for providing continuing airworthiness support for the aircraft to all owners and all national airworthiness authorities in countries in which the aircraft is operated, in line with rules 21.123(a)(1) and 146.61.
- A8.1. The applicant should detail the procedures and systems in place to achieve this or refer to the applicable rule part for which the STC applicant is certificated that meets these requirements:

	i uit.	Certificate No		
A8.1.1.	Procedure for collecting, investigating, and analysing information relating to defects the design produced by the applicant and distributing that information to:			
	(a)	each manufacturer of a product, component, or appliance to that design; and		
	(b)	each person who receives that design from the design organization:		

- A8.1.2. Procedure for providing defect incident information to the Authority in line with Part 12:.....
- A8.1.3. Procedure to ensure that all records are legible and of a permanent nature:
- A8.1.4 Procedure to ensure that all records are retained for a period of 2 years from the date the last example of the product type is permanently withdrawn from service:.....

### A9. Agreement of Certification Plan

A9.0. The PCT and applicant agree to the provisions of this PSCP as indicated by the signature of their duly authorised representatives.

Applicant Project Manager:		
Name:	Signed:	Date:
CAA Project Engineer:		
Name:	Signed:	Date:

#### **Appendix A1: Compliance Matrix**

The following matrix template (shown below) details the airworthiness design standards used to show compliance for this STC. For convenience, an Excel format of this template is embedded in this PDF for use by applicants, as desired.

Below are notes and instructions for various columns in the template.

#### (4): Means of Compliance

If applicable, list any guidance material being used as an acceptable means of compliance. The guidance material must be applicable to the regulation (i.e. FAA ACs for 14CFR, EASA AMC for CS specifications) and specific to the aircraft category (i.e. FAA AC27-1 cannot be used for 14CFR Part 23).

#### (5): Methods of Compliance

List all applicable method of compliance codes in this column as defined below.

**Flight test (FT)**. A test of the aircraft in the air or on the ground when the nature of the test requires a flight test pilot.

**Ground test (GT)**. Includes component bench testing, testing of simulated aeronautical product systems, and ground testing of the product. These tests may precede a flight test, or be used to show compliance when appropriate.

**Analysis (A).** Includes a quantitative or qualitative assessment, as appropriate, of structures, systems, components, or the entire product. Should be validated using published previous experience or appropriate testing to be accepted for showing compliance to the regulations.

**Design review (D)**. Encompasses the features of structures, systems, or components. Inspection of hardware, drawings, bill of materials, or other documentation such as material specifications, shows compliance with the applicable regulations.

**Inspection (I)**. This method of compliance is used when an engineering compliance inspection of a component, installation or the product itself is required to establish compliance with the applicable requirements.

**Similarity (S)**. Comparison between a previously certificated design and the proposed design. The intent is to show that these designs are the same in all ways relative to showing compliance with the applicable regulation, so the proposed design will perform the same or better than the previously certificated design. The applicant must account for any differences in the regulations if the amendment levels of the regulations are not the same for the two designs. To determine this, access to the technical data being compared to will be required.

**Equivalent Level of Safety Finding (ELOS)**. Only CAA can issue an ELOS when the applicant cannot show literal compliance with a regulation, but shows to CAA satisfaction that compensating factors achieve a safety level equal to that of the applicable regulation. An applicant may propose the use of an ELOS in writing to the PCT. Make all proposals for ELOSs to the CAA early in the project to allow time for processing.

**Not Applicable (N/A)**. Means the specific regulation does not apply to the design or modification for this STC; therefore, a showing of compliance is not necessary. Enter the reason the rule is not applicable in the "Applicable Guidance, References, and Remarks" column of the checklist.

#### (6): Compliance Artefacts

Compliance artefacts are any data item used in a showing of compliance. This could include, but is not limited to, drawings, plans, and reports.

#### (8): Statement of Compliance

List the organisation making the statement and discipline of the SOC authorised person(s)

#### (9): Finding of Compliance

List the organisation making the finding and specific DDH, or list CAANZ



Excel version of Compliance Matrix Template

Advisory Circular

			Complia	nce Matrix				
(1) Regulation	(2) Amendment	(3) Title	(4) Means of Compliance	(5) Method(s) of Compliance	(6) Compliance Artefact(s)	(7) Justification/Remarks	(8) Statement of Compliance	(9) Finding of Compliance
Subpart A - General								
23.1	23-34	Applicability						
23.3	23-64	Airplane categories						
etc								
Subpart B - Flight								
etc								
Subpart C - Structures				T	Г		Г	
etc								
Charle Baland								
Subpart D - Design and Construction								
etc								
Subpart E - Powerplant								
etc								
Subpart F - Equipment				T T				
etc								
Code and C. Eliabet and								
Subpart G – Flight crew Interface and Other Information								
etc								
NZ Part 26								
etc								
Airworthiness Directives								
etc								
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9 August 2022 34 CAA of NZ

# Appendix B: PSCP Template: For use on projects with a certification basis of 14 CFR 23 Amendment 64 or later amendment

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#### **Project Specific Certification Plan (PSCP)**

#### Title....

#### CAA Reference X/21E/X

#### B1. Scope

- B1.1 The purpose of this PSCP is to define and document a certification programme between the Civil Aviation Authority of New Zealand (CAANZ) and applicant to expedite the issue of a Supplemental Type Certificate (STC) in line with Part 21 Subpart E.
- B1.2 This PSCP must become effective upon endorsement by the CAANZ and the applicant's Project Manager in section A9. It will continue in effect throughout all phases of the project unless it is superseded, revised, or terminated. This PSCP may be amended by mutual agreement in line with agreed procedures.
- B1.3 The CAA work request covering the STC project is X/21E/X.

#### **B2.** Design Change Description

- B2.1 **Model effectivity.** Include the product type and models that the design change is to be installed on. For one-off modifications, include the applicable registration or serial number.
- B2.2 **Description of the design change**. Identify the product to be changed (with reference to the TC), the affected structure/systems and include relevant photographs, drawings, and schematics to fully describe the change
- B2.3 Description of any novel or unusual design features.
- B2.4 Intended regulatory operating environment (Parts 91, 121, 137 etc.) This should include the kinds of operation (day/night, VFR/IFR, restricted category) and any likely limitations on the type design operation. It should highlight any changes to the operation or maintenance from the aircraft's intended purpose.

#### **B3.** Project Stakeholders

33.1	The applicant for the STC is:
	Applicant's name
	Applicant's address
	(CAA Client No)
	Phone:

B3.2	The design organisation is:
	Design organisation's name
	Design organisation's address
	(CAA Client No)
	Phone:
B3.3	The applicant's designated Project Manager isThe Project Manager is the applicant's point of contact for all administrative matters concerning the STC. Technical issues may be dealt with directly with Project Design Engineer
B3.4	The CAA's nominated Project Engineer is
B3.5	Changes to the above project personnel must be notified to all parties, and a replacement nominated and agreed upon within five working days.
B3.6	The applicant must be responsible for:

- (e) Proposing the means of compliance with the nominated airworthiness design standards.
- (f) Demonstrating that the supplemental type design complies with the airworthiness design standards.
- (g) Notifying the CAA Project Engineer as soon as practicable of the dates and locations of all compliance tests, including flight tests, with at least five days notice.
- (h) Supplying to the CAA all necessary data, including the compliance checklist and all the documentation referenced in section 7.

#### **B4.** Certification Schedule

- B4.1. **The STC assessment process** will follow as closely as practicable AC21-8 and FAA Order 8110.4, as appropriate for a STC application.
- B4.2 **Certification Board (CB) Meetings**. Depending on the scope of the STC project, CAA or the applicant may convene a CB meeting at significant stages of the project. Refer to the main body of AC21-8 for a full description of CB requirements. Required CB meetings are detailed in the STC project schedule below.

# B4.3 The applicant and Director have agreed the following proposed schedule for the STC project.

Action		Required		
	<u>Yes</u>	<u>No</u>		
STC Application / Draft PSCP Submitted to the Director				
Familiarisation CB Meeting				
PSCP Finalised				
Preliminary Data Submitted to the Director with an MDL				
Interim CB Meeting				
Request for conformity submitted to CAA				
Conformity Inspections				
Test plans submitted to CAA				
Certification Tests				
Compliance Inspections				
Pre-flight CB Meeting				
Flight Tests (including Conformity Inspections)				
Statement of Compliance and final descriptive and substantiating data submitted to the Director				
Final CB Meeting				
STC Issue				

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<b>DJ.</b>	cci dilicadioni	Dusis

B5.1	Type Certificate lists the affected type's certification basis and applicable as including amendments through and applicable special conditions, equivalent level of safety and exemptions as
B5.2	In line with the FAA AC21.101-1B <i>Changed Product Rule</i> , the design change is classified as
B5.3	The agreed certification basis for this STC is including amendments through
B5.4	The applicant has identified the following unique or unusual design characteristics which may require the application of special conditions to this STC application:
B5.5	The applicant has applied for the following equivalent level of safety findings with respect to the certification basis of this STC:
B5.6	The applicant has reviewed New Zealand Airworthiness Directives applicable to the aircraft being modified and determined
B5.7	The applicant has reviewed the state of design (STATE) Airworthiness Directives applicable to the aircraft being modified and determined

B6. Method of Compliance	e
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- B6.1 Include a description of how compliance will be shown against each applicable airworthiness requirements. This section may refer to the method of compliance detailed in the attached Compliance Checklist (include reference and revision if not part of this PSCP).
- B6.2 **Certification Tests.** For all proposed certification tests a Test Plan detailing the proposed test method, the test requirements (i.e. loads, test cases), conformity inspections, and the criteria by which the test article will pass or fail should be supplied to the CAA Project Engineer in line with the certification schedule (at least ten working days prior to the test). Refer to the main body of AC21-8 for a full description of certification test requirements. The following tests are planned to show compliance with the applicable airworthiness requirements.

Test Description (including Test Plan ref)*	Witness	Date of Test

<sup>\*</sup> If specific details of proposed tests are not available, provide a summary of the test plan(s) with information on proposed test aircraft type/model, equipment configuration, and minimum flight test personnel qualifications etc.

B6.3 **Conformity Inspections.** Inspections are required to confirm test articles conform to descriptive data; compliance inspection articles conform to descriptive data; and the design change can be replicated. The CAA Project Engineer should be notified in **five working days** before the scheduled inspection date.

Requirement for Conformity Inspection	Signatory	Date of Insp.

A CAA <u>Form 8130-9</u> Statement of Conformity must be provided for all test articles, signed by an authorized person (refer to AC21-8).

B6.4 **Compliance Inspections.** An engineering compliance inspection should be done for any aspect of product design and installation where compliance with the certification requirements cannot be determined through the review of drawings or reports. The following compliance inspections are planned to show compliance with the applicable airworthiness requirements.

Details of Compliance Inspection	Signatory	Date of Insp.

#### B7. Certification Documentation

B7.1 A separate master document list is required as part of the STC data package to define all documents, and their issue status, to embody, maintain and substantiate the design change. The master document list should clearly identify between descriptive data (manufacturing drawings, maintenance & operating documentation etc.) and substantiating data (technical assessments, test reports etc.). Detailed information on Substantiating Data requirements is included in AC21-8.

The following list includes the documents to be approved by the CAA (master document list, flight manual supplement and Instructions for Continued Airworthiness).

Document ref	Revision	Date

### **B8.** Continuing Airworthiness Responsibility

- B8.1 The applicant shall be responsible for providing continuing airworthiness support for the aircraft to all owners and all national airworthiness authorities in countries in which the aircraft is operated, in line with rules 21.123(a)(1) and 146.61.
- B8.2 The applicant should detail the procedures and systems in place to achieve this or refer to the applicable rule part for which the STC applicant is certificated that meets these requirements:

Part	Certificate	No.	
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- B8.2.1 Procedure for collecting, investigating, and analysing information relating to defects in the design produced by the applicant and distributing that information to:
  - (c) each manufacturer of a product, component, or appliance to that design; and
  - (d) each person who receives that design from the design organization:
- B8.2.2 Procedure for providing defect incident information to CAA in line with Part
- B8.2.3 Procedure to ensure that all records are legible and of a permanent nature:
- B8.2.4 Procedure to ensure that all records are retained for a period of two years from the date the last example of the product type is permanently withdrawn from service:......

# **B9.** Agreement of Certification Plan

B9.1 The PCT and applicant agree to the provisions of this PSCP as indicated by the signature of their duly authorised representatives.

Applicant Project Manager:				
Name:	Signed:	Date:		
CAA Project Engineer:				
Name:	Signed:	Date:		

## **Appendix B1: Compliance Matrix**

The following matrix template (shown below) details the airworthiness design standards used to show compliance for this STC. For convenience, an Excel format of this template is embedded in this PDF for use by applicants, as desired.

**Note:** Should you use this template, do not alter the format of the matrix, as it allows for clear identification of acceptable MOCs compared to selected MOCs for the project.

Below are notes and instructions for various columns in the template.

#### (3) Part 23 regulations as of 23-63

Regulations marked with an asterisk (\*23-xx) contain known errors and may require an ELOS. Coordinate with the ACU.

#### (4) ASTM F44 Standards

Specific sections listed, with certain accepted changes and exceptions in FAA Accepted Means of Compliance for Part 23 Airplanes (amendment 23-64), can be found at:

https://www.faa.gov/aircraft/air cert/design approvals/small airplanes/small airplanes regs

Standards marked with the # symbol in bold require changes in accordance with the current NOA list.

#### (5) Applicant Proposed Baseline, Blended, or Alternate Means of Compliance (MOCs)

Baseline MOCs are those found in either column (3) or column (4).

A blended MOC is a combination of an amendment 63 prescriptive rules and NOA listed performance standards (a mix of column 3 and 4).

An alternate MOC is one of the following:

- A prescriptive rule earlier than amendment 63
- A proposed change to the language of a MOC defined by the NOA
- Any other applicant proposal.

Proposals other than using a baseline MOC will generally require an issue paper. N/A with justification in column (8) is acceptable. If applicable, list any guidance material being used as an acceptable means of compliance The guidance material must be applicable to the regulation (i.e. FAA ACs for 14CFR, EASA AMC for CS specifications) and specific to the aircraft category (i.e. FAA AC27-1 cannot be used for 14CFR Part 23).

#### (6): Methods of Compliance

List all applicable method of compliance codes in this column as defined below.

**Flight test (FT)**. A test of the aircraft in the air or on the ground when the nature of the test requires a flight test pilot.

**Ground test (GT)**. Includes component bench testing, testing of simulated aeronautical product systems, and ground testing of the product. These tests may precede a flight test, or be used to show compliance when appropriate.

**Analysis (A).** Includes a quantitative or qualitative assessment, as appropriate, of structures, systems, components, or the entire product. Should be validated using published previous experience or appropriate testing to be accepted for showing compliance to the regulations.

**Design review (D)**. Encompasses the features of structures, systems, or components. Inspection of hardware, drawings, bill of materials, or other documentation such as material specifications, shows compliance with the applicable regulations.

**Inspection (I)**. This method of compliance is used when an engineering compliance inspection of a component, installation or the product itself is required to establish compliance with the applicable requirements.

**Similarity (S)**. Comparison between a previously certificated design and the proposed design. The intent is to show that these designs are the same in all ways relative to showing compliance with the applicable regulation, so the proposed design will perform the same or better than the previously certificated design. The applicant must account for any differences in the regulations if the amendment levels of the regulations are not the same for the two designs. To determine this, access to the technical data being compared to will be required.

**Equivalent Level of Safety Finding (ELOS)**. Only CAA can issue an ELOS when the applicant cannot show literal compliance with a regulation, but shows to CAA satisfaction that compensating factors achieve a safety level equal to that of the applicable regulation. An applicant may propose the use of an ELOS in writing to the PCT. Make all proposals for ELOSs to CAA early in the project to allow time for processing.

**Not Applicable (N/A)**. Means the specific regulation does not apply to the design or modification for this STC; therefore, a showing of compliance is not necessary. Enter the reason the rule is not applicable in the "Applicable Guidance, References, and Remarks" column of the checklist.

#### (7): Compliance Artefacts

Compliance artefacts are any data item used in a showing of compliance. This could include, but is not limited to, drawings, plans, and reports.

#### (9): Statement of Compliance

List the organisation making the statement and discipline of the SOC authorised person(s).

#### (10): Finding of Compliance

List the organisation making the finding and specific DDH, or list CAANZ.



Excel version of Compliance Matrix Template

				Compliance Matrix					
(1)	(2)				(6)		(8)	(9)	(10)
14 CFR 23	Title	Baseline Acceptable Mea	ans of Compliance (MOC)	(5)	Method(s) of	Compliance	Justification/Remarks	Statement of	Finding of
Amendment 23-64 Regulation		(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Applicant Proposed Baseline, Blended, or Alternate MOC	Compliance	Artefact(s)		Compliance	Compliance
§23.1457	Cockpit voice recorders	N/A	ASTM F3264-21 Section 9.12 9.12.1: F3061/F3061M-20 9.12.1.1: #F3228-17						
§23.1459	Flight data recorders	N/A	ASTM F3264-21 Section 9.13 9.13.1: F3061/F3061M-20 9.13.1.1: #F3228-17	-					
§23.1529	Instructions for continued airworthiness	N/A	ASTM F3264-21 Section 10.6: 10.6.1: F3120/F3120M-20 10.6.2: F3117/F3117M-20 10.6.3: F3408/F3408M-21						
Subpart A - General		_							
§23.2000	Applicability and definitions								
§23.2005	Certification of normal category airplanes	If any performance-based amendment 23-64 regulations become part of the certification basis, these regulations must also become part of the certification basis.							
§23.2010	Accepted means of compliance	also secome pare or t	the certification basis.						
Subpart B - Flight									
§23.2100	Weight and center of gravity	23.21, 23.23, 23.25, 23.29, 23.31, 23.871	ASTM F3264-21 Section 5.1 5.1.1: F3082/F3082M-17 5.1.2: F3114-21						
§23.2105	Performance data	*23.45	<b>ASTM F3264-21 Section 5.2</b> 5.2.1 F3179/F3179M-20						
§23.2110	Stall speed	23.49	<b>ASTM F3264-21 Section 5.3</b> 5.3.1 F3179/F3179M-20						
§23.2115	Takeoff performance	*23.51, 23.53, 23.55, 23.57, 23.59, 23.61	<b>ASTM F3264-21 Section 5.4</b> 5.4.1 F3179/F3179M-20						
§23.2120	Climb requirements	*23.63, 23.65, *23.67, *23.77	<b>ASTM F3264-21 Section 5.5</b> 5.5.1 F3179/F3179M-20						
§23.2125	Climb information	23.66, 23.639, 23.71	<b>ASTM F3264-21 Section 5.6</b> 5.6.1 F3179/F3179M-20						
§23.2130	Landing	* <b>23.73</b> , 23.75	<b>ASTM F3264-21 Section 5.7</b> 5.7.1 F3179/F3179M-20						
§23.2135	Controllability	23.141, 23.143, 23.145, 23.147, 23.149, 23.151, 23.153, 23.155, 23.157	<b>ASTM F3264-21 Section 5.8</b> 5.8.1 F3173/F3173M-21						

				Compliance Matrix					
(1)	(2)	Air	worthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23	Title	Baseline Acceptable Mea	ns of Compliance (MOC)	(5)	Method(s) of	Compliance	Justification/Remarks	Statement of	Finding of
Amendment 23-64 Regulation		(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Applicant Proposed Baseline, Blended, or Alternate MOC	Compliance	Artefact(s)		Compliance	Compliance
§23.2140	Trim	*23.161	<b>ASTM F3264-21 Section 5.9</b> 5.9.1 F3173/F3173M-21						
§23.2145	Stability	23.171, 23.173, 23.175, 23.177, <b>*23.181</b>	<b>ASTM F3264-21 Section 5.10</b> 5.10.1 F3173/F3173M-21						
§23.2150	Stall characteristics, stall warning, and spins	For 23.2150(a) 23.201, 23.203, 23.207, *23.221. Compliance with §23.2150 requires additional MOCs.	ASTM F3264-21 Section 5.11 5.11.1 #F3180/F3180M-19						
§23.2155	Ground and water handling characteristics	23.231, 23.233, 23.235, 23.237, 23.239	<b>ASTM F3264-21 Section 5.12</b> 5.12.1 F3173/F3173M-21						
§23.2160	Vibration, buffeting, and high-speed characteristics	*23.251, *23.253, 23.255	<b>ASTM F3264-21 Section 5.13</b> 5.13.1 F3173/F3173M-21						
§23.2165	Performance and flight characteristics requirements for flight in icing conditions	23.1419 Compliance with §23.2165 requires additional MOCs.	<b>ASTM F3264-21 Section 5.14</b> 5.14.1 F3120/F3120M-20						
Subpart C - Structures									
§23.2200	Structural design envelope	23.333, 23.335, 23.337, 23.343, 23.345, 23.373, 23.473, 23.523	ASTM F3264-21 Section 6.1 6.1.1 #F3116/F3116M-18e2 6.1.1.1 F3396/F3396M-20						
§23.2205	Interaction of systems and structures	23.345(b)(3), 23.373(b) Compliance with §23.2205 requires additional MOCs	ASTM F3264-21 Section 6.2 6.2.1 #F3254-19						

				Compliance Matrix					
(1)	(2)	Air	worthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23	Title	Baseline Acceptable Mea	ns of Compliance (MOC)	(5)	Method(s) of	Compliance	Justification/Remarks	Statement of	Finding of
Amendment 23-64 Regulation		(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Applicant Proposed Baseline, Blended, or Alternate MOC	Compliance	Artefact(s)		Compliance	Compliance
§23.2210	Structural design loads	23.441, 23.443, 23.445, 23.455, 23.471, 23.477, 23.479, 23.483, 23.485, 23.493, 23.497, 23.505, 23.507, 23.509, 23.511, 23.521, 23.523, 23.525, 23.527, 23.529, 23.531, 23.533, 23.535, 23, 301(d), 23.307(a, b), 23.341, 23.347, 23.349, 23.351, 23.361, 23.363, 23.365(a, b, c, d), 23.367, 23.369, 23.371, 23.373(a), 23.391, 23.393, 23.395, 23.397, 23.399, 23.405, 23.407, 23.409, 23.415, 23.421, 23.423, 23.425, 23.427, 23.321(b), 23.345(a, d), 23.301(b, c), 23.302(a, b), 23.321(a, c), 23.331, 23.333(a), 23.347, 23.459, 23.473(f)	ASTM F3264-21 Section 6.3 6.3.1 #F3116/F3116M-18e2 6.3.2 F3408/F3408M-21						
§23.2215	Flight load conditions	23.445, 23.333(c), 23.341, 23.345(a, d), 23.373(a), 23.425, 23.427, 23.347, 23.349, 23.351, 23.421, 23.423, 23.441, 23.455, 23.367, 23.391	ASTM F3264-21 Section 6.4 6.4.1 F3116/F3116M-18e2 6.4.1.1 F3396/F3396M-20						
§23.2220	Ground and water load conditions	23.473(a-f), 23.477, 23.479, 23.481, 23.483, 23.485, 23.493, 23.497, 23.499, 23.505, 23.507, 23.509, 23.511, 23.521, 23.523, 23.525, 23.527, 23.529, 23.531, 23.533, 23.535, 23.537, 23.753	ASTM F3264-21 Section 6.5 6.5.1 #F3116/F3116M-18e2 6.5.1.1 F3331-18						
§23.2225	Component loading conditions	23.361, 23.363, 23.365, 23.371, 23.393, 23.395, 23.397, 23.399, 23.405, 23.407, 23.409, 23.415 23.423, 23.425, 23.427, 23.441, 23.443, 23.445, 23.455	ASTM F3264-21 Section 6.6 6.6.1 #F3061/F3061M-20 6.6.1.1 F3232/F3232M-20 6.6.2 #F3116/F3116M-18e2						

				Compliance Matrix					
(1)	(2)	Aiı	worthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23	Title	Baseline Acceptable Mea	ns of Compliance (MOC)	(5)	Method(s) of	Compliance	Justification/Remarks	Statement of	Finding of
Amendment 23-64 Regulation		(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Applicant Proposed Baseline, Blended, or Alternate MOC	Compliance	Artefact(s)		Compliance	Compliance
§23.2230	Limit and ultimate loads	23.301(a), 23.303, 23.473(g)	ASTM F3264-21 Section 6.7 6.7.1 F3114-21 6.7.2 F3408/F3408M-21						
§23.2235	Structural strength	23.305(a), 23.307(a), 23.681(a), 23.723, 23.725, 23.726, 23.727, 23.729(a), 23.737, 23.1435(a)(1), 23.305(b), 23.307(b)	ASTM F3264-21 Section 6.8 6.8.1 F3114-21 6.8.2 F3408/F3408M-21						
§23.2240	Structural durability	23.365(e), <b>*23.571</b> , 23.572, 23.573, 23.574, 23.575	ASTM F3264-21 Section 6.9 6.9.1 F3061/F3061M-20 6.9.2 F3066/F3066M-18 6.9.3 F3115/F3115M-20 6.9.3.1 F3380-19 6.9.4 #F3116/F3116M-18e2						
§23.2245	Aeroelasticity	23.629, 23.677(c), 23.687	ASTM F3264-21 Section 6.10 6.10.1 F3061/F3061M-20 6.10.2 F3093/F3093M-21						
§23.2250	Design and construction principles	23.601, 23.603, 23.607, 23.687, 23.689, 23.691(a, b), 23.723(b), 23.733, 23.373, 23.745(b), 23.775(b-d), 23.859(b-i), 23.1435(a)(3), (c), *23.1445(a, b), 23.683, 23.783(c)(1), (e), 23.807(d)(2)	ASTM F3264-21 Section 6.11 6.11.1 #F3061/F3061M-20 6.11.1.1 #F3232/F3232M-20 6.11.2 F3114-21 6.11.2.1 F3380-19 6.11.3 F3408/F3408-21						
§23.2255	Protection of structure	23.607, 23.609(a, b), 23.611, 23.689(a)(3)	ASTM F3264-21 Section 6.12 6.12.1 #F3061/F3061M-20 6.12.1.1 #F3232/F3232M-20 6.12.2 F3114-21 6.12.2.1 F3380-19 6.12.3 F3066/F3066M-18 6.12.4 F3408/F3084M-21						
§23.2260	Materials and processes	23.603(a), 23.605, 23.613(a, b, c, d)	ASTM F3264-21 Section 6.13 6.13.1 F3114-21 6.13.1.1 F3380-19 6.13.2 F3408/F3408M-21						

				Compliance Matrix					
(1)	(2)	Air	worthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23	Title	Baseline Acceptable Mea	ns of Compliance (MOC)	(5)	Method(s) of	Compliance	Justification/Remarks	Statement of	Finding of
Amendment 23-64 Regulation		(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Applicant Proposed Baseline, Blended, or Alternate MOC	Compliance	Artefact(s)		Compliance	Compliance
§23.2265	Special factors of safety	23.619, 23.621, 23.623, 23.625, 23.657, 23.681(b), 23.693, *23.785(a)	ASTM F3264-21 Section 6.14 6.14.1 #F3061/F3061M-20 6.14.2 F3114-21 6.14.2.1 F3380-19						
§23.2270	Emergency conditions	23.561, 23.562, <b>*23.785</b> , 23.787, 23.1141(b)(2)	ASTM F3264-21 Section 6.15 6.15.1 #F3061/F3061M-20 6.15.1.1 #F3232/F3232M-20 6.15.2 F3083/F3083M-20a 6.15.2 F3408/F3408M-21	<del>)</del>					
Subpart D - Design an	d Construction								
§23.2300	Flight control systems	23.655, 23.671(a), 23.672, 23.675, 23.677(a, b, d), 23.679(c), 23.685, 23.691(d-f), 23.697, 23.701, 23.1329(b)	ASTM F3264-21 Section 7.1 7.1.1 #F3061/F3061M-20 7.1.1.1 #F3232/F3232M-20 7.1.2 F3066/F3066M-18 7.1.3 F3117/F3117M-20						
§23.2305	Landing gear systems	23.721(b, c), 23.729(b, c, g), 23.735(a-c), (e)	ASTM F3264-21 Section 7.2 7.2.1 #F3061/F3061M-20						
§23.2310	Buoyancy for seaplanes and amphibians	23.751, 23.755, 23.757	ASTM F3264-21 Section 7.3 7.3.1 #F3061/F3061M-20						
§23.2315	Means of egress and emergency exits	23.783(a, b, c2-c6, d-g), 23.787(a2), 23.803, 23.805, 23.807(a-c, d1, d3, d4, e), 23.811, 23.812, 23.813, 23.815	<b>ASTM F3264-21 Section 7.4 7.4.1 #F3061/F3061M-20</b> 7.4.2 F3083/F3083M-20a						
§23.2320	Occupant physical environment	23.771(b, c), 23.775(a, h1), *23.831(a-c), 23.841(a, b1-b4, b8, c, d1-d3), 23.1441, 23.1443, *23.1445, 23.1447, 23.1449, 23.1450, 23.1451, 23.1453	ASTM F3264-21 Section 7.5 7.5.1 #F3061/F3061M-20 7.5.1.1 #F3227/F3227M-21 7.5.2 F3083/F3083M-20a 7.5.3 F3114-21 7.5.4 F3117/F3117M-20						

				Compliance Matrix					
(1)	(2)	Air	rworthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23 Amendment 23-64 Regulation	Title	Baseline Acceptable Mea (3) Part 23 regulations as of 23-63	ns of Compliance (MOC) (4) ASTM F44 Standards	(5) Applicant Proposed Baseline, Blended, or	Method(s) of Compliance	Compliance Artefact(s)	Justification/Remarks	Statement of Compliance	Finding of Compliance
§23.2325	Fire protection	23.851, 23.853, 23.855, 23.856, 23.859(a), 23.863, 23.1337(a), 23.1351(e), 23.1359(a, c), 23.1385(d)	ASTM F3264-21 Section 7.6 7.6.1 #F3061/F3061M-20 7.6.1.1 #F3231/F3231M-21 7.6.1.2 #F3234/F3234M-17 7.6.1.3 #F3316/F3316M-19 7.6.2 F3066/F3066M-18 7.6.3 F3083/F3083M-20a 7.6.4 F3408/F3408M-21	Alternate MOC					
§23.2330	Fire protection in designated fire zones and adjacent areas	23.865, 23.1359(b)	ASTM F3264-21 Section 7.7 7.7.1 #F3061/F3061-20 7.7.1.1 #F3231/F3231M-21 7.7.2 F3066/F3066M-18 7.7.3 F3114-21						
§23.2335	Lightning protection	23.867	ASTM F3264-21 Section 7.8 7.8.1 #F3061/F3061M-20						
ubpart E - Powerplan	t								
§23.2400	Powerplant installation	23.33, 23.901, 23.903(a), 23.905(a, b, d, f, g, h), 23.907, 23.909(b, c, d), 23.925, 23.963(b, c), 23.967(a-b), 23.979, 23.997(a, c-d), 23.1001(a-f), 23.1011, 23.1013, 23.1015, 23.1017, 23.1019, 23.1021, 23.1023, 23.1027, 23.1041, 23.1043, 23.1045, 23.1047, 23.1061, 23.1063, 23.1101, 23.1109, 23.1111, 23.1125, 23.1141(b-d), 23.1163, 23.1165, *23.1197, *23.1199, *23.1201, 23.1203(b-c)	ASTM F3264-21 Section 8.1 8.1.1 F3062/F3062M-20 8.1.2 F3063/F3063M-20 8.1.3 F3064/F3064M-21 8.1.4 F3066/F3066M-18 8.1.6 #F3239-19						

				Compliance Matrix					
(1)	(2)	Aiı	rworthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23	Title	Baseline Acceptable Mea	ans of Compliance (MOC)	(5)	Method(s) of	Compliance	Justification/Remarks	Statement of	Finding of
Amendment 23-64 Regulation		(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Applicant Proposed Baseline, Blended, or Alternate MOC	Compliance	Artefact(s)		Compliance	Compliance
§23.2405	Automatic power or thrust control system	23.904, Appendix H23.1-H23.6	ASTM F3264-21 Section 8.2 8.2.1 F3062/F3062M-21 8.2.2 F3064/F3064M-21 8.2.3 F3065/F3065M-21a 8.2.4 #F3117/F3117M-20						
§23.2410	Powerplant installation hazard assessment	23.903(b-c), 23.937, 23.1141(e), 23.1143(g)	ASTM F3264-21 Section 8.2 8.2.1 #F3061/3061M-20 8.3.2 F3062/F3062M-20 8.3.3 F3063/F3063M-20 8.3.4 F3064/F3064M-21 8.3.5 F3065/F3065M-21a						
§23.2415	Powerplant ice protection	23.929, 23.975, 23.1093, 23.1095, 23.1097, 23.1099	8.3.6 F3066/F3066M-18 8.3.7 #F3117/F3117M-20 8.3.8 #F3239-19  ASTM F3264-21 Section 8.4 8.4.1 F3062/F3062M-20 8.4.2 F3063/F3063M-20 8.4.3 F3066/F3066M-18 8.4.4 #F3239-19						
§23.2420	Reversing systems	23.933, 23.934	ASTM F3264-21 Section 8.5 8.5.1 F3062/F3062M-20 8.5.2 F3065/F3065M-21a 8.5.3 #F3239-19						
§23.2425	Powerplant operational characteristics	23.903(d-g), 23.905(c), 23.909(a, e), 23.939, 23.943, 23.1142, 23.1145, 23.1165, 23.1337(d)	ASTM F3264-21 Section 8.6 8.6.1 F3062/F3062M-20 8.6.2 F3064/F3064M-21 8.6.3 F3065/F3065M-21a 8.6.4 F3066/F3066M-18 8.6.5 #F3117/F3117-20 8.6.6 #F3239-19						

				Compliance Matrix					
(1)	(2)	Air	rworthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23 Amendment 23-64 Regulation	Title	Baseline Acceptable Mea (3)	ns of Compliance (MOC) (4)	(5) Applicant Proposed	Method(s) of Compliance	Compliance Artefact(s)	Justification/Remarks	Statement of Compliance	Finding of Compliance
-		Part 23 regulations as of 23-63	ASTM F44 Standards	Baseline, Blended, or Alternate MOC					
§23.2430	Fuel system	23.951(a-c), 23.953, 23.954, 23.955, 23.957(a-b), 23.959, 23.961, 23.963(a, d, e), 23.965, 23.967(a, c, d, e), 23.969, 23.971, 23.973, 23.975, 23.977, 23.979, 23.991, 23.993, 23.994, 23.995, 23.997(b, d, e), 23.999, 23.1001(a-f, h), 23.1337(a, c)	ASTM F3264-21 Section 8.7 8.7.1 F3062/F3062M-20 8.7.2 F3063/F3063M-20 8.7.3 F3064/F3064M-21 8.7.4 F3066/F3066M-18 8.7.5 F3114-21 8.7.6 #F3239-19						
§23.2435	Powerplant induction and exhaust systems	23.1091, 23.1101(a), 23.1103(a-f), 23.1105, 23.1107, 23.1121, 23.1123, 23.1125	ASTM F3264-21 Section 8.8 8.8.1 F3062/F3062M-20 8.8.2 #F3239-19						
§23.2440	Powerplant fire protection	23.1141(f), 23.1181, 23.1182, 23.1183, 23.1189, 23.1191, 23.1192, 23.1193, *23.1195, *23.1197, 23.1203(a)	ASTM F3264-21 Section 8.9 8.9.1 #F3061/F3061M-20 8.9.2 F3062/F3062M-20 8.9.3 F3063/F3063M-20 8.9.4 F3064/F3064M-21 8.9.5 F3066/F3066-18 8.9.6 #F3239-19						
Subpart F - Equipment									
§23.2500	Airplane level systems requirements	23.1141(b-d), 23.1203(e), 23.1301(a), 23.1303, 23.1305, 23.1307, 23.1309(a), 23.1311, 23.1321, 23.1323, 23.1325, 23.1327, 23.1329, 23.1335, 23.1351(b, e, f, g), 23.1357, 23.1361, 23.1381(c), 23.1416	ASTM F3264-21 Section 9.1 9.1.1. #F3061/F3061M-20 9.1.1.1 #F3231/F3231M-21 9.1.1.(a) #F3235-17a 9.1.1.2 #F3232/F3232M-20 9.1.1.3 #F3233/F3233M-21 9.1.1.3(a) #F3229/F3229M-17 9.1.1.4 #F3316/F3316M-19 9.1.2 F3064/F3064M-21 9.1.3 F3066/F3066M-18 9.1.4 #F3117/F3117M-20						

				Compliance Matrix					
(1)	(2)	Air	worthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23	Title	Baseline Acceptable Mea	ns of Compliance (MOC)	(5)	Method(s) of	Compliance	Justification/Remarks	Statement of	Finding of
Amendment 23-64 Regulation		(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Applicant Proposed Baseline, Blended, or Alternate MOC	Compliance	Artefact(s)		Compliance	Compliance
§23.2505	Function and installation	23.729(d), 23.841(d)(5), 23.843(b), 23.1301(a, c), 23.1323, 23.1327, 23.1329, 23.1335, 23.1357, 23.1361, 23.1365, 23.1367(a-b), 23.1461	ASTM F3264-21 Section 9.2 9.2.1 #F3061/F3061M-20 9.2.1.1 #F3231/F3231M-21 9.2.1.1(a) #F3235-17a 9.2.1.2 #F3232/F3232M-20 9.2.1.3 #F3233/F3233M-21 9.2.1.4 # F3116/F3116M-19 9.2.2 F3408/F3408M-21						
§23.2510	Equipment, systems, and installations	23.677(d), 23.691(g), 23.701, 23.735(d), 23.775(g), *23.831(d), 23.841(c), (d)(2), (d)(3), 23.1309, 23.1323, 23.1325, 23.1329, 23.1331(b-c), 23.1335, 23.1337(b-c), 23.1357, 23.1431	ASTM F3264-21 Section 9.3 9.3.1 #F3061/F3061M-20 9.3.1.1 #F3230-20a 9.3.1.2 #F3233/F3233M-21 9.3.1.3 #F3227/F3227M-21 9.3.1.4 F3309/F3309M-21 9.3.2 F3408/F3408M-21						
§23.2515	Electrical and electronic system lightning protection	23.1306, 23.1437	ASTM F3264-21 Section 9.4 9.4.1 #F3061/F3061M-20 9.4.1.1 #F3367-21						

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nue	·		1			Justinication/ Remarks		Finding of Compliance
	(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Baseline, Blended, or Alternate MOC		,			,
High-intensity Radiated Fields (HIRF) protection	23.1308	ASTM F3264-21 Section 9.5 9.5.1 #F3061/F3061M-20 9.5.1.1 #F3236-17 9.5.1.2 #F3367-21						
System power generation, storage, and distribution	23.1303, 23.1310, 23.1331(b-c), 23.1351(a-c), 23.1353, 23.1357	ASTM F3264-21 Section 9.6 9.6.1 #F3061/F3061M-20 9.6.1.1 #F3231/F3231M-21 9.6.1.1(a) F2490-20 9.6.1.2 #F3233/F3233M-21 9.6.1.3 #F3316/F3316M-21 9.6.1.3(a) F2490-20 9.6.2 #F3117/F3117M-20 9.6.3 F3120/F3120M-20						
External and cockpit lighting	23.1383(a-c), 23.1385(a-c), 23.1387, 23.1389, 23.1391, 23.1393, 23.1395, 23.1397, 23.1399, 23.1401(a)(1), (b-f)	ASTM F3264-21 Section 9.7 9.7.1 #F3061/F3061M-20 9.7.1.1 #F3233/F3233M-21 9.7.1.2 #F3234/F3234M-17 9.7.2 #F3117/F3117M-20 9.7.3 F3120/F3120M-20						
Safety equipment	23.1141(a), (b)(1), 23.1415	ASTM F3264-21 Section 9.8 9.8.1 #F3061/F3061M-20 9.8.2 F3083/F3083M-20a 9.8.3 #F3117/F3117M-20						
Flight in icing conditions	23.775(f), 23.1323(d), 23.1325(b)(3), (g), 23.1419 Compliance with §23.2540 requires additional DDS.	ASTM F3264-21 Section 9.9 9.9.1 #F3061/F3061M-20 9.9.1.1 #F3233/F3233M-21 9.9.2 F3120/F3120M-20						
	Radiated Fields (HIRF) protection  System power generation, storage, and distribution  External and cockpit lighting  Safety equipment	Baseline Acceptable Mea (3)   Part 23 regulations as of 23-63	Baseline Acceptable Means of Compliance (MOC)   (3)	Baseline Acceptable Means of Compliance (MOC) (3) (4) Applicant Proposed Baseline, Blended, or Alternate MOC	Baseline Acceptable Means of Compliance (MOC) (3)	Signature   Saseline Acceptable Means of Compliance (MOC)   (3)   (4)   (4)   Applicant Proposed Baseline, Blended, or Atternate MOC   (3)   Applicant Proposed Baseline, Blended, or Atternate MOC   Astm F3264-21 Section 9.5   9.5.1 #3367-21   (3)   Astm F3264-21 Section 9.6   9.5.1 #3367-21   (3)   Astm F3264-21 Section 9.6   9.5.1 #3367-21   (3)   Astm F3264-21 Section 9.6   9.5.1 #3367-31   (3)   Astm F3264-31 Section 9.6   9.5.1 #3367-31   (3)   Astm F3264-31 Section 9.6   9.5.1 #3367-31   (3)   Astm F3264-31 Section 9.7   9.5.1 #33167-3338-31   (3)   Astm F3264-31 Section 9.7   9.7.1 #3233/F3238-21   (3)   Astm F3264-31 Section 9.7   9.7.1 #3333/F3238-21   (3)   Astm F3264-31 Section 9.8   9.7.3 F3120/F3120M-20   9.7.3 F3120/	System power generation, storage, and distribution   23.1333 (a), 23.1310, 23.1352 (b), 23.1357 (c), 23.1353 (c), 23.1353 (c), 23.1351 (c), 23.1353 (c), 23.135	Baseline Acceptable Means of Compliance (MCC)   (3)   (2)   (2)   (3)

				Compliance Matrix					
(1)	(2)	Air	worthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23	Title	Baseline Acceptable Mea	ns of Compliance (MOC)	(5)	Method(s) of Compliance	Compliance Artefact(s)	Justification/Remarks	Statement of Compliance	Finding of Compliance
Amendment 23-64 Regulation		(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Applicant Proposed Baseline, Blended, or Alternate MOC	Compliance	Arteract(s)		Compliance	
§23.2545	Pressurized systems elements	23.1435(a)(4), (b), 23.1438m 23.1453(a),	ASTM F3264-21 Section 9.10 9.10.1 #F3061/F3061M-20 9.10.2 #F3229/F3229M-17						
§23.2550	Equipment containing high-energy rotors	23.1461	ASTM F3264-21 Section 9.11 9.11.1 #F3061/F3061M-20						
ubpart G - Flightcrew	Interface and Other Info								
§23.2600	Flightcrew interface	23.671(a-b), 23.677(a), 23.697, 23.699(a-b), 23.729(e), 23.745(a-b), 23.771(a-b), 23.775(e), (h)(1-2) 23.777(a-h), 23.779(a-b), 23.781, *23.831(c), 23.1019, 23.1141(a, g), 23.1145(a-c), 23.1147, 23.1149, 23.1153, 23.1155, 23.1157, 23.1203(d), 23.1321(a, b, e), 23.1329(b, d), 23.1361(a, c), 23.1367(c-d), 23.1419(d), 23.1435(a)(2)	ASTM F3264-21 Section 10.1 10.1.1 #F3061/F3061M-20 10.1.1.1. #F3232/F3232M-20 10.1.2 F3062/F3062M-20 10.1.3 F3063/F3063M-20 10.1.4 F3064/F3064M-21 10.1.5 F3114-21 10.1.6 #F3117/F3117M-20 10.1.7 F3408/F3408M-21						

				Compliance Matrix					
(1)	(2)	Aiı	rworthiness Requirements		(6)	(7)	(8)	(9)	(10)
14 CFR 23	Title	Baseline Acceptable Mea	ans of Compliance (MOC)	(5)	Method(s) of	Compliance	Justification/Remarks	Statement of	Finding of
Amendment 23-64 Regulation		(3) Part 23 regulations as of 23-63	(4) ASTM F44 Standards	Applicant Proposed Baseline, Blended, or Alternate MOC	Compliance	Artefact(s)		Compliance	Compliance
§23.2605	Installation and operation	23.671(b), 23.672(a), 23.679(a-b), 23.691(c), 23.703(a-c), 23.729(f), 23.783(e)(3), 23.841(b)(5,6), (d)(4,5), 23.991(c), 23.1142, 23.1165(d), 23.1301(b), 23.1305, 23.1309(d), 23.1322, 23.1326, 23.1329(a-d, h), 23.1331(a), 23.1335, 23.1337(b, d), 23.1351(c)(4), (d), 23.1381(a, b), 23.1416(c) 23.1441(c), 23.1501(a), 23.1505, 23.1507, 23.1511, 23.1513, 23.1519, 23.1521, 23.1522, 23.1523(a)(1,2,3,5,6,7)(b-c), 23.1523(a)(4), 23.1524, 23.1525, *23.1527, 23.1561	ASTM F3264-21 Section 10.2 10.2.1 #F3061/F3061M-20 10.2.1.1 #F3227/F3227M-21 10.2.1.2 #F3231/F3231M-21 10.2.1.3 #F3232/F3232M-20 10.2.1.4 #F3233/F3233M-21 10.2.2 F3062/F3062M-20 10.2.3 F3063/F3063M-20 10.2.4 F3064/F3064M-21 10.2.5 #F3117/F3117M-20 10.2.6 F3120/F3120M-20 10.2.7 F3408/F3408M-21						
§23.2610	Instrument markings, control markings, and placard	23.733(b), 23.777(a-h), 23.841(b)(7), 23.1001(g), 23.1307, 23.1337(b, d), 23.1450(c), 23.1501(b), 23.1541, 23.1543, *23.1545, 23.1547, 23.1549, 23.1551, 23.1553, 23.1555, 23.1557, 23.1559, 23.1561, 23.1563, 23.1567	ASTM F3264-21 Section 10.3 10.3.1 #F3061/F3061M-20 10.3.2 F3063/F3063M-20 10.3.3 #F3117/F3117M-20 10.3.4 F3120/F3120M-20 10.3.5 F3408/F3408M-21						

				Compliance Matrix					
(1) 14 CFR 23	(2) Title		rworthiness Requirements	1	(6)	(7)	(8) Justification/Remarks	(9) Statement of	(10)
Amendment 23-64	litte	Baseline Acceptable Mea (3)	ans of Compliance (MOC) (4)	(5) Applicant Proposed	Method(s) of Compliance	Compliance Artefact(s)	Justification/ Remarks	Compliance	Finding of Compliance
Regulation		Part 23 regulations as of 23-63	ASTM F44 Standards	Baseline, Blended, or Alternate MOC					
§23.2615	Flight, navigation, and powerplant instruments	23.1142(g)(2), 23.1142, 23.1305, 23.1311(a)(1-2), 23.1311(a)(3-7), 23.1321(a, b, d, e)	ASTM F3264-21 Section 10.4 10.4.1 #F3061/F3061M-20 10.4.2 F3062/F3062M-20 10.4.3 F3064/F3064M-21 10.4.3.1 F3432-20a 10.4.4 #F3117/F3117M-20						
§23.2620	Airplane flight manual	23.909(e), 23.1581, *23.1583, 23.1585, 23.1587, 23.1589	ASTM F3264-21 Section 5.15 5.15.1 F3174/F3174M-19 5.15.2 F3062/F3062M-20 ASTM F3264-21 Section 10.5 10.5.1 #F3117/F3117M-20 10.5.2 F3174/F3174M-19 10.5.3 F3120/F3120M-20 10.5.4 F3408/F3408/21						
NZ Part 26									
Airworthiness Directiv	res		I	ı		ı			