PBN SOP
Exercises

Purppose of the exercise

- Purpose is to write operational procedures for RNAV 1 Navigation

- With the help of the checklist provided in the following slides

OPS procedures Checklist

Headings		Operations Manual reference	Check
0.0 Identification of the request			
1.0 Aircraft eligibility	Acceptable Means of Compliance (AFM, POH)		
2.0 Navigation System	Introduction to PBN Pilot's guide Airline criteria Sensors (Ex : GNSS, DME/DME, DME/DME/IRS, IRS) Navigation system limitations (before entry PBN airspace)		
3.0 MEL	In accordance with 1.0 and 2.0		
4.0 Normales Procedures	**Flight Preparation** MEL Management Flight Plan Procedure selection NOTAM Checking Navigation Database Checking (currency) RAIM prediction (if applicable) FDE prediction(if applicable)		

OPS Procedures Checklist

Normal Procedure	**Use** Initialization of the system Check PBN Procedure against Charts NSE management (accuracy / integrity) FTE Management		
5.0 Abnormal Procedures	Identification of PBN loss capability Phraseology / ATC contact Contingency Procedure		
6.0 Navigation database Management	LOA type 2		
	Navigation database distribution process Errors feedback management		
7.0 Crew's training	See applicable check-list		

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Checklist for Crew's training

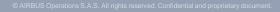| Crew Training	Requirements	Reference and Means – CBT Handouts (paper or electronic)	check
PBN in general	Theory of RNAV, Difference between RNAV and RNP, introduction of OBPMA, different navigation specification (RNAV 10, RNAV1, RNP 1, RNP 4,…) Charting, database and avionics issues including: Waypoint naming concepts. RNAV Path terminator concepts and especially: • Use of the 'CF' path terminator. • Use of the 'TF' path terminator. Fly-by and fly-over waypoints.	See the part D	
Use of the Navigation System to fly the PBN procedure	Use of the RNAV equipment including, where appropriate: Retrieving a procedure from the database. Verification and sensor management. Impact of the PBN procedure Tactically modifying the flight plan. Addressing discontinuities. Entering associated data such as: • Wind. • Altitude/Speed constraints. • Vertical Profile/Vertical Speed. Flying the procedure. • Use of Lateral Navigation Mode and associated lateral control techniques. • Use of Vertical Navigation Mode and associated vertical control techniques. Use of automatic pilot, flight director and auto-throttle at different stages of the procedure.		
Phraselogy	RT phraseology for RNAV	See part C	
Failures and PBN capability	Contingency Procedures	See part C	

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- Example of SOPs

RNAV 1 Ops manual Example - departure

A380   FLIGHT CREW OPERATING MANUAL
Procedures
Normal Procedures   FCOM 01.01.01
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4 DEPARTURE SELECTION

PF   DEPARTURE.. CHECK/SELECT

    ② *Check the selected departure, and select the runway, SID and TRANS, as appropriate.*
    ② *If the company route already has the departure procedure, check this departure.*

  If a P-RNAV SID is planned:

    GPS PRIMARY...CHECK AVAILABLE FOR DEPARTURE

      NOTE
      If 24 or more GPS satellites are operative, GPS PRIMARY is available worldwide, without interruption.
      If the number of satellite is 23 or less: Check   r GPS PRIMARY availability.

PF   ARRIVAL...SELECT

    Select the most probable arrival (runway, STAR and TRANS) in order to have a realistic ETA, and establish a strategy for the flight (RTA, Cost Index).
    The ETA is also used by ground systems.

11 ACTIVE F-PLN CHECK

PF   ACTIVE F-PLN...CHECK and COMPLETE AS APPROPRIATE

Modify the active flight plan, as appropriate, depending on the data provided by the ATIS, ATC, or MET.

- ② *Lateral revision at departure airport*
- ② *Lateral revision at waypoint for route modification , as appropriate*
- ② *Vertical revision for climb speed limit/constraints in accordance with ATC clearance. Enter step altitudes as appropriate*
- ② *Lateral revision for arrival*

Check the F-PLN and ND PLAN mode versus the two following:

- *The navigation charts.*

CAUTION

When an unusual P-RNAV SID   is selected, also check the coordinates of the waypoints to be flown below the MSA.

5 FMS

② For additional training-oriented information, *refer to FCTM - Descent Preparation*.

PF   ARRIVAL PAGE.. COMPLETE/CHECK

- ② *Insert APPR, STAR, TRANS, and APPR VIA, if applicable*
- ② *If the _____ message appears on the FMS message area, the flight crew will fly the NPA without the FLS function.*

Crosscheck the APPR and STAR versus the approach chart, in particular:

- *Overfly/ fly by waypoints*
- *Waypoint crossing altitudes*
- *Tracks and distances*
- *Final approach slope (+/- 0.1°)*
- *When flying an NPA, MAP coordinates, via the DATA/WAYPOINT page on the MFD (+/-0°00.1)*

CAUTION

When an unusual P-RNAV STAR _____ is selected, also check the coordinates of the waypoints to be flown below the MSA.

When a P-RNAV STAR is selected in the FMS navigation database, it must not be modified.

If an ATC clearance modifies the published P-RNAV STAR, only the following modes can be used:

- *DIR TO function in NAV mode*
- *HDG mode*
- *Insertion of waypoints contained in the FMS navigation database in NAV mode.*

End of the presentation

Thank you for your attention – Any question ?