GCAA

دولة الإمارات العربية المتحدة
الهيئة العامة للطيران المدني
UAE General Civil Aviation Authority

CIVIL AVIATION ADVISORY PUBLICATION

CAAP 6

MNPS

APPROVAL OF UAE OPERATORS AND AIRCRAFT TO OPERATE IN NORTH ATLANTIC MINIMUM NAVIGATION PERFORMANCE SPECIFICATION (MNPS) AIRSPACE

1. PURPOSE

This guidance material is intended for operators of UAE aircraft, planning to operate in the Minimum Navigation Performance Specification (MNPS) airspace over the North Atlantic. UAE registered operators, and aircraft, intending to utilise the North Atlantic Region (NAT Region) MNPS airspace, are required to be approved by the GCAA for MNPS operations. This CAAP provides information on MNPS requirements, the approvals process, as well as operational and training requirements. This CAAP also provides methods acceptable to the GCAA for showing compliance with FAA, UK CAA and ICAO requirements.

2. STATUS OF THIS CAAP

This is the A/L 1 dated 01 September, 2003 to the first edition of CAAP 6, MNPS, dated 01 July, 1999. It will remain current until withdrawn or superseded.

3. APPLICABILITY

All UAE registered aircraft planning to operate within the North Atlantic (NAT) Region MNPS Airspace, shall be required to obtain an approval from the GCAA before the commencement of operations.

As there is a gradual implementation of Reduced Vertical Separation Airspace (RVSM) within MNPS airspace, operators may be required to obtain a RVSM approval as well. Refer to CAAP 5 for guidance and requirements. The letter of approval for MNPS is valid indefinitely subject to GCAA auditing.

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5. BACKGROUND

The basic system used for traffic flow in the North Atlantic became so congested during the 1970s that a more stringent system was designed to alleviate the problem. This newer system included Minimum Navigation Performance Specifications (MNPS), the North Atlantic Organised Track System (OTS), and the North Atlantic Track Structure (NATS). Two traffic flows were developed; a westbound flow departing Europe in the morning and an eastbound flow departing North America in the evening. The effect of these flows has been to concentrate most of the traffic uni-directionally, peak westbound traffic operating between 1130 UTC and 1900 UTC and peak eastbound traffic between 0100 UTC and 0800 UTC.

The concept of MNPS has been accepted and will be further adopted on a world-wide basis by ICAO and regional authorities. The objective of MNPS remains to ensure a safe aircraft operation and to derive maximum economic benefit from the improved accuracy of navigation as demonstrated by technological advances. The concept of MNPS will gradually be expanded to other areas such as the Oceanic airspace in the Pacific, and the recent European B-RNAV area is a similar concept. An implicit condition of MNPS is that all operators must maintain the specified operating standards and be aware of the inherent obligations of the MNPS requirements.

6. REFERENCES

(a) ICAO Consolidated Guidance Material NAT Region (Sixth Edition) (NAT Doc. 001, T13.5 N)

(b) ICAO Annexes, PANS/RAC (Doc. 4444)

(c) ICAO Regional Supplementary Procedures (Doc. 7030)

(d) Relevant State AIP's

(e) CAA (UK) & FAA (US) North Atlantic MNPS Airspace Operations Manual, Sixth Edition

(f) Flight Safety International Minimum Navigation Performance Standards

(g) CAAP 5 - RVSM

7. NAT MNPS DEFINED AREA

MNPS vertical dimension airspace is that portion of the North Atlantic airspace between FL275 and FL400. The MNPS lateral dimensions are between the latitudes 27° N to the North Pole. MNPS airspace is bounded in the east by the eastern boundaries of control areas (CTA) Santa Maria Oceanic, Shanwick Oceanic, Reykjavik, and in the west by the western boundary of CTA's Reykjavik, Gander Oceanic and New York Oceanic excluding the area west of 60° W and south of 38° N. The area south of 51° to the south west of Ireland is designated as the Shannon Oceanic Transition area (SOTA) and is part of the MNPS airspace.

8. MNPS AIRSPACE ACCURACY REQUIREMENTS

8.1 Navigation.

Aircraft conducting flights within the volume of airspace specified shall have a navigation performance capability such that;

(a) The standard deviation of later track errors shall be less than 6.3 NM (11.7 km). This can be interpreted as a need for aircraft to remain within 12.6 NM (23 km) off track for 95% of the time (RNP 12.6).

(b) The proportion of the total flight time spent by aircraft between 30 NM (55.6 km) off the cleared track, shall be less than one hour per 2000 flight hours.

(c) The portion of the total flight time spent by aircraft between 50 and 70 NM (92.6 and 129.6 km) off the cleared track shall be less than one hour per 8000 flight hours.

(d) Such navigation performance capability shall be verified by the State of Registry or the State of the aircraft operator.

8.2 Altimetry.

The separation requirements are 1000 ft (305 metres) vertical to FL 290 and 2000 ft (610 metres) vertical above FL 290 in opposite directions. Where RVSM airspace is in force, the altimetry and level keeping accuracy requirement of CAAP 5 apply.

9. APPLICATION & APPROVAL PROCESS

9.1 General.

All UAE registered aircraft, which plan to fly across the North Atlantic require an approval by GCCA for flight in MNPS airspace. This approval is granted to the operator by a letter of approval, which must be carried in the aircraft library and produced on demand. This paragraph gives detailed guidance on the required content of operational practices and procedures. It also describes the steps in the operational approval process and the granting of approval to operate in MNPS airspace. For commercial aircraft operators, the Operations Specification will be amended to include MNPS as well as the issuance of a letter of approval. To process an application the GCAA needs to be satisfied that;

(a) operational programmes are adequate. Flight crew training as well as operations manuals will be evaluated. Approval will be required for each operator and each aircraft group.

(b) airworthiness issues are satisfactorily addressed. Approval will be required for each aircraft group, and non-group aircraft, to be used in MNPS operations.

9.2 Content of an Operator MNPS Application.

The following describes the material that an operator should provide to the GCAA for evaluation, preferably at least 60 days before the intended start of MNPS operations.

9.2.1 Airworthiness

(a) Airworthiness Documents. Documentation such as the Aircraft Flight Manual (or supplement), should be available to show that the aircraft has been approved either for MNPS or to RNP 12.6 by the appropriate airworthiness authorities (State of Manufacture).

(b) Description of Aircraft Equipment. A description of the aircraft navigation equipment appropriate to operations in an MNPS environment. Acceptable aircraft navigation equipment;

(i) consists of two fully serviceable Long Range Navigation Systems (LRNs), which consist of either;

(A) two Inertial Navigation Systems, or
(B) two Flight Management Systems (FMS) with two Inertial Reference Systems (IRS), or

(C) two approved Global Positioning Systems (GPS), or

(D) one INS and one FMS/IRS, or

(E) one INS and one approved GPS, or

(F) one FMS/IRS and one approved GPS.

(ii) must be capable of providing a continuous indication to the flight crew of the aircraft position relative to track, and

(iii) should be coupled to the automatic pilot.

(c) Maintenance. At the time application is made for operational approval, the operator should submit a maintenance programme for approval (if applicable).

(d) Minimum Equipment List. A minimum equipment list (MEL), adapted from the master minimum equipment list (MMEL), should include items pertinent to operating in MNPS airspace.

9.2.2 Navigation Accuracy Records. As a guide all navigation equipment approved for RNP 12.6 or better would normally be acceptable to the GCAA. The operator of an aircraft, for which there is not a specific RNP limitation or approval in the Aircraft Flight Manual, must compile navigation accuracy data as referred to in CAAP 3 – RNP 5 DATA. This data will be scrutinised by the GCAA to determine that the accuracy limits of RNP 12.6 are met.

9.2.3 Training Programmes and Standard Operating Procedures (SOP's). All operators should submit training syllabi and other appropriate material to the GCAA to show that the operating practices, procedures and training items related to MNPS operations are incorporated in training programmes. Guidance on the content of training programmes and operating practices and procedures is given in Sections 10 and 11. In broad terms, this covers flight planning, pre-flight procedures, aircraft procedures for entry, in-flight and contingency procedures, and flight crew training procedures.

9.2.4 Operations Manuals and Checklists. The appropriate manuals and checklists should be revised to include information/guidance on standard operating procedures as detailed in Sections 10 and 11 and CAAP 2 - B-RNAV. Manuals and checklists should be submitted for review by the GCAA as part of the application process.

9.2.5 Authority Review and Evaluation of Applications. Once the application has been submitted and the GCAA Airworthiness Section is satisfied with the information provided, the GCAA will continue with the approval process

9.2.6 Validation Flight(s). The content of the MNPS application and programmes may be sufficient to validate the aircraft. However, the final step of the approval process may require a validation flight through MNPS airspace by a GCAA Flight Operations Inspector to verify that all relevant procedures are applied effectively. If the performance is satisfactory, operational approval for MNPS airspace may be granted. If the performance is not adequate, then approval will be delayed.

9.2.7 Letter of Approval. Approval to operate in MNPS airspace will be granted by a Letter of Approval issued by the GCAA. Each aircraft for which the operator is granted authority will be listed in the Letter of Approval. (Refer to Appendix 1 for sample letter).

9.3 Conditions for Removal of MNPS Authority

9.3.1 Equipment Tolerances. The incidence of track keeping errors that can be tolerated in an MNPS environment is small. It is incumbent upon each operator to take immediate action to rectify the conditions that cause an error. The operator should also report the event to the GCAA within 72 hours, through the appropriate channels with initial analysis of causal factors and measures taken to prevent further events. The requirement for follow up reports will be determined by the GCAA. Operators should be aware that the regulatory authorities of the UK, USA and Canada regularly check aircraft tracking accuracy.

9.3.2 Operators Actions. The operator should make an effective, timely response to each track keeping error. The GCAA may consider removing MNPS operational approval if the operator response to a track keeping error is not effective or timely. The GCAA will also consider the operator's past performance record in determining the action to be taken. If an operator shows a history of operational and/or airworthiness errors, then approval may be removed until the root causes of these errors are shown to be eliminated and MNPS programmes and procedures effective. The GCAA will review each situation on a case-by-case basis.

9.4 Renewal

Renewal of a MNPS Letter of Approval will be processed upon application, indicating there has been no modification of the navigation equipment and the submission of records for the previous two years indicating the equipment integrity and navigation accuracy.

10. OPERATING PROCEDURES

10.1 Flight Planning

During flight planning the flight crew should pay particular attention to conditions that may affect operation in MNPS airspace. These include, but may not be limited to:

(a) verifying that the aircraft equipment is approved for MNPS operations.

(b) reported and forecast weather on the route of flight

(c) minimum equipment (MEL) requirements pertaining to track keeping systems;

(d) if required for the specific aircraft group, accounting for any aircraft operating restriction related to MNPS airworthiness approval.

(e) The use of the letter **"X"** in item 10 will still indicate MNPS approval even after the introduction of RVSM and therefore, should continue to be used.

10.2 In-flight Procedures

Operating procedures contained in the Operations Manual must contain relevant guidance information for in-flight procedures. Contingency procedures for equipment failure and navigation inaccuracies prior to, and after entry, must be addressed.

10.3 Post Flight Procedures

The operator must create a mechanism whereby pilots log the navigation accuracy at the completion of a flight. In making technical entries for a malfunction or inaccuracy in a track keeping system, the pilot should provide sufficient detail to enable an effective and timely repair

11. TRAINING REQUIREMENTS

11.1 Introduction

All initial MNPS training courses must be approved by the GCAA prior to use and the syllabus incorporated in the Operators Manual. Recurrent training is required on an annual basis. The following items detailed below should be standardised and incorporated into training programmes and operating practices and procedures. This document is written for all users of MNPS airspace, and as such it is recognised that some material may not be necessary for larger public transport aircraft operators as certain items may already be adequately standardised in existing procedures. New technology may also remove the need for certain actions required of the flight crew. If this is so, then the intent of this guidance can be considered to be met.

11.2 Flight Crew Training

In addition to the operating procedures in Section 10, the following items should also be included in flight crew training programmes:

(a) knowledge, understanding and compliance of standard ATC phraseology and track messages used in each area of operations;

(b) MNPS procedures for NAT (and other areas when applicable)

(c) Changes to charting and documents to reflect MNPS.

(d) Navigation equipment required to be operational for flight in designated MNPS airspace, limitations associated with the RNAV equipment;

(e) Flight planning requirements;

(f) Entry, in-flight and exit requirements and procedures

(g) Contingency procedures for system failures or navigation inaccuracies

(h) Position error log and notification requirements;

(i) Operations Manual information and procedures; and

(j) The information in this CAAP.

APPENDIX 1

SAMPLE LETTER OF APPROVAL FOR MNPS OPERATIONS

LETTER OF APPROVAL
FOR
MNPS OPERATIONS

The UAE General Civil Aviation Authority is satisfied that the following operator, aircraft and aircraft navigation and altimetry systems meet the requirements for operations in designated MNPS airspace, in accordance with the manufacturer's prescribed specifications.

Operator :

Aircraft :

Registration Number :

Navigation Equipment :

This approval is subject to the above equipment being operative and credible, the crew has recency training and that all operations are conducted in accordance with the approved Operations Manual.

For and on behalf of the General Civil Aviation Authority

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