**Appendix 8.2.1 to Chapter 9**

**AIRCRAFT OPERATIONS DIVISION**

**CAA OF LATVIA**

**RNP AR APCH CHECKLIST**

Name of Operator: Click here to enter text.

Aircraft manufacturer, model and series, and registration number: Click here to enter text.

Date of pre-application meeting: Click here to enter text.

Date when application received by LV CAA: Click here to enter text.

Date when operator intends to begin RNP AR APCH operations: Click here to enter text.

Is the LV CAA notification date appropriate? Yes  No

Evaluation performed by Flight Operations Inspector and Airworthiness Inspector (name, title, date): Click here to enter text.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No** | **Item** | **Reference to SPA.PBN and specific ICAO reference** *(Doc 9613, Volume II, Part C, Chapter 6)* | **Operator’s reference to controlled document and its chapter** | **Inspector’s comments & follow-up** *(accepted / not accepted / status & date)* |
| **1** | **Request for specific approval**  Letter to LV CAA with the statement of intent to obtain specific approval. | SPA.PBN.100  SPA.PBN.105 |  |  |
| **2** | **Airworthiness approval**  **Aircraft eligibility - airworthiness**  Airworthiness documents showing aircraft eligibility for RNP AR APCH. AFM, AFM revision, AFM supplement, or Type certificate data sheet (TCDS) showing that the RNP navigation system is eligible for RNP AR APCH.  **Aircraft eligibility – modifications (if applicable)**  Maintenance records documenting installation or modification of aircraft systems to achieve eligibility.  **Maintenance**  Navigation database and RNP AR APCH system maintenance practices. | SPA.PBN.105 |  |  |
| **3** | **Training programme, including simulator PBN RNP AR capability** |  |  |  |
|  | 1. Structured courses of ground and FSTD training:  * no or with RNP AR APCH experience; * differences and/or similarities of the aircraft concerned;  1. Ground training:  * General concepts of RNP AR APCH operation (e.g. differences between RNP AR APCH and RNP APCH; types of RNP AR APCH procedures, etc.); * ATC communication and coordination for use of RNP AR APCH; * RNP AR APCH equipment components, controls, displays, and alerts; * AFM information and operating procedures; * MEL operating provisions;  1. Initial FSTD training. 2. Conversion training:  * Ground training; * FSTD training;  1. Procedure-specific approval for RNP AR APCH:  * Additional ground and FSTD training, including flight operational safety assessment (FOSA), specific training and operational provision published in the AIP, where applicable.  1. Initial checking of RNP AR APCH knowledge:  * check by an examiner using an FSTD; or * check during LPCs, OPCs or line flights that incorporate RNP AR APCH operations; or * LOFT/LOE programmes using an FSTD that incorporates RNP AR APCH operations.  1. Recurrent training that employs the unique RNP AR APCH characteristics of the operator’s RNP AR APCH procedures as part of the overall training programme:  * minimum of two RNP AR APCH should be flown by each flight crew member, one for each duty position (pilot flying and pilot monitoring), with one culminating in a landing and one culminating in a missed approach, and may be substituted for any required 3D approach operation; * in case of several procedure-specific RNP AR APCH approvals, the recurrent training should focus on the most demanding RNP AR APCH procedures giving credit on the less demanding ones.  1. Training for flight operation officers/dispatchers includes:  * different types of RNP AR APCH procedures; * specific navigation equipment and other equipment during RNP AR APCH operations and related RNP AR APCH requirements and operating procedures; * operator’s RNP AR APCH approvals; * MEL requirements; * aircraft performance, and navigation signal availability, e.g. GNSS RAIM/predictive RNP capability tool, for destination and alternate aerodromes. | SPA.PBN.105  AMC1 SPA.PBN.105(b)  AMC1 ORO.FC.230 |  |  |
| **4** | **Operating procedures** |  |  |  |
| **4.1** | **Flight planning** | AMC1 SPA.PBN.105(d)  AMC2 SPA.PBN.105(d) |  |  |
|  | Verify that the aircraft and crew are approved for RNP AR operations. | 6.3.2 |  |  |
|  | If dispatch predicated on procedure with RF leg, verify AP/FD is operational. | Appendix 1 to Part C  5.5.3 |  |  |
|  | Verify MEL.   * developed/revised to address the equipment provisions for RNP AR APCH operations; * an operational TAWS Class A should be available for all RNP AR APCH operations. | 6.3.4.1.1 |  |  |
|  | Verify RNP availability.  Pre-flight RNP assessment:   * established procedures requiring use of RNP capability as both a pre-flight preparation tool and as a flight-following tool in the event of reported failures; * receiver autonomous integrity monitoring (RAIM); * RNP assessment considering the specific combination of the aircraft capability (sensors and integration), as well as their availability. | 6.3.4.1.3 |  |  |
|  | Verify procedures for NAVAID exclusion. | 6.3.4.1.4 |  |  |
|  | Verify that the navigation database is current.   * Flight crew follows established procedures to ensure the accuracy of navigation data. * Operator should not allow the flight crew to use an expired database. | 6.3.4.1.5 |  |  |
|  | Review contingency procedures/options. | 6.3.4.2.20  6.3.4.2.21 |  |  |
|  | Verify FPL: “R” should appear in field 10 and PBN/T1 or T2 in field 18. |  |  |  |
| **4.2** | **Prior to commencing procedure** | AMC1 SPA.PBN.105(d)  AMC2 SPA.PBN.105(d) |  |  |
|  | Verify that the correct procedure is loaded. | 6.3.4.2.1  6.3.4.2.6 |  |  |
|  | Verify correct RNP accuracy requirements. | 6.3.4.2.3 |  |  |
|  | Cross-check the chart with the RNAV system display. | 6.3.4.2.1  6.3.4.2.6 |  |  |
|  | Verify GNSS sensor in use (only for multi-sensor systems). | 6.3.4.2.4 |  |  |
|  | Inhibit specific NAVAIDS as required. | 6.3.4.2.5 |  |  |
|  | Modify only to accept direct to waypoint before FAF and not preceding an RF leg or to change altitude/speed constraints in initial, intermediate or missed approach segments. | 6.3.4.2.1 |  |  |
|  | Confirm that the aircraft is capable of complying with the missed approach climb gradient. | 6.3.4.2.16 |  |  |
| **4.3** | **During procedure** | AMC1 SPA.PBN.105(d)  AMC2 SPA.PBN.105(d) |  |  |
|  | Maintain centre line; monitor track deviation; lateral deviation limited to ±1/2 navigation accuracy (up to 1 x RNP in fly-by turns). Execute missed approach if 1 x RNP is exceeded. | 6.3.4.2.7 |  |  |
|  | Maintain vertical path; monitor vertical deviation — limited to −22 m (−75 ft). Execute a missed approach if −22 m (−75 ft) is exceeded. | 6.3.4.2.8  6.3.4.2.9 |  |  |
|  | For RNP < 0.3, cross-check lateral and vertical guidance against other data sources. | 6.3.4.2.10 |  |  |
|  | Do not exceed aircraft category speeds in RF Legs. | 6.3.4.2.11 |  |  |
|  | Apply temperature compensation as appropriate. | 6.3.4.2.12 |  |  |
|  | Ensure that the local QNH is set before FAF. | 6.3.4.2.13 |  |  |
|  | Cross-check altimeters after IAF and before FAF ±30 m (±100 ft). | 6.3.4.2.14 |  |  |
|  | Do not exceed 30 m (100 ft) vertical deviation at VNAV capture. | 6.3.4.2.15 |  |  |
|  | If LNAV is disengaged at TOGA, re-engage as quickly as possible. | 6.3.4.2.18 |  |  |
|  | Manage speed to maintain track in any go-around. | 6.3.4.2.19 |  |  |
|  | Comply with the manufacturer’s instructions/procedures. | 6.3.4.2.5 |  |  |
|  | Use FD and/or AP. | 6.3.4.2.7 |  |  |
| **4.4** | **RF requirements** |  |  |  |
|  | Be established on procedure prior to RF leg. | Appendix 1 to Part C 5.5.5 |  |  |
|  | Cross-track deviation not to exceed ½ RNP. | Appendix 1 to Part C  5.5.6 |  |  |
|  | Do not exceed maximum airspeed associated with design. | Appendix 1 to Part C  5.5.7 |  |  |
| **4.5** | **Contingencies** |  |  |  |
|  | Failure while en route. The flight crew should be able to assess the impact of GNSS equipment failure on the anticipated RNP AR APCH operation and take appropriate action. | AMC2 SPA.PBN.105(d) |  |  |
|  | Failure on approach.  The operator’s contingency procedures should address at least the following conditions:   * failure of the area navigation system components, including those affecting lateral and vertical deviation performance (e.g. failures of a GPS sensor, the flight director or autopilot); * loss of navigation signal-in-space (loss or degradation of external signal). | AMC2 SPA.PBN.105(d) |  |  |
|  | Advise ATC if unable to comply with the requirements for an RNP AR APCH | Doc 4444, Chapter 15 15.2.1.1 |  |  |
|  | Air-ground communications failure. | Doc 4444, Chapter 15 15.3 |  |  |
|  | If unable to follow RF turn due to system failure, maintain bank and roll out on charted exit course. Inform ATC. | Doc 9613, Volume II,  Appendix 1 to Part C  5.5.8 |  |  |
| **5** | **Navigation database management** |  |  |  |
|  | 1. Validation of every RNP AR APCH procedure before using the procedure in instrument meteorological conditions (IMC). 2. Validation of the RNP AR APCH procedures with the navigation database and the modified aircraft system required for RNP AR APCH operations. 3. Implementation of procedures that ensure timely distribution and insertion of current and unaltered electronic navigation data to all aircraft that require it.   Note.  Any RNP AR APCH in the database must first be validated formally by the operator by:   1. comparing the data in the database with the procedure published on the chart; 2. flying the entire procedure either in a simulator or in the actual aircraft in VMC to ensure that there is complete consistency and there are no disconnects; 3. comparing subsequent database updates with the validated master to ensure that there are no discrepancies.   **TAWS database management**  The procedure validation process should include a compatibility check with the installed TAWS. The TAWS data should only be obtained from a qualified source and operators should have procedures in place for the management of the TAWS data. | SPA.PBN.105  AMC3 SPA.PBN.105(d)  ICAO Doc 9997 4.12.5; 4.12.6 |  |  |
| **6** | **List of reportable events** |  |  |  |
|  | 1. Event that adversely affects the safety of the operation and may be caused by actions or events external to the functioning of the aircraft navigation system. 2. Technical defects and the exceedance of technical limitations. 3. System is in place for investigating a reportable event, including initiation of corrective actions for such an event. | SPA.PBN.105  AMC1 SPA.PBN.105(e)  AMC2 ORO.GEN.160 |  |  |
| **7** | **Flight operational safety assessment (FOSA)** |  |  |  |
|  | 1. Verify that for each RNP AR APCH procedure the FOSA is conducted proportionate to the complexity of the procedure. 2. Verify that the FOSA is based on:  * restrictions and recommendations published in AIPs; * the fly-ability check; * an assessment of the operational environment; * the demonstrated navigation performance of the aircraft; and * the operational aircraft performance.  1. The operator may take credit from key elements from the safety assessment carried out by the ANSP or the aerodrome operator. | SPA.PBN.105  AMC1 SPA.PBN.105(c)  GM1 SPA.PBN.105(c) |  |  |
|  | Verify that the operator has considered the following aspects during FOSA, in order to identify hazards, risks and mitigations relevant to RNP AR APCH operations:   1. Normal performance; 2. Performance under failure conditions; 3. Aircraft failures; 4. Aircraft performance; 5. Navigation services; 6. ATC operations; 7. Flight crew operations; 8. Infrastructure; 9. Operating conditions. | SPA.PBN.105  AMC1 SPA.PBN.105(c)  GM1 SPA.PBN.105(c) |  |  |
| **8** | **RNP monitoring programme** |  |  |  |
|  | 1. RNP monitoring programme should ensure continued compliance with applicable rules and to identify any negative trends in performance. 2. Submission of the following information every 30 days to the competent authority during an interim approval period, which should be at least 90 days.  * Total number of RNP AR APCH operations conducted; * Number of approach operations by aircraft/system which were completed as planned without any navigation or guidance system anomalies; * Reasons for unsatisfactory approaches; * Thereafter, the operator should continue to collect and periodically review this data to identify potential safety concerns, and maintain summaries of this data. | SPA.PBN.105  AMC1 SPA.PBN.105(f) |  |  |
| **9** | **Approval** |  |  |  |
|  | 1. Generic specific approval. 2. Procedure-specific approval.  * Approved instrument approach procedures at specific aerodromes shall be listed in the PBN approval. * Coordination with the competent authorities for these aerodromes, if appropriate, shall be established. * Take into account possible credits stemming from RNP AR APCH specific approvals already issued to the applicant.   Note.  It is appropriate to establish a temporary limitation for RVR minima, until operational experience is gained. This period could be based upon time (e.g. 90 days) and a number of conducted operations, as agreed by the competent authority and the operator. | ARO.OPS.240  GM1 ARO.OPS.240 |  |  |
| \*All references are to the PBN manual (Doc 9613), Volume II, Part C, Chapter 6, unless otherwise indicated. | | | | |

**FOI REPORT**

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FOI NAME/SIGNATURE/DATE

**POI COMMENTS**

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POI NAME/SIGNATURE/DATE

**INFORMATION TO THE OPERATOR**

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POI NAME/SIGNATURE/DATE