EUROPEAN DEFENCE AGENCY

EMAD OSD – CONSIDERATIONS ON THE USE OF EASA CERTIFICATION SPECIFICATIONS FOR OSD IN THE MILITARY ENVIRONMENT

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EMAD OSD REVISION STATUS

This document is the consolidated Version of EMAD OSD incorporating the Guidance Material on the use of the specific EASA OSD certification specifications in the military environment as Annex I.

EASA EXECUTIVE DIRECTORS (ED) DECISIONS REVIEWED

The table below details EASA ED decisions reviewed and considered by the MAWA Design and Production Advisory Group for EMAD OSD Edition 1.0.

Title	EASA ED Decision	Comments
CS-FCD Issue 2	2021/012/R	Including the corrections of CS-FCD Issue 2 published by EASA on 3/11/2023.
CS-CCD Issue 2	2020/015/R	Including the corrections of CS-CCD Issue 2 published by EASA on 10/12/2020.
CS-SIMD Issue 2	2022/003/R	Not included in current draft
CS-MCSD Issue 1	2020/019/R	N/A
CS-MMEL Issue 3	2021/008/R	N/A

REVISION HISTORY

Edition	Approval date	Reason for Document Revision
1.0	27 May 2025	Initial Document

TABLE OF CONTENT

INTRODUCTION

INTRODUCTION

OPERATIONAL SUITABILITY DATA IN THE EUROPEAN CIVIL AVIATION REGULATIONS

On 27 January 2014, the European Commission published a new requirement in certification, mandating applicants for or holders of a design approval to submit data that EASA considers important for the safe operation of the aircraft. The so-called Operational Suitability Data (OSD) cover flight crew (FCD) and cabin crew (CCD) training, maintenance certifying staff (MCSD), simulator qualification (SIMD) and the master minimum equipment list (MMEL).

This data is approved as part of the type certificate like the aircraft / airplane flight manual. Since the holder of the type certificate is the owner of the OSD it shall keep the data current.

OSD has both mandatory and recommended elements, where the competent national authorities will determine whether users must comply with a recommendation.

The OSD concept is not entirely new. It succeeds the Operational Evaluation Board (OEB) that already existed in the Joint Aviation Authorities (JAA). The OEB was applied on a voluntary basis and resulted in recommendations to the national Aviation Authorities for the approval of flight and cabin crew type rating training courses and minimum equipment lists (MEL).

The novelty with OSD is that it is mandatory for applicants for or holders of a design approval, ensuring that the data is available to operating and training organisations when needed. The OSD is the reference point for the customised training courses and MEL to be developed by operating and training organisations.

OSD is intended to bridge the gap between airworthiness and operations, by requiring applicants for or holders of a design approval to establish and provide data important for the right training of crews and maintenance personnel, with the aim of ensuring safe aircraft operation, while pilot qualification is at the heart of this requirement. OSD Flight Crew Data (FCD) defines a minimum syllabus for a type rating, as well as training areas of special emphasis. This is the case not only for new types, but also for changed designs. OSD is also subject to continuous improvements and sets a level playing field within the European civil aviation regulatory framework for type training and MEL.

The OSD is a proportionate rule. It mainly applies to EASA large aircraft category and where it affects other aircraft classes, EASA developed detailed guidance to facilitate compliance.

For each of the OSD elements, EASA published related certification specifications containing the harmonised detailed requirements for the certification process.

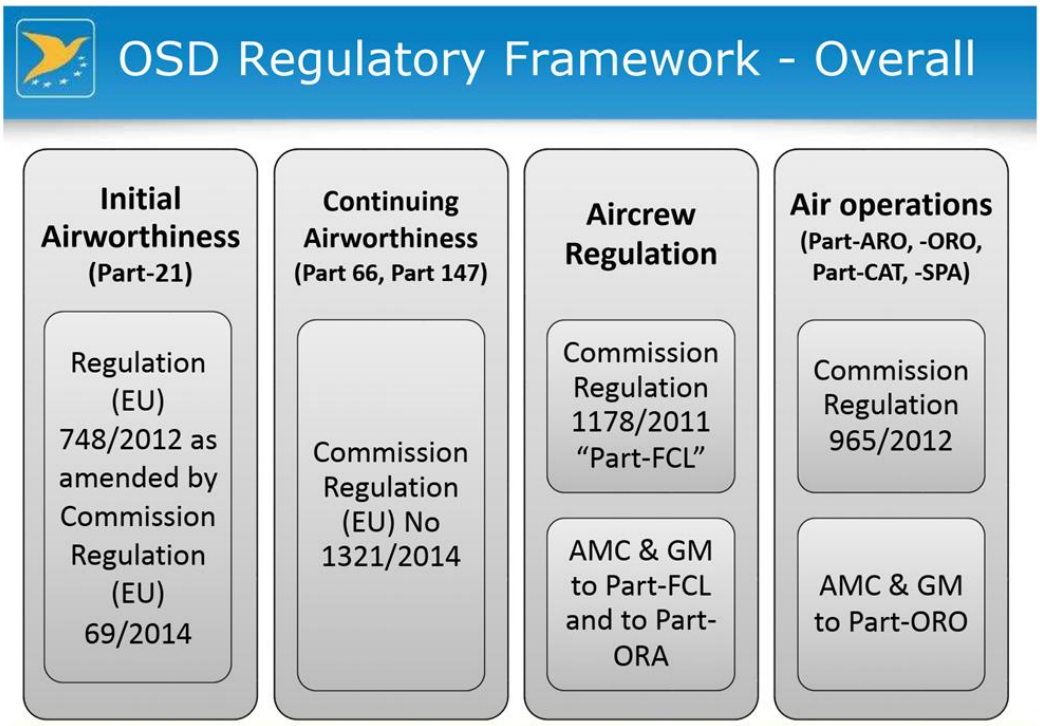

Figure 1: European civil regulatory framework for OSD (January 2024)

OPERATIONAL SUITABILITY DATA IN THE EMAR FRAMEWORK

With the amendment of EMAR 21 to Edition 2.0, the requirement mandating applicants or holders of aircraft design approvals to submit Operational Suitability Data to the Authority to be approved as part of the Type Certificate (TC) or Supplemental Type Certificate (STC) was introduced. Unlike in the European civil aviation regulatory framework, the EMARs are incomplete for a one-to-one implementation of the whole OSD concept.

1) EMARs provide harmonised requirements for initial, continued and continuing airworthiness only. Common rules or harmonised requirements for operational organisations corresponding to other Commission Regulations for the aviation domains are yet to be mandated and/or developed.

2) Like for any other EASA Certification Specification, e.g. CS-25, EMAR documents corresponding to EASA OSD CS are not developed. The common principle is that military Authorities are free to select and appoint to the applicant for a design approval any airworthiness code or standard they find applicable and proportionate for the scope of the product to be certified. Such airworthiness codes and standards include, but are not limited to EASA CS, FARs, STANAGs or Def-STANs. However, EASA OSD CS are currently the only source for requirements related to OSD and should therefore always be considered when a product is to be certified in accordance with EMAR 21.

The elements of OSD, sometimes referred to as OSD constituents, are defined in EMAR 21.1(k) as follows:

> "Operational Suitability Data (OSD)" means data, which are part of an aircraft Type Certificate, restricted Type Certificate or Supplemental Type Certificate, consisting of all of the following:
>
> (i) the minimum syllabus of pilot type rating training, including determination of type rating;
>
> (ii) the definition of scope of the aircraft validation source data to support the objective qualification of simulators or the provisional data to support their interim qualification;

(iii) the minimum syllabus of maintenance certifying staff type rating training, including determination of type rating;

(iv) determination of type or variant for cabin crew and type specific data for cabin crew;

(v) the master minimum equipment list.

PURPOSE AND STRUCTURE OF THIS DOCUMENT

The purpose of this document is to provide National Military Airworthiness Authorities (NMAAs) a harmonized approach to the use of the EASA certification specifications for OSD (EASA OSD CS) in the EMAR framework, although such certification specifications in itself are not directly applicable to military aviation. When required, the document also includes some specific military considerations for each EASA OSD CS to explain their relevance for military aviation as well as to highlight specific areas of interest as well of limitations of their use in the military environment.

The EMAD OSD is considered guidance material. It contains information Authorities and organisations may use but is not mandatory.

GENERAL GUIDANCE ON EASA OSD

GENERAL GUIDANCE FOR THE USE OF EASA CERTIFICATION SPECIFICATIONS FOR OSD IN THE MILITARY ENVIRONMENT

OVERALL RELEVANCE OF THE OSD CERTIFICATION SPECIFICATIONS

The OSD concept is also relevant to military aviation since it aims to bridge the gap between airworthiness and operations.

EMAR documents corresponding to EASA OSD CS are not available for the EMAR framework. The MAWA Forum approved the incorporation of the OSD concept into EMAR 21, and EMAR 21 refers in several places to the OSD certification basis which is to be agreed between the Authority and the applicant for a design approval (TC/STC and changes thereto) based on applicable airworthiness codes and standards appointed by the Authority. So far, EASA CS are the only available airworthiness codes for the OSD elements.

The Implementation of the OSD requirements into EMAR 21 without major deviations to the related Commission Regulations allows military aviation stakeholders to refer to EASA OSD CS to establish an OSD certification basis.

However, Authorities and applicants for a design approval will have to validate the relevance and effectiveness of each requirement against the regulatory and operational environment of each aircraft. Therefore, EMAD OSD provides military considerations for each EASA OSD CS to mitigate the risk of gaps and misinterpretation and to increase harmonisation of processes on how to address OSD topics between participating Member States (pMS) to facilitate mutual recognition of design approvals.

GENERAL PRINCIPLES WHEN USING EASA OSD CS

The EASA OSD CS's elements concern different areas, including such not being harmonised in the military environment. This requires Authorities and operating organisations to evaluate the applicability of the certification basis for each OSD element to validate the available OSD for each operational environment. This applies especially when new aircraft types are to be operated, which were previously certified by a foreign Authority.

OSD are certification documents which are held by design approval holders (TCH/STCH), and users who need access to these data must contact the relevant owner of the OSD. For European civil aviation, a contact list is published on the EASA website facilitating the link between the stakeholders. For the military environment, it is recommended that Authorities make such contact data available to the operation organisations.

In the EASA system OSD content consists of elements that are required to be included by the applicant for a design approval and elements that can be added at request of the applicant. Both, the required elements and the additional elements, have a part that is mandatory to be used by the operator or training organisation (status of requirements) in accordance with the applicable European civil aviation regulation and a part which is not mandatory to the operator or training organisation (status of AMC). This constitutes the four categories of the OSD boxes concept:

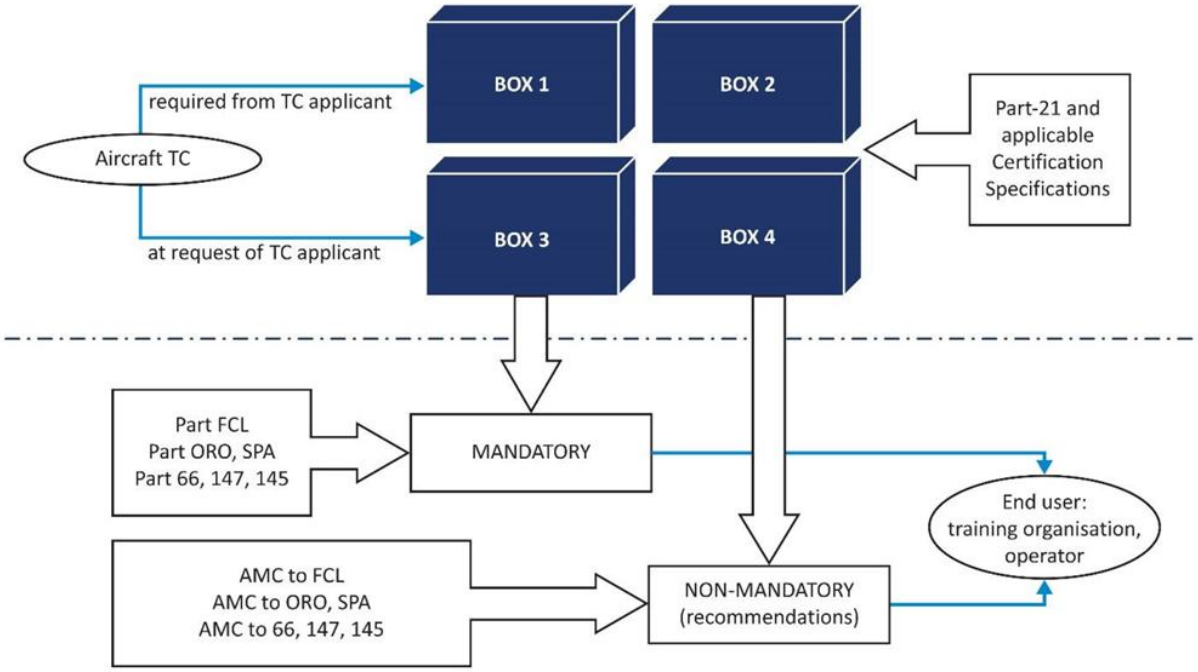

Figure 2: EASA OSD boxes concept

Box 1:Data required from the design approval holder and mandatory for end-users.

Box 2:Data required from the design approval holder and not mandatory for end-users (recommendations).

Box 3:Data at the request of the design approval holder and mandatory for end-users. The applicant for or holder of a design approval may request the approval of differences training between variants or types to reduce training, checking or currency requirements for operations of more than one type or variant. This is regarded as an optional element in addition to the required elements of Box 1 and 2.

Box 4:Data at the request of the design approval holder and not mandatory for end-users (recommendations).

The exact content of the four boxes in the above figure is determined by the certification specification that is applicable to the specific OSD element or the special condition in case of an 'other type-related operational suitability element'.

The impact the data will have for operating or training organisation should be indicated in the data by structuring the content in sections called 'Mandatory' and 'Non-Mandatory (recommendations)'.

Except for CS-SIMD which focuses on determination of Validation Source Data (VSD) for simulators and the CS-MMEL to develop and provide the Master Minimum Equipment List, the EASA OSD CS aim to determine the type / variant of an aircraft for type rating licence endorsement and type rating training purposes, and to determine a minimum syllabus and areas of special emphasis for flight crew, cabin crew and maintenance staff training.

ANNEX I – GUIDANCE MATERIAL FOR OSD ELEMENTS

EMAD OSD-FCD on using EASA CS-FCD (Flight Crew Data) in the military environment

EMAD OSD Edition 1.0

Scope

EASA CS-FCD deals with information related to the aircraft-type specific elements for flight crew data, as required by the OSD concept. CS-FCD includes the following:

- a uniform process and criteria for the determination of a pilot type rating to establish if a candidate aircraft is to be considered as a new type or as a variant to an existing aircraft type, or as a modification to an existing aircraft type or variant and to assign the pilot license endorsement designation for a candidate aircraft.
- requirements for pilot type rating training and operational training for a specific aircraft-type, taking into account, among others, the specific aircraft operations.
- requirements for the development of Difference Requirement (DR) tables and Master Difference Requirement (DR) tables.

Applicability in the military context

In the EASA system EASA CS-FCD is applicable to aircraft for which a pilot type rating is determined, except for CS-FCD.200(a), which is applicable to all aircraft. It is considered, that EASA CS-FCD can be applied in the military environment, if required by the Authority and without prejudice to already existing specifications in the military regulatory framework of the pMS.

General considerations (Subpart A)

The challenge for the effective application of EASA CS-FCD in the military context is a missing harmonised regulatory framework for operating organisations comparable to EMARs published for initial, continued, and continuing airworthiness.

However, the provisioning of the data should be required in compliance with CS-FCD, noting that OSD mainly concern the design approval holders and end-users such as training organisations. The provisioning of the data by design approval holders does not depend on harmonised military operational regulations under the condition that the OSD certification basis for this part is validated by the relevant Authorities for each military operating organisation in view of the applicable regulations governing the operation of the aircraft and the training of the flight crews.

States operating aircraft close to civil aviation practices and regulations, or training flight crews on civil aircraft types in compliance with European civil aviation regulations will fully benefit from the availability of the FCD.

(a) The definitions provided in EASA CS-FCD.105 are harmonised with the European civil Aircrew and Air OPS regulations. To avoid misinterpretation, it is recommended to pMS to use the same definitions.

(b) The Authority and the applicant for or holder of a design approval should agree on the Certifications Specification and if needed Special Condition to capture in the Type Certification

Basis (TCB) any relevant definition to be used in the military context, if different to civil or when misinterpretation could result in unsafe conditions.

Considerations for the determination of a pilot type rating (Subpart B)

(c) The determination of whether a certain type of aircraft is subject to a pilot type rating is governed by applicable military Aircrew and Air OPS regulations. Hence, it should be considered that all aircraft types are subject to pilot type rating unless it is waived by the Authority.

Considerations for pilot type rating training and operational training requirements (Subpart C)

(d) The applicant or holder of a design approval defines the specific training requirements to build the necessary theoretical and practical skills to operate a specific aircraft in the FCD. The definition of the specific training requirements should be based on the provisions described in Aircrew, Air OPS regulations of NMAAs if existing, and EASA Part 21 / EMAR 21. In the military environment, this requires coordination between the applicant or holder of a design approval, the operating and training organisation, and the related Authorities.

(e) The development of the specific training requirements assumes that the pilot undergoing training has met the prerequisites for the training to be evaluated. Such prerequisites must be known and evaluated, especially where military specific pilot training is significantly different from civil aviation (e.g. jet fighters).

(f) The specific training requirements depend on the aircraft type, any design changes, specific equipment, procedures, or operations. They shall contain:

(1) Training Areas of Special Emphasis (TASE) related to the particular aircraft type, including identification of all type-specific knowledge and skills.

(2) Prerequisites for the minimum entry-level requirements to be fulfilled by the pilot, when they are more stringent than those established under the aircrew regulations of the NMAA, if existing. If not existing, then the prerequisites should also be included.

(3) The training footprint (means a summary description of a training programme, usually in short tabular form, showing the training subjects, modules, procedures, manoeuvres, or other programme elements that are planned for completion during each day or phase of training), indicating the training methods and device(s) that are assumed to be used.

Considerations for operational evaluation (Subpart D)

(g) The operational evaluation establishes specifications to assess a candidate aircraft by a team of pilots and operations specialists appointed by the Authority. The size of the team should reflect the magnitude of the evaluation requested by the applicant.

(h) Difference Requirement (DR) tables are provided for the evaluation of differences between a base aircraft and candidate aircraft for type rating and variant assessment and for the content of difference training or familiarisation training between variants.

(i) Master Difference Requirement (MDR) tables, based on the DR tables, must be included in the OSD. MDR tables are specified in terms of the minimum difference levels and include the highest difference level identified in the applicable DR tables.

EMAD OSD-SIMD on using EASA CS-SIMD (Simulator Data) in the military environment

EMAD OSD Edition 1.0

(reserved)

EMAD OSD-CCD on using EASA CS-CCD (Cabin Crew Data) in the military environment

EMAD OSD Edition 1.0

Scope

EASA CS-CCD deals with information related to the aircraft-type specific elements for cabin crew training data, as required by the OSD concept. CS-CCD includes the following:

- a uniform process and criteria for the determination of a new type or variant for cabin crew training, and;
- requirements for cabin crew training for that specific aircraft-type or variant.

Applicability in the military context

The applicability of EASA CS-CCD is determined by passenger seating capacity, or the requirement to carry a cabin crew due to the type of operation or the request by the design approval holder. In the military context, EASA CS-CCD is relevant for transport aircraft and aircraft equipped with a passenger cabin.

In this context, unless specific airworthiness codes or standards are available in the military domain, the principles established for the determination of a new type or a variant, type-specific data for cabin crew and cabin aspects of special emphasis should also be used to develop training for other mission related crew tasks such as jump master, load master, system operators, etc.

General considerations

The challenge for the effective application of EASA CS-CCD in the military context is a missing harmonised regulatory framework for operating organisations comparable to EMARs published for initial, continued, and continuing airworthiness as well as military specific cabin tasks such as jump master, load master, system operators, etc. not being considered in the certification specification.

In accordance with civil Aircrew and Air OPS regulations (Regulation (EU) No 1178/2011), “Cabin crew member” means an appropriately qualified crew member, other than a flight crew or technical crew member, who is assigned by an operator to perform duties related to the safety of passengers and flight during operations.

However, the provisioning of the data should be required in compliance with CS-CCD, noting that OSD mainly concern the design approval holders and end-users such as training organisations. The provisioning of the data by design approval holders does not depend on harmonised military OPS regulations under the condition that the OSD certification basis for this part is validated by the relevant Authorities for each military operating organisation in view of the applicable regulations governing the operation of the aircraft, especially in view of the roles and tasks of other than flight crew members related to military specific operations. States operating aircraft close to civil aviation

practices and regulations, or training cabin crews on civil aircraft types in compliance with European civil aviation regulations will fully benefit from the availability of the CCD.

In the Type Certification Basis (TCB), using Special Conditions if required, the Authority and the applicant for or holder of a design approval should agree on the following:

(a) the applicability of EASA CS-CCD, where the principles are to be applied for aircraft types or tasks and roles different from those defined in European civil aviation regulation and EASA CS-CCD.

(b) the definition of specific roles and tasks of other crew members, like jump master, load master or system operators.

(c) the applicability of the definitions provided in EASA CS-CCD.105.

EMAD OSD-MCSD on using EASA CS-MCSD (Maintenance Certifying Staff Data) in the military environment

EMAD OSD Edition 1.0

Scope

EASA CS-MCSD addresses the determination of a maintenance certifying staff type rating to assign a maintenance licence type-rating endorsement for a candidate aircraft and to establish whether a candidate aircraft is recognised as variant or requires a type rating different from an existing aircraft, and the minimum syllabus of the maintenance certifying staff type-rating training.

Applicability in the military context

In accordance with EASA Part 66.A.5 of Regulation (EU) 2018/1142 and EASA CS-MCSD.100, the applicability of this certification specification is limited to complex motor-powered aircraft, helicopters with multiple engines, aeroplanes with maximum certified operating altitude exceeding FL290, aircraft equipped with fly-by-wire systems, gas airships other than EASA ELA2 and other aircraft requiring an aircraft type rating when defined as such by EASA (Group 1 as defined in 66.A.5 of Part 66). In the military context, EMAR 66.A.5 defines that all military aircraft are to be considered as complex motor-powered aircraft for the scope of EMAR 66. Therefore, EASA CS-MCSD should always be used as a reference for MCSD in the military context.

General Considerations

(a) When references are made to EASA Parts, the equivalent EMAR should be consulted.

(b) In accordance with EMAR 66.A.5, all military aircraft are to be considered complex motor-powered aircraft equivalent to Group 1 as defined in 66.A.5 of EASA Part 66.

(c) A Special Condition should be agreed by the Authority and the applicant for or holder of a design approval regarding definitions and abbreviations to be used when different from EASA CS-MCSD.105 and CS-MCSD.106.

(d) EASA CS-MCSD refers to the ATA numbering scheme as a standard numbering system accepted by EASA. In case other numbering schemes are used, e.g. for technical documentation, cross referencing to the ATA scheme should be considered.

EMAD OSD-MMEL on using EASA CS-MMEL (Master Minimum Equipment List) in the military environment

EMAD OSD Edition 1.0

Scope

EASA CS-MMEL establishes the specifications for the applicant or holder of a design approval to develop and provide the Master Minimum Equipment List (MMEL).

Applicability in the military context

In the European civil aviation system paragraph 1.3.2 of Annex II (essential requirements for airworthiness) of Regulation (EU) No 2018/1139 (the 'Basic Regulation') requires that all equipment installed on an aircraft required for type certification or by operating rules shall be operative. This is also required by paragraph 3.3.b of Annex B of "The European Harmonised Military Airworthiness Basic Framework Document", Edition 4.0 of 04 October 2022. However, paragraph 2.(c)(iii) of Annex V (essential requirements for air operations) to the Basic Regulation also allows the use of a Minimum Equipment List (MEL) where compliance with certain equipment requirements is not necessary in the interest of safety under all operating conditions. Experience has shown that with the various levels of redundancy designed into aircraft, operation of every system or installed items may not be necessary when the remaining operative equipment can provide an acceptable level of safety.

The EASA CS-MMEL is applicable to complex motor-powered aircraft and to non-complex helicopters that are certified for:

- operation under instrument flight rules (IFR),
- flight into icing conditions, or
- Category A operations.

In the military context it may also be useful to have an MMEL developed by the applicant or holders of a design approval which lists the items which may be temporarily inoperative at the commencement of flight, subject to certain conditions, while maintaining an acceptable level of safety. Hence, it should be considered to apply the CS-MMEL for at least the types of aircraft as specified by EASA, taking into account the military operations.

General Considerations

In order for the application of the CS-MMEL to be useful in the military environment, the military operator should be allowed to compose an MEL based on the MMEL developed and provided by the applicant or holder of a design approval. The MEL and any amendment there to and its use should be approved by the NMAA.

Considerations for non-safety-related items

EASA GM2 MMEL.110(b) states the following regarding non-safety-related items: Non-safety-related items include those items related to the convenience, comfort, or entertainment of the passengers and equipment that is used only on ground for maintenance purpose. Convenience, comfort, or entertainment of the passengers may include items such as galley equipment, movie equipment, stereo equipment, overhead reading lamps. Additional guidance is provided in GM1 ORO.MLR.105(a). This GM can also be applied to certain military aircraft.

In addition, military aircraft also have a lot of mission equipment installed. Some of this equipment might also be classified as non-safety-related items, e.g. a gun, weapon pylons or tactical radios. Although it is understood that these items are important to accomplish certain missions, these items are not related to the airworthiness of the aircraft nor required for the safe operation of the aircraft.

In the military context these items can be considered as non-safety-related items. It should be noted however that it could be that compensating provisions or deactivation instructions are applicable. E.g. in case of a moveable gun/weapon pylon it could be required that the gun/weapon pylon is in a specific stowed position for safe flight.

Considerations for mission equipment

Military aircraft may have equipment installed which is dedicated for use during a specific type of operation, while the aircraft may also be used for other types of operation. E.g. an aircraft may be used for regular passenger transport, Aerial Refueling (AR) operations or medical evacuations or a combination of those operations. In this example, some equipment installed e.g. AR pumps, AR pressure indicators, boom sensors and the aerial refueling boom itself may not be required to be serviceable when not performing AR operations. If not required to be serviceable for other types of operations these items may be allowed to be unserviceable for an indefinite period when not performing AR operations. For this purpose, rectification interval category X may be introduced in addition to the civil rectification interval categories mentioned in the CS-MMEL (A – D). Category X: Items in this category do not require time controlled rectification. Items in this category must meet the following criteria:

(a) use of the item must be related to specific types of operation and these types of operation must be prohibited as long as the defect exists, and;

(b) for other types of operation the criteria as mentioned for category D items apply.

As with other allowed unserviceabilities in accordance with the MMEL, it could be that additional conditions and restrictions apply, e.g. the system needs to be deactivated, inhibited or removed through an appropriate maintenance procedure. Any type of operation for which the equipment is intended to be used should be prohibited through an appropriate operational procedure.