



Application For RNP Approach Operational Approvals
Under Civil Aviation Rule Part 91

Please complete the form, entries should be typed or printed in BLOCK CAPITALS after reading the 'Notes for Completion' on page 2.

The charges associated with the operational approvals will be invoiced to the applicant.

Applications must be submitted to CASA not less than 90 days prior to the date required.

This form is designed to elicit all the required information from those operators requiring Required Navigation Precision (RNP) approach operations approvals. The completed form and supporting documentation should be submitted to CASA PNG at the address listed in the 'Section II'.

Section I	Page 1 to 2	Operator/Airframe Details	Completion mandatory
Section II	Page 2	RNP Approach Notes For Completion	
Section III	Page 3	Signature Block	Completion mandatory
Section IV	Pages 4 to 11	Operator's RNP Approach Submissions Matrix	Completion mandatory

SECTION I OPERATOR/AIRFRAME DETAILS

1 Applicant Details - required for all Approval requests					
Name of Operator					
				<i>Client ID No. (if known)</i>	
Address for Service: <i>(Ref Civil Aviation Act Section 48 requires applicants to provide an address for service (i.e. a physical address) and to promptly notify the Director of any changes.)</i>					
Tel:		Fax:		Email:	
Postal Address: <i>(If different from Address for Service.)</i>					
Tel:		Fax:		Email:	
Person or organisation who can be contacted for further information concerning this application:					
Name:					
Designation:					
Address:					
Tel:		Fax:		Email:	

2 Aircraft Details - required for all Approval requests [Aeroplane type(s), series and registration mark(s).]		
Aeroplane Type	Aeroplane Series	Registration

SECTION II RNP APPROACH NOTES FOR COMPLETION

1. Applicability														
<p>RNP Approach approval is the means by which operators can gain approval to carry out RNAV approaches based on GNSS without vertical guidance or with vertical guidance based on barometric VNAV (APV Baro-VNAV). The APV Baro-VNAV criteria are based upon a lateral navigation performance associated with RNAV (GNSS) of RNP 0.3 and a vertical navigation performance based upon the use of barometric inputs with a VNAV functionality in the airborne system.</p> <p>The requirements for Operator Approval to carry out RNP Approach operations are laid out in AC 91-12, CASA PNG PBN Handbook.</p> <p>Additional Guidance can be found in:</p> <p>ICAO Doc 9997 Performance-based Navigation (PBN) Operational Approval Manual ICAO Doc 9613 Manual of Performance-Based Navigation ICAO Doc 8168 Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS) EASA AMC 20-27 FODCOM 04/2008</p> <p>This application form does not cover operational approval for approaches flown using GNSS augmentation systems such as SBAS (e.g. WASS and EGNOS), i.e. LPV approaches or GBAS-based GLS approaches. It does not give approval to carry out approaches classified as RNP (AR), i.e. Authorisation Required.</p>														
2. Operator's RNP Approach Submissions Matrix														
<p>Section IV of this application form is the Operator's RNP Approach 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>Failure to complete the RNP Approach Submissions Matrix may result in a delay in processing your application.</p>														
3. Documents to be included with the application														
<p>Copies of all documents referred to in Column 4 of the Operator's RNP Approach Submissions Matrix should be included when returning the completed application form to the Civil Aviation 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>Failure to include all relevant documentation may result in a delay in processing your application.</p>														
4. Submissions and Enquiries (All supplemental information should be in an electronic format.)														
<table> <tr> <td>Address for submissions:</td> <td>Contact details for enquiries:</td> </tr> <tr> <td>CEO/Director</td> <td>Tel: +675 323 1332 / +675 325 7320</td> </tr> <tr> <td>Civil Aviation Safety Authority</td> <td>Fax: +675 325 1919</td> </tr> <tr> <td>P O Box 1941</td> <td>Email: info@casapng.gov.pg / mfo@casapng.gov.pg</td> </tr> <tr> <td>BOROKO</td> <td></td> </tr> <tr> <td>Papua New Guinea</td> <td></td> </tr> <tr> <td>E-mail: FlyingOps@casapng.gov.pg</td> <td></td> </tr> </table>	Address for submissions:	Contact details for enquiries:	CEO/Director	Tel: +675 323 1332 / +675 325 7320	Civil Aviation Safety Authority	Fax: +675 325 1919	P O Box 1941	Email: info@casapng.gov.pg / mfo@casapng.gov.pg	BOROKO		Papua New Guinea		E-mail: FlyingOps@casapng.gov.pg	
Address for submissions:	Contact details for enquiries:													
CEO/Director	Tel: +675 323 1332 / +675 325 7320													
Civil Aviation Safety Authority	Fax: +675 325 1919													
P O Box 1941	Email: info@casapng.gov.pg / mfo@casapng.gov.pg													
BOROKO														
Papua New Guinea														
E-mail: FlyingOps@casapng.gov.pg														

SECTION III SIGNATURE BLOCK

Full name of (nominated) Chief Executive: _____

Signature of (nominated) Chief Executive: _____

Date of application: _____

Please note that a minimum of 90 working days will normally be required to check and confirm the information given above - if data is missing or omitted the process may take considerably longer.

NOTE:

The provision of false information or failure to disclose information relevant to the grant or holding of an aviation document constitutes an offence under Section 304 of the Civil Aviation Act 2000 and is subject, in the case of a person other than an individual, to a maximum fine of K100,000.

OFFICE USE ONLY

1	Received By	.....	2	Date Received	.....	3	Receipt No	.....
4	Job No	.....	5	Completed By	.....	6	Authorisation Issue Date	.....

SECTION IV APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

Main Heading	Expanded areas to be addressed by application	Sub-requirement	Operator's Operations Manual Reference or Document Reference
1.0. Letter of Intent	Applicant making an initial inquiry by letter to CASA		
1.1. Reference Documents used in compiling submission	<p>Your submission should be based on current up to date regulatory material.</p> <p>Compliance statement should show how criteria have been satisfied.</p>	AC 91-12, AC 61-14, CASA PNG PBN Handbook, ICAO Doc 9997, ICAO Doc 8618 PANS-OPS ICAO Doc 9613, EASA AMC 20-25, EASA AMC 20-27, FODCOM 04/2008	
2.0. Airworthiness Navigation System Capability compliance statement	<p>Give reference to Navigation System capability, e.g. GNSS stand-alone equipment should be approved in accordance with ETSO- C129a.</p> <p>Specify to what standards the navigation system complies.</p>	<p>ETSO-C129a/ETSO-C145 ETSO C106 (In CS-ETSO on the EASA website http://www.easa.europa.eu.)</p> <p>ARINC 424, 706 CA Form 2129</p>	
2.1. Aircraft Flight Manual (AFM)	A statement or copy of the AFM showing the aircraft certification standard for RNP Approach operations (including VNAV approach if Baro-VNAV required).	AFM/AFMS/COMS	
2.2. Navigation System FMS/Autopilot interface capability	<p>Full details of the Navigation System including type and number, e.g. specific capability. These details are given in ICAO Doc 9613, 9997, AMC 20-27, AC 91-12.</p> <p>Full details of navigation system, FMS and autopilot including type, number, software version.</p>	<ul style="list-style-type: none"> • Fly by waypoint (WP). • Fly over WP. • Direct to function. • Define vertical path (FPA to a WP). • At or above Altitude constraint. • At or below Altitude constraint. • At Altitude constraint. • Vertical Path control (provide guidance from WP to a vertically constrained WP). • Entire procedures loadable from aircraft database. • Database that can be updated in accordance with the AIRAC cycle. • Display active WP. • Display validity period of database. • Continuous display of computed RNAV (GNSS) desired path. • RNAV/GNSS system failure/integrity downgrade alerting capability. • Display of active sensors. 	

SECTION IV APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

Main Heading	Expanded areas to be addressed by application	Sub-requirement	Operator's Operations Manual Reference or Document Reference
<p>2.2. Navigation System FMS/Autopilot interface capability (continued)</p>		<ul style="list-style-type: none"> • Database protection against flight crew modification. • Distance/bearing to WP. • Automatic leg sequencing. • Means to retrieve and display data, e.g. Master Control and Display Unit (MCDU). • Capacity to load the whole approach procedure into RNAV system. <p>Recommended for RNP Approach:</p> <ul style="list-style-type: none"> • Provide horizontal deviation relative to extended final approach segment. • Course selector of the deviation display auto slaved to RNAV computed path. <p>Required for Baro-VNAV:</p> <ul style="list-style-type: none"> • APV Baro-VNAV deviation must be displayed on a vertical deviation scale. • Capability to display vertical deviation relative to final approach segment on PFD. • Navigation database must contain all the data required to fly the published procedure including vertical information. • Failure flag available on vertical scale. • Two independent barometric altimetry sources, one visible from each seat. <p>Baro-VNAV:</p> <ul style="list-style-type: none"> • Temperature Compensation. Able to automatically adjust the vertical flight path for temperature effects. • Capability to automatically intercept the vertical path at FAP using a vertical fly-by technique. 	
<p>2.3. Navigation Accuracy</p>	<p>Statement of certified navigation accuracy.</p>		

SECTION IV APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

Main Heading	Expanded areas to be addressed by application	Sub-requirement	Operator's Operations Manual Reference or Document Reference
2.3. Navigation Accuracy (Continued)	<p>± 1NM for 95% of the flight time for initial and intermediate approach segments.</p> <p>± 0.3NM for 95% of the flight time for final approach segments.</p> <p>± 1NM for 95% of the flight time for missed approach segments (if specified as RNAV).</p>		
2.4. Quality Control. Navigation database integrity checks	<p>Details of the supplier of the navigation database, the supplier's approval status and, where necessary, additional quality assurance/data integrity checks applied by the operator or the supplier.</p> <p>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 http://eurocae.eu and http://www.rtca.org.)</p>		
2.5. Maintenance	<p>Details of maintenance procedures applicable to the navigation system and associated Databases.</p>		
2.6. SID/STAR Plate supplier	<p>Show how you audit your supplier's approach procedures in order to establish the effectiveness of your supplier's quality system.</p>		
2.7. Feedback and reporting of errors found/ Error reporting	<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 without delay. Any database or chart anomaly identified during RNAV operations must be reported to the CAA through the MOR scheme.</p>		

SECTION IV APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

Main Heading	Expanded areas to be addressed by application	Sub-requirement	Operator's Operations Manual Reference or Document Reference
<p>2.8. Loading of Navigation Database</p>	<p>Process to ensure that there is no possible corruption in the content of the database on the RNAV/GNSS system.</p>		
<p>3.0. Standard Operating Procedures</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 RNP approach operations.</p> <p>Required equipment list.</p> <p>Statement that autopilot/flight director should be used whenever possible (must be used for Baro-VNAV).</p> <p>SOPs for which pages should be displayed on the FMC for RNP approach (PF and PNF).</p> <p>Database Validity Check.</p> <p>Monitoring of system navigation accuracy.</p> <p>Approach Validity Check including confirmation of procedure track and distance.</p> <p>Navigation System Downgrade Procedure.</p> <p>Contingency procedures if unable to meet RNP.</p> <p>Statement that crew should not manually insert WPs into the procedure.</p> <p>Statement that crew should not carry out RNP approach operations until suitable training completed.</p>	

SECTION IV APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

Main Heading	Expanded areas to be addressed by application	Sub-requirement	Operator's Operations Manual Reference or Document Reference
3.0. Standard Operating Procedures (continued)		<p>Details of procedures to be used in the event of missed approach, e.g. conventional missed approach or RNAV.</p> <p>APV Baro-VNAV: Use of GNSS altitude information prohibited.</p> <p>Procedures for cross-checking altimeters and pressure settings.</p> <p>Procedures for the use of temperature compensation.</p> <p>Deviations above/below vertical path should not exceed +100/-50 feet (missed approach if exceeded).</p>	
4.0. Operations Manuals	Part A	<ul style="list-style-type: none"> • RNAV concepts. • Navigation accuracy assessment at dispatch, for destination and alternates. • RTF phraseology. • MEL handling. • SOPs. • Crew Authorisation required/validation. 	
	Part B	<ul style="list-style-type: none"> • Technical information and MEL. 	
	Part D	<ul style="list-style-type: none"> • Training programme (Modular) in accordance with RNP approach operations. 	
4.1. Pre-Dispatch		<ul style="list-style-type: none"> • MEL. • RAIM/AIME. • NOTAMs/Navigation infrastructure. • Crew qualified. • Database valid. 	

SECTION IV APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

Main Heading	Expanded areas to be addressed by application	Sub-requirement	Operator's Operations Manual Reference or Document Reference
4.2. Training package		<ul style="list-style-type: none"> Compliant with Flight Crew Training and Testing requirements for RNP approach Operations. 	

SECTION IV APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

RNP Approach Modular Training Package

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

SECTION IV APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

RNP Approach Modular Training Package

Type of Operation	Training Required	Training Means	Operator's Operations Manual Reference or Document Reference
<p>RNP Approach</p>	<ul style="list-style-type: none"> • Definition of RNP APCH operations and its direct relationship with RNAV (GNSS) procedures. • Regulatory requirements for RNP APCH operations. • Required navigation equipment for RNP APCH operations: <ul style="list-style-type: none"> ○ GPS concepts and characteristics. ○ RNP/ANP requirements. ○ RAIM. ○ Baro-VNAV ○ MEL. • Procedure characteristics: <ul style="list-style-type: none"> ○ Chart depiction. ○ Aircraft display depiction. ○ Minima. • Retrieving an RNP APCH (or an RNAV (GNSS)) approach procedure from the database. • Change arrival airport and alternate airport. • Flying the procedures: <ul style="list-style-type: none"> ○ Use of autopilot, autothrottle and flight director. ○ Flight Guidance (FG) mode behavior. ○ Lateral and vertical path management. ○ Adherence to speed and/or altitude constraints. ○ Fly direct to a WP. ○ Determine lateral and vertical track error/ deviation. ○ Fly interception of an initial or intermediate segment of an approach following ATC notification. ○ Where the RNAV system supports interception of the extended final approach segment then flight crew should be trained in use of the function. ○ The use of other aircraft equipment to support track monitoring and weather and obstacle avoidance. ○ Contingency procedures in case of lateral mode failure (LNAV) and vertical mode failure (VNAV). • For APV Baro-VNAV operation, a clear understanding of specific crew requirements: <ul style="list-style-type: none"> ○ for comparisons of VNAV guidance with primary altimeter information; ○ for altitude cross-checks between primary altimeters (e.g. altimetry comparisons of 100 ft); ○ for temperature limitations on instrument procedures; and ○ for altimeter settings in terms of currency, accuracy and integrity. 	<p>Some or all of:</p> <ul style="list-style-type: none"> • Operations Manual content; • handouts (paper or electronic); • CBT; and • classroom; and: • Line Training. 	

SECTION IV APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

RNP Approach Modular Training Package

Type of Operation	Training Required	Training Means	Operator's Operations Manual Reference or Document Reference
RNP Approach (continued)	<ul style="list-style-type: none"> • The effect of temperature deviation and its compensation. • ATC procedures. • Abnormal procedures. • Contingency procedures. 		

Any further comments to support your application: