



Namibia Civil Aviation Authority

Aviation Directive

Reference Number: 1/2/3-2

Flight Operations

July 2021

APPLICATION FOR RVSM SPECIFIC APPROVAL



**Namibia Civil Aviation Authority -
Safety Division**

AVIATION DIRECTIVE

**Application for RVSM Specific
Approval**

Approval

Edition Number/Version	Rev 0	Effective Date	30th July 2021	
	Position	Name	As signed Signature	Date
Developed by	Senior Flight Operations Inspector	Paul Hamutengela		
Reviewed by	Acting Senior Manager OPS	Vicki Mombola		
Airworthiness	Senior Manager AIR	Robert Mathe		
Legal revision	Chief Legal Counsel	Christoph Seimelo		
Checked and Recommended for Approval by:	General Manager: Safety	Ericksson Nengola		
NCAA Approval	Interim Executive Director of NCAA	Gordon Elliott		



1. Legal Authority

1.1 Pursuant to Section 38 (6) of the Civil Aviation Act 2016. (Act no of 2016 – hereinafter “the Act”) the Executive Director may issue a permission, approval or procedure, or the imposition of a condition, restriction, or prohibition which the Executive Director believes on reasonable grounds to be:

- (a) consistent with the objectives of applicable regulatory requirements, procedures, or documents: and
- (b) necessary and expedient to better achieve the objects of the Act.

1.2 This Directive sets in place requirements for approval of an application for RVSM certification.

2. BACKGROUND

2.1 This Directive is issued to cover the absence of regulations for certification of RVSM under Part 91 and supplementary to the regulations in Part 121, 127, and 135.

3. APPLICABILITY

3.1 This Directive applies to any operators, private or commercial, of an aircraft which intends to operate in RVSM airspace, that is airspace within the Namibian FIR between FL290 and FL410 where vertical separation is reduced to 1000ft (300m).

4. REFERENCES

Related Reading Material

International Civil Aviation Organisation (ICAO) Document 9574, Manual on the Implementation of a 300m (1,000 ft) Vertical Separation Minimum Between FL 290 - FL 410 Inclusive.

ICAO Document NAT/DOC/001, the Consolidated Guidance Material North Atlantic Region.

ICAO Document: Guidance Material on the Implementation and Application of a 300m (1,000 ft) Vertical Minimum.

ICAO Document 9536, Review of the General Concept of Separation (RGCSF).

ICAO Document 7030/4, Regional Supplementary Procedures.



EUROCONTROL Document ASM.ET1.ST.5000. Manual for Reduced Vertical Separation (RVSM) in Europe.

JAA Technical Guidance Leaflet No. 6

RVSM Advisory Pamphlet FSS-AOC-AP 100

5. APPROVAL PROCESS

- 5.1. General: Airspace where RVSM is applied shall be considered special qualification airspace. An operator is not allowed to operate in RVSM airspace unless:
- a valid RVSM specific approval certificate has been issued for that aircraft;
 - the prescribed RVSM equipment is serviceable; and
 - the flight crew has successfully completed the RVSM training.
- 5.2. Prior to granting the RVSM specific approval required in accordance this Directive, the Executive Director shall be satisfied that:
- the vertical navigation performance capability of the aeroplane satisfies the requirements specified in this Directive
 - the owner/operator has instituted appropriate procedures in respect of continued airworthiness (maintenance and repair) practices and programmes; and
 - the owner/operator has instituted appropriate flight crew procedures for operations in RVSM airspace.
- 5.3. The Executive Director shall ensure that, in respect of those aeroplanes mentioned in 8.1, adequate provisions exist for:
- receiving the reports of height-keeping performance issued by the monitoring agencies established in accordance with Annex 11, 3.3.5.1; and Annex 6 — Operation of Aircraft Part II, and
 - 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.
- 5.4. In addition, where operations in specified airspace require approval in accordance with an ICAO Regional Navigation Agreement, an operational approval will be needed. Guidance for the specific operational and airworthy approvals is found in FSS-AOC-AP 100.
- 5.5. The owner/operator authorised to operate in RVSM airspace shall ensure that a minimum of two aeroplanes of each aircraft type grouping shall 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.

- 5.6. The Executive Director shall ensure that appropriate action is taken in respect of aircraft and owners/operators found to be operating in RVSM airspace without a valid RVSM specific approval or who fail to follow height keeping parameters.
- 5.7. Where RVSM is applied, the specific aircraft type or types that the operator intends to use will need to be approved by the State of Registry of the aircraft or of the aircraft operator. RVSM approval will encompass the following elements:
 - a) **Airworthiness approval (including continued airworthiness).** The aircraft will be approved as meeting the requirements of the appropriate State airworthiness document derived from the height-keeping capability requirements as defined by the RVSM MASPS. Furthermore, the aircraft altimetry and height-keeping equipment must be maintained in accordance with approved procedures and servicing schedules; and
 - b) **Operational approval.** As defined by ICAO regional air navigation agreements, it may be necessary for an operator to hold a separate RVSM specific operational approval in addition to an RVSM airworthiness approval to operate in RVSM airspace.
- 5.8. Advisory Pamphlet FSS-AOC-AP 100 contains guidance on airworthy and operational procedures that an operator may need to adopt for such airspace where RVSM is applied, including advice on the material that needs to be submitted for review by the NCAA.

6. MINIMUM AIRCRAFT SYSTEM PERFORMANCE SPECIFICATION

The Minimum Aircraft System Performance Specification (MASPS) has been published in Advisory Pamphlet 100 Application for RVSM approval. This document details the airworthiness, continuing airworthiness, and operations programmes necessary to approve operators and airplanes to conduct flight in airspace where RVSM is implemented.

- 6.1. The requirements, which were the basis for development of the MASPS were the followings:
 - a) the mean Altimetry System Error (ASE) of the group shall not exceed ± 25 m (± 80 ft);
 - b) the sum of the absolute value of the mean ASE for the group and three standard deviations of ASE within the group shall not exceed 75 m (245 ft); and
 - c) errors in altitude keeping shall be symmetric about a mean of 0 m (0ft) and shall have a standard deviation not greater than 13 m (43 ft) and shall be such that the error frequency decreases with increasing error magnitude at a rate which is at least exponential.
- 6.2 In respect of aeroplanes for which the characteristics of the airframe and altimetry system fit are unique and so cannot be classified as belonging to a group of aeroplanes encompassed by paragraph 1, the height-keeping performance capability shall be such that the components of the TVE of the aeroplane have the following characteristics:



6.1.1. the ASE of the aeroplane shall not exceed 60m (200ft) in magnitude under all flight conditions; and

6.1.2. the differences between the cleared flight level and the indicated pressure altitude actually flown shall be symmetric about a mean of 0 m, with a standard deviation no greater than 13.3 m (43.7 ft), and in addition, the decrease in the frequency of differences with increasing difference magnitude shall be at least exponential.

7. AIRCRAFT SYSTEMS

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

a) the aeroplane 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.

8. OPERATIONS MANUAL

8.1 An air services operator is required to ensure that the following items are included in the relevant parts of the operations manual or RVSM Performance Manual:

- a) in level cruise it is essential that the aircraft be flown at the cleared flight level (CFL). This requires that particular care be taken to ensure that ATC clearances are fully understood and complied with. Except in the event of an emergency, the aircraft should not intentionally depart from CFL without a clearance from ATC;
- b) during cleared transition between levels, the aircraft should not be allowed to overshoot or undershoot the new flight level by more than 45m (150ft); Note.—The transition should be accomplished using the altitude capture feature of the automatic altitude-keeping device, if installed.
- c) an automatic altitude-keeping device should be operative and engaged during level cruise, except when circumstances such as turbulence or the need to re-trim the aircraft require its disengagement. In any event, adherence to cruise altitude should be done by reference to one of the two altimeters required by the RVSM MASPS;
- d) the altitude-alerting device should be operating and engaged;
- e) regular (hourly) cross-checks between the altimeters should be made, and a minimum of two RVSM MASPS-compliant systems must agree within 60 m (200 ft). Failure to meet this condition will require that the system be reported as defective and notified to ATC;



- f) the operating altitude-reporting transponder should be connected to the RVSM MASPS compliant altimetry system being used to control the aircraft;
- g) before entering RVSM airspace, the pilot should review the status of equipment required.

The following equipment should be operating normally:

- 1) two altitude measurement systems, as defined by the RVSM MASPS;
- 2) automatic altitude-keeping device(s); Note.— Redundancy requirements for altitude-keeping devices should be established by regional agreement after an evaluation of such criteria as mean time between failures, length of flight segments and availability of direct pilot controller communications and radar surveillance.
- 3) at least one altitude-reporting transponder (if required for operation in that specific RVSM airspace) capable of being switched to operate from either of the two altimetry systems required by the RVSM MASPS; and
- 4) one altitude-alerting device;

Should any of this equipment fail prior to the aircraft entering RVSM airspace, the pilot should request a new clearance so as to avoid flight in this airspace;

- h) the following contingency procedures should be adhered to after entering RVSM airspace:
 - 1) the pilot should notify ATC of contingencies (equipment failures, weather conditions) in which the ability to maintain cleared flight level is affected and coordinate a plan of action (see 4.3.2);
 - 2) equipment failures should be notified to ATC. Some examples are:
 - i. failure of all automatic altitude-keeping devices on board the aircraft;
 - ii. loss of redundancy of altimetry systems, or any part of these, on board the aircraft;
 - iii. failure of all altitude-reporting transponders;
 - iv. loss of thrust on an engine necessitating descent; and
 - v. any other equipment failure affecting the ability to maintain cleared FL;
 - 3) the pilot should notify ATC when encountering severe turbulence; and
 - 4) if unable to notify ATC and obtain an ATC clearance prior to deviating from the assigned cleared FL, the pilot should follow established contingency procedures as defined by the region of operation and obtain ATC clearance as soon as possible

9. Specific Approval

If the operator complies with all of the provisions of this directive, the director shall issue a specific approval for operation in RVSM airspace.

10. Effective Date



Namibia Civil Aviation Authority -
Safety Division

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The Directive shall be in effect from 30th July 2021 and shall remain in effect until superseded by amendment or withdrawn.

For further guidance, please contact email sos.ops@ncaa.com.na.

11. Issued By:



Gordon Elliott

INTERIM EXECUTIVE DIRECTOR

DATE:

