

**AIC**

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**OPERATION OF PRECISION RNAV (P-RNAV) AIRBORNE  
EQUIPMENT  
IN THE TERMINAL AIRSPACE OF CROATIA**

**1. PURPOSE**

1.1 The purpose of this Circular is to provide information concerning the introduction of Precision RNAV (P-RNAV) operations in the Terminal Airspace of Croatia. This AIC replaces AIC A07/06 issued OCT 23 2006.

**2. BACKGROUND TO RNAV OPERATIONS IN TERMINAL AIRSPACE**

2.1 The requirement to provide operational benefits in the terminal area consistent with those that were realized in the en-route environment through the implementation of Basic RNAV (B-RNAV), led to the adoption of the P-RNAV concept.

2.2 Supporting material and guidelines have been developed over the past few years and P-RNAV operations have already been introduced in some States. Additionally, a rapidly growing proportion of the ECAC aircraft fleet has the necessary airworthiness certification and has attained formal P-RNAV operational approval.

2.3 The use of P-RNAV in the terminal airspace of the Member States of ECAC will enable States to design RNAV terminal area procedures in a manner which provides benefits, i.e.: fuel savings achieved by optimum flight profiles, improved route alignment for the users and noise mitigation.

2.4 In addition, ECAC States represented at the EUROCONTROL Airspace and Navigation Team confirmed that, by the end of 2006, the terminal area procedures in their respective airspaces would be compliant with the provisions of the flight-safety driven RNAV Integrated Initiative.

2.5 Specifically, the allowable terminal area procedures are as follows:

- ✧ Precision RNAV (the preferred solution)
- ✧ A limited application of Basic RNAV (for non-complex procedures, designed to en-route principles and above MSA/MRVA)
- ✧ Conventionally designed and designated procedures (however, the States are committed to providing some access to all airports by means of conventional procedures until at least 2010).

In addition, no new non-compliant RNAV procedures are to be implemented.

### **3. TERMINAL AREA NAVIGATION APPLICATION PLANNING FOR CROATIAN AIRSPACE**

#### **3.1 P-RNAV**

3.1.1 It is intended that P-RNAV procedures will be introduced at the following locations in the airspace of Croatia as follows:

LOCATION	IMPLEMENTATION DATE	DETAILS
TMA ZAGREB	NOV 2008	Arrival routes and Transitions to Final approach

3.1.2 Aircraft operation on such P-RNAV terminal area procedures shall be approved in accordance with the relevant JAA Temporary Guidance Leaflet No. 10 (TGL 10 rev. 1): “*Airworthiness and Operational Approval for Precision RNAV Operations in Designated European Airspace*”, or equivalent.

3.1.3 Some means of accessing airspace/airports served by P-RNAV designated procedures will continue to be provided by the retention of a limited number of conventional procedures, supplemented by the use of radar vectors. This provision will allow non-approved aircraft to continue to operate routinely into and out of the affected airports. However, such non P-RNAV aircraft operations may incur delays and/or extended routings during peak periods.

### **4. ADDITIONAL INFORMATION**

4.1 Further Information on policy, planning and implementation issues for RNAV can be obtained from:

CROATIA CONTROL  
Croatian Air Navigation Services Ltd.  
Aerodrome Zagreb  
P.O. Box 45, 10150 Zagreb  
Telephone: +385 1 6259 414, Fax: +385 1 6259 547

4.2 Further information in respect to the certification and operational approval for RNAV operations should be addressed to:

Ministry of the Sea, Tourism, Transport and Development  
CAA Croatia  
Prisavlje 14  
10000 Zagreb  
Telephone: +385 1 6169 156, Fax: +385 1 6196 393

4.3 Additional information on P-RNAV implementation will be made available through the EUROCONTROL AFN User Support Cell ((Tel) 0032 2729 4633 or (e-mail) [amnuser.support@eurocontrol.int](mailto:amnuser.support@eurocontrol.int)).

## **5. FUTURE DEVELOPMENTS**

- 5.1 Increasing dependence upon RNAV operations is expected in the coming 10 years. To enable RNAV to become the only means of navigation and to support the longer term transition to a GNSS environment, it is essential that RNAV systems offer the same level of integrity and continuity of service as offered by existing navigation equipment (e.g. VOR). It is also essential that consistent functional performance can be obtained. To this end RNAV equipment industry standards have been published by EUROCAE and RTCA. (EUROCAE ED 75/RTCA Do 236 refers) and equipment meeting these standards is designated by industry as RNP-RNAV. Such equipment is capable of meeting the requirements of JAA TGL 10 rev. 1.
- 5.2 Subject to an appropriate business case being developed, it is anticipated that a decision for an RNP mandate will be made by ECAC Member States by 2008. Implementation is not foreseen before 2015.
- 5.3 Operators equipped with RNAV Systems not capable of being certified to JAA TGL 10 rev.1, and wishing to re-equip to enable operation on RNAV terminal area procedures, are recommended to take due account of the expected RNP requirements.