

FACTSHEET – AIRCRAFT ELIGIBILITY FOR PERFORMANCE BASED NAVIGATION AND REDUCED VERTICAL SEPARATION MINIMUM OPERATIONS

AIM

The aim of this factsheet is to outline the aircraft eligibility (i.e. initial and continued airworthiness) requirements to support Performance Based Navigation (PBN) and Reduced Vertical Separation Minimum (RVSM) operational authorisations under DASR, as per DASA AC 001/2022 *Defence Navigation Authorisations*.

INTRODUCTION

PBN is a term used to cover a range of area navigation (RNAV) and required navigation performance (RNP) specifications. RVSM applies to operations into airspace between Flight Level (FL) 290 and FL 410 inclusive, where a 1000 ft. reduced vertical separation minimum is applied. Authorisation to operate under PBN or RVSM requires demonstration that the aircraft is technically capable of conducting the requested operations, also known as 'aircraft eligibility', and that continued airworthiness requirements have been established and implemented for the required operations.

The air operator must also demonstrate that their flying management system (FMS) is sufficient for PBN and/or RVSM operations including, for example, appropriate training is in place, aircrew competence has been assessed and associated procedures published. The aircraft eligibility and continued airworthiness elements of PBN and RVSM approvals are enacted through issue of a Military Type Certificate (MTC) or design approval of changes to the MTC under DASR 21, while the operational authorisation is enacted through a Military Air Operator Certificate (MAOC) Operations Specification (OPSPEC) Specific Approval under DASR SPA.05.

DEFENCE APPROACH TO RECORDING PBN AND RVSM APPROVALS

In the civil context, aircraft eligibility to conduct various PBN and RVSM operations is usually recorded in the Aircraft Flight Manual (AFM). However, due to the varying origins and management of Defence AFMs, recording aircraft eligibility in this manner is not always a pragmatic solution and does not cover the sufficiency of the MAO-AM's FMS for PBN and/or RVSM operations.

For some new aircraft acquisitions, particularly those having a civil pedigree, aircraft eligibility for PBN may already be recorded in the AFM or in other applicable aircraft type design documentation. However, for those aircraft that have not previously been demonstrated to meet the aircraft eligibility requirements, additional compliance demonstration is required and the outcome of the aircraft eligibility assessment must be documented in the type design record.

Where a Defence aircraft has not previously been certified for PBN or RVSM, a complementary major change to Type Design will be required, to update the aircraft's Type Certification Basis (TCB). The change to Type Design must be actioned before a request for Navigation Authorisation can be granted by the Authority. Once the aircraft has been assessed and confirmed as meeting the aircraft eligibility and continued airworthiness requirements for the required PBN and RVSM operations, a major change approval¹ will be issued and the aircraft TCB and Type Certification Data Sheet (TCDS) will be updated to reflect this approval.

Note that the assessment of aircraft eligibility, for some PBN specifications, includes identifying and establishing procedures for continued airworthiness, and this must be presented as part of the evidence to support approval of the design change.

The aircraft eligibility assessment is part of the Military Air Operator (MAO) application via DASA Form 1307 Application for Navigation Specific Approval, for updating the MAOC OPSPEC to include the required PBN and/or RVSM authorisations per DASA AC 001/2022. Where a major change approval is required to support the Form

¹ Where PBN approval is being pursued as part of initial aircraft acquisition, major change approval is not required and the aircraft eligibility will be documented in the aircraft TCB and TCDS when the MTC is issued.



1307 submission, this approval can be sought by the Military Type-Certificate Holder (MTCH) prior to MAO application for PBN or RVSM authorisation and the major change approval will then provide evidence of the aircraft eligibility requirements having been met.

Alternatively, the aircraft eligibility evidence can be documented in the Form 1307, and an application for major change approval submitted by the MTCH concurrent with the Form 1307 submission. Further advice on navigation authorisations can be provided by DAVNOPS-DASA.

DEMONSTRATION OF AIRCRAFT ELIGIBILITY

Demonstration of aircraft eligibility may be achieved through any one of the following:

- the NAA/MAA approved AFM confirms that the aircraft is capable of undertaking the required PBN or RVSM operations, with an:
 - assessment confirming that there are no Configuration, Role and Environment (CRE) differences that adversely impact this approval in the Defence operational context, or
 - assessment identifying CRE differences that adversely impact this approval in the Defence operational context, together with additional compliance demonstration evidence to address these differences
- a recognised NAA/MAA confirms that the aircraft has been certified for the required PBN or RVSM operations with an:
 - assessment confirming that there are no CRE differences that adversely impact this approval in the Defence operational context, or
 - assessment identifying CRE differences that adversely impact this approval in the Defence operational context, together with additional compliance demonstration evidence to address these differences
- a dedicated technical assessment of the design that demonstrates compliance with the prescribed airworthiness requirements for the specified PBN or RVSM operations.

ALTERNATIVE DEMONSTRATION OF COMPLIANCE

Defence aircraft, in particular aircraft which are not civil derivative, will not often be able to achieve strict compliance with the civil PBN and RVSM requirements. This is often due to lack of Technical Standard Order (TSO) approved equipment, with many military alternatives not meeting the same functional, integrity or On-board Performance Monitoring and Alerting (OBPMA) requirements.

In this case, an alternative means of establishing compliance with the civil standards, in which equivalent performance outcomes are demonstrated, may be acceptable to the Authority. This may involve demonstrating that equipment function and performance meets the intent of (but not strict compliance with) the relevant standard, or it may involve the use of operational procedures to meet the same performance or functionality outcomes. Any proposal to demonstrate compliance via equivalency will require early engagement with the Authority (DIA-DASA) so that the scope and level of compliance demonstration evidence, and the Authority's requirements for review/evaluation of the evidence, can be identified.

REFERENCES

- Airworthiness Design Requirements Manual - <https://defence.gov.au/DASP/Docs/Manuals/ADRM/ADRMWeb/index.htm#7111.htm>
- DASA Advisory Circular 001/2022 – Defence Navigation Authorisations <https://defence.gov.au/DASP/DASR-Regulations/AdvisoryCirculars.asp>

FREQUENTLY ASKED QUESTIONS

1. Can operational procedures be used to overcome technical non-compliances to PBN and RVSM requirements?

Yes. If it can be demonstrated that use of an operational procedure will achieve the same integrity, function and performance outcomes as a technically compliant system, a PBN or RVSM authorisation will be granted. The adoption of operational procedures to meet the required technical compliance must be documented and approved via an Equivalent Safety Finding (ESF) Military Certification Review Item (MCRI).

2. Can evidence of prior certification be used to gain relief from presenting compliance demonstration evidence for a PBN or RVSM major change, in accordance with AMC to DASR 21.A.20?

Yes. However, due to variations in standards for different airspace, the CRE assessment that supports the use of prior certification must assess and identify any differences between the standard supporting the prior certification and the standard for the airspace in which you intend to operate.

3. My military GPS is much more accurate than a civil GPS, why do I need to do additional work to get a PBN or RVSM authorisation?

While most military GPS will have higher accuracy than civil equivalents, this is only one aspect of the PBN and RVSM requirements. The PBN concept specifies aircraft performance requirements in terms of accuracy, integrity, availability, continuity and functionality.

In addition, RNP specifications require aircraft to meet OBPMA requirements. While military GPS often meet the accuracy requirements, they commonly do not meet others such as functionality or OBPMA. Deficiencies in these areas may need to be addressed through the implementation of operational procedures as discussed at FAQ 1.