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| CARC Civil Aviation Regulatory Commission | **Flight Operations Standards Directorate**<br>**Commercial Air Transport Section - Special Approvals - PBN Approvals / R NAV 5**<br>**R NAV 5 Approval Application Attachments Compliance List** |

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|---|---|---|---|
| • **Operator Name** | | | |
| • **Inspector Name** | | | |
| • **Airplane Type(s)** | | | |
| • **AOC Applicant/Holder Focal Point** | **Name** | **Phone No.** | **E-mail** |
| | | | |

| No | R NAV 5 Operational Approval Application Attachments | ICAO Doc 9613 | OMD | YES | NO | NA | Remarks |
|---|---|---|---|---|---|---|---|
| **A** | **Operations Manual Part D - Training Program** | | | | | | |
| **1** | **Training Program.** | | | | | | |
| a | Commercial operators must have a training program addressing the operational practices, procedures and training items related to RNAV 5 operations (e.g. initial, upgrade or recurrent training for pilots, dispatchers or maintenance personnel) | **2.3.2.2.2.1** | | | | | |
| **2** | **Flight Crew Training Program.** The pilot training program should address the following items: | | | | | | |
| a | The capabilities and limitations of the RNAV system installed | 2.3.5 | | | | | |
| b | The operations and airspace for which the RNAV system is approved to operate | 2.3.5 | | | | | |
| c | The NAVAID limitations with respect to the RNAV system to be used for the RNAV 5 operation | 2.3.5 | | | | | |
| d | Contingency procedures for RNAV failures | 2.3.5 | | | | | |
| e | The radio/telephony phraseology for the airspace, in accordance with Doc 4444 and Doc 7030, as appropriate | 2.3.5 | | | | | |
| f | The flight planning requirements for the RNAV operation | 2.3.5 | | | | | |
| g | RNAV requirements as determined from chart depiction and textual description | 2.3.5 | | | | | |
| h | RNAV system-specific information, including: | 2.3.5 | | | | | |
| (1) | Levels of automation, mode annunciations, changes, alerts, interactions, reversions, and degradation | 2.3.5 | | | | | |
| (2) | Functional integration with other aircraft systems | 2.3.5 | | | | | |
| (3) | Monitoring procedures for each phase of the flight (e.g. monitor PROG or LEGS page) | 2.3.5 | | | | | |
| (4) | Types of navigation sensors (e.g. DME, IRU, GNSS) utilized by the RNAV system and associated system prioritization/weighting/logic | 2.3.5 | | | | | |

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|---|---|---|---|---|---|---|---|
| (5) | Turn anticipation with consideration to speed and altitude effects; and interpretation of electronic displays and symbols | 2.3.5 | | | | | |
| i | RNAV equipment operating procedures, as applicable, including how to perform the following actions: | 2.3.5 | | | | | |
| (1) | Verify that the aircraft navigation data is current | 2.3.5 | | | | | |
| (2) | Verify the successful completion of RNAV system self-tests | 2.3.5 | | | | | |
| (3) | Initialize RNAV system position | 2.3.5 | | | | | |
| (4) | Fly direct to a waypoint | 2.3.5 | | | | | |
| (5) | Intercept a course/track | 2.3.5 | | | | | |
| (6) | Be vectored off and rejoin a procedure | 2.3.5 | | | | | |
| (7) | Determine cross-track error/deviation | 2.3.5 | | | | | |
| (8) | Remove and reselect navigation sensor input | 2.3.5 | | | | | |
| (9) | When required, confirm exclusion of a specific NAVAID or NAVAID type; and | 2.3.5 | | | | | |
| (10) | Perform gross navigation error checks using conventional NAVAIDs | 2.3.5 | | | | | |
| **3** | **Flight Dispatcher Training Program.** | | | | | | |
| a | Specific equipments | AC NO 13 | | | | | |
| b | Flight plan | AC NO 13 | | | | | |
| c | MEL requirements | AC NO 13 | | | | | |
| d | Normal procedures | AC NO 13 | | | | | |
| e | Contingency procedures | AC NO 13 | | | | | |

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|---|---|---|---|---|---|---|---|
| **B** | **Operations Manuals** | | | | | | |
| **1** | **Operations Manuals Part A** | | | | | | |
| **a** | OMs and checklists for commercial operators must address information/guidance on the SOP detailed in 2.3.4. The appropriate manuals should contain navigation operating instructions and contingency procedures, where specified. The operator must submit their manuals and checklists for review as part of the application process | 2.3.2.2.3.1 | | | | | |
| **b** | **Preflight planning** | | | | | | |
| (1) | Operators and pilots intending to conduct operations on RNAV 5 routes should file the appropriate flight plan suffixes indicating their approval for operation on the routes. | 2.3.4.2.1 | | | | | |
| (2) | During the preflight planning phase, the availability of the NAVAID infrastructure, required for the intended routes, including any non-RNAV contingencies, must be confirmed for the period of intended operations. The pilot must also confirm availability of the on-board navigation equipment necessary for the operation. | 2.3.4.2.2 | | | | | |
| (3) | Where a navigation database is used, it should be current and appropriate for the region of intended operation and must include the NAVAIDs and waypoints required for the route. | 2.3.4.2.3 | | | | | |
| (4) | The availability of the NAVAID infrastructure, required for the intended routes, including any non-RNAV contingencies, must be confirmed for the period of intended operations using all available information. Since GNSS integrity (RAIM or SBAS signal) is required by Annex 10, Volume I, the availability of these should also be determined as appropriate. For aircraft navigating with SBAS receivers (all TSO-C145/C146), operators should check appropriate GPS RAIM availability in areas where SBAS signal is unavailable. | 2.3.4.2.4 | | | | | |

| No | R NAV 5 Operational Approval Application Attachments | ICAO Doc 9613 | OMA | YES | NO | NA | Remarks |
|---|---|---|---|---|---|---|---|
| **c** | **ABAS availability** | | | | | | |
| (1) | En-route RAIM levels are required for RNAV 5 and can be verified either through NOTAMs (where available) or through prediction services. Guidance on how to comply with this requirement (e.g. if sufficient satellites are available, a prediction may not be necessary). Operators should be familiar with the prediction information available for the intended route. | 2.3.4.3.1 | | ☐ | ☐ | ☐ | |
| (2) | RAIM availability prediction should take into account the latest GPS constellation NOTAMs and avionics model. The service may be provided by the ANSP, avionics manufacturer, other entities or through an airborne receiver RAIM prediction capability. | 2.3.4.3.2 | | ☐ | ☐ | ☐ | |
| (3) | In the event of a predicted, continuous loss of appropriate level of fault detection of more than five minutes for any part of the RNAV 5 operation, the flight planning should be revised (i.e. delaying the departure or planning a different departure procedure). | 2.3.4.3.3 | | ☐ | ☐ | ☐ | |
| (4) | RAIM availability prediction software is a tool used to assess the expected capability of meeting the navigation performance. Due to unplanned failure of some GNSS elements, pilots/ANSP must realize that RAIM or GPS navigation may be lost altogether while airborne, which may require reversion to an alternative means of navigation. Therefore, pilots should assess their capability to navigate (potentially to an alternate destination) in case of failure of GPS navigation. | 2.3.4.3.4 | | ☐ | ☐ | ☐ | |
| **d** | **General operating procedures** | | | | | | |
| (1) | Operators and pilots should not request or file RNAV 5 routes unless they satisfy all the criteria in the relevant documents. If an aircraft not meeting these criteria receives a clearance from ATC to conduct an RNAV procedure, the pilot must advise ATC that he/she is unable to accept the clearance and must request alternate instructions. | 2.3.4.4.1 | | ☐ | ☐ | ☐ | |
| (2) | The pilot should comply with any instructions or procedures identified by the manufacturer as being necessary to comply with the performance requirements in this manual. | 2.3.4.4.2 | | ☐ | ☐ | ☐ | |
| (3) | Pilots of RNAV 5 aircraft must adhere to any AFM limitations or operating procedures required to maintain the navigation accuracy specified for the procedure. | 2.3.4.4.3 | | ☐ | ☐ | ☐ | |
| (4) | Where installed, pilots must confirm that the navigation database is up to date. | 2.3.4.4.4 | | ☐ | ☐ | ☐ | |

| No | R NAV 5 Operational Approval Application Attachments | ICAO Doc 9613 | OMA | YES | NO | NA | Remarks |
|---|---|---|---|---|---|---|---|
| (5) | The pilots should cross-check the cleared flight plan by comparing charts or other applicable resources with the navigation system textual display and the aircraft map display, if applicable. If required, the exclusion of specific NAVAIDs should be confirmed. | 2.3.4.4.5 | | | | | |
| (6) | During the flight, where feasible, the flight progress should be monitored for navigational reasonableness, by cross-checks with conventional NAVAIDs using the primary displays in conjunction with the RNAV CDU. | 2.3.4.4.6 | | | | | |
| (7) | For RNAV 5, pilots should use a lateral deviation indicator, flight director or autopilot in lateral navigation mode. Pilots may use a navigation map display as described in 2.3.3.3.2, without a flight director or autopilot. Pilots of aircraft with a lateral deviation display must ensure that lateral deviation scaling is suitable for the navigation accuracy associated with the route/procedure (e.g. full-scale deflection: ±5 NM). | 2.3.4.4.7 | | | | | |
| (8) | All pilots are expected to maintain route centre lines, as depicted by on-board lateral deviation indicators and/or flight guidance, during all RNAV operations described in this manual, unless authorized to deviate by ATC or under emergency conditions. For normal operations, cross-track error/deviation (the difference between the RNAV system-computed path and the aircraft position relative to the path) should be limited to ±½ the navigation accuracy associated with the procedure or route (i.e. 2.5 NM). Brief deviations from this standard (e.g. overshoots or undershoots) during and immediately after procedure/route turns, up to a maximum of one times the navigation accuracy (i.e. 5 NM), are allowable. | 2.3.4.4.8 | | | | | |
| (9) | If ATS issues a heading assignment taking the aircraft off a route, the pilot should not modify the flight plan in the RNAV system until a clearance is received to rejoin the route or the controller confirms a new clearance. When the aircraft is not on the published route, the specified accuracy requirement does not apply | 2.3.4.4.9 | | | | | |
| **e** | **Contingency procedures** | | | | | | |
| (1) | The pilot must notify ATC when the RNAV performance ceases to meet the requirements for RNAV 5. The communications to ATC must be in accordance with the authorized procedures (Doc 4444 or Doc 7030, as appropriate). | 2.3.4.5.1 | | | | | |
| (2) | In the event of communications failure, the pilot should continue with the flight plan in accordance with the published “lost communications” procedure. | 2.3.4.5.2 | | | | | |

| No | R NAV 5 Operational Approval Application Attachments | ICAO Doc 9613 | OMA | YES | NO | NA | Remarks |
|---|---|---|---|---|---|---|---|
| (3) | Where stand-alone GNSS equipment is used: | 2.3.4.5.3 | | ☐ | ☐ | ☐ | |
| (a) | In the event of that there is a loss of the RAIM detection function, the GNSS position may continue to be used for navigation. The pilot should attempt to cross-check the aircraft position, with other sources of position information, (e.g. VOR, DME and/or NDB information) to confirm an acceptable level of navigation performance. Otherwise, the pilot should revert to an alternative means of navigation and advise ATC | 2.3.4.5.3 | | ☐ | ☐ | ☐ | |
| (b) | In the event that the navigation display is flagged invalid due to a RAIM alert, the pilot should revert to an alternative means of navigation and advise ATC. | 2.3.4.5.3 | | ☐ | ☐ | ☐ | |

| No | R NAV 5 Operational Approval Application Attachments | ICAO Doc 9613 | MEL | YES | NO | NA | Remarks |
|---|---|---|---|---|---|---|---|
| **2** | **Minimum Equipment List (MEL)** | | | | | | |
| **a** | MEL revisions necessary to address RNAV 5 provisions must be approved. Operators must adjust the MEL, or equivalent, and specify the required dispatch conditions | 2.3.2.2.4 | | ☐ | ☐ | ☐ | |

- **Assessment Result**

☐ **Satisfactory** ☐ **Unsatisfactory**

- **Remarks**

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| Flight Operations Inspector Name | Signature | Date |
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