RWANDA
CIVIL AVIATION AUTHORITY

ADVISORY CIRCULAR
AC 10-006

APPLICATION & PROCESS:
APPROVAL TO OPERATE IN NAT HIGH LEVEL AIRSPACE

Purpose— This advisory circular (AC) provides a means for air operators to obtain operational authority to operate within the airspace over the North Atlantic Ocean designated as NAT High Level Airspace (NAT-HLA).

No person may operate a civil aircraft of Rwanda registry in NAT-HLA without a written authorization issued by the RCAA.

Table of Contents

- Advisory Circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the Regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.
- Where an AC is referred to in a 'Note' below the regulation, the AC remains as guidance material,
- ACs should always be read in conjunction with the referenced regulations.

Issue Date: 31 July 2018

SECTION 1 GENERAL

1.1 STATUS OF THIS AC

This is revision [2]2018 of this AC.

1.2 BACKGROUND

A. 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. At that time, the system included Minimum Navigation Performance Specifications (MNPS), the North Atlantic Organised Track System (OTS), and the North Atlantic Track Structure (NATS).

B. 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 unidirectionally, peak westbound traffic operating between 1130 UTC and 1900 UTC and peak eastbound traffic between 0100 UTC and 0800 UTC.

C. In February 2016, this airspace was re-designated as NAT High Level Airspace. Additional approval guidance was issued. This AC provides guidance for operator application and qualification for operations in that airspace.

D. The primary requirement for operation in NAT-HLA is the approval of the CAA based on a determination that the operator is capable of maintain the specified operating standards and is fully aware of the inherent obligations of the NAT-HLA requirements..

Operators without this authorization are excluded from flying within NAT-HLA airspace.

1.3 APPLICABILITY

The requirement for RCAA-FSS approval before operations in the NAT-HLA airspace applies to operators of Rwanda-registered aircraft involved in general aviation, aerial work and commercial air transport.

1.4 RELATED REGULATIONS

The following Rwanda Civil Aviation Regulations (RCARs) are applicable to the NAT-HLA requirements—

- Part 6 – PBN, PBC, PBC and RVSM equipment requirements
- Part 10 – Operations IN RNP, PBC, MNPS or RVSM Airspace
- Part 12 – Certification requirements

The term MNPS (instead of NAT-HLA) still appears in the RCARs but will be revised in the next regulations revision.

- Part 14, Crew and Dispatcher training requirements.

1.5 RELATED PUBLICATIONS

These ICAO publications are source documents for this advisory circular—

- North Atlantic Operations & Airspace Manual, can be downloaded from the North Atlantic Program Coordination Office (NAT PCO). Or do an Internet word search NAT HLA to find the latest edition..
- International Civil Aviation Organization (ICAO) Doc. 9574, Manual on the Implementation of a 300 m (1,000 ft.) Vertical Separation Minimum Between FL 290 - FL 410 Inclusive.

Copies may be obtained from Document Sales Unit, ICAO, 999 University Street, Montreal, Quebec, Canada H3C 5H7.

- ICAO Doc 7030/4, Regional Supplementary procedures.

1.6 DEFINITIONS & ACRONYMS

1.6.1 DEFINITIONS

The following definitions apply to the text of this circular—

1) **Aircraft group –** A group of aircraft that are of nominally identical design and build with respect to all details that could influence the accuracy of height keeping performance**.**
2) **Applicant –** Any Rwanda AOC Holder or Aircraft Operator seeking to operate its aircraft in RVSM airspace.
3) **Height-keeping capability –** Aircraft height-keeping performance which can be expected under nominal environmental operating conditions with proper aircraft operating practices and maintenance.
4) **Non-group aircraft –** An aircraft for which the operator applies for approval on the characteristics of the unique airframe rather than on a group basis.
5) **Supplemental type certificate –** A certificate approving the change in the type design of an aircraft. An STC is a type certificate issued when an applicant has received State of Design approval to modify an aircraft from its original design. The STC, which incorporates by reference the related TC, approves not only the modification but also how that modification affects the original design.

This list of definitions is applicable in the context of this advisory circular only. Words, such as “Applicant” may be found in other publications with a different definition.

1.6.2 ACRONYMS & ABBREVIATIONS

The following acronyms and abbreviations are used in this circular—

1) **AC** = Advisory Circular
2) **ADS-C** = Automatic Dependent Surveillance
3) **AOC =** Air Operator Certificate
4) **ATC** = Air Traffic Control
5) **FAC** = Formal Application Checklist
6) **CPDLC** = Controller-Pilot Data Link Communications
7) **FMS** = Flight Management System
8) **GMU =** GPS Monitoring Unit

9) **GPS** = Global Positioning System
10) **HF** = High Frequency (for long range communications)
11) **ICAO** = International Civil Aviation Organization
12) **INS** = Inertial Navigation System
13) **IRS** = Inertial Reference System
14) **LOA** = Letter of Authorization
15) **LRNS** = Long Range Navigation System
16) **MEL** = Minimum Equipment List
17) **MMEL** = Master Minimum Equipment List
18) **NAT** = North Atlantic Tracks
19) **NAT-HLA** = North Atlantic High Altitude Airspace
20) **Ops Specs** = Operations Specifications
21) **PASI** = Pre-Application Statement of Intent
22) **PBCS** = Performance Based Communications and Surveillance
23) **PBN** = Performance Based Navigation
24) **RNP** = Required Navigation Performance
25) **RCAA** = Rwanda Civil Aviation Authority
26) **RCAA-FSS =** Flight Safety Standard Department of the RCAA
27) **RCAR =** Rwanda Civil Aviation Regulations
28) **RCP** = Required Communications Performance
29) **RVSM** = Reduced Vertical Separation Minima
30) **SELCAL** = Selective Calling Radio System
31) **SOTA** = Shannon Oceanic Transition Area
32) **STC** = Supplemental Type Certificate
33) **TC** = Type Certificate

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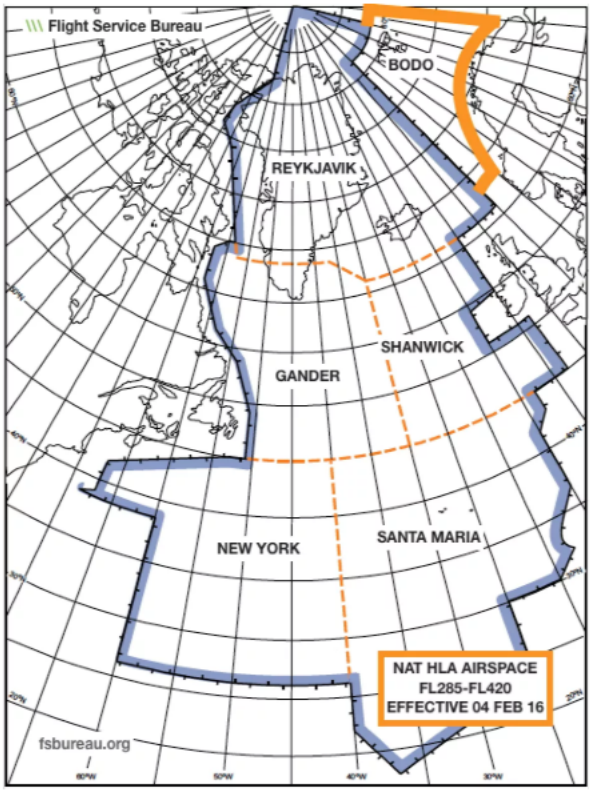
1.7 NAT-HLA DEFINED AREA

A. NAT-HLA vertical dimension airspace is that portion of the North Atlantic airspace between FL285 and FL420.

B. The NAT-HLA lateral dimensions are between the latitudes 27° N to the North Pole. NAT-HLA 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.

C. 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 NAT-HLA airspace.

D. Also note the new area off Norway which was added.



SECTION 2 NAT-HLA EQUIPMENT REQUIREMENTS

2.1 PERFORMANCE BASED NAVIGATION

As specified in the NAT-HLA Handbook, the operator's aircraft and crew shall have demonstrated navigation performance capability to the RCAA and received authorization for RNP-10 (or RNP-4).

2.2 ALTIMETRY

Except where granted special approval by ATC, RVSM approval from the RCAA is required for operations in the NAT-HLA.

2.3 PERFORMANCE BASED COMMUNICATIONS & SURVEILLANCE

Except for limited, special routing all operations shall meet the following depending on the routing to be followed:

- HF Communications with HF position reports and 2 LRNS
- CPDLC communications with ADS-C and 2 LRNS
- CPDLC (RCP 240) with ADS-C (RSP 180) and 2 LRNS

SECTION 3 APPLICATION & APPROVAL PROCESS

3.1 GENERAL

A. All Rwanda registered aircraft, which plan to fly across the North Atlantic require an approval by RCAA for flight in the NAT-HLA. This approval is granted to the operator by:

- For general aviation, a letter of approval, which must be carried in the aircraft library and produced on demand.
- For commercial air transport, by insertion of the authorization into the AOC operations specifications

B. The North Atlantic Operations and Airspace Handbook is critical to this certification process.

- The operator shall submit a separate operator-specific NAT-HLA Operations Manual that provides policy and procedures that conform to the guidance in the NAT Handbook.
- The RCAA will use the North Atlantic Operations & Airspace Handbook as the conformance checklist to ensure that the operator has included all requirements necessary for operations in the airspace.
- Restrictions to the NAT-HLA authorization will be based on the limitations specified for the equipment and demonstrated capability of the operator.

C. To process an application the RCAA needs to be satisfied that—

1) Operational programmes are adequate which will include flight crew training as well as operations manuals with approval required for each operator and each aircraft group; and

2) Airworthiness issues are satisfactorily addressed and will included approval for each aircraft group, and non-group aircraft, to be used in NAT-HLA operations.

3.2 CONTENT OF AN OPERATOR NAT-HLA APPLICATION

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

3.2.1 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 NAT-HLA or to RNP-10 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 NAT-HLA environment.

C. Acceptable aircraft navigation equipment that—

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

(a) Two Inertial Navigation Systems (INS), 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.

2) Must be capable of providing a continuous indication to the flight crew of the aircraft position relative to track, and

3) Should be coupled to the automatic pilot.

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

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

3.2.2 NAVIGATION ACCURACY RECORDS

A. As a guide, all navigation equipment approved for RNP-10 or RNP-4 would normally be acceptable to the RCAA.

- 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 outlined for RNP-10 approval.
- This data will be evaluated by the RCAA to determine that the accuracy limits of RNP-10 are met.

3.2.3 TRAINING PROGRAMMES & STANDARD OPERATING PROCEDURES (SOP'S)

A. All operators should submit training syllabi and other appropriate material to the RCAA to show that the operating practices, procedures and training items related to NAT-HLA operations are incorporated in training programmes.

B. Guidance on the content of training programmes and operating practices and procedures is given in the North Atlantic Operations & Airspace Manual.

C. In broad terms, this covers flight planning, pre-flight procedures, aircraft procedures for entry, in-flight and contingency procedures, and flight crew training procedures.

3.2.4 OPERATIONS MANUALS & CHECKLISTS

A. The appropriate manuals and checklists should be revised to include information/guidance on standard operating procedures as detailed in Section 5.

B. Manuals and checklists should be submitted for review by the RCAA as part of the application process.

3.3 RCAA REVIEW & EVALUATION OF APPLICATION

Once the application has been submitted and the RCAA is satisfied with that the application is complete, the RCAA will conduct an evaluation of all pertinent documents, provisions and procedures for operations in the NAT-HLA. If these are found to be adequate, interim approval of the proposed documentation will be granted pending successful completion of validation.

3.4 VALIDATION FLIGHT(S)

A. The content of the NAT-HLA application and programmes may be sufficient to validate the aircraft.

B. However, the final step of the approval process (for both general aviation and commercial air transport) will require one or more validation flights through NAT-HLA airspace under special observation by an RCAA-authorized person to verify that all relevant procedures are applied effectively.

- Interim approval will be granted under restricted operational conditions until the RCAA is satisfied the operator's systems, personnel and aircraft are
- If the performance is satisfactory, the interim approval will be replaced with an unconditional operational approval for NAT-HLA airspace.
- If the validation performance is not adequate, then approval will be delayed.

3.5 METHOD OF AUTHORIZATION

A. Approval to operate in NAT-HLA airspace will be granted by:

1) For general aviation operations, a Letter of Approval issued by the RCAA.

2) For commercial air transport operations, the insertion of an "NAT High Level Airspace row in the Aircraft Display operations specifications with a YES selected and additional information regarding the equipment and limitations.

- No NAT High Level Airspace row will be inserted in the operations specification until the operator has completed the certification process.

SECTION 4 CONDITIONS FOR REMOVAL OF NAT-HLA AUTHORIZATION

4.1 EQUIPMENT TOLERANCES

A. The incidence of track keeping errors that can be tolerated in an NAT-HLA environment is small. It is incumbent upon each operator to take immediate action to rectify the conditions that cause an error.

B. The operator should also report the event to the RCAA 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 RCAA.

C. Operators should be aware that the regulatory authorities of the UK, USA and Canada regularly check aircraft tracking accuracy.

4.2 OPERATOR ACTION

A. The operator should make an effective, timely response to each track keeping error.

B. The RCAA may consider removing NAT-HLA operational approval if the operator response to a track keeping error is not effective or timely.

C. The RCAA will also consider the operator's past performance record in determining the action to be taken.

D. 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 NAT-HLA programmes and procedures effective.

E. The RCAA will review each situation on a case-by-case basis.

4.3 RENEWAL

4.3.1 LETTER OF AUTHORIZATION (GENERAL AVIATION)

A. Renewal of a NAT-HLA Letter of Approval will be processed upon application.

B. The operator application must—

1) Indicating there has been no modification of the navigation equipment; and

2) Contain records for the previous two years indicating the equipment integrity and navigation accuracy.

4.3.2 OPERATIONS SPECIFICATIONS (COMMERCIAL AIR TRANSPORT)

A. During the normal AOC renewal process, the RCAA will review the operator's navigation and altimetry experience for the past 12 months, including RVSM, PBN and NAT HLA reports.

B. For all commercial air transport operations, an RCAA authorized person much have accomplished at least one enroute observation of an operators flight crew on an operation through the NAT-HLA in the previous 90 days before renewal.

SECTION 5 OPERATING PROCEDURES

The North Atlantic Operations and Airspace manual will be the primarily reference document for ensuring that the operator's operating procedures are satisfactory.

5.1 FLIGHT PLANNING

A. During flight planning the flight crew should pay particular attention to conditions that may affect operation in NAT-HLA airspace. These include, but are limited to—

1) Verifying that the aircraft equipment is approved for NAT-HLA operations.

2) Reported and forecast weather on the route of flight

3) Minimum equipment (MEL) requirements pertaining to track keeping systems;

4) If required for the specific aircraft group, accounting for any aircraft operating restriction related to NAT-HLA airworthiness approval.

5.2 IN-FLIGHT PROCEDURES

A. Operating procedures contained in the Operations Manual must contain relevant guidance information for in-flight procedures.

B. Contingency procedures for equipment failure and navigation inaccuracies prior to, and after entry, must be addressed.

5.3 POST FLIGHT PROCEDURES

A. The operator must create a mechanism whereby pilots log the navigation accuracy at the completion of a flight.

B. 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

SECTION 6 TRAINING REQUIREMENTS

6.1 INTRODUCTION

A. All initial NAT-HLA training courses must be approved by the RCAA prior to use and the syllabus incorporated in the Operators Manual.

- Recurrent training is required on an annual basis.

B. The following items detailed below should be standardized and incorporated into training programmes and operating practices and procedures.

C. This document is written for all users of NAT-HLA airspace, and as such it is recognized that some material may not be necessary for larger commercial air transport aircraft operators as certain items may already be adequately standardized in existing procedures.

D. 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.

6.2 FLIGHT CREW TRAINING

In addition to the operating procedures in Section 5, the operator will submit a NAT-HLA training curriculum which includes all training elements and events specified in the North Atlantic Operations and Airspace Manual

End of Advisory Circular