



**APPLICATION FOR P-RNAV/RNAV 1 OPERATIONAL APPROVAL OR RENEWAL**

Applicants are strongly advised to read the 'P-RNAV Notes for Completion' before completing the form.

Please complete the form in BLOCK CAPITALS using black or dark blue ink.

This form is designed to elicit all the required information from those operators requiring Precision Area Navigation (P-RNAV) operations approvals. The completed form and supporting documentation should be submitted to the Flight Operations and Flight Crew Licensing Inspectorate of the Safety Regulation Division at the address listed in the 'Notes for Completion'.

<b>Section I</b>	<b>Page 1</b>	<b>Operator/Airframe Details</b>	<b>Completion mandatory</b>
<b>Section II</b>	<b>Page 2</b>	<b>P-RNAV Notes For Completion</b>	
<b>Section III</b>	<b>Page 2</b>	<b>Signature Block</b>	<b>Completion mandatory</b>
<b>Section IV</b>	<b>Pages 3 to 10</b>	<b>Operator's P-RNAV Submissions Matrix</b>	<b>Completion mandatory</b>

**SECTION I OPERATOR/AIRFRAME DETAILS**

**1 Applicant Details - required for all Approval requests**

Please give the official name and business or trading name(s), address, mailing address, e-mail address and contact telephone/fax numbers of the applicant. Note: For AOC holders - company name, AOC number and e-mail address will suffice.

**2 Aircraft Details - required for all Approval requests**

Aeroplane type(s), series and registration mark(s).

Aeroplane Type	Aeroplane Series	Registration

**SECTION II P-RNAV NOTES FOR COMPLETION**

<p><b>1 Applicability</b></p> <p>P-RNAV is a European RNAV specification with a required track keeping accuracy of ±1 NM for 95% of the flight time, together with advanced functionality and a high integrity navigation database. P-RNAV capability can be achieved using inputs from DME/DME or GNSS and/or INS. Typically P-RNAV can be used to fly P-RNAV designed SIDs and STARs in Aerodrome Terminal Control Airspace.</p> <p>The requirements for Operator Approval to carry out P-RNAV operations are laid out in JAA TGL 10 (available via the Eurocontrol Website - see below).</p>		
<p>Additional Guidance can be found in: OPS SN-2012/4 UK AIC 92/2003 (Yellow 116) - P-RNAV in Terminal Airspace - Application UK AIC 125/2006 (Yellow 226) - Introduction of P-RNAV Procedures in UK Terminal Airspace ICAO Doc 9613 Manual of Performance-Based Navigation ICAO Doc 8168 Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS)</p> <p>Other useful information is provided on the Eurocontrol Website: <a href="http://www.ecacnav.com/prnav">http://www.ecacnav.com/prnav</a>.</p>		
<p><b>2 Operator's P-RNAV Submissions Matrix</b></p> <p>Section IV of this application form is the Operator's P-RNAV Submissions Matrix. All applicants should complete Column 4 of this matrix in full. If more than one type of aircraft/fleet is included in a single application a completed matrix should be included for each aircraft/fleet.</p> <p><b>Failure to complete the P-RNAV Submissions Matrix may result in a delay in processing your application.</b></p>		
<p><b>3 Documents to be included with the application</b></p> <p>Copies of all documents referred to in Column 4 of the Operator's P-RNAV Submissions Matrix should be included when returning the completed application form to the Authority. Original documents should not be sent, photocopies are sufficient. Do not send complete manuals, only the relevant sections/pages will be required.</p> <p><b>Failure to include all relevant documentation may result in a delay in processing your application.</b></p>		
<p><b>4 Submissions and Enquiries</b></p> <table><tr><td>Address for submissions: Seychelles Civil Aviation Authority Safety Regulation Flight Operations and Flight Crew Licensing Inspectorate P.O Box 181 Victoria, Mahe Seychelles</td><td>Contact details for enquiries:  Tel: +248 438 4181 Fax: +248 438 4033 <a href="mailto:morr@scaa.sc">morr@scaa.sc</a></td></tr></table>	Address for submissions: Seychelles Civil Aviation Authority Safety Regulation Flight Operations and Flight Crew Licensing Inspectorate P.O Box 181 Victoria, Mahe Seychelles	Contact details for enquiries:  Tel: +248 438 4181 Fax: +248 438 4033 <a href="mailto:morr@scaa.sc">morr@scaa.sc</a>
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**SECTION III SIGNATURE BLOCK**

Signature: .....
Name (BLOCK LETTERS) .....
Appointment: .....
Date: .....
Please note that a <b>minimum</b> of 30 working days will normally be required to check and confirm the information given above - if data is missing or omitted the process may take <b>considerably</b> longer.

**SECTION IV APPLICANT'S P-RNAV SUBMISSIONS MATRIX**

<b>Main Heading</b>	<b>Expanded areas to be addressed by application</b>	<b>Sub-requirement</b>	<b>Operator's Operations Manual Reference or Document Reference</b>
<p><b>1.0 Reference Documents used in compiling submission</b></p>	<p>Your submission should be based on current up to date regulatory material.</p> <p>You should publish a compliance statement showing how the criteria of TGL 10 have been satisfied</p>	<p>TGL 10 ICAO Doc 9613 ICAO Doc 8618 PANS-OPS AIC 92/2003 (Yellow 116) AIC 125/2006 (Yellow 226) FODCOM 04/08</p>	
<p><b>2.0 Airworthiness Navigation System Capability compliance statement</b></p>	<p>Give reference to Navigation System capability, e.g. GNSS stand-alone equipment should be approved in accordance with ETSOC129a.</p> <p>Is FMGS/FMS compliant with TGL 10 for PRNAV operations?</p> <p>Is FMGS/FMS compliant with performance requirements of ED-75/DO-236 for RNP RNAV operations? (e.g. All Airbus 320/321/330/340 are compliant.)</p>	<p>ETSO-C129a/ETSO-C145 (In CS-ETSO on the EASA website <a href="http://www.easa.europa.eu">http://www.easa.europa.eu</a>)</p> <p>TGL 10</p> <p>TGL 10</p>	
<p><b>2.1 Aircraft Flight Manual (AFM)</b></p>	<p>A statement or copy of the AFM showing the aircraft certification standard for RNAV operations.</p>		
<p><b>2.2 Navigation System FMS/Autopilot interface capability</b></p>	<p>Full details of the Navigation System including type and number, e.g. specific capability.</p>	<p>TGL 10</p> <ul style="list-style-type: none"> <li>• Fly by waypoint (WP).</li> <li>• Fly over WP.</li> <li>• Direct to function.</li> <li>• Define vertical path (FPA to a WP).</li> <li>• At or above Altitude constraint.</li> <li>• At or below Altitude constraint.</li> <li>• At Altitude constraint.</li> <li>• Vertical Path control (provide guidance from WP to a vertically constrained WP).</li> <li>• Entire procedures loadable from aircraft database.</li> </ul>	

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<b>2.2 Navigation System FMS/Autopilot interface capability (continued)</b>		<ul style="list-style-type: none"> <li>• Database that can be updated in accordance with the AIRAC cycle.</li> <li>• Display active WP.</li> <li>• Display validity period of database.</li> <li>• Continuous display of computed RNAV (GNSS) desired path.</li> <li>• RNAV/GNSS system failure/integrity downgrade alerting capability.</li> <li>• Display of active sensors.</li> <li>• Database protection against flight crew modification.</li> <li>• Distance/bearing to WP.</li> <li>• Automatic leg sequencing.</li> <li>• Means to retrieve and display data, e.g. Master Control and Display Unit (MCDU).</li> </ul>	
<b>2.3 Navigation Lateral Accuracy</b>	P-RNAV $\pm$ 1NM for 95% of the flight time.		
<b>2.4 Quality Control. Navigation database integrity checks</b>	Database obtained from a supplier holding a type 1 and type 2 Letter Of Acceptance (LOA). This demonstrates compliance with EUROCAE/RTCA document ED-76/DO-200A. (See <a href="http://eurocae.eu">http://eurocae.eu</a> and <a href="http://www.rtca.org">http://www.rtca.org</a> .)		
<b>2.5 SID/STAR plate supplier</b>	Has ED-76 Approval? Show how you audit your supplier of SIDs and STARs in order to establish the effectiveness of your supplier's quality system.		

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<p><b>2.6 Feedback and reporting of errors found</b></p>	<p>Outline your process for error reporting/ withdrawal of operational use of procedures.</p> <p>Note: In particular, significant errors (i.e. those that would affect the flight path of the aircraft) must be reported to the database supplier immediately, and the affected procedures withdrawn from company operations by company instruction <b>without delay</b>. Any database or chart anomaly identified during RNAV operations must be reported to the SCAA through the MOR scheme.</p>		
<p><b>2.7 Loading of Navigation Database</b></p>	<p>Process to ensure that there is no possible corruption in the content of the database on the RNAV/GNSS system.</p>		
<p><b>3.0 Standard Operating Procedures</b></p>	<p>Manufacturer/operator developed.</p> <p>Manufacturer's procedures recommended as starting point and must include at least the following.</p>	<p>MEL handling: Items required for P-RNAV operations.</p> <p>Required equipment list.</p> <p>Statement that autopilot/flight director should be used whenever possible.</p> <p>SOPs for which pages should be displayed on the FMC for P-RNAV (PF and PNF).</p> <p>Database Validity Check.</p> <p>Monitoring of system navigation accuracy.</p> <p>SID/STAR Validity Check including confirmation of procedure track and distance.</p> <p>Navigation System Downgrade Procedure.</p> <p>Contingency procedures if unable P-RNAV.</p> <p>Statement that crew should not manually insert WPs into the procedure.</p>	

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4.0 Operations Manuals	Part A	<ul style="list-style-type: none"> <li>• RNAV concepts.</li> <li>• Navigation accuracy assessment at dispatch, for destination and alternates.</li> <li>• RTF phraseology.</li> <li>• MEL handling.</li> <li>• SOPs.</li> <li>• Crew Authorisation required/validation.</li> </ul>	
	Part B	<ul style="list-style-type: none"> <li>• Technical information and MEL.</li> </ul>	
	Part D	<ul style="list-style-type: none"> <li>• Training programme (Modular) in accordance with P-RNAV operations.</li> </ul>	
4.1 Pre-Dispatch		<ul style="list-style-type: none"> <li>• MEL.</li> <li>• RAIM/AIME.</li> <li>• NOTAMs/Navigation infrastructure.</li> <li>• Crew qualified.</li> <li>• Database valid.</li> </ul>	
4.2 Training package		<ul style="list-style-type: none"> <li>• Compliant with Flight Crew Training and Testing requirements for P-RNAV Operations.</li> </ul>	

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<p><b>All RNAV Operations</b></p>	<p>Basic Area Navigation Concepts:</p> <ul style="list-style-type: none"> <li>• Theory of RNAV including differences between B-RNAV, P-RNAV and RNP-RNAV.</li> <li>• RNAV/RNP Definitions.</li> <li>• The meaning of RNP/ANP.</li> <li>• Limitations of RNAV.</li> <li>• Limitations of Baro-VNAV.</li> <li>• GPS concepts and limitations (if applicable).</li> <li>• Charting, database and avionics issues including:               <ol style="list-style-type: none"> <li>1 WP naming and depiction concepts.</li> <li>2 Fly-by and fly-over WPs.</li> <li>3 Use of RNAV equipment including, where appropriate:                   <ol style="list-style-type: none"> <li>a) Verification and sensor management.</li> <li>b) Tactically modifying the flight plan.</li> <li>c) Addressing discontinuities.</li> <li>d) Entering associated data such as:                       <ol style="list-style-type: none"> <li>i) Wind.</li> <li>ii) Altitude/speed constraints.</li> <li>iii) Vertical profile/vertical speed.</li> </ol> </li> </ol> </li> </ol> </li> <li>• RTF phraseology for RNAV/RNP.</li> <li>• The implications for RNAV/RNP operations of systems malfunctions which are not RNAV related (e.g. hydraulic failure or engine failure).</li> </ul> <p><b>NOTE: Training in Basic Area Navigation concepts is required for all types of RNAV/RNP operations. However, credit may be given/taken for previous Basic Area Navigation concept training when adding a qualification for further type(s) of Area Navigation operations.</b></p>	<p>Some or all of:</p> <ul style="list-style-type: none"> <li>• Operations Manual content;</li> <li>• handouts (paper or electronic);</li> <li>• Computer-Based Training (CBT); and</li> <li>• classroom.</li> </ul>	

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<b>B-RNAV</b>	<p>Basic Area Navigation concept training and training in the following topics:</p> <ul style="list-style-type: none"> <li>• Airspace where B-RNAV is required.</li> <li>• Changes to charting and documents to reflect B-RNAV.</li> <li>• Navigational equipment required to be operational for flight in designated B-RNAV airspace, and the limitations associated with RNAV equipment.</li> <li>• Use of lateral navigation mode and associated lateral control techniques.</li> <li>• Flight planning requirements.</li> <li>• Contingency procedures.</li> </ul> <p><b>Note: Credit may be given/taken for previous basic RNAV concept training when adding a qualification for B-RNAV operations.</b></p>	<p>Some or all of:</p> <p>Operations Manual content;</p> <ul style="list-style-type: none"> <li>• handouts (paper or electronic);</li> <li>• CBT; and</li> <li>• classroom;</li> </ul> <p>and:</p> <p>Line Training.</p>	



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<p><b>P-RNAV</b></p>	<p>B-RNAV concept training and training in the following topics:</p> <ul style="list-style-type: none"> <li>• Airspace where P-RNAV is required.</li> <li>• Performance requirements for P-RNAV.</li> <li>• Navigational equipment required to be operational for flight in designated P-RNAV airspace, and the limitations associated with P-RNAV equipment including MEL issues.</li> <li>• Flight planning requirements.</li> <li>• Charting, database and avionics issues including RNAV path terminator concepts, especially: <ul style="list-style-type: none"> <li>a) Use of the 'CF' path terminator.</li> <li>b) Use of the 'TF' path terminator.</li> </ul> </li> <li>• Use of RNAV equipment including: <ul style="list-style-type: none"> <li>a) Retrieving a procedure from the database.</li> <li>b) Using the autopilot, flight director and autothrottle at different stages of the procedure.</li> </ul> </li> <li>c) Flight mode annunciations.</li> <li>• Flying the procedure including: <ul style="list-style-type: none"> <li>a) Use of lateral navigation mode and associated lateral control techniques.</li> <li>b) Use of vertical navigation mode and associated vertical control techniques.</li> </ul> </li> <li>• Contingency procedures.</li> </ul> <p><b>Note: Credit may be given/taken for previous Basic Area navigation concept training when adding a qualification for P-RNAV operations.</b></p>	<p>Some or all of:</p> <ul style="list-style-type: none"> <li>• Operations Manual content;</li> <li>• handouts (paper or electronic);</li> <li>• CBT; and</li> <li>• classroom;</li> </ul> <p>and</p> <ul style="list-style-type: none"> <li>• Flight Simulator Training including: <ul style="list-style-type: none"> <li>a) at least one P-RNAV procedure flown as PF by each crew member; and</li> <li>b) failures such as map shift, sensor failure etc.</li> </ul> </li> </ul>	

**Any Further Comments to Support Your Application:**

A large, empty rectangular box with a thin black border, intended for providing additional comments to support the application.