



CAMEROON CIVIL AVIATION AUTHORITY – DIRECTION OF AVIATION SAFETY

MANUAL	REF	DSA.AOC.MAN.002
PERFORMANCE BASED NAVIGATION OPERATIONAL APPROVAL HANBOOK	ED	01 DU 01/11/2014
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Chapter 10 RNP AR APCH

10.1 General

RNP AR APCH operations permit additional safety and efficiency to be achieved by the capability of advanced navigation equipment, aircraft systems and procedures design.

A large number of RNP AR approach and departure procedures have been developed by the industry, commonly sponsored by airlines and designed using commercially developed design criteria. These operations have been approved in a number of States following evaluation on a case-by-case basis, normally for a specific aircraft type and individual operator.

The RNP AR APCH navigation specification has been developed to provide ICAO guidance for similar RNP approach procedures that can be applied generally and to a range of qualified aircraft types.

Procedure design criteria have now been published in ICAO Doc 9905 RNP AR Procedure Design Manual.

10.2 Authorisation Required

All operations involve some form of authorisation, either specific or implied, and consequently questions are often raised with regard to the use of the term authorisation required in the context of RNP AR APCH operations.

Early development work on RNP approach procedures was carried out in the United States. Under the US Federal Aviation Regulations, all instrument approach procedures that are in the public domain are developed under FAR Part 97. Where approach procedures (for whatever reason) do not comply with FAR Part 97, the FAA can approve an operation (for a specific operator) as a Special Airworthiness and Aircrew Authorisation Required (SAAAR) procedure.

Accordingly as at the time (1995) the initial work on RNP approach development was undertaken there was no provision in FAR Part 97 for this type of operation, the FAA approved RNP approach operations as procedures with SAAAR.

Subsequently the FAA developed procedure design rules (FAA Order 8260.52) and airworthiness and operational rules (FAA AC90-101) to support FAA Part 97 RNP SAAAR operations, referred to Public RNP SAAAR.

In 2005, when the then Obstacle Clearance Panel (now Instrument Flight Procedures Panel) in ICAO decided to harmonise ICAO procedure design rules with FAA Order 8260.52, it was recognised that there was no equivalent process in ICAO which related to non-conforming or *Special* procedures. Consequently it was decided to abbreviate the term to Authorisation Required or AR for ICAO application.



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The implication (whether SAAAR or AR) is that improvements in operational safety and efficiency gained by the utilisation of the capability of advanced navigation capability are matched by an appropriate level of detailed evaluation of aircraft, operations and procedure design.

AR therefore requires the State to conduct a full evaluation of all aspects of the operation before issuing an approval and that only qualified operators are permitted to conduct RNP operations which are identified as *Authorisation Required*.

10.3 Characteristics

There are a number of characteristics of RNP AR APCH operations that combine to improve the capability of this type of operation, including;

- support for RNP less than 0.3 (RNP 0.1 is the lowest currently available)
- obstacle clearance lateral tolerance 2 x RNP
- final approach vertical obstacle clearance provided by a vertical error budget
- radius to fix (RF) legs enabling circular flight paths to be flown

It should be noted that while RNP AR APCH procedures support low RNP types, that this is only one characteristic and that many RNP AR APCH operations do not require RNP less than 0.3. An RNP 0.3 RNP AR APCH operation should not be confused with an RNP APCH which also uses RNP 0.3 capability.

10.4 Procedure Design

RNP AR APCH procedures are designed in accordance with ICAO Doc 9905 *REQUIRED NAVIGATION PERFORMANCE AUTHORIZATION REQUIRED (RNP AR) PROCEDURE DESIGN MANUAL*.

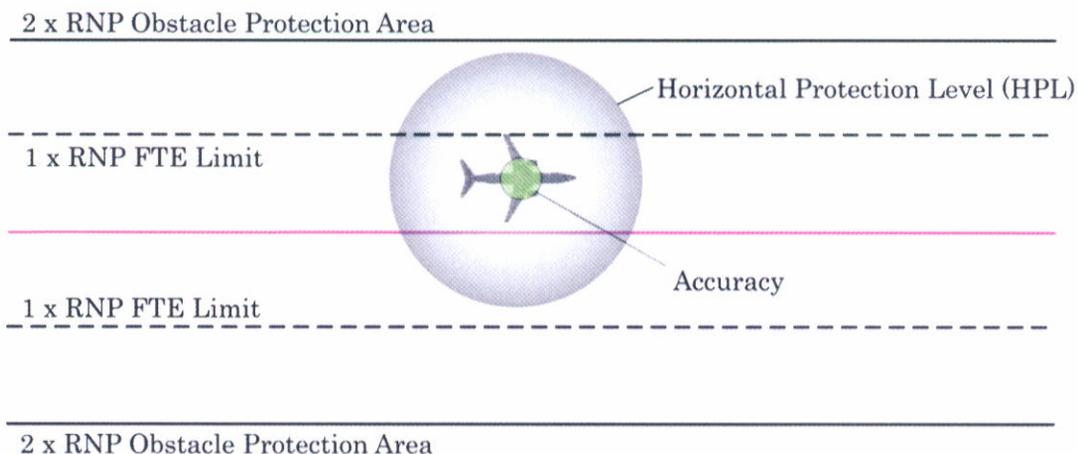


Figure 10.1: RNP AR APCH Obstacle Protection

