FACTSHEET – CERTIFICATION OF ALSE

AIM

The aim of this factsheet is to explain the rationale for including some Aeronautical Life Support Equipment (ALSE) within a Defence aircraft certified type design, to assist with decision making under DASR ORO.40 *Aeronautical Life Support Equipment*.

INTRODUCTION

DASR ORO.40 prescribes the requirements for MAO approval for the carriage and use of ALSE. Under DASR ORO.40, MAO approval of ALSE is supported by a technical assessment that establishes the level of compliance of the ALSE with prescribed design requirements. Compliance may be demonstrated by either the ALSE having been certified as part of the aircraft type design, or by a technical assessment conducted in accordance with the provisions of the regulation.

Defence has historically managed ALSE within a construct of 'ALSE domains'. To facilitate the technical assessment of ALSE required under ORO.40, these 'domains' have been used to establish which ALSE should be considered under the aircraft's type certification and which should not.

Note that before approval for use, all ALSE must be subject to technical evaluation to confirm that it meets relevant design standards, regardless of whether the ALSE is certified as part of the aircraft type design or not.

ALSE WITHIN TYPE CERTIFICATION

To establish whether an ALSE domain should be included within a Defence aircraft's certified type design, the requirements for ALSE identified in the European Military Airworthiness Certification Criteria (EMACC), upon which Defence's approach to establishing a Type Certification Basis (TCB) is based, were considered. Further, the approaches adopted by other civil and military Airworthiness Authorities were evaluated to confirm that the EMACC presented a common scope. The evaluation concluded that:

- The EMACC includes ALSE design and safe integration requirements for the following ALSE domains: liferafts, life preservers, survival aids and respiratory (oxygen masks and smoke and fumes protection).
- These same domains are included within aircraft type certification requirements in civil Airworthiness Codes and in some military Airworthiness Codes.
- The EMACC also includes requirements for safe integration (but not design) of night vision systems and Chemical, Biological, Radiological and Nuclear protection equipment.

Given the EMACC and civil approaches closely align, it makes sense for these same ALSE domains to be included within the Defence certified aircraft type design. Further, to promote EMACC commonality, the additional EMACC integration requirements will also be included in the certified aircraft type design.

Table 1 summarises the certification approach for ALSE domains that are included within the certified aircraft type design.

Domain	Certification Approach
Life Preservers	Life preservers are included within a Defence aircraft's certified type design. Relevant life preserver airworthiness requirements prescribed in the ADRM are to be documented in applicable aircraft TCBs.
Life Rafts	Life rafts are included within a Defence aircraft's certified type design. Relevant life raft airworthiness requirements prescribed in the ADRM are to be documented in applicable aircraft TCBs.

Table 1 – Certification Approach for ALSE Domains within a Defence Aircraft's Certified Type Design



Survival Aids	Survival aids are included within a Defence aircraft's certified type design. Relevant survival aid airworthiness requirements prescribed in the ADRM are to be documented in applicable aircraft TCBs.
Respiratory	Respiratory systems and equipment are included within a Defence aircraft's certified type design. Relevant respiratory airworthiness requirements prescribed in the ADRM are to be documented in applicable aircraft TCBs.
Night Vision Systems	Integration requirements for night vision systems (ie those prescribed in Section 3 Chapter 7 of the ADRM) are included within a Defence aircraft's certified type design.
Chemical, Biological, Radiological and Nuclear (CBRN) Protection	Integration requirements for CBRN Protection prescribed in Section 5 Chapter 2 of the ADRM are included within a Defence aircraft's certified type design.

ALSE OUTSIDE TYPE CERTIFICATION

While only four ALSE domains (plus integration requirements for night vision systems and CBRN protection) are included within a Defence aircraft's certified type design, equipment within the remaining domains must still be subject to a robust evaluation of its technical and operational capabilities to ensure that it can safely perform its function when required. Consequently, the Authority also prescribes design requirements for these ALSE domains in Section 5 Chapter 2 of the Airworthiness Design Requirements Manual (ADRM).

Table 2 summarises the certification approach for ALSE domains not included within a Defence aircrafts' certified type design.

Domain	Certification Approach
Helmets	The basic helmet assembly is not included within a Defence aircraft's certified type design. Design requirements for impact head protection prescribed in the ADRM should be considered as part of ORO.40 assessments.
Eye and Face Protection	Eye/face protection provided by helmets, or standalone devices, is not included within a Defence aircraft's certified type design. Design requirements for eye and face protection prescribed in the ADRM should be considered as part of ORO.40 assessments.
Anti-G Suits	Anti-G suits are not included within a Defence aircraft's certified type design. Anti-g suit functionality and aircraft interface design requirements prescribed in the ADRM should be considered as part of ORO.40 assessments.
Carriers and Ensemble Integration	Carriers and ensemble integration is not included within a Defence aircraft's certified type design. Carriers and ensemble integration and the associated aircraft interface design requirements prescribed in the ADRM should be considered as part of ORO.40 assessments.
Hoisting Equipment	Hoisting equipment is not included within a Defence aircraft's certified type design. Hoisting equipment and associated aircraft interface design requirements prescribed in the ADRM should be considered as part of ORO.40 assessments, taking into account, where relevant, FAA/EASA requirements for carriage of external loads.
Out of Seat Restraint Systems	Out of seat restraint systems are not included within a Defence aircraft's certified type design. Out-of-seat restraint systems and associated aircraft interface design requirements prescribed in the ADRM should be considered as part of ORO.40 assessments.
Ballistic Protection	Ballistic protection is not included within a Defence aircraft's certified type design. Ballistic protection and associated aircraft interface design requirements prescribed in the ADRM should be considered as part of ORO.40 assessments.
Thermal/Immersion Protection	Thermal/immersion suits are not included within a Defence aircraft's certified type design. Thermal/immersion protection and associated aircraft interface design

Table 2 - Certification Approach for ALSE Domains not part of a Defence Aircraft's Certified Type Design

	requirements prescribed in the ADRM should be considered as part of ORO.40 assessments.
Rescue Packs	Rescue packs are not included within a Defence aircraft's certified type design. Rescue Packs and associated aircraft interface design requirements prescribed in the ADRM should be considered as part of ORO.40 assessments.
Underwater Emergency Breathing	Underwater emergency breathing is not included within a Defence aircraft's type certification. Underwater emergency breathing devices and associated aircraft interface design requirements prescribed in the ADRM should be considered as part of ORO.40 assessments.
Hearing Protection	Hearing protection is not include within a Defence aircraft's type certification. Hearing protection and associated aircraft interface design requirements prescribed in the ADRM should be considered as part of ORO.40 assessments.
Night Vision Systems	Night vision systems design requirements prescribed in Section 5 Chapter 2 of the ADRM are not included within a Defence aircraft's certified type design and should be considered as part of ORO.40 assessments.
Chemical, Biological, Radiological and Nuclear (CBRN) Protection	Design requirements for CBRN protection clothing in the ADRM are not included in a Defence aircraft's certified type design and should be considered as part of ORO.40 assessments.

TRANSITION

Some extant TCBs for Defence aircraft do not entirely reflect the approach outlined in this Factsheet. In time, the TCBs will be updated to standardise the ALSE inclusions. Transition arrangements will be negotiated with the affected Military Type Certificate holders.

ESSENTIAL INFORMATION

DASA Point of Contact: email: DASA DTS Enquiries