

2.5.2.4 In establishing criteria for operations where a navigation specification for PBN has been prescribed, the State of Registry shall require that the operator/owner establish:

- a) normal and abnormal procedures including contingency procedures;
- b) flight crew qualification and proficiency requirements, in accordance with the appropriate navigation specifications;
- c) training for relevant personnel consistent with the intended operations; and
- d) appropriate maintenance procedures to ensure continued airworthiness, in accordance with the appropriate navigation specifications.

Note 1.— Guidance on safety risks and mitigations for PBN operations, in accordance with Annex 19, are contained in the Performance-based Navigation (PBN) Operational Approval Manual (Doc 9997).

Note 2.— Electronic navigation data management is an integral part of normal and abnormal procedures.

2.5.2.5 The State of Registry shall issue a specific approval for operations based on PBN authorization required (AR) navigation specifications.

Note.— Guidance on specific approvals for PBN authorization required (AR) navigation specifications is contained in the Performance-based Navigation (PBN) Operational Approval Manual (Doc 9997).

2.5.2.6 For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, minimum navigation performance specifications (MNPS) are prescribed, an aeroplane shall be provided with navigation equipment which:

- a) continuously provides indications to the flight crew of adherence to or departure from track to the required degree of accuracy at any point along that track; and
- b) has been authorized by the State of Registry for the MNPS operations concerned.

Note.— The prescribed minimum navigation performance specifications and the procedures governing their application are published in the Regional Supplementary Procedures (Doc 7030).

2.5.2.7 For flights in defined portions of airspace where, based on Regional Air Navigation Agreement, a reduced vertical separation minimum (RVSM) of 300 m (1 000 ft) is applied between FL 290 and FL 410 inclusive, an aeroplane:

- a) shall be provided with equipment which is capable of:
 - 1) indicating to the flight crew the flight level being flown;
 - 2) automatically maintaining a selected flight level;
 - 3) providing an alert to the flight crew when a deviation occurs from the selected flight level. The threshold for the alert shall not exceed ± 90 m (300 ft); and
 - 4) automatically reporting pressure-altitude;
- b) shall be authorized by the State of Registry for operation in the airspace concerned; and
- c) shall demonstrate a vertical navigation performance in accordance with Appendix 2.2.

2.5.2.8 Prior to granting the RVSM approval required in accordance with 2.5.2.7 b), the State shall be satisfied that:

- a) the vertical navigation performance capability of the aeroplane satisfies the requirements specified in Appendix 2.2;
- b) the owner/operator has instituted appropriate procedures in respect of continued airworthiness (maintenance and repair) practices and programmes; and
- c) the owner/operator has instituted appropriate flight crew procedures for operations in RVSM airspace.

Note.— An RVSM approval is valid globally on the understanding that any operating procedures specific to a given region will be stated in the operations manual or appropriate crew guidance.

2.5.2.9 The State of Registry shall ensure that, in respect of those aeroplanes mentioned in 2.5.2.7, adequate provisions exist for:

- a) receiving the reports of height-keeping performance issued by the monitoring agencies established in accordance with Annex 11, 3.3.5.1; and
- b) taking immediate corrective action for individual aircraft, or aircraft type groups, identified in such reports as not complying with the height-keeping requirements for operation in airspace where RVSM is applied.

2.5.2.10 The State of Registry that has issued an RVSM approval to an owner/operator shall establish a requirement which ensures that a minimum of two aeroplanes of each aircraft type grouping of the owner/operator have their height-keeping performance monitored, at least once every two years or within intervals of 1 000 flight hours per aeroplane, whichever period is longer. If an owner/operator aircraft type grouping consists of a single aeroplane, monitoring of that aeroplane shall be accomplished within the specified period.

Note.— Monitoring data from any regional monitoring programme established in accordance with Annex 11, 3.3.5.2, may be used to satisfy the requirement.

2.5.2.11 All States that are responsible for airspace where RVSM has been implemented, or that have issued RVSM approvals to owners/operators within their State, shall establish provisions and procedures which ensure that appropriate action will be taken in respect of aircraft and owners/operators found to be operating in RVSM airspace without a valid RVSM approval.

Note 1.— These provisions and procedures need to address both the situation where the aircraft in question was operating without approval in the airspace of the State, and the situation where an owner/operator for which the State has regulatory oversight responsibility is found to be operating without the required approval in the airspace of another State.

Note 2.— Guidance material relating to the approval for operation in RVSM airspace is contained in the Manual on a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (Doc 9574).

2.5.2.12 The aeroplane shall be sufficiently provided with navigation equipment to ensure that, in the event of the failure of one item of equipment at any stage of the flight, the remaining equipment will enable the aeroplane to navigate in accordance with 2.5.2.1 and where applicable 2.5.2.2, 2.5.2.6 and 2.5.2.7.

Note 1.— This requirement may be met by means other than the duplication of equipment.

Note 2.— Guidance material relating to aircraft equipment necessary for flight in airspace where a 300 m (1 000 ft) VSM is applied above FL 290 is contained in the Manual on a 300 m (1 000 ft) Vertical Separation Minimum Between FL 290 and FL 410 Inclusive (Doc 9574).