KINGDOM OF BAHRAIN
Ministry of Transportation
and Telecommunications

مملكة البحرين
وزارة المواصلات والاتصالات

CIVIL AVIATION PUBLICATION

CAP 28

HIGH LEVEL AIRSPACE (HLA)

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Bahrain CAA Publication Revisions Highlight Sheet

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The following pages have been revised to Revision 01 dated 27 June 2022.

Item	Paragraph Number	Page(s)	Reason
1.	All	All	Global Change from MNPS to HLA
Section I			
2.	1.2	1	Amended to include International Standards
3.	1.4	2	Inclusion of additional reference doc
Section II			
4.	2	2	Amended to include International Standards
Section III			
5..	3.1	2	Amended to include International Standards
Section IV			
6.	4.2.1	3	Deletion of outdated requirement
7.	4.2.2	3	Introduction of documents requirement
8.		5	Deletion of outdated requirement
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9.	5.1(e)	6	Introduction of ICAO code requirement

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1. INTRODUCTION

1.1 Purpose

This guidance material is intended for operators of Bahraini registered aircraft, planning to operate in the Minimum Navigation Performance Specification (HLA) airspace over the North Atlantic. Bahraini registered operators, and aircraft, intending to utilise the North Atlantic Region (NAT Region) HLA airspace, are required to be approved by the BCAA forHLA operations. This CAP provides information on HLA requirements, the approvals process, as well as operational and training requirements.

1.2 Applicability

All Bahraini registered aircraft planning to operate within the HLA must apply for special authorization. There is Reduced Vertical Separation Airspace (RVSM) airspace within HLA airspace. Operators must hold a RVSM approval. With the FANS mandate in the North Atlantic, even aircraft that would normally fly a random route outside of the affected tracks will not be allowed to transition through the NAT if they are not equipped for FANS 1/A+/PBCS, resulting is less-than-optimal routing. As of 29 March 2018, RCP240 and RSP180 communications capability is now required. These requirements are fulfilled with the FANS 1/A+ solution and the appropriate Operations Specifications (OP SPECS) or Letter of Authorization (LOA), which operators are required to obtain.

Note that “NAT HLA” is a re-designation of the airspace formerly known as the “North Atlantic Minimum Navigational Performance Specifications Airspace (NAT MNPSA),” but excludes those portions of SHANWICK OCA which form the SOTA and BOTA areas and includes the BODO OCEANIC FIR. This re-designation is the third of the milestones of the “MNPS to PBN Transition Plan” for the North Atlantic region and is effective from 04 February 2016.

1.3 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 (HLA), 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 andan 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 HLA has been accepted and will be further adopted on a world-wide basis by ICAO and regional authorities. The objective of HLA remains to ensure a safe aircraft operation and to derive maximum economic benefit from the improved accuracy of navigation as demonstrated by technological advances. An implicit condition of HLA is that all operators must maintain the specified operating standards and be aware of the inherent obligations of the HLA requirements.

1.4 References

(a) ICAO Annexes, PANS/RAC (Doc. 4444)
(b) ICAO Regional Supplementary Procedures (Doc. 7030)
(c) Relevant State AIP's
(d) North Atlantic HLA Airspace Operations Document 007
(e) CAP 27 – RVSM

2. NAT HLA DEFINED AREA

NORTH ATLANTIC HIGH LEVEL AIRSPACE (NAT HLA)- That volume of airspace (as defined in ICAO Document 7030) between FL 285 and FL 420 within the Oceanic Control Areas of Bodo Oceanic, Gander Oceanic, New York Oceanic East, Reykjavik, Santa Maria, and Shanwick, excluding the Shannon and Brest Ocean Transition Areas.

The North Atlantic airspace utilizes a constantly changing 12-hour track system designed around the high-altitude winds and weather to optimize flights each day. Because of the growing number of aircraft crossing the North Atlantic each day, ATC needed a technology to increase airspace capacity on the NAT and provide a higher level of safety for all aircraft operating in that airspace. Utilizing FANS 1/A+ allows ATC in the North Atlantic regions to reduce the required separation standard to half degree tracks on the core tracks in the airspace for aircraft with an LOA and a flight plan indicating RCP240/RSP180 compliance. This allows for dramatically increased air traffic capacity of the region and reduces in trail requirements to 5 minutes between aircraft. The previous in trail requirement was 10 minutes between aircraft.

3. HLA AIRSPACE ACCURACY REQUIREMENTS

3.1 Navigation

Aircraft conducting flights within the volume of HLA airspace specified shall have a navigation performance capability of RNP 1,2,4 & 10.

(a) There are two navigational equipment requirements for aircraft planning to operate in the NAT HLA. One refers to the navigation performance that should be achieved, in terms of accuracy. The second refers to the need to carry standby equipment with comparable performance characteristics (ICAO Annex 6 (Operation of Aircraft) refers).

The navigation system accuracy requirements for NAT HLA operations shall be based on the PBN specifications RNP 1,2 4 and 10 with Two Long Range Navigational Systems

(b) Such navigation performance capability shall be verified by the Bahrain BCAA as the State of Registry or the State of the aircraft operator.

3.2 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 CAP 27 apply.

4. APPLICATION & APPROVAL PROCESS

4.1 General

All Bahraini registered aircraft, which plan to fly across the North Atlantic HLA airspace require an approval from the BCAA. 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 HLA airspace. For commercial aircraft operators, the Operations Specification will be amended to include HLA and for private operators, the issuance of a letter of approval. To process an application the BCAA 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 HLA operations.

4.2 Content of an Operator HLA Application

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

4.2.1 Reserved

4.2.2 Supporting Operations Documentation

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

(a) Minimum Equipment List.

A minimum equipment list (MEL), adapted from the master minimum equipment list (MMEL), should include items pertinent to operating HLA airspace.

(b) There are two navigational equipment requirements for aircraft planning to operate in the NAT HLA. One refers to the navigation performance that should be achieved, in terms of accuracy. The second refers to the need to carry standby equipment with comparable performance characteristics (ICAO Annex 6 (Operation of Aircraft) refers).

The navigation system accuracy requirements for NAT HLA operations shall be based on the PBN specifications RNP 1, 2, 4 and 10 with Two Long Range Navigational Systems

(c) ATS surveillance service areas

ATS Surveillance services (radar, ADS-B and Multilateration) are provided within some portions of the NAT HLA, where radar- and/or ADS-B and/or Multilateration coverage exists. The ATS Surveillance services are provided in accordance with the ATS Surveillance services procedures in the PANS ATM (DOC 4444).

All aircraft operating as IFR flights anywhere within the NAT region are required to be equipped with a pressure-altitude reporting SSR transponder and may therefore benefit from such radar and multilateration air traffic services, currently offered in parts of the NAT region. ADS-B services are provided within portions of the NAT region. Eligibility and procedures for ADS-B service in the NAT are based upon the provisions in the Doc 7030.

North Atlantic States providing ADS-B Air Traffic Services maintain a common exclusion list of aircraft that are known to not satisfy the conditions promulgated by Doc 7030. The purpose of the exclusion list is to ensure that ADS-B reports received from such aircraft are not utilized by the air traffic control system for separation services.

(d) Data Link requirements

The NAT Data Link Mandate (DLM) requires aircraft to be equipped with, and operating, CPDLC and ADS-C in the NAT HLA region. The mandate incorporates FL290 to FL410 inclusive. VHF Data Link (VDL) is a means of sending information between aircraft and VHF ground stations. The new VDL Mode 2 network, a high-speed and high-capacity digital communications network, provides over 20 times the message capacity than the older VHF mode 0/A subnetwork. Use of VDL Mode 2 tends to be more cost efficient than traditional VHF and service providers are encouraging its users to transition to the VDL Mode 2 network, Controllers can use a track ball to select an efficient route around the weather or congestion, using latitude/longitude or PBD waypoints. Digital delivery of even complex clearances is quickly delivered via data link, followed by pushing to load the clearance into the Flight Management System (FMS) and then a quick WILCO or ROGER response sent back to ATC.

The CPDLC message set provides a fixed set of responses to clearances, information, or request message elements which correspond to standard ATC voice phraseology (such as “climb and maintain FL350”) which both the ATC controller and the pilot can send and respond to. “Free Text” messages are used when information needs to be exchanged that is not conforming to these pre-defined formats, however, the use of Free Text is not allowed in certain regions and generally discouraged. Flight crews are encouraged to check regional Aeronautical Information Publications (AIP)/Aeronautical Information Circulars (AIC) regarding use of Free Text.

4.2.3 Training Programmes and Standard Operating Procedures (SOP's)

All operators should submit training syllabi and other appropriate material to the BCAA to show that the operating practices, procedures and training items related to HLA operations are incorporated in training programmes. Guidance on the content of training programmes and operating practices and procedures is given in Sections 5 and 6. In broad terms, this covers flight planning, pre-flight procedures, aircraft procedures for entry, in-flight and contingency procedures, and flight crew training procedures.

4.2.4 Operations Manuals and Checklists

The appropriate manuals and checklists should be revised to include information/guidance on standard operating procedures as detailed in Sections 5 and 6. Manuals and checklists should be submitted for review by the BCAA as part of the application process.

4.2.5 Authority Review and Evaluation of Applications

Once the application has been submitted and the BCAA Airworthiness Section is satisfied with the information provided, the BCAA will continue with the approval process

4.2.6 Validation Flight will be required over representative route.

The content of the HLA application and programmes may be sufficient to validate the aircraft. However, the final step of the approval process may require a validation flight through HLA airspace by a BCAA Aircraft Operations Inspector to verify that all relevant procedures are applied effectively. If the performance is satisfactory, operational approval for HLA airspace may be granted.

If the performance is not adequate, then approval will be delayed.

4.2.7 Approval

Approval to operate in HLA airspace will be granted by inclusion in the AOC Operations Specifications issued by the BCAA. Each aircraft for which the operator is granted authority will be listed. For private category aircraft a Certificate will be issued.

4.3 Conditions for Removal of HLA Authority

4.3.1 Equipment Tolerances.

The incidence of track keeping errors that can be tolerated in an HLA 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 BCAA within 72 hours, through the appropriate channels with initial analysis of causal factors and measures taken toprevent further events. The requirement for follow up reports will be determined by the BCAA. Operators should be aware that the regulatory authorities of the UK, USA and Canada regularly check aircraft tracking accuracy.

4.3.2 Operators Actions.

The operator should make an effective, timely response to each track keeping error. The BCAA may consider removing HLA operational approval if the operator response to a track keeping error is not effective or timely. The BCAA 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 HLA programmes and procedures effective. The BCAA will review each situation on a case-by-case basis.

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5. OPERATING PROCEDURES

5.1 Flight Planning

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

(a) verifying that the aircraft equipment is approved for HLA 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 HLA airworthiness approval.

(e) The use of the appropriate ICAO coding in the Operational Flight Plan

5.2 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.

5.3 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.

6 TRAINING REQUIREMENTS

6.1 Introduction

All initial HLA training courses must be approved by the BCAA prior to use and the syllabus incorporated in the Operators Manual. Recurrent training is required on an annual basis and the items detailed below should be incorporated into training programmes and operating procedures. This document is written for all users of HLA 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.

6.2 Flight Crew Training

In addition to the operating procedures in Section 5, 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) HLA procedures for NAT (and other areas when applicable)

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

(d) Navigation equipment required to be operational for flight in designated HLA 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 CAP.