FACTSHEET – DEFENCE LONG RANGE OPERATIONS (DLRO)

AIM

This factsheet provides guidance on why and how Defence Long Range Operations (DLRO) are implemented for Defence aircraft, specifically regarding the technical aspects associated with DLRO approvals.

INTRODUCTION

To ensure the safety of aircraft occupants when flying extended distances from diversionary airfields, Defence must implement reasonably practicable risk controls for the risks associated with such operations. One defensible approach to achieving this is to identify what are considered 'good practice' technical and operational risk controls prescribed by other airworthiness authorities for similar types of operations and then decide what is reasonably practicable in the Defence context.

While long range operations risk controls may be sourced from civil practice, the differences between civil Regular Public Transport (RPT) and military aviation may mean many controls are considered not reasonably practicable in the Defence context. Ideally the establishment of 'good practice' controls and the associated evaluation of aircraft design and operations to identify whether these controls are reasonably practicable to implement, will be completed during the ADF's acquisition phase for a new aircraft and reviewed periodically in-service.

DLRO is a specific approval authorised by the Military Air Operator (MAO) under DASR SPA.40 – Defence Long Range Operations (DLRO). DASR SPA.40 includes detailed Acceptable Means of Compliance (AMC) and Guidance Material (GM) that explain the broader concepts associated with DLRO including how the 'technical assessment' contributes to understanding of associated hazards and risks when the MAO is considering DLRO approvals.

IDENTIFYING GOOD PRACTICE

The Airworthiness Design Requirements Manual (ADRM) provides the Authority prescribed supplementation to recognised Airworthiness Codes to account for Defence Configuration, Role and Environment (CRE) deltas.

- The ADRM DLRO requirements reflect those that the civil National Airworthiness Authorities (NAAs) impose for Extended Diversion Time Operations (EDTO) / Extended Range Operations (ERO) / Extended Operations (ETOPS). As there is no comparable suite of design requirements applicable to DLRO, Defence uses these civil requirements as a 'benchmark'.
- Distinct from civil approaches to long range operations, DLRO approval is a 'risk based' decision made by the MAO, which must be supported by a technical assessment of aircraft capabilities to conduct 'long range operations' (per DASR SPA.40). The DLRO requirements in the ADRM are only intended to provide the benchmark against which the aircraft design can be assessed to inform DLRO risk management.
- As a result, the ADRM conveys the intent for a technical assessment to be conducted against applicable benchmark airworthiness requirements, but does not mandate compliance with those requirements (i.e. non-compliance does not represent a Type Certification Basis (TCB) or ADRM non-compliance).
- Any non-compliances identified are used to inform robust risk management decisions by the MAO when conducting DLRO.

DOCUMENTING THE DLRO TECHNICAL ASSESSMENT

The Authority uses a Special Condition Military Certification Review Item (MCRI) to document the outcomes of the technical assessment against the benchmark requirements. This DLRO Special Condition MCRI is important in terms of both initial DLRO approval and on-going suitability of the aircraft to undertake DLRO.

- The purpose of the DLRO MCRI is to document the actual level of compliance achieved against the applicable DLRO benchmark requirements from the ADRM.

- Since Defence is not seeking to 'certify' the aircraft for ETOPS/ERO/EDTO (per the civil approach) the TCB only needs to document what the aircraft actually does achieve in terms of a comparison to the benchmark standard. Hence, the use of a Special Condition MCRI rather than an Exception MCRI.
- However, non-compliances against the benchmark standards are identified, and documented in the MCRI, as they may represent hazards/risks when conducting DLRO, and the MAO requires insight into these non-compliances for context during the risk management process. This risk management underpins the decision to conduct DLRO under DASR SPA.40.
- The technical assessment outcomes (and associated Special Condition MCRI) also support the Military Type Certificate (MTC) holder to establish whether design changes have potential impacts on the level of compliance with the benchmark requirements and need to be considered for impact on DLRO risks.

USEFUL INFORMATION

- Airworthiness Design Requirements Manual (ADRM) Section 2 Chapter 10 – Defence Long Range Operations
- CASA CAAP 82-1 – Extended Diversion Time Operations
- FAR Part 25 Appendix K – Extended Operations (ETOPS)
- FAA AC 120-42B – Extended Operations (ETOPS and Polar Operations)
- EASA AMC 20-6 – Extended Range Operation with Two-Engine Aeroplanes ETOPS Certification and Operation

FREQUENTLY ASKED QUESTIONS

1. It seems odd to say that there is no requirement to prescribe DLRO 'benchmark' requirements in the TCB, but then capture the compliances and non-compliances against the benchmark within the TCB by an MCRI. Why is that?

   The Authority uses Special Condition MCRIs to record technical aspects of all DLRO approvals because there is currently no other suitable means for documenting and managing the 'aircraft capability' aspects of DLRO. However, since Defence does not 'certify' the aircraft for ETOPS/ERO/EDTO (per the civil approach) the TCB only needs to document what the aircraft actually does achieve in terms of a comparison to the benchmark standard, rather than provide Authority approval of non-compliances to the standard (which is the purpose of an Exception MCRI). The previous approach of raising an Airworthiness Issue Paper (AwIP) to document DLRO assessments may result in some confusion here because it seemed to imply that compliance was required. This was an outcome of the inclusion of ETOPS/ERO/EDTO requirements as the baseline certification requirements in aircraft Certification Bases, and where non-compliances were identified this drove development of an AwIP.

   Under the DASR SPA.40 approach to DLRO approvals, the MCRI still identifies where the aircraft does not meet the benchmark requirements to provide a basis for risk characterisation, but the Authority does not need to agree to the non-compliances. The MCRI's real value is then in managing future changes to ensure they do not undermine the initial risk characterisation.

2. The 'technical assessment' that was completed during acquisition was done against earlier versions of the benchmark standards, is this still acceptable for transition to DASR compliant TCBs?

   As with all DASR transition issues, including legacy AwIPs, there is no intent to re-assess the aircraft for compliance with amended/revised airworthiness requirements. It is simply an administrative exercise in converting existing Certification Basis Descriptions (CBDs) to TCBs. Therefore, any DLRO transition Special Condition MCRI should simply capture what was already agreed within a legacy AwIP but adjusting the terminology to align with the DLRO terminology in the DASR and the ADRM.