

 <p>Samgöngustofa ICELANDIC TRANSPORT AUTHORITY</p>	For ICETRA only: Application received, Date.	FRD-035 Date: 29.09.2014 Version 1.3
Flight Division	Case Nr.	Page 1 of 10

APPLICATION FOR RNP APPROACH OPERATIONAL APPROVAL OR RENEWAL

Applicants adding Airframe only without any changes to existing RNP APCH approval need only complete Section A,C and D 2.0 and 2.1. Application may be completed electronically.

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 the Flight Operations Policy

(Commercial) Section of the Safety Regulation Group at the address listed in the 'Notes for Completion'.

Section A Page 1	Operator/Airframe Details	Completion Mandatory
Section B Page 2	RNP Approach Notes for Completion	
Section C Page 2	Applicants Signature Block	Completion Mandatory
Section D Pages 3-8	Operator's RNP Approach Submissions Matrix	Completion Mandatory

SECTION A

OPERATORS/AIRFRAME DETAILS

1. Applicants Details required for all Approval requests		
Please give the official name or AOC number, Business address, e-mail address, contact telephone numbers of the applicant.		
2. Aircraft Details Required for all approval requests (may be extended on separate sheet, as required)		
Airplane Type	Airplane Series	Registration

SECTION B

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 EASA AMC 20-27. Additional Guidance can be found in: UK CAA FODCOM 04/2008 ICAO Doc 9613 Manual of Performance-Based Navigation ICAO Doc 8168 Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS)</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 Submission Matrix
<p>Section D of this application form is the Operator's RNP Approach Submissions Matrix. All applicants should complete Column 4 of this matrix in full <u>except Operators having RNP APCH approval and adding Airframe to existing approval, without any change to existing OM's shall complete Section A,C and D 2.0 and D2.1.</u> 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>
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 Icelandic Transport Authority/ICETRA . Original documents should not be sent, electronic form is preferred (CD/DVD or USB) Do not send complete manuals, only the relevant sections/pages will be required.</p>
4. Submission of the Application
<p>Icelandic Transport Authority / ICETRA Flight Safety Division - Tel +354 480 6000, Fax +354 480 6003, E-mail: FRD@ICETRA.is Ármúli 2, 108 Reykjavík Iceland</p>

SECTION C

SIGNATURE BLOCK

<p>Signature:</p> <p>Name: (Block letters).....</p> <p>Date:.....</p> <p>Application process may require up to 60 working days.</p>

SECTION D APPLICANT'S RNP APPROACH SUBMISSIONS MATRIX

Main Heading	Expanded areas to be addressed by application	Sub- Requirements	Operator's Operations Manual Reference or Document Reference
1.0 Reference Documents used in compiling submission	Your submission should be based on current up to date regulatory material.	EASA AMC 20-25 EASA AMC 20-27 ICAO Doc 8618 PANS-OPS ICAO Doc 9613 FODCOM 04/2008	
2.0 Airworthiness Navigation System Capability compliance statement	Give reference to Navigation System capability, e.g. GNSS stand-alone equipment should be approved in accordance with ETSOC129a.	ETSO-C129a/ETSO-C145 ETSO C106 (In CS-ETSO on the EASA website http://www.easa.europa.eu) ARINC 424, 706	
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).		
2.2 Loading of Navigation Database	Process to ensure that there is no possible corruption in the content of the database on the RNAV/GNSS system.		
2.3 Feedback and reporting of errors found	Outline your process for error reporting/ withdrawal of operational use of procedures. 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 ICETRA through the MOR scheme.		

Main Heading	Expanded areas to be addressed by application	Sub-requirement	Operator's Operations Manual Reference or Document Reference
2.4 Navigation System FMS/Autopilot interface capability.	Full details of the Navigation System including type and number, e.g. specific capability. These details are given in AMC 20-27.	Required for Baro-VNAV: <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 	
2.5 Navigation System FMS/Autopilot interface capability (continued)		Baro-VNAV: <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 . 	
2.6 Navigation Lateral Accuracy	$\pm 1\text{NM}$ for 95% of the flight time for initial and intermediate approach segments. $\pm 0.3\text{NM}$ for 95% of the flight time for final approach segments. $\pm 1\text{NM}$ for 95% of the flight time for missed approach segments (if specified as RNAV).		
2.7 Quality Control. Navigation database integrity checks	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>2.8 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. 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. 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>	
		<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:</p>	
		<p>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>			

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

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: <p>Verification and sensor management.</p> <p>Tactically modifying the flight plan.</p> <p>Addressing discontinuities.</p> <p>d) Entering associated data such as:</p> <ol style="list-style-type: none"> i) Wind. ii) Altitude/speed constraints. iii) Vertical profile/vertical speed. <ul style="list-style-type: none"> • 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 Performance Based Navigation concepts is required for all types of RNAV/RNP operations. Credit may be given/taken for Previous Basic Area Navigation concept Training when adding a qualification for further type(s) of Performance Based 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. 	

Type of Operation	Training Required	Training Means	Operator's Operations Manual Reference or Document Reference
RNP Approach	<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: Use of autopilot, autothrottle and flight director. Flight Guidance (FG) mode behaviour. <ul style="list-style-type: none"> * 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. 	Some or all of: <ul style="list-style-type: none"> • Operations Manual content; • Handouts (paper or electronic); • CBT; and • Classroom; and: Line Training. 	

Type of Operation	Training Required	Training Means	Operator's Operations Manual Reference or Document Reference
RNP Approach (continued)	<ul style="list-style-type: none"> * 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 feet) * for temperature limitations on instrument procedures; and * for altimeter settings in terms of currency, accuracy and integrity. • The effect of temperature deviation and its compensation. • ATC procedures. • Abnormal procedures. • Contingency procedures. 		

Risk analysis and management process of PBN RNP APCH operations

ORO.GEN.200	SPA. PBN. Operations.	Doc. Ref.
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Any Further Comments or additional information to Support Your Application:

ICETRA SPA.PBN. RNP. APCH Final approval with issue of New Operators Specifications:

Name of Inspector and Signature: