



MINISTÉRIO DA DEFESA NACIONAL
AUTORIDADE AERONÁUTICA NACIONAL
Gabinete da Autoridade Aeronáutica Nacional

CIRCULAR N.º 4/AAN/20

SUBJECT: GUIDELINES FOR OBTAINING A MILITARY SUPPLEMENTAL TYPE CERTIFICATE

1. Introduction.

A MSTC attests the approval of a major change, classified in accordance with European Military Airworthiness Requirement (EMAR) 21A.91, to an approved type design where the designer of the major change is not the Type Certificate Holder.

The certification of changes to the type-certificate, including supplemental type-certificates, is issued when the applicant has shown that the aeronautical product complies with the type-certification basis to ensure compliance with the essential requirements specified in the Regulation n.º 539/2014, Airworthiness Basic Regulation for National Defence Domain, and when no feature or characteristic has been found that makes the operation unsafe.

2. Purpose.

This circular establishes the process and provides guidelines for obtaining a Military Supplemental Type Certificates (MSTC) for military aircraft in accordance with the Regulation n.º 539/2014.

3. Scope.

This circular is applicable to MSTC applicants.

4. Definitions.

- a. Competent authority – The AAN for national organisations approvals and civil and other military airworthiness authorities recognised or in a process to be recognised by AAN.



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- b. Recognised Civil Aviation Authority (CAA) - The recognition of the CAA includes the certification work of military aircraft with civil pattern or civil derived aircraft on the National Aeronautical Military Register of Portugal and the acceptance of the organisation approvals related with design, production and maintenance. The AAN recognised the following CAA and Agencies without requiring a formal recognition process based on their regulatory experience:
- (1) European Union Aviation Safety Agency (EASA) and CAA of its member states;
 - (2) Transport Canada Civil Aviation (TCCA);
 - (3) U.S. Federal Aviation Administration (FAA);
 - (4) Agência Nacional para a Aviação Civil (ANAC Brasil);
- c. Recognised Military Airworthiness Authority (MAA) - The AAN recognises other MAA through a formal recognition process, usually using European Military Airworthiness Document – Recognition (EMAD - R). This recognition aims for the recognition of the certification work of military aircraft on the National Aeronautical Military Register of Portugal and includes the recognition of the organisation approvals related with design, production and maintenance.
- d. Unsafe condition - an unsafe condition exists if there is factual evidence (from service experience, analysis or tests) that:
- (1) An event may occur that would result in fatalities, usually with the loss of the aircraft, or reduce the capability of the aircraft or the ability of the crew to cope with adverse operating conditions to the extent that there would be:
 - (a) A large reduction in safety margins or functional capabilities, or
 - (b) Physical distress or excessive workload such that the flight crew cannot be relied upon to perform their tasks accurately or completely, or
 - (c) Serious or fatal injury to one or more occupants



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- unless it is shown that the probability of such an event is within the limit defined by the applicable certification specifications, or
- (2) There is an unacceptable risk of serious or fatal injury to persons other than occupants, or
- (3) Design features intended to minimise the effects of survivable accidents are not performing their intended function.
- e. Military Certification Review Item (MCRI) - A MCRI is a document recording adaptations to the Type Certification Basis (TCB), new Means of Compliance (MoC), Equivalent Level of Safety Findings, or any other certification issue, which requires clarification and interpretation, or represents a major technical or administrative issue. All MCRIs require approval from the AAN.
- f. Exception MCRI - An Exception MCRI is used to detail elements of the design that are certified to alternative, or tailored, agreed standards or codes.
- g. Special Condition MCRI- A Special Condition MCRI is used to detail elements of the design for which a bespoke certification specification/requirement/standard has been developed. Special conditions usually refer to novel design features or unconventional use of the product.
- h. Elect to Comply MCRI - An Elect to Comply MCRI is used where a later version of the Primary Certification Code or alternative standard used elsewhere has been used for certification with agreement of the AAN.
- i. Equivalent Safety Finding MCRI - An Equivalent Safety Finding MCRI is used where it is not possible to certify against an accepted standard, and agreement has been reached to



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provide a safety argument to demonstrate that an equivalent level of safety has been achieved.

- j. Interpretive Material/Means of Compliance/Acceptable Means of Compliance (IM/MOC/AMC) - An IM/MOC/AMC is used where the applicant wants to use an existent IM/MOC/AMC, but only in parts or with some basic changes to the content, or if there was a discussion about the application of such documents which needs to be recorded.
- k. Level of involvement (LOI) - Applicants have to propose a break-down of the certification programme into meaningful groups of compliance demonstration activities and data. Then, for each identified group of compliance demonstration activities and data, the affected applicants will have to perform a risk assessment considering the likelihood of an unidentified non-compliance with the MSTC basis, data certification basis or environmental protection requirements and the potential impact of that non-compliance on product safety or environmental protection. Based on this assessment, the applicant should make a proposal for the AAN involvement in the verification of the compliance demonstration activities and data. AAN will determine its LOI considering the proposals submitted by the affected applicants (6.a., 6.l.).

5. Acronyms and abbreviations.

AAN	National Aeronautical Authority
ACB	Airworthiness Certification Board
AD	Airworthiness Directives
AFM	Aircraft Flight Manual
AMC	Acceptable Means of Compliance
AMM	Aircraft Maintenance Manual



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ANAC	Agência Nacional para a Aviação Civil
CAA	Civil Aviation Authority
CG	Centre of Gravity
CM	Certification Manager
CP	Certification Program
CVE	Compliance Verification Engineer
DOA	Design Organisation Approval
EASA	European Union Aviation Safety Agency
EMAD	European Military Airworthiness Document
EMAR	European Military Airworthiness Requirement
EMC	Electromagnetic compatibility
EMI	Electromagnetic interference
ETSO	European Technical Standard Order
FAA	U.S. Federal Aviation Administration
FTO	Flight Test Organisation
ICA	Instructions for Continued Airworthiness
IM	Interpretive Material
IPC	Illustrated Parts Catalogue
LOI	Level of involvement
MAA	Military Airworthiness Authority
MCAI	Military Certification Action Item
MCRI	Military Certification Review Item
MMEL	Master Minimum Equipment List



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MOA	Maintenance Organisation Approval
MoC	Means of Compliance
MSTC	Military Supplemental Type Certificate
MSTCDS	Military Supplement Type Certificate Data Sheet
MTC	Military Type Certificate
PCM	Programme Certification Manager
POA	Production Organisation Approval
TCB	Type Certification Basis
TCCA	Transport Canada Civil Aviation
TSO	Technical Standard Order

6. References.

- a. Law n. 28/2013, 12 April, defines the competencies and structure of National Aeronautical Authority.
- b. Regulation n. ° 539/2014, 5 December, Airworthiness Basic Regulation for National Defence Domain;
- c. Regulation n. ° 431/2016, 6 May, Regulation for Aviation Maintenance, regarding Airworthiness in the National Defence Domain;
- d. EASA PR.STC.0001-002 Supplemental Type Certification of 09/07/2010;
- e. EASA CM No.: CM-21.A/21.B-001 Issue 02 - Certification Memorandum: Criteria for the determination of the EASA level of involvement in product certification;
- f. EMAR 21 – European Military Airworthiness Requirements for Certification of Military Aircraft and Related Products, Parts and Appliances, and Design and Production Organisations;



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- g. EMAR 145 - European Military Airworthiness Requirements 145 - Requirements for Maintenance Organisations;
- h. EASA S21 GP001 EASA Good Practices Coordination between Design and Maintenance, First Installation of a Change to a Product of 10/09/2012;
- i. EMAR 21 Acceptable Means of Compliance And Guidance Material For the Certification Of Military Aircraft And Related Products, Parts And Appliances, and Design and Production Organisations;
- j. EMAD – R - European Military Airworthiness Document - Recognition Process;
- k. EASA Websiste <https://www.easa.europa.eu/newsroom-and-events/news/new-easa-approach-definition-level-involvement-loi>;
- l. Commission Regulation 2019/897 of 12 March 2019.

7. Description of the process for obtaining a MSTC.

The process for obtaining a MSTC for military aircraft comprises the following 5 phases:

- a. Phase 0: MSTC Set up;
- b. Phase I: Technical Familiarisation and Establishment of the Supplemental Type Certification Basis;
- c. Phase II – Agreement of the Certification Programme;
- d. Phase III – Compliance Determinations;
- e. Phase IV- Technical Closure and Issue of the MSTC.

8. Phase 0: MSTC Set-up.

The first phase of the process starts when AAN receives the application for MSTC (AAN Form SGQAAN.MOD.433). The AAN assembles the Airworthiness Certification Board (ACB) for this MSTC, which comprises the Certification Manager, Program Certification Manager and Subject



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Matters Expert. The composition of the ACB includes AAN experts and Portuguese Air Force Experts. Such experts are designated case-by-case from a pool of experts in accordance with the project specific qualifications and expertise requirements.

The Certification Manager (CM) or the Programme Certification Manager (PCM) checks the application for completeness, verifies the correct classification and assesses the applicant eligibility in accordance with EMAR 21.

The application form should be provided to the AAN together with the following documentation:

- a. Copy of the certification of Design Organisation Approval (DOA) issued by a civil or military airworthiness competent authority;
- b. DOA Terms of Approval containing the list of products covered by the approval;
- c. DOA Handbook of the Organisation detailing the full scope of the design activities that can be performed;
- d. Copy of the certification of Maintenance Organisation Approval (MOA) issued by the AAN for national organisation or for a foreign organisation issued by a civil or military airworthiness competent authority;
- e. MOA Terms of Approval containing the list of products covered by the approval;
- f. MOA Exposition of the Organisation detailing the full scope of the maintenance activities that can be performed;
- g. For projects which require flight test activities, Flight Test Organisation (FTO) Manual of the Organisation performing the flight testing, detailing the full scope of the flight testing activities that can be performed approved by a civil or military airworthiness competent authority;



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- h. For the projects which require the production of parts not covered by the scope of the maintenance organisation embodying the MSTC:
 - (1) Copy of the certification of Production Organisation Approval (POA) issued by a civil or military airworthiness competent authority;
 - (2) POA Terms of Approval containing the list of products covered by the approval;
 - (3) POA Exposition of the Organisation detailing the full scope of the production activities that can be performed;
- i. Identification of deltas between the procedures approved under the DOA, POA and MOA¹ handbooks/expositions with the EMAR requirements and their applicability for the Portuguese military aircraft (e.g. occurrence reporting; release to service of parts and equipment, release to service of the aircraft);
- j. Proposal of the airworthiness code/certification criteria to be followed and their amendment;
- k. When a military foreign airworthiness authority grants the abovementioned organisation approvals, the applicant should provide to the AAN a declaration from that authority attesting that it cooperates with AAN on the recognition of the organisation approvals.

The application is accepted by AAN when the DOA, POA and MOA approvals have the appropriate scope for the intended MSTC and the appropriate coordination among DOA, POA, MOA and FTO are assured. The AAN notifies the applicant in written when the application is accepted.

¹ For MOA organisations, the identification of the deltas is only required for foreign organization.



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9. Phase I: Technical Familiarisation and Establishment of the MSTC Type Certification Basis (TCB).

For the establishment of the MSTC TCB, the applicant should arrange a technical familiarisation meeting with the AAN to present the modification.

In addition, the applicant should provide to the AAN the initial Certification Program (CP) comprising the following items:

- a. Description of the modification project;
- b. The classification of the change and the justification for that classification;
- c. The certification basis of the aircraft;
- d. The certification basis elected to be used in the change with their justification;
- e. The definition of which airworthiness requirements/criteria will be shown compliance with, in the change;
- f. The proposed means of compliance (MoCs) to be used for each requirement;
- g. A risk analysis of the change, regarding the complexity, criticality and organization experience in conducting design changes of that nature in similar aircraft, in accordance with the dispositions of EASA CM-21.A /21.B-001, Issue 02 of 20 September 2019;
- h. The applicant team involved in the certification of the change;
- i. Statement attesting that the organisations involved in this MSTC will follow the procedures outlined in their approved handbook/manual/exposition where appropriate and with the identified deltas with the EMAR requirements and their applicability for the Portuguese military aircraft, as presented with the application;
- j. Schedule of the certification activities, including milestones and compliance documentation delivery, including but not limited to, design activities, embodiment,



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ground tests, submission of flight conditions and permit to fly request, compliance verification, flight test, final declaration of compliance, intended MSTC approval.

The applicant should collaborate with the AAN to provide any additional documentation or clarification that the AAN considers as necessary to evaluate and enable the agreement of the initial TCB.

The airworthiness code/certification criteria and their amendment are accepted when they are compliant with the classification of the modification (significant or non-significant) and the initial certification basis of the aircraft. The AAN notifies the applicant in written when the airworthiness code/certification criteria and their amendment is accepted. In this phase, when appropriate, AAN may interview the key personnel of the applicant certification team (e.g. Head of Airworthiness, Compliance Verification Engineers).

10. Phase II – Agreement of the Certification Programme (CP).

The AAN assesses the initial CP received from the applicant in Phase I and technically discusses it with the applicant regarding at least the following items:

- a. The classification of the change and the justification for that classification;
- b. The applicant team involved in the certification of the change;
- c. The certification basis elected to be used in the change;
- d. The need for special conditions;
- e. The proposed airworthiness requirements/criteria;
- f. The proposed means of compliance and appropriate compliance documentation;
- g. The level of involvement of the AAN in the certification process based on the risk analysis of the change proposed by the applicant in Phase I;



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- h. Working procedures between the AAN and the applicant;
- i. Scope and completeness the working arrangement among DOA, POA, MOA and FTO;
- j. Identification of additional activities/competences not addressed in the initial CP.

As outcome of the technical discussion of the initial CP during this phase, the applicant should submit amendment of the initial CP, at least with the following items:

- a. Description of the modification project including:
 - (1) A generic description and purpose of the MSTC;
 - (2) Application date;
 - (3) Designation of the model (aircraft type);
 - (4) Tail number, flight hours/cycles (as applicable);
 - (5) Name of the component(s) installed and removed, including its manufacturer, Part Number and Serial Number (as applicable), applicable function to the MSTC;
 - (6) Components (parts and appliances) to be installed that are approved:
 - (a) In conjunction with the MSTC procedures of Type Certification;
 - (b) Changes to MTC or MSTC for the product in which it is to be installed;
 - (c) Where applicable, under the ETSO/TSO authorisation procedures; or
 - (d) In the case of standard parts, in accordance with officially recognised Standards;
- b. The classification of the change and the justification for that classification;
- c. The certification basis of the aircraft;
- d. The certification basis elected to be used in the change with the airworthiness requirements (derived from an applicable airworthiness code), special conditions, equivalent safety findings and environmental protection requirements (where applicable);



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- e. A compliance checklist addressing each paragraph of the type certification basis and environmental protection requirements (where applicable to the project) with reference to the means of compliance and to the related compliance documents;
- f. The applicant team involved in the certification of the change;
- g. The level of involvement of the AAN in the certification process based on the risk analysis of the change proposed by the applicant in Phase I with the specification of the activities that will be surveyed/witnessed and the compliance documentation that will be reviewed by the AAN and a preliminary schedule of those activities/delivery of compliance documentation;
- h. Identification of the procedures outlined in the approved handbook/manual/exposition by airworthiness competent authorities, with the identified deltas with the EMAR requirements applicable for the modification on the Portuguese military aircraft, where appropriate;
- i. Liaison with Production, Maintenance, Flight Testing Organisations defining the Organization(s) that will be responsible to manufacture, embody and test the MSTC (For guidance see references [6] and [8]);
- j. Aircraft configuration management procedures during the design, production, embodiment, ground test, flight test and release the aircraft to service;
- k. Procedure(s) for ensuring the continued airworthiness of the modification between the applicant together with the relevant stakeholders (DOA, POA, MOA, equipment suppliers) as detailed in Annex III of this circular;



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- l. Procedure(s) for ensuring the continued airworthiness of the modification between the applicant together with the relevant stakeholders (DOA, POA, MOA, equipment suppliers) as detailed in Annex III of this circular;
- m. Schedule of the certification activities, including milestones and compliance documentation delivery, but not limited to, design activities, embodiment, ground tests, submission of flight conditions and permit to fly request, compliance verification, flight test, final declaration of compliance, intended MSTC approval;
- n. Test Requirements including details of the various tests identified in the Compliance Checklist (e.g. laboratory, ground, flight etc.) together with planned test locations and dates. This section should contain any requirements for the planning, preparation, and conduction of flight testing, including the approval process of Flight Conditions and Permit to Fly;
- o. Manuals, Specification, or reference to a document specifying, changes to documents and placarding. Commonly this may include the Maintenance Manual, Airworthiness Limitations, Electrical Load Analysis, Master Minimum Equipment List (MMEL) and Weight and Balance Datasheet;
- p. Instructions for Continued Airworthiness. A statement of, or reference to documents defining, any inspection or other actions required to maintain in-service airworthiness;
- q. Aircraft Flight Manual. Reference to any supplement to the Aircraft Flight Manual (AFM) that has resulted (or is expected to result) from the MSTC development should be mentioned.

The amendment of the initial CP and the certification basis are accepted upon their verification by the AAN ACB that they are in accordance with the intended content and includes the results of



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the technical discussion held between the AAN ACB and the applicant during this phase. The AAN notifies the applicant in written when the amendment of the initial CP and the certification basis are accepted.

Regardless the acceptance of the initial MSTC TCB in this phase, the agreed and accepted TCB may need to be changed throughout the certification process due to new applied technologies, introduction of design changes, discovery of unsafe conditions or compliance demonstration results. Those changes will be recorded in the updated versions of the CP and the final CP establishes all the changes of the MSTC TCB and their reasoning.

11. Phase III – Compliance Determinations.

In this phase the applicant demonstrates the compliance with the applicable certification basis and environmental protection requirements (if applicable) and provides the AAN with the means by which such compliance has been demonstrated in accordance with the agreed AAN LOI in Phase II and declares that compliance has been demonstrated. When flight tests are needed for compliance demonstration with the MSTC TCB, the applicant should request to the AAN the permit to fly in accordance with the Annex I of this Circular. Nevertheless, at the end of this phase, the following documents should be delivered to the AAN to be included in the AAN project certification dossier:

- a. Supplement to Aircraft Flight Manual (AFM);
- b. Instructions for Continued Airworthiness (ICA);
- c. Supplement to the Illustrated Parts Catalogue (IPC);
- d. Supplement to the Aircraft Maintenance Manual (AMM);
- e. When applicable, a Supplement to the MMEL;
- f. When applicable, a Supplement for Crew Qualification and Training;



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- g. The Final Declaration of Compliance of the change attesting that:
 - (1) The change complies with all applicable airworthiness requirements;
 - (2) The change respects all applicable requirements regarding noise and emissions, where applicable;
 - (3) All design and production work has been developed by the competent personnel;
 - (4) The change was performed in accordance with the approved organization procedures for the purpose of conducting design and production of changes to aircraft;
 - (5) No feature or characteristic making it unsafe for operation was found;
- h. The Final Certification Program with the content specified in Phase II and including any change and their reasoning;
- i. The Safety Assessment;
- j. A Structural Justification;
- k. The electrical load analysis of the aircraft and the identification of the power availability in the aircraft electrical buses after the MSTC;
- l. Test plans, procedures and reports;
- m. The Compliance Checklist where, for each requirement is stated by the responsible Compliance Verification Engineer (CVE) that compliance of the requirement was achieved, and which was/were the Means of Compliance used for that demonstration of compliance;
- n. Compliance documents referred in the compliance checklist;
- o. The identification of all requirements in which alternative means of compliance were used as a deviation from the approved Means of Compliance defined in the initial certification program, and the reasoning for those deviations;



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- p. All wiring diagrams produced in the scope of MSTC;
- q. Drawings of the final electrical configuration of the aircraft;
- r. Drawings of all structural changes to the aircraft made in the scope of the MSTC;
- s. Master drawing list;
- t. The weight and balance variation caused by the MSTC;
- u. The identification of the aircraft empty weight and position of the Centre of Gravity (CG) after the MSTC;
- v. Master document list regarding the MSTC;
- w. All eventual limitations that may result from the MSTC, and that should be included in the Military Supplement Type Certificate Data Sheet (MSTCDS);
- x. Any eventual Military Certification Review Item (MCRI) that results from the incapacity of the full compliance of the Certification Program (with regard to the demonstration of compliance to a specific requirement, or to the application of an approved Means of Compliance) and that, from the discussion with AAN, results that it is adequate to be included in the MSTCDS;
- y. Any eventual Military Certification Action Item (MCAI) when additional information is requested related to regulatory requirements, MCRIs, or to items in the CP;
- z. A document describing the process by which reports of failures and malfunctions related to the continued airworthiness of the MSTC are received and managed throughout the service life of the aircraft.²

² This can be included in a Supplement to the approved DO Handbook or delivered separately.



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NOTE: This documentation should be delivered as soon as possible to the AAN. The expected timeframe between the delivery of the compliance documentation and the issuance of the MSTC by the AAN is dependent on the complexity of the modification and can reach up to 2 months.

12. Phase IV- Technical Closure and Issue of the MSTC.

The compliance demonstration performed by the applicant in accordance with the agreed AAN LOI is subject to a technical investigation by the AAN ACB in accordance with Regulation n.º 539/2014 and this Circular. The technical investigation verifies that:

- a. The data required for the issuance of the AAN MSTC is available;
- b. The documents necessary for AAN MSTC issuance are acceptable;
- c. All actions items for which closure is required prior the MSTC have been completed and are closed;
- d. The applicant has demonstrated compliance with the applicable airworthiness and environmental (if applicable) requirements (including any Exception, Special Condition, Elect to Comply, Equivalent Safety Finding and IM/MOC/AMC);
- e. The minimum requirements for ensuring the continued airworthiness by the applicant together with the relevant stakeholders are established and accepted. These minimum requirements are detailed in Annex III of this circular.

When technical investigation is concluded and the AAN ACB reaches technical satisfaction, the Technical Visa for Post TC Change Approval (SGQAAN.MOD.496) is signed; the MSTC (SGQAAN.MOD.491) and its data sheet (SGQAAN.MOD.499) are issued.

The Technical Visa for Post TC Change Approval (SGQAAN.MOD.496) is a technical closure document and conveys the necessary information to draft the MSTC certificate and its data sheet.



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After the AAN receives the final declaration of compliance from the applicant, the Technical Visa is signed when the AAN ACB determines:

- a. That technical investigation is finished and technical satisfaction is reached by the AAN ACB;
- b. That the limitations, operational procedures and performance contained in the Aircraft Flight Manual (AFM) amendment provides for safe operation and are compatible with the Type Design and MSTC;
- c. Airworthiness Limitations and Certification Maintenance Requirements contained in the aircraft affected maintenance manuals arising from the certification process are compatible with the Type Design and MSTC.

The content of the final declaration of compliance provided by the applicant should state that:

- a. The change complies with all applicable airworthiness requirements;
- b. The change respects all applicable environmental requirements (if applicable) regarding noise and emissions;
- c. All design, production and embodiment activities of the modification have been developed by the suitably qualified and experienced personnel;
- d. The change was performed in accordance with the approved organization procedures for conducting design, production and embodiment of changes to aircraft;

The applicant receives the MSTC approval to release the aircraft for operation. In the event of unforeseen urgent operational circumstances or operational needs of a limited duration, provided the level of safety is not adversely affected thereby, an exemption can be granted in accordance



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with n.º 2 of article 11º of Regulation n.º 539/2014 to allow operation of the aircraft before the issuance of MSTC certificate and its data sheet.

13. List of forms.

The list of the forms referred in this circular are the following:

- a. SGQAAN.MOD.433 - Application Form for Approval of Military Supplemental Type Certificate;
- b. SGQAAN.MOD.409. - Flight Conditions Proposal for a Military Permit to Fly;
- c. SGQAAN.MOD.401 - Permit to fly;
- d. SGQAAN.MOD.491 - Certificado -Tipo Militar Suplementar;
- e. SGQAAN.MOD.496 - Technical Visa for Post MTC Change Approval;
- f. SGQAAN.MOD.449 - Military Supplemental Type-Certificate Data Sheet.

The abovementioned forms, which are not an integral part of this circular, are published in AAN official web site.

14. Annexes.

This circular is published in the AAN official web site with the annexes are an integral part thereof. The annexes of this circular are the following:

- a. ANNEX I - PHASE III - Approval of the Flight Conditions to Issue the Permit to Fly for Flight Test Campaign;
- b. ANNEX II – PHASE IV - Operation of the Aircraft before the Issuance of MSTC in accordance with n.º 2 of article 11º of Regulation n.º 539/2014;



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- c. ANNEX III – Guidance Material to Ensure the Continued Airworthiness of a MSTC issued by the AAN.

15. Entry into force.

This Circular shall enter into force on the following day of its publication.

The National Aeronautical Authority

Joaquim Manuel Nunes Borrego
General



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ANNEX I - PHASE III - Approval of the Flight Conditions to Issue the Permit to Fly for Flight Test Campaign

The applicant, when performing flight tests, should submit, before the intended date of the flight test campaign, the respective proposal of the flight conditions using the AAN SGQAAN.MOD.409 form.

The flight conditions can be as simple as applying additional limitations for a specific purpose for a limited duration or be as comprehensive as a full description of the individual aircraft, including its modification state, limitations, flight manual and maintenance instructions.

The proposed flight conditions will be checked by AAN ACB against the substantiation documentation provided by the applicant.

In addition, the applicant should provide an updated version of the certification program before the flight-test campaign with the definition of the amount of tests, reports, compliance documentation to be demonstrated by the applicant before the first flight (Examples of the relevant substantiation documents expected to be provided before the first flight are stress analysis, electrical load analysis, EMI/EMC/ground test results/reports). The compliance documentation to be demonstrated by the applicant before the first flight should be provided to AAN ACB as soon as possible (at least two weeks depending the complexity of the project).

The flight conditions are approved and the Permit to Fly is issued, when the AAN is satisfied:

- a. That the aircraft is capable of safe flight under the specified conditions and restrictions and may make or require the applicant to make any necessary inspection or tests for that purpose; and



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- b. With the provided substantiation documentation.

The content of the flight conditions includes:

- a. The configuration(s) for which the permit to fly is requested;
- b. Any condition or restriction necessary for safe operation of the aircraft, including:
- (1) The conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);
 - (2) The conditions and restrictions put on the flight crew to fly the aircraft;
 - (3) The restrictions regarding carriage of persons other than flight crew;
 - (4) The operating limitations, specific procedures or technical conditions to be met;
 - (5) The specific flight test program, identifying the procedures that will be conducted in the flight test/campaign. The test procedures should include the reference of the requirements of the TCB of the updated CP;
 - (6) The maintenance instructions and regime under which they will be performed during the flight test campaign;
 - (7) The declaration and its substantiation documentation that the aircraft is capable of safe flight under the conditions or restrictions of this subparagraph;
 - (8) The method used for the control of the aircraft configuration, in order to remain within the established conditions.

Before the first flight of the flight test campaign, the applicant should schedule a meeting with the AAN to present the flight test campaign.



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ANNEX II – PHASE IV - Operation of the Aircraft before the Issuance of MSTC in accordance with n.º 2 of article 11º of Regulation n.º 539/2014

This annex establishes the guidance material to allow operation of the aircraft before the issuance of MSTC certificate and its data sheet in accordance with n.º 2 of article 11º of Regulation n.º 539/2014 in the event of unforeseen urgent operational circumstances or operational needs of a limited duration. This exemption can be granted when technical investigation by the AAN ACB is concluded, the technical satisfaction is reached, and the Technical Visa for Post TC Change Approval is signed and upon applicant request of a permit to fly using the AAN SGQAAN.MOD.409 form to submit the correspondent flight conditions.

In these circumstances, the applicant receives the Technical Visa for Post TC Change Approval signed and the permit to fly to release the aircraft for operation.

The flight conditions are approved and the permit to fly is issued (SGQAAN.MOD.401), when the AAN is satisfied:

- a. That the aircraft is capable of safe flight under the specified conditions and restrictions and may make or require the applicant to make any necessary inspection or test for that purpose; and
- b. With the provided substantiation documentation.

The content of the flight conditions includes:

- a. The configuration(s) for which the permit to fly is requested;
- b. Any condition or restriction necessary for safe operation of the aircraft, including:
 - (1) The conditions or restrictions put on itineraries or airspace, or both, required for the flight(s);



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- (2) The conditions and restrictions put on the flight crew to fly the aircraft;
- (3) The restrictions regarding carriage of persons other than flight crew;
- (4) The operating limitations, specific procedures or technical conditions to be met;
- (5) The declaration and its substantiation documentation that the aircraft is capable of safe flight under the conditions or restrictions of subparagraph b.

In addition to the substantiation documentation, the submission of the flight conditions proposal should be provided by the applicant to the AAN together with the following documentation:

- a. The Supplement to Aircraft Flight Manual (AFM);
- b. The Supplement to the Illustrated Parts Catalogue (IPC);
- c. The Supplement to the Aircraft Maintenance Manual (AMM);
- d. The Supplement to the Master Minimum Equipment List (MMEL), when applicable;
- e. Evidence that all maintenance tasks due on the aircraft according to the approved maintenance program have been carried out;
- f. Evidence that all known defects have been corrected or, when applicable, carried forward in a controlled manner;
- g. When applicable, evidences that the crew and the maintenance training (approved as necessary for the safe operation and maintenance of the aircraft in the certification program) have been ministered to an adequate number of elements.



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ANNEX III – Guidance Material to Ensure the Continued Airworthiness of a MSTC issued by the AAN

This annex defines the guidance material for Design Organisations ensure the continued airworthiness of a MSTC issued by the AAN.

The Applicant should establish with the Operator an expedite manner to receive reports of failures and malfunctions possibly related with the MSTC.

The applicant should deliver to AAN a procedure to ensure the Continued Airworthiness of the modified aircraft, throughout their service life. This procedure should address, as minimum, the following:

- a. The collection, the record and management of the occurrences reported by the operator,
- b. The classification of the occurrences reported by the operator as possible unsafe condition related with the MSTC;
- c. The communication of those possible unsafe conditions to the operator and to the AAN;
- d. The investigation process of those unsafe conditions;
- e. The collaboration process with the AAN in the production and issuance of Airworthiness Directives (ADs) related with the MSTC;
- f. The process by which the applicant will interact with the embodiment entity and with the suppliers of the equipment (included in the modification) in the investigation of unsafe conditions and in the development of the eventually necessary Airworthiness Directives;
- g. The process by which the organization will ensure that the operator receives and acknowledges reception of the ADs or of any mandatory instruction that results from a



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- design improvement which is subsequently found to improve Safety or Reliability of the modified systems;
- h. The process by which the applicant manage changes to manuals and supplements throughout the service life of the aircraft affected by the modification.
 - i. The process by which the organization ensure the Continued Airworthiness of the MSTC, in case the applicant ceases to have interest in (or being able of) sustaining this capability.

In particular, in this procedure, the applicant must ensure that:

- a. The communication of any eventual unsafe condition to the AAN and to the Operator is made in a period not exceeding 72 hours after the occurrence;
- b. The Operator and the AAN are involved as observers, with unrestricted access to the investigation work and investigation results;
- c. The results of the investigation of any occurrence are always communicated to the AAN and to the Operator, regardless the result of the investigation;
- d. The update of the Manuals and Supplements, which are deemed necessary for Safety purposes, is made and adequately delivered to the operators.