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| **APPLICATION FOR NAVIGATION PERFORMANCE (RNP) 2** |  |

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| **INSTRUCTIONS**  1. The applicant will tick (√) the appropriate Yes/No boxes and as applicable insert references from the FM or Ops Manual with sample pages attached as appendix.  2. Applicant must obtain and submit manufacturer’s written confirmation with regard to continuing maintenance.  3. Operating policy and procedures, training syllabus and lesson plan must be submitted for approval before commencement of flight crew / dispatcher training.  **PARTICULARS** | | | | | | | |
| **Operator:** | Click or tap here to enter text. | **AOC No:** | Click or tap here to enter text. | **Rep’s Name:** | Click or tap here to enter text. | **Position:** | Click or tap here to enter text. |

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| Aircraft manufacturer,  Model and series | Serial number | Registration | No. of INS/IRS/IRU manufacturer and model | No. of GNSS manufacturer and model | No. of FMS/FMGC  Make and model | TSO Spec/Ref |
| Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
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| **Title of Paragraph** | **Operator’s compliance reference** | **CAAS Use**  *(All line items are to be initialed and dated)* | | | |
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| **Acceptable** | **Unacceptable** | **Not Applicable** | **Remark(s)** |
| **ICAO Doc 9613**  **AIRWORTHINESS REQUIREMENTS**  **1 AIRCRAFT ELIGIBILITY**  1.1 Aircraft with AFM, STC or manufacturer’s documentation, such as service letters, attesting to RNP 2 airworthiness compliance are acceptable by the Authority. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 1.2 The following systems meet the accuracy and integrity requirements of these criteria:  (a) aircraft with E/TSO-C129a sensor (Class B or C), E/TSO-C145() and the requirements of E/TSOC115b FMS, installed for IFR use in accordance with FAA AC 20-130A;  (b) aircraft with E/TSO-C129a Class A1 or E/TSO-C146() equipment installed for IFR use in accordance with FAA AC 20-138A or AC 20-138B. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 1.3 For preparation of application for RNP 2 operational approval the operator may wish to refer to the following best practice documents:  (a) ICAO PBN Manual Document 9613 AN/937  (b) CASA AC91.U-01 | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| **2 FUNCTIONALITY**  2.1 Navigation data, including a failure indicator, must be displayed on a lateral deviation display (CDI, EHSI) and/or a navigation map display. These must be used as primary flight instruments for the navigation of the aircraft, for maneuver anticipation and for failure/status/integrity indication. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 2.2 The RNP 2 operation requires the following minimum system and equipment functions: | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (a) A navigation database, containing current navigation data officially promulgated for civil aviation, which can be updated in accordance with the AIRAC cycle and from which RNP 2 routes can be retrieved and loaded into the RNP system. The stored resolution of the data must be sufficient to achieve negligible PDE. Database protections must prevent pilot modification of the onboard stored data; | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (b) A means to display the validity period of the navigation data to the pilot; | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (c) A means to retrieve and display data stored in the navigation database relating to individual waypoints and NAVAIDs (when applicable), to enable the pilot to verify the RNP 2 route to be flown; and | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (d) For RNP 2 tracks in oceanic/remote continental airspace using flexible (e.g. organized) tracks, a means to enter the unique waypoints required to build a track assigned by the ATS provider. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 2.3 The means to display the following items, either in the pilot’s primary field of view, or on a readily accessible display: | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (a) The active navigation sensor type; | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (b) The identification of the active (To) waypoint; | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (c) The groundspeed or time to the active (To) waypoint; and | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (d) The distance and bearing to the active (To) waypoint. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 2.4 The capability to execute a “direct to” function. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 2.5 The capability for automatic leg sequencing with the display of sequencing to the pilot. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 2.6 The capability to automatically execute waypoint transitions and maintain track consistent with the RNP 2 performance requirements. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 2.7 The capability to display an indication of RNP 2 system failure in the pilot’s primary field of view. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 2.8 Parallel offset function (optional) | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| **3 NAVIGATION DATA BASE INTEGRITY**  3.1 The operator must obtain the navigation database from a supplier complying with RTCA DO 200A/EUROCAE document ED 76, Standards for Processing Aeronautical Data, and the database must be compatible with the intended function of the equipment. Regulatory authorities recognize compliance to the referenced standard using a LOA or other equivalent document. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 3.2 The operator must report any discrepancies invalidating an ATS route to the navigation database supplier, and the operator must take actions to prohibit their pilots from flying the affected ATS route. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 3.3 Aircraft operators should consider the need to conduct periodic checks of the operational navigation databases in order to meet existing quality system requirements. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| **4 CONTINUING AIRWORTHINESS**  4.1 Maintenance programme reference | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| **5 OPERATIONAL REQUIREMENTS**  5.1 To meet RNP 2 requirements, the aircraft must maintain track-keeping accuracy of +/-2nm for 95% of total flight time. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 5.2 On-board performance monitoring and alerting  (a) **Accuracy**: During operations in airspace or on routes designated as RNP 2, the lateral TSE must be within ±2 NM for at least 95 per cent of the total flight time. The along-track error must also be within ±2 NM for at least 95 per cent of the total flight time. To satisfy the accuracy requirement, the 95 per cent FTE should not exceed 2 NM. To satisfy the accuracy requirement, the 95 per cent FTE should not exceed 1 NM.  *Note: The use of a deviation indicator with 2 NM full-scale deflection is an acceptable means of compliance.* | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (b) ***Integrity****:* Malfunction of the aircraft navigation equipment is classified as a major failure condition under airworthiness guidance material (i.e. 10–5 per hour). | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (c) **Continuity**: For RNP 2 oceanic/remote continental airspace applications, loss of function is a major failure condition. For RNP 2 continental applications, loss of function is a minor failure condition if the operator can revert to a different navigation system and proceed to a suitable airport. If a single aircraft configuration is to support all potential applications of RNP 2, the more stringent continuity requirement applies. The AFM limitations section must reflect  restrictions in capability to aid in operational approvals. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| (d) ***SIS:***The aircraft navigation equipment shall provide an alert if the probability of SIS errors causing a lateral position error greater than 4 NM exceeds 1 × 10–7 per hour. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| **6 OPERATIONS MANUAL**  6.1 Pre-flight procedures and Flight Planning:  (a) Verify aircraft and pilots are approved of RNP 2 Operations.  (b) Verify flight plan entry.  (c) Verify navigation database for validity and currency. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 6.2 En-route ABAS:  (a) Verification of RAIM availability. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| 6.3 General operating procedures and Contingency Procedures:  (a) Operating procedures cover loss of RNP 2 capability (integrity alerts or loss of navigation) or inability comply with RNP 2 requirements for any reason, contingency plans etc. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| **7 PILOT KNOWLEDGE AND TRAINING**  7.1 Operator holding PBN operational approval will need to familiarize with the monitoring and alerting functionality of RNP 2 operations and to ensure that flight crew are familiar with the principles and operations of GNSS. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| **8 MEL**  8.1 Any revisions necessary to address RNP 2 provisions must be approved, adjust and specify the required RNP 2 dispatch provisions. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| **9 HMI**  9.1Human / Machine Interface review. | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |
| **10 QSRA**  10.1 Qualitative Safety Risk Assessment | Click or tap here to enter text. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text.  Click or tap to enter a date. | Click or tap here to enter text. |

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| **“Warning:   Notice is given that the operator shall accept full responsibility for all information given in this application form. Any attempt to provide false information will result in rejection of the application and, if already granted, the withdrawal of the Operational Approval. In addition, the operator may render himself liable to prosecution under section 29C(1)(b) of the Air Navigation Act.”** | | | | |
| “I declare to the best of my knowledge and belief that the statements made and the information supplied in this form are complete and correct.  I understand that any false representations made by me for the purpose of procuring the Singapore aviation safety instrument is an offence under section 29C(1)(b) of the Air Navigation Act and I may be subject to the penalties stipulated thereunder and any Singapore aviation safety instrument granted pursuant to the application will be revoked.” | | | | |
| **Signature / Name of person representing the operator** | |  | | |
| **Signature / Name of FS Officer accepting this form** | |  | | |
| **Revision history:** | | | | |
| **Version** | **Date** | | **Paragraph(s)** | **Details** |
| 1.0 | August 2019 | |  |  |
| 2.0 | 30 November 2021 | | All | * signature columns added * Changed formatting |

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| **REFERENCES** | |
| Regulatory | : (1) ANR 98 Regulations 10-13 |
| Compliance | : (1) ICAO Doc 9613 AN/937 (2) CASA AC91.U-01 |