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OPERATOR SPECIAL APPROVAL REQUIREMENTS FOR EROS (FYWE) RNP APCH RWY 01 PROCEDURES

INTRODUCTION

1. This AIC details requirements for operators wishing to conduct RNP APCH RWY 01 Procedures at Eros (FYWE).
2. NCAA special approval is required for those operators who wish to conduct the above approach.
3. No special approval is required for RNP APCH RWY 19.

BACKGROUND

4. Eros (FYWE) aerodrome is situated in an obstacle rich environment. It also has a relatively short and narrow runway. Due to the terrain to the south of the aerodrome, the Vertical Path Angle (VPA) for the approach to Runway 01 exceeds 6.1% / 3.5^{O} (3.5 degrees), which is the maximum **standard** descent angle according to ICAO DOC 8168. The VPA for the RNP APCH RWY 01 is 7.5% / 4.3^{O} (4.3 degrees).

OPERATOR REQUIREMENTS

3 All operators wishing to conduct RNP APCH RWY 01 Eros will require NCAA special approval for eligible aircraft. Some aircraft may be excluded by manufacturer imposed limitations.

4 The following requirements will apply:

a. Conduct an aeronautical study (including non-normal operations), as contained in Appendix 1, for each aircraft performance category wishing to conduct RNP APCH RWY 01 Eros;

b. Conduct flight validation of the RNP APCH RWY 01 procedure and include results in the approval application for each aircraft performance category;
NOTE 1: any flight validation must be conducted by day in VMC only
NOTE 2: flight validation may be conducted in a simulator appropriate for the aircraft type
NOTE 3: a sample flight validation form is attached at Appendix 2

c. Provide a risk assessment and mitigation strategy for the RNP APCH RWY 01 operation in accordance with ICAO DOC 9859 Safety Management Manual (SMM);

d. Request NCAA Special Approval using the Five Phase Approval Process;
NOTE: an operator may include the specific information required in a. and b. above in an initial application for RNP APCH approval; and

e. Receive NCAA Special Approval

APPROVAL

5 Part 127 operators do not require special approval for approach angles up to 13.2% and as such do not require special approval for this approach. Part 127 operators are permitted to fly RNP APCH to CAT A minima.

6 Part 91, Part 121, and Part 135 operators must make application to the NCAA.

7 Once satisfied that all aspects of the approval process have been received and duly considered, The Authority will issue an approval for the conduct of RNP APCH RWY 01 FYWE, provided the granting of such approval will not compromise aviation safety, and for;

   a. Part 121, and 135 operators as an addition to their Navigation Specifcations as endorsed on their Air Operator Certificate; or
   b. Part 91 operators, as a Letter of Authorisation (LoA).

APPENDIX 1

Windhoek-Eros - Aeronautical study

The final descent angle for the LNAV and LNAV/VNAV approach for the runway 01 is 4.3°, the same as the PAPI angle for this runway. According to PANS-OPS (ICAO Doc 8168, Vol. 2) the maximum standard descent angle is 3.5°.
However greater descent angles can be used based on the following statements.

PANS-OPS, Part III - Section 3, Chapter 4, paragraph 4.2.1.3 states:
A procedure with a promulgated VPA that exceeds 3.5° is a non-standard procedure.
It shall be subject to an aeronautical study and will require special approval by the national competent authority.

PANS-OPS, Part I - Section 4, Appendix B to Chapter 5 states:
1.1 Following changes in the PANS-OPS criteria (e.g.: maximum descent gradient changed from 6.5 per cent to 6.1 per cent for Cat C, D, E) some existing non-precision approach procedures at aerodromes with an obstacle rich environment cannot comply with the maximum descent gradients of the final segment.
1.2 Steep angle approach procedures do not meet PANS-OPS criteria. Such nonstandard procedures should only be published after careful consideration that at least includes an aeronautical study and a special approval by the appropriate State authority.
3. The Aeronautical Study required before implementation of steep angle approach procedures should take into account all the circumstances surrounding the approach and identify risk assessments which have been considered.
In this study consideration should be given to at least the following items:

a) minimum drag configuration;
b) effect of wind shear; maximum tail wind;
c) control laws;
d) handling characteristics;
e) minimum power for anti-icing;
f) GPWS modifications;
g) use of flight director/autopilot;
h) engine spin-up time;
i) Vat increase for handling considerations;
j) weather minima;
k) visual aids;
l) crew training and qualifications; and
m) aircraft certification requirements.

Appendix 2

VALIDATION TEMPLATES FOR FIXED-WING AIRCRAFT

The following sample checklist and report templates contain suggested minimum data and information required to be recorded during the validation process. If certain items are not applicable to the intended IAP, identify those items by striking them out or using the term “N/A”. These forms must be signed.

C.1 Preflight validation checklist — fixed wing

PREFLIGHT VALIDATION CHECKLIST — FIXED WING				
REPORT HEADER				
Date:		Validation type (new/amended procedure):		
Organization:				
Procedure title:				
Location:				
Airport:		Runway:		
Evaluator's name/telephone no.:				
PBN navigation specification:				
PREFLIGHT VALIDATION				
			SATISFACTORY	
			YES	**NO**
IFP package forms, charts and maps				
Data verification (e.g. aerodrome/heliport, aeronautical, obstacle, ARINC coding)				
Location of the controlling obstacles				
Correctness and complexity of the graphical depiction (chart)				
Intended use and special requirements				
Overall design (i.e. practical, complete, clear and safe)				
Impact on the procedure of waivers to standard design criteria				
Segment lengths and descent gradients allow for deceleration/configuration				
Comparison of FMS navigation database with the IFP design, coding and relevant charting information				
Charting of notification of cold/warm temperature limits				
Flight inspection reports available				
REMARKS				
Simulator evaluation needed			**YES**	**NO**
Flight evaluation needed			**YES**	**NO**
PROCEDURE	**PASS**		**FAIL**	
EVALUATOR'S SIGNATURE: Date:				

C.2 Simulator evaluation checklist — fixed wing

SIMULATOR EVALUATION CHECKLIST — FIXED WING				
REPORT HEADER				
Date:	Validation type (new/amended procedure):			
Organization:				
Procedure title:				
Location:				
Airport:	Runway:			
Evaluator's name/telephone no.:				
PBN navigation specification:				
			SATISFACTORY	
			YES	**NO**
Comparison of FMS navigation database and source documents, including proper ARINC 424 coding				
Provide simulator documentation, including FMS software				
Assessed faster and/or slower than charted				
Assessed at allowed temperature limits				
Assessed with adverse wind components				
Flight track matches procedure design				
Flyability				
Human Factors assessment				
ADDITIONAL REQUIREMENTS FOR SIMULATOR ACTIVITIES				
			COMPLETED	
Document the following information as satisfactory or not for each procedure segment as appropriate: heading/track, distance, TAWS alerts, flight path angle (for final segment only) and note the wind component and temperature conditions				
Note the maximum bank angle achieved during any RF segments				
Record simulation data (if applicable)				
REMARKS				
PROCEDURE	**PASS**		**FAIL**	
EVALUATOR'S SIGNATURE: Date:				

C.3 Flight evaluation checklist — fixed wing

FLIGHT EVALUATION CHECKLIST — FIXED WING			
REPORT HEADER			
Date:	Validation type (new/amended procedure):		
Organization:			
Procedure title:			
Location:			
Airport:	Runway:		
Evaluator's name/telephone no.:			
PBN navigation specification:			
PLANNING			
		COMPLETED	
Check that all the necessary items from the IFP package are available, including: graphics, text, maps, submission form			
Check that the necessary flight validation forms are available			
Check that the aircraft and avionics are appropriate for the IFP being evaluated			
Does the procedure require use of autopilot or flight director?			
PREFLIGHT			
		COMPLETED	
Review preflight validation assessment			
Review simulator evaluation assessment (if applicable)			
Obstacle assessment planning: areas of concern; ability to identify and fly lateral limits of obstacle assessment area (if required)			
Verify source of IFP data for aircraft FMS (electronic or manual creation)			
Evaluate navigation system status at time of flight (NOTAM, RAIM, outages)			
Weather requirements			
Night evaluation requirement (if applicable)			
Required navigation (NAVAID) support (if applicable)			
Combination of multiple IFP evaluations			
Estimated flight time			
Coordination (as required) with ATS, procedure designer, airport authority			
Necessary equipment and media for electronic record of validation flight			
GENERAL			
		SATISFACTORY	
		YES	**NO**
IFP graphic (chart) is complete and correct			
Check for interference: document all details related to detected RFI			
Satisfactory radio communication			
Required radar coverage is satisfactory			
Verify proper runway markings, lighting and VASIS			
Altimeter sources			
Extra consideration given to non-surveyed areas			
For approach procedures with circling minima, verify controlling obstacle for each circling category			

FLYABILITY		
	SATISFACTORY	
	YES	**NO**
Comparison of FMS navigation database and source documents, including proper ARINC 424 coding. *Note.— If manual entry is used, this field is marked "N/A", and a note must be inserted in the remarks section to alert the approving authority of the procedure that a table top review of the coded procedure, or an operational assessment by a company pilot, should be completed prior to operational approval being granted.*		
Human Factors and general workload are satisfactory		
Was there any loss of RAIM?		
Was there any loss of required RNP (where applicable)?		
Missed approach procedure		
Descent/climb gradients		
Procedure flown auto-coupled		
Segment length, turns and bank angles, speed restrictions and deceleration allowance		
TAWS		
INSTRUMENT APPROACH PROCEDURE		
	SATISFACTORY	
	YES	**NO**
Segment lengths, headings/tracks and waypoint locations match procedure design		
Final segment vertical glide path angle (if applicable)		
Threshold crossing height (LTP or FTP), if applicable.		
Course alignment		
Along-track alignment		
FAS data block		
REMARKS		

PROCEDURE	**PASS**		**FAIL**	

EVALUATOR'S SIGNATURE:

Date:

C.4 Validation report checklist — fixed wing

VALIDATION REPORT CHECKLIST — FIXED WING				
REPORT HEADER				
Date:		Validation type (new/amended procedure):		
Organization:				
Procedure title:				
Location:				
Airport:		Runway:		
Evaluator's name/telephone no.:				
PBN navigation specification:				
POST FLIGHT				
				COMPLETED
Evaluate collected data				
Submit flight validation report with recorded electronic flight data for archives				
Request NOTAM action (if appropriate)				
Sign and submit the IFP submission documentation				
REMARKS				
PROCEDURE	**PASS**		**FAIL**	
EVALUATOR'S SIGNATURE: Date:				