

Technical Airworthiness Authority Advisory (TAA Advisory)	
Title	Exemptions and Deviations from Certification Requirements
TAA Advisory Number	2018-02e
Effective Date	24 October 2018
Reference	TAM, Part 5, Chapter 9
OPI/Telephone	DTAES 3 / 819-939-4835
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1. Purpose

- 1.1 This Technical Airworthiness Authority (TAA) Advisory provides information for the preparation, staffing and approval of exemptions and deviations from certification requirements in a Certification Basis. This advisory is intended to provide an acceptable means for establishing compliance with the airworthiness requirements published in the Technical Airworthiness Manual (TAM), Part 5, Chapter 9 – Exemptions and Deviations.

2. Applicability

- 2.1. This TAA Advisory applies to Project Management Office (PMO) and Weapon System Management (WSM) staff, as well as to the TAA staff who manage aircraft certification approvals.
- 2.2 This advisory was specifically written to address the process for preparing and staffing exemption and deviation requests related to the certification requirements identifiable in a TAA-approved Certification Basis.
- 2.3 Requests for any other types of exemptions or deviations should be staffed in accordance with the following TAM references:
- a. Deviations from the approved maintenance program, as per TAM 3.1.2.S1.2.
 - b. Deviations from the approved Maintenance Process Manual (MPM) and Acceptable Maintenance Organization (AMO) procedures manual, as per TAM 1.4.2.S.1.9.
 - c. Product Related Deviations and Waivers, as per TAM 5.5.
 - d. Approval of Configuration Deviation List, as per TAM 2.7.1.2.6.
 - e. Aeronautical Product Manufacture, as per TAM 5.4.2.R1.2.
 - f. Airworthiness Directives, as per TAM 5.6.2.R1.3.

3. Related Material

3.1. Definitions

- 3.1.1 The definitions for most of the airworthiness-related terms in this document can be found in the TAM Glossary. The definitions listed below are not in the TAM Glossary:
- a. **Airworthiness Requirements.** All policies, regulations or requirements issued by any of the airworthiness authorities governing the DND/CAF Airworthiness Program are Airworthiness Requirements. In the Technical Airworthiness portion of the program, the TAA Airworthiness Requirements are primarily those published in the TAM as rules and standards. The generic term Airworthiness Requirement may be further divided into several sub-categories, each of which have associated sets of TAM rules and standards. Examples of these sub-categories include the following:

- (1) Initial Airworthiness Requirements, including:
 - i. Certification Requirements (e.g., Airworthiness Standards)
 - ii. Aircraft Registration and Marking Requirements
 - iii. Manufacturing Requirements
 - iv. Flight Authority Requirements
 - v. Technical Airworthiness Clearance Requirements.
 - (2) Continuing Airworthiness Requirements, including:
 - i. Conduct of Maintenance Requirements
 - ii. Design Change Certification Requirements
 - iii. Configuration Management Requirements
 - iv. Product Usage Monitoring Requirements
 - (3) Disposal Requirements
 - (4) Management Framework Airworthiness Requirements, including:
 - i. Granting Individual and Organizational Assignment of Authority
 - ii. Risk Management Requirements
- b. **Airworthiness Standard.** The criteria and/or processes used in assessing or demonstrating compliance with an airworthiness rule.

Note

An acceptable alternative term for Airworthiness Standard is 'Applicable Standards of Airworthiness'. The Technical Airworthiness Program requires that the design and manufacture of aeronautical products be accomplished in accordance with acceptable airworthiness standards. The standards are identified as either program-related airworthiness standards or aircraft design standards. Program-related standards are published in the TAM and linked to technical airworthiness rules. Aircraft design-related airworthiness standards define, in terms of a minimum standard, the properties and attributes of the configuration, material, performance or physical characteristics of a type design. Aircraft design standards acceptable to the TAA are published in the Airworthiness Design Standards Manual (ADSM). Airworthiness standards are not direction in their own right. They are only applicable when directed by a technical airworthiness requirement (rule) or included as a 'Certification Standard' in a TAA-approved Certification Basis.

- c. **Deviation from the Certification Basis.** A written authorization to depart from a certification requirement or a specified portion of the requirement. The airworthiness requirement is still applicable, however the deviation allows for a change (reduction) to a specific part or feature of the requirement. A deviation may be permanent or temporary, as defined in the deviation approval documents.
- d. **Exemption from the Certification Basis.** A written authorization that a specific certification requirement will not be applied. The boundaries of the exemption, with respect to future design changes, are defined in the exemption approval documents. An exemption does not necessarily imply that the requirement is not applied in all cases. The exemption could be specific to a particular piece of equipment, system or a capability.

3.2 Airworthiness Requirements

- 3.2.1 **TAM Rule: 5.9.2.R1 – Exemption or Deviation Request.** In order to seek an exemption or a deviation, an applicant will submit a request to the TAA that meets the requirements of standard 5.9.2.S1.

4 Discussion

4.1 General

- 4.1.1 As described in TAM rule 2.1.2R3 and its associated standard 2.1.2S3.3, to obtain a DND Type Certificate, the applicants for the Type Certificate must complete a compliance process to demonstrate that the certification requirements in the Certification Basis have been achieved.
- 4.1.2 Situations will occur when it may not be practical or possible to adhere to one or more certification requirements in the approved Certification Basis. In such cases, an exemption or deviation request may be staffed to the TAA and Operational Airworthiness Authority (OAA) to obtain relief from the requirement.
- 4.1.3 An exemption is required when full relief from a certification requirement is being requested. If approved, then a finding of compliance against the certification requirement(s) listed in the exemption will not be required. An exemption does not necessarily imply that the requirement is not applied in all cases. The exemption could be specific to a particular item of equipment, a system or a capability.
- 4.1.4 In the case of a deviation, the deviation allows for a change (or reduction) to a specific part or feature of the certification requirement and a finding of compliance will still be required against the amended or reduced requirement.
- 4.1.5 The following options are available when it is not possible to adhere to a requirement in the Certification Basis:
- a. Under the provisions of TAM Part 5, Chapter 9, Rule 5.9.2R1, a request may be submitted to the TAA for an exemption or deviation to the certification requirement identified in the Certification Basis.
 - b. A request to the TAA may be made to amend the certification requirement and replace it with one acceptable to the TAA. A deviation or exemption may still be required to document the change, even if the required Level of Safety is not degraded. However, if the Level of Safety is in any way reduced from the one originally specified, then a deviation or exemption will be required.

Note 1

A deviation is not required if the TAA agrees that the requirement originally selected for inclusion in the Certification Basis is not appropriate (e.g., resulting from a change in the design or the operational usage). In these circumstances, the TAA may choose to change the Certification Basis without requiring an exemption or deviation.

Note 2

An amendment to the Certification Basis (i.e., add, remove or amend a certification requirement) can be made as long as the compliance program has not started. However, if the change to the Certification Basis is required as the result of conducting a compliance program, an exemption or deviation request should be staffed in order to provide visibility to both the TAA and OAA.

- c. If the Applicant is able to propose an amendment to the certification requirement and/or means of compliance that will demonstrate an equivalent level of safety to the original certification requirements, then staffing a request for an exemption or deviation may not be necessary.

Note 3

The Equivalent Level of Safety (ELOS) concept is a well-established principle that is frequently applied in civil aviation to recognize that the certification process must allow accommodations for new technology or unanticipated circumstances arising from applying new requirements to legacy aircraft. Equivalent Level of Safety means an approximately equal level of safety to that defined in a certification requirement or standard. The demonstration of ELOS may employ qualitative or quantitative means

that differ from those specified in the standard. ELOS is normally used during a Certification Program, when literal compliance with a certification requirement cannot be shown, and compensating factors in the design can be shown to provide a level of safety equivalent to that established by the Certification Standards. An ELOS may include a Method of Compliance that is different from what is stated in the standard, but is judged as acceptable by the TAA.

- 4.1.6 The exemption (or deviation) request is staffed via the Directorate – Technical Airworthiness and Engineering Support (DTAES) 3 staff, to the TAA and OAA, for review and approval. The applicant's request should also include a risk assessment that provides an analysis of the impact on the required level of safety, as well as any possible mitigations. The approval of the exemption (or deviation) may require limitations or restrictions to mitigate the risks. All exemptions and deviations to a certification requirement will have to receive the TAA's approval. The exemption (or deviation) also needs to be approved by the OAA when any of the following conditions exist:
- The exemption (or deviation) will change the design level of safety below the Acceptable Level of Safety (ALOS) and requiring risk acceptance by the operational commander.
 - The exemption (or deviation) includes operational limitations and restrictions.
 - The exemption (or deviation) includes changes to the Approved Flight Manual, Standard Manoeuvre Manual or any other operational or tactics manuals.
 - The exemption (or deviation) will reduce the aircraft operational capability below a specified level.
- 4.1.7 Once the exemption has been approved, the Certification Basis and compliance matrix are annotated either as 'not applicable' for an exemption or, in the case of a deviation, with a reference to the amended certification requirement. Exemptions and deviations must be referenced in the compliance matrix.
- 4.1.8 Any limitations or restrictions must be added to the Approved Flight Manual and Type Certificate Data Sheet (TCDS).
- 4.1.9 The reference to the exemption and accepted risk level must also be recorded in the TCDS and reported in the fleet Annual Airworthiness Report (AAR).

4.2 Exemption / Deviation Request – Preparation Instructions

4.2.1 Part 1 – Applicant's Request

- 4.2.1.1 The application portion of the exemption/deviation request will be prepared by the applicant and should include the following information:
- Executive Summary.** Provide a concise executive summary of the nature of the exemption (or deviation) request, the impact on the level of safety specified in the certification requirements and any risk mitigating actions that will be required, including any operation limitations and restrictions.
 - Applicant Identification.** Provide the name, position and contact information for the individual in the PMO or WSM who is responsible for coordinating the request staffing.
 - References.** List the references that are relevant to the request and are available to the request reviewers.
 - Aircraft Type and Systems / Equipment Affected.** List the aircraft type and provide a description of the affected equipment. Include part numbers, if applicable.
 - Certification Requirement.** Identify all of the affected certification requirements, including their Certification Basis number.
 - Airworthiness Issue and Rationale for the Request.** Explain the nature of the certification issue and why the exemption or deviation is being sought. Indicate why it is not possible, or practicable, to adhere to the certification requirement. In the case of a deviation request, alternative certification requirements should be proposed, if possible. If it is technically possible to meet the requirement, but not practicable for technical, cost, operational, or other reasons, then a business case assessment that outlines the cost versus safety benefits may also be required.

- g. **Exemption or Deviation Request.** Provide a clear statement of the exemption requested with linkage to the effected certification requirements.
- h. **Publications Affected.** Provide a list of the publications that may require updates or amendments to reflect any limitations, restrictions or operational mitigations that may be imposed subsequent to the approval of the exemption.
- i. **Effect on or Change to the Level of Safety (LOS) and Mitigating Actions.** Explain how the exemption or deviation will effect or change the level of safety of the design. A comparative analysis should be provided against the LOS specified in the applicable parts of the certification basis. If the analysis shows that the design will fall below the LOS requirements specified in the Certification Basis, then a more detailed safety assessment is also required. The comparative analysis may take credit for any mitigations, limitations or restrictions that are being proposed as part of the exemption application to demonstrate that the aircraft can be operated at a LOS that is acceptable to the OAA and TAA, or that the residual hazard levels have been reduced to the point where the Operational Commander is willing to accept any residual risk, instead of requiring a design change. Any changes to the maintenance program or Approved Flight Manual (AFM) that are associated with the proposed mitigating actions should be clearly identified, including any follow-up actions that may be required to implement the mitigating actions.
- j. **Safety Assessment Summary.** This section of the request will summarize the results of the safety assessment undertaken to evaluate the hazards associated with the operational employment of a design that does not fully meet the LOS requirements specified in the Certification Basis, even after the contribution of any operational and technical mitigating actions has been included. The safety assessment shall include a detailed analysis of these hazards, the hazard effects, exposure time and probability of occurrence. The safety assessment should clearly identify any residual risk that will require acceptance by the Operational Commander.

Note1

The airworthiness risk management or Record of Airworthiness Risk Management (RARM) process detailed in AF9000 procedure EMT01.003 is not to be used with an exemption or deviation request. The assessment and acceptance of any hazards and risks associated with an exemption or deviation will be managed as an integral part of the exemption/deviation review and approval process. However, in performing the exemption safety assessment, it is permissible to use some of the EMT01.003 hazard assessment techniques.

Note 2

Unlike the finding of compliance process, the safety assessment methodology, that supports an exemption request, allows more latitude to factor in operational and technical mitigations that may compensate for any hazard conditions resulting from the inability to meet the certification requirements.

Note 3

It is recommended that the safety assessment also include a statement about the feasibility and cost of developing and implementing a design change that would eliminate the hazards and make the aircraft design compliant with the certification requirements.

Note 4

If a lengthy safety assessment is required, then the results should be summarized in this section and a copy of the full assessment attached as an appendix to the exemption request.

- k. **Limitations and Restrictions.** Any required maintenance actions, technical or operations restrictions, or operating limitations must be clearly identified in the request and the implementation instructions included in the action item list. An analysis of the benefits of the

limitations and restrictions must be documented in the safety assessment section of the request. In addition, the documents that will be updated to capture all limitations and restrictions must be identified.

- l. **Duration / Expiry.** Identify the time limit of the exemption/deviation. Examples are: life of the aircraft, modification to the affected equipment or design change involving the affected certification requirement.
- m. **Action Item List.** Once the exemption/deviation request has been approved, if there are any follow-up action items, such as adding additional information to the AFM or tracking equipment issues, then an action item list should be developed. This action item list will identify all of the action items that must be tracked to complete the exemption implementation and support approval of the design/design change. The list should identify the action item, the individual or organization responsible and any due dates.

4.2.2 Part 2 – TAA Assessment and Recommendation

4.2.2.1 The TAA assessment and recommendation will be prepared by the TAA staff and will include the following:

- a. The exemption or deviation request will be assessed against the following criteria:
 - (1) The content of the request should ensure all necessary information has been provided.
 - (2) Will the ALOS in the Certification Basis be met?
 - (3) Will operational or technical mitigations be used to achieve an ALOS?
 - (4) Has the applicant identified what in-service documents will be updated to capture all recommended operational and technical mitigations?
 - (5) Are there any hazard conditions that fail to meet the LOS criteria defined in the certification requirements, even after the application of restrictions or limitations? Are these hazards adequately analyzed in the safety assessment and the risks requiring acceptance correctly identified?
 - (6) What are the restrictions or limitations that are being proposed and where will they be inserted into the aircraft document set?
 - (7) For a deviation request, are the alternative requirements or standards being proposed acceptable?
 - (8) Are there any amendments proposed for the flight manual or maintenance program?
 - (9) What is the duration of the exemption/deviation?
 - (10) Is the action item list complete?
- b. The TAA assessment will include a summary of any changes proposed to the Certification Basis and the TAA's analysis of the exemption's effect on the design level of safety.
- c. If the TAA staff assessment does not agree with the applicant's analysis of the impact of the changes on the safety level or the applicant's assessment of any residual hazards or risks, then a separate TAA safety assessment should be included in the request. Even if the TAA's assessment differs from the applicant's, every attempt will be made to identify areas of agreement and explain the differences to the approval authority.
- d. The TAA assessment may recommend additional mitigating actions, restrictions and limitations.
- e. Duration Statement: If different from the applicant request.
- f. TAA Recommendation. If the TAA is unable to recommend the approval of the exemption or deviation, DTAES 3 will provide the applicant with the TAA evaluation results. The exemption request will still be staffed, even if the TAA is not recommending approval. However, every attempt will be made to avoid this situation.

4.2.3 Part 3 – OAA Review and Approval

- 4.2.3.1 The OAA comments and decision, including risk acceptance by the Operational Commander (if required), will be prepared by the OAA staff and will include the following:
- a. Approval or Rejection of the Exemption or Deviation
 - b. Any changes to the requested application or the TAA recommendation
 - c. Approval of any limitations or restrictions
 - d. A reference to the acceptance of risk by the Operational Commander (if applicable)

4.3 Staffing Process and Instructions

4.3.1 Exemption (or Deviation) Request Submission

- 4.3.1.1 The applicant is responsible for preparing the request and staffing it to the TAA and OAA for review and approval.
- 4.3.1.2 During the preparation of the request, the applicant may obtain assistance and advice from the TAA staff by contacting a DTAES 3 team lead. The team lead will coordinate the support from DTAES 4, 6, 7 and 8 staff members. Prior to formal submission of the request, it is recommended that a draft copy of the request be sent to the DTAES 3 team lead for review and comment.
- 4.3.1.3 At the same time, it is recommended that the Senior Staff Officer – Operational Airworthiness (SSO OA) be contacted to obtain any required OAA assistance and advice. A copy of the request should be provided to the SSO OA at the same time it is submitted to the TAA.

4.3.2 TAA Review and Recommendation

- 4.3.2.1 Once the applicant has completed the request preparation, and is requesting the TAA review and recommendations, the request should be staffed to the appropriate DTAES 3 Office of Primary Interest (OPI) for the respective fleet. The three DTAES 3 OPIs are:
- a. DTAES 3-2 – Team Leader – Certification Projects – Fighters, Trainers and UAS
 - b. DTAES 3-3 – Team Leader – Certification Projects – Helicopters
 - c. DTAES 3-4 – Team Leader – Certification Projects – Transport Aircraft
- 4.3.2.2 The DTAES 3 team lead will prepare Part 2 – TAA Assessment and Recommendation. The Part 2 draft document will be provided to the applicant and SSO OA for review and comment, prior to staffing to the TAA for signature. The TAA will sign the TAA recommendation, once confirmation from the SSO OA is received that the OAA agrees with the request.
- 4.3.2.3 The TAA-signed Part 2 document will be forwarded to the SSO OA for action, with a copy to the applicant.

4.3.3 OAA Review and Approval

- 4.3.3.1 The SSO OA will coordinate the review of the request among OAA staff and provide comments and any requests for changes to the applicant and DTAES 3.
- 4.3.3.2 Once the OAA has approved the exemption and received the Operational Commander's acceptance of any required risk, the SSO OA will provide the applicant and DTAES 3 with a copy of the approved exemption (or deviation).
- 4.3.3.3 DTAES 3 will be responsible for making any required amendments to the Certification Basis and compliance program documentation, including adding the exemption (or deviation) to the TCDS.
- 4.3.3.4 The applicant (PMO or WSM) will be responsible for completing any action items identified in the approved exemption (or deviation).

4.3.4 Exemption/Deviation Recording, Tracking and Periodic Review

- 4.3.4.1 Exemptions and deviations are to be recorded and retrievable for regulatory review purposes. The fleet WSM should list all approved exemptions and deviations in the fleet Technical Annual Airworthiness Report (AAR), including the risk index of any associated risk that was accepted with

the exemption (or deviation). Additionally, all approved exemptions and deviations must be listed on the Type Certificate Data Sheet, in accordance with the TAM standard 2.1.2 S8.

4.4 Template – Exemption/Deviation Form

- 4.4.1 A template exemption/deviation request form is attached as Annex A to this advisory. A MS Word version of this template is available internally, within DND, in the AEPM RDIMS Library, at # 1722272.

4.5 Sample Exemption and Deviation Requests

- 4.5.1 A sample exemption request and a sample deviation request have been developed by the TAA staff to illustrate how a request may be completed using the format provided in this advisory. The two examples can be found in the AEPM RDIMS Library, at:
- a. AEPM # 1722273: 'Sample Deviation Request – CH155 Crew Seat Crashworthiness'
 - b. AEPM # 1727623: Sample Exemption Request – CP160 Low Level Operations

Note

These documents are available internally, within DND, to all users who have access to the AEPM RDIMS library. External requests should be sent to DTAES 3, by email, at pamela.lewis@forces.gc.ca.

- 4.5.2 The information in the sample requests is provided to assist in the drafting of the request by providing examples of the content and level-of-detail expected by the TAA and OAA. The level of detail and amount of supporting data required for any request will vary depending upon the complexity of the request, as well as the safety issues that may need to be addressed. Additional examples may be requested from DTAES 3.

Annex A – Airworthiness Exemption/Deviation Request (Template)

Date: _____

Originator File #: _____

Originator RDIMS #: _____

SUBJECT: _____

EXECUTIVE SUMMARY:

PART 1 – APPLICANT REQUEST

1. Applicant Identification
2. References
3. Aircraft Type and Systems / Equipment Affected
4. Airworthiness Requirement
5. Airworthiness Issue and Rationale for the Request
6. Exemption Request
7. Publications Affected by Exemption
8. Effect on or Change to the Level of Safety and Mitigating Actions
9. Safety Assessment Summary
10. Limitations and Restrictions
11. Duration / Expiration of Exemption
12. Action Item List
13. Applicant Signature _____

Appendix 1 – Safety Assessment (if required)

Appendix 2 – Copy of Record of Airworthiness Risk Assessment (if required)

Airworthiness Exemption/Deviation Request

PART 2: TAA ASSESSMENT, APPROVAL AND RECOMMENDATION

Originator: _____

Date: _____

TAA File No: _____

TAA RDIMS #: _____

1. TAA Assessment:
2. Assessed Airworthiness Risk:
3. Applied Conditions or Mitigations
4. Proposed Limitations and Restrictions
5. Expiration:
6. TAA Staff Recommendation:
7. TAA Approved: _____
8. Rationale (if not approved):
9. TAA Recommendation to OAA (if required): _____

Airworthiness Exemption/Deviation Request

PART 3: OAA REVIEW AND APPROVAL

Originator: _____

Date: _____

OAA File No: _____

1. OAA Assessment:
2. Airworthiness Safety Assessment
3. Operational Commanders Acceptance of Risk (if applicable):
4. Required Mitigating Actions:
5. Imposed Limitations and Restrictions:
6. Expiration/Review:
7. TAA Approved: _____ or Not Approved : _____

OAA Approval: _____